

Appendix 2B Ten West Link Project Plans

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2B.1 TWL PROPOSED PLANS

Plans available as a part of the final EIS are contained in this appendix following the lists of plans. If not contained as a part of the FEIS, plans will be provided prior to BLM issuance of the Notice to Proceed.

The following is a list of applicant committed plans:

- Environmental Compliance Management Plan
- Site plan for Soils and Hydrology, to include:
 - Soil Management Plan
- Plant and Wildlife Species Conservation Measures Plan, to include:
 - Nuisance Animal Plan
 - Mojave Desert Tortoise Protection and Compensation Plan (CPUC requirement)
- Mojave Fringe-toed Lizard Avoidance and Clearance Plan
- Raven Management Plan
- Avian Protection Plan, to include:
 - Bird and Bat Conservation Strategy (BBCS)
 - Bat Management and Protection Plan (CPUC requirement)
 - Burrowing Owl Nesting Management Plan & Nest Management Plan within the BBCS
 - Nesting Bird Management Plan (Part of BBCS)
- Vegetation Management Plan, to include:
 - Succulent Management
 - Linear ROW Rare Plant Protection Plan for Harwood's eriastrum
 - Noxious Weed Management Plan
 - Special Status Plant Transplantation and Compensation Plan (CPUC requirement)
 - Invasive Species Management Plan
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 - Habitat Reclamation and Monitoring
 - Visual Mitigation Plan
- Historic Properties Treatment Plan
- Paleontological Resources Treatment, Monitoring, and Discovery Plan (BLM and CPUC requirement)
- Stormwater Pollution and Prevention Plan (SWPPP), to include:
 - Erosion and Sediment Control Plan
- Spill Prevention, Control and Countermeasure (SPCC) Plan, to include:
 - Waste Management Plan
- Stream, Wetland, Well, and Spring Protection Plan
- Health and Safety Plan
- Asbestos Dust Mitigation Plan
- Fugitive Dust Control and Construction Emissions Mitigation Plan
- Blasting Plan
- Environmental Health and Safety Plan (environmental training and safety practices)
- Hazardous Materials Management Plan, to include:
 - Hazmat Containment Plan

- Inventory of Equipment and Materials to cover each hazardous material used at any time during the life of the Project
- Emergency Preparedness and Emergency Response Plan, to include
 - Fire services agreements
- Access Road Plan
- Traffic and Transportation Management Plan
- Helicopter Flight Plan/Flight and Safety Plan
- Fire Protection and Fire Prevention Plan
- Decommissioning Plan
- Compensatory Mitigation Plan

2B.2 CMA REQUIRED PLANS

The following is a list of CMA plans required in order to comply with the CDCA Plan of 1980, as amended.

CMA	PLAN NAME	BLM NOTES
LUPA-BIO-6	Raven Management Plan	
LUPA-BIO-7, etc.	Habitat Restoration Plan	Offered by the applicant in conjunction with the POD.
LUPA-BIO-9	HazMat Containment Plan – to include accidental spill controls	Prepare in collaboration with the BLM HazMat specialist. A list of anticipated HazMat will be prepared and updated in the event that new hazardous materials come into use.
	An inventory of equipment and materials to cover each hazardous material used at any time during the life of the project.	"Appropriate" equipment and materials will follow specific recommendations for individual HazMat types in BLM Handbooks, US EPA guidelines, and from the California Department of Toxic Substance Control (DTSC).
LUPA-BIO-10	Weed Control Plan	Offered by the applicant in conjunction with the POD.
LUPA-BIO-16	Bird and Bat Conservation Strategy (BBCS)	Will provide guidance on pre-construction conservation measures and other bird and bat CMAs.
LUPA-BIO-IFS-12	Burrowing Owl Nesting Management Plan & Nest Management Plan within the BBCS	If burrows cannot be avoided, LUPA-BIO-IFS-13 applies. Need to address in BBCS, burrowing owl nesting management plan (separate document) and a nest management plan within the BBCS.
LUPA-BIO-RIPWET-1	Nesting Bird Management Plan	Part of BBCS
LUPA-BIO-PLANT-2	Linear ROW Rare Plant Protection Plan for Harwood's eriastrum	
LUPA-BIO-PLANT-2	Invasive Species Management Plan	Must be specific to rare plant habitat.

CMA	PLAN NAME	BLM NOTES
LUPA-AIR-3	Environmental Compliance Management Plan	In California, the agency policy about the project also meeting the applicable California Air Quality Standards established by the California Air Resources Board needs clarification.
	Construction Emissions Mitigation Plan	
LUPA-AIR-5	Fugitive Dust Control Plan	
LUPA-SW-7	Emergency Response Plan – to include any fire services agreements	
LUPA-SW-8	Site plan for Soils and Hydrology	
DFA-VPL-BIO-FIRE-1 and BIO-DUNE-1	Fire Prevention Plan	The plan would be site specific for the transmission lines or any other construction activity that might cause a fire. The plan would set standards for the project site dealing with these issues. There are California Fire Codes and National Fire Protection Association (NFPA) codes that they would be required to meet for the project also. Mitigation is a key to preventing/ lowering the risk of a fire starting.
LUPA-BIO-DUNE-5	Mojave Fringe-toed Lizard Avoidance and Clearance Plan	

2B.3 PLANS REQUIRED BY MITIGATION

- Worker Environmental Education Program

2B.4 OTHER AGENCY-REQUIRED PLANS

Other agency-required plans include:

- Mitigation Action Plan (Western Area Power Administration)
- EMF Management Plan (CPUC)
- Special-Status Plant and Sensitive Vegetation Community Mitigation and Monitoring Plan (CPUC)
- Burrowing Owl Avoidance, Minimization, and Mitigation Plan (BOAMMP) (Part of BBCS) (CPUC)
- Cultural Resources Monitoring and Discovery Plan (CPUC)
- Field Management Plan (EMF reduction measures) (CPUC)
- Nesting Bird and Bat Management Plan (NBBMP) (CPUC)

2B.5 AVIAN PROTECTION PLAN

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June 2019

BUREAU OF LAND MANAGEMENT

Ten West Link Transmission Project

Avian Protection Plan/Bird and Bat Conservation Strategy

PROJECT NUMBER:
154320

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Avian Protection Plan/Bird and Bat Conservation Strategy

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ATTACHMENTS

ATTACHMENT A AVOIDANCE AND MINIMIZATION MEASURES

DRAFT

ACRONYMS AND ABBREVIATIONS

AZGFD	Arizona Game and Fish Department
APLIC	Avian Power Line Interaction Committee
APM	Applicant Proposed Measure
APP	Avian Protection Plan
AZ	Arizona
BBCS	Bird and Bat Conservation Strategy
BGEPA	Bald and Golden Eagle Protection Act
BIO	Biology
BMP	Best Management Practices
BLM	Bureau of Land Management
CA	California
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CMA	Conservation and Management Action
CPUC	California Public Utilities Commission
DCRT	Delaney Colorado River Transmission, LLC
DFA	Development Focus Area
DRECP	Desert Renewable Energy Conservation Plan
EIS	Environmental Impact Statement
ESA	Endangered Species Act
kV	kilovolt
LUPA	Land Use Plan Amendment
MBTA	Migratory Bird Treaty Act
MM	Mitigation Measure
NRCS	Natural Resources Conservation Services
O&M	Operation and Maintenance
POD	Plan of Development
Project	Ten West Link Transmission Project
Proponent	Delaney Colorado River Transmission, LLC
Reclamation	United States Bureau of Reclamation
ROD	Record of Decision
ROW(s)	right(s)-of-way
SCS	Series Compensation Station
SGCN	Species of Greatest Conservation Need
SSC	Species of Special Concern
Ten West Link	Ten West Link Transmission Project
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
WEAP	Worker Environmental Awareness Program

1 Introduction

1.1 Purpose

The purpose of this Avian Protection Plan (APP)/Bird and Bat Conservation Strategy (BBCS) is to provide a description of measures that will be implemented by Delaney Colorado River Transmission, LLC (DCRT) to reduce potential impacts to birds and bats associated with the construction and operation of the Ten West Link Transmission Line Project (Project or Ten West Link). This plan provides specific information for implementing the applicable Applicant Proposed Measures (APMs), Bureau of Land Management (BLM)-Required Best Management Practices (BMPs), and Mitigation Measures (MM) contained within the Final Environmental Impact Statement (EIS).

1.2 Organization of This Plan

APMs, BMPs, and MMs contained within the Final EIS require DCRT to document a strategy for avoiding, minimizing, monitoring, and mitigating impacts to birds as a result of the Project. Specific documentation referred to in the APM/BMPs and California Environmental Quality Act (CEQA) MMs includes an Avian Protection Plan (APM/BMP BIO-21 and MM WIL-CEQA-1), Burrowing Owl Nesting Management Plan (BIO-30; referred to as a Burrowing Owl Avoidance, Minimization, and Mitigation Plan in MM WIL-CEQA-3), and Bird and Bat Conservation Strategy (BIO-29 and MM WIL-CEQA-1), which is to include a Nesting Bird Management Plan (BIO-29) and Nest Management Plan (BIO-29). The Nesting Bird Management Plan and Nest Management Plan, referred to in BIO-29, are collectively referred to as a Nesting Bird and Nest Management Plan in MM WIL-CEQA-1. MM WIL-CEQA-1 and MM WIL-CEQA-4 indicate that the BBCS must also include a Bat Management and Protection Plan.

To avoid redundancy and confusion, all avian and bat protection documentation is integrated into this single document—the Avian Protection Plan/Bird and Bat Conservation Strategy (APP/BBCS). The sections of this APP/BBCS include a Nesting Bird Management Plan (Section 6), Nest Management Plan (Section 7), Burrowing Owl Nesting Management/Avoidance, Minimization, and Mitigation Plan (Section 8), and Bat Management and Protection Plan (Section 9).

The avoidance, minimization, and mitigation requirements associated with the EIS, CEQA, and Desert Renewable Energy Conservation Plan (DRECP) Land Use Plan Amendment (LUPA) are in many cases more stringent for California than for the Project as a whole. Within Section 3, measures that apply only within California are listed separately from measures that apply Project-wide within Arizona and California. As such, some components and sections of this plan apply only within California and where applicable that is indicated within the section heading and contents. Sections and content that do not specifically indicate California only apply within Arizona and California.

This Draft APP/BBCS was developed concurrent with development of the Final EIS, and prior to issuance of the Final EIS and Record of Decision (ROD). A final APP/BBCS will be developed with the final Plan of Development (POD), after issuance of the ROD and prior to issuance of the Notice to Proceed.

1.3 Project Description

A detailed Project description, maps of the Project area, and pole diagrams are provided in the POD. A summary Project description is provided here. The Project will consist of a single-circuit, series-compensated, 500 kilovolt (kV) transmission line. The Project will begin at the Delaney Substation near Tonopah, Arizona, and terminate at the Colorado River Substation near Blythe, California. The Project is located in Maricopa and La Paz Counties in Arizona, and Riverside County in California. The Project route (BLM Preferred Alternative) parallels an existing transmission line and other linear facilities, primarily within designated utility corridors.

Approximately 103 miles of the Project are located in Arizona and 22 miles are located in California; most of the route, 81.2 miles, will cross federal and state lands, including lands managed by the BLM, Bureau of Reclamation (Reclamation), and the state of Arizona. A 0.2-mile section of the Project spans Department of Defense land (Yuma Proving Ground military installation).

Construction, operation, and maintenance activities will occur primarily within a 200-foot-wide right-of-way (ROW). The Project will also include upgrades at both the Delaney and Colorado River Substations. Up to four temporary staging areas are required for material staging and laydown yards during construction.

The proposed support structures will be steel structures of various configurations. Tangent and small-angle steel lattice structures include self-supporting, four-legged tangent structures (i.e., structures placed where the line does not angle more than one degree); guyed-V structures with a single footing and four support guy wires; and two-legged, H-frame (steel lattice or tubular steel pole) structures as the primary structure types. Permanent guy guards/markers will be installed on guy wires for the guyed-V structures as required by BMPs and mitigation measures described in the Project's Final EIS and as summarized in Appendix B of the POD. For areas of conductor tension change, large angles, and phasing transpositions, self-supporting, four-legged structures will be utilized. Steel monopoles may be used for areas of active agricultural activity and to facilitate entrance into the two substations. The structures will be between 72 and 195 feet in height, depending on the span length required and topography, with most being shorter than 142 feet. Span lengths between structures will vary from 400 to 2,300 feet, depending upon terrain conditions, current land use, and structure type used, and would be selected to achieve site-specific mitigation objectives.

The transmission line will utilize three alternating current phases of conductors. The conductors are the wire cables strung between transmission line structures over which the electric current flows. The conductors within each phase will be bundled and are typically spaced approximately 18 inches apart in an equilateral triangle configuration. Conductor bundles for all structure types except the proposed monopoles will be installed horizontal to one another (at the same height on the structure), with approximately 34 feet of spacing between the center of each conductor bundle. The static wire and optical ground wire will be approximately 30 feet above the phase conductors at the top of the structures. The minimum conductor height above ground for the transmission line will be 36.25 to 40 feet for most of the segments and 41.25 feet for the Colorado River crossing. Insulators will be used to suspend the conductors from each structure to inhibit the flow of electrical current from the conductor to the ground, the structure, or another conductor. To protect conductors from lightning strikes, two overhead ground wires will be installed on top of the structures that will transfer current from lightning strikes through the ground wires and structures into the ground. Other hardware, such as bird flight diverters, not associated with the transmission of

electricity will be installed as part of the Project. This hardware may include aerial marker spheres or aircraft warning lighting, as required for the conductors or structures by Federal Aviation Administration regulations.

The Project requires a transmission line Series Compensation Station (SCS) located at the approximate midpoint of the route. The Proposed SCS site is located near the intersection of Segments i-03 and i-04, approximately two miles south of Brenda, Arizona. The SCS will be fenced and access will be restricted. The new SCS will be connected to an existing 12 kV distribution line via a new 3.13-mile-long 12 kV line.

Access to the ROW will be provided by existing roads and trails, such as those associated with the Devers to Palo Verde transmission line and nearby pipelines, to the extent practicable. Five types of access will be used for this transmission line: existing maintained public or private roads, upgraded existing roads, new centerline access, spur roads, and helicopter access. The existing roads will be used in their present condition without improvements, unless improvements are required or are deemed to be in the Project's best interest for future use. Where existing roads can be used to access the ROW, only spur roads to each structure site will be required. Roads for access into the transmission lines will also be utilized for access to the SCS, given that the roads are adequate for the transport of materials and equipment necessary at the SCS.

After construction, Project operation and maintenance will be an ongoing activity including transmission line inspections, preventative and emergency maintenance, vegetation management including trimming and removal of vegetation within the ROW, SCS maintenance, substation maintenance, and long-term access to the ROW through general road maintenance and installation of signs and markers.

Should the ROW and facilities no longer be needed, the transmission lines and associated facilities will be decommissioned and removed. All areas of long-term disturbance will be reclaimed in accordance with a Decommissioning Plan to be developed by the ROW grant holder and approved by the BLM prior to issuance of the ROW grant. A reclamation bond will also be required per BLM bonding policy to ensure performance of reclamation activities. Access routes and other sites disturbed during decommissioning will be reclaimed and revegetated in accordance with the Decommissioning Plan (see Appendix M).

1.4 Biological Surveys

Surveys for birds and bats will be conducted in 2019 and 2020, according to the schedules provided in Table F3-1-1. As applicable, information gained in these surveys will be incorporated into the Final APP/BBCS and will inform the implementation of this plan.

TABLE F3-1-1 BIRD AND BAT SURVEYS PLANNED FOR THE PROJECT

SPECIES/SURVEY FOCUS	TIMING	LOCATION	PROCEDURES	PROJECT MITIGATION MEASURE
2019 Season				
Arizona (2019)				
Golden & Bald Eagle	February 15 – August 1	Historical Nesting areas depicted in Draft EIS Figure 3.4-4 & 3.5-9	1-mile pedestrian/visual survey in historical areas for impacted segments	CMA-LUPA-BIO-IFS-24 through CMA-LUPA-BIO-IFS-27
General Avian Surveys	Varies; January 1 to August 31	Final Route on BLM administrated lands	Pedestrian surveys	APM-BIO-20
California (2019)				
Bat hibernaculum, maternity roosts	March 1 – July 31	Suitable habitat on BLM administrated lands	Inspect for evidence of bat activity or roosting	CMA-LUPA-BIO-BAT-1, MM-BIO-CEQA-11, BMP-BIO-40
Southwestern Willow Flycatcher	1 st survey: May 15 – May 31 2 nd survey: June 1 – June 21 3 rd survey: June 22- June 17	Critical habitat at the Colorado River Crossing	Protocol survey, as per USFWS	MM-BIO-CEQA-9
Yellow-billed Cuckoo	1 st : June 15 – July 2 2 nd : August 1 – September 15	Critical habitat at the Colorado River Crossing	Protocol survey, as per USFWS	MM-BIO-CEQA-9
Arizona Bell's Vireo	April - July	Critical habitat at the Colorado River Crossing	Protocol survey, as per USFWS	MM-BIO-CEQA-9
Golden & Bald Eagle	February 15 – August 1	Historical Nesting areas depicted in Draft EIS Figure 3.4-4 & 3.5-9	1-mile pedestrian/visual survey in historical areas for impacted segments	CMA-LUPA-BIO-IFS-24 through CMA-LUPA-BIO-IFS-27
2020 Season				
Arizona (2020)				
Burrowing Owl	February 1 – August 31 (Peak: April)	All work areas of Final Route	Pedestrian sweep of work areas	BMP-BIO-25

SPECIES/SURVEY FOCUS	TIMING	LOCATION	PROCEDURES	PROJECT MITIGATION MEASURE
	15 – July 15)			
California (2020)				
Southwestern Willow Flycatcher	1 st survey: May 15 – May 31 2 nd survey: June 1 – June 21 3 rd survey: June 22- June 17	Critical habitat at the Colorado River Crossing	Protocol survey, as per USFWS	MM-BIO-CEQA-9
Yellow-billed Cuckoo	1 st : June 15 – July 2 2 nd : August 1 – September 15	Critical habitat at the Colorado River Crossing	Protocol survey, as per USFWS	MM-BIO-CEQA-9
Arizona Bell's Vireo	April - July	Critical habitat at the Colorado River Crossing	Protocol survey, as per USFWS	MM-BIO-CEQA-9
Burrowing Owl	February 1 – August 31 (Peak: April 15 – July 15)	All work areas of Final Route	Protocol survey, as per USFWS	MM-BIO-CEQA-10, BMP-BIO-25
Bat Focus and BLM Special Status Species (including: California Leaf-nosed Bat, Pallid Bat, Townsend's Big-eared Bat)	1 – No more than 15 days prior to ground disturbance or vegetation clearing and 2 - March 1- July 31	1-Within 300 feet of Project activities 2-Suitable habitat	1-Clearance surveys 2-Inspect for evidence of bat activity or roosting	MM-BIO-CEQA-11, CMA- LUPA-BIO-DUNE-5

BLM = Bureau of Land Management; EIS = Environmental Impact Statement; USFWS = United States Fish and Wildlife Service.

2 Applicable Regulations and Permit Compliance

DCRT will obtain all necessary construction permits and ROW approvals prior to commencing construction. Additionally, the appropriate state and federal permits will be acquired from the United States Fish and Wildlife Service (USFWS), Arizona Game and Fish Department (AZGFD), and California Department of Fish and Wildlife (CDFW) prior to any handling of birds and bats, or their nests.

DCRT will comply with all applicable state and federal regulations during the construction, operation, and maintenance of the Project, including, but not limited to the regulations identified below in Sections 2.1.1 through 2.1.5.

2.1 Federal Endangered Species Act

The federal Endangered Species Act (ESA) is administered under the USFWS. The purpose of the ESA is to “provide a means whereby ecosystems upon which endangered and threatened species depend may be conserved, and to provide a program for the conservation of these species.” Section 9 of the ESA prohibits purposeful or incidental “take” of listed species, including killing or harming a listed species or its habitat. If an action with a federal nexus has potential to affect a listed species, consultation under Section 7 of the ESA is required between the lead federal agency and the USFWS.

2.2 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) of 1940 provides for the protection of bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) by prohibiting the take; possession; sale; purchase; barter; offer to sell, purchase, or barter; transport; and export or import of any bald or golden eagle, alive or dead, including any part, nest, or egg unless allowed by permit (16 United States Code [U.S.C.] § 668 (a); 50 Code of Federal Regulations Part 22.3). “Take” is defined as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb.” “Disturb” means “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available: 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”

2.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) was enacted in 1918 to put an end to the commercial trade of migratory birds and their feathers. The MBTA implements treaties and conventions between the United States, Canada, Mexico, Japan, and the former Soviet Union for the protection of migratory birds. This Act decrees that all migratory birds and their parts (including eggs, nests, and feathers) are fully protected. Under this Act, it is unlawful to pursue, hunt, take, capture, kill, possess, offer to or sell, barter, purchase, deliver, transport, or receive any migratory birds (including parts, nests, eggs or other product, manufactured or not). In practice, most bird species with non-migratory life-histories are protected under the MBTA, as well. Virtually all native bird species in the United States are protected under MBTA, with the exception of upland game birds (order Galliformes: e.g., grouse and quail). While the USFWS is the lead federal agency charged with protecting migratory birds within the United States, under Executive Order 13186 all other federal agencies are charged with conserving and protecting migratory birds and the habitats on which they depend.

Historically, incidental take (i.e., take of birds resulting from an activity when the underlying purpose of that activity is not to take birds) has been considered a violation of the MBTA. In a December 22, 2017 memorandum, M-37050 (M-Opinion), the United States Department of the Interior Office of the Solicitor issued an opinion concluding that incidental take is not a violation of MBTA. On April 11, 2018, USFWS issued a guidance Memorandum acknowledging and clarifying what changes in practice should be made in light of the M-Opinion. For example, under this guidance memo, knowingly destroying an active bird nest along with the nesting substrate (e.g., vegetation clearing for construction) does not violate MBTA unless the nest is explicitly and intentionally destroyed along with the nesting substrate (e.g., tree trimming or removal to destroy an undesired nesting colony). While

incidental take of birds is no longer considered a violation of MBTA, avoiding or minimizing take of birds to the extent practicable is still a responsible, effective, and valuable way to avoid and minimize impacts to bird populations. Furthermore, minimizing impacts to individual birds is integral to many of the APMs, BMPs, and MMs required by the POD for this Project.

2.4 Arizona State Regulations

Title 17 of the Arizona Revised Statutes grants the AZGFD the responsibilities of managing, preserving, and harvesting wildlife, and enforcing all laws for wildlife protection through the development of policies and programs including the establishment of seasons for hunting, trapping, and fishing, and game limits for all non-tribal lands in Arizona. Accordingly, AZGFD manages all wild mammals, birds, reptiles, amphibians, mollusks, crustaceans, and fish as decreed in Arizona Revised Statutes Title 17.

2.5 California State Regulations

2.5.1 California Endangered Species Act

The California Endangered Species Act (CESA; California Fish and Game Code Section 2050, et seq.) protects California's rare, threatened, and endangered species. California Fish and Game Code Sections 1900 et seq. designate rare, threatened, and endangered plants under the Native Plant Protection Act of 1977. The Proponent must consult with the CDFW regarding the possibility of "take" under the Act, similar to the federal consultation required under 16 U.S.C. § 1536. as the administering agency, the CDFW can choose to find the federal biological opinion consistent with state law (a 2080.1 consistency determination) or choose to require a separate state "take" permit (a 2081 permit) if species listed by the Act could be harmed or killed during construction or operation of a project.

2.5.2 Fully Protected Species

The legislature of the state of California designated certain species as "fully protected" prior to the creation of CESA. California Fish and Game Code Section 3511, 4700, 5050, and 5515 state that "fully protected" birds or parts thereof may not be taken or possessed at any time. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, mammals, amphibians and reptiles, and birds. Most fully protected species have since been listed as threatened or endangered under the CESA and/or ESA.

2.5.2.1 Birds

California Fish and Game Codes protect all birds, as well as their eggs and nests. Specifically: Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by California Fish and Game Commission or any regulation made pursuant thereto. Section 3503.5 states that it is unlawful to take, possess, or destroy any birds in the orders Falconiformes (raptors) or Strigiformes (owls) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by California Fish and Game Commission or any regulation adopted pursuant thereto.

3 Avoidance, Minimization, and Mitigation Requirements from the Final EIS

All APMs and BLM-required BMPs are listed in Appendix 2A of the Final EIS. Additionally, MMs required under CEQA are listed in Appendix 1C of the Final EIS. Many Conservation and Management Actions (CMAs) from the DRECP LUPA, also apply to this Project on BLM land within California. These measures will avoid and minimize Project-related bird and bat injuries and fatalities during the construction, operations and maintenance, and decommissioning of the Project. All of the CEQA MMs and LUPA CMAs, and some of the APM and BMPs are required only within California. A majority of the APMs, BMPs, and MMs are anticipated to reduce impacts to birds and/or bats, for example protecting habitat by minimizing vegetation clearing and restoring vegetation after construction. The avoidance, minimization, and mitigation measures (APM/BMPs and MMs) anticipated to benefit birds and bats are provided in the bulleted list below. The measures most directly applicable to implementation of this APP/BBCS are shown in **bold** and have the full text of the measure provided in Attachment A.

3.1 Measures that Apply in Arizona and California

- BIO-01: Worker Environmental Awareness Program (WEAP)
- BIO-02: Biological Monitoring and Preconstruction Survey
- BIO-03: Approved Work Areas
- BIO-04: Environmentally Sensitive Areas and Fencing
- BIO-05: Additional Prohibitions
- BIO-06: Trash Handling
- BIO-07: Monofilament Plastic
- BIO-08: Refueling
- BIO-10: Erosion and Dust Control
- BIO-11: Vegetation Management Plan
- BIO-12: Noxious and Invasive Species Control
- BIO-13: Riparian Habitat Avoidance
- BIO-14: Minimizing Vegetation Clearing
- BIO-15: Reclamation and Restoration
- BIO-16: Treatment of Saguaro Cactus
- BIO-17: Limit Off-road Vehicle Travel

- BIO-19: Colorado River
- **BIO-20: Migratory Bird Protection During Construction**
- **BIO-21: Reduction of Avian Collision and Electrocution**
- **BIO-25: Sensitive Animal Surveys**
- **BIO-29: Bird and Bat Conservation Strategy**
- BIO-32: Seasonal Restriction Dates
- **BIO-33: Construction Lighting**
- BIO-36: Feeding or Harassment of Wildlife
- BIO-38: Use of State of the Art Technology
- **BIO-39: Bird- and Bat-Friendly Fencing**
- BIO-47: Riparian Functioning Condition
- BIO-50: Engineering Controls
- BIO-51: Conductor Clearance
- BIO-52: California Riparian Habitat and Rare Plant Alliance Avoidance
- BIO-55: Access within Focus and BLM special Status Species Suitable Habitat
- MM-BIO-01: Compensation Plan
- **REC-03: Guy Wire Marking**
- APM/BMP AES-15 Lighting

3.2 Measures that Apply Only in California

- BIO-28: Raven Management Plan
- **BIO-30: Burrowing Owl Nesting Management Plan**
- **BIO-40: Project Activity Siting Near Bat Maternity Roosts**
- **BIO-45: Protection from Loss and Harassment of Golden Eagles**
- **BIO-46 Compensation for Loss of Desert Riparian Woodland**
- **BIO-48: Flight Diverters**
- **MM BIO-CEQA-2: Implement a Worker Environmental Awareness Program**

- **MM BIO-CEQA-3: Implement Biological Construction Monitoring**
- **MM-WIL-CEQA-1: Develop and Implement an Avian Management and Protection Plan (APP) and Bird and Bat Conservation Strategy (BBCS).**
- **MM WIL-CEQA-3: Develop and Implement Burrowing Owl Avoidance, Minimization, and Mitigation Plan**
- **MM WIL-CEQA-4: Develop and Implement a Bat Management and Protection Plan**
- **MM WIL-CEQA-5: Conduct Preconstruction Surveys for Maternity Colonies or Hibernaculum for Roosting Bats.**
- **MM WIL-CEQA-6: Conduct Preconstruction Surveys for Nesting and Breeding [Birds].**
- **MM WIL-CEQA-7: Conduct Focused Preconstruction Burrowing Owl Surveys.**
- **MM WIL-CEQA-8: Conduct Preconstruction Protocol Surveys for Arizona Bell's Vireo, Southwestern Willow Flycatcher, and Willow Flycatcher; Avoid Occupied Habitat; Compensate Impacts.**
- LUPA-BIO-1
- LUPA-BIO-2
- LUPA-BIO-3
- LUPA-BIO-4
- LUPA-BIO-14
- **LUPA-BIO-16**
- **LUPA-BIO-17**
- LUPA-BIO-BAT-1
- **LUPA-BIO-COMP-2**
- LUPA-BIO-DUNE-2
- **LUPA-BIO-IFS-11**
- **LUPA-BIO-IFS-12**
- **LUPA-BIO-IFS-13**
- **LUPA-BIO-IFS-14**
- **LUPA-BIO-IFS-24**

- LUPA-BIO-IFS-25
- LUPA-BIO-IFS-26
- LUPA-BIO-IFS-27
- LUPA-BIO-IFS-28
- LUPA-BIO-IFS-29
- LUPA-BIO-IFS-30
- LUPA-BIO-IFS-31
- LUPA-TRANS-BIO-1
- LUPA-TRANS-BIO-2
- LUPA-TRANS-BIO-3
- Development Focus Area (DFA)-BIO-IFS-1
- DFA-BIO-IFS-2

4 Existing Avian and Bat Resources

The Draft EIS identified three federally-listed bird species with potential to occur within the Project area: yellow-billed cuckoo (*Coccyzus americanus occidentalis*), southwestern willow flycatcher (*Empidonax traillii extimus*), and Yuma Ridgway's rail (Yuma clapper rail; *Rallus obsoletus yumanensis*; Table F3-4-1). The three species are associated with riparian (cuckoo and flycatcher) or marsh (rail) habitat along the Colorado River. The only permanent water and associated riparian vegetation in the Project area occurs along the Colorado River and in canals and drains adjacent to irrigated fields in California. The floodplain on the eastern side of the Colorado River at that crossing site is about 0.7-mile-wide, and is vegetated with sparse to moderately dense stands of tamarisk (*Tamarix* spp.) and saltbush (*Atriplex* spp.), in addition to other low shrubs. There are individual and small groups of honey mesquite (*Prosopis glandulosa*) along the eastern edge of the floodplain, but there is no overstory of cottonwoods or other native riparian tree species. The river at that location is channelized and has a thin stand of shrubs and short trees on the steep river banks. Irrigated fields are immediately west of the river at the crossing location.

According to the Draft EIS, the area east of the river has a short, patchy overstory of nonnative salt cedar and little or no understory, thus it is very unlikely that yellow-billed cuckoos or willow flycatchers nest there; however, the areas could be used infrequently during migration or other movements along the river. The nearest known suitable nesting habitat for either species is over 10 miles from the Project area (BLM 2019).

Yuma Ridgway's rail inhabits freshwater marshes in the Colorado River corridor with water greater than 12 inches deep and dense to moderately dense stands of cattails (*Typha latifolia*), bulrushes (*Schoenoplectus* spp.), and other emergent plants. However, no emergent vegetation or other suitable habitat for Yuma Ridgway's rail exists adjacent to the Colorado River at the Project crossing. Backwater channels just south of the Project area

were developed to create habitat for rare fish and have some emergent vegetation and marshes that could be used by Yuma Ridgway's rails. According to the Biological Assessment (BLM 2019), Yuma Ridgway's rails have been observed using irrigation canals and drains in the agricultural fields south and southwest of Blythe. Many of those drains have dense stands of cattails and other emergent vegetation. There is a backwater channel about 0.4 mile south of the river crossing that contains small patches of marsh habitat. Most of the length of the backwater channel has relatively steep banks and little or no marsh vegetation, but there are some small patches of cattail (*Typha latifolia*) and other marsh vegetation along the channel that might be used by Yuma clapper rails (BLM 2019).

West of the Colorado River, the transmission line route crosses numerous canals that deliver and drain water to and from irrigated fields in Palo Verde Valley. Most of the canals are lined with concrete or are cleared of vegetation. Eight of the drains, however, have about 50- to 150-foot-wide stands of vegetation along the banks of the drain, including some with narrow bands of cattail and other marsh vegetation along the bottom of the drain. Yuma clapper rails have been observed using irrigation canals and drains in the agricultural fields south and southwest of Blythe (BLM 2019). According to the BA, the species is known to use agricultural and other upland areas during dispersal and migration and is likely to pass through the Project area.

The Biological Assessment concluded that the Project may affect but is unlikely to adversely affect the three federally-listed bird species (BLM 2019).

Additional special status bird species with potential to occur in the Project area include BLM-Sensitive species, BLM-Focus species (as designated under the DRECP LUPA), California Threatened and Endangered species, California Species of Special Concern (SSC), California Fully Protected species, and Arizona Species of Greatest Conservation Need (SGCN). In addition to the three federally-listed species, there are 22 special status bird species with potential to occur within the Project area in California (Table F3-4-2) and 27 with potential to occur within Arizona (Table F3-4-3). Suitable habitat for various species occurs throughout the Project area, including within agricultural areas, which provide quality foraging habitat for some species such as raptors. Avoidance and minimization measures described throughout this APP/BBCS will protect birds wherever they occur, including within agricultural areas.

There are no federally- or state-listed threatened or endangered bat species with potential to occur in the Project area. There are six special status bat species with potential to occur within the Arizona portion of the Project area (Table F3-4-4) and eight special status bat species with potential to occur within the California portion of the Project area (Table F3-4-5).

TABLE F3-4-1 FEDERAL ESA-LISTED THREATENED, ENDANGERED, AND PROPOSED BIRD SPECIES IN OR NEAR THE PROJECT AREA¹

SPECIES	COMMON NAME	STATUS ^{2,3}	HABITAT	POTENTIAL FOR OCCURRENCE
<i>Coccyzus americanus occidentalis</i>	Western yellow-billed cuckoo	ESA: T AZ: SGCN CA: E BLM: Sensitive BLM: Focus Species	Nests in dense, wide riparian woodlands with well-developed understories. Uses adjacent upland areas for foraging,	Present along the Colorado River in suitable habitat. The nearest documented nesting occurs 10 miles north and 15 miles south of the Project. Habitat at proposed river crossings is not suitable for nesting, although this species is likely to use the habitat during

SPECIES	COMMON NAME	STATUS ^{2,3}	HABITAT	POTENTIAL FOR OCCURRENCE
			including agricultural areas.	migration. The route segments cross proposed critical habitat along the Colorado River. However, according to the Project's Biological Assessment (BLM 2019) the conditions in the Project area do not support the primary constituent elements of proposed critical habitat for this species.
<i>Empidonax traillii extimus</i>	Southwestern willow flycatcher	ESA: E AZ: SGCN CA: E BLM: Sensitive BLM: Focus species	Nests in early successional riparian willow-dominated riparian habitats. Although they typically utilize riparian habitat during migration, they are also found foraging in surrounding areas in a wide variety of vegetation and habitat types	Present along the Colorado River in suitable habitat. Habitat at proposed river crossings is not suitable for nesting, although this species could use the habitat during migration and for foraging, including adjacent agricultural areas.
<i>Rallus obsoletus yumanensis</i> (<i>Rallus longirostris yumanensis</i>)	Yuma Ridgway's rail (Yuma clapper rail)	ESA: E AZ: SGCN CA: T BLM: Sensitive BLM: Focus species	Freshwater marshes with stands of bulrushes and cattails	Known to be present in canals and drains adjacent to agricultural fields in California. The proposed crossing of the Colorado River lacks suitable marsh habitat, but there is potential habitat in nearby backwater channels.

¹ From Table 3.4-8 of the Draft EIS.

² E = Endangered; T = Threatened.

³ BLM Focus species as designated under the DRECP LUPA.
SGCN = Species of Greatest Conservation Need.

TABLE F3-4-2 SPECIAL STATUS BIRD SPECIES (NOT INCLUDING FEDERAL ESA-LISTED SPECIES) THAT COULD OCCUR WITHIN OR NEAR THE PROJECT AREA IN ARIZONA¹

SPECIES	COMMON NAME	STATUS DESIGNATION (ARIZONA/ BLM) ²	HABITAT
<i>Melospiza aberti</i>	Abert's towhee	Arizona: SGCN	Low-elevation desert riparian and desert wash habitats. Habitat includes dense vegetation, including thickets of willow, cottonwood, mesquite, and salt cedar. Likely restricted to within and near xeroriparian washes with dense shrubs and agricultural areas within Project area.

SPECIES	COMMON NAME	STATUS DESIGNATION (ARIZONA/ BLM) ²	HABITAT
<i>Botaurus lentiginosus</i>	American bittern	Arizona: SGCN	Marshlands and very wet meadows. Rarely seen away from dense reeds, rushes, cordgrass, cattails and other emergent vegetation. Within Project area, restricted to Colorado River.
<i>Vireo bellii arizonae</i>	Arizona Bell's vireo	Arizona: SGCN	Desert riparian woodlands, primarily with dense willow or mesquite. Uncommon along lower Colorado River.
<i>Haliaeetus leucocephalus</i>	Bald eagle	Arizona: SGCN BLM: Sensitive	Coasts, rivers, and large lakes. Open country and mountains during migration. Migrant and winter resident along lower Colorado River.
<i>Ceryle alcyon</i>	Belted kingfisher	Arizona: SGCN	Occurs near water and along banks throughout the United States. Only habitat within Project area is along and near Colorado River.
<i>Laterallus jamaicensis coturniculus</i>	California black rail	Arizona: SGCN BLM: Sensitive	Salt and brackish water marshes. Occurs in the lower Colorado River in areas of pickleweed thickets.
<i>Aechmophorus clarki</i>	Clark's grebe	Arizona: SGCN	Occurs in marshes, lakes, and, less frequently, along rivers. Only habitat near the Project area is along and near Colorado River.
<i>Buteogallus anthracinus</i>	Common black hawk	Arizona: SGCN	Generally, within wooded washes and streams in Arizona. Uncommon migrant and winter resident in southwestern Arizona.
<i>Progne subis hesperia</i>	Desert purple martin	Arizona: SGCN BLM: Sensitive	Open, flat areas and farms. Inhabits saguaros in southern Arizona. Much more common in southcentral Arizona than within and near Project area.
<i>Phalacrocorax auritus</i>	Double-crested cormorant	Arizona: SGCN	Occurs along coasts, bays, and rivers. Only habitat near the Project area is along and near Colorado River.
<i>Buteo regalis</i>	Ferruginous hawk	Arizona: SGCN BLM: Sensitive	Plains and prairies throughout western North America. In southwestern Arizona, migrant and winter resident primarily near cultivated fields.
<i>Melanerpes uropygialis</i>	Gila woodpecker	Arizona: SGCN	Upper Sonoran Desert in areas with stands of saguaro, riparian woodlands, and suburban areas.
<i>Colaptes chrysoides</i>	Gilded flicker	Arizona: SGCN BLM: Sensitive	Upper Sonoran Desert in areas with stands of saguaro, riparian woodlands, and suburban areas.
<i>Casmerodius albus</i>	Great egret	Arizona: SGCN	Marshes and mudflats along shorelines throughout warmer areas of the world. Only habitat near the Project area is along and near Colorado River.
<i>Aquila chrysaetos</i>	Golden eagle	Arizona: SGCN BLM: Sensitive	Open areas, plains, and mountains throughout North America. Nests in mountains of western Arizona.
<i>Toxostoma lecontei</i>	Le Conte's thrasher	Arizona: SGCN BLM: Sensitive	Flat desert areas with sparse vegetation, especially saltbush flats.
<i>Melospiza lincolnii</i>	Lincoln's sparrow	Arizona: SGCN	Winters in the southern United States in brushes and weedy habitats. Within Project area, restricted to Colorado River and possibly along large xeroriparian washes.

SPECIES	COMMON NAME	STATUS DESIGNATION (ARIZONA/ BLM) ²	HABITAT
<i>Charadrius montanus</i>	Mountain plover	Arizona: SGCN	Winters in semiarid plains and flats in the southwestern United States. Uncommon or rare along lower Colorado River.
<i>Circus cyaneus</i>	Northern harrier	Arizona: SGCN	Marshes, fields, and open areas.
<i>Falco peregrinus anatum</i>	Peregrine falcon	Arizona: SGCN	Open country and cliffs. Sometimes inhabits urban areas. Uncommon resident in southwestern Arizona.
<i>Pandion haliaetus</i>	Osprey	Arizona: SGCN	Open coastlines, rivers, and lakes throughout western United States. Only riparian habitat near the Project area is along and near Colorado River, although infrequently seen away from water.
<i>Passerculus sandwichensis</i>	Savannah sparrow	Arizona: SGCN	Associated with open plains and meadows. Uncommon in Arizona along lower Colorado River.
<i>Egretta thula</i>	Snowy egret	Arizona: SGCN	Marshes, tidal flats, and ponds throughout the Americas.
<i>Anthus spragueii</i>	Sprague's pipit	Arizona: SGCN	Grasslands, pastures, and cultivated fields with dense, low vegetation. Rare in cultivated fields along lower Colorado River.
<i>Tyrannus crassirostris</i>	Thick-billed kingbird	Arizona: SGCN	Breeds in southeastern Arizona in riparian gallery forests. Rare in winter along Colorado River.
<i>Athene cunicularia hypugaea</i>	Western burrowing owl	Arizona: SGCN BLM: Sensitive	Utilizes burrows made by mammals in arid regions and deserts. Within Project area, likely to be common only near agricultural areas and along and near Colorado River.
<i>Aix sponsa</i>	Wood duck	Arizona: SGCN	Wooded areas of rivers and ponds. Uncommon in winter along the lower Colorado River.

¹ From Table 3.4-9 of the Draft EIS.

² SGCN = Species of Greatest Conservation Need.

TABLE F3-4-3 SPECIAL STATUS BIRD SPECIES (NOT INCLUDING FEDERAL ESA-LISTED SPECIES) THAT COULD OCCUR WITHIN OR NEAR THE PROJECT AREA IN CALIFORNIA¹

SPECIES	COMMON NAME	STATUS DESIGNATION (CALIFORNIA/ BLM) ²	HABITAT
<i>Vireo bellii arizonae</i>	Arizona bell's vireo	California: Endangered BLM: Sensitive	Dense shrub vegetation in riparian areas, fields, woodlands, scrub oak, chaparral near water in arid regions. Could occur uncommonly within or near Project area.
<i>Haliaeetus leucocephalus</i>	Bald eagle	California: Endangered BLM: Sensitive	Coasts, rivers, and large lakes. Open country and mountains during migration. Migrant and winter resident along lower Colorado River.
<i>Toxostoma bendirei</i>	Bendire's thrasher	California: SSC BLM: Sensitive BLM: Focus Species	Rare or uncommon during summer, dry and semi-arid washes and other areas containing shrubs, trees, and especially yucca. Unlikely to occur in Project area.

SPECIES	COMMON NAME	STATUS DESIGNATION (CALIFORNIA/BLM) ²	HABITAT
<i>Athene cunicularia</i>	Burrowing owl	California: SSC BLM: Sensitive BLM: Focus Species	Open grasslands, savannas and plains. Occasionally in vacant lots. This species has been detected within the Project area.
<i>Laterallus jamaicensis coturniculus</i>	California black rail	California: Threatened BLM: Focus Species	Marshlands and very wet meadows. Rarely seen away from dense reeds, rushes, cordgrass, cattails and other emergent vegetation. Within Project area, restricted to Colorado River.
<i>Toxostoma crissale</i>	Crissal thrasher	California: SSC	Microphyll woodland and riparian washes, mesquite woodlands, other dense scrub vegetation. Uncommon year-round resident in region.
<i>Micrathene whitneyi</i>	Elf owl	California: Endangered BLM: Sensitive	Riparian forests, desert, woodlands. No suitable habitat along California route segments, but could be present uncommonly in the surrounding area.
<i>Melanerpes uropygialis</i>	Gila woodpecker	California: Endangered BLM: Sensitive BLM: Focus Species	Arid lowland scrub, second-growth and montane scrub, deciduous forests, riparian woodlands. There is very little or no habitat for this species in the Project area.
<i>Colaptes chrysoides</i>	Gilded flicker	California: Endangered BLM: Sensitive	Saguaro cactus or Joshua tree stands, riparian areas lined with cottonwood and willows in desert lowlands and foothills. There is very little or no habitat for this species in the Project area.
<i>Aquila chrysaetos</i>	Golden eagle	California: Fully Protected Eagle Protection Act BLM: Sensitive BLM: Focus Species	Open areas, plains, and mountains throughout North America. This species is not known to nest or forage in the vicinity of the Project area in California, and the Palo Verde Mesa offers low prey availability.
<i>Grus canadensis tabida</i>	Greater sandhill crane	California: Threatened BLM: Sensitive	Overwinters in agricultural fields and irrigated pastures and nearby shallow-water wetlands for roosting. Sandhill cranes, including possibly this subspecies, have been observed uncommonly in agricultural fields near Blythe.
<i>Toxostoma lecontei</i>	Le Conte's thrasher	California: SSC	Vegetated washes and desert scrub with saltbush, shadscale, cholla cacti, or other species suitable for nesting. This species has been detected within or near the Project area.
<i>Asio otus</i>	Long-eared owl	California: SSC	Uncommon to rare year-round resident in riparian and desert woodlands throughout deserts of southern California. There are no stands or riparian trees or large desert woodlands within the Project area that would be suitable habitat for this species.

SPECIES	COMMON NAME	STATUS DESIGNATION (CALIFORNIA/BLM) ²	HABITAT
<i>Lanius ludovicianus</i>	Loggerhead shrike	California: SSC	Year-round resident in open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. This species has been detected in or near the Project area.
<i>Charadrius montanus</i>	Mountain plover	California: SSC BLM Sensitive	Winters in and near cultivated fields along lower Colorado River. Could occur uncommonly within and near cultivated fields.
<i>Circus cyaneus</i>	Northern harrier	California: SSC	Grasslands, flat areas, and hills with open habitat. This species has been detected within or near the Project area.
<i>Asio flammeus</i>	Short-eared owl	California: SSC	Rare in open areas, fields, and wetlands. Unlikely to occur in Project area.
<i>Setophaga petechia sonorana</i>	Sonora yellow warbler	California: SSC	Cottonwood, willow, and salt cedar riparian woodlands. Limited habitat within the Project area.
<i>Piranga rubra</i>	Summer tanager	California: SSC	Summer resident in mature cottonwood riparian woodlands along Colorado River. Limited or no habitat within and near Project area.
<i>Buteo swainsoni</i>	Swainson's hawk	California: Threatened BLM: Sensitive BLM: Focus Species	Plains and hills with open vegetation. This species is not expected to nest within or near the Project area.
<i>Pyrocephalus rubinus</i>	Vermilion flycatcher	California: SSC	Cropland, cultivated lands, desert, shrubland, riparian woodlands near water. Could occur uncommonly near cultivated fields.
<i>Icteria virens</i>	Yellow-breasted chat	California: SSC	Summer resident in dense, early successional riparian woodlands and thickets with willows, salt cedar, vine tangles, and dense brush with well-developed understories and some overstory for perches.
<i>Xanthocephalus xanthocephalus</i>	Yellow-headed blackbird	California: SSC	Freshwater wetlands with open water and dense, emergent vegetation. Foraging in fields and open cultivated areas. Could occur uncommonly along Colorado river and among agricultural fields.

¹ Adapted from Table 3.4-14 of the Draft EIS.

² BLM = Bureau of Land Management; FP = Fully Protected; SSC = Species of Special Concern; BLM Focus species as designated under the DRECP LUPA.

TABLE F3-4-4 SPECIAL STATUS BAT SPECIES (NOT INCLUDING FEDERAL ESA-LISTED SPECIES) THAT COULD OCCUR WITHIN OR NEAR THE PROJECT AREA IN ARIZONA¹

SPECIES	COMMON NAME	STATUS DESIGNATION (ARIZONA/BLM) ²	HABITAT
<i>Idionycteris phyllotis</i>	Allen's (Mexican) big-eared bat	Arizona: SGCN BLM: Sensitive	Forested areas above 3,000 feet.

SPECIES	COMMON NAME	STATUS DESIGNATION (ARIZONA/ BLM) ²	HABITAT
<i>Myotis occultus</i>	Arizona myotis	Arizona: SGCN	In southwestern Arizona, they are found along the lower Colorado River.
<i>Nyctinomops macrotis</i>	Big free-tailed bat	Arizona: SGCN	Arid lowlands and hills to 6,000 feet (1,800 meters). Roosts in crevices, buildings, and sometimes trees.
<i>Macrotus californicus</i>	California leaf-nosed bat	Arizona: SGCN BLM: Sensitive	Mostly found in the Sonoran desert scrub; summer and winter range the same; primarily roost in mines, caves, and rock shelters.
<i>Myotis californicus</i>	California myotis	Arizona: SGCN	Semi-arid and grassland areas of the southwestern United States. Roosts in caves, mines, crevices, and shrubs.
<i>Myotis velifer</i>	Cave myotis	Arizona: SGCN BLM: Sensitive	Desert scrub of creosote, brittlebush, palo verde, and cacti. Roost in caves, tunnels, and mineshafts, and under bridges, and sometimes in buildings within a few miles of water.

¹ From Table 3.4-9 of the Draft EIS.

² BLM = Bureau of Land Management; SGCN = Species of Greatest Conservation Need.

TABLE F3-4-5 SPECIAL STATUS BAT SPECIES (NOT INCLUDING FEDERAL ESA-LISTED SPECIES) THAT COULD OCCUR WITHIN OR NEAR THE PROJECT AREA IN CALIFORNIA¹

SPECIES	COMMON NAME	STATUS DESIGNATION (CALIFORNIA/ BLM) ²	HABITAT
<i>Myotis occultus</i>	Arizona myotis	California: SSC	Ponderosa pine and oak-pine woodland near water and wooded riparian areas in desert areas.
<i>Macrotus californicus</i>	California leaf-nosed bat	California: SSC BLM: Sensitive	Lowland desert scrub roosting in caves, abandoned mine tunnels and rock shelters in canyon walls.
<i>Myotis velifer</i>	Cave myotis	California: SSC BLM: Sensitive	Evergreen or pine-oak forest and pine forest at mid-high elevations and riparian habitats near desert scrub at lower elevations.
<i>Antrozous pallidus</i>	Pallid bat	California: SSC BLM: Sensitive	Deserts and grasslands, mostly near rocky outcrops and water. Roosts in rock crevices.
<i>Nyctinomops femorosaccus</i>	Pocketed free-tailed bat	California: SSC	Rocky canyons with outcroppings and high cliffs. Roosts in rock crevices and caves. Observed near shrubland, mixed tropical deciduous forest, and floodplains with sycamore and mesquite with nearby high cliffs.
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	California: SSC BLM: Sensitive	Near the entrance of caves, mine tunnels, and other well-ventilated areas. Night roosts can include caves as well as buildings and tree cavities. Potential foraging habitat exists along the Colorado River and in adjacent agricultural fields, and it is likely that this species is present in the area at least occasionally.
<i>Lasiurus xanthinus</i>	Western yellow bat	California: SSC	Roosts in trees, including woodland and riparian habitat.
<i>Myotis yumanensis</i>	Yuma myotis	BLM: Sensitive	Riparian, desert scrub, moist woodlands, and forests.

¹ From Table 3.4-14 of the Draft EIS.

² BLM = Bureau of Land Management; SSC = Species of Special Concern.

5 APP/BBCS Plan Implementation

5.1 Training

All construction and maintenance workers would be required to participate in a WEAP, prior to beginning work on the Project. DCRT will have a qualified biologist (approved by the California Public Utilities Commission [CPUC]) develop the program prior to the start of construction and submit the program to CPUC for review and approval prior to implementation. The WEAP will be prepared in accordance with APM/BMP BIO-01 and MM BIO-CEQA-2. The WEAP will be implemented throughout the duration of Project related construction activities, including Operation and Maintenance (O&M) phases. The WEAP will include the following items:

- Maps showing exclusion areas and other construction limitations. Each exclusion area may be implemented to protect specific resources, such as listed and/or special status wildlife, populations of listed and rare plants and sensitive vegetation communities, riparian habitats, seasonal depressions and known water bodies, and wetland habitat. To further protect sensitive resources, specific resources will not be identified with specific areas on the maps available to construction personnel.
- A discussion of measures to be implemented for avoidance of sensitive resources discussed in the EIS (including this appendix) and the identification of an onsite contact in the event of the discovery of sensitive species on the site; this will include a discussion on micro trash.
- Training materials and briefings will include but not be limited to: a discussion of the federal and state ESAs; the BGEPA; the MBTA; the Avian Power Line Interaction Committee (APLIC) Guidelines; the consequences of non-compliance with these regulations; identification and values of plant and wildlife species and significant natural plant community habitats; hazardous substance spill prevention and containment measures; a contact person and phone number in the event of the discovery of dead or injured wildlife; and a review of mitigation requirements.
- Protocols to be followed when road kill or injured animals are encountered in the work area or along access roads and the identification of an onsite representative to whom the road kill will be reported. Road kill or injuries will be reported to the appropriate local animal control agency and CPUC within 24 hours. Road kill or injuries of special status species will also be reported to the CDFW and USFWS (for federally-listed species) within 24 hours or as otherwise required by the Project's regulatory permits. See Section 5.6 for more information on protocols for killed or injured wildlife.
- Literature and photographs or illustrations of potentially occurring special status plant and/or wildlife species will be provided to all Project contractors and heavy equipment operators.
- A special hardhat sticker will be issued to all personnel completing the training, which will be carried with the trained personnel at all times while on the Project site.
- All new personnel will receive this training prior to beginning work. A log of all personnel who have completed the WEAP training will be kept on site.
- A copy of the WEAP will be kept at an easily accessible location within the Project site (e.g., foreman's vehicle, construction trailer) for the duration of the Project.

- A standalone version of the WEAP will be developed, that covers all previously discussed items above, and that can be used as a reference for maintenance personnel during Project operations.
- DCRT will ensure the interpretation of the WEAP is available for all non-English-speaking workers.

5.2 Public Awareness

The Project is undergoing the full National Environmental Policy Act process, including public review and comment for the EIS. This draft APP/BBCS incorporates review and input from several stakeholders, including, but not limited to BLM, USFWS, and AZGFD, and is being issued with the Final EIS to be publicly available. The final APP/BBCS issued with the Final POD prior to Notice to Proceed will be reviewed and approved by the appropriate federal and state agencies (including BLM, USFWS, AZGFD, CDFW, and CPUC) and will be made available to the public.

5.3 Construction Design Standards

Construction design plays an integral role in avoiding and minimizing avian and bat risk. Section 3 and Attachment 1 list and summarize avoidance and minimization measures contained within the Final EIS and DRECP LUPA anticipated to reduce impacts to birds and bats. All aspects of the Project were designed to meet APLIC (2006 and 2012) recommendations for minimizing electrocution and collision risk for birds and bats. Some specific engineering design features associated with this Project that will avoid and minimize risks to birds and bats include:

- The transmission line will parallel an existing transmission line (Devers-Palo Verde 1) for much of its length, including the Colorado River Crossing and adjacent agricultural lands.
- At the Colorado River Crossing, the Project will match spans and conductor height with the existing line to the greatest extent practicable.
- Conductor bundles for all structure types except the proposed monopoles would be installed horizontal to one another (at the same height on the structure), and the two ground wires would be horizontal to one another, approximately 30 feet above the conductors.
- Use of flight diverters and guy markers in key areas as described in Section 5.5.

5.4 Electrocution

Avian electrocution can occur when a bird simultaneously contacts electrical equipment, either phase to phase or phase to ground, such as when perching on a structure with insufficient clearance between the conductor phases or conductors and a grounded surface. The separation between energized and/or grounded parts influences the electrocution risk of the structure. To prevent electrocution of eagles, which are the largest bird species likely to frequent the Project area, APLIC recommends horizontal separation of 60 inches and vertical separation of 40 inches, plus 0.2 inch for every kilovolt over 60 kV. For a 500 kV line, the resulting recommended separation distances are 148 inches horizontal and 128

inches vertical phase to phase separation, and 106 inches horizontal and 86 inches vertical phase to ground separation. Because transmission lines require larger separation distances between energized/grounded parts for electrical engineering reasons, transmission lines generally do not cause avian electrocutions (APLIC 2006). The proposed Project transmission line conductor spacing is approximately 34 feet of horizontal spacing between each conductor bundle and the static wire and OPGW would be approximately 30 feet above the phase conductors at the top of the structures. Thus, spacing will greatly exceed the necessary avian-safe separation distances. Structure diagrams are provided in the Draft POD in Figures 3-1 to 3-5.

Avian electrocutions typically occur on power lines with voltages less than 60 kV (APLIC 2006). The Project will require construction of a new 3.13-mile long 12 kV line, to support a SCS, which poses an inherent electrocution risk to birds. APLIC (2006) provides avian-safe design recommendations specific to various structure designs and conductor configurations. The powerline will be constructed according to APLIC (2006) standards, to minimize electrocution risk to birds. A pole diagram can be found in the Volume I, Draft POD, Figure 3-16.

5.5 Collisions

Bird collisions with overhead wires often involve less maneuverable species such as pelicans or species with high wing-loading that fly at high speeds and low altitudes such as ducks and rails, though collisions have been documented for a wide variety of species including songbirds (APLIC 2006 and 2012; BLM 2019). Other factors that influence the likelihood of collisions with transmission lines include the habitat type where lines are located, and environmental characteristics (e.g., visibility, weather, time of day). Collisions are more likely to occur in areas with high concentrations of birds in close proximity to transmission lines (APLIC 2006 and 2012). Waterfowl and other aquatic birds, including ducks, geese, swans, cranes, and shorebirds, appear to be most susceptible to collisions when transmission lines are located near wetlands (Erickson et al. 2005; Faanes 1987). Line-related factors influencing collision risk include the configuration and location of the line and line placement with respect to other structures or topographic features. Collisions often occur with the overhead shield (ground) wire, which is smaller diameter and less visible than the primary conductors (APLIC and USFWS 2005).

The height that birds fly is an important factor for evaluating a transmission line's avian collision potential. Birds usually migrate at elevations above the height of most transmission lines. Birds migrating at night have been recorded to typically fly from 800 to 3,700 feet above the ground (APLIC 2012). However, inclement weather may result in significant reductions in flight heights and birds can be detected migrating within several feet above the ground (APLIC 2012; Manville 2016). Birds may also collide with and/or get caught on fencing, particularly unmarked low visibility wire fencing (Koenings 2004; AZGFD 2018).

Although mortality near wind turbines is recorded far more often than collisions with stationary objects, bats have been found incidentally in bird mortality searches in both transmission and distribution powerline corridors (Manville 2016). While the recommendations from APLIC (2012) have been primarily focused on avoiding and minimizing impacts to birds, the recommendations and best practices may also benefit bats.

Measures to minimize collision risk include collocating lines with existing lines, horizontal line configurations, and marking of ground wires and guy lines (APLIC 2012).

The thickness of the 500 kV conductor bundles will render them fairly visible and a relatively low risk for avian collisions during most conditions (nocturnal migrants flying low due to inclement weather may be an exception). However, the two thinner ground wires and guy lines (at guyed V-structures) pose a significant collision risk. The greatest potential collision risks associated with the Project, will be at the Colorado River crossing and near streams and washes.

According to the Biological Assessment, 228 carcasses of birds were documented from 72 species, during 16 months of monitoring at the nearby Devers to Palo Verde 2 transmission line. Of 93 observations where cause of death could be determined, six were attributed to electrocution, and 68 were attributed to collision. At least one willow flycatcher (subspecies unknown) and one clapper rail (subspecies not specified) were found under the transmission line. The willow flycatcher carcass was found during construction (prior to wire stringing) and cause of death could not be determined. The cause of death of the rail was listed as collision with the transmission line (BLM 2019).

Several Project design measures will avoid and minimize collision risk. The transmission line will parallel an existing transmission line (Devers-Palo Verde) for much of its length, including the Colorado River crossing, including adjacent agricultural lands. At the Colorado River crossing, the Project will match spans and conductor height with the existing line to the greatest extent practicable. Conductor bundles for all structure types except the proposed monopoles would be installed horizontal to one another (at the same height on the structure), and the two ground wires would be horizontal to one another, approximately 30 feet above the conductors. Bird flight diverters will also be employed as described in the following section.

5.5.1 Bird Flight Diverters

Bird flight diverters (visibility markers) are commercially available products to increase the visibility of overhead wires to birds and have been used for decades to successfully reduce the incidence of bird collisions (APLIC 2012). A variety of flight diverter products are available from several different manufacturers, such as P&R Technologies, Power Line Sentry, and Preformed Line Products. Potential options include reflective or glow in the dark markers to render the lines visible to night migrants, including most songbirds. EDM International, Inc. (2019) evaluated 15 available bird strike avoidance technologies for DCRT and recommended the use of P&R Technologies' FireFly Bird Diverter in areas of low wind and the Firefly HW in areas where winds regularly exceed 20 miles per hour. The Firefly is an active device with a swiveling plate, that sways or spins in light winds (three miles per hour) to increase visibility. The rectangular plate is covered with reflective and fluorescent marking tape for daytime and nighttime visibility. The luminescent material emits visible light for up to 12 hours after dusk, and in low light or fog conditions. The Firefly HW has a non-swiveling plate, to decrease wear in high wind areas.

Guyed-V structures are proposed to be used in areas that do not parallel the existing Devers to Palo Verde transmission line, including in California. Permanent guy guards/markers will be installed on guy wires for the guyed-V structures where required, such as on BLM land in California and in areas used for recreation. CMA LUPA-BIO-16 states that "where the use of guy wires is unavoidable, [the proponent will] demarcate guywires using the best available methods to minimize avian species strikes." BMP-REC-03 requires guy wires to be marked in areas used for recreation. The Project's ground wires and any other static wires will be marked with visibility markers at the crossing of the Colorado River and its floodplain (APM/BMP BIO-21). The specific type(s) of flight diverter selected will be subject to approval by BLM, in coordination with USFWS, AZGFD, and CDFW as appropriate.

5.5.1.1 Additional Measures for California Only

In addition to the measures described above, within California the transmission line will be marked with flight diverters within 1,000 feet of all stream and wash channels, canals, ponds, and any other natural or artificial body of water (APM/BMP BIO-48). On BLM land in California, all guy wires will be demarcated using the best available methods to minimize avian species strikes (CMA LUPA-BIO-16). The specific type(s) of flight diverter and guy wire markers selected will be subject to approval by BLM, in coordination with USFWS and CDFW.

5.5.2 Bird and Bat Friendly Fencing

All substation activities will occur within the existing substation fences, but approximately 1,000 feet of new fence will be constructed around the 1.5-acre SCS. The SCS perimeter fence will be a seven-foot-high chain-link fence with steel posts. One foot of barbed wire will be installed at the top of the chain-link, yielding a total height of eight feet. Additionally, some staging areas would be temporarily fenced during construction. Temporary fencing may be employed in areas of active construction activities, or where required for employee or public safety. Exclusion fencing may be installed to protect sensitive habitat from disturbance.

To minimize potential bird collisions with Project fencing, all newly constructed fences will utilize high visibility fencing or will be marked to increase visibility of the top wire (APM/BMP BIO-39). One recommended marking method is to install sections of PVC (polyvinyl Chloride) or HDPE (high-density polyethylene) pipe around the top wire at regular intervals (Koenings 2004; AZGFD 2018). A slot can be cut down the length of the pipe or conduit, and then sleeved over the wire. Fencing can also be made more visible to birds by attaching reflective or colorful weather-resistant flagging materials (e.g., aluminum or plastic strips) to the top wire. COR Enterprises and Pexco are two companies that manufacture vinyl fence markers, that may be easily hung from the top wire of barbed-wire fences at three-foot intervals to increase visibility without covering up the barbs (which in some circumstances may be important to maintain the fences effectiveness). Natural Resources Conservation Services (NRCS) may be contacted for recommendations on manufacturers of fence markers (NRCS 2012; Sage Grouse Initiative 2014). NRCS also provides directions for creating homemade fence markers using vinyl undersill trim and optionally adding reflective tape to increase visibility at night (NRCS 2012). BLM regularly makes and uses these in sage-grouse habitat (Personal communication, C. Fletcher, via April 2019 APP/BBCS draft review comment).

5.5.3 Lighting

In conformance with APM/BMP BIO-33 and APM/BMP AES-15, any nighttime lighting necessary to provide safe working conditions will be temporary and set up to limit light spillover outside of the construction area. Lighting will be directed and shielded downward to avoid interference with the navigation of night-migrating birds and to minimize the attraction of insects as well as insectivorous birds and bats to project infrastructure. If applicable, lighting will also be directed away from riparian and wetland vegetation, occupied habitat, and suitable habitat areas for sensitive species. Long-term nighttime lighting installed at the SCS to facilitate maintenance and repairs under emergency conditions during night time hours, will not be constant-burn lighting and will only be turned on during use.

5.6 Collision and Electrocution Fatality Monitoring

5.6.1 Construction Monitoring

Biological construction monitoring will be implemented per APM/BMP BIO-2 and MM BIO-CEQA-3. A qualified biological monitor will be present on the Project site during all work activities within habitat of special status animal species. Multiple biological monitors will be provided so any work site within habitat of special status species is monitored concurrently if needed.

The biological monitors will be approved by BLM, in consultation with USFWS and relevant state agencies (AZGFD, CDFW, CPUC), prior to construction monitoring. Resumes have been and will be provided to BLM for approvals. The biologist(s) must be knowledgeable with the life history and habitat requirements of federal- and state-listed and special status birds and bats. The qualified biologist(s) will conduct clearance surveys for listed and special status species prior to the start of construction activities each work day during initial site disturbance; clearance surveys will be conducted on a weekly basis thereafter. Locations of listed and/or special status wildlife will be flagged for avoidance and appropriate avoidance buffers established as described in MM WIL-CEQA-1 through MM WIL-CEQA-11. Results of all monitoring will be recorded on daily site observation reports and include details about the construction activities. The daily monitoring reports shall be compiled and submitted to the CPUC, BLM, CDFW, AZGFD, and USFWS for review on a weekly basis. Contents of the reports shall include at a minimum the date, time of monitoring, location, qualified biologists name, construction activities, biological conditions and species detections, and any issues encountered during the monitoring effort.

The monitors will not handle any special status bird or bat species, unless dead or injured animals are encountered. Special purpose utility permits to collect injured or dead birds and bats will be obtained from USFWS, AZGFD, and CDFW, and all conditions of the permits will be adhered to. If dead or injured special status wildlife species are detected on the construction site, the qualified biological monitor shall, immediately upon finding the remains or injured animal, coordinate with the onsite construction foreman to discuss the events that caused the mortality or injury, if known, and implement measures to prevent future incidents. The BLM Authorized Officer will be immediately notified of the injury or fatality via email. Details of the incident and prevention measures will be included within a separate monitoring incident report. If appropriate and consistent with USFWS, AZGFD, and CDFW permits, remains of dead animals shall be collected and frozen as soon as possible, and CDFW, AZGFD and USFWS, as well as all other appropriate federal and state regulatory agencies, shall be contacted regarding ultimate disposal of the remains. The incident report shall be sent to the CPUC, CDFW, AZGFD and USFWS, as well as any other appropriate Federal and State agencies, within five calendar days. The construction biological monitoring report will at a minimum include: the date, time of the finding or incident (if known), and location of the carcass, injured animal or other impacted species, and the circumstances of its death or injury (if known). Injured animals shall be taken immediately to the nearest appropriate veterinary or wildlife rehabilitation facility. The contact information for several wildlife rehabilitation facilities are provided in Section 5.9 Contact List.

5.6.2 Avian Reporting System During Operation and Maintenance

To comply with BMP BIO-21, CMA LUPA-BIO-16, and CMA LUPA-BIO-17, DCRT will maintain records of all avian and bat mortalities or injuries detected incidentally within the Ten West transmission line ROW during standard O&M activities. DCRT will report all avian

and bat mortalities or injuries observed within the Project ROW to the USFWS. To report injuries, DCRT will contact Meghan_Sadlowski@fws.gov to set up an account to enter injury and mortality data in the USFWS Injury and Mortality Reporting system. If an eagle or threatened/endangered species is found, DCRT will notify the USFWS, AZGFD, and/or the CDFW within 24 hours of the discovery and identification.

Through the avian reporting system, dead or injured bird or bat records can indicate specific problem areas where more detailed analysis is necessary. DCRT will investigate problem areas to determine whether corrective measures are appropriate. Agency coordination will be initiated as needed.

5.6.3 Preconstruction Bird and Bat Surveys to Determine Compensatory Mitigation

MM BIO-01 and CMA LUPA-BIO-COMP-2 prescribe that a Compensation Plan be completed that describes procedures for calculating a compensatory mitigation fee to be assessed for mortality impacts to bird and bat Focus and BLM special status species. The Draft Compensatory Mitigation Plan may be found in Volume III, Appendix B-3 of the POD. In practice, it is likely that most or all fatalities will be common, non-special status bird or bat species, rather than Focus and BLM special status species. Monitoring and avoidance of nesting birds is anticipated to prevent project-related mortality of eggs or nestling young during construction.

The most accurate way to estimate the amount of mortality overall to birds and bats would be with construction monitoring to identify nest failures caused by the Project (if any) and post construction fatality monitoring to identify collision or electrocution mortality (as described in Section 5.6). CMA LUPA-BIO-COMP-2, which only applies in California, states that “the initial compensation fee for bird and bat mortality impacts will be based on pre-project monitoring of bird use and estimated bird and bat species mortality from the activity” and that the fee would be reassessed every five years based on results of post construction bird and bat fatality monitoring.

Preconstruction surveys described in this draft APP/BBCS include: nest searching and monitoring for all protected birds (see Section 6.2); nest surveys specifically for golden eagles and other raptors (see Sections 5.8.2 and 6.2); species-specific surveys for burrowing owls (see Section 8); roost surveys for bats (see Section 9.1.1); presence/absence surveys for yellow-billed cuckoo, southwestern willow flycatcher, and Arizona Bell's vireo (see Section 5.8.1); and presence/absence surveys for Yuma Ridgway's rail if suitable habitat is present (see Section 5.8.3). If, through further conversations with BLM, it is deemed necessary to acquire more preconstruction data for implementation of MM BIO-01 and CMA LUPA-BIO-COMP-2, additional surveys may include one or more of the following: bat acoustical monitoring (USFWS 2012), avian point count surveys (USFWS 2012), and visual flight surveys for raptors, waterfowl, and other large birds (APLIC 1994; USFWS 2012 and 2013). Visual flight surveys (which include frequency, flight time, and flight height relative to the infrastructure posing collision risk) have the most potential for explicitly predicting collision fatalities; however, current research and modeling procedures that successfully predict collision fatalities based on preconstruction data are lacking, other than perhaps for golden eagle-wind turbine collisions (USFWS 2013).

5.6.4 Standardized Fatality Monitoring Program

To comply with APM/BMP BIO-21, CMA LUPA-BIO-16, and CMA LUPA-BIO-17, in addition to the Avian Reporting System described above, standardized monitoring and analysis will

be conducted as described in this section, or as revised through discussions with the appropriate agencies (BLM, CDFW, AZGFD, USFWS, and/or CPUC). Protocols implemented to monitor Project bird and bat fatalities will be consistent with USFWS (2012) and APLIC (2012) guidance. APLIC (2012) provides general guidance for implementation of standardized monitoring under power lines. USFWS (2012) provides more specific guidance that, while written with wind-energy generation facilities in mind, is consistent with the APLIC (2012) guidance and could be equally well applied to monitoring of power line fatalities. USFWS recommends the following:

- Post construction surveys should initially be performed for one or two years. Additional years of survey should be performed if indicated by results of the initial post construction surveys.
- Surveys should be conducted during all seasons.
- Survey transects should occur at an interval of 3 to 10 meters apart.
- Search protocol should be standardized to the greatest extent possible to facilitate analysis of fatality estimates.
- During searches, actual fatalities are incompletely observed, so carcass counts must be adjusted by some factor that accounts for searcher detection rates (efficiency) and removal of carcasses by scavengers.

The primary objective of the post construction avian and bat fatality monitoring for the Ten West Link will be to estimate the annual number of avian and bat fatalities attributable to the Project's transmission line. Survey of the associated 12 kV distribution line is not proposed. The results will also be used to identify problem areas where additional avoidance measures may be appropriate (e.g., line marking). Standardized fatality monitoring will be conducted at approximately one-month intervals for two years. Approximately 30 percent of the transmission line will be surveyed. To make the survey area as representative as possible of the entire transmission line, the transmission line area will be stratified by habitat type, and type of line marking. Approximately 30 percent of each strata will be surveyed.

During the monthly surveys, within each surveyed section of ROW, an observer will search for carcasses along parallel transects, spaced approximately 10 meters apart. Five transects will be searched. For each area surveyed, observers will record date, location, start and end times of survey, observer name(s), and number of carcasses found. For each carcass that is found during surveys, additional data will be recorded: species, sex, age, geographic coordinates of the carcass (recorded via Global Positioning System), habitat type, and condition of carcass. Photographic documentation of each carcass will be collected. A qualified avian and/or bat biologist, as appropriate, will determine/confirm species, age, and sex of each carcass (as allowed by carcass condition) using physical or photographic evidence collected by the field surveyors. If physically collected, carcasses will be placed in a plastic bag, labeled, and provided to the agencies as necessary. Collection of carcasses will be coordinated with the USFWS, CDFW, and AZGFD, and appropriate collection permits will be obtained from the CDFW, AZGFD, and the USFWS. Carcasses found in non-search areas will be treated as incidental discoveries. Incidental fatalities will be reported on an annual basis and the cause of death will be documented to the extent possible.

During carcass searches, actual fatalities are incompletely observed due to removal of some carcasses by scavengers and imperfect detection by surveyors. Therefore, USFWS (2012) and APLIC (2012) recommend adjusting carcass counts by correction factors that account for searcher detection rates (efficiency) and removal of carcasses by scavengers. To estimate the appropriate correction factors, searcher efficiency trials and carcass removal

trials will be conducted as recommended by USFWS (2012) and APLIC (2012). Searcher efficiency trials and carcass removal trials will be conducted in carcass search plots concurrent with carcass searches. Searcher efficiency and carcass removal will be estimated for carcasses within each of two size classes for avian species (small and large birds) and an additional class for bats, during each of the four seasons (winter, spring, summer, fall). During each season, approximately 10 carcasses of small birds, 10 carcasses of large birds, and 10 carcasses of bats (or mice as surrogates) will be distributed at random points within search plots. This should be sufficient to provide one estimate of searcher efficiency for each size class and season. Carcasses of non-native species such as house sparrows, coturnix quail, and European starlings will be used to represent small-sized birds, and species such as rock pigeons and chickens to represent large-sized birds. Trials will be conducted twice per season (eight times per year). To estimate detection of bats, bat carcasses will be used if available; otherwise mouse carcasses will be used. Trial carcasses will be placed at random locations within areas being searched prior to the carcass search (on the same day, if feasible). Personnel conducting the searches will not know the location of the trial carcasses. The number and location of the trial carcasses found during the carcass search will be recorded. The same trial carcasses will be left on the landscape and periodically checked to assess scavenger removal rates. Exact timing of carcass checks will depend on logistics, but carcasses will be checked approximately two to three times the first week, once each of the next few weeks and once more at approximately six weeks.

Statistical analysis will be conducted using methods and software developed for analyzing collision fatality data (e.g., Huso et al. 2015; USGS 2018a and 2018b). Unbiased estimates of fatalities will be derived from three components: 1) number of carcasses found during searches; 2) searcher efficiency expressed as the proportion of planted carcasses found by searchers; and 3) removal rates to estimate the proportion of fatalities that remain long enough to be available for detection by the searchers. Following completion of each full year of monitoring, DCRT will produce an annual report communicating all bird and bat fatalities observed, unbiased overall bird and bat fatality estimates, species-specific fatality estimates, and an assessment of whether fatalities vary in relation to site characteristics within the Project area. DCRT will provide the report to the appropriate agencies. The results will be used to assess risk, identify areas and issues of particular concern, and if problem areas are identified, inform decisions about additional avoidance measures as described below in Section 5.6.5. The results will also be used to calculate compensatory mitigation requirements, as prescribed by MM BIO-01 and described in the Compensatory Mitigation Plan (Volume III of the POD, Appendix B-3).

5.6.5 Adaptive Management: Mortality Reduction and Avian Enhancement.

If the results of post construction fatality monitoring (described above in Section 5.6.2 and Section 5.6.4), indicate problem areas for collision or electrocution fatalities for birds or bats, DCRT will confer with the appropriate state and federal agencies (USFWS, BLM, CPUC, CDFW, and AZGFD) regarding potential implementation of additional avoidance, minimization, or mitigation measures. The specific measure(s) chosen would depend on the nature, extent, and location of the problem area(s). Potential measures may include mortality reduction measures such as adding or replacing flight diverters, guy markers, or fence markers, retrofitting infrastructure to decrease electrocution risk, or offsite avian enhancement such as installing nest platforms

5.6.6 Compensatory Mitigation

In conformance with MM-BIO-01, a Compensation Plan is being prepared (POD Appendix B-3). The Compensation Plan will include calculations of compensation ratios and mitigation acreages for loss of habitat for any biological resources requiring additional mitigation. CMA LUPA-BIO-COMP-2 states that compensation will be paid for mortality impacts to bird and bat Focus and BLM special status species from activities in California, and a fee re-assessed every five years to fund compensatory mitigation. Section 5.6.4 of this APP/BBCS describes the Project's post construction fatality monitoring protocol. In practice, it is likely that most or all fatalities will be common, non-special status species. Monitoring and avoidance of nesting birds is anticipated to prevent mortality to eggs or nestling birds during construction.

5.7 Nest Management

Nest management will include two components:

- Monitoring and protection of breeding birds and their active nests (APM/BMP BIO-20, MM WIL-CEQA-6, APM/BMP BIO-29, and MM WIL-CEQA-1) is covered in depth in Section 6.
- Management of inactive nests (APM/BMP BIO-29) is covered in Section 7.

5.8 Special Status Species Monitoring and Avoidance

Monitoring and avoidance for special status bird and bat species will be implemented in compliance with the Final EIS avoidance and minimization measures, including:

- Within Arizona and California: APM/BMP BIO-02 and BIO-25.
- Within California only: MM WIL-CEQA-3, MM WIL-CEQA-8, BIO-40, MM WIL-CEQA-4, MM WIL-CEQA-5, BIO-45, LUPA BIO-IFS-12, LUPA BIO-IFS-13, LUPA BIO-IFS-14, LUPA BIO-IFS-24, LUPA BIO-IFS-25, LUPA BIO-IFS-26, LUPA BIO-IFS-27, LUPA BIO-IFS-28, LUPA BIO-IFS-29, LUPA BIO-IFS-30, and LUPA BIO-IFS-31.

5.8.1 Southwestern Willow Flycatcher and Arizona Bell's Vireo

MM WIL-CEQA-8 prescribes preconstruction surveys for southwestern willow flycatcher and Arizona Bell's vireo within the California portion of the Project area. However, there does not appear to be any potential nesting habitat for southwestern willow flycatcher or Arizona Bell's vireo near proposed Project activities in California. Within Arizona, marginal habitat may exist near the Colorado River (relatively sparse riparian vegetation dominated by patchy tamarisk), which is likely to be used by migrating birds but unlikely to be used by breeding birds. DCRT will conduct protocol level surveys within California and general avian surveys within Arizona in 2019 and 2020. The Nesting Bird Management Plan (Section 6) describes the preconstruction nest survey and nest avoidance protocols which apply to all protected bird species, including southwestern willow flycatcher and Arizona Bell's vireo.

5.8.1.1 Additional Measures Within California Only

Per MM WIL-CEQA-8, DCRT will conduct preconstruction focused surveys for Bell's vireo and willow flycatcher surveys within California in potential habitat within 500 feet of proposed disturbance. Though habitat is marginal at best, these surveys will be conducted at the Colorado River crossing in 2019 and 2020 (USFWS 2001; Sogge et al. 2010). The surveys will be conducted by a qualified avian biologist, approved by CPUC in consultation with USFWS and CDFW. Prior to construction, documentation will be submitted providing the results of the surveys to the CPUC for review and approval in consultation with USFWS and CDFW.

If an active breeding territory or nest is confirmed, the CPUC, USFWS, and CDFW will be notified immediately. All active nests will be monitored on a weekly basis until the nestlings fledge or the nest becomes inactive. The Proponent will provide monitoring reports to the CPUC for review on a weekly basis. In coordination with the USFWS and CDFW, a minimum 300-foot disturbance-free ground buffer will be established around the active nest and demarcated by fencing or flagging. No construction or vehicle traffic will occur within nest buffers.

The qualified biologist will have the authority to halt construction activities and will devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nest site and the construction activities, and working in other areas until the young have fledged. All active nests will be monitored on a weekly basis until the nestlings fledge.

5.8.2 Golden Eagle

Golden eagle nest locations are widely scattered across the region in Arizona and have been documented in the New Water, Eagletail, and Plomosa Mountains, and potential nest sites have been identified elsewhere near the Project area (Stantec 2018; see Figure 3.4-4 of the Draft EIS for a map of previously documented golden eagle breeding areas in the Project vicinity). No known nest sites are within one mile of the Project, though the entire Project area is considered potential foraging habitat.

There is no known nesting habitat for the golden eagle within the California portion of the Project area, and the closest potentially suitable nesting location would be in the Mule Mountains, about one mile southwest of the Project area. As described in the Draft EIS, Eagle nest surveys have been conducted in the general vicinity for other projects. While nesting has not been documented recently in the Mule Mountains, there is an eagle nest within 10 miles of the Project area, as described in the Draft EIS. The Project area may provide eagle foraging habitat, but the Palo Verde Mesa offers low prey availability. An assessment of eagle prey availability on the Palo Verde Mesa (Ironwood Consulting 2016) estimated 0.0035 jackrabbits per acre.

Golden eagles are protected under BGEPA, as well as MBTA, and California codes. Golden and bald eagle pedestrian nest surveys are being conducted in 2019 within one mile of the Project in historical nesting areas in Arizona and California.

5.8.2.1 Additional Measures Within California Only

Protection measures for golden eagles are dictated by APM/BMP BIO-45, which applies only in California and commits to activities identified in LUPA BIO-IFS 24 through 31. LUPA BIO-IFS-24 states that “activities that may impact nesting golden eagles, will not be sited or constructed within 1.0-mile of any active or alternative golden eagle nest within an active golden eagle territory, as determined by BLM in coordination with USFWS as appropriate.” If Project construction were to occur during the breeding season (January 1 – August 15) near an active eagle nest, the disturbance could impact nesting eagles. No known eagle nest sites are within one mile of the proposed transmission line. Existing data suggests that eagles are unlikely to nest within one mile of the Project. Golden and bald eagle pedestrian nest surveys are being conducted in 2019 within one mile of the Project in historical nesting areas. Preconstruction nest survey and avoidance measures described in Section 6 – Nesting Bird Management Plan, would protect eagles in the event that a new or previously undiscovered nest occurs near the construction area.

LUPA BIO-IFS-25 states that “cumulative loss of golden eagle foraging habitat within a 1 to 4-mile radius around active or alternative golden eagle nests (as identified or defined in the most recent USFWS guidance and/or policy) will be limited to less than 20%.” The amount of habitat loss caused by construction of the transmission line will be very small relative to the area within an eagle foraging territory (e.g., four-mile radius)—well under one percent—and would not be expected to significantly contribute to a 20 percent habitat loss threshold.

LUPA BIO-IFS 26-31 apply to activities that pose a significant risk of eagle take (e.g., wind energy development). The Draft EIS states that there is no reasonably foreseeable expectation for take of golden eagles.

5.8.3 Yuma Ridgway's Rail in California

Yuma Ridgway's rail habitat does not occur at the proposed Colorado River crossing. According to the Biological Assessment (BLM 2019), Yuma Ridgway's rails have been observed using irrigation canals and drains in the agricultural fields south and southwest of Blythe. Many of those drains have dense stands of cattails and other emergent vegetation. There is a backwater channel about 0.4 mile south of the river crossing that contains small patches of marsh habitat. Most of the length of the backwater channel has relatively steep banks and little or no marsh vegetation, but there are some small patches of cattail (*Typha latifolia*) and other marsh vegetation along the channel that might be used by Yuma clapper rails (BLM 2019).

West of the Colorado River, the transmission line route crosses numerous canals that deliver and drain water to and from irrigated fields in Palo Verde Valley. Most of the canals are lined with concrete or are cleared of vegetation. Eight of the drains, however, have about 50- to 150-foot-wide stands of vegetation along the banks of the drain, including some with narrow bands of cattail and other marsh vegetation along the bottom of the drain. Yuma clapper rails have been observed using irrigation canals and drains in the agricultural fields south and southwest of Blythe (BLM 2019). According to the Biological Assessment, the species is known to use agricultural and other upland areas during dispersal and migration and is likely to pass through the Project area.

When the final Project area is determined (including all approved access routes, staging areas, turnaround areas, etc.) a desktop habitat assessment will be conducted to ensure that Project activities will not take place within 500 feet of any potentially suitable habitat. It is unlikely that suitable habitat will occur within the Project area, but if the desktop

assessment identifies possible habitat within 500 feet of proposed activities, a field habitat assessment will be conducted. If the presence of potentially suitable habitat is verified during the field habitat assessment, the habitat will be buffered by 500 feet if practicable. If it is impractical to avoid the habitat buffer during the breeding season (February 15 - September 15), then USFWS-protocol (2017) surveys will be conducted, and construction work within the breeding season may be conducted only if surveys indicate no presence of Ridgway's rails.

5.8.4 Burrowing Owl

DCRT will conduct focused preconstruction burrowing owl surveys and implement avoidance measures (MM WIL-CEQA-7). These procedures are detailed in Section 8 — Burrowing Owl Nesting Management/Avoidance, Minimization, and Mitigation Plan (MM WIL-CEQA-3; APM/BMP BIO-30).

5.8.5 Bats

5.8.5.1 Bat Collision Risk

Although mortality near wind turbines is recorded far more often than collisions with stationary objects, bats have been found incidentally in bird mortality searches in both transmission and distribution powerline corridors (Manville 2016). While the recommendations from APLIC (2012) have been primarily focused on avoiding and minimizing impacts to birds, the recommendations and best practices may also benefit bats. On BLM land in California, guy lines will be marked to improve visibility and reduce collision risk for birds and bats. Markers will be used on the shield wires at the crossing of the Colorado River and floodplain to increase visibility to birds and bats (BIO-21). Flight diverters will be installed on all shield wires or guy lines spanning or within 1,000 feet of stream and wash channels, canals, ponds, and any other natural or artificial body of water (BIO-48). Because bat foraging use tends to be concentrated near water and/or relatively moist areas that support large insect populations, these measures are likely to greatly minimize any potential collision risk to bats.

5.8.5.2 Bat roosts and hibernacula

In California, DCRT will conduct preconstruction bat roost surveys and implement avoidance measures (APM/BMP BIO-40, MM WIL-CEQA-4, MM WIL-CEQA-5). These procedures are detailed in Section 9 — Bat Management and Protection Plan.

5.8.6 Bendire's Thrasher

As analyzed in the Draft EIS, Bendire's thrasher is unlikely to occur in the Project area. Per LUPA-BIO-IFS-11, which applies on BLM land in California, if Bendire's thrasher is detected during the course of any preconstruction surveys or construction monitoring, DCRT will conduct appropriate activity-specific biological monitoring to ensure that Bendire's thrasher individuals are not directly affected by operations (i.e., mortality or injury, direct impacts on nest, eggs, or fledglings).

5.9 Contact List

- Wildlife Rehabilitators to call for injured birds or bats:
 - For injured raptors: Wild at Heart (Emergency assistance: 480-595-5047)
 - For injured quail or other small birds: Arizona Covey (602-996-1934)
 - For injured small insectivorous birds: Wild Wings Rehab (480-893-6660)
 - For injured bats: Southwest Wildlife (480-471-9109)
 - For injured birds or bats: Lake Havasu City Humane Society (928-855-5083)
- USFWS Migratory Bird Permit Regional Offices:
 - California (Region 1) USFWS Migratory Bird Permit Office (503-872-2715; permitsR1MB@fws.gov)
 - Arizona (Region 2) USFWS Migratory Bird Permit Office (505-248-7882; permitsR2MB@fws.gov)
- AZGFD Headquarters, Phoenix AZ (602-942-3000)
- CDFW Region 6-Inland Deserts Region (909-484-0167)

6 Nesting Bird Management Plan: Active Nests

6.1 Introduction

The purpose of this Nesting Bird Management Plan is to specify the DCRT strategy and specific procedures to comply with applicable federal and state regulations, as well as the applicable commitments specified in the Final EIS, for the protection of nesting birds that have potential to be impacted by Project activities, and to obtain agency concurrence on the strategy and procedures.

The applicable federal and state regulations are described in Section 2, above. The regulations specific to nesting birds that are most broadly applicable to this plan are the federal MBTA and California Fish and Game Code Section 3505, which protect not only most native birds but also their nests. USFWS defines an active nest is one that contains viable eggs and/or chicks. A nest becomes active when the first egg is laid and remains active until fledged young are no longer dependent on the nest. Nests that are empty, contain non-viable eggs, or are being built but do not yet have an egg in them are considered inactive (USFWS 2018). Destruction of inactive migratory bird nests is not a violation of MBTA (USFWS 2018). In 2016, CDFW proposed to define an active nest similarly. Proposed regulation Section 681, Title 14, Code of California Regulations clarified Section 3503 by defining several terms, including “nest” which it defined as “a site or a structure built, maintained or used by a native bird, which is occupied by eggs or nestlings, or is otherwise essential to the survival of a juvenile bird.” But on August 5, 2016, CDFW

issued a notice of decision not to proceed with the adoption of Section 681. Thus, the terms of Section 3503 remain undefined. For the purposes of this document, USFWS definition of active nest will be assumed.

All the avoidance, minimization, and mitigation measures applicable to the protection of birds and bats are listed and/or fully described in Section 3 above. The measures most directly applicable to this Nesting Bird Management Plan include APM/BMP BIO-20, MM WIL-CEQA-6, APM/BMP BIO-29, and MM WIL-CEQA-1.

6.2 Monitoring

If construction activities are scheduled to be conducted within the recognized breeding season, preconstruction nest monitoring will be conducted, and active nests will be avoided as discussed below. The breeding season has been recognized to apply in Arizona as February 1 through August 31 (APM/BMP BIO-20), and to apply in California as January 1 to August 15 for raptors and February 15 to September 15 for other species of birds.

DCRT will retain a qualified avian biologist(s) to conduct preconstruction nesting bird surveys within the recognized breeding season, for all areas near construction activities that are scheduled to take place during the breeding season; construction activities include mobilization, staging, grading, and/or construction. The exact size of the survey areas may vary among sites and will support the state-specific and species-specific avoidance buffers as specified in Table F3-6-1. Within California, at a minimum, the survey area will encompass a 500-foot buffer of Project construction activities. Survey dates may only be modified with the approval of USFWS, AZGFD, and CDFW, where applicable.

Avian biologists will be sufficiently skilled and experienced with the identification of all species expected to occur in the Project area, and with nesting habits of locally breeding birds, so as to conduct accurate and efficient surveys. The names and qualifications of the avian biologist(s) and biological monitors will be provided to the appropriate agencies for approval (USFWS, BLM, CDFW, and AZGFD) prior to the surveys. The hierarchical line of communication associated with nest monitoring and implementation of avoidance buffers would be as follows. The biological monitors would report to the avian biologist contracted by DCRT. The avian biologist would report to DCRT. DCRT (and/or the avian biologist as approved by DCRT on a case-by-case basis) will report to the CIC/BLM. DCRT would provide avoidance buffer updates to construction contractors. In the interest of efficient and timely implementation of required nest avoidance, DCRT may also delegate the avian biologist and/or biological monitors to directly convey avoidance buffer updates to the construction contractors as appropriate.

Nest survey methods will include systematic searches as well as observations of auditory and visual cues indicating reproductive behavior (Ralph et al. 1993)—e.g., keying in on alarm calls of adults or begging calls of nestlings, visually following adults carrying nesting material or food, or visually following adults exhibiting behavior consistent with incubation/foraging cycles. Systematic searches will include visually inspecting suitable nesting locations. In some cases, a nest may not be directly observed if the suspected nest location is inaccessible due to unsafe terrain, height of the nest, dense vegetation, or some other barrier that prevents the avian biologist from safely observing the nest. The avian biologist may conclude that a nest is present or determine the nest status based on breeding behavior without locating or directly observing the actual nest.

The avian biologist will conduct a preconstruction nest survey no more than 10 days (less if practicable) prior to the start of work at any given site. Additional sweeps will occur on the first day of construction and at least once every three days during construction, as described in the subsequent paragraph. Results of the initial nest survey will be submitted to the appropriate resource agencies for review and approval (USFWS, CPUC, CDFW, AZGFD, and/or BLM) no less than 72 hours prior to construction. If a nest is detected during the preconstruction nest survey, the avian biologist will include within the nest survey report the details of each nest along with minimization and avoidance measures, and buffers implemented.

On the first day of construction at any given site during the nesting season the avian biologist and/or biological monitor will perform a preconstruction sweep to identify any new nests or nesting activity that may have been initiated since the original survey. Subsequently, for the duration of construction during the nesting season, the biological monitor will perform sweeps at each work site to look for resources, including nesting birds. The sweeps will occur at least once every three days during construction, to identify new or previously undiscovered nests, document the status (active or inactive) of previously discovered nests, and ensure that Project activities are not conducted within the buffers until the nesting cycle is complete or the nest fails.

To avoid potentially causing nest failure, care will be taken to minimize any nest disturbance caused by surveying and monitoring efforts. Nests will be monitored from a distance using binoculars or a spotting scope whenever practical. In some cases, approaching the nest may be necessary to initially find the nest and/or to gather useful information about the nest stage and/or other information related to the avian biologist's determinations. When approaching a nest or potential nest area, the biologist or monitor will first determine whether there are any potential nest predators nearby (e.g., ravens, jays, or other corvids). If no predators are observed, the surveyor will approach the nest, and will not spend any more time near the nest than necessary. The avian biologist will report any inadvertent contact or effects to birds or nests within the Project area to the BLM, AZGFD, CDFW, USFWS, and CPUC.

The status and phenology of all active nests, and observed behavior of associated birds, will be documented and summarized in weekly reports provided to the appropriate resource agencies (USFWS, CDFW, AZGFD, and/or BLM). If any inadvertent contact or effects to birds or nest occurs as a result of the monitoring or construction-related work, this will be fully described in the weekly report.

6.3 Nest Avoidance

In accordance with MM WIL-CEQA-6 and APM/BMP BIO-20, if breeding birds with active nests are found prior to or during construction, the qualified avian biologist will establish a state-specific and species-specific buffer around the nest and no activities will be allowed within the buffer(s) until the young have fledged from the nest or the nest fails. Buffers will extend not only horizontally, but also vertically in the case of helicopter work (for the same distance as the horizontal specification, unless otherwise requested by BLM, USFWS, CPUC, CDFW, or AZGFD). Buffers will be marked using signs and stakes or flagging placed at the edge of the buffer facing the work area and/or access road. Species-specific avoidance buffers are described in Section 6.3.2. Procedures to adjust buffers based on specific circumstances are described in Section 6.3.1.

6.3.1 Nest Buffer Modification Procedures

The prescribed buffers may be adjusted by the qualified avian biologist based on existing conditions around the nest, planned construction activities, tolerance of the species, and other pertinent factors.

For Project activities of any disturbance level that are inconsistent with established buffer distances, the avian biologist will evaluate the proposed activity on a case by case basis. Where appropriate, the avian biologist may work with the construction team to identify an appropriate buffer revision to prevent impacts to nesting birds while minimizing constraints on construction activities. For each proposed buffer reduction, a qualified avian biologist will be consulted and will determine whether the default species-specific buffers (Table F3-6-1) may be reduced for the specific activity and duration. The avian biologist will make this determination based on the species' natural history, and its known tolerances including those observed during nesting bird management for the Project, as well as site-specific conditions such as nesting stage, behavior of the nesting birds, microhabitat near the nest, distance to construction, type of construction activity, and anticipated duration of the activity. If recommended by the avian biologist, and approved by DCRT, a reduced buffer distance may be implemented according to the procedures outlined below.

- For non-special status species, the avian biologist or biological monitor, with the approval of DCRT and the appropriate BLM-CIC personnel, may immediately adjust the buffer distance and move the signage, stakes, or flagging to indicate the new buffer distance. The decision will be documented in the form of a Level 1 variance, and DCRT will notify the appropriate agencies (BLM, CPUC, USFWS, AZGFD, and/or CDFW) of each buffer reduction, as soon as practicable.
- For special status species, DCRT will submit a Biological Level 1 Variance request to USFWS, CDFW, and/or AZGFD for agency review and approval of any proposed buffer reduction. Agency approval would be obtained prior to adjusting the buffer.

Following adjustment of the buffer, the avian biologist or biological monitor will periodically monitor the behavior of the nesting pair, as appropriate, to assess whether the new buffer distance is sufficient to minimize the risk of reducing the reproductive success of the breeding pair. If construction is disrupting the nesting birds and agitated behaviors are observed, the buffer size will revert back to its original/full extent. The appropriate monitoring schedule would be situation-specific and would be determined in consultation with the appropriate agencies. Unless otherwise determined in consultation with the agencies, monitoring would be more or less continuous (during construction) for the first 24 hours following buffer reduction, and thereafter (assuming no signs of disturbance are observed) approximately hourly to daily depending on construction circumstances, species, stage of nesting, and observed bird behavior. Monitoring would take place using binoculars and/or a spotting scope, at a distance sufficient to avoid disturbing the nesting birds, and will include assessing the bird's response to noise as well as to visual disturbance. The qualified avian biologist will have the authority to halt construction activities and will devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nest site and the construction activities, and working in other areas until the young have fledged. All active nests will be monitored on a weekly basis until the nestlings fledge.

6.3.2 Species-Specific Avoidance Buffers

Tolerance to disturbance can vary from one bird species to another. As required under MM WIL-CEQA-1, Table F3-6-1 lists bird species potentially nesting in or near the Project area, and for each species provides a default avoidance buffer, approximate nesting season, typical breeding habitat, typical nest location, and federal and state status of special status species. In California (per MM WIL-CEQA-6 and MM WIL-CEQA-1), the minimum standard buffer distances are 500 feet for raptors and 300 feet for other species. Note that due to MM CEQA and DRECP LUPA specifications, avoidance buffers may differ between California and Arizona, and also between BLM land in California (which is subject to DRECP LUPA measures and is also within a DFA) and other lands in California. These nest buffers adhere to appropriate mitigation measures, including APM/BMP BIO-20, MM-WIL-CEQA-1, MM-WIL-CEQA-3, MM-WIL-CEQA-7, MM-WIL-CEQA-8, DFA-BIO-IFS-1, and LUPA-BIO-IFS-12. Nest buffers for avian species listed under CESA and federal ESA as specified in the Final EIS may need to be modified from those listed in this draft Nesting Bird Management Plan in order to conform to any applicable conditions or requirements adopted by the lead agencies or permitting agencies, including conditions of the CPUC's Decision, BLM's Record of Decision, Biological Opinion, or Incidental Take Permit. In the unlikely event that a nest is found belonging to a species not listed in Table F3-6-1, for non-special status species in California a 500-foot buffer would be used for raptors and a 300-foot buffer would be used for non-raptors; for non-special status species in Arizona a (TBD)-foot buffer would be used for raptors and a (TBD)-foot buffer would be used for non-raptors; for special status species (if not listed in Table F3-6-1), a temporary buffer of 500 feet for raptors or 300 feet for non-raptors would be applied and the appropriate agencies would be contacted immediately to identify an appropriate buffer distance. For some species and circumstances, smaller buffers may be appropriate, and these buffers may be modified according to the procedures described in Section 6.3.1.

TABLE F3-6-1 BIRD SPECIES POTENTIALLY NESTING IN OR NEAR THE PROJECT AREA

STANDARDIZED AOU NAME ¹	DEFAULT CA BUFFER (in feet)	DEFAULT AZ BUFFER ⁴ (in feet)	APPROXIMATE NESTING SEASON ²	TYPICAL BREEDING HABITAT ²	TYPICAL NEST LOCATION ²	STATUS ³
Cinnamon Teal	300	TBD	3/25-9/15	marshes, ponds, lakes, streams	ground	-
Ruddy Duck	300	TBD	5/5-9/5	marshes, ponds, lakes	ground	-
Gambel's Quail	300	TBD	2/15-8/31	arid brushlands, washes, often with water nearby	depression on ground	-
Pied-billed Grebe	300	TBD	2/15-9/15	marshes, ponds, lakes, streams	floating nest anchored to emergent vegetation	-
Western Grebe	300	TBD	5/31-8/31	lakes, marshes	floating platform in shallow water	-
Clark's Grebe	300	TBD	5/31-8/31	Lakes, marshes	floating platform in shallow water	AZ-SGCN
Rock Pigeon	0	0	Unprotected non-native species	primarily disturbed areas	buildings and cliffs	-
Eurasian Collared-Dove	0	0	Unprotected non-native species	primarily urban/suburban areas	trees and shrubs	-
Inca Dove	300	TBD	6/25-9/15	primarily around human habitations	trees and shrubs	-
Common Ground-Dove	300	TBD	3/1-9/30	disturbed areas; dry, open, early successional	ground, bushes, or occasionally in trees	-
White-winged Dove	300	TBD	5/1-8/31	dense thorny woodlands, cactus-palo verde deserts and riparian woodlands; also, urban/suburban areas	tree branch; usually under dense canopy	-
Mourning Dove	300	TBD	2/20-9/30	generalist; primarily edges and open woodlands	ground, bushes, or trees	-
Greater Roadrunner	300	TBD	4/15-10/15	open country with scattered shrubs	bush, small tree, or cactus, 1.0-3.0 meters (m) above the ground	-
Yellow-billed Cuckoo	500	TBD	5/31-6/15	densely-vegetated, riparian woodland, patch size usually >20 ha	tree or shrub, usually 1-6 m above ground	Federally Threatened, AZ-SGCN, CA-Endangered, BLM-Sensitive, BLM-Focus Species
Lesser Nighthawk	300	TBD	4/15-8/15	deserts, agricultural areas, brushlands, washes	bare flat ground, usually in pebbly area, no nest material	-
Common Poorwill	300	TBD	5/20-9/15	open, grassy or shrubby areas in arid or semi-arid regions	eggs usually laid on bare ground, occasionally on gravel, rock, pine needles, or leaf litter	-

STANDARDIZED AOU NAME ¹	DEFAULT CA BUFFER (in feet)	DEFAULT AZ BUFFER ⁴ (in feet)	APPROXIMATE NESTING SEASON ²	TYPICAL BREEDING HABITAT ²	TYPICAL NEST LOCATION ²	STATUS ³
White-throated Swift	300	TBD	3/5-8/31	mountainous or hilly country, open or forested	in crevices in cliffs	-
Black-chinned Hummingbird	300	TBD	4/20-8/31	riparian woodland	in tree or shrub	-
Anna's Hummingbird	300	TBD	5/1-11/15	chaparral, riparian woodlands, savannahs, parkland, and urban and suburban environments	tree or shrub usually 2.0-6.0 m above ground	-
Costa's Hummingbird	300	TBD	1/15-6/15	Sonoran desert scrub, Mojave desert scrub	shrub or tree, usually 1.0-2.0 m above ground	-
Ridgway's able	500	TBD	3/15-9/10	freshwater marshes with stands of bulrushes and cattails	in clumps of emergent plants, in base of shrubs, or in clumps of downed dead vegetation near uplands	Federally Endangered, AZ-SGCN, BLM-Sensitive, CA-Threatened, BLM-Focus Species
Virginia Rail	300	TBD	3/10-8/10	marsh	in robust emergent vegetation (e.g., cattails, bulrush), <15 centimeters (cm) above water	-
Common Gallinule	300	TBD	4/1-8/31	permanently flooded deep marshes	anchored in emergent vegetation close to open water	-
American Coot	300	TBD	5/1-9/10	lakes, ponds, streams, wetlands	built over water on floating platforms and almost always associated with dense stands of living or dead emergent vegetation	-
Black Rail	300	TBD	3/1-9/15	salt and brackish water marshes; occurs in the lower Colorado River in areas of pickle weed thickets	in center of clumps of vegetation, at or near upper limits of marsh vegetation, well concealed; height of nest above water or ground usually low	CA-Threatened, BLM-Focus Species, AZ-SGCN, BLM-Sensitive
Black-necked Stilt	300	TBD	4/15-8/25	shallow wetlands with emergent vegetation	nest scrape in soft substrate of alkali flat, dike or island; often over water on small islands or vegetation clumps, often completely in the open	-

STANDARDIZED AOU NAME ¹	DEFAULT CA BUFFER (in feet)	DEFAULT AZ BUFFER ⁴ (in feet)	APPROXIMATE NESTING SEASON ²	TYPICAL BREEDING HABITAT ²	TYPICAL NEST LOCATION ²	STATUS ³
Killdeer	300	TBD	3/1-9/15	open areas, especially sandbars, mudflats, heavily grazed pastures, and human-modified habitats	on ground, usually with sparse low vegetation or no vegetation	-
Spotted Sandpiper	300	TBD	5/10-8/25	nests in a variety of habitats (shoreline, sagebrush, grassland, and forest), but only near water	on ground within 100 m (occasionally to 300 m) of water's edge. Nest is normally under or next to herbaceous vegetation that provides some shade	-
Double-crested Cormorant	300	TBD	4/15-8/31	only habitat near the Project area is along and near Colorado River.	near water, on ground, cliffs, trees, shrubs, artificial nest structures, and transmission line towers	AZ-SGCN
Least Bittern	300	TBD	5/1-8/31	freshwater and brackish marshes with dense, tall growths of aquatic or semiaquatic vegetation (particularly <i>Typha</i> , <i>Carex</i> , <i>Scirpus</i> , <i>Sagittaria</i> , or <i>Myriscus</i>) interspersed with clumps of woody vegetation and open water	usually 15 - 75 cm above water, among dense, tall stands of emergent or woody vegetation, <10 m from open water	-
Great Blue Heron	300	TBD	3/10-8/15	wide variety of water and wetlands	colonial nester. Near water: trees, bushes, ground, or artificial structures	-
Great Egret	300	TBD	3/20-8/1	only habitat near the Project area is along and near Colorado River	colonial nester. Near water: trees, bushes, ground, or artificial structures	AZ-SGCN
Snowy Egret	300	TBD	3/20-8/1	marshes, tidal flats, and ponds	colonial nester. Near water: trees, bushes, ground, or artificial structures	AZ-SGCN
Cattle Egret	300	TBD	4/1-10/15	usually forage near livestock; occasionally in other disturbed areas, or near margins of aquatic areas	colonial nester. medium to tall upland trees; or in low trees or shrubs in swamps; or reed vegetation in marshes, or on islands; proximity to water not a requirement	-
Green Heron	300	TBD	2/15-7/30	only habitat near the Project area is along and near Colorado River.	solitary or colonial nester; trees or shrubs; aquatic or terrestrial sites, from ground level to 10 m high	-
Black-crowned Night-Heron	300	TBD	12/1-8/1	only habitat near the Project area is along and near Colorado River.	colonial nester; Near water: trees, bushes, ground, or artificial structures	-

STANDARDIZED AOU NAME ¹	DEFAULT CA BUFFER (in feet)	DEFAULT AZ BUFFER ⁴ (in feet)	APPROXIMATE NESTING SEASON ²	TYPICAL BREEDING HABITAT ²	TYPICAL NEST LOCATION ²	STATUS ³
Turkey Vulture	300	TBD	4/15-9/15	for nesting, prefers areas with nest sites (rock outcrops, fallen trees, abandoned buildings) isolated from human disturbance	lays eggs in dark recesses in great variety of sites: in rock outcrops, including ledges, caves, and crevices, and among tumbled boulders	-
Golden Eagle	5,280 on BLM land; 500 elsewhere	TBD	1/1-8/15	open areas, including deserts, and grasslands	cliffs, large trees, transmission structures	CA-Fully Protected, BGEPA, AZ-SGCN, BLM-Sensitive
Osprey	500	TBD	4/15-9/5	near waters that support fish; only habitat in Project area is near Colorado River	treetops, powerline structures, artificial nesting platforms. Usually near edge of water, rarely further than 0.5 kilometer (km), but occasionally as far as 14 km.	AZ-SGCN
Harris's Hawk	500	TBD	1/1-8/15	semi-open desert scrub, savanna, grassland, and wetland habitats	located in almost any relatively tall, sturdy structure. Common substrates include saguaro cacti, palo verde, and mesquite	-
Swainson's Hawk	2,640 on BLM land; 500 elsewhere	TBD	4/1-7/30	plains and hills with open vegetation. This species is not expected to nest within or near the Project area	tree or large shrub; nest often appears messier and less sturdy than other Buteo nests	CA-Threatened, BLM-Sensitive, BLM-Focus
Red-tailed Hawk	500	TBD	5/20-9/5	generalist species of open to semi-open habitats	trees, cliffs, powerline structures	-
Barn Owl	500	TBD	2/1-8/31	primarily open habitats: grasslands, deserts, marshes, and agricultural fields	cavities of wide variety in trees, cliffs, rock outcrops, caves, and river/arroyo banks; also, many human structures	-
Long-eared Owl	500	TBD	2/25-7/15	riparian and desert woodlands	stick nest built in tree by another species of bird	CA-SSC
Western Screech-Owl	500	TBD	3/1-6/30	diverse array of habitats, but most often riparian habitats with deciduous trees, including mesquite and palo verde	in tree cavities, most commonly those excavated by large woodpeckers including gilded flickers	-
Great Horned Owl	500	TBD	1/1-5/31	diverse array of habitats, usually in landscapes that are open or semi-open	stick nest built in tree or cliff by another species of bird	-

STANDARDIZED AOU NAME ¹	DEFAULT CA BUFFER (in feet)	DEFAULT AZ BUFFER ⁴ (in feet)	APPROXIMATE NESTING SEASON ²	TYPICAL BREEDING HABITAT ²	TYPICAL NEST LOCATION ²	STATUS ³
Elf Owl	500	TBD	5/1-7/20	riparian forests, desert, woodlands	cavity nester. In woodpecker holes in saguaro cacti, or riparian woodlands (especially mature Populus-Salix-Prosopis riparian woodland with <75% tamarisk)	CA-Endangered, BLM-Sensitive
Burrowing Owl	656	TBD	2/1-8/31	utilizes burrows made by mammals in arid regions and deserts; within Project area, likely to be common only near agricultural areas and along and near Colorado River	burrows; usually existing mammal, or desert tortoise, or artificial burrowlike structure	CA-SSC, BLM-Focus Species, AZ-SGCN, BLM-Sensitive
Gila Woodpecker	1,320 on BLM land; 300 elsewhere	TBD	4/1-8/31	upper Sonoran desert in areas with stands of saguaro, riparian woodlands, and suburban areas.	excavate cavities in saguaros or mesquites	CA-Endangered, BLM-Sensitive, BLM-Focus, AZ-SGCN
Ladder-backed Woodpecker	300	TBD	4/15-7/25	deserts, desert scrub, and thorn forests	cavities built in Joshua Tree, willow, cottonwood, walnut (Juglans), oak, hackberry, pine, mesquite, or agave	-
Gilded Flicker	300	TBD	4/30-8/5	upper Sonoran Desert in areas with stands of saguaro, riparian woodlands, and suburban areas	excavate cavities in saguaros, cottonwoods, or willows	CA-Endangered, AZ-SGCN, BLM-Sensitive
American Kestrel	500	TBD	4/30-8/30	open landscapes, including agricultural areas, grasslands, and deserts	woodpecker or natural cavities in trees or cliffs	-
Peregrine Falcon	500	TBD	2/15-7/30	open country and cliffs. Sometimes inhabits urban areas; uncommon resident in southwestern Arizona	ledges on cliffs or buildings; no nest material used	AZ-SGCN
Prairie Falcon	500	TBD	3/1-7/31	open landscapes, including agricultural areas, grasslands, and deserts	ledges on cliffs	-
Western Wood-Pewee	300	TBD	5/1-8/31	woodlands and forests, especially forest edge and riparian zones	cup nest in tree	-
Southwestern Willow Flycatcher	300	TBD	5/1-8/15	early successional riparian habitats, with a dense shrub-layer	in shrub or small tree, typically 1.5 – 6.0 m above the ground	Federally Endangered, AZ-SGCN, CA-Endangered, BLM-Sensitive, BLM-Focus Species

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Black Phoebe	300	TBD	3/1-6/30	Streambanks, cattle tanks, pond	cliff or human structure; nest cemented with mud to vertical wall of site, 1.0–3.0 m above ground or high-water mark	-
Say's Phoebe	300	TBD	3/15-7/15	grassland, deserts, and agricultural land	nest woven of vegetation, placed on human structures, caves, pockets, or covered ledges on cliff faces or dirt banks; rarely cavities of trees or bushes, or nests of other species	-
Vermilion Flycatcher	300	TBD	3/5-7/15	desert scrub or deciduous riparian woodlands	typically, in trees that line riparian corridors	CA-SSC
Ash-throated Flycatcher	300	TBD	3/10-8/5	arid and semiarid scrub and open woodland, as well as riparian woodland in arid and semiarid regions	in natural cavities, woodpecker holes, nest boxes, and cavities in other human-made structures	-
Brown-crested Flycatcher	300	TBD	3/20-7/30	mature riparian woodland dominated by Fremont cottonwood, mesquite, and Gooding willow	secondary cavity nester; nests in deserted woodpecker holes or natural cavities in columnar cactus or trees	-
Cassin's Kingbird	300	TBD	4/1-8/15	wide variety of open habitats such as grasslands, desert shrub, pastures, cultivated fields, urban areas, and savannah habitats	cup nest in tree; often in isolated trees	-
Western Kingbird	300	TBD	4/15-8/1	Wide variety of open habitats such as grasslands, desert shrub, pastures, cultivated fields, urban areas, and savannah habitats	cup nest in tree; often in isolated trees	-
Loggerhead Shrike	300	TBD	2/1-7/31	open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches	cup nest in tree or shrub; vegetation with thorns usually preferred, nest averages 1.0 m above ground	CA-SSC
Bell's Vireo	300	TBD	4/1-8/1	desert riparian woodlands, primarily with dense willow or mesquite; uncommon along lower Colorado River	suspended from small, lateral or terminal forks of low, pendant branches (or even horizontal parallel stems) in dense shrubs, small trees, and occasionally herbaceous vegetation	CA-Endangered, AZ-SGCN
Common Raven	300	TBD	2/15-7/15	habitat generalist	tree, cliff, transmission structure	-
Horned Lark	300	TBD	2/15-8/15	open areas with short, and/or sparse vegetation	ground	-

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Northern Rough-winged Swallow	300	TBD	4/15-7/31	variety of open and semi-open areas	burrow located in precipitous bank of clay, sand, or gravel	-
Violet-green Swallow	300	TBD	5/15-8/15	variety of open and semi-open areas	secondary cavity nester; nests in deserted woodpecker holes or natural cavities in trees or cliffs	-
Barn Swallow	300	TBD	3/31-8/31	variety of open and semi-open areas	mud nest on vertical wall, including cliffs or human structures	-
Cliff Swallow	300	TBD	3/31-8/31	variety of open and semi-open areas	mud nest on vertical wall, including cliffs or human structures	-
Verdin	300	TBD	3/1-8/25	desert scrub, chiefly in areas along washes where thorny vegetation occurs or in desert riparian zones	builds dome of sticks at periphery of bush or shrub; height typically 0.8–2.0 m; also builds smaller roosting nests during non-breeding season	-
Rock Wren	300	TBD	4/15-8/5	arid or semiarid areas with exposed rock	on ground in crevice on rocky hillside, beneath overhanging rock, or hole in large talus boulders	-
Canyon Wren	300	TBD	5/1-8/20	canyons and other areas with cliffs or rock outcrops	in rock caverns, crevices, cliffs, or banks	-
House Wren	300	TBD	4/1-7/31	riparian or other deciduous woodland; also, urban/suburban areas	secondary cavity nester, primarily in trees	-
Marsh Wren	300	TBD	3/15-7/31	emergent vegetation in marshes	average 1.0 m above ground or water in emergent vegetation	-
Bewick's Wren	300	TBD	3/15-7/31	brushy areas, scrub and thickets in open country, open and riparian woodland, and chaparral	utilize a variety of natural or woodpecker cavities, 0-10 m above ground, often surrounded by thick vegetation	-
Cactus Wren	300	TBD	3/1-9/30	desert scrub	bulky dome, usually in cactus or other thorny plant; build numerous nests as decoys, and/or for non-breeding roosts	-
Blue-gray Gnatcatcher	300	TBD	4/15-8/15	chaparral and woodland, including mesquite woodland	cup nest on limb of shrub or tree	-
Black-tailed Gnatcatcher	300	TBD	2/15-9/20	semiarid or desert scrub	cup nest in dense, thorny or leafy shrub or tree	-
Curve-billed Thrasher	300	TBD	2/15-8/15	desert scrub	cup nest in shrub, tree, or cactus	-

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Bendire's Thrasher	500 on BLM land; 300 elsewhere	TBD	3/15-7/31	dry and semi-arid washes and other areas containing shrubs, trees, and especially yucca	cup nest in shrub, tree, or cactus	CA-SSC, BLM-Sensitive, BLM-Focus Species
LeConte's Thrasher	300	TBD	2/15-6/30	flat desert areas with sparse vegetation, especially saltbush flats	cup nest in shrub, tree, or cactus	CA-SSC, AZ-SGCN, BLM-Sensitive
Crissal Thrasher	300	TBD	1/15-7/31	microphyll woodland and riparian washes, mesquite woodlands, other dense scrub vegetation	cup nest in shrub, tree, or cactus	CA-SSC
Northern Mockingbird	300	TBD	2/15-9/15	open habitats with scattered shrubs and small trees	cup nest in tree or shrub	-
European Starling	0	0	unprotected non-native species	cities, agricultural areas and other open country with mown or heavily grazed areas and scattered trees.	secondary cavity nester; often outcompetes native birds for nest sites	-
Phainopepla	300	TBD	3/1-8/15	desert riparian areas or along washes; closely associated with desert mistletoe	cup nest on tree branch or within clump of mistletoe, 2.0-5.0 m above ground	-
House Finch	300	TBD	2/15-9/1	generalist, inhabits wide variety of natural or human-modified landscapes, from desert to forest	cup nest in wide variety of substrates, including trees, shrubs, cacti, cliffs, buildings	-
Lesser Goldfinch	300	TBD	4/1-8/31	riparian woodlands and thickets, chaparral, desert oases, ranch and farmyards, and rural, urban, and suburban parks and gardens	cup nest in tree or shrub	-
Black-throated Sparrow	300	TBD	3/15-7/31	semi-open habitat with evenly spaced shrubs and trees 1–3 m high, including creosote bush flats, desert alluvial fans, canyons, washes, and desert scrub	cup nest in shrub	-
Song Sparrow	300	TBD	2/28-9/1	riparian areas with dense shrub layer	cup nest in shrub	-
Canyon Towhee	300	TBD	2/20-10/31	semiarid uplands and environments along dry watercourses to riparian mesquite woodlands	cup nest in shrub, 1.0-3.5 m above ground	-
Abert's Towhee	300	TBD	1/20-10/1	low-elevation desert riparian and desert wash habitats. Habitat includes dense vegetation, including thickets of willow, cottonwood, mesquite, and salt cedar.	cup nest in shrub, usually <2.0 m above ground	AZ-SGCN

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Rufous-crowned Sparrow	300	TBD	3/10-9/20	semiarid grassy shrublands and open woodlands on moderate to steep grassy and rocky hillsides and canyons	Cup nest on ground or occasionally <45 cm high in shrub	-
Yellow-breasted Chat	300	TBD	5/1-8/15	riparian thickets	cup nest, usually placed about 1.0 m above ground in dense thickets and shrubs	CA-SSC
Yellow-headed Blackbird	300	TBD	4/15-7/31	emergent vegetation of deep-water palustrine wetlands.	Nests constructed over deeper water, primarily in cattails (<i>Typha</i> spp.), bulrushes (<i>schoenoplectus</i> spp.), or reeds (<i>Phragmites</i> spp.)	CA-SSC
Western Meadowlark	300	TBD	3/15-8/31	wide range of grassland habitat, including agricultural areas and desert grasslands	cup nest on ground, well hidden beneath vegetation	-
Hooded Oriole	300	TBD	4/20-8/15	scattered trees, including desert oases, especially those with palms, and riparian areas with cottonwoods, willows, or sycamores	pendulous domed nest suspended from tree branch	-
Bullock's Oriole	300	TBD	3/15-7/31	riparian woodland	pendulous domed nest suspended from leaves of trees	-
Scott's Oriole	300	TBD	5/15-8/15	upper elevation deserts where yuccas are common	semi-pendulous domed nest. Most commonly associated with yucca trees, less commonly with palms	-
Red-winged Blackbird	300	TBD	3/1-8/10	marshes with emergent vegetation; also, agricultural areas and urban/suburban areas	Typically, in sturdy graminoid or shrub, from just above water level to 7.0 m high	-
Bronzed Cowbird	NA	NA	4/15-7/31	open fields, pastures, and scrubby areas	lay eggs in nests of other species	-
Brown-headed Cowbird	NA	NA	4/1-8/31	mixed habitats with open and wooded areas	lay eggs in nests of other species	-
Great-tailed Grackle	300	TBD	3/15-8/15	open areas with scattered trees and water nearby, including marshes, agricultural areas and urban areas	cup nest, suspended from small upright branches in shrub or sturdy graminoids	-
Lucy's Warbler	300	TBD	4/15-7/15	dense lowland riparian mesquite woodlands	nests behind loose bark of tree, in natural or woodpecker cavities, or in deserted nest of other species	-
Common Yellowthroat	300	TBD	4/15-7/15	wetlands with thick woody and/or herbaceous vegetation	cup nest usually ground in drier areas or just above water level in wet areas.	-

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Yellow Warbler	300	TBD	5/15-8/1	cottonwood, willow, and salt cedar riparian woodlands	cup nest in upright fork of shrub or tree, usually 1.0-3.0 m above ground, but up to 14 m	CA-SSC
Summer Tanager	300	TBD	4/15-8/31	mature cottonwood riparian woodlands along Colorado River; limited or no habitat within and near Project area	cup nest in tree, 1.0-22 m above ground	CA-SSC
Northern Cardinal	300	TBD	3/20-9/1	brushy areas, such as washes and mesquite woodlands	Cup nest in tangled vines, shrub, or tree; typically, about 1.0-3.0 m above ground	-
Blue Grosbeak	300	TBD	4/20-9/15	brushy areas, including woodland edge and early successional habitats	cup nest in shrub or tree, from 15 cm to 7.0 m above ground.	-
House Sparrow	0	0	unprotected non-native species	near human habitation and other disturbed areas	in nooks and crannies on buildings, and may build domed nests in vines on walls or in trees	-

¹ Current standardized American Ornithologist's Union names (November 2018). List is sorted in standard taxonomical order.

² Source: Cornell Lab of Ornithology 2018.

³ Source: Draft EIS, Appendix 3. For additional information on special status species, see Tables F3-4-1, F3-4-2, and F3-4-3 of this APP/BBCS.

⁴ TBD=to be determined.

6.4 Nesting Bird Deterrent Methods

Implementation of methods to deter or exclude birds from nesting within work areas may reduce the likelihood of avian nests becoming established within the work area, and thereby minimize risk to breeding birds as well as minimizing disruption of construction work and scheduling. Prior to implementation, DCRT will notify BLM, CPUC, USFWS, AZGFD, and/or CDFW of all deterrent or exclusion plans and obtain approval as necessary.

Nesting bird deterrent methods may include, but are not limited to the following:

- Removal of vegetation outside of the nesting season, in areas that would be directly disturbed by construction during the nesting season. All necessary vegetation clearing should be conducted outside the nesting season, to the extent practicable. And where it would not cause harm or degradation to other resources, for example soils. Because restoration of desert environments is difficult, in vegetation that is low in stature it's often recommended to not clear vegetation if construction can safely be done with minimal clearing (Personal communication, C. Fletcher, BLM, via April 2019 APP/BBCS draft review comment). Although vegetation-free construction areas are ideal for deterring nesting birds, vegetation removal will be limited to that which is necessary for construction and staging. To minimize long-term impacts to ecosystems and bird habitat, unnecessary vegetation clearing will not be conducted.
- Managing construction yard trash to avoid inadvertently providing food to birds. Effective management of food waste and other trash will be important to avoid attracting birds to construction areas. Such management measures will include daily removal of trash from the remote sites and covering trash bins located at stationary sites with tightly fitting lids (i.e., wildlife-proof containers).
- Covering staged/stored straw wattle and other potential nesting material or substrates in active construction or staging areas.
- Moving equipment, vehicles, and materials on a daily basis within an active construction area.
- Using colored gravel, such as white or red, in active construction areas, staging yards, or substations. Some ground-nesting species (e.g., plovers and nightjars) are attracted to naturally-colored gravel for concealing their eggs, which are similarly colored. Unnaturally-colored gravel which would strongly contrast with the birds' eggs, can effectively discourage nesting by these birds.
- Installing visual deterrents in active construction areas. There are a wide variety of visual deterrents that can be used to discourage birds from nesting, such as predator decoys (e.g., plastic owls) or reflective ribbon (e.g., Tangle Guard Bird Repeller Ribbon; <http://www.nixalite.com/tangleguard.aspx>), which provides visual and auditory discomfort to birds. Visual deterrents can be affixed to construction equipment, around the perimeter of storage yards, or on towers or other facilities as appropriate, to scare birds from the area, thereby reducing the likelihood of nesting.
- Installation of appropriate-sized tarps on construction equipment and materials. Tarps will be inspected at least once per week to identify and correct any openings that may allow cavity-nesting bird species to enter. If openings are found, the tarps will be inspected for trapped wildlife before re-closure. To avoid the risk of entanglement to birds or other animals, netting will not be used as a nesting deterrent.

- Covering the ends of pipes or other materials within which birds could nest.
- Removal of inactive nests (according to the protocols described in Section 7 below).

7 Nest Management: Inactive Nests

In conformance with APM/BMP BIO-29 and MM-WIL-CEQA-1, this APP/BBCS includes a Nest Management Plan (for inactive nests), as well as a Nesting Bird Management Plan (for active nests). Destruction of unoccupied migratory bird nests (i.e., no eggs or young present) is not a violation of MBTA (USFWS 2018). USFWS defines an active nest as one that contains viable eggs and/or chicks. A nest becomes active when the first egg is laid and remains active until fledged young are no longer dependent on the nest. Nests that are empty, contain non-viable eggs, or are being built but do not yet have an egg in them are considered inactive (USFWS 2018). Eggs will be assumed to be viable unless there are signs observed to the contrary (e.g., consistent absence of adult birds at nest over multiple days, signs of part of a clutch fledging, or timing considerations such as unhatched eggs remaining in nest longer than the expected incubation period for the species). If non-viability is suspected, questions of viability will be determined in consultation with USFWS and AZGFD or CDFW. Many species do not begin to incubate until the clutch is complete in order to facilitate synchronous hatching. These nests may appear to be unattended to a naive observer. Nests would be observed over the course of days to see if the number of eggs increases indicating that egg-laying is still in progress.

This Nest Management Plan describes the protocol to remove inactive nests in and within 500 feet of active construction and/or O&M areas, in the event that DCRT chooses to remove the nests. As some groups of birds, such as raptors, and colonial-nesting species such as swallows and herons, regularly reuse nest structures, the primary purpose of inactive nest removal is to prevent the potential reuse of these nests, which would trigger avoidance requirements during the nesting season. Inactive nests may be destroyed and dropped to the ground. No nests will be taken off site or collected. The nest location may be subsequently monitored to detect any re-nesting attempts. Re-nesting attempts may be deterred, using methods detailed below or in Section 6.4, until the bird selects an alternative nest site.

The preferable time to remove inactive nests is outside of the breeding season. If possible, nest removal would occur between August 16 and December 31 for raptors, or between September 16 and February 14 for other species. At least 24 hours prior to removal of any nests, an email notification will be sent to the appropriate agencies (USFWS and AZGFD, or CDFW and CPUC, and/or BLM). The notification will provide the details of the nest location, reason for nest removal, and species previously associated with the nest, if known. If the nest is confirmed or suspected to be associated with a special status species (see Tables F3-4-1, F3-4-2, and F3-4-3), permission must be acquired from the appropriate agencies prior to removal of the nest. Within one month following nest removal, the appropriate agencies will receive a summary of nests removed.

Though nest removal will be prioritized to occur outside of the nesting season, if practicable, there may be times when nest removal during the nesting season is desired. To ensure that only inactive nests are removed, if nest removal is sought during the breeding season the following procedures will be followed, in addition to those described above. An avian biologist will monitor each nest to be removed for a minimum of one hour, to document presence or absence of activity at the nest. For raptor nests, if the angle is such that an adult in incubating position would not be visible in the nest, then a minimum of two hours of

observation will be required. Recently fledged chicks of many species (e.g., raptors, swallows) often remain dependent on the nest for a period of time after fledging—returning to the nest periodically to roost. If the biologist observes evidence of recent fledging a longer period of observation may be necessary to confirm that the nest is inactive. For example, the nest may need to be revisited at dawn or dusk to check for roosting fledglings. If possible, the biologist will check the inside of the nest to confirm the absence of eggs or chicks in the nest. For inaccessible nests (e.g., on transmission towers), the construction team responsible for removing the nest will inspect and photograph the nest from above and provide the photograph(s) to the biologist or environmental monitor. Once the biologist or monitor confirms from the photograph that the nest is empty, the nest may be removed.

8 Burrowing Owl Nesting Management / Avoidance, Minimization, and Mitigation Plan

Avoidance and minimization measures identified in the Project Final EIS (APM/BMP BIO-25, APM/BMP BIO-30, LUPA BIO-IFS-12, LUPA BIO-IFS-13, LUPA BIO-IFS-14, MM WIL-CEQA-3, and MM WIL-CEQA-7) require DCRT to conduct preconstruction surveys for nesting burrowing owls and to implement avoidance measures for active burrows that are found. These measures include:

- In Arizona and California: APM/BMP BIO-25
- In California only: APM/BMP BIO-30, LUPA BIO-IFS-12, LUPA BIO-IFS-13, LUPA BIO-IFS-14, MM WIL-CEQA-3, and MM WIL-CEQA-7.

The purpose of this burrowing owl Nesting Management/Avoidance, Minimization, and Mitigation Plan is to describe the monitoring, avoidance, and mitigation strategy that will be implemented to avoid, minimize, and mitigate impacts to burrowing owls that could result from construction and operation of the Project.

8.1 Habitat Requirements and Occurrence Status

Burrowing owls inhabit a variety of open habitats that include grassland, shrub-steppe, desert, agricultural areas, and other grassy disturbed/ruderal areas. Habitat is generally typified by short, sparse vegetation with few shrubs, level to gentle topography and well-drained soils (CDFG 2012). Burrowing owls require the presence of a mammal burrow, desert tortoise burrow, or cavity (natural or manmade) that is the appropriate size for a nest burrow. Natural rock cavities, debris piles, culverts, and pipes also are sometimes used for nesting and roosting (CDFG 2012). Although burrowing owls can excavate holes where burrows are unavailable, they rarely do so (Thomsen 1971). Burrow availability is a major factor in defining suitable burrowing owl habitat (Coulombe 1971; Green and Anthony 1989).

Within the Project area burrowing owls are most likely to nest in valley bottoms in and around farmland at the eastern and western ends of the Project area (Stantec 2018); however, occurrence is possible throughout most of the Project area, if suitable burrows occur. The Desert Quartzite Solar project conducted extensive protocol level surveys for burrowing owls between 2012 and 2015, in an area overlapping the west end of the Ten West :Link. Up to four active burrows were documented over this time frame (Ironwood Consulting 2016), confirming that burrowing owl densities are very low across Palo Verde Mesa, southwest of Blythe, California.

8.2 Preconstruction Monitoring Procedures

8.2.1 Survey

Because burrowing owls occupy burrows year-round in this region, burrowing owl surveys will occur prior to construction regardless of the time of year. Prior to conducting a site visit, occurrence data will be acquired from AZGFD-Natural Heritage Program and the California Natural Diversity Database, to locate historical observations of burrowing owls, burrowing owl nests, desert tortoise burrows, and burrowing mammals (e.g., ground squirrels, badgers). All survey activity will be conducted by qualified avian biologist(s) knowledgeable with the species. In Arizona, surveyors will have burrowing owl survey protocol certification (training provided by AZGFD). In California, surveyors will be approved by CPUC, BLM, and CDFW. To assess potential burrowing owl habitat, the approved avian biologist(s) will conduct at least one site visit covering the entire area of proposed construction activity and surrounding areas within the appropriate avoidance buffer, depending on access/landowner permission. If lawful access to adjacent areas cannot be achieved, surveys can be performed with a spotting scope or other methods. In California, the survey area will include all areas within 492 feet of proposed construction activity, per MM-WIL-CEQA-3, MM-WIL-CEQA-7, and the California Burrowing Owl Consortium (1993) survey protocol.

Following the habitat assessment described above, and no more than 14 days prior to initial ground disturbance, DCRT will conduct a focused take avoidance survey for burrowing owls in all areas determined to have potential burrowing owl habitat that are within the appropriate avoidance buffer of planned construction activity. Surveys in Arizona will be conducted in conformance with AZGFD (2009) guidance and surveys in California will be in conformance with CDFG's 2012 Staff Report on burrowing owl mitigation, with the exception of the survey buffers, which follows the California Burrowing Owl Consortium (1993). The habitat assessment may be conducted during the same visit as the take avoidance survey or at any time prior to the take avoidance survey.

As described by CDFG (2012) and AZGFD (2009), the take avoidance survey will entail walking line transects spaced 20 meters apart in California, and 10 meters apart in Arizona. In either case, at approximately 100-meter intervals, the observer will scan the surroundings with binoculars, and listen for any calling burrowing owls. The surveyor(s) will record all burrowing owl detections and potential burrowing owl burrows, as determined by the presence of one or more of the following observations: burrowing owls, pellets, prey remains, whitewash, or decoration. Care will be taken to minimize disturbance near occupied burrows during all seasons and to avoid flushing burrowing owls. As the first few hours of the morning and last couple of hours of the afternoon provide the highest detection probabilities, an attempt will be made to utilize these times of day for surveying, to the greatest extent practicable, though surveys may be conducted at any time during daylight hours, except during inclement weather (e.g., strong wind, dense fog, or precipitation). As burrowing owls may re-colonize a site after disturbance ceases, time lapses of 14 days or more between Project activities will trigger additional rounds of take avoidance surveys prior to subsequent rounds of construction activity, including, but not limited to an additional survey within 24 hours of ground-disturbing activities. Implementation of avoidance and minimization measures would be triggered by positive owl presence.

8.2.2 Reporting

Following the habitat assessment/take avoidance survey effort, DCRT will provide a report on the survey methods and results to the BLM, AZGFD, and CDFW. The report will include the following information:

- Any avoidance or relocation recommendations for review and approval by BLM and the appropriate state agencies (AZGFD, CPUC and/or CDFW).
- A detailed map(s) showing the survey area, historical burrowing owl detections as acquired during the desktop assessment, current confirmed and potential burrowing owl burrows and detections, survey transects walked, and a delineation of areas deemed unsuitable.
- For areas deemed to have unsuitable habitat, a justification will be provided, including photograph(s) and/or a written description of one or more of the following characteristics used to rule out habitat potential: topography, land use, soil type, burrow presence/absence, and/or vegetation conditions present.
- Date, start, and end time of surveys.
- Description of weather conditions (ambient temperature, wind speed, percent cloud cover, precipitation and visibility).
- Name(s) of surveyor(s) and qualifications.
- A discussion of how the timing of the survey affected the comprehensiveness and detection probability.
- A description of survey methods used including: transect spacing, point count dispersal and duration, and any calls used.
- A description and justification of the area surveyed relative to the Project area.
- A description that includes: number of owls or nesting pairs at each location (classified as nestlings, juveniles, adults, and those of an unknown age), number of burrows being used by owls, and burrowing owl sign at burrows. Include a description of individual markers, such as bands (numbers and colors), transmitters, or unique natural identifying features. If any owls are banded, request information from the United States Geological Survey-Bird Banding Laboratory and bander to compile details regarding the known history of the banded burrowing owl(s) (age, sex, origins, whether it was previously relocated) and provide these details with the report if available.
- A description of the behavior of burrowing owls during the surveys, including feeding, resting, courtship, alarm, territorial defense, and those indicative of parents or juveniles.
- A list of possible burrowing owl predators detected and documentation of any evidence of predation upon owls.
- Signed field forms, photographs, etc., as appendices to the field survey report.
- Recent color photographs of the proposed project or activity site.
- For surveys conducted in California, original California Natural Diversity Database Field Survey Forms should be sent directly to the Department's California Natural Diversity Database office, and copies should be included in the environmental document as an appendix (<http://www.dfg.ca.gov/bdb/html/cnddb.html>).

8.3 Avoidance and Relocation Strategy

If preconstruction focused burrowing owl surveys determine that burrowing owls occupy the Project area, a tiered avoidance and relocation strategy will be implemented to avoid burrowing owls, relocate burrowing owls, and prevent recolonization of areas (if necessary) by burrowing owls, as outlined below. These methods generally adhere to the recommendations contained in the *Staff Report on Burrowing Owl Mitigation* currently used by CDFW to guide burrowing owl mitigation measures. The three avoidance and relocation strategy tiers incorporated in this plan are:

- Tier 1 – Avoidance Buffers
- Tier 2 – Burrow Exclusion and Passive Relocation
- Tier 3 – Prevention of Recolonization

Methods to avoid impacts to burrowing owls will take precedence over passive or active relocation. If preconstruction focused burrowing owl surveys determine that burrowing owls occupy burrows within 492 feet (150 meters) of proposed construction activities, the qualified avian biologist will assess the risk of construction activities to the burrowing owl. This risk assessment shall consider several factors, including, but not limited to, the following:

- Location of the burrow relative to planned construction activities.
- Type of burrow use (i.e., occupied nest burrow or non-nesting roost burrow that may include wintering or satellite burrows).
- Type of construction activity and level of potential disturbance.
- Timing of burrow use (e.g., occupation of a burrow after construction has been started versus prior to construction).

Based on the risk assessment, the avian biologist will determine, for each occupied burrow, whether the Project is likely to substantially impact the burrow such that injury or death of a burrowing owl could occur. Indirect impacts may be substantial if construction activities could potentially cause injury or mortality of owls, including from collisions with nearby construction equipment, vehicles, or fences. The Project biologist will have discretion in determining whether an indirect impact is substantial. Avoidance buffers can be implemented to avoid direct and substantial indirect impacts to owl burrows and individuals.

8.3.1 Nest Avoidance

To comply with MM-WIL-CEQA-3, APM/BMP BIO-30, and LUPA BIO-IFS-12, burrows occupied by owls will be buffered from disturbance. Unless otherwise authorized by the appropriate agencies (depending on location—BLM, AZGFD, CDFW, and/or CPUC), a buffer, within which no activity will be permissible, will be maintained between Project activities and nesting burrowing owls. The avoidance buffer will be TBD in Arizona and 656 feet in California.

Because burrowing owls occupy burrows year-round, including outside of the breeding season, burrows will be buffered in any season if currently occupied, whether for nesting or roosting. Burrows will be monitored by a qualified biologist using non-invasive methods to determine if a smaller buffer would be adequate to protect the occupied burrow. This

determination will be based on the risk assessment described in Section 8.3 above, as well as time of year and observed nesting phenology. A smaller buffer may be implemented, but only after consultation with and approval from CDFW or AZGFD as appropriate. This would be submitted to the BLM CIC in the form of a variance.

8.3.2 Burrow Exclusion and Passive Relocation

If there is any danger that owls will be injured or killed as a result of construction activity because occupied burrow(s) cannot be avoided on-site, the birds may be passively relocated during the non-breeding season (October 16 to March 31) using burrow exclusion, in coordination with USFWS and CDFW or AZGFD. Relocation of owls during the non-breeding season will be performed by a qualified biologist using one-way doors, which should be installed in all burrows within the impact area and left in place for at least two nights. To avoid the potential for owls evicted from a burrow to occupy other burrows within the impact area, one-way doors will be placed in all potentially suitable burrows within the impact area when eviction occurs. These one-way doors will then be removed, and the burrows backfilled immediately prior to the initiation of grading.

Ideally, exclusion and burrow closure will be employed only where adjacent natural alternative burrows and non-impacted habitat occurs. If natural alternative burrows do not already occur in the adjacent habitat, artificial burrows will be installed prior to the exclusion.

Prior to implementing burrow exclusion, there must be verification that burrows are empty as specified below. Confirmation that the burrow is not currently supporting nesting or fledgling activities is required prior to any burrow exclusions or excavations. To ensure that take is avoided, biological monitoring of the occupied or potentially occupied burrow will be conducted prior to, during, and after exclusion of burrowing owls from their burrows. If the exclusion will occur immediately after the end of the breeding season, daily monitoring will be conducted for one week to confirm young of the year have fledged. Before burrow excavation, there must be verification that burrows are empty. This will be achieved through biological monitoring and burrow scoping. While the one-way doors are in place, a biologist will visit the burrows twice daily and check for evidence that owls are inside and unable to escape by looking for sign immediately inside the door and verifying that the sides of the one-way doors have not been excavated, which would allow the owl to bypass the exclusion.

If practicable, burrow excavation will be done using hand tools and backfilling to prevent reoccupation. If full visual confirmation of the burrow occupancy status cannot be achieved by means of the scope, the biologist will install corrugated piping or similar material within sections of the burrow prior to beginning excavation. Piping will be used to stabilize the burrow, prevent burrow collapse, and allow wildlife that may be present to escape the burrow during excavation if necessary. As excavation occurs, the burrow will be regularly inspected with the scope to verify that no owls or other wildlife are present, and piping will continually be re-installed for the portions of the burrow currently under excavation.

The biologist will photograph the excavation and collapsing of the burrow to document success and sufficiency.

8.3.3 Prevention of Recolonization

As practicable, the site will be rendered inhospitable to burrowing owls and fossorial mammals to avoid re-colonization until construction is complete through measures that

could include allowing vegetation to grow tall, heavy disking, or immediate, continuous grading and removal of other potential owl burrow surrogates or refugia on the site. The site will be monitored to evaluate success and, if needed, to implement remedial measures to prevent subsequent owl use and to avoid take.

8.3.4 Reporting

DCRT will develop a monthly report documenting implementation of avoidance, relocation, and monitoring for any active burrowing owl burrows detected in the survey area. This report shall be made available to the BLM, AZGFD, CPUC, and CDFW.

9 Bat Management and Protection Plan for California

Twenty-two bat species are present in the region and many of these may forage in the vicinity of the Project area, including eight special status species in California (Table F3-4-5). Monitoring and avoidance for bats will be implemented in compliance with the Final EIS avoidance and minimization measures, including: APM/BMP BIO-40, MM WIL-CEQA-4, MM WIL-CEQA-5. Each of these measures applies only within California.

9.1 Bat Roosts and Hibernacula

No known bat roosts or mines occur in or within 500 feet of the Project ROW. According to the Draft EIS, no mines, caves, or cliffs suitable for roosting are present in the Project area in California. Bat roosting may occur less commonly within trees—many species occasionally roost within tree cavities or behind large, loose flakes of bark which are likely to occur only in mature trees of relatively large species. *Lasiurus* species such as the western red bat (*L. blossevilli*) and western yellow bat (*L. xanthinus*) habitually roost (including maternity roosts) in the foliage of trees. Tree clearing during the maternity roosting season (March 1 – July 31) could result in mortality to bats if maternity roosts are destroyed or disturbed. Very few trees occur within the California portion of the Project area and tree clearing is not anticipated.

9.1.1 Survey

In conformance with MM WIL-CEQA-5, surveys for maternity roosts or hibernaculum will be conducted in California. Surveys will be conducted by a qualified bat biologist holding a CDFW collection permit and a CDFW Memorandum of Understanding allowing the handling of bats. The resume of the biologist will be provided to the CPUC and BLM for concurrence in consultation with CDFW and USFWS prior to the surveys. The bat biologist will conduct surveys for bat maternity roosts or hibernacula within 500 feet of Project activities, within 14 days prior to any grading of rocky outcrops or removal of trees with loose bark or other cavities, regardless of whether the construction disturbance occurs within the breeding season (1 March to 31 July) or the non-breeding season. Surveys will include a minimum of one day and one evening.

The methods and results of the surveys and any proposed avoidance or mitigation of roosts or hibernacula will be documented in a survey report and provided to CPUC, BLM, and CDFW for review and approval.

9.1.2 Avoidance and Mitigation

In conformance with MM WIL-CEQA-4, APM/BMP BIO-30, and APM/BMP BIO-40, the following avoidance and mitigation will be implemented to protect bat maternity roosts and hibernacula.

9.1.2.1 BLM Focus and Special Status Bat Species Maternity Roosts

Construction activities will not be sited within 500 feet of any occupied or presumed occupied maternity roost for BLM Focus or special status bat species in California. If construction activities cannot avoid these sites, construction at these sites will be delayed until the breeding cycles for the special status bats are completed. DCRT would consult with a bat specialist in order to determine when the breeding cycle for the special status bats is completed. If the maternity roost occurs within a bridge on an existing dirt or paved roadway within 500 feet of construction activities, construction may be allowed, provided that the construction activities occur only from 9:00 a.m. to 4:00 p.m. to avoid disturbance to nocturnal feedings.

9.1.2.2 Maternity Roosts with No BLM Focus or Special Status Bat Species

If an active maternity roost is found in California, the rock outcrop, structure, or tree occupied by the roost shall be avoided (i.e., not removed) by the Project if feasible. If the roost is not known or suspected to host BLM Focus or special status bat species, and avoidance of the maternity roost is not feasible, the bat biologist shall survey (through the use of radio telemetry or other CDFW approved methods) for nearby alternative maternity colony sites. If the bat biologist determines in consultation with and with the approval of the CDFW, BLM, and CPUC that there are alternative roost sites used by the maternity colony and young are not present, then no further action is required, and it will not be necessary to provide alternate roosting habitat. However, if there are no alternative roost sites used by the maternity colony, substitute bat roosting habitat shall be provided, as detailed below. If an active maternity roost is located in an area to be impacted by the Project, and alternative roosting habitat is available, the demolition of the roost site must commence before maternity colonies form (i.e., prior to 1 March) or after young are flying (i.e., after 31 July) using the exclusion techniques described below.

If a maternity roost will be impacted by the Project, and no alternative maternity roosts are in use near the site, substitute roosting habitat for the maternity colony will be provided on, or in close proximity to, the Project site no less than three months prior to the eviction of the colony. Alternative roost sites will be constructed in accordance with the specific bat species requirements in coordination with CDFW. By making the roosting habitat available prior to eviction, the colony will have a better chance of finding and using the roost. Large concrete walls (e.g., on bridges) on south or southwestern slopes that are retrofitted with slots and cavities are an example of structures that may provide alternative roosting habitat appropriate for maternity colonies. Alternative roost sites must be of comparable size and proximal in location to the impacted colony. The CDFW shall also be notified of any hibernacula or active nurseries within the construction zone.

9.1.2.3 Hibernacula and Non-maternity Roosts

If a bat hibernacula or non-maternity roost is found in California in a tree or structure scheduled to be removed or in crevices in rock outcrops within the grading footprint, the rock outcrop or tree occupied by the roost shall be avoided (i.e., not removed) by the Project if

feasible. If avoidance of the hibernacula or non-maternity roost is not feasible, the bats may be safely evicted, under the direction of a qualified bat biologist holding a CDFW collection permit and a CDFW Memorandum of Understanding allowing the handling of bats. If BLM Focus or special status bat species are known or suspected to occupy the hibernacula or non-maternity roost, DCRT would consult with CDFW prior to evicting the bats. The biologist may evict the bats by opening the roosting area to allow airflow through the cavity or other means determined appropriate by the bat biologist (e.g., installation of one-way doors). In situations requiring one-way doors, a minimum of one week will pass after doors are installed and temperatures should be sufficiently warm for bats to exit the roost because bats do not typically leave their roost daily during winter months in southern California. This action should allow all bats to leave during the course of one week. Roosts that need to be removed in situations where the use of one-way doors is not necessary in the judgment of the qualified biologist will first be disturbed by various means at the direction of the bat biologist at dusk to allow bats to escape during the darker hours, and the roost tree will be removed, or the grading will occur the next day (i.e., there will be no less or more than one night between initial disturbance and the grading or tree removal). Eviction will not occur during times when the hibernacula are occupied by inactive, hibernating bats, as determined by the qualified bat biologist.

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ATTACHMENT A

AVOIDANCE AND MINIMIZATION MEASURES

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BIO-01: Worker Environmental Awareness Program

Before starting any work, including mowing, staging, installing storm water control structures, implementing other best management practices (BMPs), removing trees, construction, and restoration, all employees and contractors performing activities and new construction would receive training on environmental requirements that apply to their job duties and work. If additional crewmembers arrive later in the job, they would be required to complete the training before beginning work. This Worker Environmental Awareness Program (WEAP) would include a discussion of the avoidance and minimization measures being implemented and would include information on the federal and state Endangered Species Acts (ESAs) and the consequences of not complying with these Acts. An educational brochure would be provided to construction crews working on the Project. This brochure would include color photographs of special status species as well as a discussion of avoidance and minimization measures. The WEAP would provide interpretation for non-English speaking workers.

BIO-02: Biological Monitoring and Preconstruction Survey

A qualified biological monitor would be present on the Project site during all work activities within habitat of special status animal species. Multiple biological monitors would be provided so any work site within habitat of special status species is monitored concurrently if needed.

BIO-20: Migratory Bird Protection During Construction

If construction is scheduled during the nesting bird season (generally February 1 through August 31), the work area would be surveyed for birds protected under the Migratory Bird Treaty Act (MBTA) and applicable Arizona and California codes, as appropriate. Active nests identified during preconstruction surveys would require protective buffers or visual barriers to ensure compliance with those regulations. If the qualified biologist determines that construction activities would cause distress to nearby nesting birds, larger buffers or construction delays might be necessary to allow the birds to successfully fledge from the nest.

APM BIO-21: Reduction of Avian Collision and Electrocution

Current guidelines and methodologies (APLIC 2006 and 2012) would be used in the design of the proposed transmission facilities to minimize the potential for raptors and other birds to collide with the transmission line during operations and/or perch on the lines and be electrocuted. For example, aerial marker balls or other visibility markers would be placed at and near the crossing of the Colorado River to increase the visibility of the transmission line to birds using that movement corridor. Deterrents would be added to reduce nesting and perching by ravens and other predatory birds. Further, placement of lines significantly above existing transmission lines, topographic features, or tree lines would be avoided. These measures would be implemented where practicable, in conjunction with the Avian Protection Plan (APP) would include requirements for monitoring the effectiveness of anti-collision and anti-perching design.

Aerial marker balls or other visibility markers would be placed on overhead ground wires (not conductors) at crossing of the Colorado River and floodplain to increase visibility to birds using that movement corridor and marking any other static wires to improve visibility and reduce collisions. Deterrents would be added to reduce nesting and perching by ravens

and other predatory birds. The APP would include requirements for monitoring the effectiveness of anti-electrocution design.

BMP BIO-21: Reduction of Avian Collision and Electrocution

Aerial marker balls or other visibility markers would be placed on overhead ground wires (not conductors) at crossing of the Colorado River and floodplain to increase visibility to birds using that movement corridor and marking any other static wires to improve visibility and reduce collisions. Deterrents would be added to reduce nesting and perching by ravens and other predatory birds. The APP would include requirements for monitoring the effectiveness of anti-electrocution design.

BIO-25: Sensitive Animal Surveys

A survey would be conducted of the selected route prior to construction of all work areas to identify special status animal species, including Mojave desert tortoises (*Gopherus agassizii*), burrowing owls (*Athene cunicularia*), and Mojave fringe-toed lizards (*Uma scoparia*). Where possible, and as required by the Bureau of Land Management (BLM), special status species and vegetation alliances would be avoided during construction.

BIO-29: Bird and Bat Conservation Strategy

The Bird and Bat Conservation Strategy (BBCS) would provide guidance on conservation measures applicable to bird and bat species present in the Project area, including a nesting bird management plan and a nest management plan.

BIO-30: Burrowing Owl Nesting Management Plan

Plan would include management direction consistent with LUPA-BIO-IFS-12, LUPA-BIO-IFS-13, and LUPA-BIO-IFS-14.

BIO-33 Construction Lighting

All long-term nighttime lighting would be directed away from riparian and wetland vegetation, occupied habitat, and suitable habitat areas for sensitive species. Long-term nighttime lighting, if required, would be directed and shielded downward to avoid interference with the navigation of night-migrating birds and to minimize the attraction of insects as well as insectivorous birds and bats to project infrastructure. Long-term nighttime lighting would avoid the use of constant-burn lighting.

BIO-39: Bird- and Bat-Friendly Fencing

When fencing is necessary, use bird and bat compatible design standards.

BIO-40: Project Activity Siting Near Bat Maternity Roosts (applies only in California)

Activities would not be sited within 500 feet of any occupied maternity roost or presumed occupied maternity roost for BLM Focus and special status bat species.

BIO-45: Protection from Loss and Harassment of Golden Eagles (applies only in California)

Provide protection from loss and harassment of active golden eagle nests through activities identified LUPA-BIO-IFS-24 through -31.

BIO-48: Flight Diverters (applies only in California)

Flight diverters will be installed on all transmission activities spanning or within 1,000 feet of stream and wash channels, canals, ponds, and any other natural or artificial body of water. The type of flight diverter selected will be subject to approval by BLM, in coordination with United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), as appropriate.

REC-03: Guy Wire Marking

Plastic mesh or paint would be used to mark guy wires in areas used for recreation. Permanent high visibility guy markers would be installed during construction.

MM BIO-CEQA-2: Implement a Worker Environmental Awareness Program (applies only in California)

BMP-BIO 1 and CMA LUPA-BIO-5 shall be incorporated within this MM BIO-CEQA-2.

- Prior to any work activities on the Project site, including surveying, mobilization, fencing, grading, or construction, a WEAP shall be prepared and implemented by the Applicant. Prior to implementation the WEAP will be approved by the California Public Utilities Commission (CPUC) with a final version completed prior to the issuance of construction permits. The WEAP shall be implemented throughout the duration of Project, including operations and maintenance (O&M) phases. Successful implementation of the WEAP will result in all on-site Project personnel being properly informed and educated on the pertinent environmental concerns related to the Project. One of the main goals of the WEAP, is that it shall reduce unintentional impacts to biological resources within the Project area and ensure that all workers are trained in accordance with these mitigation measures (MM). The WEAP shall include, at a minimum, the following items: Maps showing the known locations of listed and/or special status wildlife, populations of listed and special status plants and sensitive vegetation communities, riparian habitats, seasonal depressions and known waterbodies, wetland habitat, exclusion areas, and other construction limitations.
- A discussion of measures to be implemented for avoidance of sensitive resources discussed in the Environmental Impact Statement (EIS; including this appendix) and the identification of an onsite contact in the event of the discovery of sensitive species on the Project site; this shall include a discussion on micro trash.
- Training materials and briefings shall include, but not be limited to: a discussion of the federal ESA and CESA; the Bald and Golden Eagle Protection Act; the MBTA; the Avian Power Line Interaction Committee (APLIC) Guidelines; the consequences of non-compliance with these regulations; identification and values of plant and wildlife species and significant natural plant community habitats; hazardous substance spill prevention and containment measures; a contact person and phone

number in the event of the discovery of dead or injured wildlife; and a review of mitigation requirements.

- Protocols to be followed when road kill is encountered in the work area, or along access roads, and the identification of an onsite representative to whom the road kill shall be reported. Road kill shall be reported to the appropriate local animal control agency, the CPUC within 24 hours. Road kill of special status species shall also be reported to the CDFW and/or USFWS within 24 hours or otherwise specified in Project-specific permits.
- Literature and photographs or illustrations of potentially occurring special status plant and/or wildlife species shall be provided to all Project contractors and heavy equipment operators.
- A special hardhat sticker or wallet size card shall be issued to all personnel completing the training, which shall be carried with the trained personnel at all times while on the Project site.
- All new personnel shall receive this training and may work in the field for no more than five days without participating in the WEAP.
- A log of all personnel who have completed the WEAP training shall be kept on site.
- A copy of the WEAP shall be kept at an easily accessible location within the Project site (e.g., foreman's vehicle, construction trailer) for the duration of the Project.
- A standalone version of the WEAP shall be developed, that covers all previously discussed items above, and that can be used as a reference for maintenance personnel during Project operations.
- The Applicant shall ensure that interpretation of the WEAP is available for all non-English speaking workers.

MM BIO-CEQA-2 Implementation

Responsible Party: The Applicant shall ensure that a qualified biologist (approved by the CPUC) prepares the WEAP and that it is implemented for all on-site Project personnel.

Timing: Prior to construction, and during construction for all new on-site Project personnel.

Mitigation Monitoring and Reporting Program: The WEAP shall be developed by a qualified biologist designated by the Applicant and approved by the CPUC. A copy of the WEAP shall be kept at an easily accessible location within the Project site for the duration of the Project. A log of all personnel who have completed the WEAP training shall be kept on site.

Standards for Success: All construction/Project related personnel are trained in the key characteristics for identifying and avoiding impacts to special status species and sensitive habitats.

MM BIO-CEQA-3: Implement Biological Construction Monitoring (applies only in California)

APM BIO-2, BMP BIO-02, and CMA LUPA BIO-2 shall be incorporated within this MM BIO-CEQA-3.

No more than 30 days prior to the start of site mobilization or ground disturbing activities, the Applicant shall designate a qualified biologist(s) to monitor construction of the Project. Multiple qualified biologists shall be designated by the Applicant, as needed. Designated

qualified biologists must be approved by the CPUC, BLM, and CDFW prior to conducting construction monitoring. The biologist(s) must be knowledgeable with the life history and habitat requirements of federal and state listed and special status plants, mammals, reptiles, amphibians, and birds. The qualified biologist(s) shall conduct clearance surveys for listed and special status species prior to the start of construction activities each work day during initial site disturbance; clearance surveys can be conducted on a weekly basis thereafter. Any handling of special status species must be approved by the appropriate federal and state agencies and be done in accordance with species-specific handling protocols. During initial site disturbance, and for the duration of construction, the qualified biologist(s) shall remain on-site at all times when activities shall occur immediately adjacent to, or within, habitat that supports populations of listed and/or special status species. The designated biologist(s) shall relocate any terrestrial special status species that would be impacted by the Project. Permits and/or a Memorandum of Understanding may be required for some species. All locations of listed and/or special status plants shall be flagged for avoidance or salvage, relocation, or transplanting as described in MM VEG-CEQA-4. Similarly, locations of listed and/or special status wildlife shall be flagged for avoidance and appropriate avoidance buffers established as described in MM WIL-CEQA-1 through MM WIL-CEQA-11. Results of all monitoring shall be recorded on daily site observation reports and include details the construction activities. The daily monitoring reports shall be compiled and submitted to the CPUC, BLM, and CDFW for review on a weekly basis. Contents of the reports shall include at a minimum the date, time of monitoring, location, qualified biologists name, construction activities, biological conditions and species detections, and any issues encountered during the monitoring effort.

If dead or injured special status wildlife species and/or impacted special status plant are detected on the construction site, the qualified biological monitor shall, immediately upon finding the remains or injured animal, coordinate with the onsite construction foreman to discuss the events that caused the mortality or injury, if known, and implement measures to prevent future incidents. Details of these measures shall be included within monitoring separate incident report. Species remains shall be collected and frozen as soon as possible, and CDFW and USFWS, as well as all other appropriate Federal and State regulatory agencies, shall be contacted regarding ultimate disposal of the remains. The incident report shall be sent to the CPUC, CDFW and/or USFWS (as appropriate), as well as any other appropriate Federal and State agencies, within five calendar days. The construction biological monitoring report shall at a minimum include: the date, time of the finding or incident (if known), and location of the carcass, injured animal or other impacted species, and the circumstances of its death or injury (if known). Injured animals shall be taken immediately to the nearest appropriate veterinary or wildlife rehabilitation facility.

MM BIO-CEQA-3 Implementation

Responsible Party: The Applicant is responsible for designating qualified biologists to monitor Project construction activities that are within and/or adjacent sensitive habitats, and/or have the potential to impact special status species.

Timing: During all Project phases if biological resources are pertinent or monitoring is required by the appropriate Federal or State regulatory agency.

Mitigation Monitoring and Reporting Program: Copies of daily monitoring reports shall be compiled and submitted to the CPUC, BLM, and CDFW on a weekly basis. Separate incident reports shall be compiled and submitted to the appropriate federal and state agencies if observations of dead, injured or impacted special status species are observed during monitoring within five calendar days.

Standards for Success: Sensitive biological resources are avoided and/or impacts are reduced to a less than significant level throughout all construction activities.

MM-WIL-CEQA-1: Develop and Implement an Avian Management and Protection Plan and Bird and Bat Conservation Strategy (applies only in California)

The following APMs, BMPs, and CMAs shall be incorporated within this MM WIL CEQA-1: BMP BIO-19, APM BIO-20, APM BIO-21, BMP BIO-21, BMP BIO-29, BMP BIO-30, BMP BIO-33, BMP BIO-40, BMP BIO-45, BMP BIO-48, CMA LUPA-BIO-14, CMA LUPA-BIO-16, CMA LUPA-BIO-17, CMA LUPA-BIO-COMP-2, CMA LUPA-BIO-IFS-11, CMA LUPA-BIO-IFS-12, CMA LUPA-BIO-BAT-1, CMA LUPA-BIO-COM-2, CMA LUPA-BIO-DUNE-5, CMA LUPA-BIO-IFS-13, CMA LUPA-BIO-IFS-14, CMA LUPA-BIO-IFS-24, CMA LUPA-BIO-IFS-25, CMA LUPA-BIO-IFS-26, CMA LUPA-BIO-IFS-27, CMA LUPA-TRANS-BIO-1, CMA LUPA-TRANS-BIO-2, and CMA LUPA-TRANS-BIO-3.

The Project Applicant shall prepare an APP and BBCS, which will also include a component for a Nesting Bird and Nest Management Plan (NBNMP), as identified in the BBCS in BMP BIO-29, in coordination with and approval by the applicable permitting/resource agencies (i.e., BLM, CDFW, USFWS, CPUC) prior to the start of construction. Additionally, the components of the Burrowing Owl Avoidance, Minimization, and Mitigation Plan (MM WIL-CEQA-3) and the Bat Management and protection Plan (MM WIL-CEQA-4) will also be included under the overarching APP/BBCS Plan. The specifics of the APP and BBCS will include the following:

- **APP:** The APP will follow the APLIC/USFWS 2005 APP Guidelines which specifies program design for transmission projects in order to reduce operational avian risks that result from interactions with transmission lines. This goal of this guidance is to reduce avian mortality from electrocution and collision with the transmission lines. The APP Guidelines state that although each APP developed for a specific project may be different, the overall goal of reducing avian mortality is the same across all developed APPs. The APP developed for the Project shall include, at a minimum, the following consideration and evaluation of principals identified in the APP Guidance:
 1. **Corporate policy:** Confirming the company's commitment to work cooperatively towards the protection of migratory birds.
 2. **Training:** All appropriate utility personnel, including managers, supervisors, line crews, engineers, etc. shall be properly trained in avian issues (which shall be enforced through MM BIO-CEQA-2, Implement a WEAP).
 3. **Permit Compliance:** Identify the process in which the Applicant will obtain and comply with all necessary permits related to avian issues.
 4. **Construction Design Standards:** Avian interactions shall be considered in the design and installation of the transmission line as well as during operations and maintenance of the facility. Construction configurations from the *Suggested Practices for Raptor on Power Lines: The State of the Art in 1996* and *Mitigating Bird Collisions with power Lines: The State of the Art in 1994*, or the most current editions of these documents shall be consulted during the design phase of the Project to ensure new construction is avian-safe.

5. **Nest Management:** Procedures for nest management on the transmission lines shall be explained to employees during training to ensure uniform treatment of avian nest issues among personnel.
 6. **Avian Reporting System:** Development of a reporting system which shall include reporting of any avian mortalities, as required by any federal or State permits. The reporting system can also help pinpoint areas of concerns by tracking both the specific locations where mortalities may be occurring, as well as the extent of such mortalities.
 7. **Risk Assessment Methodology:** A focus on the areas with the highest risk to migratory birds shall be the focus of the APP and therefore, a method for evaluating the risks posed to migratory birds in a manner that identified areas and issues of particular concern shall be developed.
 8. **Mortality Reduction Measures:** After completing the risk assessment, the efforts for avian protection shall be focused on areas of concern. A mortality reduction plan may need to be implemented depending on the results of the risk assessment. This approach could be implemented through direction of where monitoring should occur, where retrofits should be focused, and where new construction warrants special attention to raptor and other bird issues.
 9. **Avian Enhancement Options:** In addition to taking steps to reduce mortality risk to avian species, the developed APP also may include opportunities to enhance avian populations or habitat, including developing nest platforms, managing habitats to benefit migratory birds, or working cooperatively with agencies or organizations in such efforts.
 10. **Quality Control:** The developed APP may also include a mechanism to review existing practices, ensuring quality control.
 11. **Public Awareness:** The developed APP shall include a method to educate the public about the avian electrocution issues, the developed APP, as well as its success in avian protection.
 12. **Key Resources:** The developed APP shall identify key resources to address avian protection issues including, for example, a list of experts who may be called upon to aid in resolving avian issues.
- **BBCS:** The purpose of the BBCS is to outline measures/methods to minimize potential Project effects to nesting birds and avoid unauthorized take; the NBNMP (developed as a part of the BBCS) shall be approved by the above noted agencies prior to the site disturbance or preconstruction activities and be implemented by the Applicant throughout construction activities. Additionally, the current APLIC guidelines shall be incorporated into the NBNMP, which includes protections for nocturnal migrants (i.e., lighting controls) and species along the Colorado River and near agricultural fields (APLIC 2006 and 2012) (see BMP BIO-33). Specifically, these guidelines will be used to minimize the potential for attracting birds and bats to the proposed infrastructure (transmission lines and facilities). Any nighttime lighting associated with construction will be temporary and shielded in order to provide safe working conditions while limiting light spillover outside of the construction area. Implementation of APM AES-15 will also ensure that lighting, will be directed in a downward position. Preconstruction surveys shall be completed in accordance with MM WIL-CEQA-6 below and if breeding birds with active nests are found prior to or during construction, a qualified avian biologist shall establish a minimum 300-foot buffer (500 feet for raptors) around the nest and no activities

shall be allowed within the buffer(s) until the young have fledged from the nest or the nest fails (CPUC 2016). The prescribed buffers may be adjusted by a qualified avian biologist based on existing conditions around the nest, planned construction activities, tolerance of the species, and other pertinent factors. Buffer reductions for listed or special status species may require coordination with the USFWS and/or CDFW. The qualified avian biologist shall conduct regular monitoring of the nest to determine success/failure and to ensure that Project activities are not conducted within the buffer(s) until the nesting cycle is complete or the nest fails. An avian biologist shall be responsible for documenting the results of the surveys (MM WIL-CEQA-6 below), nest buffers implemented, and the results of ongoing monitoring and shall provide a copy of the monitoring reports for impact areas to the appropriate resource agencies (i.e., USFWS and CDFW) (CPUC 2016). If trees with nests are to be removed as part of Project construction activities, they shall be done so outside of the nesting season to avoid additional impacts to nesting raptors. If removal during the nesting season cannot be avoided all trees shall be inspected for active nests by the avian biologist. If nests are found within these trees, and contain eggs or young, no activities within a 300-foot buffer for nesting birds and/or a 500-foot buffer for raptors shall occur until the young have fledged the nest (CPUC 2016). At a minimum, the NBNMP shall include the following:

- Definitions of standard nest buffers for each species or group of species, depending on characteristics and conservation status for each species.
- A notification procedure for buffer distance reductions should they become necessary under special circumstances.
- A monitoring protocol including qualifications of monitors, monitoring schedule, and field methods, to ensure that any Project-related effects to nesting birds shall be minimized.
- A protocol for documenting and reporting any inadvertent contact or effects to birds or nests.
- A summary of applicable state and federal laws and regulations, including definition of what constitutes a nest or active nest under state and federal law.
- A list of bird species potentially nesting on or near the Project area, indicating approximate nesting seasons, nesting habitat, typical nest locations (e.g., ground, vegetation, structures), tolerance to disturbance (if known) and any conservation status for each species.
- A discussion of how construction of the Project has been scheduled, to avoid or minimize project impacts to nesting birds. Activities that may adversely affect breeding birds shall be scheduled outside the nesting season, as feasible.
- Discussion on nest buffer modification or reduction guidelines, including reporting procedures to the appropriate agencies (i.e., CDFW, USFWS, and CPUC).
- Discussion on use of nest deterrents and communication protocols for on-site monitors.
- Monitoring and reporting requirements.

- Detailed noise monitoring guidelines for active breeding territories and/or nests for special status species that may occur within 500 feet of the Project area.
- Procedures for the calculation of a fee, to be reassessed every five years, to fund compensatory mitigation for bird and bat mortality impacts; this shall be based on requirements described in CMA LUPA-BIO-COMP-2.

MM WILCEQA-1 Implementation

Responsible Party: The APP/BBCS shall be developed and implemented by the Applicant and approved by the BLM, CDFW, USFWS, CPUC.

Timing: The APP/BBCS shall be prepared/approved prior to the start of construction activities and shall be implemented throughout the duration of construction. The APP specifically shall be implemented throughout the life of the Project while the BBCS shall focus on the construction and maintenance of the Project.

Mitigation Monitoring and Reporting Program: The Applicant shall retain a qualified avian biologist (approved by the CPUC) to perform monitoring surveys within 500 feet of the Project area. The qualified avian biologist shall report any inadvertent contact or effects to birds or nests within the Project area to the BLM, CDFW, USFWS, and CPUC. The Applicant shall develop a monthly report documenting compliance with this measure and any actions taken regarding the NBNMP. This report shall be made available to the BLM, CDFW, USFWS, and the CPUC. The monitoring requirements for the APP shall conform to the APLIC Guidance including identifying and responding promptly to any avian mortality and including adaptive management for avian issues related to the Project.

Standards for Success: Adverse effects to birds shall be avoided or minimized to less than significant levels.

MM WIL-CEQA-3: Develop and Implement Burrowing Owl Avoidance, Minimization, and Mitigation Plan (applies only in California)

The following BMPs and CMAs shall be incorporated within this MM WIL-CEQA-3 and MM WIL-CEQA-7: BMP BIO-30, CMA-LUPA-BIO-IFS-12, CMA LUPA-BIO-IFS-13, and CMA LUPA-BIO-IFS-14.

The Burrowing Owl Avoidance, Minimization, and Mitigation Plan (BOAMMP) would include management direction consistent with LUPA-BIO-IFS-12, LUPA-BIO-IFS-13, and LUPA-BIO-IFS-14 and will be developed as a part of the APP/BBCS (MM WIL-CEQA-1). The Applicant shall submit a BOAMMP to BLM and CPUC for approval prior to any ground disturbing activities in California. The BLM and CPUC will include CDFW in the review process and incorporate their comments as appropriate. The BOAMMP will include direction for burrowing owls which shall include a combination of active and passive relocation efforts consistent with LUPA BIO-IFS-12, LUPA BIO-IFS-13, and LUPA-BIO-IFS-14. Any relocation shall include follow up monitoring procedures.

If burrowing owls, or burrowing owl habitat is found within the Project area during preconstruction surveys as described in MM WIL-CEQA-7, the following measures shall be implemented and enforced by the BLM and CPUC throughout construction of the Project. If preconstruction focused burrowing owl surveys determine that burrowing owls occupy the Project area, a tiered approach referred to as an Avoidance and Relocation Strategy shall be implemented to avoid burrowing owls, relocate burrowing owls, and prevent

recolonization of areas (where needed, such as construction and/or substation areas) by burrowing owls, as outlined below. These methods generally adhere to the recommendations contained in the *Staff Report on Burrowing Owl Mitigation* currently used by CDFW to guide burrowing owl mitigation measures. The four avoidance and relocation strategy tiers are:

- Tier 1 – Avoidance Buffers
- Tier 2 – Passive Relocation
- Tier 3 – Prevention of Recolonization
- Tier 4 – Active Relocation (Optional)

Methods to avoid impacts to burrowing owls shall take precedence over passive or active relocation. If preconstruction focused burrowing owl surveys determine that burrowing owls occupy the project area, including within the 150-meter buffer, the qualified Project biologist will evaluate each occupied burrow to determine whether the Project is likely to directly impact or substantially indirectly impact the burrow such that injury or death of a burrowing owl could occur. Avoidance buffers can be implemented to avoid direct and substantial indirect impacts to owl burrows and individuals. A substantial indirect impact would be a situation where even though the burrow is not directly impacted during construction, the construction activities could potentially cause injury or mortality of owls, including from collisions with nearby construction equipment, vehicles, fences, or walls. The Project biologist will have discretion in determining whether an indirect impact is substantial. If occupied burrowing owl burrows are found within the Project disturbance footprint or survey buffer during preconstruction surveys, or if burrowing owls arrive on site after construction activities commence, a qualified biologist shall assess the risk of construction activities to the burrowing owl. This risk assessment shall consider several factors, including, but not limited to, the following:

- Location of the burrow (e.g., inside the disturbance footprint, within 5.0 meters (16.4 feet) of the disturbance footprint, more than 40 meters (131.2 feet) from the disturbance footprint).
- Type of burrow use (i.e., occupied nest burrow or non-nesting roost burrow that may include wintering or satellite burrows, referred to herein simply as “roost burrow”).
- Type of construction activity and level of potential disturbance (e.g., high disturbance, such as mass grading and excavation versus low disturbance, such as painting and landscaping).
- Timing of burrow use (e.g., occupation of a burrow after construction has been started versus prior to construction).

Avoidance buffers shall be strictly required for occupied nest burrows so that nesting activities are not disturbed and nesting pairs have the opportunity to rear and successfully fledge young. Per the guidelines outlined by the *Staff Report on Burrowing Owl Mitigation*, a standard minimum avoidance buffer ranging between 200 meters (656 feet) and 500 meters (1,640 feet) will be initially applied to occupied nest sites between April 1 and October 15. Burrows will be monitored by a qualified biologist to determine if a smaller buffer would be adequate to protect the active nest site. A smaller buffer may be implemented, but only after consultation with and approval from CDFW.

Establishing avoidance buffers from occupied roost burrows during October 16 through March 31 or from burrows that have been determined to not support nesting (through the

non-invasive methods cited above) during the breeding season will initially be based on the buffers described in the *Staff Report on Burrowing Owl Mitigation*. Burrows will be monitored by a qualified biologist to determine if a smaller buffer would be adequate to protect the active nest site. A smaller buffer may be implemented, but only after consultation with and approval from CDFW. Roost burrows detected during preconstruction surveys fall into three categories: (1) burrows within the proposed project disturbance footprint; (2) burrows in close proximity to the disturbance footprint; and (3) burrows farther from the disturbance footprint, but still potentially within the impact area for burrowing owl.

The Applicant shall report any special status species and natural communities detected during Project surveys to the CNDDDB.

MM WIL-CEQA-3 Implementation

Responsible Party: The BOAMMP shall be developed and implemented by the Applicant and approved by the BLM, CPUC, and CDFW.

Timing: The BOAMMP shall be prepared prior to the start of construction activities and shall be implemented throughout the duration of construction.

Mitigation Monitoring and Reporting Program: The Applicant shall develop a monthly report documenting compliance with this measure and any actions taken regarding the BOAMMP. This report shall be made available to the BLM, CPUC, and CDFW.

Standards for Success: Any significant impacts to nesting or burrowing owls shall be avoided or minimized to less than significant levels.

MM WIL-CEQA-4: Develop and Implement a Bat Management and Protection Plan (applies only in California)

The following BMPs and CMAs shall be incorporated within this MM WIL CEQA-4: BMP BIO-29, BMP BIO-33, BMP BIO-40, CMA LUPA-BIO-14, CMA LUPA-BIO-16, CMA LUPA-BIO-17, CMA LUPA-BIO-BAT-1, CMA LUPA-BIO-COMP-2, CMA LUPA-BIO-DUNE-5, and CMA LUPA-TRANS-BIO-1.

The Bat Management and Protection Plan will be developed as a part of the with the BBCS (MM WIL-CEQA-1). The Bat Management and Protection Plan shall be submitted to the BLM, CPUC, and CDFW for approval prior to any ground disturbing activities. The Bat Management and Protection Plan will include direction for roosting bats and shall include, at a minimum, the following:

- If non-breeding bat hibernacula are found in trees scheduled to be removed or in crevices in rock outcrops within the grading footprint, the bats shall be safely evicted, under the direction of a qualified bat biologist, by opening the roosting area to allow airflow through the cavity or other means determined appropriate by the bat biologist. Roosts that need to be removed shall first be disturbed by various means at the direction of the bat biologist at dusk to allow bats to escape during the darker hours, and the roost tree shall be removed or the grading shall occur the next day (i.e., there shall be no less or more than one night between initial disturbance and the grading or tree removal).
- If active maternity roosts or hibernacula are found, the rock outcrop or tree occupied by the roost shall be avoided (i.e., not removed) by the Project. If avoidance of the maternity roost is not feasible, the bat biologist shall survey (through the use of radio telemetry or other CDFW approved methods) for nearby alternative maternity colony sites. If the bat biologist determines in consultation with and with the

approval of the CDFW, BLM, and CPUC that there are alternative roost sites used by the maternity colony and young are not present, then no further action is required, and it will not be necessary to provide alternate roosting habitat. However, if there are no alternative roosts sites used by the maternity colony, substitute bat roosting habitat shall be provided, as detailed below. If an active maternity roost is located in an area to be impacted by the Project, and alternative roosting habitat is available, the demolition of the roost site must commence before maternity colonies form (i.e., prior to 1 March) or after young are flying (i.e., after 31 July) using the exclusion techniques described above.

- If a maternity roost will be impacted by the Project, and no alternative maternity roosts are in use near the site, substitute roosting habitat for the maternity colony shall be provided on, or in close proximity to, the Project site no less than three months prior to the eviction of the colony. Alternative roost sites will be constructed in accordance with the specific bat's requirements in coordination with CDFW. By making the roosting habitat available prior to eviction, the colony will have a better chance of finding and using the roost. Large concrete walls (e.g., on bridges) on south or southwestern slopes that are retrofitted with slots and cavities are an example of structures that may provide alternative roosting habitat appropriate for maternity colonies. Alternative roost sites must be of comparable size and proximal in location to the impacted colony. The CDFW shall also be notified of any hibernacula or active nurseries within the construction zone.
- If special status bat species occur at these roosting/nursery sites, then construction activities shall avoid these sites and a surrounding buffer distance of 500 feet. If construction activities cannot avoid these sites, construction at these sites shall be delayed until the breeding cycles for the special status bats are completed. The Applicant shall consult with a bat specialist in order to determine when the breeding cycle for the special status bats is completed. The Applicant shall consult with CDFW regarding eviction of non-breeding special status bats.

If roosting bats occur within bridges on existing dirt or paved roadways within 500 feet of construction activities, construction may be allowed, provided that the construction activities occur only from 9:00 a.m. to 4:00 p.m. to avoid disturbance to nocturnal feedings.

MM WIL-CEQA4 Implementation

Responsible Party: The Bat Management and Protection Plan shall be developed and implemented by the Applicant and approved by the BLM, CPUC, and CDFW.

Timing: The Bat Management and Protection Plan shall be prepared prior to the start of construction activities and shall be implemented throughout the duration of construction.

Mitigation Monitoring and Reporting Program: The Applicant shall develop a monthly report documenting compliance with this measure and any actions taken regarding the Bat Management and Protection Plan. This report shall be made available to the BLM, CPUC, and CDFW.

Standards for Success: Any significant impacts from construction activities to bat species shall be avoided or minimized to result in less than significant levels.

MM WIL-CEQA-5: Conduct Preconstruction Surveys for Maternity Colonies or Hibernaculum for Roosting Bats (applies only in California)

The following BMPs and CMA shall be incorporated within this MM WIL-CEQA-5: APM BIO-2, BMP BIO-02, BMP BIO-25, CMA DFA-BIO-IFS-1, CMA LUPA-BIO-1, CMA LUPA-BIO-16, and CMA LUPA-BIO-DUNE-5.

The Applicant shall conduct surveys for roosting bats within 500 feet of Project activities, within 14 days prior to any grading of rocky outcrops or removal of trees with loose bark or other cavities. Surveys shall be conducted during the breeding season (1 March to 31 July) and the non-breeding season. Surveys shall be performed by a qualified bat biologist (i.e., a biologist holding a CDFW collection permit and a Memorandum of Understanding with CDFW allowing the biologist to handle bats). The resume of the biologist shall be provided to the CPUC and BLM for concurrence in consultation with CDFW and USFWS prior to the biologist beginning field duties on the Project. Surveys shall include a minimum of one day and one evening.

The Bat Management and Protection Plan (MM WIL-CEQA-4) shall be implemented throughout construction for any active bat roosts within the area. The Applicant shall submit documentation providing preconstruction survey results and any avoidance of roosting and nursery sites to the CPUC, BLM, and CDFW for review and approval.

MM WIL-CEQA-5 Implementation

Responsible Party: The surveys for maternity colonies or hibernaculum for roosting bats shall be completed by a qualified biologist (i.e., a biologist holding CDFW collection permit and a Memorandum of Understanding with CDFW allowing the biologist to handle bats).

Timing: The surveys shall be completed within 14 days prior to any grading activities or removal of trees within 500 feet of the Project.

Mitigation Monitoring and Reporting Program: The Applicant shall submit documentation in the form of a report or technical memorandum that provides the preconstruction survey results and any avoidance of roosting and nursery sites to the CPUC, BLM, and CDFW for review and approval.

Standards for Success: Surveys for bat roosting and nursery sites are completed within the Project area and required buffer distances.

MM WIL-CEQA-6: Conduct Preconstruction Surveys for Nesting and Breeding. (applies only in California)

The following APMs, BMPs, and CMAs shall be incorporated within this MM WIL-CEQA-6: APM BIO-2, BMP BIO-02, APM BIO-20, BMP BIO-25, CMA DFA-BIO-IFS-1, CMA LUPA-BIO-1, CMA LUPA-BIO-16, CMA LUPA-BIO-IFS-26, and CMA LUPA-BIO-RIPWET-3. The Applicant shall retain a qualified avian biologist(s) (approved by the CPUC, BLM, and CDFW) to conduct preconstruction nesting bird surveys, within the recognized breeding season (generally 15 February – 15 September [1 January – 15 August for raptors]), for all areas within 500 feet of construction activities; construction activities include mobilization, staging, grading, and/or construction. These survey dates may only be modified with the approval of CDFW and USFWS (where applicable). Measures intended to exclude nesting birds shall only be implemented with the prior approval by the CDFW and/or USFWS. If breeding birds with active nests are found prior to or during construction, the qualified avian biologist shall establish a minimum 300-foot buffer (500 feet for raptors) around the nest and

no activities shall be allowed within the buffer(s) until the young have fledged from the nest or the nest fails. The prescribed buffers may be adjusted by the qualified avian biologist based on existing conditions around the nest, planned construction activities, tolerance of the species, and other pertinent factors. Buffer reductions for listed or special status species may require coordination with the USFWS and/or CDFW. The qualified avian biologist shall conduct regular monitoring of the nest to determine success/failure and to ensure that Project activities are not conducted within the buffer(s) until the nesting cycle is complete or the nest fails. The avian biologist shall be responsible for documenting the results of the surveys, implementing nest buffers, and documenting the results of ongoing monitoring by providing a copy of the monitoring reports for impact areas to the appropriate resource agencies (i.e., USFWS and CDFW). If trees with nests are to be removed as part of Project construction activities, they shall be done so outside of the nesting season to avoid additional impacts to nesting raptors. If removal during the nesting season cannot be avoided, all trees shall be inspected for active nests by the avian biologist. If nests are found within these trees, and contain eggs or young, no activities within a 300-foot buffer for nesting birds and/or a 500-foot buffer for raptors shall occur until the young have fledged the nest.

MM WIL-CEQA-6 Implementation

Responsible Party: The surveys for nesting and breeding avian species shall be completed by a qualified avian biologist (approved by the CPUC, BLM, and CDFW).

Timing: The surveys shall be completed within the recognized breeding season prior to construction activities for all areas within 500 feet of construction.

Mitigation Monitoring and Reporting Program: The Applicant shall submit documentation in the form of a report or technical memorandum that provides the preconstruction survey results and any avoidance of nesting recommended to the CPUC, CLM, and CDFW for review and approval.

Standards for Success: Nesting and breeding bird surveys are conducted within the Project site and required buffer distances prior to ground disturbing activities.

MM WIL-CEQA-7: Conduct Focused Preconstruction Burrowing Owl Surveys. (applies only in California)

To meet CEQA requirements, the following APMs, BMPs, and CMAs are incorporated within this MM BIO-CEQA-7: APM BIO-2, BMP BIO-02, BMP BIO-25, CMA DFA-BIO-IFS-1, CMA LUPA-BIO-1, CMA LUPA-BIO-12, and CMA LUPA-BIO-16. Prior to initial ground disturbance (no more than 14 days prior) the Project Applicant shall conduct focused surveys for burrowing owls within suitable burrowing owl habitat. Surveys will be completed by a qualified biologist(s) with proven burrowing owl experience. Focused burrowing owl surveys shall be conducted in accordance with the *Staff Report on Burrowing Owl Mitigation* (2012 Staff Report; CDFG 2012), with the exception of the survey buffers, which follows the California Burrowing Owl Consortium (1993). Surveys shall be conducted by walking 20-meter transects. Preconstruction surveys shall be conducted not only within construction area, but also within a reasonable buffer around the area, generally 150 meters (492 feet). If burrowing owls, including any active burrowing owl burrows, are not found during the preconstruction survey, no further action is required.

The only exception to the above requirements would be if any given construction area has become inactive for more than 14 days. Because burrowing owls can recolonize a site after a few days, if time lapses between Project activities for 14 days or more, this shall trigger subsequent preconstruction avoidance surveys, including, but not limited to an additional survey within 24 hours of ground-disturbing activities.

MM WIL-CEQA-7 Implementation

Responsible Party: The focused preconstruction surveys for burrowing owls shall be conducted by a qualified biologist (approved by the CPUC, BLM, and CDFW).

Timing: The focused preconstruction burrowing owl surveys shall be completed no more than 14 days prior to the start of construction activities.

Mitigation Monitoring and Reporting Program: The Applicant shall submit documentation in the form of a report of technical memorandum that provides the preconstruction survey results and any avoidance or relocation recommendations to the CPUC, BLM, and CDFW for review and approval.

Standards for Success: Burrowing owl surveys are completed within all suitable habitats in the Project area and required buffer distances.

MM WIL-CEQA-8: Conduct Preconstruction Protocol Surveys for Arizona Bell's Vireo, Southwestern Willow Flycatcher, and Willow Flycatcher; Avoid Occupied Habitat; Compensate Impacts (applies only in California)

The following APMs, BMPs, and CMAs shall be incorporated within this MM WIL-CEQA-8: APM BIO-20; APM BIO-21; BMP BIO-21; BMP BIO-29; BMP BIO-35; BMP BIO-36; BMP BIO-40; BMP BIO-48; BMP BIO-55; CMA LUPA-BIO-1; CMA LUPA-BIO-2; CMA LUPA-BIO-3; CMA LUPA-BIO-4; CMA LUPA-BIO-12; CMA LUPA-BIO-16; CMA LUPA-BIO-17; CMA LUPA-BIO-COMP-2; CMA LUPA-TRANS-BIO-1; and CMA LUPA-TRANS-BIO-2.

If Project related activities are scheduled to occur during the breeding season (generally 15 February – 15 September) the Applicant shall have a qualified avian biologist, approved by the CPUC, BLM, and CDFW, conduct protocol surveys prior to the start of construction for Arizona Bell's vireo, southwestern willow flycatcher, and willow flycatcher in suitable habitat within the Project area and 500 feet of disturbance areas. The surveys shall follow all current agency protocols (i.e., CDFW, USFWS). Prior to construction, documentation shall be submitted providing the results of the preconstruction focused surveys for Arizona Bell's vireo, southwestern willow flycatcher, and willow flycatcher to the CPUC for review and approval in consultation with USFWS and CDFW. Protocol or focused nest location surveys, as appropriate, shall be conducted within one year prior to the start of construction and shall continue annually until completion of construction and restoration activities. If an active breeding territory or nest is confirmed, the CPUC, USFWS, and CDFW shall be notified immediately. All active nests shall be monitored on a weekly basis until the nestlings fledge or the nest becomes inactive. The Applicant shall provide monitoring reports to the CPUC for review on a weekly basis. In coordination with the USFWS and CDFW, a minimum 300-foot disturbance-free ground buffer shall be established around the active nest and demarcated by fencing or flagging. No construction or vehicle traffic shall occur within nest buffers.

The qualified biologist shall have the authority to halt construction activities and shall devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nest site and the construction activities, and working in other areas until the young have fledged. All active nests shall be monitored on a weekly basis until the nestlings fledge.

Impacts and mitigation for federal- and state-listed species shall be addressed through either the Section 7 or Section 10(a)(1)(B) process under the federal ESA with the USFWS, and either the Section 2080 or Section 2080.1 process under the CESA with the CDFW. Additionally, direct impacts to federally-listed species' critical habitat that cannot be avoided shall also be addressed through either the federal ESA Section 7 or Section 10(a)(1)(B) process. Formal federal ESA consultation for federally-listed species that have at least a moderate potential to occur and may be impacted by the Project include the Mojave Desert tortoise, razorback sucker, southwestern willow flycatcher, western yellow-billed cuckoo, and Yuma Ridgway's rail. CESA consultation for state-listed species that have at least a moderate potential to occur and may be impacted by the Project include greater sandhill crane, Mojave Desert tortoise, razorback sucker, Swainson's hawk, southwestern willow flycatcher, western yellow-billed cuckoo, and Yuma Ridgway's rail. Additional mitigation may be required by each agency during the regulatory permitting process. Mitigation for impacts to listed species habitat shall consider and overlap with compensation for special status plants, sensitive vegetation communities, and jurisdictional waters and wetlands.

MM BIO-CEQA-8 Implementation

Responsible Party: The focused protocol surveys for Arizona Bell's vireo, southwestern willow flycatcher, and willow flycatcher shall be conducted by a qualified biologist(s).

Timing: The focused surveys shall be conducted during the required protocol windows should construction activities occur between 15 February and 15 September.

Mitigation Monitoring and Reporting Program: The Applicant shall submit documentation in the form of a report of technical memorandum that provides the survey results and any avoidance or relocation recommendations to the CPUC, BLM, and CDFW for review and approval. Responsible parties for the consultation include USFWS and CDFW.

Standards for Success: Protocol Arizona Bell's vireo, southwestern willow flycatcher, and willow flycatcher surveys are completed within all suitable habitats in the Project area and required buffer distances.

LUPA-BIO-16 (California):

For activities that may impact Focus and BLM sensitive birds, protected by the ESA and/or MBTA, and bat species, implement appropriate measures as per the most up-to-date BLM state and national policy and guidance, and data on birds and bats, including but not limited to activity specific plans and actions. The goal of the activity-specific bird and bat actions is to avoid and minimize direct mortality of birds and bats from the construction, operation, maintenance, and decommissioning of the specific activities. Activity-specific measures to avoid and minimize impacts may include, but are not limited to:

- Siting and designing activities will avoid high bird and bat movement areas that separate birds and bats from their common nesting and roosting sites, feeding areas, or lakes and rivers.
- For activities that impact bird and bat Focus and BLM special status species, during project siting and design, conducting monitoring of bird and bat presence as well as bird and bat use of the project site using the most current survey methods and best procedures available at the time.
- Reusing or co-locating new transmission facilities and other ancillary facilities with existing facilities and disturbed areas to reduce habitat destruction and avoid additional collision risks.
- Reducing bird and bat collision hazards by utilizing techniques such as unguyed monopole towers or tubular towers. Where the use of guywires is unavoidable, demarcate guywires using the best available methods to minimize avian species strikes.
- When fencing is necessary, use bird and bat compatible design standards.
- Using lighting that does not attract birds and bats or their prey to project sites including using non-steady burning lights (red, dual red and white strobe, strobe-like flashing lights) to meet Federal Aviation Administration requirements, using motion or heat sensors and switches to reduce the time when lights are illuminated, using appropriate shielding to reduce horizontal or skyward illumination, and avoiding the use of high-intensity lights (e.g., sodium vapor, quartz, and halogen).
- Implementing a robust monitoring program to regularly check for wildlife carcasses, document the cause of mortality, and promptly remove the carcasses.

LUPA-BIO-17 (California)

For activities that may result in mortality to Focus and BLM Special–Status bird and bat species, a BBCS will be prepared with the goal of assessing operational impacts to bird and bat species and incorporating methods to reduce documented mortality. The BBCS actions for impacts to birds and bats during these activities will be determined by the activity-specific bird and bat operational actions. The strategy shall be approved by BLM in coordination with USFWS, and CDFW as appropriate, and may include, but is not limited to:

- Incorporating a bird and bat use and mortality monitoring program during operations using current protocols and best procedures available at time of monitoring.
- Activity-specific operational avoidance and minimization actions that reduce the level of mortality on the populations of bird and bat species, such as:
 - Evaluation and installation of the best available bird and bat detection and deterrent technologies available at the time of construction.

The following provides the DRECP vegetation type and Focus and BLM special status species biological CMAs to be implemented throughout the LUPA Decision Area.

Riparian and Wetland Vegetation Types and Associated Species (RIPWET)

Riparian Vegetation Types

- Sonoran-Coloradan Semi-Desert Wash Woodland/Scrub

Riparian and Wetland Bird Focus Species

- Southwestern Willow Flycatcher
- Western Yellow-billed Cuckoo
- Yuma Ridgway's Rail

LUPA-BIO-COMP-2: Birds and Bats (California)

The compensation for the mortality impacts to bird and bat Focus and BLM special status species from activities will be determined based on monitoring of bird and bat mortality and a fee re-assessed every five years to fund compensatory mitigation. The initial compensation fee for bird and bat mortality impacts will be based on pre-project monitoring of bird use and estimated bird and bat species mortality from the activity. The approach to calculating the operational bird and bat compensation is based on the total replacement cost for a given resource, a Resource Equivalency Analysis. This involves measuring the relative loss to a population (debt) resulting from an activity and the productivity gain (credit) to a population from the implementation of compensatory mitigation actions. The measurement of these debts and gains (using the same "bird years" metric as described in Appendix D of the LUPA) is used to estimate the necessary compensation fee.

Each activity, as determined appropriate by BLM in coordination with USFWS, and CDFW as applicable, will include a monitoring strategy to provide activity-specific information on mortality effects on birds and bats in order to determine the amount and type of compensation required to offset the effects of the activity, as described above and in detail in Appendix D of the LUPA. Compensation will be satisfied by restoring, protecting, or otherwise improving habitat such that the carrying capacity or productivity is increased to offset the impacts resulting from the activity. Compensation may also be satisfied by non-restoration actions that reduce mortality risks to birds and bats (e.g., increased predator control and protection of roosting sites from human disturbance). Compensation will be consistent with the most up to date Department of the Interior mitigation policy.

LUPA-BIO-IFS-11 (California)

If Bendire's thrasher is present, conduct appropriate activity-specific biological monitoring to ensure that Bendire's thrasher individuals are not directly affected by operations (i.e., mortality or injury, direct impacts on nest, eggs, or fledglings).

LUPA-BIO-IFS-12

If burrowing owls are present, a designated biologist will conduct appropriate activity-specific biological monitoring to ensure avoidance of occupied burrows and establishment of the 656-foot (200-meter) setback to sufficiently minimize disturbance during the nesting period on all activity sites, when practical.

LUPA-BIO-IFS-13

If burrows cannot be avoided on-site, passive burrow exclusion by a designated biologist through the use of one-way doors will occur according to the specifications in Appendix D or

the most up-to-date agency BLM or CDFW specifications. Before exclusion, there must be verification that burrows are empty as specified in Appendix D or the most up-to-date BLM or CDFW protocols. Confirmation that the burrow is not currently supporting nesting or fledgling activities is required prior to any burrow exclusions or excavations.

LUPA-BIO-IFS-14

Activity-specific active translocation of burrowing owls may be considered, in coordination with CDFW.

LUPA-BIO-IFS-24

Provide protection from loss and harassment of active golden eagle nests through the following actions: Activities that may impact nesting golden eagles, will not be sited or constructed within one mile of any active or alternative golden eagle nest within an active golden eagle territory, as determined by BLM in coordination with USFWS as appropriate.

LUPA-BIO-IFS-25

Cumulative loss of golden eagle foraging habitat within a one to four mile radius around active or alternative golden eagle nests (as identified or defined in the most recent USFWS guidance and/or policy) will be limited to less than 20 percent. See **CONS-BIO-IFS- 5** for the requirement in Conservation Lands.

LUPA-BIO-IFS-26

For activities that impact golden eagles, the Applicant will conduct a risk assessment per the applicable USFWS guidance (e.g., the Eagle Conservation Plan Guidance) using best available information as well as the data collected in the pre-project golden eagle surveys.

LUPA-BIO-IFS-27

If a permit for golden eagle take is determined to be necessary, an application will be submitted to the USFWS in order to pursue a take permit.

LUPA-BIO-IFS-28

In order to evaluate the potential risk to golden eagles, the following activities are required to conduct two years of pre-project golden eagle surveys in accordance with USFWS Eagle Conservation Plan Guidance as follows: 1) Wind projects and solar projects involving a power tower; 2) other activities for which the BLM, in coordination with USFWS, and CDFW as appropriate, determines take of golden eagle is reasonably foreseeable or there is a potential for take of golden eagle.

LUPA-BIO-IFS-29

For active nests with recreational conflicts that risk the occurrence of take, provide public notification (e.g., signs) of the sensitive area and implement seasonal closures as appropriate.

LUPA-BIO-IFS-30

For activities where ongoing take of golden eagles is anticipated, develop advanced conservation practices per USFWS Eagle Conservation Plan Guidance.

LUPA-BIO-IFS-31

As determined necessary by BLM in coordination with USFWS and CDFW, as appropriate, for activities/projects that are likely to impact golden eagles, implement site-specific golden eagle mortality monitoring in support of the preconstruction, pre-activity risk assessment surveys.

LUPA—TRANS-BIO-1 (California)

Where feasible and appropriate for resource protection, site transmission activities along roads or other previously disturbed areas to minimize new surface disturbance, reduce perching opportunities for the Common raven, and minimize collision risks for birds and bats.

LUPA—TRANS-BIO-2 (California)

Flight diverters will be installed on all transmission activities spanning or within 1,000 feet of stream and wash channels, canals, ponds, and any other natural or artificial body of water. The type of flight diverter selected will be subject to approval by BLM, in coordination with USFWS and CDFW as appropriate, and will be based on the best available scientific and commercial data regarding the prevention of bird collisions with transmission and guy wires.

DFA-BIO-IFS-2: Implement the following setbacks shown below in Table 22 from the DRECP LUPA (see below) as applicable in the DFAs.

Table 22
Individual Species DFA Setback Requirements

Species	DFA Setbacks
<i>Reptile</i>	
Desert tortoise	None.
Flat-tailed horned lizard	None.
<i>Bird</i>	
Bendire's thrasher	Setback pre-construction, construction, and decommissioning, and other activities 500 feet from active nests.
Burrowing Owl	656 feet (200 meters) from active nesting sites.
California condor	Setback wind and transmission projects 5 miles from nest sites. Setback solar, geothermal, and other activities than may impact condors 1.5 miles from nest sites and out of direct line of site from nest sites.
Gila woodpecker	Setback pre-construction, construction, and decommissioning, and other activities that may impact the species 0.25 mile from suitable habitat during the breeding season (April 1 through July 31).
Golden eagle	Setback activities 1 mile from active or alternative nests within an active territory as described in LUPA-BIO-IFS-24 .
Swainson's Hawk	0.5 mile from active nests.
<i>Mammal</i>	
Desert bighorn sheep	None.
Mohave ground squirrel	None.

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2B.6 COMPENSATORY MITIGATION PLAN

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June 2019

BUREAU OF LAND MANAGEMENT

Ten West Link Transmission Project

Compensatory Mitigation Plan, California

PROJECT NUMBER:
154320

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Compensatory Mitigation Plan

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ACRONYMS AND ABBREVIATIONS

APM	Applicant Proposed Measure
APP	Avian Protection Plan
BBCS	Bird and Bat Conservation Strategy
BIO	Biology
BLM	Bureau of Land Management
BMP	Best Management Practices
CDCA	California Desert Conservation Area
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CMAAs	Conservation and Management Actions
CMP	Compensatory Mitigation Plan
CPUC	California Public Utilities Commission
CRPR	California Rare Plant Ranking
DCRT	Delaney Colorado River Transmission, LLC
DFA	Development Focus Area
DRECP	Desert Renewable Energy Conservation Plan
EIS	Environmental Impact Statement
FESA	Federal Endangered Species Act
FP	Fully Protected
kV	kilovolt
LUPA	Land Use Plan Amendment
MM	Mitigation Measures
MSL	Mean sea level
PA	Programmatic Agreement
POD	Plan of Development
Project	Ten West Link Transmission Project
RMPs	resource management plans
ROD	Record of Decision
ROW(s)	right(s)-of-way
SCS	Series Compensation Station
SSC	Species of Special Concern
Ten West Link	Ten West Link Transmission Project
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
VPL	Variance Process Lands
VRI	Visual Resource Inventory
VRM	Visual Resource Management

1 Introduction

1.1 Project Description

The Ten West Link Transmission Line Project (Project) proposed by Delaney Colorado River Transmission, LLC (DCRT) would consist of a single-circuit, series-compensated, 500 kilovolt (kV) transmission line. The Project would begin at the Delaney Substation near Tonopah, Arizona, and terminate at the Colorado River Substation near Blythe, California. The Project would be located in Maricopa and La Paz Counties in Arizona, and Riverside County in California. The Project route (Bureau of Land Management [BLM] Preferred Alternative) would parallel an existing transmission line and other linear facilities, primarily within designated utility corridors.

The BLM Preferred Alternative would span approximately 125.0 miles, including 103.4 miles in Arizona and 21.6 miles in California. Of the total length, approximately 81.2 miles would be on federal land, 17.6 miles would cross state of Arizona land, and approximately 26.2 miles would cross private land. Most of the route would cross federal land, including lands managed by the BLM and Bureau of Reclamation (79.4 miles and 1.6 miles, respectively). A 0.2-mile section of the Project would also span Department of Defense land (Yuma Proving Ground military installation).

Construction, operation, and maintenance activities would occur primarily within a 200-foot-wide right-of-way (ROW). The Project would also include upgrades at both the Delaney and Colorado River Substations in the existing footprint. Up to four staging areas would be required for material staging and laydown yards during construction. These areas would be temporary in terms of disturbance; selected based upon the final alignment chosen for this Project; and would be approximately 10 acres in size each. Currently identified staging and laydown yards occupy 34.5 acres.

The proposed support structures would be steel structures of various configurations. Tangent and small-angle steel lattice structures include self-supporting, four-legged tangent structures (i.e., structures placed where the line does not angle more than one degree); guyed-V structures with a single footing and four support guy wires; and two-legged, H-frame (steel lattice or tubular steel pole) structures as the primary structure types. Permanent guy guards/markers will be installed on guy wires for the guyed-V structures as required by BMPs and mitigation measures described in the Project Draft Environmental Impact Statement (EIS) and as summarized in Appendix B of the Plan of Development (POD). For areas of conductor tension change, large angles, and phasing transpositions, self-supporting, four-legged structures would be utilized. Steel monopoles may be used for areas of active agricultural activity and to facilitate entrance into the two substations. The transmission towers would typically be between 72 and 195 feet in height, depending on the span length required and topography, with the average tower height being approximately 160 feet. Span lengths between structures would vary from 400 to 2,300 feet, depending upon terrain conditions, current land use, structure type used, and to achieve site-specific mitigation objectives.

The transmission line will utilize three alternating current phases of conductors. The conductors are the wire cables strung between transmission line structures over which the electric current flows. The conductors within each phase will be bundled and are typically spaced approximately 18 inches apart in an equilateral triangle configuration. Conductor bundles for all structure types except the proposed monopoles would be installed

horizontal to one another (at the same height on the structure), with approximately 34 feet of spacing between the center of each conductor bundle. The static wire and optical ground wire would be approximately 30 feet above the phase conductors at the top of the structures. The minimum conductor height above ground for the transmission line would be 36.25 feet for most of the segments and 41.25 feet for the Colorado River crossing. Insulators would be used to suspend the conductors from each structure to inhibit the flow of electrical current from the conductor to the ground, the structure, or another conductor. To protect conductors from lightning strikes, two overhead ground wires would be installed on top of the structures that would transfer current from lightning strikes through the ground wires and structures into the ground. Other hardware, such as bird flight diverters, not associated with the transmission of electricity will be installed as part of the Project. This hardware may include aerial marker spheres or aircraft warning lighting, as required for the conductors or structures by Federal Aviation Administration regulations.

The Project requires a transmission line Series Compensation Station (SCS) located at the approximate midpoint of the route. The Proposed SCS site is located near the intersection of Segments i-03 and i-04 approximately two miles south of Brenda, Arizona. The SCS would be fenced and access would be restricted. The new SCS would be connected to an existing 12 kV distribution line via a new 3.13-mile-long 12 kV line.

Access to the ROW would be provided by existing roads and trails, such as those associated with the Devers to Palo Verde transmission line and nearby pipelines, to the extent practicable. Five types of access would be used for this transmission line: existing maintained public or private roads, upgraded existing roads, new centerline access, spur roads, and helicopter access. The existing roads would be used in their present condition without improvements, unless improvements are required or are deemed to be in the Project's best interest and for future use. Where existing roads can be used to access the ROW, only spur roads to each structure site would be required. Roads for access into the transmission lines would be also utilized for access to the SCS, given that the roads are adequate for the transport of materials and equipment necessary at the SCS.

After construction, Project operation and maintenance would be an ongoing activity including transmission line inspections, preventative and emergency maintenance, vegetation management including trimming and removal of vegetation within the ROW, SCS maintenance, substation maintenance, and long-term access to the ROW through general road maintenance and installation of signs and markers.

Should the ROW and facilities no longer be needed, the transmission lines and associated facilities would be decommissioned and removed. All areas of long-term disturbance would be reclaimed in accordance with a Decommissioning Plan to be developed by the ROW grant holder and approved by the BLM prior to issuance of the ROW grant. A reclamation bond would also be required per BLM bonding policy to ensure performance of reclamation activities. Access routes and other sites disturbed during decommissioning would be reclaimed and revegetated in accordance with the Decommissioning Plan.

1.2 Purpose, Need, and Plan Progression

As the lead federal agency, the BLM released the Draft EIS on August 31, 2018. Mitigation measures identified within the Draft EIS require avoidance and minimization measures to reduce Project impacts and require compensatory mitigation for residual impacts to sensitive resources. Implementation of avoidance and minimization measures are described in detail in the POD and associated plan appendices, while this Compensatory

Mitigation Plan (CMP) specifically focuses on Compensatory Mitigation. This Draft CMP is a living document, anticipated to progress through three main stages. In the current stage, this document is a compilation and summary of compensatory mitigation requirements and the approaches identified, to date, for satisfying the requirements. It identifies the mitigation approach to be used, as well as data needs, and identifies areas where discrepancies within the Draft EIS will need to be clarified. After the appropriate parties review and reach consensus on the approach (this would include, at a minimum, DCRT, BLM, California Public Utilities Commission [CPUC], California Department of Fish and Wildlife [CDFW], and United States Fish and Wildlife Service [USFWS]), the second phase will entail calculating compensatory mitigation requirements (mitigation debits) based on final engineering design and spatial analysis of impacted resources. Final compensatory mitigation calculations will be determined following analysis of pre-construction surveys, micro-siting of facilities, final impact calculations, and consultation with the regulatory agencies during the environmental permitting process. After mitigation debits are calculated, the third phase will involve disseminating out the details of specific mitigation actions (credits), potentially including mitigation lands to be placed under conservation easements, locations and methods of habitat restoration efforts, specific mitigation banks, in lieu fee payments, or other compensatory mitigation actions. The Final CMP will document specific mitigation actions, calculate the anticipated mitigation credits and debits, and set up a tracking mechanism to document the ongoing balance of mitigation credits and debits in order to document sufficiency in meeting compensatory mitigation requirements.

The avoidance, minimization, and mitigation requirements associated with the EIS, California Environmental Quality Act (CEQA), and Desert Renewable Energy Conservation Plan (DRECP) and Land Use Plan Amendment (LUPA; BLM 2016) often differ between California and Arizona. Within Section 1.4 and Section 2, measures that apply only within California are listed separately from measures that apply only within Arizona and measures that apply Project-wide within Arizona and California. As such, many components and sections of this plan apply only within one state and, where applicable, that is indicated within the section heading and contents.

1.3 Applicable Regulations and Management Policies

Impacts to sensitive resources will be compensated in accordance with mitigation measures identified in the Project Draft EIS (including the CEQA mitigation measures contained in Appendix 1C of the Draft EIS), and any revisions contained in the Final EIS, Record of Decision (ROD) and ROW Grant, and the DRECP LUPA, described below.

1.3.1 Desert Renewable Energy Conservation Plan and Land Use Plan Amendment.

The DRECP LUPA was prepared to implement the Desert Renewable Energy Conservation Plan, which amends the California Desert Conservation Area (CDCA) Plan. The DRECP LUPA is applicable only to BLM-administered land in California and does not address the Colorado River corridor. The DRECP LUPA provides a landscape approach to renewable energy and conservation planning in the California Desert that streamlines the process for development of utility-scale renewable energy generation and transmission consistent with federal and state renewable energy targets and policies, while simultaneously providing for the long-term conservation and management of biological, cultural, and aesthetic resources. In addition to BLM designated sensitive species, the DRECP LUPA identifies additional “Focus” species, which it defines as species whose conservation and management are provided for in the DRECP LUPA. The DRECP LUPA

includes Conservation and Management Actions (CMAs) that establish avoidance, minimization, and mitigation requirements within the planning area, including those that are specific to Development Focus Area (DFA) allocations that the Project crosses along all BLM Preferred Segments on BLM managed land in California.

1.4 Mitigation Measures in the Final EIS that are Directly Applicable to this Plan

All Applicant Proposed Measures (APMs) and BLM-required Best Management Practices (BMPs) are listed in Appendix 2A of the Draft EIS. Additionally, Mitigation Measure (MM) BIO-01 is found in Appendix 2 of the Draft EIS. MMs required under CEQA and CMAs from the DRECP LUPA are listed in Appendix 1C of the Draft EIS. The CEQA MMs are required only within California, and the DRECP LUPA CMAs are required only on BLM land within California. Numerous APMs, BMPs, MMs, and CMAs, are applicable to avoidance, minimization, and onsite mitigation measures. The measures directly applicable to this CMP are listed below. Each of the following measures applies in California only. There are no requirements for compensatory mitigation that apply to the Arizona portion of the Project

- MM BIO-01
- APM/BMP BIO-28
- APM/BMP BIO-31
- APM/BMP BIO-46
- APM/BMP CULT-05
- MM BIO-CEQA-4
- MM BIO-CEQA-5
- MM BIO-CEQA-9
- MM BIO-CEQA-10
- MM BIO-CEQA-12
- MM BIO-CEQA-13
- MM VEG-CEQA-4
- MM WIL-CEQA-1
- MM WIL-CEQA-2
- MM WIL-CEQA-8
- MM WIL-CEQA-9
- MM WIL-CEQA-10
- MM WIL-CEQA-11
- CMA LUPA-BIO-COMP-1
- CMA LUPA-BIO-COMP-2
- CMA LUPA-BIO-COMP-3
- CMA LUPA-BIO-COMP-4
- CMA LUPA-COMP-1
- CMA LUPA-TRANS-CUL-2
- CMA DFA-VPL-BIO-COMP-1
- CMA DFA-VRM-2
- CMA DFA-VPL-CUL-2

2 Compensation Ratios and Overview of Requirements

The required compensation ratios and general compensatory mitigation requirements, as stipulated in the Project Draft EIS and DRECP LUPA, are compiled and summarized in Table 2-1. Compensatory ratios and requirements vary among the resources, and locations (California or Arizona, BLM or non-BLM land) as well as the type of impact (temporary habitat loss, permanent habitat loss, or direct mortality).

Temporary habitat loss will include structure work areas, staging areas, and temporary access routes. Areas where temporary disturbance impacts sensitive resources (as listed in Table 2-1) will be reclaimed with similar native species compositions to those present prior to construction, as described in the Reclamation, Vegetation, and Monitoring Plan (Appendix L-1 of the POD). Mitigation ratios for temporary impacts will be 1:1, except where specifically noted otherwise within this plan.

Permanent habitat loss will be associated with permanent Project features such as new structures, permanent travel surfaces of access roads, vegetation trimming for conductor clearance, and the SCS. Mitigation ratios for permanent habitat loss will range from 1:1 up to 5:1, depending on resource. Compensation would also be required for direct mortality, should it occur, to birds and bats (e.g., from electrocution or collision with shield wires or conductors). As consistent with BLM policy, compensatory mitigation for permanent habitat loss or direct mortality could include payment of an in-lieu fee; acquiring mitigation land or conservation easements; restoration or habitat enhancement activities on public lands; or a combination of these approaches.

The exact amount of compensatory mitigation required for each resource will be determined following analysis of all pre-construction surveys, micro-siting of facilities, final impact calculations, and consultation with the regulatory agencies during the environmental permitting process. All created or restored habitats will be monitored per the requirements in the Reclamation, Vegetation, and Monitoring Plan (Appendix L-1 of the POD). All lands identified for preservation would require the recordation of a conservation easement. The easement could be held by the CDFW (in California) or an approved land management entity; the easement will be recorded upon purchase of the lands; refer to MM-BIO-CEQA-5 for details and requirements for easements on mitigation lands. All lands identified for preservation will require approval from the resource/permitting agencies where applicable (i.e., BLM, USFWS, Arizona Game and Fish Department, CDFW, and CPUC).

On July 24, 2018, BLM instructed its personnel, via Instruction Memorandum 2018-093, that the agency lacks authority to require monetary payments and other forms of offsite compensatory mitigation as a condition of obtaining authorization for the use of public lands. However, according to discussions between DCRT and BLM, the pre-existing DRECP-LUPA is not superseded by Instruction Memorandum 2018-093. The Project is subject to existing stipulations that require compensatory mitigation. Consistent with Instruction Memorandum 2018-093, and as an alternative to fee payments or offsite mitigation, it may be appropriate to amend the DRECP-LUPA to rescind the compensation requirements. The Final CMP will reflect any DRECP-LUPA amendments that remove or reduce compensatory requirements. This Draft CMP reflects current requirements within the DRECP LUPA, as reflected in the Draft EIS.

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TABLE 2-1 COMPENSATION RATIOS AND REQUIREMENTS

APPLICABLE AREA	RESOURCE	MITIGATION RATIO	MITIGATION COMMENTS	SOURCE
Arizona	-	-	There are no compensatory mitigation requirements for the portion of the Project within Arizona.	-
California	Temporary impacts to Jurisdictional Waters and Wetlands	1:1	On-site habitat restoration with similar species compositions to those present prior to construction, as described in the Reclamation, Vegetation, and Monitoring Plan. All mitigation for temporary impacts to jurisdictional waters/wetlands shall be approved by the appropriate federal and state regulatory agencies prior to Project activities.	MM BIO-CEQA-4
California	Permanent impacts to Jurisdictional Waters and Wetlands	2:1	Minimum of 2:1 mitigation ratio or as otherwise specified by the appropriate federal and state regulatory agencies. Permanent impacts to riparian desert woodland habitats that are jurisdictional shall be mitigated at a ratio of 5:1. Off-site creation, enhancement, and/or preservation; or participation in an established mitigation bank program. All mitigation for permanent impacts to jurisdictional waters/wetlands shall be approved by the appropriate federal and state regulatory agencies prior to Project activities. All lands identified for preservation would require the recordation of a conservation easement. Delaney Colorado River Transmission, LLC (DCRT) shall coordinate with the California Public Utilities Commission (CPUC), Bureau of Land Management (BLM) and California Department of Fish and Wildlife (CDFW) to determine the conditions of the conservation easement, including the required acreage to be conserved and the required monitoring and management of the conserved lands, as appropriate.	CMA LUPA-BIO-COMP-1, MM BIO-CEQA-4, MM VEG-CEQA-4
California	Temporary impacts to sensitive vegetation communities (blue palo verde-ironwood woodland, mesquite thickets, big galleta alliance, arrowweed alliance, and bush seepweed scrub)	1:1	On-site habitat restoration with similar species compositions to those present prior to construction, as outlined in the Reclamation, Vegetation, and Monitoring Plan. All mitigation for temporary impacts to sensitive vegetation communities shall be approved by the appropriate federal and state regulatory agencies prior to Project activities.	MM BIO-CEQA-4

APPLICABLE AREA	RESOURCE	MITIGATION RATIO	MITIGATION COMMENTS	SOURCE
California	Permanent impacts to sensitive vegetation communities (blue palo verde-ironwood woodland, mesquite thickets, big galleta alliance, arrowweed alliance, and bush seepweed scrub)	5:1	Creation, restoration, enhancement, land acquisition (i.e., preserve), or a combination of these options, depending on the activity specifics and BLM approval/authorization. All mitigation for permanent impacts to sensitive vegetation communities shall be approved by the appropriate federal and state regulatory agencies prior to Project activities. All lands identified for preservation would require the recordation of a conservation easement. DCRT shall coordinate with CPUC, BLM, and CDFW to determine the conditions of the conservation easement, including the required acreage to be conserved and the required monitoring and management of the conserved lands, as appropriate.	CMA LUPA-BIO-COMP-1, APM/BMP BIO-46, MM BIO-CEQA-4, MM VEG-CEQA-4
California	Temporary impacts to special status plant species	1:1	On-site habitat restoration with similar species compositions to those present prior to construction, as outlined in the Reclamation, Vegetation, and Monitoring Plan. All mitigation for temporary impacts shall be approved by the appropriate federal and state regulatory agencies prior to Project activities.	MM VEG-CEQA-4
California	Permanent impacts to special status plant species	3:1	Identification of impacts to special status plants will be based on the results of the floristic surveys. Compensation shall include off-site creation, enhancement, and/or preservation or participation in an established mitigation bank program. DCRT shall coordinate with CPUC, BLM, and CDFW to determine the appropriate mitigation strategy and final replacement ratios and acreages. All mitigation shall be approved by the appropriate federal and state regulatory agencies prior to Project activities.	MM VEG-CEQA-4
California	Permanent impacts to Mojave desert tortoise, including habitat loss and potential take	2:1? (per MM WIL-CEQA-10; or 3:1? Per MM WIL-CEQA-11)	MM WIL-CEQA-10 defines habitat loss as “all lands directly disturbed...that will no longer provide viable long-term habitat for the Mojave Desert tortoise. Mitigation may include off-site creation, enhancement, and/or preservation, and/or participation in an established mitigation bank program. Impacts and mitigation for the Mojave desert tortoise shall be addressed through either the Section 7 or Section 10(a)(1)(B) process under the Federal Endangered Species Act (FESA) with the United States Fish and Wildlife Service (USFWS), and either the Section 2080 or Section 2080.1	MM WIL-CEQA-10, MM WIL-CEQA-11

APPLICABLE AREA	RESOURCE	MITIGATION RATIO	MITIGATION COMMENTS	SOURCE
			process under the California Endangered Species Act (CESA) with the CDFW.	
California	Temporary impacts to Mojave fringe-toed lizard	1:1	On-site habitat restoration with similar species compositions to those present prior to construction, as outlined in Reclamation, Vegetation, and Monitoring Plan.	MM WIL-CEQA-11
California	Permanent impacts to Mojave fringe-toed lizard	3:1	Compensation may include preservation through acquisition of offsite lands with an attached conservation easement, purchase of credits from an approved mitigation bank, or onsite or offsite enhancements of habitat that support known population of Mojave fringe-toed lizard.	MM WIL-CEQA-9, MM WIL-CEQA-11
California	Temporary or Permanent impacts to potential habitat of federal or California state-listed T&E species	TBD	Impacts and mitigation for federal- and state-listed species shall be addressed through either the Section 7 or Section 10(a)(1)(B) process under the FESA with the USFWS, and either the Section 2080 or Section 2080.1 process under the CESA with the CDFW.	MM WIL-CEQA-8
California	Temporary impacts to other special status wildlife, including terrestrial herpetofauna	1:1	On-site habitat restoration with similar species compositions to those present prior to construction, as outlined in Reclamation, Vegetation, and Monitoring Plan.	MM WIL-CEQA-11
California	Permanent impacts to other special status wildlife, including terrestrial herpetofauna	2:1 or 3:1	MM WIL-CEQA-11 appears to provide conflicting guidance as to the appropriate mitigation ratio. Compensation will include: a) off-site creation, enhancement, and/or preservation, and/or b) participation in an established mitigation bank program.	MM WIL-CEQA-11
BLM land in California	Golden eagle mortality	Consistent with USFWS Eagle Conservation Plan guidance	Required to contribute to a Desert Renewable Energy Conservation Plan (DRECP)-wide golden eagle monitoring program, if the activity/project(s) has been determined, through the environmental analysis, to likely impact golden eagles. The Project is not likely to impact golden eagles, thus compensatory mitigation should not be required.	CMA LUPA-BIO-COMP-3, CMA LUPA-BIO-COMP-4
BLM land in California	Mortality to bird and bat Focus and BLM Special Status Species		Compensation will be determined based on monitoring of bird and bat mortality and a fee re-assessed every five years to fund compensatory mitigation. The initial compensation fee for bird and bat mortality impacts will be based on pre-project monitoring of bird use and estimated bird and bat species mortality from the activity. The approach to calculating the operational bird and bat compensation is based on the total replacement cost for a given resource, a	LUPA-BIO-COMP-2; MM WIL-CEQA-1

APPLICABLE AREA	RESOURCE	MITIGATION RATIO	MITIGATION COMMENTS	SOURCE
			Resource Equivalency Analysis. This involves measuring the relative loss to a population (debt) resulting from an activity and the productivity gain (credit) to a population from the implementation of compensatory mitigation actions. The measurement of these debts and gains (using the same “bird years” metric as described in Appendix D) is used to estimate the necessary compensation fee. Each activity, as determined appropriate by BLM in coordination with USFWS, and CDFW as applicable, will include a monitoring strategy to provide activity-specific information on mortality effects on birds and bats in order to determine the amount and type of compensation required to offset the effects of the activity, as described above and in detail in Appendix D. Compensation will be satisfied by restoring, protecting, or otherwise improving habitat such that the carrying capacity or productivity is increased to offset the impacts resulting from the activity. Compensation may also be satisfied by non-restoration actions that reduce mortality risks to birds and bats (e.g., increased predator control and protection of roosting sites from human disturbance). Compensation will be consistent with the most up to date Department of Interior mitigation policy.	
BLM land in California	Common Raven		Compensatory mitigation would be provided that contributes to LUPA-wide raven management associated with lands in the DRECP. DCRT shall submit payment into an account established for the Project held by the National Fish and Wildlife Foundation to support the USFWS Regional Raven Management Program. The one-time fee shall be as described in the cost allocation methodology or more current guidance as provided by USFWS. The contribution to the regional raven management plan will be \$105 per acre impacted.	APM/BMP BIO-28, MM WIL-CEQA-2, CMA LUPA-BIO-6
BLM land in California	Cultural Resources: Effects to historic properties.		Only for the portion of the undertaking in California, the BLM will impose a compensatory mitigation fee for cumulative and indirect effects to historic properties as a result of construction. The mitigation fee will be calculated in a manner that is determined by Appendix G of the DRECP Programmatic Agreement (PA). If Appendix G of the DRECP	APM/BMP CULT-05, POD Appendix E1: Programmatic Agreement, CMA LUPA-TRANS-CUL-2, CMA DFA-

APPLICABLE AREA	RESOURCE	MITIGATION RATIO	MITIGATION COMMENTS	SOURCE
			PA has not been completed at the time the PA is executed, the BLM will develop mitigation in a manner that is commensurate to the size and regional impacts of the Undertaking, in consultation with the Consulting Parties. The BLM will have final approval of these treatment measures and the BLM will ensure that these treatment measures are described in the Historic Property's Treatment Plan All types of project-specific treatment may be considered to mitigate the specific cumulative and indirect adverse effects of the Undertaking.	VPL-CUL-2
BLM land in California	Visual: Visual Resource Inventory (VRI) Class II	1:1	The Draft EIS visual impact analysis determined that the introduction of the Project into the viewshed would not result in a scenic quality reduction of VRI Class II areas enough to lower the VRI class (e.g., from VRI Class II to VRI Class III). Therefore, no compensatory mitigation is required for visual resources.	CMA DFA-VRM-2

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3 Jurisdictional Waterways and Wetlands

The Project is not expected to directly impact wetlands, but will cross numerous dry washes, some of which will likely be Waters of the United States. As required by MM BIO-CEQA-4, all mitigation for temporary or permanent impacts to jurisdictional waters/wetlands in California shall be approved by the appropriate federal and state regulatory agencies prior to Project activities. MM BIO-CEQA-4 stipulates that temporary impacts to jurisdictional waterways and wetlands will be restored onsite at a ratio of 1:1. Although MM BIO-CEQA-4 does not explicitly specify whether it's use of the term "jurisdictional" applies to United States Army Corps of Engineers (USACE)-jurisdictional waters or to Waters of the State, the wording implies that it intended USACE-jurisdiction waters and that is the interpretation proposed to be followed within this CMP. These areas will be restored to similar species compositions to those present prior to construction, utilizing methodology described in the Reclamation, Vegetation, and Monitoring Plan (Appendix L-1 of the POD). MM BIO-CEQA-4 also stipulates that, within California, permanent impacts to jurisdictional waterways and wetlands will be mitigated at a ratio of 2:1 (which will also satisfy the 2:1 ratio stipulated for wetlands in CMA LUPA-BIO-COMP-1).

Compensatory mitigation of permanent impacts may be in the form of off-site creation, enhancement, and/or preservation; or participation in an established mitigation bank program. All created or restored habitats shall be monitored per the requirements in the Vegetation Management Plan, and the Special-Status Plant and Sensitive Vegetation Community Mitigation and Monitoring Plan. All lands identified for preservation would require the recordation of a conservation easement. As required by MM BIO-CEQA-4, DCRT would coordinate with CPUC, BLM, and CDFW to determine the conditions of the conservation easement, including the required acreage to be conserved and the required monitoring and management of the conserved lands, as appropriate.

The specific compensatory mitigation acreage and method will be determined when final engineering design, wetland and waterway delineations, and a USACE Preliminary Jurisdictional Determination facilitate calculation of the acreage of permanent impacts to jurisdictional waterways and wetlands. Mitigation shall consider overlap with compensation for other resources.

4 Sensitive Vegetation Communities

Within California, per APM/BMP BIO-46, MM BIO-CEQA-4, MM VEG-CEQA-4, and CMA LUPA-BIO-COMP-1, permanent impacts to desert riparian woodland and other sensitive vegetation communities will be compensated at the ratio of 5:1. Specific desert riparian woodland vegetation types that may be present within the Project area include blue palo verde (*Parkinsonia florida*)-ironwood (*Olneya tesota*) woodland and honey mesquite (*Prosopis glandulosa*) thickets. Additional sensitive vegetation communities that may be present include big galleta (*Pleuraphis rigida*) alliance, arrowweed (*Pluchea sericea*) alliance, and bush seepweed (*Suaeda moquinii*) scrub.

Per MM BIO-CEQA-4 and MM VEG-CEQA-4, temporary impacts to sensitive vegetation communities in California will require on-site habitat restoration (1:1) with similar species compositions to those present prior to construction, as outlined in the Reclamation, Vegetation, and Monitoring Plan. All mitigation for temporary impacts to sensitive vegetation communities will be approved by the appropriate federal and state regulatory agencies (CPUC, CDFW, and BLM) prior to Project activities, prior to implementation.

Compensation will be identified in coordination with the appropriate federal and state regulatory agencies. Compensation requirements may be fulfilled through restoration and enhancement, land acquisition (i.e., conservation easement/preserve), an established mitigation bank program (if available), or a combination of these options, depending on the activity specifics and state and federal approval/authorization.

Off-site compensation lands would consist of habitat occupied by the impacted sensitive vegetation community(s). Off-site compensation will be documented within the Final CMP and approved in consultation with the appropriated federal and state regulatory agencies. DCRT would provide for open space/conservation easements on all acquired lands or provide the required funds for the acquisition of easements to a “qualified easement holder”; CDFW is a qualified easement holder. To qualify as a “qualified easement holder” a private land trust must have substantial experience managing open space/conservation easements that are created to meet mitigation requirements for impacts to special-status species, have adopted the Land Trust Alliance’s Standards and Practices, and have a stewardship endowment fund to pay for its perpetual stewardship obligations. DCRT would also provide the “qualified easement holder” with adequate funds to cover administrative costs incurred during the creation of the easement, funds in the form of a non-wasting endowment to cover the cost of monitoring and enforcing the terms of the easement in perpetuity.

Restoration or enhancement can be used to mitigate impacts and depending upon the degree of impact, habitat restoration may be as simple as removing debris and controlling public access. In more complex situations, however, partial or total restoration of degraded habitat may require extensive revegetation, and soil protection and stabilization programs. The strategy would include at a minimum: (a) BLM approved genetically and ecologically appropriate native plant materials suitable for the site; (b) a description of any required topsoil salvage, plant salvage, seeding techniques, and methods to stabilize and shape soil surface to reduce soil erosivity; (c) monitoring and reporting protocols; and (d) success criteria. Restoration would be tailored to the specific project site based on the habitat and species involved.

Any restoration or enhancement for sensitive vegetation communities would be monitored to assess progress and to make recommendations for successful management. Monitoring would be performed by a qualified biologist/botanist designated by DCRT. At a minimum, Monitoring would include qualitative and quantitative methods as described in the Vegetation Management Plan and the Special-Status Plant and Sensitive Vegetation Community Mitigation and Monitoring Plan. Monitoring would identify the need for remediation or maintenance work well in advance of final success/failure determination. Monitoring and maintenance progress toward achieving success criteria, conditions, and all observations pertinent to eventual success would be documented in the Post-Construction Vegetation Management Quarterly Monitoring Progress Reports, and the Annual Post-Construction Vegetation Management Report, as described in the Vegetation Management Plan.

The specific compensatory mitigation acreages and method will be determined in coordination with the appropriate federal and state regulatory agencies when final route selection and engineering design facilitates calculation of the acreage of permanent impacts to sensitive plant communities. Mitigation shall consider overlap with compensation for other resources.

5 Special Status Plant Species

5.1 Species with Potential to Occur

Per MM VEG-CEQA-4 impacts to special status plant species in California will be mitigated. For the purposes of this mitigation, special status plants are defined as those with a California Rare Plant Ranking (CRPR) of 1 or 2 and/or BLM sensitive species. Table 5-1 below, adapted from Table 3.4-5 in the Draft EIS, lists the special status species identified in the Draft EIS as having potential to occur in the Project area in California. Many of the species are unlikely to occur. Per BMP BIO-24 and MM VEG-CEQA-2, special status plant surveys will be conducted prior to construction. They are currently scheduled to be conducted in 2020. Temporary and permanent impacts will be assessed based on the results of the floristic surveys and final engineering design.

TABLE 5-1 SPECIAL STATUS PLANT SPECIES WITH POTENTIAL TO OCCUR IN THE PROJECT AREA IN CALIFORNIA*

Common Name	Scientific Name	Status (California/BLM)	Habitat
<i>Euphorbia abramsiana</i>	Abrams' spurge	CRPR: 2B.2	Sandy soils in Mojave desert scrub and Sonoran desert scrub from 5 to 915 meters (15 to 3,000 feet) above MSL. Annual herb. Blooms September to November. Has been found north of Interstate 10 near McCoy Mountains and could occur within or near biological Project area in creosote bush association with sandy soil.
<i>Hymenoxys odorata</i>	Bitter hymenoxys	CRPR: 2B.1	Occurs in sandy soils in riparian scrub and Sonoran desert scrub from 45 to 150 meters (147 to 492 feet) above MSL. Annual herb. Blooms February to November. Low potential to occur along Colorado River and in woodland washes within Project area.
<i>Teucrium cubense ssp. depressum</i>	Dwarf germander	CRPR: 2B.2	Occurs in Desert dunes, playa margins and Sonoran desert scrub from 45 to 400 meters (147 to 1,312 feet) above MSL. Annual herb. Blooms March to November. Has not been found in or near Project area but could occur on sandy soils there and in surrounding region.
<i>Euphorbia platysperma</i>	Flat-seeded spurge	CRPR: 1B.2 BLM: Sensitive	Sonoran deserts scrub habitats with sandy soils and dunes below 200 meters (660 feet) above MSL. Could occur on sandy soils within or near Project area but has not been found there.
<i>Ditaxis claryana</i>	Glandular ditaxis	CRPR: 2B.2	Perennial herb that prefers low-elevation sandy soils in Mojave and Sonoran desert creosote scrub habitats in southern California below 100 meters (328 feet) above MSL. Could occur within or near Project area but has not been found there.
<i>Astragalus sabulorum</i>	Gravel milkvetch	CRPR: 2B.2	Occurs in desert dunes and Mojave/Sonoran desert scrub from -53 to 910 meters (-173 to 2,985 feet) above MSL. Annual herb. Blooms February to July. Could occur within or near Project area but has not been found there.
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	CRPR: 1B.2 BLM: Sensitive	Occurs in Desert dunes from 125 to 915 meters (410 to 3,001 feet) above MSL. Annual herb. Blooms March to June. This species has been found on stabilized dunes and other sandy soils in the biological Project area.
<i>Astragalus insularis var. harwoodii</i>	Harwood's milkvetch	CRPR: 2B.2	Occurs in sandy or gravelly soils along desert dunes and Mojave desert scrub below 710 meters (2,329 feet) above MSL. Annual herb. Blooms January to May. This species has been found in the biological Project area.

Common Name	Scientific Name	Status (California/BLM)	Habitat
<i>Colubrina californica</i>	Las Animas colubrina	CRPR: 2B.3	Perennial deciduous shrub found in Mojave and Sonoran desert scrub and Joshua Tree woodland. Preferred habitat includes sandy, gravelly soils and dry canyons from 10 to 1,000 meters (32 to 3,280 feet) above MSL. Blooms April to June. Has been found north of Interstate 10 near McCoy Mountains but not within Project area. Unlikely to occur in sandy soil within Project area.
<i>Calliandra eriophylla</i>	Pink fairy-duster	CRPR: 2B.3	Perennial deciduous shrub associated with dry wash woodlands in the Sonoran Desert from 120 to 1,500 meters (393 to 4,921 feet) above MSL. Blooms January to March. Low potential to occur in desert woodlands within Project area.
<i>Carnegiea gigantea</i>	Saguaro	CRPR: 2B.2	Large perennial succulent and signature species of Sonoran desert scrub. Known to prefer gravelly slopes and rocky soils on mountains or bajadas. Blooms May to June. Could occur in desert woodlands and upper slopes surrounding Project area.

* Adapted from Table 3.4-5 in the Draft EIS. Includes plant species with a CRPR of 1 or 2.

CRPR = California Rare Plant Ranking

MSL = mean sea level

1A = Plants presumed extirpated in California and either rare or extinct elsewhere

1B = Plants rare, threatened, or endangered in California and elsewhere

2A = Plants presumed extirpated in California, but common elsewhere

2B = Plants rare, threatened, or endangered in California, but more common elsewhere

0.1 Seriously endangered in California

0.2 Fairly endangered in California

0.3 Not very endangered in California

5.2 Mitigation for Impacts

All mitigation shall be approved by the appropriate federal and state regulatory agencies (CPUC, CDFW, and BLM) prior to Project activities.

Temporary impacts to special status plant species in California will require on-site habitat restoration (1:1) with similar species compositions to those present prior to construction, as outlined in the Reclamation, Vegetation, and Monitoring Plan.

According to MM VEG-CEQA-4, permanent impacts to special status plant species will require compensatory mitigation at a ratio of 3:1.

Compensation will be identified in coordination with the appropriate federal and state regulatory agencies. Compensation requirements may be fulfilled through restoration and enhancement, land acquisition (i.e., conservation easement/preserve), an established mitigation bank program (if available), or a combination of these options, depending on the activity specifics and state and federal approval/authorization.

Off-site compensation lands would consist of habitat occupied by the impacted special status plant species at the appropriate ratio of acreage and the number of plants for any occupied habitat affected by the Project. Occupied habitat will be calculated on the Project site and on the compensation lands as including each special-status plant occurrence. Off-site compensation will be documented within the Final CMP and approved in consultation with the appropriated federal and state regulatory agencies.

The Proponent shall provide for open space/conservation easements on all acquired lands or provide the required funds for the acquisition of easements to a "qualified easement holder"; CDFW is a qualified easement holder. To qualify as a "qualified easement holder" a private land trust must have substantial experience managing open space/conservation

easements that are created to meet mitigation requirements for impacts to special-status species, have adopted the Land Trust Alliance's Standards and Practices, and have a stewardship endowment fund to pay for its perpetual stewardship obligations. The Proponent shall also provide the "qualified easement holder" with adequate funds to cover administrative costs incurred during the creation of the easement, funds in the form of a non-wasting endowment to cover the cost of monitoring and enforcing the terms of the easement in perpetuity.

For special-status plant restoration or enhancement activities, several techniques may be applied including salvage, propagation and off-site introduction, and restoration.

Salvage: DCRT will consult with the designated qualified biologist/botanist, as well as the appropriate federal and state regulatory agencies, regarding the feasibility and likely success of salvage efforts for each special-status plant species. If salvage is deemed to be feasible, then DCRT will incorporate salvage measures into the Project-specific Special-Status Plant and Sensitive Vegetation Community Mitigation and Monitoring Plan, which shall be approved by the appropriate federal and state regulatory agencies prior to implementation.

Propagation and Off-Site Introduction: If salvage and relocation is not believed to be feasible for one or more impacted species, then DCRT will consult with the appropriate federal and state agencies, as well as other qualified entities if needed, to develop an appropriate experimental propagation and relocation strategy, based on the life history of the species affected. The strategy will include at minimum: (a) a planting methodology including strategies for species specific collection and salvage measures for plant materials (e.g., cuttings), seed, or seed banks, to maximize success likelihood; (b) details regarding storage of plant, plant materials, or seed banks; (c) location of the proposed propagation facility, and proposed methods; (d); time of year that the salvage and other planting or transplantation practices will occur; (e) irrigation; (f) erosion controls; (g) success criteria; and (h) a detailed monitoring program. All propagation and off-site introduction strategies shall be documented in the Special-Status Plant and Sensitive Vegetation Community Mitigation and Monitoring Plan for the Project.

Restoration: Restoration may be used to mitigate impacts and depending upon the degree of impact, habitat restoration may be as simple as removing debris and controlling public access. In more complex situations, however, partial or total restoration of degraded habitat may require extensive revegetation, and soil protection and stabilization programs. The strategy will include at a minimum: (a) BLM approved genetically and ecologically appropriate native plant materials suitable for the site; (b) a description of any required topsoil salvage, plant salvage, seeding techniques, and methods to stabilize and shape soil surface to reduce soil erosivity; (c) monitoring and reporting protocols; and (d) success criteria. Restoration would be tailored to the specific site based on the habitat and species involved.

All mitigation for special-status plant species will be monitored to assess progress and to make recommendations for successful establishment. Monitoring will be performed by a qualified biologist/botanist designated by DCRT. At a minimum, monitoring will include qualitative and quantitative methods as described in the Vegetation Management Plan and the Special-Status Plant and Sensitive Vegetation Community Mitigation and Monitoring Plan. Monitoring shall identify the need for remediation or maintenance work well in advance of final success/failure determination. Monitoring and maintenance progress toward achieving success criteria, conditions, and all observations pertinent to eventual success shall be documented in the Post-Construction Vegetation Management Quarterly

Monitoring Progress Reports, and the Annual Post-Construction Vegetation Management Report, as described in the Vegetation Management Plan. In addition to the Vegetation Management Plan annual and quarterly reporting specifications, reporting for mitigation monitoring and maintenances shall also include progress reports that: (a) estimated species survival; (b) species health and overall vigor; (c) the establishment of volunteer native species; (d) topographical/soils conditions; (e) problem weed species; (f) the use of the site by wildlife; (g) significant drought stress; and (h) recommended remedial measures deemed necessary to ensure compliance with specified success criteria.

If federally- and/or state-listed plant species are identified within Project disturbance areas, then impacts and mitigation will be addressed through either the Section 7 or Section 10(a)(1)(B) process under the Federal Endangered Species Act (FESA) with the USFWS, and either the Section 2080 or Section 2080.1 process under the California Endangered Species Act (CESA) with the CDFW. Consultation with the appropriate resource agencies would be required to develop acceptable mitigation prior to construction.

The specific compensatory mitigation acreages and method will be determined in coordination with the appropriate federal and state regulatory agencies when final route selection and engineering design facilitates calculation of the acreage of impacts. Mitigation shall consider overlap with compensation for other resources.

6 Special Status Wildlife

6.1 Mojave Desert Tortoise

Mojave desert tortoise (*Gopherus agassizii*) is a federally-listed threatened species that is known to occur in desert scrub on the Palo Verde Mesa of California southwest of the Colorado River Substation. Designated critical habitat occurs outside the Project area, approximately three miles west of the substation, and will not be impacted.

The Mojave Desert Tortoise Protection and Compensation Plan details the avoidance, minimization, and onsite mitigation measures to be implemented to protect Mojave Desert tortoise. Currently it appears that there are no measures within the Final EIS requiring mitigation for temporary impacts to Mojave desert tortoise habitat. MM WIL-CEQA-11 states that: "With the exception of desert tortoise, compensation for temporary impacts to special-status terrestrial herpetofauna (including Couch's spadefoot toad and Mojave fringe-toed lizard) potential/modeled habitat shall include on-site habitat restoration at a minimum 1:1 ratio." Impacts and mitigation for the Mojave desert tortoise shall be addressed through either the Section 7 or Section 10(a)(1)(B) process under the FESA with the USFWS, and either the Section 2080 or Section 2080.1 process under the CESA with the CDFW.

MM WIL-CEQA-10 requires a 2:1 mitigation ratio for permanent impacts to Mojave desert tortoise, including habitat loss and potential take. MM WIL-CEQA-11 appears to provide conflicting guidance, indicating that "compensation for permanent impacts to desert tortoise and special-status wildlife on-site surveyed habitat shall include a) off-site creation, enhancement, and/or preservation, and/or b) participation in an established mitigation bank program at a minimum 3:1 ratio". It is anticipated that the conflict between these requirements will be resolved prior to issuance of the ROD, and that the mitigation ratio requirements will be clearly presented within the ROD. MM WIL-CEQA-10 defines habitat loss as "all lands directly disturbed...that will no longer provide viable long-term habitat for

the Mojave Desert tortoise.” Compensation for permanent impacts may include off-site creation, enhancement, and/or preservation or participation in an established mitigation bank program such as the National Fish and Wildlife Foundation. The Proponent shall coordinate with CPUC, BLM, and CDFW to determine the appropriate mitigation strategy and final replacement ratios and acreages. All mitigation shall be approved by the appropriate federal and state regulatory agencies prior to Project activities.

DCRT will fund or acquire, protect and transfer two acres of Mojave Desert tortoise habitat for every acre of habitat within the final Project footprint, and provide associated funding for the acquired lands. DCRT will acquire the land, in fee or in easement, within 12 months from the time the resource impact occurs, unless a 6-month extension is approved by the Authorizing Officer.

If compensation lands are acquired in fee title or in easement, the requirements for acquisition, initial improvement and long-term management of compensation lands include all of the following:

- Be within the appropriate Habitat Unit or, if sufficient land is unavailable, in other locations within approved by the appropriate federal and state regulatory agencies.
- Provide habitat for Mojave Desert tortoise with capacity to regenerate naturally when disturbances are removed.
- Be prioritized near larger blocks of lands that are either already protected or planned for protection, or which could feasibly be protected long-term by a public resource agency or a non-governmental organization dedicated to habitat preservation.
- Be connected to lands with Mojave Desert tortoise habitat equal to or better quality than the Project site, ideally with populations that are stable, recovering, or likely to recover.
- Not have a history of intensive recreational use or other disturbance that does not have the capacity to regenerate naturally when disturbances are removed or might make habitat recovery and restoration infeasible.
- Not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration.
- Not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat.
- Have water and mineral rights included as part of the acquisition, unless consultation with the appropriate federal and state agencies occurs and there is an agreement in writing to the acceptability of land.

The DRECP provides two habitat models for Mojave desert tortoise habitat. The first model is a 2009 model created by the United States Geological Survey (Nussenaar et al. 2009; DRECP 2019a), models a continuous surface of habitat suitability from 0 (non-habitat) to 1 (habitat), with areas greater than 0.6 being considered predicted occupied habitat. In this model, the habitat suitability ranges from 0-0.2 in the eastern portions of the Palo Verde Mesa, up to 0.2-0.4 at and near the Colorado River Substation—not within the range of predicted occupied habitat. The other model provided by the DRECP was created in 2012 by combining additional data to refine the United States Geological Survey model and

provide a binary output (suitable habitat or not habitat; DRECP 2019b). According to the more recently refined binary model, there is not any suitable Mojave desert tortoise habitat within the Project area, thus compensatory mitigation may not be necessary. In conformance with MM WIL-CEQA-10 and MM WIL-CEQA-11, DCRT will retain a designated qualified biologist to assess for Mojave Desert tortoise habitat. The results of those surveys, along with final engineering design, will be used to determine the mitigation requirements for Mojave Desert tortoise habitat loss.

The specific compensatory mitigation acreages and method will be determined in coordination with the appropriate federal and state regulatory agencies when final route selection and engineering design facilitates calculation of the acreage of permanent impacts to sensitive plant communities. Mitigation shall consider overlap with compensation for other resources.

6.2 Impacts to Federally or California-listed Threatened and Endangered Species

Formal FESA consultation for federally-listed species that have potential to occur and may be impacted by the Project include the Mojave Desert tortoise, razorback sucker, southwestern willow flycatcher, western yellow-billed cuckoo, and Yuma Ridgway's rail. CESA consultation for state-listed species that have potential to occur and may be impacted by the Project include greater sandhill crane, Mojave Desert tortoise, razorback sucker, Swainson's hawk, southwestern willow flycatcher, western yellow-billed cuckoo, and Yuma Ridgway's rail. Mitigation may be required by each agency during the regulatory permitting process, and would be incorporated in this CMP prior to construction. The specific compensatory mitigation acreages and method will be determined in coordination with the appropriate federal and state regulatory agencies when final route selection and engineering design facilitates calculation of the acreage of permanent impacts to sensitive plant communities. Mitigation shall consider overlap with compensation for other resources.

6.3 Mojave Fringe-toed Lizard

Mojave fringe-toed lizard (*Uma scoparia*) is a BLM-sensitive species that inhabits sparsely vegetated dunes, flats, riverbanks and washes with fine, loose sand. This species is common on sandy soils on the Palo Verde Mesa within the Project area. The Fringe-Toed Lizard Linear ROW Protection Plan describes the potential for Mojave fringe-toed lizard to occur in the Project area, including known occurrences, location of potential suitable habitat. It also details the avoidance, minimization, and onsite mitigation methods proposed to protect Mojave fringe-toed lizard.

Mitigation for Mojave fringe-toed lizard will take into account overlap with mitigation for other resources, particularly Harwood's eriastrum, as the two species are associated with similar habitat.

In compliance with MM WIL-CEQA-11, temporary impacts to Mojave fringe-toed lizard potential/modeled habitat will require on-site habitat restoration with similar species compositions to those present prior to construction, as outlined in the Reclamation, Vegetation, and Monitoring Plan.

For permanent habitat loss and direct impacts to Mojave fringe-toed lizards, MM WIL-CEQA-10 requires compensatory mitigation at a ratio of 3:1. DCRT will coordinate with

CPUC, BLM, and CDFW to determine the appropriate mitigation strategy and final replacement ratios and acreages. All mitigation will be approved by the appropriate federal and state regulatory agencies prior to Project activities. Compensation may include preservation through acquisition of offsite lands with an attached conservation easement, purchase of credits from an approved mitigation bank, or onsite or offsite enhancements of habitat that support known population of Mojave fringe-toed lizard. Off-site compensation lands and/or established mitigation bank program would be identified, if available, in coordination with the appropriate federal and state regulatory agencies.

On all acquired lands, DCRT would provide for open space/conservation easements or provide the required funds for the acquisition of easements to a “qualified easement holder”; the CDFW is a qualified easement holder. To qualify as a “qualified easement holder” a private land trust must have substantial experience managing open space/conservation easements that are created to meet mitigation requirements, have adopted the Land Trust Alliance’s Standards and Practices, and have a stewardship endowment fund to pay for its perpetual stewardship obligations. DCRT would also provide the “qualified easement holder” with adequate funds to cover administrative costs incurred during the creation of the easement, funds in the form of a non-wasting endowment to cover the cost of monitoring and enforcing the terms of the easement in perpetuity.

The compensation lands selected for acquisition will meet the following criteria:

- Be deposits of Aeolian or fine windblown sands typically associated with dunes, washes, hillsides, and margins of dry lakes, with potential to contribute to Mojave fringe-toed lizard habitat connectivity and build linkages between known populations of Mojave fringe-toed lizards and preserve lands with suitable habitat.
- To the extent feasible, be connected to lands currently occupied by Mojave fringe-toed lizard.
- To the extent feasible, be near larger blocks of lands that are either already protected or planned for protection, or which could feasibly be protected long-term by a public resource agency or a non-governmental organization dedicated to habitat preservation.
- Provide quality habitat for Mojave fringe-toed lizard, that has the capacity to regenerate naturally when disturbances are removed.
- Not have a history of intensive recreational use or other disturbance that might make habitat recovery and restoration infeasible.
- Not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration.
- Not contain hazardous wastes that cannot be removed to the extent the site is suitable for habitat.
- Not be subject to property constraints (i.e., mineral leases, cultural resources).
- Be on land for which long-term management is feasible.

The specific compensatory mitigation acreages and method will be determined in coordination with the appropriate federal and state regulatory agencies when final route selection and engineering design facilitates calculation of the acreage of permanent impacts to sensitive plant communities. Mitigation shall consider overlap with compensation for other resources.

6.4 Impacts to Other Special Status Wildlife

Table 6-2 below summarizes the status and habitat information for each special status wildlife species (that was not covered above) with potential to occur in the California portion of the Project. Many, but not all, of the special status species in Table 6-2 have DRECP habitat models identifying potential habitat. The models are coarse in scale and do not appear likely to reliably represent suitable habitat distribution for most species. After the final route is selected, prior to construction, it may be appropriate to conduct a Project-scale field-based habitat assessment for special status wildlife species in California, to validate and/or refine the existing coarse-scale models in support of implementation of compensatory mitigation.

6.4.1 Terrestrial Herpetofauna

Compensation for impacts to Mojave Desert tortoise and Mojave fringe-toed lizard are discussed above in Section 6.1 and Section 6.3. MM WIL-CEQA-11 requires compensatory mitigation for other special status herpetofauna in California. According to the Draft EIS, other special status herpetofauna with potential to occur within the Project area in California include Couch's spadefoot toad (*Scaphiopus couchii*), Sonoran desert toad (*Bufo alvarius*), and Sonoran mud turtle (*Kinosternon sonoriense*). Couch's spadefoot is associated with desert upland and cropland/hedgerow, as well as aquatic environments. According to the Draft EIS they have a high potential to occur in and near ephemeral pools and agricultural areas in the eastern portion of Project area in California. The Sonoran desert toad occurs in a variety of upland habitats within several miles of permanent or temporary water sources. These upland habitats include creosote bush desert scrub, and the edges of agriculture. The Sonoran mud turtle inhabits aquatic environments and are rare along the lower Colorado River.

In compliance with MM WIL-CEQA-11, temporary impacts to potential/modeled habitat for special status terrestrial herpetofauna will require on-site habitat restoration with similar species compositions to those present prior to construction, as outlined in the Reclamation, Vegetation, and Monitoring Plan.

Impacts in California to the habitat of special status wildlife species (that are not already covered above) will be mitigated, per MM WIL-CEQA-11, at a minimum mitigation ratio of 2:1. MM WIL-CEQA-11 appears to provide conflicting guidance as to the appropriate mitigation ratio, as detailed below in Section 6.4.2. It is anticipated that the conflict between these requirements will be resolved prior to issuance of the ROD, and that the mitigation ratio requirements will be clearly presented within the ROD. Compensation will be identified in coordination with the appropriate federal and state regulatory agencies (CPUC, CDFW, and BLM), and may include off-site creation, enhancement, and/or preservation or participation in an established mitigation bank program.

DCRT would provide for open space/conservation easements on all acquired lands or provide the required funds for the acquisition of easements to a "qualified easement holder"; CDFW is a qualified easement holder. To qualify as a "qualified easement holder" a private land trust must have substantial experience managing open space/conservation easements that are created to meet mitigation requirements for impacts to special-status species, have adopted the Land Trust Alliance's Standards and Practices, and have a stewardship endowment fund to pay for its perpetual stewardship obligations. DCRT would also provide the "qualified easement holder" with adequate funds to cover administrative costs incurred during the creation of the easement, funds in the form of a non-wasting

endowment to cover the cost of monitoring and enforcing the terms of the easement in perpetuity.

The specific compensatory mitigation acreages and method will be determined in coordination with the appropriate federal and state regulatory agencies when final route selection and engineering design facilitates calculation of the acreage of permanent impacts to sensitive plant communities. Mitigation shall consider overlap with compensation for other resources.

6.4.2 All Other Special Status Wildlife Habitat

Clarification is needed from CPUC regarding three statements within MM WIL-CEQA-11: *Conduct Pre-construction Surveys for Listed and Special-Status Terrestrial Herpetofauna and Compensation for Impacts*. The three statements are specifically:

- *Compensation for permanent impacts to desert tortoise and special-status wildlife on-site surveyed habitat shall include: a) off-site creation, enhancement, and/or preservation; and/or b) participation in an established mitigation bank program at a minimum 3:1 ratio.*
- *Compensation for temporary and permanent impacts for all other special-status wildlife habitat shall include a combination of: a) on-site habitat creation or enhancement with similar species compositions to those present prior to construction; b) off-site creation, enhancement, and/or preservation, and/or; c) participation in an established mitigation bank program at a 2:1 minimum ratio.*
- *With the exception of desert tortoise, compensation for temporary impacts to special-status terrestrial herpetofauna (including Couch's spadefoot toad and Mojave fringe-toed lizard) potential/modeled habitat shall include on-site habitat restoration at a minimum 1:1 ratio.*

Five issues associated with these three statements require clarification in order to interpret mitigation requirements for the preparation of this CMP:

- The 3:1 ratio identified in the first statement seems to contradict the 2:1 mitigation ratio for Mojave desert tortoise identified in MM WIL-CEQA-10.
- It is not clear what if any difference there is between "special-status wildlife on-site surveyed habitat" in the first statement (requiring 3:1 mitigation ratio) and "all other special-status wildlife habitat" in the second statement (requiring 2:1 mitigation ratio).
- It is not clear if "special-status wildlife" refers to all special status wildlife (e.g., mammals, birds), or if it only refers to special status terrestrial herpetofauna. The latter interpretation seems more consistent with the rest of the content of MM WIL-CEQA-11: *Conduct Pre-construction Surveys for Listed and Special-Status Terrestrial Herpetofauna and Compensation for Impacts*.
- Depending on which species each of the statements is intended to apply to, the second statement may conflict with the third statement regarding the appropriate mitigation ratio for temporary impacts.

- The third statement explicitly excludes desert tortoise (in California) from the 1:1 mitigation requirement for temporary impacts. There does not appear to be any other APM, BMP, or MM in the Final EIS requiring mitigation for temporary impacts to Mojave desert tortoise, which would make it unique among resources requiring compensatory mitigation.

TABLE 6-2 SPECIAL STATUS WILDLIFE SPECIES WITH POTENTIAL TO OCCUR WITHIN THE PROJECT AREA IN CALIFORNIA¹

SCIENTIFIC NAME	COMMON NAME	STATUS ²	HABITAT INFORMATION
<i>Scaphiopus couchii</i>	Couch's spadefoot	California: SSC BLM: Sensitive	Desert, arid, and semi-arid shrublands/chaparral, shortgrass plains, cropland/hedgerow, savanna. High potential to occur in and near ephemeral pools and agricultural areas in eastern portion of Project area in California.
<i>Bufo alvarius</i>	Sonoran desert toad	California: SSC	Occurs in a variety of habitats including creosote bush desert scrub, grasslands, along major river corridors, and the edges of agriculture. Generally, within several miles of permanent or temporary water sources.
<i>Uma scoparia</i>	Mojave fringe-toed lizard	California: SSC BLM: Sensitive	Sparsely vegetated dunes, flats, riverbanks and washes with fine, loose sand. This species is common on sandy soils within the Project area.
<i>Kinosternon sonoriense</i>	Sonoran mud turtle	California: SSC	Usually found in rocky streams, creeks, and rivers. It also inhabits ponds, cattle tanks, and ditches. Within Project area, rare along lower Colorado River.
<i>Taxidea taxus</i>	American badger	California: SSC	Agricultural land, grassland, and other open areas and brush lands with sparse groundcover. This species has been detected near the Project area.
<i>Myotis occultus</i>	Arizona myotis	California: SSC	Ponderosa pine and oak-pine woodland near water and wooded riparian areas in desert areas.
<i>Macrotus californicus</i>	California leaf-nosed bat	California: SSC BLM: Sensitive	Lowland desert scrub roosting in caves, abandoned mine tunnels and rock shelters in canyon walls.
<i>Myotis velifer</i>	Cave myotis	California: SSC BLM: Sensitive	Evergreen or pine-oak forest and pine forest at mid-high elevations and riparian habitats near desert scrub at lower elevations.
<i>Sigmodon arizonae plenius</i>	Colorado River cotton rat	California: SSC	Riparian thickets, dense grass cover, drier grassy areas. Likely rare or absent along Colorado River in Project area.
<i>Felis concolor brownii</i>	Yuma mountain lion	California: SSC	From mountains to valley bottoms where prey is abundant. Absent or very rare in Project area.
<i>Ovis canadensis nelson</i>	Desert bighorn sheep	California: FP BLM: Sensitive BLM: Focus Species	Canyons, hills, and mountains in rough terrain throughout the southwestern United States. There is no habitat for this species within the Project area.
<i>Antrozous pallidus</i>	Pallid bat	California: SSC BLM: Sensitive	Deserts and grasslands, mostly near rocky outcrops and water. Roosts in rock crevices.
<i>Nyctinomops femorosaccus</i>	Pocketed free-tailed bat	California: SSC	Rocky canyons with outcroppings and high cliffs. Roosts in rock crevices and caves. Observed near shrubland, mixed tropical deciduous forest, and floodplains with sycamore and mesquite with nearby high cliffs.

SCIENTIFIC NAME	COMMON NAME	STATUS ²	HABITAT INFORMATION
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	California: SSC BLM: Sensitive	Near the entrance of caves, mine tunnels, and other well-ventilated areas. Night roosts can include caves as well as buildings and tree cavities. Potential foraging habitat exists along the Colorado River and in adjacent agricultural fields, and it is likely that this species is present in the area at least occasionally.
<i>Lasiurus xanthinus</i>	Western yellow bat	California: SSC	Roosts in trees, including woodland and riparian habitat.
<i>Myotis yumanensis</i>	Yuma myotis	BLM: Sensitive	Riparian, desert scrub, moist woodlands, and forests, typically near open water.
<i>Toxostoma bendirei</i>	Bendire's thrasher	California: SSC BLM: Sensitive BLM: Focus Species	Rare or uncommon during summer, dry and semi-arid washes and other areas containing shrubs, trees, and especially yucca. Unlikely to occur in Project area.
<i>Athene cunicularia</i>	Burrowing owl	California: SSC BLM: Sensitive BLM: Focus Species	Open grasslands, savannas and plains with mammal burrows. Occasionally in vacant lots. This species has been detected within the Project area.
<i>Toxostoma crissale</i>	Crissal thrasher	California: SSC	Microphyll woodland and riparian washes, mesquite woodlands, other dense scrub vegetation. Uncommon year-round resident in region.
<i>Aquila chrysaetos</i>	Golden eagle	California: FP Eagle Protection Act BLM: Sensitive BLM: Focus Species	Open areas, plains, and mountains throughout North America. This species is not known to nest or forage in the vicinity of the Project area in California, and the Palo Verde Mesa offers low prey availability.
<i>Toxostoma lecontei</i>	Le Conte's thrasher	California: SSC	Vegetated washes and desert scrub with saltbush, shadscale, cholla cacti, or other species suitable for nesting. This species has been detected within or near the Project area.
<i>Asio otus</i>	Long-eared owl	California: SSC	Uncommon to rare year-round resident in riparian and desert woodlands throughout deserts of southern California. There are no stands or riparian trees or large desert woodlands within the Project area that would be suitable habitat for this species.
<i>Lanius ludovicianus</i>	Loggerhead shrike	California: SSC	Year-round resident in open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. This species has been detected in or near the Project area.
<i>Charadrius montanus</i>	Mountain plover	California: SSC BLM: Sensitive	Winters in and near cultivated fields along lower Colorado River. Could occur uncommonly within and near cultivated fields.
<i>Circus cyaneus</i>	Northern harrier	California: SSC	Grasslands, flat areas, and hills with open habitat. This species has been detected within or near the Project area.
<i>Asio flammeus</i>	Short-eared owl	California: SSC	Rare in open areas, fields, and wetlands. Unlikely to occur in Project area.
<i>Setophaga petechia sonorana</i>	Sonora yellow warbler	California: SSC	Cottonwood, willow, and salt cedar riparian woodlands. Limited habitat within the Project area.
<i>Piranga rubra</i>	Summer tanager	California: SSC	Summer resident in mature cottonwood riparian woodlands along Colorado River. Limited or no habitat within and near Project area.

SCIENTIFIC NAME	COMMON NAME	STATUS ²	HABITAT INFORMATION
<i>Pyrocephalus rubinus</i>	Vermilion flycatcher	California: SSC	Cropland, cultivated lands, desert, shrubland, riparian woodlands near water. Could occur uncommonly near cultivated fields.
<i>Icteria virens</i>	Yellow-breasted chat	California: SSC	Summer resident in dense, early successional riparian woodlands and thickets with willows, salt cedar, vine tangles, and dense brush with well-developed understories and some overstory for perches.
<i>Xanthocephalus xanthocephalus</i>	Yellow-headed blackbird	California: SSC	Freshwater wetlands with open water and dense, emergent vegetation. Foraging in fields and open cultivated areas. Could occur uncommonly along Colorado river and among agricultural fields.

¹ Specific mitigation requirements have not been determined and may not be required for all species.

Table is adapted from Table 3.4-8 and Table 3.4-14 in the Draft EIS.

² BLM = Bureau of Land Management

FP = Fully Protected

SSC = Species of Special Concern

BLM Focus Species = as designated under the DRECP LUPA

6.5 Bird and Bat Mortality

The DRECP LUPA emphasizes conservation related to wind and solar energy development, as well as transmission. Among the larger biological impacts of wind, and to some extent solar, development are bird and bat collision fatalities. Transmission lines are known to result in bird and bat mortality from collision and/or electrocution, though with the implementation of BMPs, the transmission line fatalities are anticipated to be much fewer than what are typically observed at wind and solar facilities. In compliance with mitigation measures specified in the DRECP LUPA, the Draft EIS requires assessment of and compensatory mitigation for bird and bat mortality that occurs as a result of the Project.

6.5.1 Bird and Bat Monitoring to Facilitate Estimates of Mortality

MM-WIL-CEQA-1 includes a requirement to provide “*procedures for the calculation of a fee, to be reassessed every five years, to fund compensatory mitigation for bird and bat mortality impacts; this shall be based on requirements described in CMA LUPA-BIO-COMP-2*”. LUPA-BIO-COMP-2, which is applicable to the Project on BLM land in California, states that compensatory mitigation for mortality impacts to bird and bat DRECP Focus and BLM Special Status Species will be determined based on monitoring of bird and bat mortality, and that a fee will be re-assessed every five years to fund compensatory mitigation. It goes on to state that “*Each activity, as determined appropriate by BLM in coordination with USFWS, and CDFW as applicable, will include a monitoring strategy to provide activity-specific information on mortality effects on birds and bats in order to determine the amount and type of compensation required.*” And that “*The initial compensation fee for bird and bat mortality impacts is to be based on pre-project monitoring of bird use and estimated bird and bat species mortality from the activity.*”

The proposed monitoring strategy is described in The Draft Avian Protection Plan/Bird and Bat Conservation Strategy (APP/BBCS; Appendix F3 of the POD), and will include, at a minimum, two years of standardized post-construction bird and bat fatality monitoring; an opportunistic avian reporting system for avian and bat mortalities detected during standard operation and maintenance activities, nest searching and monitoring for all protected birds; nest surveys specifically for golden eagles and other raptors; species-specific surveys for burrowing owls; roost surveys for bats; presence/absence surveys for willow flycatcher and

Bell's vireo; and presence/absence surveys for Ridgway's rail if suitable habitat is present. Additional preconstruction surveys may be conducted if determined necessary through discussions with BLM and CDFW. The monitoring results would be used to estimate mortality impacts and calculate compensatory mitigation requirements for mortalities occurring on BLM land in California.

6.5.2 Species That May Require Compensatory Mitigation

Bird and bat Focus and BLM Sensitive Species analyzed in the Draft EIS that would require mitigation for mortality on BLM land in California are listed below along with the anticipated occurrence likelihood/relative abundance within the Project area on BLM land in California. The occurrence likelihood/relative abundance is based on DRECP habitat models (DRECP 2019a and 2019b), eBird data (eBird 2019), aerial imagery, vegetation cover type information presented in the Draft EIS, and the professional opinion of the biologist/plan author. Additional information about each species status and habitat associations may be found within Tables 6-1 and 6-2. Species that would require mitigation are:

- Birds
 - Southwestern willow flycatcher—very unlikely to occur (within the Project area on BLM land in California)
 - Yuma Ridgway's rail—very unlikely to occur
 - Arizona Bell's vireo—very unlikely to occur
 - California black rail—very unlikely to occur
 - Elf owl—unlikely to occur
 - Gila woodpecker—unlikely to occur
 - Gilded flicker—unlikely to occur
 - Greater sandhill crane—unlikely to occur
 - Swainson's hawk—may occur uncommonly
 - Western yellow-billed cuckoo—very unlikely to occur
 - Bendire's thrasher—unlikely to occur
 - Burrowing owl—may occur uncommonly
 - Golden eagle—may occur uncommonly
 - Mountain plover—may occur uncommonly
- Bats—Bat fatalities have rarely been reported under power lines.
 - California leaf-nosed bat—may occur
 - Cave myotis—unlikely to occur
 - Pallid bat—may occur
 - Townsend's big-eared bat—may occur uncommonly
 - Yuma myotis—may occur uncommonly

6.5.3 A Priori Fatality Predictions

It is likely that the Project will not result in any mortality to bird and bat DRECP Focus and BLM Special Status Species for the following reasons. None of the DRECP Focus and BLM Sensitive bird species are anticipated to commonly occur within the California portion of the Project area, and many of the species are very unlikely to occur. Bat fatalities have only rarely been reported under power lines and likely do not occur in substantial numbers. DCRT will implement numerous BMPs as recommended by the Avian Power Line Interaction Committee and described within the APP/BBCS, including but not limited to the following:

- The Project transmission line conductor spacing will exceed the necessary avian-safe separation distance which will greatly reduce the probability of electrocution.
- The transmission line will be collocated with an existing transmission line (Devers-Palo Verde 1) for much of its length, including the Colorado River Crossing.
- At the Colorado River Crossing, the Project will match spans and conductor height with the existing line to the greatest extent practicable.
- Conductor bundles for all structure types except the proposed monopoles would be installed horizontal to one another (at the same height on the structure), and the two ground wires would be horizontal to one another, approximately 30 feet above the conductors.
- Permanent guy guards/markers will be installed on all guy wires for the guyed-V structures.
- The Project's ground wires and any other static wires will be marked with marker balls or other flight deterrents at the crossing of the Colorado River and its floodplain and within 1,000 feet of stream and wash channels, canals, ponds, and any other natural or artificial body of water.
- To minimize potential bird collisions with Project fencing, all newly constructed fences will utilize high visibility fencing or will be marked to increase visibility of the top wire.
- Surveys for, and avoidance of, active nests.

It is likely that most or all bird or bat fatalities will be common, non-Special-Status species. Monitoring and avoidance of nesting birds is anticipated to prevent mortality to eggs or nestling birds during construction.

Given all the above considerations, the most reasonable a priori estimate for the first five-year period is that the Project would not cause any mortality for each of the above species.

6.5.4 Calculation of Compensation for Bird and Bat Mortality.

The mortality estimates will be reassessed every five years based on the results of fatality monitoring, which will be conducted using the methodologies described in the APP/BBCS. If at one of the five-year reassessments mortality has been documented or estimated to occur to any DRECP Focus or BLM Sensitive species, compensation will be satisfied by

restoring, protecting, or otherwise improving habitat such that the carrying capacity or productivity is increased to offset the mortality impact. Compensation may also be satisfied by non-restoration actions that reduce mortality risks to birds and bats (e.g., increased predator control and protection of roosting sites from human disturbance).

The approach to calculating the operational bird and bat compensation would involve measuring the relative loss to a population (debt) resulting from an activity and the productivity gain (credit) to a population from the implementation of compensatory mitigation actions. The measurement of these debts and gains (using the same “bird years” metric as described in Appendix D of the DRECP LUPA) is used to estimate the necessary compensation fee.

Based on the description of analysis methods found in Appendix D of the DRECP LUPA, it appears that “bird year” losses and gains were estimated using species maximum longevity, rather than the more appropriate metric of annual survival rate, thus yielding questionable estimates of life expectancy. More importantly, it is not clear why the “bird years” should differ (in a generalizable and predictable way) between a bird life that is “lost” and a bird life that is “gained,” and indeed the estimates provided in DRECP LUPA Appendix D for DRECP Focus species result in statistically identical “bird year” estimates for “losses” and “gains,” i.e., the range of estimates for “lost bird years” for each species overlaps the range of estimates for “gained bird years.” Therefore, for the sake of simplicity and clarity, if mortality occurs and triggers compensatory mitigation, it would be assumed that “bird years” per lost bird equals “bird years” per gained bird, and each bird life “gained” will offset a single bird life “lost.”

If compensation is to occur in the form of restoration or preservation of breeding habitat, the restored nesting habitat compensation acreage per whole bird loss would be the most pertinent metric. If mortality occurs to one of the species for which estimates are provided in DRECP LUPA Appendix D, then the provided estimate will be used. Otherwise an estimate will be calculated using average home-range size estimates for the species in question if available or for taxonomically and ecologically similar species, if necessary.

Restored Nesting Habitat Compensation Acreage per Whole Bird Loss estimates provided in DRECP LUPA Appendix D are as follows:

- Willow flycatcher—5 acres
- Bell’s vireo—2 acres
- Yellow-billed cuckoo—20 acres
- Gila woodpecker—24 acres
- Ridgway’s rail—2 acres
- Black rail—2 acres

For species that do not breed within the DRECP LUPA Plan Area (e.g., mountain plover and greater sandhill crane), restoration or improved management of breeding habitat is not feasible. However, restoration and maintenance of foraging habitat, with the aim of increasing winter survival may be possible.

An alternative to habitat restoration or preservation, threat reduction actions could be used to compensate for mortality. According to DRECP LUPA Appendix D, compensation for bat mortality would need to take the form of threat reduction compensation, rather than habitat preservation or restoration. DRECP LUPA Appendix D recognizes several threat reduction measures, including the following which may be considered for this Project, if impacts trigger mitigation requirements:

- Nest site and roost protections.
- Retrofitting – Power line retrofitting following current Avian Power Line Interaction Committee standards in the LUPA Plan Area could reduce the risk of future electrocutions. As a compensation action, power line retrofitting must be in addition to existing, ongoing retrofitting programs being conducted by the utilities.
- Repowering existing wind facilities – Aging, inefficient wind power generation facilities that may kill or injure birds and bats may present an opportunity to repower or re-site or remove them to reduce the amount of ongoing mortality.
- Predator control and management programs, such as this Project's Raven Management Program (Appendix F-5 of the POD) or cowbird control. Again, the effectiveness of these compensation actions requires an understanding of both the lifetime contribution of an individual and the gains to the population in terms of avoided losses. It is unknown if the scale at which it would need to be implemented would make this a feasible approach for compensation.
- For bats, compensation would almost entirely consist of management actions designed to reduce threats from encroachment of human activity on significant roosts. For example, human access to mines may be restricted by funding gating and/or fencing that does not block bat access at abandoned mine features.

Given the low likelihood that the Project will result in mortality to any DRECP Focus or BLM sensitive species, and the inability to predict which, if any, species will experience mortality, a specific and detailed calculation of specific compensatory mitigation actions would not be appropriate at this time. Prior to each five-year reassessment, if mortality triggers a need for compensatory mitigation, DCRT, in collaboration with BLM, will identify commensurate specific compensatory actions or monetary compensation.

6.5.5 Golden Eagle Mortality

CMA LUPA-BIO-COMP-3 and CMA LUPA-BIO-COMP-4 require Project proponents to contribute to a DRECP-wide monitoring program, if the Project is determined, through environmental analysis, to likely impact golden eagles within the DRECP area (as it pertains to the Project, BLM land in California). According to the Draft EIS, there is no golden eagle nesting habitat in or near the DRECP portion of the Project area and while the Project area may provide eagle foraging habitat, but the prey base of black-tailed jackrabbits and desert cottontails is considered very low. The Project is not likely to impact golden eagles through direct mortality or indirect impacts. Therefore, DCRT will not be responsible for contributing to the golden eagle monitoring program. If new evidence leads to the documentation or expectation of golden eagle mortality, compensatory mitigation will be provided as described above.

7 Raven Management

During the past few decades, the population of the common raven (*Corvus corax*) has increased substantially in the Desert Southwest, primarily in response to human-provided subsidies of food, water, and nest sites. Ravens are a major predator of many special status species, including the federally threatened Mojave desert tortoise. Per BMP BIO-28, MM WIL-CEQA-2, and CMA LUPA-BIO-6 compensatory mitigation will be provided that contributes to LUPA-wide raven management. The Raven Management Plan, Appendix

F-5 of the POD, provides a detailed prescription of measures to avoid and minimize the Project's unintentional augmentation of raven populations. Per MM WIL-CEQA-2, DCRT will submit payment into an account established for the Project held by the National Fish and Wildlife Foundation to support the USFWS Regional Raven Management Program. The one-time fee shall be as described in the cost allocation methodology or more current guidance as provided by USFWS. The contribution to the regional raven management plan will be \$105 "per acre impacted." The correct interpretation of the words "per acre impacted" will be determined based on conversations with BLM and/or CDFW. Preliminarily, this document assumes it to mean acres of permanent and temporary ground disturbance.

8 Cultural Resources

Per BMP CULT-05 and LUPA-TRANS-CUL-2, DCRT will pay a compensatory mitigation fee for cumulative and indirect effects to historic properties as a result of construction. The fee structure of the compensatory mitigation fee will be calculated in a manner that is commensurate to the size and regional impacts of the Project, as determined by Appendix G of the DRECP Programmatic Agreement (PA), which has not been completed to date. If Appendix G of the DRECP PA has not been completed at the time the PA is executed, the BLM will develop mitigation to address cumulative and indirect adverse effects in a manner that is commensurate to the size and regional impacts of the Undertaking, in consultation with the Consulting Parties. This fee structure would be determined by the BLM and contained in the Project-specific PA.

According to the Draft EIS, *"Specific impacts to historic properties are unknown until Class III identification studies and indirect effect analyses of the selected route are completed, and additional information regarding engineering design is available. As a result, evidence is currently insufficient to state specific direct or indirect impacts to particular historic properties or to discuss specific measures to resolve potential effects to those properties."* When the potential impacts to historic properties are identified, avoidance and minimization measures will be adopted to the extent practicable to prevent impacts, and any remaining residual impacts will be compensated as described above.

9 Visual Resources

As detailed in Appendix 1c of the Draft EIS and in the DRECP LUPA, CMA DFA-VRM-2 requires compensatory mitigation for visual impacts based on underlying Visual Resource Inventory (VRI) Classes. Specifically, DFA-VRM-2 states that regional mitigation is required.

"...based on the VRI class and the underlying visual values (scenic quality, sensitivity, and distance zone) for the activity area as it stands at the time the ROD is signed for the DRECP LUPA. Compensatory mitigation may take the form of reclamation of other BLM lands to maintain (neutral) or enhance (beneficial) visual values on VRI Class II and III lands. Other considerations may include acquisition of conservation easements to protect and sustain visual quality within the viewshed of BLM lands. The following mitigation ratios will be applied in DFAs:

- VRI Class II 1:1 ratio
- VRI Class III ½ (0.5): 1 ratio

- VRI Class IV, no mitigation required

Additional mitigation will be required where activities affect viewsheds of specially designated areas (e.g., National Scenic and Historic Trails)."

As detailed in the Draft EIS (Table 3.11-5, page 3-78; Appendix 2C, page 62), only VRI Class II areas are crossed by the Project, and the visual impact analysis determined that the introduction of the Project into the viewshed would not result in a scenic quality reduction of VRI Class II areas enough to lower the VRI class (e.g., from VRI Class II to VRI Class III). Therefore, no compensatory mitigation is required for visual resources, and no additional analysis has been conducted as part of this CMP.

DRAFT

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2B.7 MOJAVE FRINGE-TOED LIZARD AVOIDANCE AND CLEARANCE PLAN

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June 2019

BUREAU OF LAND MANAGEMENT

Ten West Link Transmission Project

Mojave Fringe-Toed Lizard Avoidance and Clearance Plan

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154320

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Mojave Fringe-Toed Lizard Avoidance and Clearance Plan

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ACRONYMS AND ABBREVIATIONS

°C	Degrees Celsius
°F	Degrees Fahrenheit
AGFD	Arizona Game and Fish Department
APM	Applicant Proposed Measure
AQ	Air Quality
BIO	Biological Mitigation Measure
BLM	Bureau of Land Management
BMP	Best Management Practice
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CMA	Conservation and Management Action
CPUC	California Public Utilities Commission
DCRT	Delaney Colorado River Transmission, LLC
DFA	Development Focus Areas
DRECP	Desert Renewable Energy Conservation Plan
DUNE	Dune Habitat Measure
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
ESA	Endangered Species Act
IFS	Individual Focus Species
LUPA	Land Use Plan Amendment
MM	Mitigation Measures
Plan	Mojave Fringe-Toed Lizard Avoidance and Clearance Plan
POD	Plan of Decision
Project	Ten West Link Transmission Project
ROW	Right-of-way
TRANS	Transportation
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
VPL	Variance Process Land Designation
WEAP	Worker Environmental Awareness Program

1 Introduction

The data and information provided with this Mojave Fringe-Toed Lizard Avoidance and Clearance Plan (Plan) is for the Ten West Link Transmission Project (Project) proposed by Delaney Colorado River Transmission, LLC (DCRT) on the California portion only. The purpose of this Plan is to address direct impacts resulting from the construction, operation, and maintenance of the Project to the Bureau of Land Management (BLM) sensitive (and California species of concern) Mojave fringe-toed lizard (*Uma scoparia*) and their associated sand dune habitats. Direct impacts would be potential habitat loss and species injury and/or mortality. This project-specific Plan describes the avoidance management strategy and mitigation procedures that would minimize impacts to the species and their habitat. The DCRT is responsible to ensure all supervision, guidance, and verification of the mitigations and protocols outlined in the Plan are achieved and receive approval by the BLM.

1.1 Project Description and Location

As shown in Figure F-6-1 – Ten West Link Proposed Action Overview, the Project is approximately 125.3 miles of 200-foot-wide right-of-way (ROW) with 103.7 miles of the route in Maricopa and La Paz Counties, Arizona and 21.6 miles in Riverside County, California. Of the total length, approximately 81.3 miles cross lands managed by federal agencies including the BLM, the Department of Defense, and the Bureau of Reclamation.

The Project's overhead transmission line would extend between Arizona Public Service's Delaney Substation near Tonopah, Arizona and Southern California Edison Company's Colorado River Substation, located near Blythe, California. The Project route (BLM Preferred Alternative) would parallel an existing transmission line and other linear facilities, primarily within designated utility corridors. For further design and details, refer to the Plan of Development (Volume I). Any changes or additions to the requirements for this Plan will be updated when the Record of Decision has been issued.

1.2 Relevant Laws, Regulations, and Management Policies

1.2.1 Federal

Administered by the United States Fish and Wildlife Service (USFWS), the Endangered Species Act (ESA) of 1973, as revised, was established to protect species at risk of becoming extinct (16 United States Code [U.S.C.] § 1531). In 2006, a private-citizen petition was sent to the USFWS to list the Mojave fringe-toed lizard populations residing near the Amargosa River in Southern California. After a 12-month review of current population and genetic trends during 2008, the USFWS Ventura Field Office concluded that the species did not warrant protection under the ESA (Federal Register, Volume 76, No. 61321). However, the BLM Colorado River District Offices list the species as sensitive, requiring special management consideration to promote conservation and reduce the likelihood of future listing of the species.

1.2.2 State of Arizona

The Mojave fringe-toed lizard is a Species of Greatest Conservation Need under the Arizona Game and Fish Department's State Wildlife Action Plan (Arizona Game and Fish

Department [AGFD] 2016) and a sensitive species on BLM administered lands in Arizona. The preferred alternative passes very close to suitable habitat within Arizona borders; however, the Project will not impact these areas. There is no suitable habitat for Mojave fringe-toed lizards for the portion of the Project in California for which BLM Arizona governs.

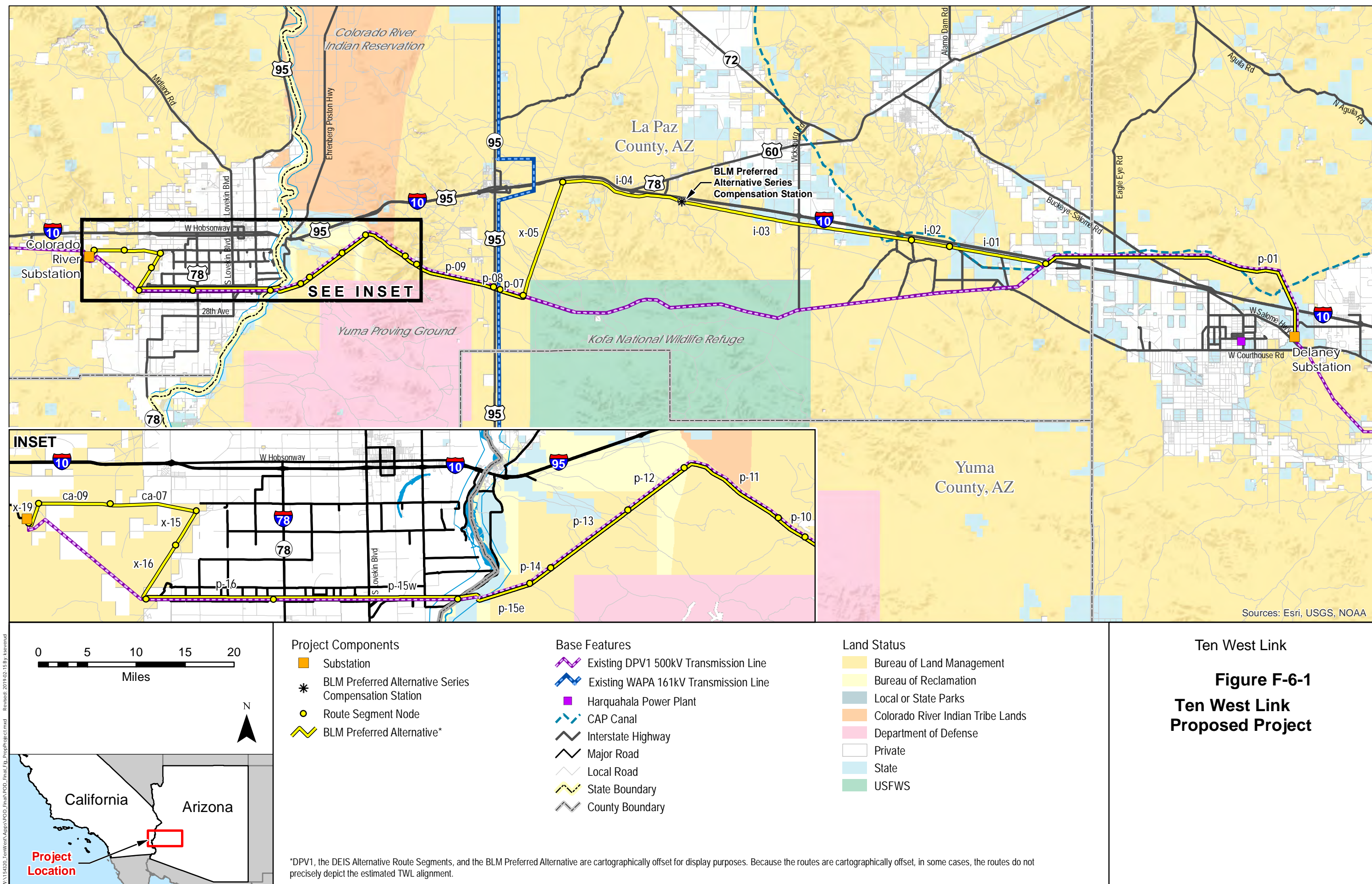
1.2.3 State of California

The California Department of Fish and Wildlife (CDFW) lists the Mojave fringe-toed lizard as a species of concern. This classification lists species either as state-extirpated; experiencing population declines or range retractions; or having small, existing populations demonstrating high vulnerability to risk (CDFW 2018).

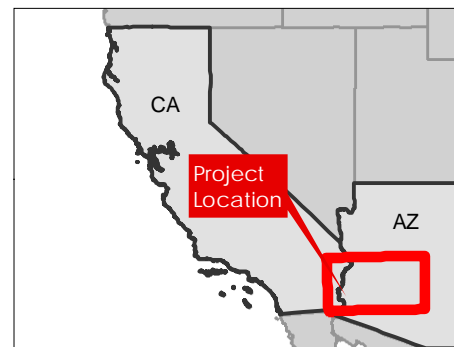
A statute passed in 1970, the California Environmental Quality Act (CEQA) requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible (California Natural Resources Agency 2014). Under CEQA guidelines, any species of concern should be included in project-impacts analysis (California Public Resources Code § 15380). The California Public Utilities Commission (CPUC) is responsible for determining if the Project will be constructed in accordance with CEQA requirements and issue to DCRT a Certificate of Public Convenience and Necessity for transmission infrastructure within California.

The Plan covers the requirements of the following Mitigation Measures (MM) under CEQA, as depicted in Appendix 1C of the Draft Environmental Impact Statement (EIS), for the Mojave fringe-toed lizard:

- MM Biological (BIO)-CEQA-1: Implement Biological Resources Applicant Proposed Measures (APMs), BLM Best Management Practices (BMPs), and Conservation and Management Actions (CMAs) as part of the Project and applied prior to, during, and after Project activities to avoid or minimize Project related impacts on biological resources (see Section 1.2.4). Where an APM, BMP, or CMA is subjective (i.e., “where appropriate,” “where feasible”), DCRT or their contractor will consult with BLM and CPUC to determine applicability of each measure prior to the disturbance of a covered resource. Weekly and monthly documentation of compliance will be provided to the BLM and CPUC; further details are provided in Appendix 1C of the Draft EIS.
- MM BIO-CEQA-2: Prior to any work activities on the Project including but not limited to surveying, mobilizations, fencing, grading, or construction, DCRT will implement a Worker Environmental Awareness Program (WEAP) approved by the CPUC and will be implemented throughout the duration of Project-related construction activities including the operation and maintenance phases (see Sections 1.2.3 and 4.3).
- MM BIO-CEQA-3: DCRT will implement biological construction monitoring no more than 30 days prior to the start of site mobilization or ground disturbance activities; approved, designated biologist(s) will be retained by DCRT to monitor construction of the Project (see Sections 1.2.3, 4.1, 4.2, and 4.4).



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Notes
 1. Coordinate System: World Mercator
 2. Data Source(s): Project data - HDR; Land Status - BLM; Aeolian System Mapping - Lancaster 2014
 3. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Route Segment Node
- Proposed Action*
- Alternative Route Segment
- Substation
- Boundary of Presumed Fringe-toed Lizard Habitat
- California Natural Diversity Database (CNDDDB) Species
- Harwood's Eriastrum
- Mojave Fringe-toed Lizard

* = Existing DPV1 follows Proposed Action. DPV1 is cartographically offset for display purposes.

- Aeolian System Mapping for the DRECP, California Geological Survey
- D - Developed areas
 - Qe - Active windblown deposits > 1.5 m thick
 - Qe/Qal - Active windblown deposits < 1.5 m thick
 - Qoa - Pleistocene alluvial deposits
 - Qw - Alluvial wash deposits
 - Qye/Qal - Stabilized windblown deposits

- Qyf - Alluvial fan deposits
- br - Bedrock

0 0.75 1.5 Miles

1:48,000 (At original document size of 11x17)



Figure **F-6-2**
 Ten West Link
 Presumed **Mojave** Fringe-toed
 Lizard Habitat

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- MM WIL-CEQA-9: DCRT will be responsible for compensation as a result of impacts to the Mojave fringe-toed lizard. Compensation is determined after field surveys are conducted by qualified/approved biologists; all avenues of avoidance and minimization measures have been applied to the Project design; and impacts (temporary and permanent) have been identified. DCRT will submit to the BLM and CPUC a Mojave Fringe-Toed Lizard Protection and Compensation Plan that will be in accordance with the BLM and CPUC regulatory agencies policies and protocols. Approval from the BLM and CPUC will proceed Project commencement and be implemented during all Project phases, as necessary (see Section 5).
- MM WIL-CEQA-11: Where suitable habitat is present, pre-construction biological surveys must be conducted prior to the start of Project construction for listed and special status terrestrial herpetofauna (i.e., lizards, snakes, tortoise). DCRT will retain qualified biologists approved by the BLM and CPUC (see Sections 4.1, 4.3, and 4.4).

Clearance surveys for special-status terrestrial herpetofauna shall be conducted prior to the initiation of construction each day in suitable habitat. Specimens found within disturbance areas or potentially affected by the Project shall be relocated to the nearest suitable habitat outside work areas and away from construction activity (see Section 4.4).

In addition, Mojave fringe-toed lizards are a Focus species identified in the Desert Renewable Energy Conservation Plan (DRECP). The DRECP is a primary constituent on Mojave fringe-toed lizard conservation in California and provides known occurrences of the species and associated habitats, particularly on the Palo Verde Mesa near the west end of the Project (DRECP 2014).

1.2.4 Project-Specific Requirements

As depicted in the MM BIO-CEQA-1, the Plan has been prepared to address Project-specific requirements for Biological Resource APMs and BLM's BMPs and are summarized in Table F-6-1. The APMs and BMPs listed are applicable during the pre-construction, construction, post-construction/restoration, and operation and maintenance phases of the Project. Their comprehensive nature covers the listed CEQA requirements (MM BIO-CEQA-1, BIO-CEQA-2, BIO-CEQA-3, WIL-CEQA-9, and WIL-CEQA-11), as well as the CMA standards required in regard to the Mojave fringe-toed lizard listed in Table F-6-2.

The CMA standards comply with the California Desert Conservation Area Plan of 1980, as amended (see Project's DEIS Appendix 2B.2; BLM 2018a). Several CMA standards listed in Table F-6-2 also meet requirements of MM WIL-CEQA-9 in minimizing impacts to the Mojave fringe-toed lizard; further details can be found in Section 4.3. All Project-specific requirements listed provide the regulatory framework that the Project must wholly comprehend and comply with.

TABLE F-6-1 DCRT AND BLM PROJECT-SPECIFIC REQUIREMENTS

Measure ¹	Description ^{1, 2}
APM BIO-01	Before starting any work, including mowing, staging, installing stormwater control structures, implementing other BMPs, removing trees, construction, and restoration, all employees and contractors performing activities and new construction would receive training on environmental requirements that apply to their job duties and work. If additional crewmembers arrive later in the job, they would be required to complete the training before beginning work. Training would include a discussion of the avoidance and minimization measures being implemented and would include information on the federal and state Endangered Species Acts and the consequences of not complying with these Acts. An educational brochure would be provided to construction crews working on the Project. This brochure would include color photographs of special-status species as well as a discussion of avoidance and minimization measures. (Addresses California Management Action [CMA] standard Land Use Plan Amendment [LUPA]-Biological Mitigation Measure [BIO]-05 and Mitigation Measure [MM] BIO-California Environmental Quality Act [CEQA]-2)
BMP BIO-01	The worker education program would provide interpretation for non-English speaking workers. (Addresses CMA standard LUPA-BIO-05 and MM BIO-CEQA-2)
APM BIO-02	A qualified biological monitor would be present on the Project site during all work activities within habitat of special-status animal species. The qualified biologist would conduct a preconstruction survey of those areas immediately before work activities begin and would locate and fence off any present individuals of special status plant species. (Addresses CMA standard LUPA-BIO-2, LUPA-BIO-DUNE-5, LUPA-BIO-Individual Focus Species [IFS]-06 and 07, Development Focus Area [DFA]-BIO-IFS-01 and 02, and MM BIO-CEQA-3)
BMP BIO-02	A qualified biological monitor would be present on the Project site during all work activities within habitat of special-status animal species. The qualified biologist would conduct a preconstruction survey of those areas immediately before work activities begin and would locate and fence off any present individuals of special status plant species. (Addresses CMA standard LUPA-BIO-2, LUPA-BIO-DUNE-5, LUPA-BIO-IFS-06 and 07, and DFA-BIO-IFS-01 and 02 and MM BIO-CEQA-3)
APM BIO-03	To the extent practicable, stockpiling of material would be allowed only within the established work area. Vehicles and equipment would be parked on pavement, existing roads, and previously disturbed areas within identified work areas or access roads. (Addresses CMA standard LUPA-BIO-13)
BMP BIO-03	The BLM would approve areas to be used for stockpiling, vehicle parking, or other construction support activity that would occur outside established work areas. (Addresses CMA standard LUPA-BIO-13)
APM BIO-09	All excavated steep-walled holes or trenches more than 1.0-foot deep would be covered at the end of each working day with plywood or similar material or would be provided with one or more escape ramps constructed of earth fill or wooden planks. Each trench or hole would be inspected for wildlife at the beginning of each work day and before such holes or trenches are filled. Wildlife found trapped in trenches or holes would be relocated to suitable habitat outside the work area. If possible, pipes and culverts greater than three inches in diameter would be stored on dunnage to prevent wildlife from taking refuge in them, to the extent feasible. (Addresses CMA standard LUPA-BIO-14)

Measure ¹	Description ^{1, 2}
APM BIO-10	The Best Management Practices (BMPs) included in the Stormwater Pollution Prevention Program would be implemented during construction to minimize impacts associated with erosion. Watering for dust control during construction would also be used as described previously (Air Quality [AQ]-01). Watering shall not result in prolonged ponding of surface water that could attract wildlife to the work area. Minimal or no vegetation clearing and/or soil disturbance would be conducted for site access and construction in areas with suitable topography (i.e., overland driving/overland access). (Addresses CMA standard LUPA-BIO-14)
APM BIO-17	Vehicular travel would be limited to established roads to the maximum extent practicable. (Addresses CMA standard LUPA-BIO-13)
BMP BIO-25	A survey would be conducted of the selected route prior to construction of all work areas to identify special-status animal species, including Mojave desert tortoises, burrowing owls, and Mojave fringe-toed lizards. Where possible, and as required by the Bureau Land Management (BLM), special-status species and vegetation alliances would be avoided during construction. (Addresses CMA standards LUPA-BIO-01, LUPA-BIO-DUNE-04/05, and LUPA-BIO-IFS-06, DFA-BIO-IFS-01, and MM WIL-CEQA-11)
BMP BIO-32	Species-specific seasonal restriction dates per AGFD and CDFW and in applicable RMPs would be observed. (Addresses CMA standard LUPA-BIO-04 and LUPA-BIO-DUNE-5)
BMP BIO-35	All construction materials would be visually checked for the presence of wildlife prior to their movement or use. Any wildlife encountered during the course of these inspections would be allowed to leave the construction area unharmed. (Addresses CMA standard LUPA-BIO-14)
BMP BIO-36	The intentional feeding or harassment of wildlife on site is prohibited. (Addresses CMA standard LUPA-BIO14)
BMP-BIO-38	Use state-of-the-art, commercially available construction and installation techniques, as approved by BLM, appropriate for the specific activity/project and site, that minimize new site disturbance, soil erosion and deposition, soil compaction, disturbance to topography, and removal of vegetation. (Addresses CMA standards LUPA_BIO-09 and 15)
BMP BIO-49 (California only)	A Mojave Fringe-toed Lizard Management Plan would be prepared that identifies specific conservation measures to minimize Project-related impacts to sand dunes and sand transport areas, to map suitable habitat within construction zones, and methods to achieve clearance survey within suitable habitat so animals are not killed by construction activities. (Addresses CMA standard LUPA-BIO-01 and LUPA-BIO-DUNE-02/04/05, and MM BIO-CEQA-9)
BMP BIO-53 (California only)	Project facilities would be sited to avoid dune vegetation. Unavoidable impacts to dune vegetation would be limited and Project facilities access roads that would be sited to minimize unavoidable impacts. Access roads will be designed and constructed to be at grade with the ground surface to avoid inhibiting sand transportation. Access roads would be unpaved, and access roads would be designed and constructed to be at grade with the ground surface to avoid inhibiting sand transport. (Addresses CMA standard LUPA-BIO-01 and 13, LUPA-BIO-DUNE-02 and 04, LUPA-Transportation [TRANS]-BIO-4, and DFA-Variance Process Land designation [VPL]-BIO-DUNE-1)
BMP BIO-54 (California only)	Within aeolian corridors that transport sand to dune formations and vegetation types downwind, all activities would be designed and operated to facilitate the flow of sand across activity sites and avoid the trapping or diverting of sand from the aeolian corridor. Structures would consider the direction of sand flow and, to the extent feasible, build and align structures to allow sand to flow through the site unimpeded. Fences would be designed to allow sand to flow through and not be trapped. (Addresses CMA standard LUPA-BIO-01, LUPA-BIO-DUNE-01/02/04, LUPA-TRANS-BIO-04, and DFAJ-VPL-BIO-DUNE-02)

Measure ¹	Description ^{1, 2}
BMP BIO-55 (California only)	Construction of new roads and/or routes would be avoided to the extent practicable within Focus and BLM Special Status Species suitable habitat within identified linkages for those Focus and BLM Special Status Species, unless the new road and/or route is beneficial to minimize net impacts to natural or ecological resources of concern. These areas would have a goal of “no net gain” of Project roads and/or routes. (Addresses CMA standard LUPA-BIO-13 and LUPA-BIO-DUNE-04)
BMP VEG-01	Any removal of vegetation resources would be conducted in accordance with BLM IB 2012-097 (Addresses CMA standard LUPA-BIO-15)
BMP VEG-02	Minimize natural vegetation removal through implementation of crush and drive or cut or mow vegetation rather than removing entirely. Locations for drive and crush travel or cut/mow would be determined in conjunction with the Access Road Plan (Appendix 2B of the Project DEIS). (Addresses CMA standard LUPA-BIO-14)

¹ APM = Applicant Proposed Measure; BIO = Biological Mitigation Measure; BLM = Bureau of Land Management; BMP = Best Management Practices; CMA = Conservation and Management Action; DFA = Development Focus Areas; DRECP = Desert Renewable Energy Conservation Plan; DUNE = Dune Habitats; IFS = Individual Focus Species; LUPA = Land Use Plan Amendment; TRANS = Transportation; VPL = Variance Process Land designation.

² The Draft Environmental Impact Statement (EIS) mitigation measure language was copied from the Project Draft EIS Appendix 2A and 2B (BLM 2018a). References for the requirement descriptions can be found in the source documents. Any requirements from the Final EIS will be updated in the final Plan of Decision management plans.

TABLE F-6-2 CMA PROJECT SPECIFIC REQUIREMENTS (CALIFORNIA ONLY)

Measure ¹	Description ^{1, 2}
LUPA-BIO-01	Conduct a habitat assessment of Desert Renewable Energy Conservation Plan (DRECP) Focus and Bureau of Land Management (BLM) Special Status Species' suitable habitat for all activities and identify and/or delineate the DRECP vegetation types, rare alliances, and special features (e.g., aeolian sand transport resources, Joshua tree, microphyll woodlands, carbon sequestration characteristics, seeps, climate refugia) present using the most current information, data sources, and tools (e.g., DRECP land cover mapping, aerial photos, DRECP species models, and reconnaissance site visits) to identify suitable habitat for DRECP Focus and BLM Special Status Species. If required by the relevant species-specific California Management Actions (CMAs), conduct any subsequent protocol or adequate presence/absence surveys to identify species occupancy status and a more detailed mapping of suitable habitat to inform siting and design considerations. If required by relevant species-specific CMAs, conduct analysis of percentage of impacts to suitable habitat and modeled suitable habitat.
LUPA-BIO-03	Resource setbacks (see Glossary of Terms in the Project Draft Environmental Impact Statement [EIS]) have been identified to avoid and minimize the adverse effects to specific biological resources. Setbacks are not considered additive and are measured as specified in the applicable CMA. Allowable minor incursions (see Draft EIS Glossary of Terms), as per specific CMAs do not affect the following setback measurement descriptions. Generally, setbacks (which range in distances for different biological resources) for the appropriate resources are measured from: <ul style="list-style-type: none"> • The edge of each of the DRECP desert vegetation types, including but not limited to those in the riparian or wetland vegetation groups (as defined by alliances within the vegetation type descriptions and mapped based on the vegetation type habitat assessments described in Land Use Plan Amendment [LUPA]-Biological Mitigation Measure [BIO]-01). • The edge of the vegetation extent for specified DRECP Focus and BLM sensitive plant species. • The edge of suitable habitat or active nest substrates for the appropriate DRECP Focus and BLM Special Status Species.

Measure ¹	Description ^{1, 2}
LUPA-BIO-04	<p>For activities that may impact DRECP Focus and BLM Special Status Species, implement all required species-specific seasonal restrictions on pre-construction, construction, operations, and decommissioning activities. Species-specific seasonal restriction dates are described in the applicable CMAs.</p> <p>Alternatively, to avoid a seasonal restriction associated with visual disturbance, installation of a visual barrier may be evaluated on a case-by-case basis that will result in the breeding, nesting, lambing, fawning, or roosting species not being affected by visual disturbance from construction activities subject to seasonal restriction. The proposed installation and use of a visual barrier to avoid a species seasonal restriction will be analyzed in the activity/project specific environmental analysis.</p>
LUPA-BIO-05	<p>All activities, as determined appropriate on an activity-by-activity basis, will implement a worker education program that meets the approval of the BLM. The program will be carried out during all phases of the project (site mobilization, ground disturbance, grading, construction, operation, closure/decommissioning or project abandonment, and restoration/reclamation activities). The worker education program will provide interpretation for non-English speaking workers, and provide the same instruction for new workers prior to their working on site. As appropriate based on the activity, the program will contain information about:</p> <ul style="list-style-type: none"> • Site-specific biological and nonbiological resources. • Information on the legal protection for protected resources and penalties for violation of federal and state laws and administrative sanctions for failure to comply with LUPA CMA requirements intended to protect site-specific biological and nonbiological resources. • The required LUPA and project-specific measures for avoiding and minimizing effects during all project phases, including but not limited to resource setbacks, trash, speed limits, etc. • Reporting requirements and measures to follow if protected resources are encountered, including potential work stoppage and requirements for notification of the designated biologist. • Measures that personnel can take to promote the conservation of biological and nonbiological resources.

Measure ¹	Description ^{1, 2}
LUPA-BIO-13	<p>Implement the following CMA for project siting and design:</p> <ul style="list-style-type: none"> • To the maximum extent practicable site and design projects to avoid impacts to vegetation types, unique plant assemblages, climate refugia as well as occupied habitat and suitable habitat for DRECP Focus and BLM Special Status Species (see “avoid to the maximum extent practicable” in Draft EIS Glossary of Terms). • The siting of projects along the edges (i.e., general linkage border) of the biological linkages identified in Appendix D of the Project Draft EIS (Figures D-1 and D-2) will be configured (1) to maximize the retention of microphyll woodlands and their constituent vegetation type and inclusion of other physical and biological features conducive to DRECP Focus and BLM Special Status Species’ dispersal, and (2) informed by existing available information on modeled DRECP Focus and BLM Special Status Species habitat and element occurrence data, mapped delineations of vegetation types, and based on available empirical data, including radio telemetry, wildlife tracking sign, and road-kill information. Additionally, projects will be sited and designed to maintain the function of Special Status Species connectivity and their associated habitats in the following linkage and connectivity areas: <ul style="list-style-type: none"> ○ Within a 5-mile-wide linkage across Interstate 10 centered on Wiley’s Well Road to connect the Mule and McCoy mountains (the majority of this linkage is within the Chuckwalla Areas of Critical Environmental Concern and Mule-McCoy Linkage Areas of Critical Environmental Concern). • Delineate the boundaries of areas to be disturbed using temporary construction fencing and flagging prior to construction and confine disturbances, Project vehicles, and equipment to the delineated Project areas to protect vegetation types and focus and BLM Special Status Species. • Long-term nighttime lighting on project features will be limited to the minimum necessary for project security, safety, and compliance with Federal Aviation Administration requirements and will avoid the use of constant-burn lighting. • Long-term nighttime lighting on project features will be limited to the minimum necessary for Project security, safety, and compliance with Federal Aviation Administration requirements and will avoid the use of constant-burn lighting. • To the maximum extent practicable (see Draft EIS Glossary of Terms), restrict construction activity to existing roads, routes, and utility corridors to minimize the number and length/size of new roads, routes, disturbance, laydown, and borrow areas. • To the maximum extent practicable (see Draft EIS Glossary of Terms), confine vehicular traffic to designated open routes of travel to and from the project site, and prohibit, within project boundaries, cross- country vehicle and equipment use outside of approved designated work areas to prevent unnecessary ground and vegetation disturbance. • To the maximum extent practicable (see Draft EIS Glossary of Terms), construction of new roads and/or routes will be avoided within DRECP Focus and BLM Special Status Species suitable habitat within identified linkages for those DRECP Focus and BLM Special Status Species, unless the new road and/or route is beneficial to minimize net impacts to natural or ecological resources of concern. These areas will have a goal of “no net gain” of project roads and/or routes. • Use nontoxic road sealants and soil stabilizing agents.

Measure ¹	Description ^{1, 2}
LUPA-BIO-14	<p>Implement the following general standard practices to protect DRECP Focus and BLM Special Status Species:</p> <ul style="list-style-type: none"> • Feeding of wildlife, leaving of food or trash as an attractive nuisance to wildlife, collection of native plants, or harassing of wildlife on a site is prohibited. • Any wildlife encountered during the course of an activity, including construction, operation, and decommissioning will be allowed to leave the area unharmed. • Domestic pets are prohibited on sites. This prohibition does not apply to the use of domestic animals (e.g., dogs) that may be used to aid in official and approved monitoring procedures/protocols, or service animals (dogs) under Title II and Title III of the American with Disabilities Act. • All construction materials will be visually checked for the presence of wildlife prior to their movement or use. Any wildlife encountered during the course of these inspections will be allowed to leave the construction area unharmed. • All steep-walled trenches or excavations used during the project will be covered, except when being actively used, to prevent entrapment of wildlife. If trenches cannot be covered, they will be constructed with escape ramps, following up-to-date design standards to facilitate and allow wildlife to exit, or wildlife exclusion fencing will be installed around the trench(s) or excavation(s). Open trenches or other excavations will be inspected by a designated biologist immediately before backfilling, excavation, or other earthwork. • Minimize natural vegetation removal through implementation of crush and drive or cut or mow vegetation rather than removing entirely.
LUPA-BIO-15	<p>Use state-of-the-art, as approved by BLM, construction and installation techniques, appropriate for the specific activity/project and site, that minimize new site disturbance, soil erosion and deposition, soil compaction, disturbance to topography, and removal of vegetation.</p>
LUPA-BIO-COMP-01	<p>Impacts to biological resources, identified and analyzed in the activity specific environmental document, from activities in the LUPA Decision Area will be compensated using the standard biological resources compensation ratio, except for the biological resources and specific geographic locations listed as compensation ratio exceptions, specifics in CMAs LUPA-BIO-Compensation [COMP]-2 through -4, and previously listed CMAs. Compensation acreage requirements may be fulfilled through non-acquisition (i.e., restoration and enhancement), land acquisition (i.e., preserve), or a combination of these options, depending on the activity specifics and BLM approval/authorization.</p> <p>Refer to CMA LUPA-COMP-1 for the timing requirements for initiation or completion of compensation (compensation activities must be initiated or completed within 12 months from the time the resource impact occurs).</p>
LUPA-BIO-DUNE-01	<p>Because DRECP sand dune vegetation types and aeolian sand transport corridors are, by definition, shifting resources, activities that potentially occur within or bordering the sand dune DRECP vegetation types and/or aeolian sand transport corridors must conduct studies to verify the location [refer to Appendix D of the Project Draft EIS, Figure D-7] and extent of the sand resource(s) for the activity-specific environmental analysis to determine:</p> <ul style="list-style-type: none"> • Whether the proposed activity(s) occur within a sand dune or an aeolian sand transport corridor. • If the activity(s) is subject to dune/aeolian sand transport corridor CMAs. • If the activity(s) needs to be reconfigured to satisfy applicable avoidance requirements.

Measure ¹	Description ^{1, 2}
LUPA-BIO-DUNE-02	Activities that potentially affect the amount of sand entering or transported within aeolian sand transport corridors will be designed and operated to: <ul style="list-style-type: none"> • maintain the quality and function of aeolian transport corridors and sand deposition zones, unless related to maintenance of existing facilities/operations/activities; • avoid a reduction in sand-bearing sediments within the aeolian sand system; • and minimize mortality to dune-associated DRECP Focus and BLM Special Status Species.
LUPA-BIO-DUNE-03	Any facilities or activities that alter site hydrology (e.g., sediment barrier) will be designed to maintain continued sediment transport and deposition in the aeolian corridor in a way that maintains the aeolian sorting and transport to downwind deposition zones. Site designs for maintaining this transport function must be approved by BLM in coordination with United States Fish and Wildlife Service and California Department of Fish and Wildlife as appropriate.
LUPA-BIO-DUNE-04	Dune formations and other sand accumulations (i.e., sand ramps, sand sheets) with suitable habitat characteristics for the Mojave fringe-toed lizard (i.e., unconsolidated blow-sand) will be mapped according to mapping standards established by the BLM National Operations Center.
LUPA-BIO-DUNE-05	Dune formations and other sand accumulations (i.e., sand ramps, sand sheets) with suitable habitat characteristics for the Mojave fringe-toed lizard (i.e., unconsolidated blow-sand) will be mapped according to mapping standards established by the BLM National Operations Center. If suitable habitat characteristics are identified during the habitat assessment, clearance surveys (see Draft EIS Glossary of Terms) for Mojave fringe-toed lizard will be performed in suitable habitat areas.
LUPA-BIO-IFS-06	When working in areas where protocol or clearance surveys are required (see Appendix D of the Project Draft EIS), biological monitoring will occur with any geotechnical boring or geotechnical boring vehicle movement to ensure no desert tortoises are killed or burrows are crushed.
LUPA-TRANS-BIO-04	Siting of transmission activities will be prioritized within designated utility corridors, where possible, and designed to avoid, where possible, and otherwise minimize and offset impacts to sand transport processes in aeolian corridors, rare vegetation alliances and DRECP Focus and BLM Special Status Species. Transmission substations will be sited to avoid aeolian corridors, rare vegetation alliances, and sand-dependent DRECP Focus and BLM Special Status Species habitats.
DFA-VPL-BIO-DUNE-01	Activities in Development Focus Areas (DFAs) and Variance Process Land designations (VPLs), including transmission substations, will be sited to avoid dune vegetation (i.e., North American Warm Desert Dune and Sand Flats). Unavoidable impacts (see “unavoidable impacts to resources” in the Draft EIS Glossary of Terms) to dune vegetation will be limited to transmission projects, except transmission substations, and access roads that will be sited to minimize unavoidable impacts. <ul style="list-style-type: none"> • For unavoidable impacts (see “unavoidable impacts to resources” in the Draft EIS Glossary of Terms) to dune vegetation, the following will be required: <ul style="list-style-type: none"> ○ Access roads will be unpaved. Access roads will be designed and constructed to be at grade with the ground surface to avoid inhibiting sand transportation.
DFA-VPL-BIO-DUNE-02	Within aeolian corridors that transport sand to dune formations and vegetation types downwind inside and outside of the DFAs, all activities will be designed and operated to facilitate the flow of sand across activity sites and avoid the trapping or diverting of sand from the aeolian corridor. Buildings and structures within the site will take into account the direction of sand flow and, to the extent feasible, build and align structures to allow sand to flow through the site unimpeded. Fences will be designed to allow sand to flow through and not be trapped.

Measure ¹	Description ^{1, 2}
DFA-BIO-IFS-01	Conduct the following surveys as applicable in the DFAs (see Appendix 1C of the Project Draft EIS).

¹ BIO = Biological Mitigation Measure; BLM = Bureau of Land Management; CMA = Conservation and Management Action; COMP = Compensation Mitigation Measure; DFA = Development Focus Areas; DRECP = Desert Renewable Energy Conservation Plan; DUNE = Dune Habitats; IFS = Individual Focus Species; LUPA = Land Use Plan Amendment; TRANS = Transportation; VPL = Variance Process Land designation.

² The Draft Environmental Impact Statement (EIS) mitigation measure language was copied from the Project Draft EIS Appendix 2B and 2C (BLM 2018a). References for the requirement descriptions can be found in the source documents. Any requirements from the Final EIS will be updated in the final Plan of Decision management plans.

2 Purpose and Objectives

Per MM WIL-CEQA-9 and WIL-CEQA-11, the purpose of this Plan is to discuss species occurrences and known suitable habitat; provide potential for indirect and/or indirect permanent impacts; and site-specific enhancement measures for the protection of sand sources and sand transport corridors on the compensation lands (CPUC and BLM 2011). The implementation of the APMs, BMPs, and CMA measures listed in Table F-6-1 and F-6-2 avoid and minimize impacts to the Mojave fringe-toed lizard and the sandy habitats this species requires. These measures apply during construction, operation, and maintenance of the Project. The specific Plan objectives include:

1. Identify suitable habitat for the Mojave fringe-toed lizard.
2. Provide avoidance and minimization measures and identify roles and responsibilities for their implementation.
3. Provide the survey and monitoring requirements for successful salvaging of existing Mojave fringe-toed lizards within the Project area.
4. Identify compensation requirements for direct impacts to dune habitats and/or habitats with fine-loose sand accumulations and Mojave fringe-toed lizard.

As a whole, the primary objective to the Plan is to ensure no Mojave fringe-toed lizards are injured or killed during construction activities and to protect the species range from being altered.

3 Species Habitat

The Mojave fringe-toed lizard is only found in habitats with loose, fine-grained sand and is widespread on the Palo Verde Mesa west of the agricultural fields in Riverside County, California; it is not expected to be found in agricultural fields. These habitats or sand dune systems require “aeolian” or wind transport of requisite sand into areas from upwind sources. The avenues of sand transport provide the freedom of movement that is critical to numerous plants and animals found only on active dunes, or habitats that have a layer of mobile fine sand. Other sand accumulations including sand ramps, sand sheets, and alluvial fans where sand buildup occurs are also suitable habitat for the Mojave fringe-toed lizard. Sand-covered alluvial fans known to occur in Riverside County, California; Riverside County encompasses the Project west of the Colorado river. Small parcels of habitat exist along the west-central border of Arizona within the northern portion of La Paz County (AGFD 2017); however, the Project does not impact these parcels and these areas will not be considered for surveys.

Patches of active dunes and fine-grained sandy habitats are dependent on the dominant vegetation for stability and natural barriers, which include creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), brittlebush (*Encelia farinosa*), white ratany (*Krameria grayi*), and cheesebush (*Ambrosia salso*); University of California 2019; DRECP 2014). Details on data sources and habitat mapping development can be found in the Project Draft EIS Chapter 3.4.2.1 – Vegetation Resources, Including Special Status Plants and Noxious and Invasive Weeds (BLM 2018a).

Harwood's eriastrum (*Eriastrum harwoodii*, BLM Sensitive Species) is an annual herb that is often associated with sand accumulation or dune systems and is commonly associated with the Mojave fringe-toed lizard due to their shared habitat preference for active sand and dune systems. As shown in Figure F-6-2 – Ten West Link Mojave Fringe-toed Lizard Habitat, a majority of Harwood's eriastrum plants are located within known Mojave fringe-toed lizard habitat polygons. Further details on mapped data can be found in the Project's Draft EIS Chapter 3.4 (BLM 2018a).

As shown in Figure F-6-2, the majority of the Colorado River Substation is surrounded by active windblown sand deposits from the aeolian process. Three segments (x-19, ca-09, ca-07) cross documented occurrences of Mojave fringe-toed lizards and Harwood's eriastrum. Potential Project-related impacts to the Mojave fringe-toed lizard include injury or mortality during vegetation removal, collapsed burrows, and being struck by construction equipment and vehicles. The primary defense mechanism of this species is to flee and bury themselves in loose sand; thus, increasing the potential that Project activities may crush individuals during the use of access roads and construction areas (BLM 2018a).

4 Avoidance and Clearance Plan

The following subsections describe the Mojave fringe-toed lizard avoidance mitigation and clearance practices that will be implemented during the pre-construction, construction, post-construction/restoration phases of the Project. DCRT or their contractor shall be responsible for all aspects of management of this species as described in this Plan.

4.1 Designated Biologist

The Designated Biologist(s) will be independently or jointly assigned by DCRT or their contractor for their components of the Project and will have been approved by BLM, CPUC, and CDFW, 30 days before the start of surveys or monitoring. The Designated Biologist(s) will be responsible for facilitating the implementation of avoidance, minimization, and mitigation measures for the Plan. In addition, the Designated Biologist(s) will be responsible for drafting the methods for biological surveys, schedule development, agency coordination, reporting, supervision of field staff including Biological Monitors, and ensuring Biological Monitors working in aeolian sand and dune systems have expertise identifying Mojave fringe-toed lizards, as well as their tracks, and behaviors.

4.2 Biological Monitor

As outlined in BMPs BIO-01 and BIO-02 and per MM BIO CEQA-2, the Biological Monitor(s) will meet the requirements of a qualified biologist, must be approved by the CPUC and BLM prior to conducting biological monitoring for construction. Each Biological Monitor must be knowledgeable with the life history and habitat requirements of the Mojave fringe-toed

lizard; have prior construction monitoring experience on projects within desert habitats; and knowledge working in aeolian sand and dune systems is desirable (BLM 2018a). The duties of the Biological Monitor(s) will be on-site at all times when activities (i.e., initial site disturbance, all construction phases) will occur immediately adjacent to, or within, habitat that supports populations of the Mojave fringe-toed lizard. This will ensure that Project activities remain in compliance with the conservation measures outlines in this Plan, which are designed to minimize impacts to special status species, native vegetation, wildlife habitat, and unique resources. The Biological Monitor(s) will report biological impact concerns to the Designated Biologist(s), where applicable. The Biological Monitor(s) will be the field contact representative(s) for construction workers and the Designated Biologist(s).

4.3 Avoidance Procedures

Management of the Mojave fringe-toed lizard includes avoidance and minimization of species impacts, as well as preservation of occupied habitat and avenues that transport aeolian sand. Based on the established management strategies for the closely-related Coachella Valley fringe-toed lizard (*Uma inornata*), which are outlined in the Coachella Valley Multiple Species Habitat Conservation Plan (Coachella Valley Conservation Commission 2012 and 2014) and the DRECP Draft Environmental Impact Report (EIR)/EIS Appendix Q – Baseline Biological Report (DRECP 2014), and the Project Draft EIS mitigation measures (Table F-6-1 and F-6-2) required by the BLM and CPUC (per CEQA standards MM BIO-CEQA-1/2/3, WIL-CEQA-9, and WIL-CEQA-11), the following actions will be implemented:

- A. WEAP: As part of the APM/BMP BIO-01 and per requirement of MM BIO-CEQA-2, the Project is required to implement a WEAP and include pertinent information in the WEAP about the potential presence of the BLM-sensitive Mojave fringe-toed lizard including identification of the species, mitigation actions, and a procedure to be followed should the species be found during construction.
- B. Public Access: The Project is required to control and manage impacts that degrade aeolian sand systems and prevent flow of sand transport including public access in known occupied and potential habitat (except on designated routes of travel), road development that would produce habitat fragmentation, and other human disturbance. In the event that habitat degradation appears to be unavoidable, inform the Designated Biologist and BLM so that the BLM may determine appropriate mitigation or compensation (see Section 5 for further details on compensation).
- C. Invasive Plants: Implement mitigation actions that minimize or avoid introduction of any identified noxious or invasive weed species, where feasible, if their presence has been determined to impact to Mojave fringe-toed lizards and Harwood's eriastrum-associated habitats. For further details, see Appendices F-6 and F-7 in the Plan of Decision (POD).
- D. Invasive and Nuisance Animals: Control of invasive and nuisance animal species will be implemented to minimize or avoid indirectly impacting the Mojave fringe-toed lizard species. Further details are provided in Appendix F-4 of the POD.
- E. Active Season: Construction activities will be conducted during Mojave fringe-toed lizard active periods (March-October), to allow for lizards to be located during surveys and make it easier to avoid them (see BMP BIO-32). Due to their ability to

be highly mobile, this will increase the likelihood of species detection during surveys. Thus, direct causes of mortality will be minimized.

- F. Open Excavations: Open trenching, holes, or other excavations that are more than 1.0-foot deep must be covered at the end of each working day or would be provided with one or more escape ramps constructed of earthen fill or wooden planks (see APM BIO-09). Each trench, hole or other excavation would be examined for Mojave fringe-toed lizards prior to start of work. No backfilling will occur until the excavated hole has been examined for this species and relocated by a Biological Monitor to suitable habitat outside the work area. If exclusion fencing around trenches are required and located adjacent or within suitable habitat, DCRT or their contractor must have prior BLM approval, in order to ensure the Mojave fringe-toed lizards will not become entangled or trapped.

If trenches cannot be covered, they will be constructed with escape ramps, following up-to-date design standards to facilitate and allow wildlife to exit, or wildlife exclusion fencing will be installed around the trench(s) or excavation(s). Open trenches or other excavations will be inspected by a designated biologist immediately before backfilling, excavation, or other earthwork.

- G. Resource Setbacks: If resource setbacks are identified, DCRT or their contractor will coordinate with BLM and CPUC to determine the edges of aeolian sand habitats in order for construction activity to avoid or minimize adverse effects of these desert vegetation types (see CMA standard LUPA-BIO-03). Any resource setbacks likely would be identified during pre-construction habitat assessments. Environmental Resource Area signage will be installed at the appropriate buffer distance (i.e., resource setback), if suitable habitat is within or encroaches into Project work areas and access roads. If required and approved, exclusion fencing will also be installed at the appropriate buffer distance (see Section 4.4).
- H. Construction Techniques: Construction activities will use state-of-the-art and commercially-available techniques per BLM approval, to minimize new disturbance, soil erosion, soil compaction, vegetation removal, and disturbance of topography, in order to avoid impacts to the Mojave fringe-toed lizard and its vegetation alliances (see BMP BIO-55, VEG-01, and VEG-02).
- I. Overland Access: In areas where possible, minimize or avoid vegetation clearing and/or soil disturbance of topography suitable for overland driving or access (see APM BIO-10). In addition, construction activity that alters hydrology of work sites and roads must take into consideration the continued-sediment transport and deposition within aeolian corridors and have BLM prior approval; in order to maintain the sorting and transporting to downward deposition zones to the extent feasible (see CMA standard LUPA-BIO-DUNE-03).
- J. Facility Design: Project facilities are near or within aeolian sand systems, the facilities will be designed in a manner that will allow flow of sand transport and minimize removal of Mojave fringe-toed lizard habitats (see BMP BIO-53).
- K. New Roads/Routes: New roads/routes will avoid Mojave fringe-toed lizard suitable habitat within identified linkages, unless the new road and/or route is beneficial to minimize net impacts to natural or ecological resources of concern (BMP BIO-55).

- L. Designated Areas: Designated areas for stocking materials and parking Project-related vehicles and equipment must be BLM approved and/or by the biological staff prior to use within or near aeolian sand habitats (see APM/BMP BIO-03).
- M. Speed: All vehicles and equipment traveling onsite on unpaved public and private roads and on work sites adjacent to and/or within sandy habitats must follow speed limits of 15 miles per hour or less. Off-road traffic outside of designated areas for the Project will be prohibited (MM BIO CEQA-3).
- N. Water Usage: To avoid attracting Mojave fringe-toed lizards to the Project work areas, water use for dust suppression will not allow prolonged ponding of surface water (see APM BIO-10) and no feeding or harassing of wildlife will not be tolerated on the Project (BMP BIO-36).
- O. Material Mobilization: Prior to transporting any stock piles and stored materials near or within aeolian sand habitats or transport corridors, a biological monitor must check for any presence of Mojave fringe-toed lizards (see BMP BIO-35).
- P. Sand Corridors: When possible, Project activity and operation will be designed to facilitate flow of aeolian sand corridors which transport sand to dune formations, sand sheets/ramps, and vegetation types preferred by the Mojave fringe-toed lizard. Avoid trapping or diverting sand transport that may attract Mojave fringe-toed lizards to work areas (see BMP BIO-54).

4.4 Survey and Monitoring Procedures (California Only)

4.4.1 Pre-construction Surveys

Pre-construction surveys for the Mojave fringe-toed lizard will be conducted to identify suitable habitats (i.e., dune systems, aeolian sand, sand accumulations, scattered vegetation), extent of sand resources, and presence of the species (BMP BIO-25 and MM WIL-CEQA-11). The Designated Biologist that conducts these surveys must be approved by BLM and CPUC. Suitable habitat, if present, shall be mapped using the BLM National Operations Center habitat-mapping standards.

As stated in MM WIL-CEQA-11, surveys will be conducted at a minimum of three daytime surveys and one nighttime survey within one week of vegetation clearing, or per further instruction from BLM and CPUC. All potential indirect and direct impacts shall be evaluated, and avoidance, minimization, compensation, and mitigation shall be approved by the appropriate federal and state regulatory agencies prior to project commencement. Where possible, the Mojave fringe-toed lizard and their vegetation alliances will be avoided during Project activities (BMP BIO-25).

As stated in MM WIL-CEQA-11, DCRT or their contractor will prepare a technical report that includes the detailed results of pre-construction surveys of the Mojave fringe-toed lizard combined with the other terrestrial herpetofauna survey results and submitted to the BLM, CPUC, and CDFW.

4.4.2 Clearance Surveys

As outlined in BMP BIO-25, BIO-49, MM WIL-CEQA-11, and based on surveying protocols for the closely-related Colorado fringe-toed lizard (*Uma notata*) defined within the Habitat Conservation Plan and Final EIR/EIS for the Imperial Irrigation District in Southern California (BLM 2018a; Imperial Irrigation District 2002), a clearance survey will be conducted within suitable habitat as defined in BIO-49, to ensure any existing Mojave fringe-toed lizards within Project work areas (i.e., pad/wire sites, access roads, yards, project disturbance) are avoided. All observations of the species tracks, burrows, discovered lizards, and relocations must be documented including a description of the observation, appropriate coordinates, time, temperature, and date.

Per MM WIL-CEQA-11, the clearance surveys will occur each day prior to construction at each work area in suitable habitat. At completion of surveys, a Biological Monitor will be on-site during construction activities if potential habitat is identified adjacent or within the Project work areas. Specimens found within disturbance areas or potentially affected by the Project shall be relocated to the nearest suitable habitat outside disturbance areas.

When additional conservation efforts are necessary, work areas near or within sandy habitats will be evaluated to determine if perimeter/exclusion fencing should be installed to preserve sensitive species and habitat from entering an active site during construction.

4.4.3 Monitoring

Per requirements of MM BIO-CEQA-3, Biological Monitor(s) will be qualified biologists designated by DCRT or their contractor and must be approved by the CPUC, BLM and CDFW prior to conducting construction monitoring. Biological Monitors will be during Project construction or maintenance activity that is adjacent or within a sand dune system or sand avenue to ensure the Project follows all of the Projects POD requirements (see APM/BMP BIO-02). Monitoring for the species will only occur when surface temperatures are between 96 degrees Fahrenheit (°F) and 112°F (36 degrees Celsius [°C] and 44°C) and during their active season between March and October (Imperial Irrigation District 2002; BLM 2018b). Construction activity that must occur within suitable habitat for the Mojave fringe-toed lizard will take place during the active season for this species, if possible. In the event that construction activity must occur outside the active season, inform the Designated Biologist so that the BLM may determine appropriate mitigation or compensation. Construction during active season will allow for a greater probability of detecting Mojave fringe-toed lizards during pre-construction surveys and will increase the effectiveness of avoidance measures.

As stated in the MM BIO-CEQA-3, monitoring reports will be completed daily and copies will be compiled and submitted to the CPUC, BLM, and CDFW on a weekly basis. When necessary, the Biological Monitor(s) will relocate the Mojave fringe-toed lizard that would be impacted by the Project; permits and/or a Memorandum of Understanding may be required (MM BIO-CEQA-3; Draft EIS Appendix 1C).

If any fringe-toed lizards are captured within the Project work areas, they will be released immediately outside the Project work areas. Specimens will be released in the shade of a shrub. No lizards will be held in captivity or in transport for longer than 10 minutes after their initial capture. If necessary, lizards will be transported in clean, white, plastic 5-gallon buckets (Center of Conservation Biologist 2005). Survey specifications will be updated based on the Final EIS requirements.

If an injured or dead Mojave fringe-toed lizard is encountered during activity on the construction site, an incident report will be submitted to the CPUC, CDFW and/or USFWS (as appropriate) within five calendar days. The incident report will include the date, time of the finding or incident (if known), and location of the carcass or injured animal and circumstances of its death or injury (if known). As feasible and approved by the BLM, injured animals will be taken immediately to the nearest appropriate veterinary or wildlife rehabilitation facility. The Biological Monitor will, immediately upon finding the remains or injured animal, coordinate with the Designated Biologist and construction supervisory staff to discuss the events that caused the mortality or injury, if known, and implement measures to prevent future incidents. Details of these measures will be included with the report. Species remains will be collected and frozen as soon as possible, and CDFW and USFWS, as appropriate, will be contacted regarding ultimate disposal of the remains (MM BIO-CEQA-3; Draft EIS Appendix 1C).

When unforeseen circumstances arise during the implementation of avoidance and mitigation efforts, DCRT or their contractor may be required to coordinate with BLM and USFWS on adaptive management strategies. The monitoring program as depicted in APM/BMP BIO-02 is designed to be flexible. The Plan balances the requirements of management with the need to adapt through monitoring and construction and per guidance from the BLM, CPUC, and/or USFWS. Any adaptive management strategies required for the Mojave fringe-toed lizard or their habitats will be addressed on a case-by-case basis for the Project (LADWP 2015). Specific adaptive monitoring will be updated based on the Final EIS requirements.

5 Compensation for Direct Impacts

As stated in CMA standard LUPA-BIO-COMP-01, DCRT will be required to provide compensation as a result of permanent habitat loss and direct impacts to the Mojave fringe-toed lizards on the Project. The standard biological resource compensation ratio will be at a minimum 3:1, which may include compensation lands purchased in fee, or in easement in whole or in part (see CMA standard LUPA-BIO-COMP-1). This may include off-site creation, enhancement, and/or preservation, and/or participation in an established mitigation bank program. In the case for temporary impacts, compensation provided by DCRT will include on-site habitat creation or enhancement with similar species compositions to those present prior to construction at a ratio of 1:1 (see Appendix 1C of the Project Draft EIS).

Where land acquisition fulfills the 3:1 mitigation for direct impacts, DCRT will provide funding for the acquisition in fee title or in easement, initial habitat improvements and long-term maintenance and management of the compensation lands. Compensation shall be initiated or completed within 12 months from the time the resource impact occurs, unless a six month extension is approved by the appropriate federal and state regulatory agencies (MM WIL-CEQA-9). For compensation lands, the following criteria must be met (MM WIL-CEQA-9; BLM 2018c; CPUC and BLM 2011):

- Be deposits of aeolian or fine windblown sands typically associated with dunes, washes, hillsides, and margins of dry lakes, with potential to contribute to Mojave fringe-toed lizard habitat connectivity and build linkages between known populations of Mojave fringe-toed lizards and preserve lands with suitable habitat.
- To the extent feasible, be connected to lands currently occupied by Mojave fringe-toed lizard.

- To the extent feasible, be near larger blocks of lands that are either already protected or planned for protection, or which could feasibly be protected long-term by a public resource agency or a non-governmental organization dedicated to habitat preservation.
- Provide quality habitat for Mojave fringe-toed lizard, that has the capacity to regenerate naturally when disturbances are removed.
- Not have a history of intensive recreational use or other disturbance that might make habitat recovery and restoration infeasible.
- Not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration.
- Not contain hazardous wastes that cannot be removed to the extent the site is suitable for habitat.
- Not be subject to property constraints (i.e., mineral leases, cultural resources).
- Be on land for which long-term management is feasible.

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2B.8 PLANT AND WILDLIFE SPECIES CONSERVATION MEASURES PLAN

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June 2019

BUREAU OF LAND MANAGEMENT

Ten West Link Transmission Project

Plant and Wildlife Species Conservation Measures Plan

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154320

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Plant and Wildlife Species Conservation Plan

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ACRONYMS AND ABBREVIATIONS

ADA	Arizona Department of Agriculture
ANPL	Arizona Native Plant Law
APM	Applicant Proposed Measure
A.R.S.	Arizona Revised Statute
AZGFD	Arizona Game and Fish Department
BGEPA	Bald and Golden Eagle Protection Act
BIO	Biological Mitigation Measure
BLM	Bureau of Land Management
BMP	Best Management Practice
CDCA	California Desert Conservation Area
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFGF	California Fish and Game Code
CFR	Code of Federal Regulations
CMA	Conservation and Management Action
CPUC	California Public Utilities Commission
CRPR	California Rare Plant Ranking
DCRT	Delaney Colorado River Transmission, LLC
DFA	Development Focus Area
DRECP	Desert Renewable Energy Conservation Plan
EIS	Environmental Impact Statement
ESA	Endangered Species Act
LUPA	Land Use Plan Amendment
MBTA	Migratory Bird Treaty Act
MM	Mitigation Measure
MOU	Memorandum of Understanding
Plan	Plant and Wildlife Species Conservation Plan
POD	Plan of Development
Project	Ten West Link Transmission Project
ROW	Right-of-way
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
VEG	Vegetation Mitigation Measure
VPL	Variance Process Lands

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1 Introduction

The data and information provided in this Plant and Wildlife Species Conservation Measures Plan (Plan) is for the Ten West Link Transmission Project (Project) proposed by Delaney Colorado River Transmission, LLC (DCRT). The purpose of the Plan is to assist the Project meeting their obligations to protect biological resources during the planning, design, and implementation of the Project using the Bureau of Land Management (BLM) principles and procedures designed for high-voltage transmission line projects.

The Plan presents the anticipated impacts on plant and wildlife resources associated with the Project and identifies the Best Management Practices (BMPs), stipulations, protocols, and/or techniques required to reduce these impacts. This Plan implements actions to minimize any likelihood for a “take” on the federally and state threatened and endangered species. No aquatic biological measures will be addressed in this Plan. Protection of water resources and BMPs identified are included in Appendix G in the Project’s Plan of Development (POD). Comprehensive information and restrictions will be outlined on the Environmental Maps provided in Appendix A, Volume II of the POD.

1.1 Organization of the Plan

To facilitate the review and understanding of this Plan, the following is organized into four primary sections:

1. Introduction – Presents the overall summary of the Plan.
2. Regulatory Framework – Provides descriptions of relevant regulatory requirements and agencies with specific authority over the laws and regulations associated with the Plan.
3. Plant and Wildlife Concerns – Outlines the types of impacts that would affect plant and wildlife species within the Project area.
4. Mitigation Measures for Special Status Species – Describes each designated resource and their potential occurrence in the Project area; specific agency concerns and impacts for which mitigation was identified; and the appropriate Applicant Proposed Measures (APMs) and BMPs to address concerns and reduce impacts during design, construction, operation, and maintenance of the Project.
5. Seasonal Restrictions – Describes timeframes during which Project activities are spatially/temporally restricted due to activities of specific species as described by the BMPs.
6. The Mojave Desert Tortoise Protection and Compensation Plan (California only) – Provides descriptions, regulatory requirements, and protocols for protection and preservation of the Mojave desert tortoise (*Gopherus agassizii*).

2 Regulatory Framework

The following federal authorities, regulations, Resource Management Plans, initiatives, and general guidelines are applicable to the Project. These regulations provide the framework that the Project must wholly comprehend and comply with.

2.1 Federal Regulations

2.1.1 Federal Endangered Species Act of 1973

Administered by the United States Fish and Wildlife Service (USFWS), the Endangered Species Act (ESA) of 1973, as revised, was established to protect species at risk of becoming extinct (16 United States Code [U.S.C.] § 1531). As amended in Section 7 (a)(2), the USFWS requires that *“Each Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species ...”*

The ESA includes multiple layers of protection where endangered species are the most in danger of becoming extinct, threatened species are at risk of becoming endangered, and candidate species are those that are being considered for listing as threatened or endangered. Under Section 9 of the ESA, a “take” is defined as to harass, harm, pursue, hunt, shoot, kill, trap, capture, or collect, or to attempt to engage in any such conduct.

2.1.2 Federal Land Policy and Management Act of 1976

The Federal Land Policy and Management Act is a national law governing the way the BLM administers public lands. Section 102(a)(8) (43 U.S.C. § 1701) declares *“public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use.”*

2.1.3 Migratory Bird Treaty Act

The regulatory framework protecting birds includes the ESA, the Migratory Bird Treaty Act (MBTA) of 1918, codified in 16 U.S.C. § 703-712, and subsequent amendments. The MBTA decrees that all migratory birds and their parts (including eggs, nests, and feathers) are fully protected and addresses the destruction or removal of active nests of those species. Under this Act, it is unlawful to pursue, hunt, take, capture, kill, possess, offer to or sell, barter, purchase, deliver, transport, or receive any migratory birds (including parts, nests, eggs or other product, manufactured or not). In practice, most bird species with non-migratory life-histories are protected under the MBTA, as well. Virtually all native bird species in the United States are protected under MBTA, with the exception of upland game birds (order Galliformes: e.g., grouse and quail). While the USFWS is the lead federal agency charged with protecting migratory birds within the United States, under Executive Order 13186 all

other federal agencies are charged with conserving and protecting migratory birds and the habitats on which they depend.

2.1.4 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act ([BGEPA]; 16 U.S.C. § 668-668d; 50 Code of Federal Regulations [CFR] Part 22) of 1940 protects bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) by prohibiting, except under certain specified conditions, the take, possession, and commerce of any bald or golden eagles, alive or dead, including any part, nest, or egg. The BGEPA authorizes take of eagles “where the take is compatible with the preservation of the bald eagle and the golden eagle; it is necessary to protect an interest in a particular locality; is associated with, but not the purpose of, the activity; and cannot practicably be avoided” (50 CFR Part 22.26).

2.1.5 BLM Special Status Species Management Policy

In BLM Manual 6840, the Special Status Species Management Policy authorizes each BLM state director to designate sensitive species within their respective jurisdictions and protect them on BLM-administered lands. Each state has their own process for sensitive species list development; however, BLM-sensitive species may require specific protection measures. BLM special status species are: 1) species listed or proposed for listing under the ESA; and 2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA, which are designated as BLM sensitive by the State Director(s). All federal candidate species, proposed species, and delisted species in the five years following delisting are considered BLM sensitive species.

2.1.6 Executive Order 13186

Executive Order 13186 requires federal agencies to protect migratory birds and to consider impacts on migratory bird species during project planning. This Executive Order declares that “*each federal agency taking actions that have, or are likely to have, a measurable negative effect on migratory bird populations is directed to develop and implement, within 2 years, a Memorandum of Understanding (MOU) with the [USFWS] that shall promote the conservation of migratory bird populations.*”

2.1.7 BLM Memorandum of Understanding to Promote Conservation of Migratory Birds

BLM MOU WO-230-2010-04 (*MOU between the [BLM] and [USFWS] to Promote the Conservation of Migratory Birds*) directs the BLM to evaluate the effects of BLM’s action on migratory birds on a project level and implement approaches to reduce these effects.

2.2 State Regulations

2.2.1 Arizona Revised Statute Title 17

The Arizona Revised Statute (A.R.S.) Title 17 establishes and defines the organization and management of the Arizona Game and Fish Department (AZGFD) and Commission and covers the organizational responsibilities, conservation, fishing and hunting, funding, and other regulations related to wildlife.

2.2.2 Arizona Native Plant Law

The Arizona Department of Agriculture maintains a list of plants protected under the A.R.S. Title 3, Chapter 7, Section R3-3-208; the Arizona Native Plant Law (ANPL). It was enacted to protect rare plant species and to protect some species from being over harvested.

2.2.3 State Comprehensive Wildlife Conservation Strategy

Congress mandated each state to establish a Comprehensive Wildlife Conservation Strategy that directs the integration and implementation of ongoing and planned management actions and provides a primary conservation tool for keeping fish and wildlife in healthy populations and off the list of threatened or endangered species. Each state was required to develop a State Wildlife Action Plan by the year 2005. For Arizona, it was heavily revised in subsequent years into the current 2012-2022 Arizona's State Wildlife Action Plan (AZGFD 2012). California's first State Wildlife Action in 2005 was completed by the California Department of Fish and Game (now the California Department of Fish and Wildlife [CDFW]) and was updated in 2015 (CDFW 2015).

2.2.4 California Endangered Species Act

The CDFW established the California Endangered Species Act (CESA) as a policy of the state to protect any native species or subspecies of bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease (California Fish and Game Code [CFGF] § 2062). For projects that affect both a federally- and state-listed species, compliance with an ESA "incidental take authorization" can satisfy the CESA if the CDFW determines that it is "consistent" with CFGF § 2080.1.

2.2.5 California Code of Regulations Title 14

The official California Code of Regulations Title 14 defines the organization and management of the CDFW and addresses the organizational responsibilities, conservation, fishing and hunting, funding, and other regulations related to wildlife. In addition, it identifies the different conservancy organizations across the state that oversee specific conservation areas.

2.2.6 California Environmental Quality Act

Section 15380 (B) of the California Environmental Quality Act (CEQA) states that a species is considered rare if "the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered "threatened" as that term is used in the Federal Endangered Species Act." In addition, any species of concern should be included in project-impacts analysis (California Public Resources Code § 15380).

The California Public Utilities Commission (CPUC) is responsible for determining if the Project will be constructed in accordance with CEQA requirements and issue to DCRT a Certificate of Public Convenience and Necessity for transmission infrastructure within California. The following list briefly identifies the Mitigation Measures (MM) under CEQA

related to special status species; further details for each MM are provided in Appendix 1C of the Draft Environmental Impact Statement (EIS):

- **MM BIO-CEQA-1.** Implement biological resources APMs, BLM BMPs, and Conservation and Management Actions (CMAs; see Section 2.2.7).
- **MM BIO-CEQA-2.** Implement a Worker Environmental Awareness Program.
- **MM BIO-CEQA-3.** Implement biological construction monitoring.
- **MM VEG-CEQA-1.** Develop and implement a Vegetation Management Plan.
- **MM VEG-CEQA-2.** Conduct pre-construction floristic surveys.
- **MM VEG-CEQA-3.** Conduct focused surveys for Harwood's eriastrum (*Eriastrum harwoodii*).
- **MM VEG-CEQA-4.** Compensation for impacts to special status plant species and sensitive communities.
- **MM WIL-CEQA-1.** Develop and implement an Avian Management and Protection Plan and Bird and Bat Conservation Strategy.
- **MM WIL-CEQ-2.** Develop and implement a Raven Management Plan.
- **MM WIL-CEQA-3.** Develop and implement a Burrowing Owl Avoidance, Minimization, and Mitigation Plan.
- **MM WIL-CEQA-4.** Develop and implement a Bat Management and Protection Plan.
- **MM WIL-CEQA-5.** Conduct pre-construction surveys for maternity colonies or hibernaculum for roosting bats.
- **MM WIL-CEQA-6.** Conduct pre-construction surveys for nesting and breeding.
- **MM WIL-CEQA-7.** Conduct focused pre-construction burrowing owl surveys.
- **MM WIL-CEQA-8.** Conduct pre-construction protocol surveys for Arizona bell's vireo (*Vireo bellii*), Southwestern willow flycatcher (*Empidonax traillii extimus*), and willow flycatcher (*Empidonax traillii*); avoid occupied habitat; compensate impacts.
- **MM WIL-CEQA-9.** Compensation for impacts to Mojave fringe-toed lizard (*Uma scoparia*).
- **MM WIL-CEQA-10.** Compensation for impacts to Mojave desert tortoise.
- **MM WIL-CEQA-11.** Conduct pre-construction surveys for listed and special status terrestrial herpetofauna and compensation for impacts.

2.2.7 Desert Renewable Energy Conservation Plan and Land Use Plan Amendment

The Desert Renewable Energy Conservation Plan (DRECP), implemented by the Land Use Plan Amendment (LUPA), is a landscape-scale planning effort to both identify specific

development focus areas for high-quality renewable energy and transmission access within areas where environmental impacts can be managed and mitigated, while simultaneously providing for long-term conservation and management of BLM designated special status species and associated habitats (BLM 2016).

In addition to BLM designated sensitive or “special status” species, species that conservation and management are provided for in the DRECP LUPA are identified as “Focus” species. Both Focus and BLM special status species are addressed in the CMAs applicable for the Project throughout this Plan. Developed from the DRECP LUPA, the CMAs are contained in another land use planning process called the California Desert Conservation Area (CDCA) Plan, see Section 2.2.8 below.

2.2.8 California Desert Conservation Area Plan

The CDCA Plan, first published in 1980, covers a total of 25-million acres of BLM administered lands. This plan was a first step towards conflict resolutions on land use management within the area after Congress enacted the Federal Land Policy and Management Act of 1976. This act directed BLM to inventory the CDCA and its resources and develop this plan. It was amended to include protection for the BLM sensitive Harwood’s eriastrum in California (Chapter 2 of the Draft EIS; BLM 1980).

Specific CMA standards are required to be incorporated with all activities of the Project via MM BIO-CEQA-1 and the CDCA Plan. The APMs and BMPs that have been developed/identified for the Project comply with the CMAs. Multiple CMA standards are reflected in more than one APM or BMP. The following list briefly identifies the relevant CMA standard related to special status species; further details are provided in Appendix 1C and 2C of the Draft EIS:

- **LUPA-BIO-1.** Conduct a habitat assessment of Focus and BLM special status species’ suitable habitat for all activities and identify and/or delineate the DRECP vegetation types, rare alliances, and special features (e.g., aeolian sand transport resources, Joshua tree, microphyll woodlands, carbon sequestration characteristics, seeps, climate refugia) present using the most current information, data sources, and tools (e.g., DRECP land cover mapping, aerial photos, DRECP species models, and reconnaissance site visits) to identify suitable habitat for Focus and BLM special status species.
- **LUPA-BIO-2.** Designated biologist(s), will conduct, and oversee where appropriate, activity-specific required biological monitoring during pre-construction, construction, and decommissioning to ensure that avoidance and minimization measures are appropriately implemented and are effective.
- **LUPA-BIO-3.** Resource setbacks have been identified to avoid and minimize the adverse effects to specific biological resources.
- **LUPA-BIO-4.** For activities that may impact Focus and BLM special status species, implement all required species-specific seasonal restrictions on pre-construction, construction, operations, and decommissioning activities.
- **LUPA-BIO-5.** All activities, as determined appropriate on an activity-by-activity basis, will implement a worker education program that meets the approval of the BLM.

- **LUPA-BIO-6.** Subsidized predator standards, approved by BLM, in coordination with the USFWS and CDFW, will be implemented during all appropriate phases of activities, including but not limited to renewable energy activities, to manage predator food subsidies, water subsidies, and breeding sites.
- **LUPA-BIO-8.** All activities that are required to close and decommission the site (e.g., renewable energy activities) will specify and implement project-specific closure and decommissioning actions that meet the approval of BLM.
- **LUPA-BIO-9.** Implement the LUPA CMA standards to protect water and wetland dependent resources.
- **LUPA-BIO-10.** Consistent with BLM state and national policies and guidance, integrated weed management actions, will be carried out during all phases of activities, as appropriate
- **LUPA-BIO-11.** Implement control of nuisance animals and invasive species to avoid and minimize impacts to special status species and their habitats.
- **LUPA-BIO-13.** Implement project siting and design standards that avoid impacts to habitat and suitable habitat for Focus and BLM special status species.
- **LUPA-BIO-14.** Implement general standard practices to protect Focus and BLM special status species including wildlife feeding, wildlife encounters, domestic pets, visual check of construction materials prior to use, trenches/excavations, and vegetation removal, to the extent practical.
- **LUPA-BIO-15.** Use state-of-the-art, as approved by BLM, construction and installation techniques, appropriate for the specific activity/project and site, that minimize new site disturbance, soil erosion and deposition, soil compaction, disturbance to topography, and removal of vegetation.
- **LUPA-BIO-16.** For activities that may impact Focus and BLM sensitive birds protected by the ESA and/or MBTA, and bat species, implement appropriate measures as per the most up-to-date BLM state and national policy and guidance, and data on birds and bats, including but not limited to activity specific plans and actions.
- **LUPA-BIO-17.** For activities that may result in mortality to Focus and BLM Special–Status bird and bat species, a Bird and Bat Conservation Strategy will be prepared with the goal of assessing operational impacts to bird and bat species and incorporating methods to reduce documented mortality.
- **LUPA- BIO-RIPWET-1.** The riparian and wetland DRECP vegetation types and other features listed in the Draft EIS (Table 17) will be avoided to the maximum extent practicable, except for allowable minor incursions with the specified setbacks.
- **LUPA-BIO-RIPWET-3.** For activities that occur within 0.25 mile of a riparian or wetland DRECP vegetation type and may impact BLM Special Status riparian and wetland bird species, conduct a pre-construction/activity nesting bird survey for BLM special status riparian and wetland birds according to agency-approved protocols.

- **LUPA-BIO-DUNE-1.** Because DRECP sand dune vegetation types and aeolian sand transport corridors are, by definition, shifting resources, activities that potentially occur within or bordering the sand dune DRECP vegetation types and/or aeolian sand transport corridors must conduct studies to verify the location (Appendix D of the Draft EIS) and extent of the sand resource(s) for the activity-specific environmental analysis.
- **LUPA-BIO-DUNE-2.** Activities that potentially affect the amount of sand entering or transported within aeolian sand transport corridors will be designed and operated to; maintain quality and function of aeolian sand transport corridors and sand deposition zones; avoid reduction in sand-bearing sediments within habitat; and minimize mortality to DUNE-associated Focus and BLM Special Status species.
- **LUPA-BIO-DUNE-4.** Dune formations and other sand accumulations (i.e., sand ramps, sand sheets) with suitable habitat characteristics for the Mojave fringe-toed lizard (i.e., unconsolidated blow-sand) will be mapped according to mapping standards established by the BLM National Operations Center.
- **LUPA-BIO-DUNE-5.** If suitable habitat characteristics are identified during the habitat assessment, clearance surveys for Mojave fringe-toed lizard will be performed in suitable habitat areas.
- **LUPA-BIO-BAT-1.** Activities, except wind projects, will not be sited within 500 feet of any occupied maternity roost or presumed occupied maternity roost as described below.
- **LUPA-BIO-PLANT-1.** Conduct properly timed protocol surveys in accordance with the BLM's most current (at time of activity) survey protocols for plant Focus and BLM special status species.
- **LUPA-BIO-PLANT-2.** Implement an avoidance setback of 0.25 mile for all Focus and BLM special status species occurrences. Setbacks will be placed strategically adjacent to occurrences to protect ecological processes necessary to support the plant Species.
- **LUPA-BIO-PLANT-3.** Impacts to suitable habitat for Focus and BLM special status plant species should be avoided to the extent feasible and are limited [capped] to a maximum of one percent of their suitable habitat throughout the entire LUPA Decision Area.
- **LUPA-BIO-SVF-1.** For activity-specific NEPA analysis, a map delineating potential sites and habitat assessment of the following special vegetation features is required: yucca clones, creosote rings, saguaro cacti, Joshua tree woodland, microphyll woodland, and thorn stands.
- **LUPA-BIO-SVF-6.** Microphyll woodland: impacts to microphyll woodland will be avoided, except for minor incursions.
- **LUPA-BIO-VEG-2.** Management of cactus, yucca, and other succulent species will adhere to current up-to-date BLM policy.
- **LUPA-BIO-VEG-3.** Allow for the collection of plant material consistent with the maintenance of natural ecosystem processes.

- **LUPA-BIO-IFS-3.** All culverts for access roads or other barriers will be designed to allow unrestricted access by Mojave desert tortoises and will be large enough that desert tortoises are unlikely to use them as shelter sites (e.g., 36 inches in diameter or larger). Desert tortoise exclusion fencing may be utilized to direct tortoise use of culverts and other passages.
- **LUPA-BIO-IFS-5.** Following the clearance surveys within sites that are fenced with long-term desert tortoise exclusion fencing a designated biologist will monitor initial clearing and grading activities to ensure that desert tortoises missed during the initial clearance survey are moved from harm's way.
- **LUPA-BIO-IFS-6.** When working in areas where protocol or clearance surveys are required (see Appendix D), biological monitoring will occur with any geotechnical boring or geotechnical boring vehicle movement to ensure no desert tortoises are killed or burrows are crushed.
- **LUPA-BIO-IFS-7.** A designated biologist will accompany any geotechnical testing equipment to ensure no tortoises are killed and no burrows are crushed.
- **LUPA-BIO-IFS-8.** Inspect the ground under the vehicle for the presence of desert tortoise any time a vehicle or construction equipment is parked in desert tortoise habitat outside of areas fenced with desert tortoise exclusion fencing.
- **LUPA-BIO-IFS-11.** If Bendire's thrasher (*Toxostoma bendirei*) is present, conduct appropriate activity-specific biological monitoring to ensure that Bendire's thrasher individuals are not directly affected by operations (i.e., mortality or injury, direct impacts on nest, eggs, or fledglings).
- **LUPA-BIO-IFS-12.** If burrowing owls (*Athene cunicularia*) are present, a designated biologist will conduct appropriate activity-specific biological monitoring to ensure avoidance of occupied burrows and establishment of the 656 feet setback to sufficiently minimize disturbance during the nesting period on all activity sites, when practical.
- **LUPA-BIO-IFS-13.** If burrows of burrowing owls cannot be avoided on-site, passive burrow exclusion by a designated biologist) through the use of one-way doors will occur according to the specifications in Appendix D of the Draft EIS or the most up-to-date agency BLM or CDFW specifications.
- **LUPA-BIO-IFS-14.** Activity-specific active translocation of burrowing owls may be considered, in coordination with CDFW.
- **LUPA-BIO-IFS-24.** Provide protection from loss and harassment of active golden eagle (*Aquila chrysaetos*) nests through activities that may impact nesting golden eagles, will not be sited or constructed within 1.0-mile of any active or alternative golden eagle nest within an active golden eagle territory, as determined by BLM in coordination with USFWS as appropriate.
- **LUPA-BIO-IFS-25.** Cumulative loss of golden eagle foraging habitat within a one to four mile radius around active or alternative golden eagle nests (as identified or defined in the most recent USFWS guidance and/or policy) will be limited to less than 20 percent.

- **LUPA-BIO-IFS-26.** For activities that impact golden eagles, applicants will conduct a risk assessment per the applicable USFWS guidance using best available information as well as the data collected in the pre-project golden eagle surveys.
- **LUPA-BIO-IFS-27.** If a permit for golden eagle take is determined to be necessary, an application will be submitted to the USFWS in order to pursue a take permit.
- **LUPA-BIO-COMP-1.** Impacts to biological resources, identified and analyzed in the activity specific environmental document, from activities in the LUPA decision area will be compensated using the standard biological resources compensation ratio, except for the biological resources and specific geographic locations listed as compensation ratio exceptions, specifics in CMAs LUPA-BIO-COMP-2 through -4, and previously listed CMAs.
- **LUPA-BIO-COMP-2.** The compensation for the mortality impacts to bird and bat Focus and BLM special status species from activities will be determined based on monitoring of bird and bat mortality and a fee re-assessed every five years to fund compensatory mitigation. The initial compensation fee for bird and bat mortality impacts will be based on pre-project monitoring of bird use and estimated bird and bat species mortality from the activity.
- **LUPA-SW-13.** BLM will manage all riparian areas to be maintained at, or brought to, proper functioning condition.
- **LUPA-SW-16.** The 100-year floodplain boundaries for any surface water feature in the vicinity of the project will be identified. If maps are not available from the Federal Emergency Management Agency, these boundaries will be determined via hydrologic modeling and analysis as part of the environmental review process. Construction within, or alteration of, 100-year floodplains will be avoided where possible, and permitted only when all required permits from other agencies are obtained.
- **LUPA-TRANS-BIO-1.** Where feasible and appropriate for resource protection, site transmission activities along roads or other previously disturbed areas to minimize new surface disturbance, reduce perching opportunities for the Common Raven (*Corvus corax*), and minimize collision risks for birds and bats.
- **LUPA-TRANS-BIO-2.** Flight diverters will be installed on all transmission activities spanning or within 1,000 feet of stream and wash channels, canals, ponds, and any other natural or artificial body of water.
- **LUPA TRANS-BIO-3.** When siting transmission activities, the alignment should avoid, to the maximum extent practicable, being located across canyons or on ridgelines.
- **LUPA-TRANS-BIO-4.** Siting of transmission activities will be prioritized within designated utility corridors, where possible, and designed to avoid, where possible, and otherwise minimize and offset impacts to sand transport processes in aeolian corridors, rare vegetation alliances and Focus and BLM special status species. Transmission substations will be sited to avoid aeolian corridors, rare vegetation alliances, and sand-dependent Focus and BLM Special Status Species habitats.

- **DFA-VPL-BIO-DUNE-1.** Activities in the North American Warm Desert Dune and Sand Flats (Development Focus Areas [DFAs] and Variance Process Lands [VPLs]), including transmission substations, will be sited to avoid dune vegetation.
- **DFA-VPL-BIO-DUNE-2.** Within aeolian corridors that transport sand to dune formations and vegetation types downwind inside and outside of the DFAs, all activities will be designed and operated to facilitate the flow of sand across activity sites and avoid the trapping or diverting of sand from the aeolian corridor.
- **DFA-BIO-IFS-1.** Conduct the following surveys as applicable in the DFAs as shown in Table 21 of the DRECP LUPA.
- **DFA-BIO-IFS-2.** Implement the following setbacks shown below in Table 22 of the DRECP LUPA as applicable in the DFAs.

3 Plant and Wildlife Concerns

The plant and wildlife species covered under state and federal ESAs and/or MBTA that may potentially occur within the Project area are organized in the following categories:

- Special Status Plants
- Special Status Wildlife
- Migratory Birds

Resource surveys are required to determine the presence or absence of BLM, USFWS, DRECP (USFWS 2016a), state sensitive plant and wildlife species, active raptor nests, and noxious weeds within the Project area. This Plan identifies APMs and BMPs that will be implemented to protect specific plants, wildlife, and migratory birds in the Project area and ensure the Project is consistent with management objectives to protect biological resources. Specific impacts on plant and wildlife resources are defined in the following sections.

3.1 Disturbance and Displacement

For wildlife and plants within and adjacent to the Project right-of-way (ROW), disturbance and displacement will result in temporary changes in habitat use during construction activities, long-term changes due to the presence of Project features (e.g., transmission structures and facilities), and an increase in human activity associated with Project operation and maintenance.

The introduction and/or spread of noxious weeds further increases competition and displacement of native plant species; decreases food resources for native wildlife to survive; and increases the likelihood of wildfires. Disturbance also impacts natural soil structure and hydrology resulting in displacement or loss of plant species and can ultimately alter habitat types. Implementation of measures compatible with the Project design standards is required to minimize disturbance and displacement of wildlife and plants as a result of the Project construction, operation, and maintenance activities.

3.2 Habitat Loss and Fragmentation

Permanent loss and fragmentation of plant and wildlife habitat will occur as a result of the Project, due to clearing and grading of access roads and work areas; installation of transmission structures; and vegetation management within the ROW. Habitat loss as a result of these land conversion actions is the most common impact on native wildlife limiting resources and biodiversity. In addition, significant construction actions can alter habitats that potentially fragment previously connected populations; however, it is unlikely for the Project due to the fact that the majority of construction is within previously disturbed areas of vast desert paralleling existing transmission lines and highways, a restoration plan is in place for temporary disturbances (see Appendix L-1 of the POD), and the aerial nature of transmission lines do not typically result in fragmented populations. Implementation of measures compatible with the Project design standards is required to minimize habitat loss and resources to the extent practical.

3.3 Plant and Wildlife Mortality

Project activities will result in some mortality of plants and possibly wildlife with limited mobility; more specifically, mortality risks are higher during vegetation management, clearing, and/or grading operations associated with construction, operation, and maintenance of the Project. Wildlife species that occupy burrows may experience mortality if burrows are damaged or destroyed by heavy machinery. In addition, there will be an increased potential for avian mortality due to collisions with shield wires/fiber optical ground wire and/or conductors.

The presence of transmission line structures will increase perching and roosting opportunities for raptors and corvids, leading to increased predation on potential sensitive wildlife species. Additionally, herbicide use for weed treatments, may affect sensitive plant species, resulting in mortality. Implementation of mitigation measures compatible with the Project design standards is required to reduce the potential for increased plant and wildlife mortality.

4 Mitigation Measures for Special Status Species

This section of the Plan outlines the APMs and BMPs relevant for plant and wildlife resources previously discussed (BIO refers to biological mitigation measure; VEG refers to vegetation mitigation measure). The discussion is organized to provide an overview of each designated resource and their potential for occurrence in the Project area, agency concerns and impacts for which mitigation was identified, and the appropriate APMs and BMPs to address concerns and reduce impacts during design, construction, operation, and maintenance of the Project.

4.1 Special Status Plants

4.1.1 Background

As described in Chapter 3 of the Draft EIS, no plant species currently listed or proposed for listing under the ESA or CESA are anticipated to be present within the Project area. In Arizona, a total of 11 plant species classified as sensitive by the BLM have potential to be found in or near the Project area. Under the ANPL, a total of 33 plant species were listed with potential to be found in or near the Project area (Draft EIS Appendix 3).

In California, the BLM grants sensitive status to designated plants with a California Rare Plant Rank (CRPR) of 1B (rare, threatened, or endangered in California). Based on a review of the California Native Plant Society online inventories and CDFW's Natural Diversity Database, a total of 15 special status plant species were identified to have potential to be present in or near the Project area (Draft EIS Appendix 3). Table F-2-1 lists the special status plant species with their associated status (CRPR, ANPL, and/or BLM Sensitive) and their potential to occur within or near the Project area.

TABLE F-2-1 SPECIAL STATUS PLANT SPECIES THAT MAY OCCUR WITHIN OR NEAR THE PROJECT AREA

Common Name	Scientific Name	Status ¹	Occurrence ²
Abrams' spurge	<i>Euphorbia abramsiana</i>	CRPR-2B.2	Likely; suitable habitat and recorded presence north of Project.
Ajo lily	<i>Hesperocallis undulata</i>	ANPL-SR	Possible; not known to occur but suitable habitat present.
Alverson's foxtail cactus	<i>Coryphantha alversonii</i>	BLM: Sensitive ³	Not likely; historically not recorded.
Barrel cactus	<i>Ferocactus wislizeni</i>	ANPL-SR	Likely; suitable habitat.
Beavertail cactus	<i>Opuntia basilaris</i> var. <i>basilaris</i>	ANPL-SR	Likely; known to occur and suitable habitat.
Beehive cactus	<i>Echinomastus johnsonii</i>	ANPL-SR	Unlikely; historically recorded near southern Arizona border.
Big galleta	<i>Pleuraphis (Hilaria) rigida</i>	BLM: Sensitive ³	Likely; known to occur and suitable habitat.
Bigelow's nolina	<i>Nolina bigelovii</i>	ANPL-SR, HR	Possible; not known to occur but suitable habitat present.
Bitter hymenoxys	<i>Hymenoxys odorata</i>	CRPR-2B.1	Unlikely; low potential to occur along Colorado River, woodland washes.
Blue paloverde	<i>Parkinsonia florida</i>	ANPL-SA	Likely; known to occur and suitable habitat.
Blue sand lily	<i>Triteliopsis palmeri</i>	ANPL-SR	Unlikely; low potential in sandy areas but recorded along Arizona southern border.
Buckhorn cholla	<i>Cylindropuntia acanthocarpa</i> var. <i>acanthocarpa</i>	ANPL-SR	Unlikely; presence known north of Interstate 10 near McCoy Mountains and uncommon in sandy soils within Project area.
Bush muhly	<i>Muhlenbergia porteri</i>	BLM: Sensitive ³	Likely; known to occur and suitable habitat.
California ditaxis	<i>Ditaxis serrata</i> var. <i>californica</i>	CRPR-3.2	Unlikely; presence known north of Interstate 10 near McCoy Mountains and uncommon in sandy soils within Project area.

Common Name	Scientific Name	Status ¹	Occurrence ²
Catclaw acacia	<i>Acacia greggii</i>	BLM: Sensitive ³	Likely; known to occur and suitable habitat.
Cottonwood	<i>Populus fremontii</i>	BLM: Sensitive ³	Likely; known to occur and suitable habitat.
Crucifixion thorn	<i>Castela emoryi</i>	ANPL- SR	Unlikely; historically recorded near southern Arizona border.
Desert agave	<i>Agave deserti</i> spp. <i>simplex</i>	ANPL- SR	Unlikely; not known to occur but further north and west of Project area.
Desert holly	<i>Atriplex hymenelytra</i>	ANPL- SR	Possible; not known to occur but suitable habitat.
Desert unicorn-plant	<i>Proboscidea althaeifolia</i>	CRPR- 4.3	Present within the Project area.
Desert willow	<i>Chilopsis linearis</i>	ANPL-SA	Likely; known to occur and suitable habitat.
Devil's cholla	<i>Grusonia kunzei</i>	ANPL- SR	Unlikely; no suitable habitat present.
Diamond cholla	<i>Cylindropuntia ramosissima</i>	ANPL- SR	Unlikely; historically recorded closer to southern borders.
Ditaxis claryana	<i>Glandular ditaxis</i>	CRPR- 2B.2	Possible; not known to occur but suitable habitat present.
Dudleya	<i>Dudleya arizonica</i>	ANPL- SR	Possible; not known to occur but suitable habitat present.
Dune buckwheat	<i>Eriogonum deserticola</i>	BLM: Sensitive ³	Not likely; historically not recorded.
Dwarf germander	<i>Teucrium cubense</i> ssp. <i>depressum</i>	CRPR- 2B.2	Possible; not known to occur but suitable habitat present.
Elephant tree, torote	<i>Bursera microphylla</i>	ANPL- SR	Unlikely; historically recorded closer to southern borders.
Flat-seeded spurge	<i>Euphorbia platysperma</i>	CRPR- 1B.2, BLM: Sensitive ³	Possible; not known to occur but suitable habitat present.
Foothill paloverde	<i>Parkinsonia microphylla</i>	ANPL-SA	Possible; not known to occur but suitable habitat present.
Goodding's willow	<i>Salix gooddingii</i>	BLM: Sensitive ³	Likely; known to occur and suitable habitat present.
Gravel milkvetch	<i>Astragalus sabulonum</i>	CRPR- 2B.2	Possible; not known to occur but suitable habitat present.
Harwood's eriastrum	<i>Eriastrum harwoodii</i>	CRPR- 1B.2, BLM: Sensitive	Present within the Project area.
Harwood's milkvetch	<i>Astragalus insularis</i> var. <i>harwoodii</i>	CRPR- 2B.2	Present within the Project area.
Hedgehog cactus	<i>Echinocereus engelmannii</i> var. <i>chrysocentrus</i>	ANPL- SR	Likely; suitable habitat present.
Ironwood	<i>Olneya tesota</i>	ANPL- SA, HR	Possible; not known to occur but suitable habitat present.
Kearney sumac	<i>Rhus kearneyi</i> spp. <i>kearneyi</i>	ANPL- SR	Likely; suitable habitat present.
Las Animas colubrina	<i>Colubrina californica</i>	CRPR- 2B.3	Unlikely; presence north of Interstate 10 and uncommon in sandy soils within Project area.
Long leaf sandpaper plant	<i>Petalonyx linearis</i>	BLM: Sensitive ³	Not likely; historically not recorded.
Mesquite	<i>Prosopis</i> spp.	ANPL- SA, HR	Likely; suitable habitat present.

Common Name	Scientific Name	Status ¹	Occurrence ²
Night blooming cereus	<i>Peniocereus greggii</i>	ANPL-SR	Possible; not known to occur but suitable habitat present.
Ocotillo	<i>Fouquieria splendens</i>	ANPL-SR	Likely; suitable habitat present.
Parish wild onion	<i>Allium parishii</i>	ANPL-SR	Possible; not known to occur but suitable habitat present.
Desert Christmas cactus	<i>Cylindropuntia leptocaulis</i>	ANPL-SR	Possible; not known to occur but suitable habitat present.
Pincushion cactus	<i>Mammillaria tetrancistra</i>	ANPL-SR	Unlikely; low potential to occur in desert woodlands.
Pink fairy-duster	<i>Calliandra eriophylla</i>	CRPR-2B.3	Unlikely; low potential to occur in desert woodlands.
Ribbed cryptantha	<i>Peniocereus greggii</i> var. <i>transmontanus</i>	ANPL-SR	Unlikely; historically recorded closer to southern borders.
Ribbed cryptantha	<i>Cryptantha costata</i>	CRPR-4.3	Present within the Project area.
Saguaro cactus	<i>Carnegiea gigantea</i>	ANPL-SR, CRPR-2B.2	Present within the Project area.
Sand food	<i>Pholisma sonora</i>	ANPL-HS	Unlikely; low potential to occur in desert sandy areas and historically recorded closer to southern borders.
Scaly sandplant	<i>Pholisma arenarium</i>	ANPL-HS	Possible; not known to occur but suitable habitat present.
Scrub oak	<i>Quercus turbinella</i>	BLM: Sensitive ³	Likely; known to occur and suitable habitat.
Silver cholla	<i>Cylindropuntia echinocarpa</i>	ANPL-SR	Present within the Project area.
Smoke tree	<i>Psoralea spinosa</i>	ANPL-SA	Possible; not known to occur but suitable habitat present.
Teddy-bear cholla	<i>Cylindropuntia bigelovii</i>	ANPL-SR	Present within the Project area.
Utah vine milkweed	<i>Funastrum utahense</i>	CRPR-4.2	Possible; not known to occur but suitable habitat present.
Winged cryptantha	<i>Cryptantha holoptera</i>	CRPR-4.3	Present within the Project area.

¹As listed in the Draft EIS Appendix 3 including the following status levels:

ANPL = Arizona Native Plant Law, statuses include: HS = Highly Safeguarded, SR = Salvage Restricted, SA = Salvage Assessed, HR = Harvest Restricted;

CRPR = California Rare Plant Ranking, statuses include 1A = Plants presumed extirpated in California and either rare or extinct elsewhere, 1B = Plants rare, threatened, or endangered in California and elsewhere, 2A = Plants presumed extirpated in California, but common elsewhere, 2B = Plants rare, threatened, or endangered in California, but common elsewhere, 3 = Plants about which more information is needed (review list), 4 = Plants of limited distribution (watch list), 0, 1 = Seriously endangered in California, 0.2 = Fairly endangered in California, 0.3 = Not very endangered in California

BLM: Sensitive = BLM special status species.

²Sources: BLM 2006, BLM 2008, BLM 2010, BLM 2012a, BLM 2012b, BLM 2014, AZGFD 2015.

³Not on the BLM sensitive species list in AZ

4.1.2 Mitigation Measures for Plant Species

Based on the concerns of federal and state agencies discussed in Section 3, the key mitigation strategy for reducing impacts to special status plant species is to require surveys and avoidance of populations where they are detected (BMP BIO-24). The AMPs and BMPs (and their associated CEQA and CMA requirements) applicable to minimize potential adverse effects to special status plant species and their habitats include the following

(derived from Appendix 2B and 2C of the Draft EIS; will be updated when the EIS is finalized):

- **APM/BMP BIO-1.** Before starting any work, including mowing, staging, installing stormwater control structures, implementing other BMPs, removing trees, construction, and restoration, all employees and contractors performing activities and new construction would receive training on environmental requirements that apply to their job duties and work. If additional crewmembers arrive later in the job, they would be required to complete the training before beginning work. Training would include a discussion of the avoidance and minimization measures being implemented and would include information on the federal and state ESAs and the consequences of not complying with these Acts. An educational brochure would be provided to construction crews working on the Project. This brochure would include color photographs of special status species as well as a discussion of avoidance and minimization measures. The worker education program would provide interpretation for non-English speaking workers. (Addresses MM BIO-CEQA-1; CMA LUPA-BIO-5)
- **APM/BMP BIO-3.** The BLM would approve areas to be used for stockpiling, vehicle parking, or other construction support activity that would occur outside established work areas. (Addresses MM WIL-CEQA-9/10/11; CMA LUPA-BIO-13)
- **APM BIO-4.** Environmentally sensitive areas, such as the riparian areas, xeroriparian washes, and other habitat of special status species, would be identified in the field. Barrier fences or stakes would be installed at the edge of the easement or around the sensitive area to minimize the possibility of inadvertently encroaching into sensitive habitat. (Addresses MM VEG-CEQA-1/2/4, WIL-CEQA-10, and WIL-CEQA-11; CMA LUPA-BIO-3 and LUPA-BIO-13)
- **APM BIO-10.** The BMPs included in the Stormwater Pollution Prevention Plan would be implemented during construction to minimize impacts associated with erosion. Watering for dust control during construction would also be used as described previously (AQ-01). Watering shall not result in prolonged ponding of surface water that could attract wildlife to the work area. Minimal or no vegetation clearing and/or soil disturbance would be conducted for site access and construction in areas with suitable topography (i.e., overland driving/overland access).
- **APM/BMP BIO-11.** The Vegetation Management Plan would be approved by the BLM and implemented. That Plan describes the surveys, permitting, fee payments, and plant protection to be conducted in areas where Project design would not eliminate the need for vegetation control for the project to be in compliance with North American Electric Reliability Corporation requirements. Vegetation would be trimmed or otherwise controlled for safe operation of the transmission line and would be designed to minimize impacts on special status species to the extent practicable. The Plan also would describe how vegetation would be salvaged, as needed, in order to comply with the applicable ANPL and California regulations. (Addresses MM VEGA-CEQA-1/2/3; CMA LUPA-BIO-9)
- **APM BIO-12.** A Noxious Weed Management Plan would be prepared, approved by the BLM, and implemented to address potential impacts associated with the spread and establishment of noxious weeds. (Addresses MM VEG-CEQA-1; CMA LUPA-BIO-6/10/11)

- **APM BIO-13.** Riparian areas and xeroriparian drainages that occur within the easement would be denoted as environmentally sensitive areas and must be avoided during construction to the extent practicable. Existing topography would be restored after construction is complete, to pre-Project conditions to extent possible. (Addresses MM VEG-CEQA-1 and VEG-CEQA-4; CMA LUPA-BIO-1 and LUPA-BIO-13)
- **APM BIO-14.** In areas with suitable topography, minimal or no vegetation clearing and soil disturbance would be conducted for site access and construction (i.e., overland driving/overland access). Overland driving/overland access would be used in areas that support the necessary construction equipment. Upgrading of existing access roads and construction of new access roads would be implemented as necessary for safe construction activities. (Addresses MM VEG-CEQA-1 and VEG-CEQA-4; CMA LUPA-BIO-14)
- **APM/BMP BIO-15 (California only).** A Habitat Restoration and Monitoring Plan would be developed, approved by BLM, and implemented for construction and operation of the Project. Revegetate all sites disturbed during construction that would not be required for operation of the transmission line, and restore disturbed areas to the extent practicable, given the arid desert environment. The Plan would describe in detail methods for surveying and characterizing vegetation in disturbed areas before construction; topsoil salvage and management, erosion control, post-construction recontouring and site preparation, seeding and planting, and post-construction watering, monitoring, and remediation. It would be designed to reduce impacts on special status species to the extent practicable. (Addresses MM VEG-CEQA-1 and VEG-CEQA-4; CMA LUPA-BIO-7/8/10)
- **APM BIO-16.** Measures would be implemented to minimize the number of saguaro cacti that must be relocated for the safe construction and operation of the transmission line. In accordance with the Vegetation Management Plan, a survey of saguaros within the ROW would be conducted before construction and where possible, the transmission line would be designed to minimize the number of saguaros affected by adjusting tower locations and conductor height. The Plan would address plant salvaging, storing, and replanting requirements and methods, only saguaro that are within 50-feet of the outermost conductors and could be tall enough to pose a hazard would be removed if they cannot be avoided through Project design. When possible, saguaro that must be removed would be relocated as directed by the BLM and state agency protocols. Monitoring and management of saguaros during operations would occur as described in the Vegetation Management Plan. (Addresses MM VEG-CEQA-1 and VEG-CEQA-4; CMA LUPA-BIO-SVF-1)
- **APM BIO-17.** Vehicular travel would be limited to established roads to the maximum extent practicable. (Addresses MM WIL-CEQA-9/10/11; CMA LUPA-BIO-13)
- **BMP BIO-24.** A survey would be conducted during the appropriate time of year of the selected route to identify special status plant species and imperiled or sensitive vegetation alliances. Where possible, and as required by the BLM, special status species and vegetation alliances would be avoided during construction. This survey would be restricted to non-cultivated land. (Addresses MM VEG-CEQA-2/3/4; CMA LUPA-BIO-1, LUPA-BIO-PLANT-1, and LUPA-BIO-SVF-1)

- **APM BIO-26.** An inventory of plants protected under the ANPL would be conducted on State Trust lands as required by the Arizona State Land Department. Similar surveys would be conducted on lands managed by BLM, as directed by that agency.
- **BMP BIO-31 (California only).** Implementation of requirements specific to Harwood's eriostroma; further details provided in the Harwood's eriostroma Linear ROW Protection Plan; see Appendix F-8 of the POD. (Addresses MM VEG-CEQA-3 and VEG-CEQA-4; CMA LUPA-BIO-1/3/4/6/13, LUPA-BIO-DUNE-2, LUPA-BIO-PLANT-2, and LUPA-BIO-PLANT-3)
- **BMP BIO-32.** Species-specific seasonal restriction dates would be observed. (Addresses CMA LUPA-BIO-4 and LUPA-BIO-DUNE-5)
- **BMP BIO-37.** The collection of native plants on site is prohibited without required permits and tags. (Addresses MM VEG-CEQA-1 and VEG-CEQA-4; CMA LUPA-BIO-14)
- **BMP BIO-41.** Management of cactus, yucca, and other succulents would adhere to current up-to-date BLM policy. All activities would follow applicable BLM state and national regulations and policies for salvage and transplant of cactus, yucca, and other succulents. Preconstruction surveys of disturbance zones would include preparation of maps delineating special vegetation features. BLM may consider disposal of succulents through public sale, as per current up-to-date state and national policy.
- **BMP BIO-42.** Promote appropriate levels of dead and downed wood on the ground, outside of campground areas, to provide wildlife habitat, seed beds for vegetation establishment, and reduce soil erosion, as determined appropriate on an activity-specific basis. (Addresses CMA LUPA-BIO-VEG-2)
- **BMP BIO-46 (California only).** Any loss of desert riparian woodland would be compensated at the ratio of 5:1 (ratio of compensation is California only); compensation requirements may be fulfilled through restoration and enhancement, land acquisition (i.e., preserve), or a combination of these options, depending on the activity specifics and BLM approval/authorization. (Addresses CMA LUPA-BIO-17 and LUPA-BIO-COMP-1)
- **BMP BIO-47.** BLM would manage all riparian areas to be maintained at, or brought to, proper functioning condition. (Addresses CMA LUPA-BIO-17, LUPA-BIO-RIPWET-1, and LUPA-SW-13)
- **BMP BIO-51.** To minimize vegetation trimming, micro-siting and design considerations (including tower height) would be applied so the catenary formed by the conductors (the bottom of the sag) avoids saguaros and is not directly over wash vegetation, to the extent practicable. (Addresses MM VEG-CEQA-1; CMA LUPA-BIO-17, LUPA-BIO-RIPWET-1, and LUPA-BIO-SVF-6)
- **BMP BIO-52 (California only).** For California portions, apply a 200-foot setback from the outer perimeter of Coloradoan semi-desert wash woodland/scrub vegetation. Preconstruction surveys of disturbance zones would include preparation of maps delineating special vegetation features. Minor incursions would be allowed to balance minimizing vegetation trimming (BIO-51), while maintaining an

appropriate setback, as determined based on site-specific conditions. (Addresses VEG-CEQA-1/2/4; CMA LUPA-BIO-3/13/17, LUPA-BIO-RIPWET-1, LUPA-BIO-SVF-1, and LUPA-BIO-SVF-6)

- **BMP BIO-53 (California only).** Project facilities would be sited to avoid dune vegetation. Unavoidable impacts to dune vegetation would be limited and access roads would be sited to minimize unavoidable impacts. Access road would be unpaved and designed and constructed to be at grade with the ground surface to avoid inhibiting sand transport. (Addresses MM VEG-CMA-1/2/3/4, WIL-CEQA-9, and WIL-CEQA-11; CMA LUPA-BIO-1, LUPA-BIO-13, LUPA-BIO-DUNE-2, LUPA-BIO-DUNE-4, LUPA-TRANS-BIO-4, and DFA-VPL-BIO-DUNE-1)
- **BMP BIO-54 (California only).** Within Aeolian corridors that transport sand to dune formations and vegetation types downward all activities, would be designed and operated to facilitate the flow of sand across activity sites, and avoid the trapping or diverting of sand from the Aeolian corridor. Structure design take into account the direction of sand flow and, to the extent feasible, build and align structures to allow sand to flow through the site unimpeded. Fences would be designed to allow sand to flow through and not be trapped. (Addresses MM VEG-CEQA-1, VEG-CEQA-4, WIL-CEQA-9, and WIL-CEQA-11; CMA LUPA-BIO-1, LUPA-BIO-DUNE-1, LUPA-BIO-DUNE-2, LUPA-BIO-DUNE-4, LUPA-TRANS-BIO-4, and DFA-VPL-BIO-DUNE-2)
- **BMP BIO-55 (California only).** Construction of new roads and/or routes would be avoided within Focus and BLM Special Status Species' suitable habitat within identified linkages for those Focus and BLM Special Status Species unless the new road and/or route is beneficial to minimize net impacts to natural or ecological resources of concern. These areas would have a goal of "no net gain" of Project roads and/or routes. (Addresses MM VEG-CEQA-1, VEG-CEQA-4, WIL-CEQA-8/9/10/11; CMA LUPA-BIO-13 and LUPA-BIO-DUNE-4)
- **BMP VEG-1.** Any removal of vegetation resources would be conducted in accordance with BLM Information Bulletin 2012-097. (Addresses MM VEG-CEQA-1 and VEG-CEQA-4; CMA LUPA-BIO-15 and LUPA-BIO-SVF-1)
- **BMP VEG-2.** Minimize natural vegetation removal through implementation of drive and crush or cut or mow vegetation rather than removing entirely. Locations for drive and crush travel or cut/mow would be determined in conjunction with the Access Road Plan; see Appendix K-1 of the POD. (Addresses MM VEG-CEQA-1 and VEG-CEQA-4; CMA LUPA-BIO-14)

4.2 Special Status Wildlife

4.2.1 Background

Special status wildlife species include species listed as threatened, endangered, or candidates under the federal ESA; classified as BLM sensitive; and/or listed under CESA. These species were queried through the USFWS Information for Planning and Conservation database (USFWS 2016b), BLM resource management plans, CDFW's Biogeographic Information and Observation System and Natural Diversity Database (CDFW 2016), Arizona Online Environmental Review, and related documents, as well as evaluating published and unpublished information regarding listed species in the Project area.

All species protected under the federal ESA are classified as special status species by the BLM. A total of six federally-listed species were identified with potential to be present in or near the Project area, which include three wildlife species: the threatened Mojave desert tortoise, endangered razorback sucker (*Xyrauchen texanus*) and the endangered Sonoran pronghorn (*Antilocapra americana sonoriensis*). The other three species are migratory birds and can be found in Section 4.3. Table F-2-2 lists the special status wildlife species with their associated status (Arizona and California listings, BLM Sensitive and Focus species, and federal status, if applicable) and their potential to occur within or near the Project area.

For more detailed information and requirements related to the Mojave desert tortoise, see Section 6 that includes the Mojave Desert Tortoise Protection and Compensation Plan.

TABLE F-2-2 SPECIAL STATUS WILDLIFE SPECIES THAT MAY OCCUR WITHIN OR NEAR THE PROJECT AREA

Common Name	Scientific Name	Status ¹	Occurrence ²
Reptiles			
Chuckwalla	<i>Sauromalus ater</i>	BLM: Sensitive in CA	Possible; not known to occur but suitable habitat present
Gila monster	<i>Heloderma suspectum</i>	Arizona: SGCN	Possible; not known to occur but suitable habitat present
Mojave desert tortoise	<i>Gopherus agassizii</i>	ESA: T Arizona: SGCN California: T; BLM: Sensitive and Focus in CA	Likely; known to be present on the Palo Verde Mesa around the Colorado River Substation
Mojave fringe-toed lizard	<i>Uma scoparia</i>	Arizona: SGCN; California: SSC BLM: Sensitive in AZ and CA	Likely; known to occur and suitable habitat present
Rosy boa	<i>Lichanura trivirgata</i>	BLM: Sensitive in CA	Unlikely; no suitable habitat present
Sonora mud turtle	<i>Kinosternon sonoriense</i>	California: SSC BLM: Sensitive in AZ and CA	Possible; not known to occur but suitable habitat along lower Colorado River
Sonoran coralsnake	<i>Micruroides euryxanthus</i>	Arizona: SGCN	Possible; not known to occur but suitable habitat present
Sonoran desert tortoise	<i>Gopherus morafkai</i>	Arizona: SGCN; BLM: Sensitive in AZ	Likely; known to occur and suitable habitat present
Amphibians			
Couch's spadefoot	<i>Scaphiopus couchii</i>	California: SSC BLM: Sensitive in CA	Likely; known to occur and suitable habitat present in and near ephemeral pools and agricultural areas in eastern portion of Project Area in California
Sonoran desert toad	<i>Bufo alvarius</i>	Arizona: SGCN; California: SSC	Possible; occurs within several miles of permanent or temporary water sources and may occur in a variety of habitats along Colorado River or agricultural drainages

Common Name	Scientific Name	Status ¹	Occurrence ²
Fish			
Razorback sucker	<i>Xyrauchen texanus</i>	ESA: E Arizona: SGCN California: E; BLM: Sensitive in CA	Likely; suitable habitat along lower Colorado River and the transmission line would span critical habitat
Mammals			
Allen's (Mexican) big-eared bat	<i>Idionycteris phyllotis</i>	Arizona: SGCN; BLM: Sensitive in AZ	Unlikely; low potential to occur in desert woodlands
American badger	<i>Taxidea taxus</i>	California: SSC	Likely; known to occur and suitable habitat present
American beaver	<i>Castor canadensis</i>	Arizona: SGCN	Possible; potential to occur along Colorado River
Arizona myotis	<i>Myotis occultus</i>	Arizona: SGCN; California: SSC	Possible; not known to occur but suitable habitat present near water and wooded riparian areas in desert
Arizona pocket mouse	<i>Perognathus amplus</i>	Arizona: SGCN	Unlikely; suitable habitat present in Harquahala and Ranegras plains outside the Project area
Big free-tailed bat	<i>Nyctinomops macrotis</i>	Arizona: SGCN	Possible; inhabits arid lowlands and hills to 6,000 feet (1,800 meters) and roosts in crevices, buildings, and sometimes trees
California leaf-nosed bat	<i>Macrotus californicus</i>	Arizona: SGCN; California: SSC BLM: Sensitive in AZ and CA	Possible; not known to occur but suitable habitat present in lowland desert scrub
California myotis	<i>Myotis californicus</i>	Arizona: SGCN	Possible; not known to occur but suitable habitat present in desert caves, mines, crevices, and shrubs
Cave myotis	<i>Myotis velifer</i>	Arizona: SGCN; California: SSC BLM: Sensitive in AZ and CA	Possible; not known to occur but suitable habitat present in desert caves, mines, crevices, and shrubs
Colorado River cotton rat	<i>Sigmodon arizonae plenus</i>	Arizona: SGCN; California: SSC	Unlikely; occurs within riparian thickets, dense grass cover, and drier grassy areas. Likely rare or absent along Colorado River in the Project area
Desert bighorn sheep	<i>Ovis canadensis mexicana</i>	Arizona: SGCN; California: FP BLM: Sensitive in CA; BLM Focus Species in CA	Possible; occurs in all mountain ranges around the Project Area; existing habitat not typical of their preferences; however, their migration routes to available resources may cross the Project area
Pallid bat	<i>Antrozous pallidus</i>	California: SSC BLM: Sensitive in CA	Possible; not known to occur but suitable habitat present in rock crevices and near water

Common Name	Scientific Name	Status ¹	Occurrence ²
Pocketed free-tailed bat	<i>Nyctinomops femorosaccus</i>	California: SSC	Possible; occurs in rocky canyons roosting in rock crevices and trees; observed near shrubland but, not known to roost in shrubland
Sonoran pronghorn	<i>Antilocapra americana sonoriensis</i>	ESA: NSE Arizona: SGCN	Possible; suitable habitat present and a managed population (nonessential experimental population or NSE) within the Kofa National Wildlife Refuge may occur near or along Project area
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	California: SSC BLM: Sensitive in AZ and CA	Likely; not known to occur but occurs in desert caves, mines, crevices, and shrubs near water; potential foraging habitat along Colorado River and agricultural areas
Western yellow bat	<i>Lasiurus xanthinus</i>	California: SSC	Possible; not known to occur, but suitable habitat present in riparian areas
Yuma mountain lion	<i>Felis concolor brownii</i>	California: SSC	Unlikely; no suitable habitat from mountains to valley bottoms and present typically occurs where prey is abundant
Yuma myotis	<i>Myotis yumanensis</i>	BLM: Sensitive in CA	Possible; not known to occur but suitable habitat present including riparian, desert scrub, moist woodlands, and forests, typically near open water

Note: Avian species are within a separate table within this Plan (Table F-2-3).

¹As listed in the Draft EIS Appendix 3 and will be updated once Final EIS is complete. Species listing include E = Endangered and T = Threatened; NSE = Nonessential experimental population; BLM focused species as designated under the DRECP LUPA; SGCN = Species of Greatest Conservation Need; BLM = Bureau of Land Management; FP = Fully Protected; SSC = Species of Special Concern.

²Source: USFWS 2016b.

4.2.2 Mitigation Measures for Wildlife Species

Based on the significant concerns of federal and state agencies discussed in Section 3, the key mitigation strategy for reducing impacts to special status wildlife species is to minimize habitat loss, wildlife mortality, and protect natural resources. The APMs and BMPs (and their associated CEQA and CMA requirements) applicable to minimize potential adverse effects to special status wildlife species and their habitats include the following:

- **APM/BMP BIO-1.** Before starting any work, including mowing, staging, installing stormwater control structures, implementing other BMPs, removing trees, construction, and restoration, all employees and contractors performing activities and new construction would receive training on environmental requirements that apply to their job duties and work. If additional crewmembers arrive later in the job, they would be required to complete the training before beginning work. Training would include a discussion of the avoidance and minimization measures being implemented and would include information on the federal and state ESAs and the consequences of not complying with these Acts. An educational brochure would be provided to construction crews working on the Project. This brochure would include color photographs of special status species as well as a discussion of avoidance and minimization measures. The worker education program would provide interpretation for non-English speaking workers. (Addresses MM BIO-CEQA-1; CMA LUPA-BIO-5)

- **APM/BMP BIO-2.** Multiple biological monitors would be provided so any work site within habitat of special status species is monitored concurrently if needed. (Addresses MM BIO-CEQA-3, VEG-CEQA-2, WIL-CEQA-5/6/7/10/11; CMA LUPA-BIO-2, LUPA-BIO-DUNE-5, LUPA-BIO-IFS-6, LUPA-BIO-IFS-7, LUPA-BIO-IFS-12, DFA-BIO-IFS-1, DFA-BIO-IFS-2, and LUPA-BIO-RIPWET-3)
- **APM BIO-4.** Establish environmentally sensitive areas in the field; install fencing, flagging or stakes around identified sensitive area easements to minimize encroachment. (Addresses MM VEG-CEQA-1/2/4, WIL-CEQA-10, and WIL-CEQA-11; CMA LUPA-BIO-3 and LUPA-BIO-13)
- **APM BIO-5.** Trash dumping, firearms, open fires, and pets would be prohibited at all work locations and access roads. Smoking would be prohibited along the Project alignment. (Addresses CMA LUPA-BIO-6 and LUPA-BIO-14)
- **APM BIO-6.** All food scraps, wrappers, food containers, cans, bottles, and other trash from the work area would be disposed of in closed trash containers. (Addresses CMA LUPA-BIO-6 and LUPA-BIO-14)
- **APM BIO-9.** All excavated steep-walled holes or trenches more than one-foot-deep would be covered at the end of each working day with plywood or similar material or would be provided with one or more escape ramps constructed of earth fill or wooden planks. Each trench or hole would be inspected for wildlife at the beginning of each work day and before such holes or trenches are filled. Wildlife found trapped in trenches or holes would be relocated to suitable habitat outside the work area. If possible, pipes and culverts greater than three inches in diameter would be stored on dunnage to prevent wildlife from taking refuge in them, to the extent feasible. (Addresses CMA LUPA-BIO-14)
- **APM BIO-13.** Riparian areas and xeroriparian drainages that occur within the easement would be denoted as environmentally sensitive areas and would be avoided during construction to the extent practicable. Existing topography would be restored to pre-Project conditions to the extent possible. (Addresses MM VEGA-CEQA-1/2/3; CMA LUPA-BIO-9)
- **APM BIO-18.** Control of construction activities and use of construction-related vehicles in the Copper Bottom Pass area would be maintained to ensure that only planned construction traffic is allowed in the area and that minimal trips are planned to minimize disturbance to bighorn sheep. This APM does not apply to non-construction related public use of the Copper Bottom Pass area.
- **APM BIO-22.** In reference to the Sonoran desert tortoise (*Gopherus morafkai*), a qualified biologist would be present during all ground-disturbing and other construction activities in non-cultivated areas in Arizona. The qualified biologist will survey areas before they are disturbed, monitor construction sites for the presence of desert tortoises, and move tortoises from harm's way. Burrows near construction sites would be clearly delineated. Road, footing, and work area alignments would be modified to the extent possible to avoid adversely affecting any tortoise burrows. Where burrows would be unavoidably destroyed, they would be excavated carefully using hand tools under the supervision of a field biologist with demonstrated prior experience with this species.

- **APM/BMP BIO-23 (California only).** In reference to the Mojave desert tortoise, a qualified biologist would be present during all ground-disturbing and other construction activities in non-cultivated areas in California. The qualified biologist will survey areas before they are disturbed, monitor construction sites for the presence of desert tortoises, and move tortoises from harm's way in accordance with USFWS protocols. Burrows near construction sites would be clearly delineated. Road, footing, and work area alignments would be modified to the extent possible to avoid adversely affecting any tortoise burrows. Where burrows would be unavoidably destroyed, they would be excavated carefully using hand tools under the supervision of a field biologist with demonstrated prior experience with this species.

In addition, a qualified biologist would inspect construction pipes, culverts, or similar structures: (a) with a diameter greater than three inches, (b) stored for one or more nights, (c) less than eight inches aboveground and (d) within desert tortoise habitat (such as outside the long-term fenced area) before the materials are moved, buried, or capped.

As an alternative, such materials shall be capped before storing outside the fenced area or placing on pipe racks. Pipes stored within the long-term fenced area after completing desert tortoise clearance surveys would not require inspection. (Addresses MM WIL-CEQA-10 and WIL-CEQA-11; CMA LUPA-BIO-1, LUPA-BIO-13, LUPA-BIO-IFS-5, LUPA-BIO-IFS-6, LUPA-BIO-IFS-7, LUPA-BIO-IFS-8, and DFA-BIO-IFS-1)

- **BMP BIO-25.** A survey would be conducted of the selected route prior to construction of all work areas to identify special status animal species, including Mojave desert tortoises, burrowing owls, and Mojave fringe-toed lizards. Where possible, and as required by the BLM, special status species and vegetation alliances would be avoided during construction. (Addresses MM VEG-CEQA-4, WIL-CEQA-5/6/7/9/11; CMA LUPA-BIO-1, LUPA-BIO-RIPWET-3, LUPA-BIO-DUNE-4, LUPA-BIO-DUNE-5, LUPA-BIO-IFS-6, and LUPA-BIO-IFS-12)
- **APM BIO-27.** Construction activities would be limited from January 1 to March 31 in active bighorn sheep lambing areas identified by BLM and AZGFD.
- **BMP BIO-29.** The Bird and Bat Conservation Strategy would provide guidance on conservation measures applicable to bird and bat species present in the Project Area, including a nesting bird management plan and a nest management plan. (Addresses MM WIL-CEQA-1/4/8; CMA LUPA-BIO-4, LUPA-BIO-16, LUPA-BIO-17, LUPA-BIO-RIPWET-1, LUPA-BIO-DUNE-5, LUPA-BIO-IFS-11, and DFA-BIO-IFS-2)
- **BMP BIO-32.** Adhere to specific seasonal restrictions of sensitive species. (Addresses CMA LUPA-BIO-4 and LUPA-BIO-DUNE-5)
- **BMP BIO-33.** All long-term nighttime lighting would be directed away from riparian and wetland vegetation, occupied habitat, and suitable habitat areas for sensitive species. Long-term nighttime lighting, if required, would be directed and shielded downward to avoid interference with the navigation of night-migrating birds and to minimize the attraction of insects as well as insectivorous birds and bats to project infrastructure. (Addresses MM WIL-CEQA-1 and WIL-CEQA-4; CMA LUPA-BIO-13, LUPA-BIO-16, and LUPA-BIO-DUNE-5)

- **BMP BIO-34.** Application of dust abatement in the form of water will be done with the minimum amount of water necessary to meet safety and air quality standards and in a manner that prevents the formation of puddles, which could attract wildlife and wildlife predators. (Addresses CMA LUPA-BIO-6)
- **BMP BIO-35.** All construction materials would be visually checked for the presence of wildlife and nesting birds prior to their movement or use. Any wildlife encountered during the course of these inspections would be allowed to leave the construction area unharmed. (Addresses MM WIL-CEQA-8/9/10/11; CMA LUPA-BIO-14)
- **BMP BIO-36.** The intentional feeding or harassment of wildlife on site is prohibited. (Addresses MM WIL-CEQA-8/9/10/11; CMA LUPA-BIO-14)
- **BMP BIO-39.** When fencing is necessary, use bird and bat compatible design standards. (Addresses CMA LUPA-BIO-16 and LUPA-BIO-DUNE-5)
- **BMP BIO-40 (California only).** Activities would not be sited within 500 feet of any occupied maternity roost or presumed occupied maternity roost. (Addresses WIL-CEQA-1/4/8; CMA LUPA-BIO-16, LUPA-BIO-DUNE-5, and LUPA-BIO-BAT-1)
- **BMP BIO-43.** Allow for the collection of plant material consistent with the maintenance of natural ecosystem processes for the purpose of wildlife habitat. (Addresses MM VEG-CEQA-1 and VEG-CEQA-4; CMA LUPA-BIO-VEG-3)
- **BMP BIO-44 (California only).** For the tortoise protection requirements, all culverts for access roads or other barriers would be designed to allow unrestricted access by desert tortoises and would be large enough that desert tortoises are unlikely to use them as shelter sites (e.g., 36 inches in diameter or larger). Desert tortoise exclusion fencing may be utilized to direct tortoise use of culverts and other passages.

Biological monitoring would occur with any geotechnical boring or geotechnical boring vehicle movement to ensure no desert tortoises are killed or burrows are crushed. A designated biologist would accompany any geotechnical testing equipment to ensure no tortoises are killed and no burrows are crushed.

The ground would be inspected under vehicles for the presence of desert tortoise any time a vehicle or construction equipment is parked in desert tortoise habitat. If a desert tortoise is seen, it may move on its own. If it does not move within 15 minutes, a designated biologist may remove and relocate the animal to a safe location. Vehicular traffic would not exceed 15 miles per hour within the areas not cleared by protocol level surveys where desert tortoise may be impacted.

Vehicular traffic would not exceed 15 miles per hour within the areas not cleared by protocol level surveys where desert tortoise may be impacted. (Addresses MM WIL-CEQA-10 and WIL-CEQA-11; CMA LUPA-BIO-IFS-3/5/6/7/8)

- **BMP BIO-47.** As they are important to many listed wildlife species, the BLM would manage all riparian areas to be maintained at, or brought to, proper functioning condition. (Addresses CMA LUPA-BIO-17, LUPA-BIO-RIPWET-1, and LUPA-SW-13)

- **BMP BIO-49.** A Fringe-toed Lizard Linear ROW Protection Plan would be prepared that identifies specific conservation measures to sand dunes and sand transport areas, to map suitable habitat, and clearance surveys to prevent animal mortality. (Addresses MM VEG-CEQA-3, WIL-CEQA-9, and WIL-CEQA-11; CMA LUPA-BIO-1, LUPA-BIO-DUNE-2, LUPA-BIO-DUNE-4, and LUPA-BIO-DUNE-5)
- **BMP BIO-51.** To minimize vegetation trimming, micro-siting and design considerations (including tower height) would be applied so the catenary formed by the conductors (the bottom of the sag) avoids saguaros and is not directly over wash vegetation, to the extent practicable. (Addresses MM VEG-CEQA-1; CMA LUPA-BIO-17, LUPA-BIO-RIPWET-1, and LUPA-BIO-SVF-6)
- **BMP BIO-55 (California only).** Construction of new roads and/or routes would be avoided within Focus and BLM Special Status Species suitable habitat within identified linkages for those Focus and BLM Special Status Species, unless the new road and/or route is beneficial to minimize net impacts to natural or ecological resources of concern. These areas would have a goal of “no net gain” of project roads and/or routes. (Addresses MM VEG-CEQA-1, VEG-CEQA-4, WIL-CEQA-8/9/10/11; CMA LUPA-BIO-13 and LUPA-BIO-DUNE-4)
- **BMP BIO-56.** Any measures regarding the Sonoran pronghorn (*Antilocapra americana sonoriensis*) by the USFWS in the Biological Opinion would be implemented.

4.3 Migratory Birds

4.3.1 Background

More than 350 species of birds have been documented in southwestern Arizona and California and are protected under the MBTA. The primary method of conservation of many of these species is protecting their associated habitats. The majority of the Project area is present in or near the Sonoran desert scrub and xeroriparian washes that are preferred habitats of these species. Many of these bird species are found within low-elevation riparian habitats and freshwater marshes (BLM 2006 and 2008) which exist along the Colorado River. Migratory birds most likely breed and forage in these habitats; thus, any active nest locations will be identified and protected during the construction, operation, and maintenance of the Project. In addition to the MBTA, eagles are afforded further protection under the BGEPA.

Typically, raptors have more stringent seasonal restrictions than other birds (e.g., passerines). Specific mitigation measures will be applied to protect active raptor nests during construction and maintenance activities. Active nest locations and associated raptor species may or may not change from year to year. Historical nesting locations will be taken into account during preconstruction nesting surveys, if available. Further details on nesting management and specific survey protocols can be found in Avian Protection Plan/Bird and Bat Conservation Strategy (Appendix F-3 of the POD). Table F-2-3 lists the migratory bird species with their associated status (Arizona and California listings, BLM Sensitive and Focus species, and federal status, if applicable) and their potential to occur within or near the Project area.

TABLE F-2-3 MIGRATORY BIRDS SPECIES THAT MAY OCCUR WITHIN OR NEAR THE PROJECT AREA

Common Name	Scientific Name	Status ¹	Occurrence ²
Abert's towhee	<i>Melospiza aberti</i>	Arizona: SGCN	Likely; suitable habitat present
American bittern	<i>Botaurus lentiginosus</i>	Arizona: SGCN	Likely; known to occur and suitable habitat present within Colorado River area
Arizona Bell's vireo	<i>Vireo bellii arizonae</i>	Arizona: SGCN; California: E; BLM: Sensitive in CA	Possible; not known to occur but suitable habitat present
Bald eagle	<i>Haliaeetus leucocephalus</i>	Arizona: SGCN; BLM: Sensitive in AZ	Possible; suitable habitat for wintering along lower Colorado River
Belted kingfisher	<i>Megasceryle alcyon</i>	Arizona: SGCN	Possible; suitable habitat present within Colorado River area
Bendire's thrasher	<i>Toxostoma bendirei</i>	California: SSC; BLM: Sensitive and Focus Species in CA	Unlikely; inhabits dry and semi-arid washes and other areas containing shrubs, trees, and especially yucca
Burrowing owl	<i>Athene cunicularia</i>	California: SSC; BLM: Sensitive and Focus Species in CA and AZ	Likely; known to occur and suitable habitat present
California black rail	<i>Laterallus jamaicensis coturniculus</i>	Arizona: SGCN; California: T; BLM: Sensitive in AZ and CA	Likely; known to occur and suitable habitat present within Colorado River area
Clark's grebe	<i>Aechmophorus clarkii</i>	Arizona: SGCN	Possible; suitable habitat present within Colorado River area
Common black hawk	<i>Buteogallus anthracinus</i>	Arizona: SGCN	Possible; suitable habitat for wintering
Crissal thrasher	<i>Toxostoma crissale</i>	California: SSC	Possible; suitable habitat present throughout region
Desert purple martin	<i>Progne subis hesperia</i>	Arizona: SGCN; BLM: Sensitive in AZ	Possible; more common in southcentral Arizona than within Project area; however, prefers open flat areas and farms. Inhabits saguaros in southern Arizona
Double-crested cormorant	<i>Phalacrocorax auritus</i>	Arizona: SGCN	Possible; suitable habitat present within Colorado River area
Elf owl	<i>Micrathene whitneyi</i>	California: E; BLM: Sensitive in CA	Unlikely; no suitable habitat present in CA portion of the Project area and marginal suitable habitat in AZ portion of the Project area
Ferruginous hawk	<i>Buteo regalis</i>	Arizona: SGCN; BLM: Sensitive in AZ	Possible; suitable habitat for wintering near cultivated fields

Common Name	Scientific Name	Status ¹	Occurrence ²
Gila woodpecker	<i>Melanerpes uropygialis</i>	Arizona: SGCN; California: E; BLM: Sensitive and Focus Species in CA	Possible; suitable habitat present
Gilded flicker	<i>Colaptes chrysoides</i>	Arizona: SGCN; California: E; BLM: Sensitive in CA and AZ	Possible; suitable habitat present
Golden eagle	<i>Aquila chrysaetos</i>	Arizona: SGCN; BLM: Sensitive in AZ; California: Fully Protected; Eagle Protection Act; BLM: Sensitive and Focus Species in CA	Unlikely; not known to nest or forage in the vicinity of the study area in California, and the Palo Verde Mesa offers low prey availability
Great egret	<i>Casmerodius albus</i>	Arizona: SGCN	Possible; suitable habitat present within Colorado River area
Greater sandhill crane	<i>Grus canadensis tabida</i>	California: T; BLM: Sensitive in CA	Possible; suitable habitat for wintering near cultivated fields
Le Conte's thrasher	<i>Toxostoma lecontei</i>	Arizona: SGCN; BLM: Sensitive in AZ; California: SSC	Likely; known to occur and suitable habitat present
Lincoln's sparrow	<i>Melospiza lincolnii</i>	Arizona: SGCN	Possible; suitable habitat present within Colorado River area and possibly along large xeroriparian washes
Loggerhead shrike	<i>Lanius ludovicianus</i>	California: SSC	Likely; known to occur and suitable habitat present
Long-eared owl	<i>Asio otus</i>	California: SSC	Unlikely; no suitable habitat present
Mountain plover	<i>Charadrius montanus</i>	Arizona: SGCN; California: SSC BLM Sensitive in CA	Possible; suitable habitat present within Colorado River area and possibly near cultivated fields
Northern harrier	<i>Circus cyaneus</i>	Arizona: SGCN; California: SSC	Likely; known to occur and suitable habitat present
Osprey	<i>Pandion haliaetus</i>	Arizona: SGCN	Possible; suitable habitat present within Colorado River area
Peregrine falcon	<i>Falco peregrinus anatum</i>	Arizona: SGCN	Unlikely; no suitable habitat present
Savannah sparrow	<i>Passerculus sandwichensis</i>	Arizona: SGCN	Unlikely; no suitable habitat present

Common Name	Scientific Name	Status ¹	Occurrence ²
Short-eared owl	<i>Asio flammeus</i>	California: SSC	Unlikely; no suitable habitat present
Snowy egret	<i>Egretta thula</i>	Arizona: SGCN	Unlikely; no suitable habitat present
Sonora yellow warbler	<i>Setophaga petechia sonorana</i>	California: SSC	Unlikely; limited suitable habitat present
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	ESA: E AZ: SGCN CA: E; BLM: Sensitive and Focus Species in CA and AZ	Possible; habitat along Colorado River may not be suitable for nesting; however, may be for foraging and/or during migration
Sprague's pipit	<i>Anthus spragueii</i>	Arizona: SGCN	Possible; cultivated fields with dense low vegetation suitable habitat; however, considered rare along lower Colorado River
Summer tanager	<i>Piranga rubra</i>	California: SSC	Possible; may be present along the Colorado River
Swainson's hawk	<i>Buteo swainsoni</i>	California: T; BLM: Sensitive and Focus Species in CA	Unlikely; no suitable habitat present
Thick-billed kingbird	<i>Tyrannus crassirostris</i>	Arizona: SGCN	Unlikely; no suitable habitat present
Vermilion flycatcher	<i>Pyrocephalus rubinus</i>	California: SSC	Possible; suitable habitat for wintering near cultivated fields
Western burrowing owl	<i>Athene cunicularia hypugaea</i>	Arizona: SGCN; BLM: Sensitive in AZ	Possible; suitable habitat near cultivated fields and Colorado River area
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	ESA: T AZ: SGCN CA: E; BLM: Sensitive and Focus Species in CA and AZ	Possible; suitable migratory habitat present within Colorado River area and Project area intersects proposed critical habitat
Wood duck	<i>Aix sponsa</i>	Arizona: SGCN	Possible; suitable habitat present within Colorado River area
Yellow-breasted chat	<i>Icteria virens</i>	California: SSC	Possible; suitable habitat present
Yellow-headed blackbird	<i>Xanthocephalus</i>	California: SSC	Possible; suitable habitat present within cultivated fields and Colorado River area
Yuma Ridgway's rail	<i>Rallus obsoletus yumanensis</i>	ESA: E AZ: SGCN CA: T; BLM: Sensitive and Focus Species in CA and AZ	Possible; no proposed crossing of the Colorado River has suitable marsh habitat, but there is potential habitat in nearby backwater channels

¹As depicted in Appendix 3 of the Draft EIS and will be updated when Final EIS is complete. Species listing includes E = Endangered and T = Threatened; NSE = Nonessential experimental population; BLM focused species as designated under the DRECP LUPA; SGCN = Species of Greatest Conservation Need; BLM = Bureau of Land Management; FP = Fully Protected; SSC = Species of Special Concern.

²Source: USFWS 2016b.

4.3.2 Mitigation Measures for Migratory Birds

Based on the significant concerns of federal and state agencies discussed in Section 3, the key mitigation strategies for reducing impacts to special status migratory bird species and their nests include preconstruction nest surveys in work areas, implementation of seasonal restrictions and buffers around active nests, limiting removal and clearing of vegetation, and reclamation of disturbed areas. The APMs and BMPs (and their associated CEQA and CMA requirements) applicable to minimizing potential adverse effects to migratory birds include the following:

- **APM/BMP BIO-1.** Before starting any work, including mowing, staging, installing stormwater control structures, implementing other BMPs, removing trees, construction, and restoration, all employees and contractors performing activities and new construction would receive training on environmental requirements that apply to their job duties and work. If additional crewmembers arrive later in the job, they would be required to complete the training before beginning work. Training would include a discussion of the avoidance and minimization measures being implemented and would include information on the federal and state ESAs and the consequences of not complying with these Acts. An educational brochure would be provided to construction crews working on the Project. This brochure would include color photographs of special status species as well as a discussion of avoidance and minimization measures. The worker education program would provide interpretation for non-English speaking workers. (Addresses MM BIO-CEQA-1; CMA LUPA-BIO-5)
- **APM BIO-2.** Multiple biological monitors would be provided so any work site within habitat of special status species is monitored concurrently if needed. (Addresses MM BIO-CEQA-3, VEG-CEQA-2, WIL-CEQA-5/6/7/10/11; CMA LUPA-BIO-2, LUPA-BIO-DUNE-5, LUPA-BIO-IFS-6, LUPA-BIO-IFS-7, LUPA-BIO-IFS-12, DFA-BIO-IFS-1, DFA-BIO-IFS-2, and LUPA-BIO-RIPWET-3)
- **APM BIO-4.** Establish environmentally sensitive areas in the field; install fencing, flagging or stakes around identified sensitive area easements to minimize encroachment. (Addresses MM VEG-CEQA-1/2/4, WIL-CEQA-10, and WIL-CEQA-11; CMA LUPA-BIO-3 and LUPA-BIO-13)
- **APM BIO-5.** Trash dumping, firearms, open fires, and pets would be prohibited at all work locations and access roads. Smoking would be prohibited along the Project alignment. (Addresses CMA LUPA-BIO-6 and LUPA-BIO-14)
- **APM BIO-6.** All food scraps, wrappers, food containers, cans, bottles, and other trash from the work area would be disposed of in closed trash containers. (Addresses CMA LUPA-BIO-6 and LUPA-BIO-14)
- **APM BIO-13.** Riparian areas and xeroriparian drainages that occur within the easement would be denoted as environmentally sensitive areas and would be avoided during construction to the extent practicable. Existing topography would be restored to pre-Project conditions to the extent possible. (Addresses MM VEGA-CEQA-1/2/3; CMA LUPA-BIO-9)
- **BMP BIO-19.** In the vicinity of the Colorado River, existing structure spacing and conductor heights would be matched to the greatest extent practical to reduce the potential for bird collisions with the power line. The transmission line would span

the Colorado River and the minimum number of structures possible would be located within the undeveloped floodplain. The term, "vicinity of the Colorado River" is defined to mean the river crossing, floodplain, and associated agricultural lands. In these areas, conductor bundles would be in a horizontal, parallel configuration, and match existing structure spacing and conductor heights to the greatest extent practical to reduce the potential for bird collisions with the power line. No guyed structures would be used at these locations. (Addresses MM WIL-CEQA-1; CMA LUPA-SW-16, LUPA-BIO-17, LUPA-BIO-RIPWET-1, LUPA-SW-13, LUPA-SW-16, and LUPA-TRANS-BIO-1)

- **APM BIO-20.** If construction is scheduled during the nesting bird season (generally February 1 through August 31), the work area would be surveyed for birds protected under the MBTA and CFGC. Active nests identified during preconstruction surveys would require protective buffers or visual barriers to ensure compliance with those regulations. If the qualified biologist determines that construction activities would cause distress to nearby nesting birds, larger buffers or construction delays may be necessary to allow the birds to successfully fledge from the nest. (Addresses MM WIL-CEQA-1/6/8; CMA LUPA-BIO-4, LUPA-BIO-17, LUPA-BIO-RIPWET-1, LUPA-BIO-RIPWET-3, LUPA-BIO-IFS-11, and DFA-BIO-IFS-1)

APM/BMP BIO-21. Current guidelines and methodologies would be used in the design of the proposed transmission facilities to minimize the potential for raptors and other birds to collide with the transmission line during operations and be electrocuted. For example, aerial marker balls or other visibility markers can be placed at and near the crossing of the Colorado River to increase the visibility of the transmission line to birds using that movement corridor. The Avian Protection Plan (Appendix F-3 of the POD) includes requirements for monitoring the effectiveness of anti-electrocution design. (Addresses MM WIL-CEQA-1 and WIL-CEQA-8; CMA LUPA-BIO-16, LUPA-BIO-17, LUPA-BIO-COMP-2, LUPA-TRANS-BIO-2, and LUPA TRANS-BIO-3)

- **BMP BIO-28 (California only).** While primarily a tool for minimizing impacts to common ravens (*Corvus corax*), the Raven Management Plan (Appendix F-5 of the POD) contributes to protection of migratory bird nesting as common ravens are covered under the MBTA in California only. (Addresses CMA LUPA-BIO-6 and LUPA-TRANS-BIO-1)
- **BMP BIO-29.** The Bird and Bat Conservation Strategy would provide guidance on conservation measures applicable to bird and bat species present in the Project area, including a nesting bird management plan and a nest management plan. (Addresses MM WIL-CEQA-1/4/8; CMA LUPA-BIO-4, LUPA-BIO-16, LUPA-BIO-17, LUPA-BIO-RIPWET-1, LUPA-BIO-DUNE-5, LUPA-BIO-IFS-11, and DFA-BIO-IFS-2)
- **BMP BIO 30 (California only).** Burrowing Owl Nesting Management Plan is required for protection and management of burrowing owls (*Athene cunicularia*) within the Project area. (Addresses CMA LUPA-BIO-1, LUPA-BIO-16, LUPA-BIO-IFS-12/13/14, DFA-BIO-IFS-1, and DFA-BIO-IFS-2)
- **BMP BIO-32.** Adhere to specific seasonal restrictions of sensitive species. (Addresses CMA LUPA-BIO-4 and LUPA-BIO-DUNE-5)

- **BMP BIO-33.** All long-term nighttime lighting would be directed away from riparian and wetland vegetation, occupied habitat, and suitable habitat areas for sensitive species. Long-term nighttime lighting, if required, would be directed and shielded downward to avoid interference with the navigation of night-migrating birds and to minimize the attraction of insects as well as insectivorous birds and bats to Project infrastructure. (Address MM WIL-CEQA-1 and WIL-CEQA-4; CMA LUPA-BIO-13, LUPA-BIO-16, and LUPA-BIO-DUNE-5)
- **BMP BIO-35.** All construction materials would be visually checked for the presence of wildlife and nesting birds prior to their movement or use. Any wildlife encountered during the course of these inspections would be allowed to leave the construction area unharmed. (Addresses MM WIL-CEQA-8/9/10/11; CMA LUPA-BIO-14)
- **BMP BIO-36.** The intentional feeding or harassment of wildlife on site is prohibited. (Addresses MM WIL-CEQA-8/9/10/11; CMA LUPA-BIO-14)
- **BMP BIO-39.** When fencing is necessary, use bird and bat compatible design standards. (Addresses CMA LUPA-BIO-16 and LUPA-BIO-DUNE-5)
- **BMP BIO-45 (California only).** Provide protections from loss and harassment of active golden eagle nests. (Addresses MM WIL-CEQA-1; CMA LUPA-BIO-16, LUPA-BIO-IFS-24/25/26/27)
- **BMP BIO-47.** BLM would manage all riparian areas to be maintained at, or brought to, proper functioning condition. (CMA LUPA-BIO-17, LUPA-BIO-RIPWET-1, and LUPA-SW-13)
- **BMP BIO-48 (California only).** Flight diverters would be installed on all transmission activities spanning or within 1,000 feet of stream and wash channels, canals, ponds, and any other natural or artificial body of water. The type of flight diverter selected would be subject to approval by BLM, in coordination with USFWS and CDFW, as appropriate. (Addresses MM WIL-CEQA-1 and WIL-CEQA-8; CMA LUPA-TRANS-BIO-2)
- **BMP BIO-51.** To minimize vegetation trimming, micro-siting and design considerations (including tower height) would be applied so the catenary formed by the conductors (the bottom of the sag) avoids saguaros and is not directly over wash vegetation, to the extent practicable. (Addresses MM WIL-CEQA-1 and WIL-CEQA-8; CMA LUPA-BIO-17, LUPA-BIO-RIPWET-1, and LUPA-BIO-SVF-6)
- **BMP BIO-55 (California only).** Protection of special status species suitable habitat by avoiding construction of new roads or routes within special status species suitable habitats. (Addresses MM VEG-CEQA-1, VEG-CEQA-4, WIL-CEQA-8/9/10/11; CMA LUPA-BIO-13 and LUPA-BIO-DUNE-4)
- **BMP NO-07.** To the extent feasible, locate stationary noise sources that exceed background ambient noise levels away from known or likely locations of and BLM sensitive wildlife species and their suitable habitat. (Addresses CMA LUPA-BIO-12)

5 Seasonal Restrictions

Per BMP BIO-32, species-specific seasonal restrictions must be adhered to for pre-construction species surveys and construction activities throughout the life of the Project. The following table provides a general description of the required species and/or focus surveys, their time frames for the next two calendar years, and associated mitigation measures applicable to each survey or species.

TABLE F-2-4 SPECIES SURVEY SEASONAL RESTRICTIONS

Species/Survey Focus	Timing	Location	Project Mitigation Measure
<i>Arizona (2019)</i>			
Plant Salvage Assessments	Post-ROD	BLM administrated lands on Final Route	APM-BIO-11, BMP-BIO-41, Draft EIS Appendix 2b, Draft EIS Appendix 2 pg. 23, CMA-LUPA-BIO-VEG-5, APM-BIO-26
Bat hibernaculum, maternity roosts	March 1 – July 31	Suitable habitat on BLM administrated lands	CMA-LUPA-BIO-BAT-1, MM-BIO-CEQA-11, BMP-BIO-40
Rare, Threatened, & Endangered Plant Species Surveys	Blooming season (varies) Typ. February – May	BLM administrated lands on Final Route	APM-BIO-24, BMP-BIO-11, BMP-BIO-31
Noxious Weed Survey	May – August	BLM administrated lands on Final Route	APM-BIO-12, CMA-LUPA-BIO-11
Pre-construction Vegetation Plots	Post-ROD	BLM administrated lands on Final Route	Post-reclamation re-vegetation/monitoring
Gold & Bald Eagle	February 15 – August 1	Historical Nesting areas depicted in Draft EIS Figure 3.4-4 & 3.5-9	CMA-LUPA-BIO-IFS-24 through CMA-LUPA-BIO-IFS-27
General Avian Surveys	Varies; January 1 to August 31	Final Route on BLM administrated lands	APM-BIO-20
<i>California (2019)</i>			
Plant Salvage Assessments	Post-ROD	BLM administrated lands	APM-BIO-11, BMP-BIO-41, Draft EIS Appendix 2b, Draft EIS Appendix 2 pg. 23, CMA-LUPA-BIO-VEG-5
Bat hibernaculum, maternity roosts	March 1 – July 31	Suitable habitat on BLM administrated lands	CMA-LUPA-BIO-BAT-1, MM-BIO-CEQA-11, BMP-BIO-40
Rare Plant Alliances	Post ROD (June 2019 – November 2019)	CA Project lands outside Ag fields	BMP-BIO-52

Species/Survey Focus	Timing	Location	Project Mitigation Measure
Southwestern Willow Flycatcher	1st survey: May 15 – May 31 2nd survey: June 1 – June 21 3rd survey: June 22– June 17	Critical habitat at the Colorado River Crossing	MM-BIO-CEQA-9
Yellow-billed Cuckoo	1st: June 15 – July 2 2nd: August 1 – September 15	Critical habitat at the Colorado River Crossing	MM-BIO-CEQA-9
Arizona Bell's Vireo	April - July	Critical habitat at the Colorado River Crossing	MM-BIO-CEQA-9
Noxious Weed Survey	May – August	Final Route on BLM administrated lands	APM-BIO-12, CMA-LUPA-BIO-11
Pre-construction Vegetation Plots	Post-ROD	Final Route on BLM administrated lands	Post-reclamation re-vegetation/monitoring
Gold & Bald Eagle	February 15 – August 1	Historical Nesting areas depicted in Draft EIS Figure 3.4-4 & 3.5-9	CMA-LUPA-BIO-IFS-24 through CMA-LUPA-BIO-IFS-27
Arizona (2020)			
Sonoran Desert Tortoise Clearance Surveys	Prior to ground disturbance	All work areas of Final Route	APM-BIO-22
Burrowing Owl	February 1 – August 31 (Peak: April 15 – July 15)	All work areas of Final Route	BMP-BIO-25

6 The Mojave Desert Tortoise Protection and Compensation Plan (California)

6.1 Applicable Regulations and Management Policies

6.1.1 Federal

Endangered Species Act

The federal ESA, Section 7 (16 U.S.C. § 1531 et seq., 50 CFR Part 17.1 et seq.) provides for the designation and protection of threatened and endangered plant, as well as animal species, and habitat critical to their survival. The ESA authorizes the USFWS to review a proposed federal action to assess potential impacts to listed species. Listed species are those that have been listed in the Federal Register as threatened or endangered as defined by the ESA. The ESA prohibits the “take” of listed species. The ESA and implementing regulations define “take” to include mortality and other actions that could result in adverse impacts such as harassment, harm, or loss of critical habitat.

Desert Renewable Energy Conservation Plan and Land Use Plan Amendment

The LUPA, prepared to implement the DRECP, is applicable only to BLM administered land in California. The DRECP and LUPA provide a landscape approach to renewable energy and conservation planning in the California desert that streamlines the process for development of utility-scale renewable energy generation and transmission consistent with federal and state renewable energy targets and policies, while simultaneously providing for the long-term conservation and management of Special Status Species and vegetation types. In addition to BLM designated sensitive species, the LUPA identifies additional "Focus" species, which it defines as species whose conservation and management are provided for in the DRECP BLM LUPA.

BLM Manual 6840: Special Status Species Management

This manual provides policy and guidance for conserving species classified as Special Status species by the BLM. BLM Special Status species include species listed or proposed for listing under the federal ESA and species identified by the BLM State Director as requiring special management considerations to promote their conservation and to reduce the likelihood and need for future listing under the ESA.

6.1.2 California

California Endangered Species Act

The CESA was enacted in 1984 to parallel the federal ESA and allows the CFGC to designate species, including plants, as threatened or endangered. Under the CESA it is illegal to import, export, "take", possess, purchase, sell, or attempt to do any of those actions to species that are designated as threatened, endangered, or candidates for listing, unless permitted by CDFW. "Take" is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill."

There are 156 species, subspecies, and varieties of plants that are protected due to their threatened or endangered status under CESA. Under CESA, the CDFW may permit take or possession of threatened, endangered, or candidate species for scientific, educational, or management purposes, and may also permit take of these species that is incidental to otherwise lawful activities if certain conditions are met. Some of the conditions for incidental take include that the take is minimized and fully mitigated, that adequate funding is ensured for this mitigation, and that the activity will not jeopardize the continued existence of the species.

California Environmental Quality Act

Section 15380 (B) of CEQA states that a species is considered rare if "the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered "threatened" as that term is used in the Federal Endangered Species Act." In addition, any species of concern should be included in project-impacts analysis (California Public Resources Code § 15380). The CPUC is responsible for determining if the Project will be constructed in accordance with CEQA requirements and issue to DCRT a Certificate of Public Convenience and Necessity for transmission infrastructure within California.

6.2 Purpose and Objectives of this Plan

As the lead federal agency, the BLM released the Draft EIS on August 31, 2018, including an appendix providing CEQA documentation, and is currently developing the Final EIS. APMs, BLM-Required BMPs, and CEQA MMs contained within the EIS require DCRT to prepare and implement a Mojave Desert Tortoise Protection and Compensation Plan for work activity in the California portions of the Project. The APMs, BMPs, and MMs are detailed in Section 6.3.

The Project is required to comply with CMAs from the DRECP-LUPA for all Project activities on BLM land in California. Due to known occurrences of Mojave desert tortoise and potentially suitable habitat on BLM land within several of the alternative segments in the California portion of the Project, the LUPA-BIO-IFS-3 through LUPA-BIO-IFS-9 CMA would apply to the portion of the Project located in California. These CMAs are detailed in Section 6.3.

The purpose of the CMAs is to protect the existing population of Mojave desert tortoises at such a level that they are a sustainable and healthy population. Take will be minimized through implementation of the CMAs. For the purposes of implementing this Plan for Mojave desert tortoise, “take” is defined as to harass, harm pursue, hunt shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct.

APMs and BMPs contained in Appendix 2A of the Draft EIS and summarized below in Section 6.3 of this Plan, would also apply and reduce the impacts of the Project on Mojave desert tortoise.

6.3 Avoidance and Minimization Measures

All avoidance and minimization measures applicable to this Plan and protection of the Mojave desert tortoise are as follows:

MM WIL-CEQA-10 (California): Compensation for Impacts to Mojave Desert Tortoise.

To fully mitigate for habitat loss and potential take of Mojave desert tortoise, DCRT and/or their Construction Contractor(s) will provide compensatory mitigation at a minimum ratio of 2:1. For the purposes of this measure, the Project site (i.e., footprint) means all lands directly disturbed in the construction and operation of the Project, including all linear features, as well as undeveloped areas inside the Project’s boundaries that will no longer provide viable long-term habitat for the Mojave desert tortoise. To satisfy this measure, DCRT or their Construction Contractor(s) will acquire, protect and transfer two acres of Mojave desert tortoise habitat for every acre of habitat within the final Project footprint, and provide associated funding for the acquired lands, as specified below. DCRT shall coordinate with CPUC, BLM, and CDFW to determine the appropriate mitigation strategy and final replacement ratios and acreages. All mitigation shall be approved by the appropriate federal and state regulatory agencies prior to Project activities. See Section 6.8 for details.

MM WIL-CEQA-11 (California): Conduct Pre-Construction Surveys for Listed and Special Status Terrestrial Herpetofauna and Compensate Impacts. Prior to ground disturbance or vegetation clearing within the Project site, DCRT and/or their Construction Contractor(s) shall retain an approved/qualified biologist to conduct surveys for special-status terrestrial herpetofauna (e.g., lizards, snakes, tortoise) where suitable habitat is present and directly impacted by construction vehicle access, or maintenance. Focused

surveys shall consist of a minimum of three daytime surveys and one nighttime survey within one week of vegetation clearing. The qualified biologist shall be present during all activities immediately adjacent to or within habitat that supports special-status terrestrial herpetofauna. Clearance surveys for special-status terrestrial herpetofauna shall be conducted by the qualified biologist prior to the initiation of construction each day in suitable habitat. Special-status terrestrial herpetofauna found within the area of disturbance or potentially affected by the Project shall be relocated to the nearest suitable habitat that shall not be affected by the Project. See Sections 6.5 and 6.6 for details.

APM BIO-2: A qualified biological monitor would be present on the Project site during all work activities within habitat of special-status animal species. The qualified biologist would conduct a preconstruction survey of those areas immediately before work activities begin and would locate and fence off any present individuals of special status plant species.

BMP BIO-2: Multiple biological monitors would be provided so any work site within habitat of special status species is monitored concurrently if needed.

APM BIO-4: When appropriate, environmentally sensitive areas, such as the riparian areas, xeroriparian washes, and other habitat of special status species, would be identified in the field. Barrier fences or stakes would be installed at the edge of the easement or around the sensitive area to minimize the possibility of inadvertently encroaching into sensitive habitat.

APM BIO-17: Vehicular travel would be limited to established roads to the maximum extent.

APM BIO-23: Mojave Desert Protection (California). A qualified biologist would be present during all ground-disturbing and other construction activities in non-cultivated areas in California, in order to survey areas before they are disturbed, monitor construction sites for the presence of desert tortoises, and move tortoises from harm's way in accordance with USFWS protocols. Burrows near construction sites would be clearly delineated. Road, footing, and work area alignments would be modified to the extent possible to avoid adversely affecting any tortoise burrows. Where burrows would be unavoidably destroyed, they would be excavated carefully using hand tools under the supervision of a field biologist with demonstrated prior experience with this species. Other measures, as required by the USFWS in any applicable Biological Opinion, would also be implemented.

BMP BIO-23: Mojave Desert Tortoise Protection (California). A designated biologist would inspect construction pipes, culverts, or similar structures: (a) with a diameter greater than three inches, (b) stored for one or more nights, (c) less than eight inches aboveground and (d) within desert tortoise habitat (such as, outside the long-term fenced area), before the materials are moved, buried, or capped. As an alternative, such materials shall be capped before storing outside the fenced area or placing on pipe racks. Pipes stored within the long-term fenced area after completing desert tortoise clearance surveys would not require inspection.

BMP BIO-25: Sensitive Animal Surveys. A survey would be conducted of the selected route prior to construction of all work areas to identify special status animal species, including Mojave desert tortoises, burrowing owls, and Mojave fringe-toed lizards. Where possible, and as required by the BLM, special status species and vegetation alliances would be avoided during construction.

BMP BIO-32: Species-specific seasonal restriction dates per AZGFD, CDFW, and in applicable resource management plans would be observed.

BMP BIO-36: The intentional feeding or harassment of wildlife on site is prohibited.

BMP BIO-44: Mojave Desert Tortoise Protection (California).

- All culverts for access roads or other barriers would be designed to allow unrestricted access by desert tortoises and would be large enough that desert tortoises are unlikely to use them as shelter sites (e.g., 36 inches in diameter or larger). Desert tortoise exclusion fencing may be utilized to direct tortoise use of culverts and other passages.
- Biological monitoring would occur with any geotechnical boring or geotechnical boring vehicle movement to ensure no desert tortoises are killed or burrows are crushed.
- A designated biologist would accompany any geotechnical testing equipment to ensure no tortoises are killed and no burrows are crushed.
- The ground would be inspected under vehicles for the presence of desert tortoise any time a vehicle or construction equipment is parked in desert tortoise habitat. If a desert tortoise is seen, it may move on its own. If it does not move within 15 minutes, a designated biologist may remove and relocate the animal to a safe location.
- Vehicular traffic would not exceed 15 miles per hour within the areas not cleared by protocol level surveys where desert tortoise may be impacted.

BMP BIO-55 (California): Construction of new roads and/or routes would be avoided to the extent practicable within Focus and BLM special status species suitable habitat within identified linkages for those Focus and BLM special status species, unless the new road and/or route is beneficial to minimize net impacts to natural or ecological resources of concern. These areas would have a goal of “no net gain” of project roads and/or routes.

CMA LUPA-BIO-1 (California): Conduct a habitat assessment of Focus and BLM special status species' suitable habitat for all activities and identify and/or delineate the DRECP vegetation types, rare alliances, and special features (e.g., Aeolian sand transport resources, Joshua tree, microphyll woodlands, carbon sequestration characteristics, seeps, climate refugia) present using the most current information, data sources, and tools (e.g., DRECP land cover mapping, aerial photos, DRECP species models, and reconnaissance site visits) to identify suitable habitat for Focus and BLM special status species. If required by the relevant species-specific CMAs, conduct any subsequent protocol or adequate presence/ absence surveys to identify species occupancy status and a more detailed mapping of suitable habitat to inform siting and design considerations. If required by relevant species-specific CMAs, conduct analysis of percentage of impacts to suitable habitat and modeled suitable habitat.

BLM will not require protocol surveys in sites determined by the designated biologist to be unviable for occupancy of the species, or if baseline studies inferred absence during the current or previous active season. Utilize the most recent and applicable assessment protocols and guidance documents for vegetation types and jurisdictional waters and wetlands that have been approved by BLM, and the appropriate responsible regulatory agencies, as applicable.

CMA LUPA-BIO-2 (California): Designated biologist(s) will conduct, and oversee where appropriate, activity-specific required biological monitoring during pre-construction, construction, and decommissioning to ensure that avoidance and minimization measures

are appropriately implemented and are effective. The appropriate required monitoring will be determined during the environmental analysis and BLM approval process. The designated biologist(s) will submit monitoring reports directly to BLM.

CMA LUPA-BIO-3 (California): Resource setbacks have been identified to avoid and minimize the adverse effects to specific biological resources. Setbacks are not considered additive and are measured as specified in the applicable CMA. Allowable minor incursions as per specific CMAs do not affect the following setback measurement descriptions. Generally, setbacks (which range in distances for different biological resources) for the appropriate resources are measured from the edge of each of the DRECP desert vegetation types, including but not limited to those in the riparian or wetland vegetation groups (as defined by alliances within the vegetation type descriptions and mapped based on the vegetation type habitat assessments described in LUPA-BIO-1). In addition, it will also be measured from the edge of suitable habitat or active nest substrates for the appropriate Focus and BLM special status species.

CMA LUPA-BIO-4 (California): For activities that may impact Focus and BLM Special Status Species, implement all required species-specific seasonal restrictions on pre-construction, construction, operations, and decommissioning activities. Species-specific seasonal restriction dates are described in the applicable CMAs. Alternatively, to avoid a seasonal restriction associated with visual disturbance, installation of a visual barrier may be evaluated on a case-by-case basis that will result in the breeding, nesting, lambing, fawning, or roosting species not being affected by visual disturbance from construction activities subject to seasonal restriction. The proposed installation and use of a visual barrier to avoid a species seasonal restriction will be analyzed in the activity/project specific environmental analysis.

CMA LUPA-BIO-6 (California): Subsidized predator standards (e.g., common ravens [*Corvus corax*] that prey on Mojave desert tortoise), approved by BLM, in coordination with the USFWS and CDFW, will be implemented during all appropriate phases of activities, including but not limited to renewable energy activities, to manage predator food subsidies, water subsidies, and breeding sites including the following:

- The application of water and/or other palliatives for dust abatement in construction areas and during project operations and maintenance will be done with the minimum amount of water necessary to meet safety and air quality standards and in a manner that prevents the formation of puddles, which could attract wildlife and wildlife predators.
- All activity work areas will be kept free of trash and debris. Particular attention will be paid to “micro-trash” (including such small items as screws, nuts, washers, nails, coins, rags, small electrical components, small pieces of plastic, glass or wire, and any debris or trash that is colorful or shiny) and organic waste that may subsidize predators. All trash will be covered, kept in closed containers, or otherwise removed from the project site at the end of each day or at regular intervals prior to periods when workers are not present at the site.

CMA LUPA-BIO-12 (California): For activities that may impact Focus or BLM Special Status Species, implement the following LUPA CMA for noise: To the extent feasible, and determined necessary by BLM to protect Focus and BLM sensitive wildlife species, locate stationary noise sources that exceed background ambient noise levels away from known or likely locations of and BLM sensitive wildlife species and their suitable habitat.

- Implement engineering controls on stationary equipment, buildings, and work areas including sound-insulation and noise enclosures to reduce the average noise level, if the activity will contribute to noise levels above existing background ambient levels.
- Use noise controls on standard construction equipment including mufflers to reduce noise.

CMA LUPA-BIO-13 (California): Project siting and design will implement the following:

- To the maximum extent practicable site and design projects to avoid impacts to vegetation types, unique plant assemblages, climate refugia as well as occupied habitat and suitable habitat for Focus and BLM special status species.
- The siting of projects along the edges (i.e., general linkage border) of the biological linkages identified in Appendix D of the Draft EIS will be informed by existing available information on modeled focus and BLM special status species habitat and element occurrence data, mapped delineations of vegetation types, and based on available empirical data, including radio telemetry, wildlife tracking sign, and road-kill information.
- Additionally, projects will be sited and designed to maintain the function of Focus and BLM special status species connectivity and their associated habitats in the following linkage and connectivity areas.
- Delineate the boundaries of areas to be disturbed using temporary construction fencing and flagging prior to construction and confine disturbances, Project vehicles, and equipment to the delineated project areas to protect vegetation types and focus and BLM special status species.
- To the maximum extent practicable, restrict construction activity to existing roads, routes, and utility corridors to minimize the number and length/size of new roads, routes, disturbance, laydown, and borrow areas.
- To the maximum extent practicable, confine vehicular traffic to designated open routes of travel to and from the project site, and prohibit, within project boundaries, cross-country vehicle and equipment use outside of approved designated work areas to prevent unnecessary ground and vegetation disturbance.
- To the maximum extent practicable, construction of new roads and/or routes will be avoided within Focus and BLM special status species suitable habitat within identified linkages for those Focus and BLM special status species, unless the new road and/or route is beneficial to minimize net impacts to natural or ecological resources of concern. These areas will have a goal of “no net gain” of project roads and/or routes.
- Use of nontoxic road sealants and soil stabilizing agents.

CMA LUPA-BIO-14 (California): General practices to implement to protect Focus and BLM special status species:

- Feeding of wildlife, leaving of food or trash as an attractive nuisance to wildlife, collection of native plants, or harassing of wildlife on a site is prohibited.

- Any wildlife encountered during the course of an activity, including construction, operation, and decommissioning will be allowed to leave the area unharmed.
- Domestic pets are prohibited on sites. This prohibition does not apply to the use of domestic animals (e.g., dogs) that may be used to aid in official and approved monitoring procedures/protocols, or service animals (dogs).
- All construction materials will be visually checked for the presence of wildlife prior to their movement or use. Any wildlife encountered during the course of these inspections will be allowed to leave the construction area unharmed.
- All steep-walled trenches or excavations used during the project will be covered, except when being actively used, to prevent entrapment of wildlife. If trenches cannot be covered, they will be constructed with escape ramps, following up-to-date design standards to facilitate and allow wildlife to exit, or wildlife exclusion fencing will be installed around the trench(s) or excavation(s). Open trenches or other excavations will be inspected by a designated biologist immediately before backfilling, excavation, or other earthwork.
- Minimize natural vegetation removal through implementation of crush and drive or cut or mow vegetation rather than removing entirely.

CMA LUPA-BIO-IFS-3 (California): All culverts for access roads or other barriers will be designed to allow unrestricted access by desert tortoises and will be large enough that desert tortoises are unlikely to use them as shelter sites (e.g., 36 inches in diameter or larger). Desert tortoise exclusion fencing may be utilized to direct tortoise use of culverts and other passages.

CMA LUPA-BIO-IFS-5 (California): Following the clearance surveys within sites that are fenced with long-term desert tortoise exclusion fencing a designated biologist will monitor initial clearing and grading activities to ensure that desert tortoises missed during the initial clearance survey are moved from harm's way.

- A designated biologist will inspect construction pipes, culverts, or similar structures: (a) with a diameter greater than three inches, (b) stored for one or more nights, (c) less than eight inches aboveground and (d) within desert tortoise habitat (such as, outside the long-term fenced area), before the materials are moved, buried, or capped.
- As an alternative, such materials shall be capped before storing outside the fenced area or placing on pipe racks. Pipes stored within the long-term fenced area after completing desert tortoise clearance surveys will not require inspection.

CMA LUPA-BIO-IFS-6 (California): When working in areas where protocol or clearance surveys are required (Appendix D of the DRECP), biological monitoring will occur with any geotechnical boring or geotechnical boring vehicle movement to ensure no desert tortoises are killed or burrows are crushed.

CMA LUPA-BIO-IFS-7 (California): A designated biologist will accompany any geotechnical testing equipment to ensure no tortoises are killed and no burrows are crushed.

CMA LUPA-BIO-IFS-8 (California): Inspect the ground under the vehicle for the presence of desert tortoise any time a vehicle or construction equipment is parked in desert tortoise habitat outside of areas fenced with desert tortoise exclusion fencing. If a desert tortoise is seen, it may move on its own. If it does not move within 15 minutes, a designated biologist may remove and relocate the animal to a safe location.

CMA LUPA-BIO-IFS-9 (California): Vehicular traffic will not exceed 15 miles per hour within the areas not cleared by protocol level surveys where desert tortoise may be impacted.

CMA DFA-BIO-IFS-1 (California): Conduct the following surveys as applicable in the DFAs.

CMA DFA-VPL-BIO-IFS-1 (California): To the maximum extent practicable, activities will be sited in previously disturbed areas, areas of low-quality habitat, and areas with low habitat intactness in desert tortoise linkages.

6.4 Species Habitat and Occurrence Within the Project Area

The Mojave desert tortoise is known to be present on the Palo Verde Mesa around the Colorado River substation west of the agricultural areas. Though the sandiest areas are typically not well suited to support Mojave desert tortoise burrows, evidence of Mojave desert tortoises representing a low-density population have been found in the vicinity of the Colorado River Substation and elsewhere on the mesa. Tortoise habitat conditions tend to improve closer to the Mule Mountains, which are located approximately two miles south of the Colorado River Substation.

6.5 Preconstruction Surveys

Per MM WIL-CEQA-11, CMA LUPA-BIO-1, DFA-BIO-IFS-1, and BMP BIO-25, prior to conducting any ground-disturbing activities where suitable Mojave desert tortoise habitat is present, pre-construction surveys for Mojave desert tortoise will be conducted by an approved/qualified biologist. Focused surveys shall be conducted during the period when they are most active (i.e., March through May or September through mid-November). During the pre-construction clearance survey, the qualified biologist shall inspect construction pipes, culverts or similar structures with (a) a diameter greater than three inches, (b) stored for one or more nights, (c) less than eight inches aboveground, and (d) within Mojave desert tortoise habitat, before the materials are moved, buried, or capped. As an alternative, such materials shall be capped before storing outside the fenced area or placing on pipe racks, pipes stored within the long-term fenced area after completing desert tortoise clearance surveys would not require inspections.

During surveys, burrows near construction sites will be clearly delineated. Road, footing, and work area alignments would be modified to the extent possible to avoid adversely affecting any tortoise burrows. Where burrows would be unavoidably destroyed, each burrow would be excavated carefully by Qualified/Designated Biologist(s) with demonstrated prior experience using hand tools and scopes to ensure any tortoises present will be identified and safely removed (APM BIO-23).

Per CMA LUPA-BIO-IFS-5 and if appropriate following initial clearance surveys, the Designated Biologist(s) will monitor initial clearing and grading activities during installation of tortoise fencing for long-term exclusion of desert tortoises to ensure any undiscovered

desert tortoises are moved from harm's way. Surveys for Mojave desert tortoise shall be conducted using techniques outlined in the *Desert Tortoise (Mojave Population) Field Manual (Gopherus agassizii)* (USFWS 2009).

6.6 Construction Phase Avoidance and Minimization

Per MM WIL-CEQA-11, if Mojave desert tortoise habitat is present within the Project site and/or adjacent areas, at a minimum, the following avoidance and minimization measures shall be employed to reduce potential species impacts:

- Mojave desert tortoise habitat and burrows, if present shall be mapped using the BLM National Operations Center habitat mapping standards.
- If potential habitat is identified in or adjacent to the Project site, then a qualified biological monitor shall be on-site during all Project activities, as necessary. The qualified biological monitor shall directly monitor site clearing and shall be onsite during grading activities to find and move Mojave desert tortoises missed during the initial pre-construction tortoise clearance survey. Should a tortoise be discovered, it shall be relocated or translocated as described in this Plan.
- ESA signage and exclusion fencing shall be installed at the appropriate buffer distance i.e., resource setback), if suitable habitat is within or encroaches into the Project site.
- During Project activities, including on specific linear features (e.g., fencing, transmission lines, and access roads) and during operation and maintenance, all live Mojave desert tortoises and active burrows shall be avoided to the extent possible. DCRT and/or their Construction Contractor(s) shall ensure that the qualified biologist and biological monitor monitors any Project activities in unfenced areas for presence of Mojave desert tortoises. If an active burrow cannot be avoided by construction activities, the burrow shall be excavated using protocols in *Desert Tortoise (Mojave Population) Field Manual (Gopherus agassizii)* (USFWS 2009). If a tortoise wanders into an unfenced, active Project work area, does not leave the area on its own accord (i.e., within 15 minutes), and cannot be avoided by Project activities, DCRT and/or their Construction Contractor(s) shall ensure that that the qualified biologist captures the Mojave desert tortoise, implements a health assessment of the tortoise, relocates it to previously identified appropriate Project-adjacent habitat away from any active, unfenced Project work areas, and monitor the individual via telemetry, in accordance with the aforementioned Protocol. The qualified biologist and biological monitor shall have a copy of all measures, federal and state permits, when monitoring Project activities. The qualified biologist and biological monitor shall have the authority to halt all non-emergency activities that are in violation of the measures. Work shall proceed only after hazards to Mojave desert tortoise are removed, the species is no longer at risk, or the individual has been moved from harm's way by the qualified biologist. A Mojave Desert Tortoise Quarterly Compliance Report will be submitted quarterly to the appropriate federal and state regulatory agencies.
- Vehicular traffic would not exceed 15 miles per hour within the areas not cleared by protocol-level surveys where desert tortoise may be impacted (also stated in BMP BIO-44 and CMA LUPA-BIO-IFS-9).
- **Fencing:** DCRT and/or their Construction Contractor(s) shall ensure that temporary and/or permanent tortoise exclusionary fencing is installed around active portions of the Project area following the pre-construction tortoise survey. The exclusionary

fencing, whether temporary or permanent in nature, and shall be installed according to specifications in the *Desert Tortoise (Mojave Population) Field Manual (Gopherus agassizii)* (USFWS 2009). Specifications requires fencing to be buried 12 inches below the ground surface and extend to 22 to 24 inches above the ground surface. If a phased approach is implemented during the construction phase, the exclusionary fencing may be installed in phases, with pre-construction surveys conducted prior-to and clearance surveys conducted immediately after installation of the exclusionary fence. DCRT and/or their Construction Contractor(s) shall also ensure that tortoise exclusionary fencing is maintained during the decommissioning phase to keep tortoises from accessing active work areas. Throughout the construction and decommissioning phases, the tortoise exclusionary fence shall be checked regularly to ensure its integrity.

- Security Gates - For security fencing, DCRT and/or their Construction Contractor(s) shall ensure that the Project's perimeter security fence includes exclusionary fencing that prevents Mojave desert tortoises, and other burrowing animals, from accessing the Project site. The exclusionary fencing shall be installed at the base of the security in accordance with the protocols listed above, and cattle guards shall be installed at entrances to the Project. Specifically, security gates shall be designed with minimal ground clearance to deter ingress by tortoises. Tortoise guards shall be installed at gate locations.
- Fence Flagging - All fencing installation corridors shall be flagged to assist the qualified biologist in studying the fence route and surveying within 24 hours prior to the initiation of fence construction. Prior to the surveys DCRT and/or their Construction Contractor(s) shall provide all appropriate federal and state regulatory agencies map figures clearly depicting the limits of construction disturbance for the proposed fence installation.
- Fence Installation - The exclusion fencing shall be installed prior to the onset of site clearing and grubbing. The fence installation shall be supervised by the qualified biologist and monitored to ensure the safety of any tortoise present.
- Fence Inspections - Following installation of the Mojave desert tortoise exclusion fencing, the fencing shall be regularly inspected during construction, operations, and decommissioning. If Mojave desert tortoise were moved out of harm's way during fence construction, fencing shall be inspected daily for the first seven days to ensure a recently moved tortoise has not been trapped within the fence. Thereafter, fencing shall be inspected quarterly and during and within 24 hours following major rainfall events. A major rainfall event is defined as one for which flow is detectable within the fenced drainage. Any damage to the fencing shall be temporarily repaired immediately to keep Mojave desert tortoises out of the site, and permanently repaired within 48 hours of observing damage. Inspections of site fencing shall occur for the life of the Project.
- Temporary fencing shall be inspected weekly and, where drainages intersect the fencing, during and within 24 hours following major rainfall events. All temporary fencing shall be repaired immediately upon discovery and, if the fence may have permitted Mojave desert tortoise entry while damaged, the qualified biologist shall inspect the area for Mojave desert tortoise.

- Tortoise Encounters - If a tortoise is encountered along the inside or outside of the fence, the qualified biologist shall capture and relocate in accordance with the protocols listed above (i.e., USFWS 2009, Chapter 7), perform a health assessment, attach a radio transmitter to the tortoise in accordance, and release the Mojave desert tortoise in a previously identified Project-adjacent relocation areas supporting Mojave desert tortoise habitat in accordance with USFWS and all other appropriate federal and state regulatory agencies.
- Fence Removal - Temporary exclusionary fencing shall be removed following completion of the construction and decommissioning phases.

Other avoidance and minimization for the Mojave desert tortoise include:

- All construction pipes, culverts, and similar structures: (a) with a diameter greater than three inches, (b) stored for one or more nights, (c) less than eight inches aboveground and (d) within desert tortoise habitat (such as, outside the long-term fenced area), will be inspected by a Designated Biologist before the materials are moved, buried, or capped. As an alternative, such materials shall be capped before storing outside the fenced area or placing on pipe racks. Pipes stored within the long-term fenced area after completing desert tortoise clearance surveys would not require inspection. When appropriate (e.g., near habitat where tortoises are known to occur) construction material will be visually checked for the presence of desert tortoises prior to movement or use. If tortoises are encountered during inspection, they will be allowed to leave the construction area unharmed (BMP BIO-23, CMA LUPA-BIO-14, LUPA-BIO-IFS-3, and LUPA-BIO-IFS-5).
- Vehicles would be limited to established roads to the maximum extent possible (APM BIO-17 and CMA LUPA-BIO-13).
- Vehicles and construction equipment parked or have not moved within 15 minutes must be inspected by a Designated Biologist to ensure there is no presence of desert tortoises on the ground under the vehicle, near the vehicle, or around tires and buckets touching the ground. Desert tortoises present will be allowed to leave the area unharmed; only with prior approval, a Designated Biologist may remove/relocate the animal to a safe location (BMP BIO-44 and CMA LUPA-BIO-IFS-8).
- When feasible, construction of new roads, sites, and/or routes will be avoided within Focus and BLM special status species suitable habitat, unless the new road or route is beneficial to minimize net impacts to protected biological resources (BMP BIO-55 and CMA LUPA-BIO-13).
- When possible, construction activities will be sites in previously disturbed areas, areas of low-quality habitat, or areas with low habitat intactness to desert tortoise linkages (CMA DFA-VPL-BIO-IFS-1).
- All culverts for access roads or other barriers would be designed to allow unrestricted access by desert tortoises and would be large enough that desert tortoises are unlikely to use them as shelter sites (BMP BIO-44).
- Seasonal restrictions for the Mojave desert tortoise must be adhered to for pre-construction, construction, operations, and decommissioning activities on the Project (CMA LUPA-BIO-4 and BMP BIO-32).

- Water used for dust abatement during Project activities will be done with the minimum amount of water necessary to meet safety and air quality standards and in a manner that prevents the formation of puddles, minimize the potential to attract desert tortoises and predators (e.g., common ravens) that would prey on desert tortoises (CMA LUPA-BIO-6).
- Domestic pets are prohibited on sites to avoid harassment, injury, or mortality to desert tortoises (CMA LUPA-BIO-14).
- All Project personnel will not feed or harass desert tortoises (BIO BIO-36 and CMA LUPA-BIO-14).
- All steep-walled trenches or excavation used during Project activities will be covered, except when being actively used, to prevent entrapment of desert tortoises. If covering is not an option, openings will be constructed with escape ramps, following up-to-date design standards to allow wildlife to safely exit; or wildlife exclusion fencing will be installed around the open trench or excavation. Openings with no cover must be inspected prior to use each day (CMA LUPA-BIO-14 and LUPA-BIO-IFS-3).

6.7 Construction Monitoring

Per MM BIO-CEQA-2, APM/BMP BIO-2, and CMA LUPA-BIO-2, no more than 30 days prior to the start of site mobilization or ground disturbing activities, DCRT and/or their Construction Contractor(s) will retain Qualified and/or Designated Biologists to monitor construction of the Project. Qualified and/or Designated Biologists will be approved by the CPUC and BLM prior to conducting construction monitoring. The biologists must be knowledgeable with the life history and habitat requirements of the federal threatened Mojave desert tortoise. Qualified/Designated Biologists will conduct clearance surveys for listed and special status species prior to the start of construction activities each work day during initial site disturbance; clearance surveys can be conducted on a weekly basis thereafter. Qualified Biologists handling desert tortoise must be USFWS-approved Designated Biologists and comply with the Biological Opinion assumed to be issued for the Project. Designated Biologist(s) typically are the lead Qualified Biologist(s) onsite responsible for coordinating daily on-site biological monitoring as well as data entry and agency-required reporting.

During initial site disturbance and for the duration of construction, the Qualified/Designated Biologists will be on-site at all times when activities will occur immediately adjacent to or within habitat that supports populations of listed and/or special status species. Per CMA LUPA-BIO-14, desert tortoises encountered during the course of an activity including constructions, operation, and decommissioning will be allowed to leave the area unharmed while the Qualified Biologist observes nearby. If necessary, the Qualified/Designated Biologists will relocate any terrestrial special status species that would be impacted by the Project; permits and/or Memorandum of Understanding may be required for some species.

In addition, burrows detected during initial ground-disturbing activities must be clearly delineated. Road, footing, and work area alignments would be modified to the extent possible to avoid adversely affecting any tortoise burrows. As discussed in Section 6.5, burrows that must be unavoidably destroyed, are excavated carefully by Qualified/Designated Biologists using hand tools and continually assessed for tortoises until entire burrow has been completely excavated (APM BIO-23).

Pre-construction activities including geotechnical testing equipment or soil boring must have Qualified/Designated Biologists monitoring all movement and activity to ensure no desert tortoises are injured or burrows are crushed (BMP BIO-44, CMA LUPA-BIO-IFS-6, and LUPA-BIO-IFS-7).

If, during construction, the Qualified Biologist observes a dead or injured special status wildlife species on the construction site, a written report will be sent to the CPUC, CDFW, and/or USFWS (as appropriate) within five calendar days. The report will include the date/time of the finding or incident (if known), and location of the carcass or injured animal and circumstances of its death or injury (if known). Injured animals will be taken immediately to the nearest appropriate veterinary or wildlife rehabilitation facility. The Qualified/Designated Biologist will, immediately upon finding the remains or injured animal, coordinate with the onsite construction foreman to discuss the events that caused the mortality or injury, if known, and implement measures to prevent future incidents. Details of these measures will be included with the report. Species remains will be collected and frozen as soon as possible and CDFW and USFWS, as appropriate, will be contacted regarding ultimate disposal of the remains (CPUC 2016).

All tortoises will be handled by Qualified Biologists in accordance with the *Desert Tortoise (Mojave Population) Field Manual (Gopherus agassizii)* (USFWS 2009) and only to move animals out of immediate harm's way. No translocations are anticipated for this effort.

6.8 Compensation

In conformance with CMA LUPA-BIO-COMP-1 and MM-WIL-CEQA-1010, a Compensation Plan will be prepared. The Compensation Plan will include calculations of compensation ratios and mitigation acreages for loss of habitat for any biological resources requiring additional mitigation. If take of Mojave desert tortoise potential or modeled habitat during construction is unavoidable the Compensation Plan would outline compensation requirements based on the estimated number of acres taken. Compensation for temporary impacts to desert tortoise potential/modeled habitat will include on-site habitat restoration at a minimum 1:1 ratio. Compensation for permanent impacts to desert tortoise potential/modeled habitat will include a) off-site creation, enhancement and/or preservation and/or b) participation in an established mitigation bank program at a minimum 2:1 ratio (MM WIL-CEQA-10).

For the purposes of this MM WIL-CEQA-10, the Project site (i.e., footprint) means all lands directly disturbed in the construction and operation of the Project, including all linear features, as well as undeveloped areas inside the Project's boundaries that will no longer provide viable long-term habitat for the Mojave desert tortoise. To satisfy this measure, DCRT or their Construction Contractor(s) will acquire, protect and transfer two acres of Mojave desert tortoise habitat for every acre of habitat within the final Project footprint, and provide associated funding for the acquired lands, as specified below. DCRT shall coordinate with CPUC, BLM, and CDFW to determine the appropriate mitigation strategy and final replacement ratios and acreages. All mitigation shall be approved by the appropriate federal and state regulatory agencies prior to Project activities.

Another option can satisfy some or all of the requirements in this measure, in lieu of acquiring lands itself, by depositing funds into an account established with the National Fish and Wildlife Foundation. Land will be acquired, in fee or in easement, within 12 months from the time the resource impact occurs, unless a six-month extension is approved by BLM. If compensation lands are acquired in fee title or in easement, the requirements for

acquisition, initial improvement and long-term management of compensation lands include all of the following:

- Be within the appropriate habitat unit or, if sufficient land is unavailable, in other locations within approved by the appropriate federal and state regulatory agencies.
- Provide habitat for Mojave desert tortoise with capacity to regenerate naturally when disturbances are removed.
- Be prioritized near larger blocks of lands that are either already protected or planned for protection, or which could feasibly be protected long-term by a public resource agency or a non-governmental organization dedicated to habitat preservation.
- Be connected to lands with Mojave desert tortoise habitat equal to or better quality than the Project site, ideally with populations that are stable, recovering, or likely to recover.
- Not have a history of intensive recreational use or other disturbance that does not have the capacity to regenerate naturally when disturbances are removed or might make habitat recovery and restoration infeasible.
- Not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration.
- Not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat.
- Have water and mineral rights included as part of the acquisition, unless consultation with the appropriate federal and state agencies occurs and there is an agreement in writing to the acceptability of land.

Further information on compensation due to impacts can be found in the Compensatory Mitigation Plan, Appendix B-3 of the Project POD.

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2B.9 RAVEN MANAGEMENT PLAN

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June 2019

BUREAU OF LAND MANAGEMENT

Ten West Link Transmission Project

Raven Management Plan

PROJECT NUMBER:
154320

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Raven Management Plan

PREPARED FOR: BUREAU OF LAND MANAGEMENT

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ACRONYMS AND ABBREVIATIONS

APM	Applicant Proposed Measure
BIO	Biological Mitigation Measure
BLM	Bureau of Land Management
BMP	Best Management Practice
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFGF	California Fish and Game Code
CPUC	California Public Utilities Commission
CMA	Conservation and Management Action
DCRT	Delaney Colorado River Transmission, LLC
EIS	Environmental Impact Statement
ESA	Endangered Species Act
LUPA	Land Use Plan Amendment
MM	Mitigation Measure
MBTA	Migratory Bird Treaty Act
Project	Ten West Link Transmission Project
RMP	Raven Management Plan
TRANS	Transmission (CMA mitigation measure)
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
WEAP	Worker Environmental Awareness Program

1 Introduction

The data and information provided within this Raven Management Plan (RMP) is for the Ten West Link Transmission Project (Project) proposed by Delaney Colorado River Transmission, LLC (DCRT). The purpose of this RMP is to address potential direct impacts, due to construction, operation, and maintenance of the Project, to the federally and state protected desert tortoise (*Gopherus* spp.) by eliminating and minimizing known attractants that can be exploited by the desert tortoise's primary predator, the common raven (*Corvus corax*). This Project-specific RMP describes the raven management strategy and reporting procedures for the California portion of the Project.

1.1 Project Description and Location

As shown in Figure F-5-1 – Ten West Link Project Overview, the Project is approximately 125.0 miles of 200-foot-wide right-of-way. Of the total length, approximately 81.2 miles cross lands managed by federal agencies including the Bureau of Land Management (BLM), Bureau of Reclamation, and Department of Defense. The Project would be located approximately 103.4 miles within Maricopa and La Paz Counties in Arizona, and 21.6 miles within Riverside County, California. Portions of the Project would be located within designated Section 368 West-Wide Energy Corridors or BLM RMP-designated utility corridors. Portions of the Project parallel Southern California Edison's existing Devers to Palo Verde transmission line and similar linear features.

The Project's overhead transmission line would extend between Arizona Public Service Company's Delaney Substation near Tonopah, Arizona and Southern California Edison Company's Colorado River Substation, located west of Blythe, California. The Project would also include the construction of a Series Compensation Station located approximately in the middle of the Project route and would be connected to Arizona Public Service's 12 kilovolt network through a new 12 kilovolt distribution line. For further design and details, refer to the Project's Draft Environmental Impact Statement (EIS) Section 1.2 (BLM 2018). Once completed, updates or new requirements within the Final EIS will be updated in the final Plan of Decision management plans.

1.2 Relevant Laws, Regulations, and Management Policies

The federal and state regulations applicable to the RMP are summarized in this section. These regulations, along with the Project-specific requirements, provide the regulatory framework that the Project must wholly comprehend and comply with.

1.2.1 Federal Laws and Regulations

1.2.1.1 Federal Endangered Species Act

Administered by the United States Fish and Wildlife Service (USFWS), the Endangered Species Act (ESA) of 1973, as revised, was established to protect species at risk of becoming extinct (16 United States Code [U.S.C.] § 1531). The ESA includes multiple layers of protection where endangered species are the most in danger of becoming extinct, threatened species are at risk of becoming endangered, and candidate species are those that are being considered for listing as threatened or endangered.

Under Section 9 of the ESA, a “take” is defined as to harass, harm, pursue, hunt, shoot, kill, trap, capture, or collect, or to attempt to engage in any such conduct. This RMP implements actions to minimize the potential for desert tortoise “take” as a result of Project activities, which may potentially attract raven presence and thereby increase the risk of tortoise predation.

1.2.1.2 Migratory Bird Treaty Act

The regulatory framework for protecting birds includes the ESA, the Migratory Bird Treaty Act (MBTA) of 1918, codified in 16 U.S.C. § 703-712, and subsequent amendments. The MBTA decrees that all migratory birds and the parts (including eggs, nests, and feathers) are fully protected and addresses the destruction or removal of active nests of those species. Under this Act, it is unlawful to pursue, hunt, take, capture, kill, possess, offer to or sell, barter, purchase, deliver, transport, or receive any migratory birds (including parts, nests, eggs or other product, manufactured or not). In practice, most bird species with non-migratory life-histories are protected under the MBTA, as well. Virtually all native bird species in the United States are protected under the MBTA, including the common raven. If a common raven is recorded as a repeat offender in predating desert tortoises, removal of the offender may be required upon issuance of a depredation permit under the MBTA. This activity is governed by Section 4 of the Environmental Assessment to Implement a Desert Tortoise Recovery Plan Task: Reduce Common Raven Predation on the Desert Tortoise (USFWS 2008).

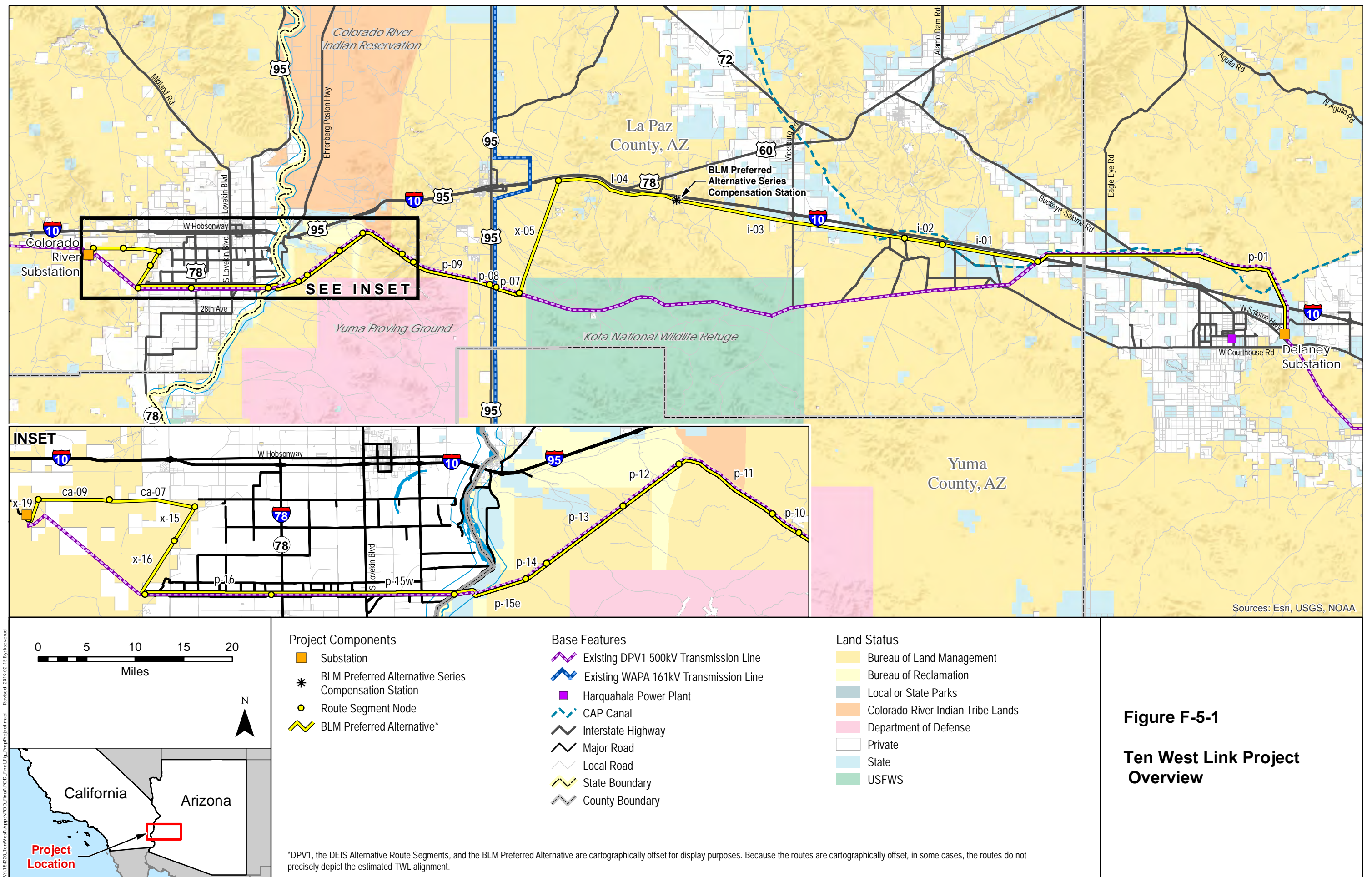
1.2.1.3 USFWS California Raven Management Program

The USFWS Ventura office cooperated with several other agencies including the BLM, National Park Service, Department of Defense, and the Department of Agriculture to complete the Environmental Assessment to Implement a Desert Tortoise Recovery Plan Task: Reduce Common Raven Predation on the Desert Tortoise (USFWS 2008). The USFWS proposes to design a common raven management program addressing the common raven predation in the California desert region. The 2018 analysis on common raven monitoring and management data collected between 2013 and 2017 within the California range of the desert tortoise is underway. Results of the data analysis are estimated to be for in early 2019 (National Fish and Wildlife Foundation 2018).

1.2.2 California State Laws and Regulations

1.2.2.1 California Endangered Species Act

The California Department of Fish and Wildlife (CDFW) established the California Endangered Species Act as a policy of the state to protect any native species or subspecies of bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease (California Fish and Game Code [CFGF] § 2062). For projects that affect both a federally and state listed species, compliance with an ESA “incidental take authorization” can satisfy the California Endangered Species Act if the CDFW determines that it is “consistent” with CFGF § 2080.1.



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1.2.2.2 California Environmental Quality Act

A statute passed in 1970, the California Environmental Quality Act (CEQA) requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible (California Natural Resources Agency 2014). The California Public Utilities Commission (CPUC) is responsible for determining if the Project will be constructed in accordance with CEQA requirements and issue to DCRT a Certificate of Public Convenience and Necessity for transmission infrastructure within California.

The Plan covers relevant requirements of the following Mitigation Measures (MM) under CEQA, as depicted in Appendix 1C of the Draft EIS:

- MM Biological (BIO)-CEQA-1: Implement Biological Resources Applicant Proposed Measures (APMs), BLM Best Management Practices (BMPs), and Conservation and Management Actions (CMAs) as part of the Project and applied prior to, during, and after Project activities to avoid or minimize Project related impacts on biological resources (see Section 1.2.3). Where an APM, BMP, or CMA is subjective (i.e., “where appropriate,” “where feasible”), DCRT or their contractor will consult with BLM and CPUC to determine applicability of each measure prior to the disturbance of a covered resource. Weekly and monthly documentation of compliance will be provided to the BLM and CPUC; further details are provided in Appendix 1C of the Draft EIS.
- MM BIO-CEQA-2: Prior to any work activities on the Project site, including surveying, mobilization, fencing, grading, or construction, a Work Environmental Awareness Program (WEAP) shall be prepared and implemented by DCRT or their Construction Contractor(s). Prior to implementation the WEAP will be approved by the CPUC with a final version completed prior to the issuance of construction permits. The WEAP shall be implemented throughout the duration of Project, including operation and maintenance phases. Successful implementation of the WEAP will result in all on-site Project personnel being properly informed and educated on the pertinent environmental concerns related to the Project. One of the main goals of the WEAP, is that it shall reduce unintentional impacts to biological resources within the Project area and ensure that all workers are trained in accordance with this MM. The WEAP shall include, but not limited to, the following items (specific to this Plan):
 - A discussion of measures to be implemented for avoidance of sensitive resources discussed in the Draft EIS (including this Plan) and the identification of an onsite contact in the event of the discovery of sensitive species (e.g., desert tortoise) on the Project site; this shall include a discussion on micro trash.
 - Training materials and briefings shall include, but not be limited to: a discussion of all relevant regulatory guidelines; the consequences of non-compliance with these regulations; identification and values of plant and wildlife species and significant natural plant community habitats; hazardous substance spill prevention and containment measures; a contact person and phone number in the event of the discovery of dead or injured wildlife (attractant to common ravens); and a review of mitigation requirements.

- Protocols to be followed when road kill (attractant to common ravens) is encountered in the work area, or along access roads, and the identification of an onsite representative to whom the road kill shall be reported. Road kill shall be reported to the appropriate local animal control agency, the CPUC within 24 hours. Road kill of special -status species shall also be reported to the CDFW and/or USFWS within 24 hours or otherwise specified in Project-specific permits.
- MM BIO-CEQA-3: DCRT will develop and implement biological construction monitoring no more than 30 days prior to the start of site mobilization or ground disturbing activities, the Applicant shall designate a qualified biologist(s) to monitor construction of the Project. Multiple qualified biologists shall be designated by the DCRT and/or their Construction Contractor(s), as needed. Designated qualified biologists must be approved by the CPUC, BLM, and CDFW prior to conducting construction monitoring. The biologist(s) must be knowledgeable with the life history and habitat requirements of federal- and state-listed and special-status plants, mammals, reptiles, amphibians, and birds. The qualified biologist(s) shall conduct clearance surveys for listed and special-status species prior to the start of construction activities each work day during initial site disturbance; clearance surveys can be conducted on a weekly basis thereafter. Any handling of special-status species must be approved by the appropriate federal and state agencies and be done in accordance with species-specific handling protocols. During initial site disturbance, and for the duration of construction, the qualified biologist(s) shall remain on-site at all times when activities shall occur immediately adjacent to, or within, habitat that supports populations of listed and/or special-status species. The designated biologist(s) shall relocate any terrestrial special-status species that would be impacted by the Project.

Permits may be required for some species (e.g., nest removal or depredation permit to remove common ravens issued by USFWS). All locations of listed and/or special-status plants shall be flagged for avoidance or salvage, relocation, or transplanting. Similarly, locations of listed and/or special-status wildlife shall be flagged for avoidance and appropriate avoidance buffers established. Results of all monitoring shall be recorded on daily site observation reports and include details the construction activities. The daily monitoring reports shall be compiled and submitted to the CPUC, BLM, and CDFW for review on a weekly basis. Contents of the reports shall include at a minimum the date, time of monitoring, location, qualified biologists name, construction activities, biological conditions and species detections, and any issues encountered during the monitoring effort.

If dead or injured special-status wildlife species (attractant for common ravens) and/or impacted special-status plants are detected on the construction site, the qualified biological monitor shall, immediately upon finding the remains or injured animal, coordinate with the onsite construction foreman to discuss the events that caused the mortality or injury, if known, and implement measures to prevent future incidents. Details of these measures shall be included within monitoring separate incident report. Species remains shall be collected and frozen as soon as possible, and CDFW and USFWS, as well as all other appropriate federal and state regulatory agencies, shall be contacted regarding ultimate disposal of the remains. The incident report shall be sent to the CPUC, CDFW and/or USFWS (as appropriate), as well as any other appropriate federal and state agencies, within five calendar days. The construction biological monitoring report shall at a minimum include: the date, time of the finding or incident (if known), and location of the

carcass, injured animal or other impacted species, and the circumstances of its death or injury (if known). Injured animals shall be taken immediately to the nearest appropriate veterinary or wildlife rehabilitation facility.

- MM WIL-CEQA-2: DCRT will develop and submit an RMP to the BLM, CDFW, and County for approval prior to the start of ground disturbance and issuance of a County grading permit. The RMP will:
 - Provide education to Project personnel (MM-BIO-CEQA-2).
 - Identify conditions associated with the Project that might provide raven subsidies or attractants.
 - Describe management practices to avoid or minimize conditions that might increase raven numbers and predatory activities.
 - Describe control practices for offending common ravens.
 - Establish thresholds that would trigger implementation of control practices.
 - Implement adaptive management.
 - Address monitoring and nest removal during construction and for the life of the Project.
 - Identify measures within this plan designed to reflect the above details.

DCRT will provide funding for implementation of the USFWS Regional Raven Management Program. See Section 7 for further details.

1.2.3 Project-Specific Regulatory Requirements

The RMP was prepared to address the Project-specific regulatory requirements identified in the Draft EIS. These measures are summarized in Table F-5-1, and are applicable during the preconstruction, construction, and post-construction/restoration phases of the Project.

Specifically, the BLM BMP Biological (BIO)-28 satisfies the requirements outlined in two CMA standards LUPA-BIO-01 and LUPA-BIO-06 and the MM BIO-CEQA-2, required for common raven management. The CMA standards comply with the California Desert Conservation Area Plan of 1980, as amended (see Project Draft EIS Appendix 2B.2 – CMA Required Plans; BLM 2018). The two CMA standards are also listed in Table F-5-1.

Additionally, BMP-BIO-21 requires that deterrents be installed to reduce nesting and perching opportunities for predatory birds, including the raven. Standards for success includes implementation of mitigation requirements throughout the duration of construction and ravens are, to the extent possible, deterred from nest/foraging within the Project site.

TABLE F-5-1 PROJECT-SPECIFIC MITIGATION REQUIREMENTS

Measure ¹	Description ²
APM BIO-01	<p>Before starting any work, including mowing, staging, installing stormwater control structures, implementing other BMPs, removing trees, construction, and restoration, all employees and contractors performing activities and new construction would receive training on environmental requirements that apply to their job duties and work. If additional crewmembers arrive later in the job, they would be required to complete the training before beginning work. Training would include a discussion of the avoidance and minimization measures being implemented and would include information on the federal and state Endangered Species Acts and the consequences of not complying with these Acts. An educational brochure would be provided to construction crews working on the Project. This brochure would include color photographs of special status species as well as a discussion of avoidance and minimization measures.</p> <p>(Addresses California Management Action [CMA] Land Use Plan Amendment [LUPA]-Biological Mitigation Measure [BIO]-05 and Mitigation Measure [MM] BIO-California Environmental Quality Act [CEQA]-2)</p>
BMP BIO-01	<p>The worker education program would provide interpretation for non-English speaking workers.</p> <p>(Addresses CMA LUPA-BIO-05 and MM BIO-CEQA-2)</p>
APM BIO-21	<p>Current guidelines and methodologies would be used in the design of the proposed transmission facilities to minimize the potential for raptors and other birds to collide with the transmission line during operations and/or perch on the lines and be electrocuted. For example, aerial marker balls or other visibility markers would be placed at and near the crossing of the Colorado River to increase the visibility of the transmission line to birds using that movement corridor. Deterrents would be added to reduce nesting and perching by ravens and other predatory birds. Further, placement of lines significantly above existing transmission lines, topographic features, or tree lines would be avoided. These measures would be implemented, where practicable, in conjunction with an Avian Protection Plan for the Project. The Avian Protection Plan would include requirements for monitoring the effectiveness of anti-collision and anti-perching design.</p>
BMP BIO-21	<p>Aerial marker balls or other visibility markers would be placed on overhead ground wires (not conductors) at crossing of the Colorado River and floodplain to increase visibility to birds using that movement corridor and marking any other static wires to improve visibility and reduce collisions. Deterrents would be added to reduce nesting and perching by ravens and other predatory birds. The Avian Protection Plan would include requirements for monitoring the effectiveness of anti-electrocution design.</p>
BMP BIO-28 (California only)	<p>The Raven Management Plan would be implemented for all activities to address food and water subsidies and roosting and nesting sites specific to the common raven. These include identification of monitoring reporting procedures and requirements; strategies for refuse management; as well as design strategies and passive repellent methods to avoid providing perches, nesting sites, and roosting sites for common ravens. As consistent with BLM policy and resource management plans, compensatory mitigation would be provided that contributes to Land Use Plan Amendment (LUPA)-wide raven management associated with lands in the Desert Renewable Energy Conservation Plan.</p>

Measure ¹	Description ²
CMA LUPA-BIO-6 (California only)	<p>Subsidized predator standards, approved by BLM, in coordination with the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), will be implemented during all appropriate phases of activities, including but not limited to renewable energy activities, to manage predator food subsidies, water subsidies, and breeding sites including the following:</p> <ul style="list-style-type: none"> • Common raven management actions will be implemented for all activities to address food and water subsidies and roosting and nesting sites specific to the common raven. These include identification of monitoring reporting procedures and requirements; strategies for refuse management; as well as design strategies and passive repellent methods to avoid providing perches, nesting sites, and roosting sites for common ravens. • The application of water and/or other palliatives for dust abatement in construction areas and during project operations and maintenance will be done with the minimum amount of water necessary to meet safety and air quality standards and in a manner that prevents the formation of puddles, which could attract wildlife and wildlife predators. • Following the most recent national policy and guidance, BLM will take actions to not introduce, dispose of, or release any non- native species into areas of native habitat, suitable habitat, and natural or artificial waterways/water bodies containing native species. • In addition to implementing the measures above on activity sites, each activity will provide compensatory mitigation that contributes to LUPA-wide raven management.
CMA LUPA-TRANS-BIO-1 (California only)	Where feasible and appropriate for resource protection, site transmission activities along roads or other previously disturbed areas to minimize new surface disturbance, reduce perching opportunities for the common raven, and minimize collision risks for birds and bats.

¹ APM = Applicant Proposed Measure; BMP = Best Management Practice; CMA = Conservation and Management Action; BIO = Biological; LUPA = Land Use Plan Amendment; TRANS = Transmission

² The Environmental Impact Statement description language is directly from the Project Draft Environmental Impact Statement (Draft EIS) Appendices 2A and 2B (BLM 2018). References for the requirement descriptions can be found in the source documents. Any updates or new requirements determined within the Final Environmental Impact Statement will be updated in the final Plan of Decision management plans.

2 Purpose and Objectives

In recent decades, the common raven population has increased substantially in the southwestern deserts of the United States, primarily in response to human-provided subsidies of food, water, and nest sites (USFWS 2008). Common ravens are a major predator on the threatened desert tortoise (Boarman 1992). The goal of this RMP is to implement non-lethal measures to deter common ravens from the vicinity by eliminating or minimizing raven attractants (e.g., surface water, trash, animal and plant waste materials; and perching, nesting, and roosting sites) during construction, operation, and maintenance of the Project.

As specified in BIO-CEQA-2, the primary RMP objectives include:

1. Identify Project-specific attractants and conditions of concern that may attract common ravens to the area.
2. Provide non-lethal common raven management measures and identify roles and responsibilities for their implementation.
3. Provide the monitoring and reporting requirements for successful implementation of the common raven management measures.

4. Describe adaptive management conditions and strategies for unanticipated circumstances that require additional mitigation support.

3 Potential Common Raven Attractants

3.1 Perch and Nest Opportunities

Common ravens depend on human encroachment to expand into areas where they were previously absent or in low abundance (Kristan and Boarman 2007; USFWS 2008). Common raven predation on juvenile tortoises has been evidenced in the desert by the remains of tortoise carcasses under raven nests, direct observations, and carcasses with distinctive common raven damage (Boarman 1992). Utility structures provide a competitive edge to hunting by facilitating perching high over available food sources, which supports common raven predation activities.

The addition of buildings, billboards, landscape trees, and other structures has introduced common raven nesting opportunities in the desert where they were otherwise very limited. Although many common ravens have been observed in these and other anthropogenic structures, lattice transmission towers and wooden distribution lines have been recorded to increase common raven nesting relative to other nesting substrates (Steenhof et al. 1993). The Breeding Bird Survey data from 1968 to 2004 indicated increase in the common raven populations of more than 700 percent in the west Mojave Desert and more than 70 percent in the east Mojave Desert (USFWS 2008).

3.2 Food and Water Attractants

Common ravens are considered scavengers that obtain a high percentage of their diet from human subsidies such as food, garbage, and road kill (Kristan and Boarman 2007). The potential for road kill due to construction activities and use of access roads could attract common ravens.

The construction, operation, and maintenance of the Project could result in increased food and waste generation due to increased personnel visiting the Project area, particularly during construction. Improper waste management may attract common ravens to the Project area.

During construction, disturbance of the soil and/or vegetation would occur from heavy equipment operation. This disturbance would result in the “unearthing” and exposure of natural food sources for common ravens such as rodents and insects. Common ravens could be attracted to the soil disturbance areas to prey upon unearthed, injured, or dead animals. Similarly, water used during construction, operation, and maintenance for dust abatement, concrete mixing, and revegetation efforts has the potential to attract common ravens.

4 Common Raven Control and Management

Any control methods constituting take of common ravens or their nests – as defined in the MBTA – would require a depredation permit from the USFWS pursuant to the MBTA. The

following minimization and avoidance measures include non-lethal measures to deter common ravens from frequenting the Project, while avoiding common raven take.

The non-lethal measures outlined below are primarily based on guidance from the USFWS Draft Environmental Assessment to Implement a Desert Tortoise Recovery Plan Task: Reduce Common Raven Predation on the Desert Tortoise (USFWS 2008), Summary of Predation by Corvids on Threatened and Endangered Species in California and Management Recommendations to Reduce Corvid Predation (Liebezeit and George 2002), and Boarman's research and guidance for reducing common raven predation on desert tortoises (Kristan and Boarman 2003 and 2007; Boarman 1992). Approved and published RMPs were also reviewed for projects in the southern California deserts (POWER Engineers, Inc. 2015; CH2MHill 2008 and 2017).

4.1 Perch Deterrents

As outlined in APM/BMP BIO-21 – Reduction of Avian Collision and Electrocution, bird perch deterrents have been shown to discourage birds from perching, roosting, and nesting along electrical lines (Slater and Smith 2010). Perch deterrents, including wire spikes or similar perching/nesting deterrents, are often made of plastic or stainless-steel spikes that can be effective in discouraging birds from landing on structures. Bird spikes are designed to be affixed to structures to provide long-term deterrence; therefore, may be more practical to deter nesting on poles/structures and within substations. Such devices are not likely practical for use on equipment, material storage areas, or contractor yards. Installation of bird spikes on tower structures concurrent with structure construction may discourage birds from nesting on tower structures during construction (see Appendix F-3, Volume III of the Plan of Development).

4.2 Worker Environmental Awareness Program

The Project is required to implement a WEAP to inform all Project personnel of the environmental compliance measures required for the Project. All Project personnel would be required to participate in a WEAP prior to beginning work on the Project. This program would be developed by DCRT prior to the start of construction and would be submitted to the BLM and CPUC for review and approval prior to implementation.

The WEAP will be prepared in accordance with APM/BMP BIO-01, BIO-35, and MM BIO-CEQA-2. The WEAP will be implemented throughout the duration of Project-related construction activities and will include, but not limited to discussion on the following:

- Identification of federal and state ESAs and MBTA and the consequences of non-compliance with these acts.
- Identification and values of plant and wildlife species and significant natural plant community habitats; maps showing exclusion areas and other construction limitations.
- Hazardous substance spill prevention and containment measures.
- Project-specific measures to be implemented for avoidance of sensitive resources and the identification of an onsite contact in the event of the discovery of sensitive species on the site.

- Procedures regarding discovery of dead or injured wildlife and a review of mitigation and reporting requirements.
- Protocols on common ravens and their nests, along with how to avoid attracting the species, such as proper trash removal, trash containment, micro trash, and control of puddling water.

4.3 Litter Control Program

As outlined in BMP BIO-06 – Trash Handling (BLM 2018), a litter-control program will be implemented during construction, operation, and maintenance. The purpose of the litter-control program is to reduce the attractiveness of the area to opportunistic predators such as the common raven as well as the kit fox (*Vulpes macrotis*) and coyote (*Canis latrans*). Trash and food items will be disposed of properly in predator-proof containers with re-sealing lids. Trash containers will be emptied, and construction waste will be removed daily from the Project area and disposed of in an approved landfill. This would also satisfy requirements established in BMP BIO-36 – Feed or Harassment of Wildlife (BLM 2018).

4.4 Injured or Dead Wildlife

Attractants for common ravens can include unearthing prey items such as rodents during grading activities as well as, injured, or dead wildlife within the Project work areas. Per MM BIO-CEQA-2 and BIO-CEQA-3, any carcasses or roadkill encountered in Project work areas or along access roads must be immediately identified, cause of injury or mortality recorded, and reported by the Biological Monitor or Designated Biologist (see Section 5).

Local animal control agency and CPUC (California only) will be notified of the roadkill within 24 hours. In addition, CDFW (California only) and USFWS must be notified about roadkill of special -status species (e.g., desert tortoise or common raven) within 24 hours or otherwise specified in species-specific permits. Carcasses must be placed in secure trash cans in accordance with state and federal regulations. As feasible, implement measures to prevent future incidents. Details of these measures shall be included within monitoring separate incident report. Special status species remains shall be collected and frozen as soon as possible, and CDFW and USFWS, and other appropriate federal and state regulatory agencies as necessary, shall be contacted regarding ultimate disposal of the remains (MM BIO-CEQA-2).

The incident report shall be sent to the CPUC, CDFW, /or USFWS (as appropriate), as well as any other appropriate agencies, within five calendar days. The construction biological monitoring report shall at a minimum include: the date, time of the finding or incident (if known), and location of the carcass, injured animal or other impacted species, and the circumstances of its death or injury (if known). Injured animals shall be taken immediately to the nearest appropriate veterinary or wildlife rehabilitation facility (MM BIO-CEQA-3).

4.5 Surface Water Management

Water attractants are thought to be an important factor contributing to common raven increases in desert areas (USFWS et al. 2008). The primary use of water on the Project will be dust suppression (BMP AQ-01 – Fugitive Dust; BLM 2018). Water used for dust suppression will be used in small quantities, so that puddling is discouraged. The biological monitors on site will check for areas of standing water, determine their cause, eliminate

them, and determine how to avoid the situation in the future. Any puddles from construction activities will be filled with dirt or sand upon their discovery.

4.6 Removal of Inactive Common Raven Nests

Per the guidelines of the Project Avian Protection Plan, all construction in California within 300 feet of an active nest (non-raptors) is to be halted immediately until the condition of the nest can be ascertained as unobtrusively as possible (BLM 2018). The MBTA prohibits indiscriminate killing of migratory birds including the common raven (USFWS 2008). In addition, bird nests are protected by the MBTA and by CFGC. Like the MBTA, the CFGC 3503 and 3503.5, state that it is illegal to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by CFGC or pursuant regulations. However, it is lawful to remove inactive nests year-round, and to remove nests during the non-breeding season (defined as August 31 through February 1) for most birds, including the common raven.

Nest construction for common ravens begins in late January to mid-April and nest construction takes from one to two weeks. Egg-laying usually occurs five to six days after nest completion, with clutch size ranging from three to five eggs. Incubation lasts 20 to 25 days (Boarman and Heinrich 1999). The nestling period ranges from four to seven weeks, with an average of three chicks produced per nest each year. Fledglings will stay near the nest for four to eight weeks following their first flight, with most nests fledged by June. In the event that a common raven nest with eggs is located in or around the Project, the nest will be removed following the completion of the nesting cycle and outside the avian breeding season (defined as February 1 through August 31; USFWS et al. 2008). Common raven nest removal will be conducted on all property structures for the life of the Project.

If an active common raven nest (i.e., a maintained nest which is occupied by eggs or nestlings or is otherwise essential to the survival of a juvenile bird) creates a safety hazard for the Project, a depredation permit under MBTA must be obtained from the USFWS Migratory Bird Division for it to be removed (USFWS 2013).

4.7 Active Nesting Buffers

If a common raven nest is identified as active within the Project area, it is protected under the MBTA. An appropriate buffer should be recorded and marked with the appropriate flagging. All construction would avoid the area until the hatchlings have fledged the nest. If the buffer crosses the Project access roads, DCRT or their contractor will coordinate with the BLM to determine if a drive-through only zone could be established, where the buffer can be entered by construction vehicles and equipment if no stopping occurs. Special signage will be installed at both ends of the buffer zone. If the buffer intersects with a high disturbance area, DCRT or their contractor will coordinate with BLM to determine if a buffer reduction is applicable (see Nesting Bird Management Plan in Appendix F-3).

4.8 Elimination of Offending Common Ravens

When common ravens are recorded to have preyed on desert tortoises within the Project area, they are deemed offending common ravens. Elimination of offending common ravens is not the first course of action and will be avoided, if possible, through the implementation of the methods described in this RMP. If methods to deter the offending common ravens fail and they continue to be a threat to desert tortoises within the Project area, lethal action may

be necessary. Any lethal action must be coordinated through the BLM, USFWS, and, if in California, CDFW given that the common ravens and their active nests are protected under the MBTA and CFGC.

5 Monitoring and Reporting Plan

The following subsections describe the common raven monitoring, management, and control practices that will be implemented during the preconstruction, construction, post-construction/restoration phases of the Project. DCRT or their contractor shall be responsible for all aspects of common raven management described in this RMP.

5.1 Responsible Parties

Prior to discussion of the monitoring and reporting requirements, a description of those responsible for the implementation of these procedures is included below.

5.1.1 Designated Representative

A Designated Representative from the DCRT or their contractor will be responsible for communications with BLM and Designated Biologist(s), and for overseeing compliance with the RMP. Contact information of the Designated Representative will be provided to the BLM prior to construction activities.

5.1.2 Designated Biologist

The Designated Biologist(s) will be independently or jointly assigned by the DCRT or their contractor for their components of the Project and will have been approved by BLM, USFWS, and CDFW, 30 days before start of surveys or monitoring. The Designated Biologist(s) will be responsible for facilitating the implementation of avoidance, minimization, and mitigation measures for the RMP, and will have expertise identifying common ravens, common raven nests, and desert tortoise remains (e.g., carcass, shell, and bone fragments). In addition, the Designated Biologists will hold a bachelor's degree or higher in Biological Sciences, Zoological Sciences, or a related field.

The Designated Biologist(s) will have specific experience in the implementation of similar environmental compliance programs, and ensure compliance with all biological avoidance, minimization, and mitigation measures for the Project. In addition, the Designated Biologist(s) will be responsible for drafting the methods for biological surveys, schedule development, agency coordination, reporting, and supervision of field staff including Biological Monitors.

5.1.3 Biological Monitors

The Biological Monitor(s) will meet the requirements outlined in the BMP BIO-01 and BIO-02 (BLM 2018) and will have prior construction monitoring experience, on projects in desert habitats. The Biological Monitor(s) will be the field contact representative(s) for construction personnel and the Designated Biologist(s) and will be responsible for daily on-site monitoring as well as regular data entry or reporting.

The duties of the Biological Monitor include:

- Being present during all work activities within habitat of special status species and serving as the field contact representative(s) for construction workers and the Designated Biologist(s).
- Being responsible for daily on-site monitoring as well as regular data entry or reporting.
- Minimizing impacts to special status species, native vegetation, wildlife habitat, and unique resources by ensuring that construction personnel follow WEAP training requirements.
- Identifying potential issues or signs of common raven activity and/or predation near potential desert tortoise habitat.
- Reporting concerns to the Designated Biologist(s) where applicable.

5.2 Monitoring Procedures

A Biological Monitor will be on-site to ensure construction-related subsidies available for common ravens are minimized or eliminated. Biological Monitors will observe and document any perceptible increase in common raven numbers and activity due to construction activities.

If construction or vegetation removal is to occur during the avian breeding season (defined as February 1 through August 31 in APM-BIO-20 – Migratory Bird Protection During Construction; BLM 2018), a qualified biologist will conduct preconstruction survey (pre-activity “sweep”) to determine if active nests of any bird species are present within the vicinity of construction. Surveys shall be conducted in areas within 300 feet of proposed disturbance areas including tower sites, laydown/staging areas, substation sites, and access/spur road locations. Surveys of birds shall be conducted for all areas from February 1 to August 31. DCRT or their contractor shall be responsible for designating qualified biologists who can conduct pre-construction surveys and monitoring for breeding birds. The Biological Monitors shall be responsible for documenting the results of the surveys and the ongoing monitoring, and the Designated Biologist(s) will provide a copy of the monitoring reports for impacts areas to the respective agencies. If for any reason a bird nest must be removed during the nesting season, DCRT or their Construction Contractor(s) shall provide written documentation providing concurrence from the USFWS and CDFW authorizing the nest removal.

Biological Monitors will be responsible for identifying any offending common ravens that are noted to prey on the desert tortoise. Potential common raven nests and any significant sightings of common ravens, such as individuals observed consuming trash or water brought in for construction, will be recorded and included in the quarterly compliance report. These observations will be used to help determine whether there is a need for perch deterrents.

5.3 Reporting Procedures

The Designated Biologist(s) will prepare daily written observation and inspection records summarizing: oversight activities and compliance inspections, observations of species,

including common ravens and their sign, survey results, and monitoring activities. In addition, the Designated Biologist will immediately report any observations of predation on desert tortoise by common ravens in the Project area to the BLM (Notification of Take or Injury) and USFWS within three days.

A quarterly compliance report will include the daily written observations mentioned above. The report will be submitted to the BLM and will include notes on the implementation of this RMP.

During construction, annual reports will be submitted to the BLM no later than January 31 of every year of construction. The annual report will include any documented common raven monitoring data and any common raven management that was implemented during construction activities. The annual report will include any significant dates and relevant data such as injuries to common ravens, mortality, or circumstances. All reports regarding common ravens will be included in the annual report provided to the BLM and USFWS.

The quarterly and annual reporting on the RMP will include the following data:

- Date construction commenced.
- List of all common raven sightings, number of individuals, locations, and dates.
- List including location and date of all common raven nests found.
- List of any nests that were removed including the rationale for removal and how the determination was made that the nest was inactive.
- Any observed predation on desert tortoise by common ravens.
- List any tortoise remains found in the vicinity of an active common raven nest and verify the nesting stage of the offending common ravens (e.g., incubating, feeding nestlings), describe how agency notifications were completed, and detail the process of event of elimination of the offending common raven(s).
- Summary of monitoring results.
- Photographs and any other relevant documentation or significant data gathered.

6 Adaptive Management (California)

Adaptive management will be required if measures identified in this RMP are ineffective in controlling raven nesting/foraging within the Project area; and ultimately, ineffective in controlling raven predation on the desert tortoise. Ravens are notoriously adaptive and clever, requiring the need for developing new methods of adaptive management. For example, biologists found some success in using conditioned aversion to reduce predation by ravens on the eggs of California least terns (*Sterna antillarum browni*) and similar methods may be developed to reduce predation on juvenile tortoises (Avery et al. 1995).

In San Francisco, California, a longitudinal study was carried out to evaluate the effects of oiling eggs of territorial ravens on the predation of black-crowned night herons (*Nycticorax nycticorax*) nests and recorded an increase in reproductive success for the black-crowned night herons (Brussee and Coates 2018). Flexibility and willingness to adopt new or

experimental methods, are likely to be crucial for the effectiveness of any long-term raven management plan. DCRT will consult with the BLM and the USFWS prior to implementing adaptive management changes.

7 USFWS Regional Raven Management Program

Within California and per the requirements of BMP BIO-28, CMA LUPA BIO-6, and BIO-CEQA-2, DCRT will provide financial assurance to the USFWS Regional Raven Management Program in addition to implementing this Plan. This payment will be submitted either to the Project sub-account of the Renewable Energy Action Team Account held by the National Fish and Wildlife Foundation in support of the USFWS Regional Raven Management Program (National Fish and Wildlife Foundation 2018) or to more current guidance provided by USFWS. The contribution will be \$105 per acre of land impacted in California.

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2B.10 RECLAMATION, VEGETATION, AND MONITORING PLAN

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June 2019

BUREAU OF LAND MANAGEMENT

Ten West Link Transmission Project

Reclamation, Vegetation, and Monitoring Plan

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154320

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Reclamation, Vegetation, and Monitoring Plan

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ACRONYMS AND ABBREVIATIONS

AES	Aesthetic Mitigation Measure
amsl	above mean sea level
APM	Applicant Proposed Measure
APS	Arizona Public Service Electric Company
AQ	Air Quality
ARS	Arizona Revised Statutes
BIO	Biological Mitigation Measure
BLM	Bureau of Land Management
BMP	Best Management Practice
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CMA	Conservation and Management Action
CPUC	California Public Utilities Commission
CRPR	California Rare Plant Ranking
DCRT	Delaney Colorado River Transmission, LLC
EIS	Environmental Impact Statement
ECM	Environmental Compliance Manager
LUPA	Land Use Plan Amendment
MM	Mitigation Measures
Plan	Reclamation, Vegetation, and Monitoring Plan
POD	Plan of Development
Project	Ten West Link Transmission Project
RL	Reclamation Levels
ROW	Right-of-way
SCS	Series Compensation Station
SOIL	Soil Mitigation Measure
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
VEG	Vegetation

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1 Introduction

The data and information provided in this Reclamation, Vegetation, and Monitoring Plan (Plan) is for the Ten West Link Transmission Project (Project) proposed by Delaney Colorado River Transmission, LLC (DCRT). The guidelines outlined in the Plan were established by the Bureau of Land Management (BLM) principles and procedures, specifically designed for high-voltage transmission projects. The Plan will address specific reclamation activities to be implemented in all construction areas disturbed by the Project and on BLM-administered lands. Reclamation on private properties will be coordinated by DCRT and associated landowners.

The intent of this Plan is to establish and implement reclamation treatments in order to reclaim Project-related disturbances; prevent unnecessary degradation of the environment during construction; restore temporary use areas; and reclaim disturbed areas such that they are ecologically functional and visually compatible with the surrounding environment to the maximum extent possible. All construction activities will comply with all stipulations for reclamation outlined in the Project's Plan of Development (POD) and other applicable documents including the BLM's Record of Decision, Right-of-Way (ROW) Grant and Notice to Proceed.

Details outlined within this Plan are based on guidance from BLM approved and published reclamation plans, prepared for renewable energy and transmission line projects including the Sun Valley to Morgan Transmission Line in Arizona (EC Source 2017a and 2017b), Energy Gateway South Transmission Line in Wyoming (Rocky Mountain Power 2016), and Mohave County Wind Farm in Arizona (URS 2013).

1.1 Organization of the Plan

To facilitate the review and understanding of the Plan, it is organized into six primary sections:

1. Introduction – presents the overall summary and purpose of the Plan.
2. Regulatory Requirements and Authorities – provides descriptions of relevant regulatory requirements and agencies with specific authority within the laws and regulations associated with the Plan.
3. Overview of Existing Environments – describes the vegetation communities that will be affected during construction and post-construction actions.
4. Reclamation Levels – provides details of the reclamation components including plan framework, methodology, and actions to be implemented for the Project.
5. Description of Reclamation Actions – describes the reclamation treatments and activities for each phase of the Project
6. Monitoring – outlines the reclamation monitoring protocol including route and site monitoring to properly document the progression of reclamation success.

1.2 Purpose of the Plan

The purpose of the Plan is to define and recommend construction and reclamation actions (or treatments) that will meet the goals and objectives established by the BLM under the applicable requirements and authorities, as described in the POD, the BLM's Record of Decision, and the Project's Draft Environmental Impact Statement (EIS) in order to recover habitat for sensitive species. In addition, it will provide the protocols and procedures necessary for implementing and monitoring the required reclamation actions.

In adherence to Section 4.13 of the POD, this Plan will be submitted for review and approval by the BLM designated representative prior to the start of any reclamation actions.

2 Regulatory Requirements and Authorities

The following federal authorities, regulations, Resource Management Plans, initiatives, and general guidelines applicable to the Plan are summarized in this section. These regulations provide the regulatory framework that the Project must comply with.

2.1 Federal Regulations, Laws, and Authorities

2.1.1 BLM Terms and Conditions Right-of-Way Grant, Title 43 Code of Federal Regulations Part 2805.12

BLM terms and conditions established in the Title 43 Code of Federal Regulations (CFR) Part 2805.12 state that the Project must: "(Section 8) *Comply with project-specific terms, conditions, and stipulations, including requirements to: (i) Restore, revegetate, and curtail erosion or conduct any other rehabilitation measure the BLM determines necessary; (iii) Control or prevent damage to: (A) Scenic, aesthetic, cultural, and environmental values, including fish and wildlife habitat; (B) Public and private property; and (C) Public health and safety; (iv) Provide for compensatory mitigation for residual impacts associated with the [right-of-way (ROW)] ; [and] (vi) Ensure that you construct, operate, maintain, and terminate the facilities on the lands in the ROW in a manner consistent with the grant or lease, including the approved POD, if one was required.*"

2.1.2 Federal Land Policy and Management Act of 1976

Section 102(a)(8) (43 United States Code [U.S.C] § 1701) declares "...*public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use.*"

2.1.3 Endangered Species Act of 1973

As amended in Section 7 (a)(2) of the Endangered Species Act, the United States Fish and Wildlife Service (USFWS) requires that "...*each Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any*

endangered species or threatened species or result in the destruction or adverse modification of habitat of such species ...”

2.1.4 Executive Order 13112

Executive Order 13112 requires all federal agencies to prevent the introduction and spread of invasive species through a series of actions including early detection and response, monitoring of known invasive populations, and native species restoration; specifically requiring that a federal agency will “...not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species.”

2.1.5 Carlson-Foley Act

The Carlson-Foley Act (43 U.S.C. §1241) requires federal land-management agencies to terminate any invasive plant populations growing on their jurisdictional lands. The Carlson-Foley Act states that the federal agency must “*permit the commissioner of agriculture or other proper agency head of any State in which there is in effect a program for the control of noxious plants to enter upon any lands under their control or jurisdiction and destroy noxious plants growing on such land if- (1) such entry is in accordance with a program submitted to and approved by such department or agency: Provided, That no entry shall occur when the head of such Federal department or agency, or his designee, shall have certified that entry is inconsistent with national security; (2) the means by which noxious plants are destroyed are acceptable to the head of such department or agency; and (3) the same procedure required by the State program with respect to privately owned land has been followed.*”

2.1.6 Federal Noxious Weed Act of 1974

Under the Federal Noxious Weed Act, the Public Law 93-629 and 76 U.S.C. § 2801 directs the management of invasive plant species on federally-managed lands, including transport of noxious weeds and how to contain their spread on federal lands.

2.1.7 BLM Manual 1740-1 Integrated Vegetation Management

BLM Manual 1740-1 outlines policies and procedures on planning and implementing resource improvements and treatments including forestry, invasive species, and range management.

2.2 State Regulations, Laws, and Authorities

2.2.1 California Code of Regulations: Noxious Weed Species

The California Code of Regulations Title 3 – Plants and Agriculture, Division 4 - Plant Industry, Chapters 3-7 focus primarily on invasive species and management; specifically, discussing plant quarantine, weed eradication, and listing plants species determined to be invasive in the state of California.

2.2.2 California Environmental Quality Act

A statute passed in 1970, the California Environmental Quality Act (CEQA) requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible (California Natural Resources Agency 2014). The California Public Utilities Commission (CPUC) is responsible for determining if the Project will be constructed in accordance with CEQA requirements and issue to DCRT a Certificate of Public Convenience and Necessity for transmission infrastructure within California.

2.2.3 Arizona Revised Statutes Title 3

Arizona Revised Statutes (ARS) Title 3 – Agriculture (ARS 3-205.01) outlines the abatement of Arizona noxious weeds, stating that “...the director may treat, spray, control, suppress or eradicate noxious weeds, crop pests or diseases through a countywide, area-wide or statewide program or programs that have been approved or authorized by the department. If such countywide, area-wide or statewide program or programs affect cotton, the program or programs must also be approved by the cotton research and protection council. The director may take whatever actions that are necessary to assist, support or enforce such programs including entering any fields to treat, spray, control, suppress or eradicate noxious weeds, crop pests or diseases under these authorized or approved programs.”

2.3 Project-Specific Requirements

This Plan was prepared to address Project-specific regulatory requirements applicable during the pre-construction, construction, and post-construction phases of the Project, that cover the BLM terms and conditions in 43 CFR Part 2805.12 (see Section 2.1.1). The Project-specific regulatory requirements including the BLM Best Management Practices (BMPs) and DCRT’s Applicant Proposed Measure (APM) are summarized in Table L-1-1.

Table L-1-2 describes the California requirements for the Project. As depicted in Appendix 1C of the Draft EIS, this would include the Mitigation Measures (MM) under CEQA and relevant CEQA MMs are listed in Table L-1-2. In addition, the Conservation and Management Actions (CMAs) required under the California Desert Conservation Area Plan of 1980 as amended (BLM 2018), are described in Table L-1-2. The BMPs and APMs address pertinent CEQA MMs and CMAs which is also noted within the descriptions of Table L-1-1.

Specific ROW Grant stipulations received pertinent to the reclamation actions will be added to this section of the Plan (see Table 1-3 of the POD).

TABLE L-1-1 PROJECT-SPECIFIC APMS AND BMPS ADDRESSED UNDER THIS PLAN

Originator ¹	Measure ⁴	Description ^{1, 2}	Project Phase			CA Only
			Pre- Constr.	Const.	O&M	
APM	BIO-12	A Noxious Weed Control Plan (Appendix 2B in the Project Plan of Decision) would be developed, approved by the BLM, and implemented prior to initiation of ground disturbing activities. That Plan would identify noxious and invasive species to be addressed in the Project Area,	X	X	X	

Originator ¹	Measure ⁴	Description ^{1, 2}	Project Phase			CA Only
			Pre-Const.	Const.	O&M	
		describe measures to conduct pre-construction weed surveys, reduce the potential introduction or spread of noxious weeds and invasive species during construction, and monitor and control weeds during operation of the transmission line. It would be designed to minimize impacts on special status species to the extent practicable. Coordination with resource agencies regarding invasive plant species would be conducted before construction. BMPs would include use of weed-free straw, fill, and other materials; requirements for washing vehicles and equipment arriving on site; proper maintenance of vehicle inspection and wash stations; requirements for managing infested soils and materials; requirements and practices for the application of herbicides; and other requirements in applicable BLM Weed Management Plans. (Addresses CMA LUPA-BIO-6, -10, and -11)				
APM	BIO-15	A Habitat Restoration and Monitoring Plan would be developed, approved by BLM, and implemented for construction and operation of the Project. Revegetate all sites disturbed during construction that would not be required for operation of the transmission line, and restore disturbed areas to the extent practicable, given the arid desert environment. The Plan would describe in detail methods for surveying and characterizing vegetation in disturbed areas before construction; topsoil salvage and management, erosion control, post-construction recontouring and site preparation, seeding and planting, and post-construction watering, monitoring, and remediation. It would be designed to reduce impacts on special status species to the extent practicable. (Addresses CMA LUPA-BIO-7/8/10)	X	X	X	
BLM	BIO-15	As a part of the Habitat Restoration and Monitoring Plan, the soil horizons would be stored separately for the areas where the success of restoration could be crucial for rare plant species. (Addresses CMA LUPA-BIO-7/8)	X	X	X	X
APM	BIO-26	An inventory of plants protected under the Arizona Native Plant Law would be conducted on State Trust lands as required by the Arizona State Land Department. Similar surveys would be conducted on lands managed by BLM, as directed by that agency.	X	X		
BLM	BIO-41	[Succulent Management]	X	X	X	

Originator ¹	Measure ⁴	Description ^{1, 2}	Project Phase			CA Only
			Pre-Const.	Const.	O&M	
		All activities would follow applicable BLM state and national regulations and policies for salvage and transplant of cactus, yucca, and other succulents. Pre-construction surveys of disturbance zones would include preparation of maps delineating special vegetation features. (Address CMA LUPA-BIO-7, LUPA-BIO-SVF-1, LUPA-BIO-VEG-1, -5, and -6)				
BLM	BIO-42	Promote appropriate levels of dead and downed wood on the ground, outside of campground areas, to provide wildlife habitat, seed beds for vegetation establishment, and reduce soil erosion, as determined appropriate on an activity-specific basis. (Addresses CMA LUPA-BIO-VEG-2)	X	X	X	
BLM	BIO-43	Allow for the collection of plant material consistent with the maintenance of natural ecosystem processes. (Addresses CMA LUPA-BIO-VEG-3)	X	X	X	
BLM	SOIL-01	During reclamation and revegetation efforts, a BLM soil scientist and/or botanist review plans and approve, as appropriate, to determine type and location of any scarification.		X		X
BLM	SOIL-02	During reclamation and revegetation efforts, the BLM would review plans and approve, as appropriate, to determine where soil compaction would be appropriate, to avoid potential adverse conditions created by compaction.		X		X
APM	AES-02	Upon completion of the Project, all construction material and debris from the permanent right-of-way and temporary staging areas would be removed and the areas restored. All work areas would be graded and restored to as close to pre-construction conditions as possible.	X	X	X	
BLM	AES-02	Work area reclamation would include pulling and tensioning sites; all disturbed work areas associated with the Project.	X	X	X	
BLM	AES-12	The Reclamation Plan for the Project would include measures designed to reduce long-term impacts to visual resources.	X	X	X	
BLM	AQ-01	[In conjunction with an Erosion, Dust Control, and Air Quality Plan and Fugitive Dust Control Plan for the Project] The following measures would be implemented as applicable at all construction sites: • Replant vegetation in disturbed areas as quickly as possible, consistent with seasonal survival considerations.	X	X		

¹ APM = Applicant Proposed Measure; BLM = Bureau of Land Management; BMP = Best Management Practice; SOIL = Soil Mitigation Measure; AES = Aesthetic Mitigation Measure; AQ = Air Quality Mitigation Measure; BIO = Biological Mitigation Measure; LUPA = Land Use Plan Amendment.

² The Environmental Impact Statement mitigation measure language was copied from the Project Draft Environmental Impact Statement (EIS) Appendix 2A and 2B (BLM 2018). References for the requirement descriptions can be found in the source documents.

TABLE L-1-2 PROJECT-SPECIFIC CALIFORNIA REQUIREMENTS UNDER THIS PLAN*

Requirement ¹	Description ^{1, 2}
MM BIO-CEQA-1	Implement Biological Resources APMs, BLM BMPs, and CMAs as part of the Project and applied prior to, during, and after Project activities to avoid or minimize Project related impacts on biological resources; see Section 1.2.4. Where an APM, BMP, or CMA is subjective (I.e., “where appropriate”, “where feasible”), DCRT or their Construction Contractor(s) will consult with BLM and CPUC to determine applicability of each measure prior to the disturbance of a covered resource. Weekly and monthly documentation of compliance will be provided to the BLM and CPUC; further details are provided in Appendix 1C of the Draft EIS.
CMA LUPA-BIO-6	<p>Subsidized predator standards, approved by BLM, in coordination with the USFWS and CDFW, will be implemented during all appropriate phases of activities, including but not limited to renewable energy activities, to manage predator food subsidies, water subsidies, and breeding sites including the following:</p> <ul style="list-style-type: none"> • The application of water and/or other palliatives for dust abatement in construction areas and during project operations and maintenance will be done with the minimum amount of water necessary to meet safety and air quality standards and in a manner that prevents the formation of puddles, which could attract wildlife and wildlife predators. • Following the most recent national policy and guidance, BLM will take actions to not introduce, dispose of, or release any non- native species into areas of native habitat, suitable habitat, and natural or artificial waterways/water bodies containing native species. <p>All activity work areas will be kept free of trash and debris. Particular attention will be paid to “micro-trash” (including such small items as screws, nuts, washers, nails, coins, rags, small electrical components, small pieces of plastic, glass or wire, and any debris or trash that is colorful or shiny) and organic waste that may subsidize predators. All trash will be covered, kept in closed containers, or otherwise removed from the project site at the end of each day or at regular intervals prior to periods when workers are not present at the site.</p> <p>In addition to implementing the measures above on activity sites, each activity will provide compensatory mitigation that contributes to LUPA-wide raven management.*</p>
CMA LUPA-BIO-7	<p>Where Desert Renewable Energy Conservation Plan vegetation types or Focus or BLM Special Status Species habitats may be affected by ground disturbance and/or vegetation removal during pre-construction, construction, operations, and decommissioning related activities but are not converted by long-term (i.e., more than two years of disturbance, see Glossary of Terms) ground disturbance, restore these areas following the standards, approved by BLM authorized officer, following the most recent BLM policies and procedures for the vegetation community or species habitat disturbance/impacts as appropriate, summarized below:</p> <ul style="list-style-type: none"> • Implement site-specific habitat restoration actions for the areas affected including specifying and using: <ul style="list-style-type: none"> ○ The appropriate seed (e.g., certified weed-free, native, and locally and genetically appropriate seed) ○ Appropriate soils (e.g., topsoil of the same original type on site or that was previously stored by soil type after being salvaged during excavation and construction activities) ○ Equipment ○ Timing (e.g., appropriate season, sufficient rainfall) ○ Location ○ Success criteria ○ Monitoring measures ○ Contingency measures, relevant for restoration, which includes seeding that follows BLM policy when on BLM administered lands. • Salvage and relocate cactus, nolina, and yucca from the site prior to disturbance

Requirement ¹	Description ^{1, 2}
	<p>using BLM protocols. To the maximum extent practicable for short-term disturbed areas (see Glossary of Terms), the cactus and yucca will be re-planted back to the original site.</p> <ul style="list-style-type: none"> • Restore and reclaim short-term (i.e., 2 years or less) disturbed areas, including pipelines, transmission projects, staging areas, and short-term construction-related roads immediately or during the most biologically appropriate season as determined in the activity/project-specific environmental analysis and decision, following completion of construction activities to reduce the amount of habitat converted at any one time and promote recovery to natural habitats and vegetation as well as climate refugia and ecosystem services such carbon storage.
CMA LUPA-BIO-8	<p>All activities that are required to close and decommission the site (e.g., renewable energy activities) will specify and implement project-specific closure and decommissioning actions that meet the approval of BLM, and that at a minimum address the following:</p> <ul style="list-style-type: none"> • Specifying and implementing the methods, timing (e.g., criteria for triggering closure and decommissioning actions), and criteria for success (including quantifiable and measurable criteria). • Recontouring of areas that were substantially altered from their original contour or gradient and installing erosion control measures in disturbed areas where potential for erosion exists. • Restoring vegetation as well as soil profiles and functions that will support and maintain native plant communities, associated carbon sequestration and nutrient cycling processes, and native wildlife species. • Vegetation restoration actions will identify and use native vegetation composition, native seed composition, and the diversity to values commensurate with the natural ecological setting and climate projections.
CMA LUPA-BIO-10	<p>Consistent with BLM, state, and national policies and guidance, integrated weed management actions, will be carried out during all phases of activities, as appropriate, and at a minimum will include the following:</p> <ul style="list-style-type: none"> • Thoroughly clean the tires and undercarriage of vehicles entering or reentering the project site to remove potential weeds. • Store project vehicles on site in designated areas to minimize the need for multiple washings whenever vehicles re-enter the project site. • Properly maintain vehicle wash and inspection stations to minimize the introduction of invasive weeds or subsidy of invasive weeds. • Closely monitor the types of materials brought onto the site to avoid the introduction of invasive weeds and non-native species. • Reestablish native vegetation quickly on disturbed sites. • Monitor and quickly implement control measures to ensure early detection and eradication of weed invasions to avoid the spread of invasive weeds and non-native species on site and to adjacent off-site areas. • Use certified weed-free mulch, straw, hay bales, or equivalent fabricated materials for installing sediment barriers.
CMA LUPA-BIO-11	<p>Implement the following CMAs for controlling nuisance animals and invasive species:</p> <ul style="list-style-type: none"> • No fumigant, treated bait, or other means of poisoning nuisance animals including rodenticides will be used in areas where Focus and BLM Special Status Species are known or suspected to occur. • Manage the use of widely spread herbicides and do not apply herbicides effective against dicotyledonous plants within 1,000 feet from the edge of a 100-year floodplain, stream and wash channels, and riparian vegetation or to soils less than 25 feet from the edge of drains. Exceptions will be made when targeting the base and roots of invasive riparian species such as tamarisk and <i>Arundo donax</i> (giant reed). Manage herbicides consistent with the most current national and California BLM policies. • Minimize herbicide, pesticide, and insecticide treatment in areas that have a high risk for groundwater contamination.

Requirement ¹	Description ^{1, 2}
	<ul style="list-style-type: none"> Clean and dispose of pesticide containers and equipment following professional standards. Avoid use of pesticides and cleaning containers and equipment in or near surface or subsurface water. When near surface or subsurface water, restrict pesticide use to those products labeled safe for use in/near water and safe for aquatic species of animals and plants.
MM VEG-CEQA-1	The overall purpose of this measure is to develop and implement a Vegetation Management Plan; however, within this measure holds the CEQA requirements of post-construction surveys, monitoring, and reports related to vegetation restoration. The Vegetation Management Plan shall detail procedures to manage, monitor, mitigate, and restore native vegetation and habitat, as well as provide controls for noxious and invasive weed species. The Vegetation Management Plan shall incorporate the APMs, BMPs, and CMAs, by including the specifications detailed in the Habitat Restoration and Monitoring Plan, the Noxious Weed Management Plan/Invasive Species Management/Control Plan, and all other applicable vegetation management mitigation and monitoring plans associated with the Project.
CMA LUPA-BIO-VEG-1	Management of cactus, yucca, and other succulents will adhere to current up-to-date BLM policy.
CMA LUPA-BIO-VEG-2	Promote appropriate levels of dead and downed wood on the ground, outside of campground areas, to provide wildlife habitat, seed beds for vegetation establishment, and reduce soil erosion, as determined appropriate on an activity-specific basis.
CMA LUPA-BIO-VEG-3	Allow for the collection of plant material consistent with the maintenance of natural ecosystem processes.
MM VEG-CEQA-4	<p>Compensation for impacts to special-status plant species and sensitive communities; specific to reclamation and/or restoration of vegetation includes the following:</p> <p><u>Onsite Compensation:</u> Compensation for unavoidable temporary impacts to special-status plant species shall include on-site habitat restoration with similar species compositions to those present prior to construction at a ratio of 1:1. Restoration measures shall be documented in the Vegetation Management Plan (MM-VEG-CEQA-1), as well as the Special-Status Plant and Sensitive Vegetation Community Mitigation and Monitoring Plan.</p> <p><u>Off-Site Compensation:</u> It was assumed that Project-related impacts would result in the loss of more than 10 percent of the on-site population of any special-status plant species with a CRPR of 1 or 2. Compensation for permanent impacts to special-status plant species based on the results of the floristic surveys shall include off-site creation, enhancement, and/or preservation or participation in an established mitigation bank program at a minimum 3:1 replacement ratio. DCRT or their Construction Contractor(s) shall coordinate with CPUC, BLM, and CDFW to determine the appropriate mitigation strategy and final replacement ratios and acreages. All mitigation shall be approved by the appropriate federal and state regulatory agencies prior to Project activities.</p> <p>DCRT or their Construction Contractor(s) shall restore all temporary impacts to sensitive vegetation communities (e.g., blue Palo Verde [<i>Cercidium floridum</i>]-ironwood [<i>Olneya tesota</i>] woodland, mesquite [<i>Prosopis</i> spp.] thickets, bush seepweed [<i>Suaeda nigra</i>] scrub, etc.) and special-status species habitat at a minimum ratio of 1:1, as detailed in the Vegetation Management Plan (MM-VEG-CEQA-1) and the Special-Status Plant and Sensitive Vegetation Community Mitigation and Monitoring Plan (MM-VEG-CEQA-4).</p> <p>To compensate for permanent impacts to sensitive vegetation communities and special-status species habitat, DCRT or their Construction Contractor(s) shall provide the creation and/or restoration of habitat at the following ratios:</p> <ul style="list-style-type: none"> Permanent impacts to sensitive vegetation communities, (e.g., riparian desert woodland habitats, blue Palo Verde-ironwood woodland, mesquite thickets) shall be mitigated at a ratio of 5:1;

Requirement ¹	Description ^{1, 2}
	<ul style="list-style-type: none"> • Permanent impacts to other sensitive vegetation communities shall also be mitigated at a ratio of 5:1; and • Permanent impacts to jurisdictional waters/wetlands shall be mitigated at a minimum ratio of 2:1, or as otherwise specified by the appropriate federal and state regulatory agencies. <p>Off-site compensation lands and/or established mitigation bank program will be identified, if available, in coordination with the appropriate federal and state regulatory agencies. Off-site compensation lands will consist of habitat occupied by the impacted special-status plants at the appropriate ratio of acreage and the number of plants for any occupied habitat affected by the Project. Occupied habitat will be calculated on the Project site and on the compensation lands as including each special-status plant occurrence. Off-site compensation shall be documented in the Project-specific Special-Status Plant and Sensitive Vegetation Community Mitigation and Monitoring Plan and approved in consultation with the appropriated federal and state regulatory agencies.</p> <p>DCRT or their Construction Contractor(s) shall provide for open space/conservation easements on all acquired lands or provide the required funds for the acquisition of easements to a “qualified easement holder”; the CDFW is a qualified easement holder. To qualify as a “qualified easement holder” a private land trust must have substantial experience managing open space/conservation easements that are created to meet mitigation requirements for impacts to special-status species, have adopted the Land Trust Alliance’s Standards and Practices, and have a stewardship endowment fund to pay for its perpetual stewardship obligations. DCRT or their Construction Contractor(s) shall also provide the “qualified easement holder” with adequate funds to cover administrative costs incurred during the creation of the easement, funds in the form of a non-wasting endowment to cover the cost of monitoring and enforcing the terms of the easement in perpetuity.</p> <p>For special-status plant restoration or enhancement activities, several techniques can be applied including:</p> <p><u>Salvage:</u> DCRT or their Construction Contractor(s) shall consult with the designated qualified biologist/botanist, as well as the appropriate federal and state regulatory agencies, regarding the feasibility and likely success of salvage efforts for each special-status plant species. If salvage is deemed to be feasible, then DCRT or their Construction Contractor(s) shall incorporate salvage measures into the Project-specific Special-Status Plant and Sensitive Vegetation Community Mitigation and Monitoring Plan, which shall be approved by the appropriate federal and state regulatory agencies prior to implementation.</p> <p><u>Propagation and Off-Site Introduction:</u> If salvage and relocation is not believed to be feasible for special-status plants, then DCRT or their Construction Contractor(s) shall consult with appropriate federal and state agencies, as well as other qualified entities if needed, to develop an appropriate experimental propagation and relocation strategy, based on the life history of the species affected. The strategy will include at minimum: (a) a planting methodology including strategies for species specific collection and salvage measures for plant materials (e.g., cuttings), seed, or seed banks, to maximize success likelihood; (b) details regarding storage of plant, plant materials, or seed banks; (c) location of the proposed propagation facility, and proposed methods; (d); time of year that the salvage and other planting or transplantation practices will occur; (e) irrigation; (f) erosion controls; (g) success criteria; and (h) a detailed monitoring program. All propagation and off-site introductions strategies shall be documented in the Special-Status Plant and Sensitive Vegetation Community Mitigation and Monitoring Plan for the Project.</p> <p><u>Restoration:</u> Restoration can be used to mitigate impacts and depending upon the degree of impact, habitat restoration may be as simple as removing debris and controlling public</p>

Requirement ¹	Description ^{1, 2}
	<p>access. In more complex situations, however, partial or total restoration of degraded habitat may require extensive revegetation, and soil protection and stabilization programs. The strategy will include at a minimum: (a) BLM approved genetically and ecologically appropriate native plant materials suitable for the site; (b) a description of any required topsoil salvage, plant salvage, seeding techniques, and methods to stabilize and shape soil surface to reduce soil erosivity; (c) monitoring and reporting protocols; and (d) success criteria. Restoration must be tailored to the specific project site based on the habitat and species involved.</p> <p><u>Monitoring and Maintenance:</u> All mitigation for special-status plant species shall be monitored to assess progress and to make recommendations for successful establishment. Monitoring shall be performed by qualified biologist/botanist that DCRT or their Construction Contractor(s) has designated. At a minimum, Monitoring shall include qualitative and quantitative methods as described in MM VEG-CEQA-1 for the Vegetation Management Plan and MM VEG-CEQA-4 Special-Status Plant and Sensitive Vegetation Community Mitigation and Monitoring Plan. Monitoring shall identify the need for remediation or maintenance work well in advance of final success/failure determination. Monitoring and maintenance progress toward achieving success criteria, conditions, and all observations pertinent to eventual success shall be documented in the Post-Construction Vegetation Management Quarterly Monitoring Progress Reports, and the Annual Post-Construction Vegetation Management Report, as described in the Vegetation Management Plan measure (MM-VEG-CEQA-1).</p> <p>If federally- and/or state-listed plant species are identified within project disturbance areas, then consultation with the appropriate resource agencies will be required to develop acceptable mitigation prior to construction, which may include additional measures. Conservation measures to protect or restore listed special-status plant species, or their habitat, may be required by the appropriate federal and state regulatory agencies before impacts are authorized.</p>
CMA LUPA-BIO-VEG-5	All activities will follow applicable BLM state and national regulations and policies for salvage and transplant of cactus, yucca, other succulents, and BLM Sensitive plants.
CMA LUPA-BIO-VEG-6	BLM may consider disposal of succulents through public sale, as per current up-to-date state and national policy.

¹ APM = Applicant Proposed Measure; BIO = Biological Mitigation Measure; BLM = Bureau of Land Management; BMP = Best Management Practice; CDFW = California Department of Fish and Wildlife; CEQA = California Environmental Quality Act; CMA = Conservation Management Action; CPUC = California Public Utilities Commission; CRPR = California Rare Plant Ranking; DEIS = Draft Environmental Impact Statement; DCRT = Delaney Colorado River Transmission, LLC; LUPA = Land Use Plan Amendment; MM = Mitigation Measure; VEG = Vegetation

² The Environmental Impact Statement mitigation measure language was copied from the Project DEIS Appendix 2B and 2C (BLM 2018). References for the requirement descriptions can be found in the source documents.

3 Overview of Existing Environments

The Project is located in the North American Deserts Ecoregion (Level I division) and the Sonoran Basin and Range subdivision (Level III division) (United States Environmental Protection Agency 2013). This ecoregion is characterized by scattered low mountains and has large tracts of federally-owned lands. The majority of the Project area is included within two subdivisions of the Sonoran Desert: Lower Colorado River Valley and Arizona Uplands, represented by various plant associations and habitat types (including physical features).

As stated in the Project's Draft EIS, the Project Area is in the Sonoran Desert subdivision of the physiographic province with elevations from 100 feet above mean sea level (amsl) in the desert valley floor to 4,000 feet amsl in the hills, buttes, and mountain tops (Fenneman 1931). The Arizona mountain ranges in and near the Project area are generally lower than

3,700 feet in elevation with valley bottoms ranging from approximately 300 to 1,200 feet amsl; however, the California flat terrain of the Project area has elevations ranging from approximately 250 to 2,500 feet amsl.

Reclamation actions and treatments will be specific to the Project setting, where the vegetation communities are situated. Resource impacts will be effectively mitigated through these reclamation activities. Reclamation of temporarily disturbed lands would occur primarily during the construction and post-construction phases of the Project. Once pre-construction plant surveys are completed in the field, known vegetation communities will be updated within the POD appendices, as necessary. Descriptions of the following existing environments can also be found within the Vegetation Management Plan (Appendix F-7 of the POD).

3.1 Biotic Communities and Existing Habitat Series

The Project will consider each existing habitat series as reclamation actions are implemented along the ROW. Details on existing environments are based on guidance from land-cover data provided in the Project Draft EIS, the Biotic Communities in the Southwestern United States and Northwestern Mexico (Brown 1994), and the Manual of California Vegetation (California Native Plant Society 2009).

Portions of the Project occur within the Lower Colorado River Valley and Arizona Uplands. The Lower Colorado River Valley subdivision is the most arid subdivision of the Sonoran Desert and is characterized by open vegetative communities with unique flora tolerant of extremely high temperatures. The Arizona Uplands is a mixture of multi-dissected slopes and plains more watered and considered the least desert-like desert scrub in North America (Brown 1994). See below for the vegetation series that the Project intersects within this subdivision.

3.1.1 Creosote Bush-white Bursage Scrub Series

Within the Lower Colorado River Valley subdivision, creosote bush - white bursage (*Larrea tridentata* – *Ambrosia dumosa*) are widespread occurring from steep slopes to old volcanic rock formations. This series includes other species such as big galleta (*Hilaria rigida*), indigo bush (*Psoralea schottii*), longleaf ephedra (*Ephedra trifurca*), and wild buckwheat (*Eriogonum deserticola*). This community is an indicator of “soil arability” where sandy loams occur around plant mounds (Brown 1994; California Native Plant Society 2009).

3.1.2 Allscale Scrub Series

Within the Lower Colorado River Valley subdivision, allscale scrub mixed saltbush series or mixed saltbush series (*Atriplex* spp.) generally prefers gently sloped valleys and often creates patches of habitat within creosote bush-bursage habitats. Allscale saltbush (*Atriplex polycarpa*) dominate this shrub canopy that includes four-wing saltbush (*Atriplex canescens*), cheesebush (*Ambrosia salsola*), bladderpod (*Cleome isomeris*), Alkali goldenbush (*Isocoma acradenia*), and creosote bush. The saltbush scrub occurs typically where soils are more saline (Brown 1994).

3.1.3 Blue Paloverde – Ironwood – Woodland Series

Within the Lower Colorado River Valley, a vegetation community referred to as the blue palo verde – ironwood woodland (*Parkinsonia florida* – *Olneya tesota*) or can be considered desert dry wash woodland (California Native Plant Society 2019). Typically, this series is open to fairly dense assemblages along washes and similar places where blue palo verde, ironwood, desert lavender (*Hyptis emoryi*), indigo bush, jojoba (*Simmondsia chinensis*), and other Sonoran typical species may exist (Brown 1994; California Native Plant Society 2009).

3.1.4 Saguaro – Foothill Palo Verde – Velvet Mesquite Desert Scrub

From the Arizona uplands Subdivision, the most iconic of vegetative series within the Sonoran Desert is the paloverde – cacti – mixed scrub or saguaro (*Carnegiea gigantea*) - foothill palo verde (*Cercidium microphyllum*) - velvet mesquite (*Prosopis velutina*) desert scrub. This series develops from valley floors on bajadas, washes, and mountain sides where broken ground and multi-dissected sloping plains occur. Low cover would include brittlebush (*Encelia farinosa*), fagonbush (*Fagonia laevis*), creosote bush, and Hall's purple bush (*Tetradlea hallii*) and cacti including teddy bear cholla (*Cylindropuntia* ~~*Cylindropuntia*~~ *bigelovii*), desert Christmas cactus (*Opuntia leptocaulis*), pencil cholla (*Cylindropuntia arbuscular*), Engelmann's prickly pear (*Opuntia engelmannii*), hedgehog cactus (*Echinocereus fasciculatus*), fishhook pincushion (*Mammillaria microcarpa*), and compass barrel cactus (*Ferocactus acanthodes*; Brown 1994; California Native Plant Society 2009).

3.1.5 Jojoba Scrub Series

A local dominance within the Arizona Uplands is called the Jojoba Scrub. Jojoba is an unusual evergreen shrub with thick, bluish-green foliage and acorn-like fruits popular for game stock to forage. Intermittent with California sagebrush (*Artemisia californica*), can cholla (*Cylindropuntia californica*), hedgehog cactus, Acton's brittlebush (*Encelia actonii*), brittlebush, California buckwheat (*Eriogonum fasciculatum*), broom snakeweed (*Gutierrezia sarothrae*), beavertail cactus (*Opuntia basilaris*), and Mojave yucca (*Yucca schidigera*), this series mostly occurs in the upper limits along open well-drained slopes and alluvial fans (Brown 1994; California Native Plant Society 2009).

3.1.6 Mesquite Series

Mesquite Series, also known as mesquite thickets, bosques, or *Prosopis* woodland alliance, is a dominant mix of mesquite (*Prosopis* spp.) including the honey mesquite (*Prosopis glandulosa*), velvet mesquite, (*Prosopis velutina*), and screwbean mesquite (*Prosopis pubescens*) that tend to exist near areas of intermittently flooded soils or floodplains, stream banks, washes, or surrounding alkali sinks or salty basins within the Lower Colorado River Valley subdivision (Brown 1994; California Native Plant Society 2009).

3.1.7 Bush Seepweed Series

A biotic community of bush seepweed (*Suaeda nigra*=*Suaeda moquinii*), iodine bush (*Allenrolfea occidentalis*), saltbush spp., and desert broom (*Baccharis sarothroides*), that can occur around areas of high salt concentrations like margins of dry or wet lakes within the Lower Colorado River Valley subdivision (Brown 1994; California Native Plant Society 2009).

3.1.8 Creosote Bush Scrub

The creosote bush scrub mirrors the creosote bush-white bursage series with creosote bush dominating, but white bursage and big galleta plants less important and exist on alluvial fans, bajadas, or upland slopes with pavement surfaces (California Native Plant Society 2009). Other common plants include spiny hopsage (*Grayia spinosa*), saltbush spp., Mojave yucca, brittlebush, bladder sage (*Salazaria mexicana*), shadscale saltbush (*Atriplex confertifolia*), and Nevada ephedra (*Ephedra nevadensis*; Brown 1994).

3.1.9 Other Land Use Cover

Other land use cover categories that the Project intersects include agricultural lands (irrigated row and field crops), urban or residential landscape, and open water including the Colorado River (BLM 2018). DCRT will coordinate with private landowners in areas where the Project crosses private properties.

It is crucial for reclamation efforts of the Project to match the specific ecological communities disturbed, to the maximum extent practicable. Reclamation actions including topsoil salvage provides seeds and organic materials typical of a certain area which are important for ecological recovery (see Section 5.1.6). During pre-construction efforts, plants including mature trees, sensitive species, succulents, and cacti will be assessed if preservation or transplanting actions can be applied (see Sections 5.1.3 and 7.1.4). The Succulent Management Plan within the Vegetation Management Plan (Section 15 within Appendix F-7 of the POD) provides planting and transplanting specific to succulent species. The Special Status Plant Transplantation Plan and Compensation Plan within the Vegetation Management Plan (Section 16 within Appendix F-7 of the POD) provides more details on transplanting and preserving of special status plant species. Native forbs, herbaceous flowering plants, shrubs, and grasses that are dominant to the specific disturbed region will be used within the Project seed mixes, as approved by the BLM (see Section 5.2.3).

4 Reclamation Levels

The purpose of establishing Reclamation Levels (RL) is to assist with the implementation of reclamation activities. Project modification or variances may occur, and these RLs provide clear guidance on what reclamation activities will be required for those changes. Each RL was determined based on type(s) of construction activity, facility features, the area of associated disturbance, and disturbance type and duration. Activities associated with Project construction of principal and supplemental facilities include:

- Surveying the Project centerline and work areas.
- Pre-construction resource surveys for sensitive resources and noxious weeds.
- Upgrading or construction of access roads (temporary and permanent).
- Clearing and grading activities.
- Excavating and installing foundations.
- Structure assembly and installation on pad sites (temporary and permanent).

- Stringing conductors and ground wires.
- Clean-up and reclamation of affected areas.

Details of these activities and their associated disturbance characteristics can be found in Section 4.2 and within Project Disturbance described within the POD (Section 3.4.1 of the POD). The following subsections will break down disturbance duration and types as well as the five RLs based upon Project activities and disturbances.

4.1 Disturbance Durations

Disturbance duration would be either temporary or permanent. These are subsequently described and include details on construction activities that are associated with each disturbance duration.

4.1.1 Temporary Disturbances

Temporary disturbance areas include those intended for short-term use during construction during the Project. Roads and areas only needed for the construction of the line but not for operation and maintenance will be fully reclaimed to previous contours to match surrounding topography to the extent practical. These areas include but are not limited to:

- Structure sites; typical temporary work area assumed for each structure, with exception to the structure base dimensions (long-term disturbance for operation and maintenance).
- Puller/tensioner sites; area of work where conductor, shield wire, and pulling equipment (i.e., puller, tensioner, wire wheels, wire boats) must be stationed in order to pull, string, and create the necessary tension of wire required transmission line support; roads placed for the access to puller/tensioner and guard pole sites will be fully reclaimed and seeded during the reclamation phase.
- Laydown yards; synonymous for material staging and storing.
- Access roads; temporary access roads required to access the structure sites and not needed for operation and maintenance of the line (i.e., spur roads).
- Turn-outs or pull-outs; areas along access roads that provide an appropriate location for turning and moving aside the road safely and remain within the approved ROW limits.
- Snub sites; area where conductor is temporarily fixed or attached to the ground for conductor-sagging purpose.
- Helicopter fly yard; areas for supporting helicopter construction only.
- Guard structures or guard pole sites; temporary clearance structures set up over highways, transmission lines, structures, waterways, and other obstacles prior to conductor stringing.

Blading within temporary disturbances are generally allowed with the purpose of leveling the site but will be restored after construction activity ceases. For more details on all Project-related construction activities and features, see Section 3 and 4 of the POD.

4.1.2 Permanent Disturbances

Permanent disturbance areas include those intended for long-term use for Project operation, and maintenance activities after construction is completed. This includes areas where a blading has permanently transformed the landscape by removing vegetation and leveling the sites (see Section 3.1 of the POD). Examples include, but are not limited to:

- Structure base sites; areas within structure sites required for long-term maintenance and operation of the structures.
- Access roads; new access roads located outside the ROW or access roads to each structure site for long-term maintenance and operation of the transmission line.
- Guyed-V; structures that include a single footing and four support guy wires anchored into the ground.
- Series Compensation Station (SCS; see Section 3.1.11 of the POD); proposed SCS and Site-Distribution Line that will be permanent, with the exception of distribution structure sites (temporary disturbance).

Existing access roads and pre-disturbed areas that are not Project-related disturbances are also categorized as permanent disturbance (“no new disturbance”). These areas would not require improvements by the Project (i.e., vegetation removal, grading); and thus, would not require reclamation actions.

Table L-1-3 identifies the anticipated construction features and describes the area of potential temporary or permanent disturbance within the Project. Two construction features are represented in temporary and permanent disturbance durations.

For all roads that remain in place for operation and maintenance of the Project, travel surfaces in the width of the roadbed will be permanent disturbance, with the road-base intact and unseeded. Cuts and fills to support the permanent road matrix will remain in place with clean-up activities performed. Such activities include: berms rounded to a reasonable slope that would remain in place for safety, erosion, and sediment control. In low-lying slopes, berms may be track walked to a lower height than necessary for steep areas and allow wildlife (e.g., desert tortoise [*Gopherus* spp.]) to safely escape the road bed. Reinforced water bars will be placed on roads up to the operator’s discretion.

Fill may be pulled up or rounded and blended in a roughened state for seed bed preparation, with seeding to follow completion of reclamation dirt work activities. It is assumed that only the permanent width of the travel surface is accounted for as permanent disturbance and cuts and fills reseeded are considered temporary disturbances.

TABLE L-1-3 CHARACTERISTICS OF CONSTRUCTION DISTURBANCE FOR THE PROJECT¹

Construction Feature	Description ²
Temporarily Disturbed Land	
Structure sites	Estimated total work sites to be approximately 200 feet by 200 feet or maximum 1.1 acre (the total number of structures will be determined when the route is finalized)
Wire pulling/tensioning sites	Dimensions estimated 500 feet by 200 feet
Snubbing sites	Estimated 200 feet by 600 feet
Laydown yards	Anticipated four sites totaling 34.5 acres
Access roads (improve existing, spur, pull-out, and new)	Access roads estimated for 16-foot surface and 2-foot-wide berms on each side = 20 feet ³ ; maximum 18-foot-wide ³ e; see Table 3.3 of the POD (if pullouts are required = 10-foot-wide by 150 feet length ³)
Helicopter fly yards	Preliminary fly yards (total of four) estimated between 5.8 acres to 43.5 acres; see Table 3.8 of the POD
Guard structure sites	50 feet by 200 feet (10,000 square feet) work area at each structure (2 typical per crossing; additional at highways)
SCS Site-Distribution Line ⁴	15 feet by 40 feet per structure
Permanently Disturbed Land	
Structure base sites (within structure sites)	Dimensions estimated 50 feet by 50 feet for structure base site and 9 feet by 9 feet for each foundation
Access roads (improve existing, spur, and new)	From 16-foot to 22-foot travel surface ³
Guyed-V structures	Estimated 81 square feet with a 9-foot by 9-foot base; total 84.1 square feet per structure
SCS ⁴	Estimated 200 feet by 315 feet fenced area and additional 10 feet of disturbance outside the fenced area; total permanent disturbance approximately 1.7 acres
SCS Site-Distribution Line ⁴	18-inch radius per structure

¹Table derived from EC Source 2017a.

²Details derived from Section 3 of the POD.

³If existing roads need to be improved beyond existing disturbance widths, depending on degree of slope and amount of displaced soils, the maximum total disturbance width is 30 feet, with exception to Copper Pass Bottom Pass maximum total disturbance width of 50 feet (Section 3.1.10 of the POD).

⁴SCS = Series Compensation Station

4.2 Disturbance Types

Four broad disturbance types are defined based on activities associated with the construction or Project facilities and are considered when identifying the appropriate RLs and practices. These disturbance types are described below.

4.2.1 No New Disturbance

No new disturbance includes existing access roads or pre-disturbed locations that do not require improvements and will remain permanent after Project construction is complete.

4.2.2 Drive and Crush

Vegetation is crushed by equipment and, generally, not cropped or removed from the site. Soil compaction occurs, but no surface soil is removed, preserving existing root mass and topsoil so vegetation may re-sprout after the conclusion of construction. "Drive and crush" will likely be used for Project wire-stringing sites and helicopter fly yards where possible.

4.2.3 Clear and Cut

Vegetation is brushed off the work area in order to provide suitable access for equipment and vehicles. The soil is compacted, but no surface soil is removed (i.e., no blading of topsoil).

4.2.4 Grade

Similar to "clear and cut," all vegetation is removed within the work area; however, surface soils are either altered or displaced to another location upon review and approval of the CIC. This provides suitable access for equipment and vehicles as well as the installation of structures. Typically, the work area can require a heavier level of ground disturbance and, in some cases, work requires grading and filling (i.e., removed soil becomes the fill material) for new access roads, clearing and grading that may be associated with structure installation, or improve existing access.

Based on the type and duration of disturbance associated with the construction features of the Project, each level of reclamation can be identified below.

4.3 Reclamation Levels Defined

4.3.1 Reclamation Level 1 (RL1)

RL1 is characterized by a minimal level of disturbance and a minimal level of reclamation intensity (Permanent). Construction in these areas produces no new disturbance, requiring minimal pre-construction treatment, and will normally require no post-construction actions (outside of routine maintenance). As described below in Section 5.1.1, some RL1 areas will require pretreatment of existing weeds to protect from the infestation and spread of noxious weeds.

4.3.2 Reclamation Level 2 (RL2)

RL2 is characterized by a low level of disturbance and a moderate level of reclamation intensity (Temporary). Construction and disturbance activities in these areas are temporary, resulting in disturbance being confined to overland construction. Vegetation crushing will require a moderate level of reclamation actions. As presented below in Section 5, reclamation actions focus on noxious weed control and soil decompaction.

4.3.3 Reclamation Level 3 (RL3)

RL3 is characterized by moderate level of disturbance and a high level of reclamation intensity (Temporary). Construction in these areas produces moderate temporary disturbance that requires clearing, cutting of vegetation, and several reclamation actions as presented in Section 5. In addition, cleared vegetation will be used as mulch cover, and supplemental mulch (e.g., straw certified weed-free by California County Agricultural Commissioners in conjunction with the California Department of Food and Agriculture) may be used to protect cleared areas. As appropriate, areas of reclamation will be flagged, or signage installed to provide protection.

4.3.4 Reclamation Level 4 (RL4)

RL4 is characterized by a moderate/high level of disturbance and a moderate level of reclamation intensity (Permanent). Construction in these areas produces a high level of permanent disturbance. These areas are associated with long-term maintenance and operation of the Project; specifically, new permanent access roads and structure pads. Minimal reclamation action is required including no revegetation and minimal soil replacement. Topsoil should be salvaged to be used in other areas slated for topsoil replacement.

4.3.5 Reclamation Level 5 (RL5)

RL5 is characterized by a high level of disturbance and the maximum level of reclamation intensity (Temporary). Construction in these areas produces a high level of disturbance, due to vegetation and soil removal. This reclamation level applies to long-term reclamation areas such as wire pulling/tensioning sites, construction yards, and laydown areas located on federal lands. These areas require the maximum level of reclamation actions including soil and plant salvage, ongoing weed control, topsoil replacement, monitoring transect selection, earthwork, reseeding, replacement of soil and mulch, transplant salvage, signage, supplemental mulch, and post-construction monitoring (more details in Section 5).

Table L-1-4 provides the relationship between the disturbance types, disturbance durations, and RLs.

TABLE L-1-4 RECLAMATION LEVELS – DISTURBANCES*

Disturbance Type	Disturbance Duration	
	Permanent	Temporary
No New Disturbance	RL1	-
Drive and Crush	-	RL2
Clear and Cut	-	RL 3
Grade	RL 4	RL 5

*Table derived from EC Source 2017a.

Table L-1-5 demonstrates how the relationships identified in Table L-1-4 are applied to construction features.

TABLE L-1-5 RECLAMATION LEVELS – CONSTRUCTION AND DISTURBANCE¹

Construction Feature	Disturbance Type	Disturbance Duration		Reclamation Level
		Permanent	Temporary	
Structure sites (base area permanent)	Drive and crush		X	RL2
	Clear and cut		X	RL3
	Grade	X	X	RL5
Wire pulling and tensioning sites ² ; laydown yards; fly yards	Drive and crush		X	RL2
	Clear and cut		X	RL3
	Grade		X	RL5
SCS and Site-Distribution Line; Guyed-V structures	Grade	X		RL4
Existing paved roads, access roads (no improvements)	No new disturbance	X		RL1
Existing access roads (with improvements)	Grade	X		RL4
New access road	Drive and crush		X	RL2
	Clear and cut		X	RL3
	Grade	X	X	RL4/RL5

¹Table derived from EC Source 2017a.

² Wire pulling and tensioning sites within Copper Bottom Pass and Plomosa Mountains will require grading; possibly temporary disturbance.

5 Description of Reclamation Actions

Reclamation actions are physical treatments and activities that will occur throughout each phase of the Project, specified for each reclamation area. They are specific to the RLs

previously discussed and illustrated below in Table L-1-6. These actions will facilitate resource protection during construction, recovery for areas temporarily disturbed by Project construction and promote the re-establishment of native vegetation that is similar in species composition cover and diversity to pre-construction condition.

All reclamation actions described in this Plan are consistent with the relevant mitigation measures defined in Table L-1-1 and Table L-1-2 and will be updated, as necessary, upon finalization of the Final POD. Table L-1-6 illustrates appropriate reclamation actions and RLs for each phase of Project construction (pre-construction, construction, and post-construction). Locations of the reclamation areas, facility features, disturbance types, and vegetation communities will be identified in the Project Layout Maps (Appendix A of the POD).

Specifically, Table L-1-6 is a discernment tool for RLs presented in Table L-1-5 as they occur in the reclamation area. If a project variance is required due to unforeseen environmental or engineering constraints, Table L-1-6 provides guidance to determine which reclamation actions should be applied and where modifications may be required. As described below, pre-construction actions are those that occur before the construction of the Project is initiated. Their purpose is to preserve resources or features of interest and include activities associated with ROW preparation for reclamation and pre-construction activities. Post-construction actions concentrate on activities scheduled after Project construction has been completed, such as reclamation and maintenance activities.

TABLE L-1-6 RECLAMATION LEVELS AND ACTIONS¹

Reclamation Actions	RL1	RL2	RL3	RL4	RL5
Pre-construction					
Noxious Weed Abatement Implementation	X	X	X	X	X
Preserve in Place		X	X		X
Plant Salvage		X	X		X
Monitoring Transect Selection		X	X		X
Topsoil Segregation					X
Post-construction					
Earthworks		X	X	X	X
Topsoil Replacement		X			X
Seeding		X	X		X
Alternative Seeding		X	X		X
Transplant Salvage			X		X
Supplemental Mulch			X		X
Off-highway Vehicle Deterrent	X	X	X	X	X
Signage	X	X	X	X	X
Monitoring	X	X	X	X	X

¹ Table derived from EC Source 2017a.

² RL – Reclamation Level.

5.1 ROW Preparation and Pre-construction Actions

ROW preparation consists of installing flagging to demarcate the ROW boundaries, sensitive areas, access road limits, and construction work areas. Pre-construction plant surveys and ROW assessments provide baseline information to gauge reclamation success (see Vegetation Management Plan; Appendix F-7 of the POD). This also helps increase focus on protecting sensitive areas and resources; specifically, by recording sensitive plants to preserve in place, identifying areas infested by noxious weeds, and documenting of potential storage areas for soil and organic materials (i.e., dead plants, rocks). In addition, site monitoring will also be established, as described in Section 7 of this Plan.

Project construction and disturbance shall commence after all ROW preparation and pre-construction actions have been completed. Pre-construction action for reclamation purposes are defined in detail below and organized by their sequence of implementation. Note that some actions may be concurrent.

5.1.1 Noxious Weed Abatement Implementation

Guidelines are provided in the Noxious Weed Management Plan (Section 5 within Appendix F-4 of the POD), to implement noxious weed treatments where they are present along the Project ROW as well as addressing the preventative measures to control the spread of noxious weeds during construction (see APM-BIO-12 in Table L-1-1). These actions are key in minimizing impacts to sensitive plants. Once the pre-construction control measures have been implemented, subsequent actions for ROW preparation may proceed.

5.1.2 Vegetation Inventory

As stated in APM/BMP-BIO-15 and APM-BIO-26 in Table L-1-1 and MM VEG-CEQA-1, vegetation inventory will be conducted by the Construction Contractor(s) or Reclamation Subcontractor (see Vegetation Management Plan; Appendix F-7 of the POD). The focus of inventory includes cacti and succulent specimens suitable for “preserve in place” or “plant salvage” (see Succulent Management Plan; Section 15 within Appendix F-7 of the POD).

5.1.3 Preserve in Place

This treatment includes the preservation of existing vegetation to reduce visual impacts and/or when mature or sensitive plant specimens are present to enhance habitat recovery (see aesthetics [AES] APM/BMP-AES-02). This preservation of specimens may be requested by the BLM as well as recommended by the Construction Contractor(s) and/or Reclamation Subcontractor on a case-by-case basis.

Eligible specimens may include mature trees, sagebrush, succulents, and/or sensitive species. Diverse vegetation groupings would provide seed and a microclimate for future seedling germination. Flagging or fencing of eligible specimens should be completed prior to ground disturbance. The Construction Contractor(s) shall ensure any Project activity will not disturb the specimens.

5.1.4 Plant Salvage

In accordance with Table L-1-6 and required in BMP-BIO-41 and BMP-BIO-43, succulent plants may be considered for salvage if they will potentially be impacted by construction activities and are in a healthy condition as determined by the Reclamation Subcontractor and/or Environmental Compliance Manager (ECM).

The Vegetation Management Plan and Succulent Management Plan (Appendix F-7 of the POD) will identify succulent species, appropriate plant sizes for salvaging, specialized transport techniques of salvaged plants, storage, maintenance, and replanting. This plan shall be approved by the BLM prior to site disturbance.

The Construction Contractor(s) shall appropriately flag eligible plants for salvage. A list describing quantity and species of plants that were salvaged will be provided by the Construction Contractor(s) or the Reclamation Subcontractor to the BLM upon completion of salvage activities. The Construction Contractor(s) or Reclamation Subcontractor will transplant salvaged plants out of harm's way to designated areas, approved by the ECM.

Plants salvaged from permanent disturbance locations are only to be moved once and replanted in their final location. Studies in Arizona have shown moving salvaged plants multiple times can lead to lower survivability and undue stress on the individuals (Arizona Department of Transportation Research Center 2012; Arizona Public Service Electric Company [APS] 2017). Therefore, the "once-move" technique should be evaluated as a better suited option in lieu of nurseries.

5.1.5 Monitoring Transect Selection

As discussed below in Section 8, preliminary site monitoring locations shall be established along the ROW, based on Project engineering data provided during pre-construction surveys (see Vegetation Management Plan; Appendix F-7 of the POD). Sites shall be selected for the reclamation areas and vegetation communities traversed by the Project. The number of sites will be provided to the BLM. Once monitoring site locations are finalized, photographs shall be taken prior to any construction-related disturbance.

5.1.6 Topsoil Segregation

Required under APM/BMP-BIO-15, BMP-SOIL-01, and MM VEG-CEQA-1, this treatment includes the separation and setting aside of topsoil containing organic material and the seed-base of plants for post-construction replacement. In addition, the Construction Contractor(s) is to conduct topsoil salvage and include all rocks and vegetation as mulch. The depth of topsoil separation is dependent on the soil type where the reclamation activity occurs.

This topsoil should be labeled clearly and securely to protect inadvertent use as fill. Topsoil shall never be mixed with subsoil and separation from subsoils shall be maintained. When stockpiled, topsoil shall be protected from erosion, through the application of tackifiers, water, the establishment of a cover crop, tarp covers weighted down, or other methods. Disruption of stockpile topsoil shall be kept to a minimum.

5.2 Post-Construction Actions

Post-construction reclamation actions occur after the Project has been completed. These treatments focus on stabilizing permanent use areas and reclaiming temporary areas for re-establishment of native vegetation. Reclamation activities would commence following the completion of construction activities in an area. Post-construction reclamation actions are defined below and are organized by their sequence of implementation.

5.2.1 Earthworks

These activities may include recontouring, soil decompaction, and the application of appropriate soil erosion preventative measures. Earthmoving equipment replaces the removed material as close to the pre-construction contour as possible to restore the visual quality and provide stability to the slope (see APM/BMP-AES-02 in Table L-1-1). Soil decompaction may include ripping or scarifying to a depth below the root zone to promote water infiltration and root penetration (see BMP-SOIL-01 and MM VEG-CEQA-1). Erosion control measures such as water bars may be installed at the discretion of the Construction Contractor(s) and/or ECM. As indicated within Section 4.14.2 of the POD, all permanent travel surfaces will be left with an in-slope to cut bank, and water bars as necessary to reduce long-term erosion on road surfaces. Berms will be rounded or compacted to reduce visual contrast and will remain in place for safety purposes on slopes while allowing wildlife to safely escape road beds.

Recontouring also includes backfilling excavated holes and trenches during construction activities so that the natural terrain contours are maintained to the extent practicable. The Construction Contractor(s) will evenly distribute excess subsoil from excavated or graded areas (around transmission structure bases) over disturbed areas, to be moistened and compacted to a relative average density comparable to undisturbed adjacent material before re-spreading topsoil. A BLM designated representative will review and approve soil reclamation treatments (see BMP-SOIL-02). Subsoils will not be spread outside flagged construction areas and will be restricted to areas of permanent disturbance, if possible. Excessive subsoils that cannot be reasonably spread (i.e., those that would substantially change the grade of recontouring compared to adjacent conditions, or subsoils with an excessive depth that may impair ROW rehabilitation and reclamation) will be removed to an approved disposal site.

Where decompaction is required, the surface will be ripped or scarified to a depth of six inches as appropriate (e.g., not applicable to rock faces, severe slopes, or cliff areas), and will retain a buffer from existing vegetation or plants designated as “preserve in place.” Depth and area of compaction relief will depend on site-specific conditions and BLM would review and approve, as appropriate, the scarification type and location (see BMP-SOIL-01). Cross-ripping is preferable, and care should be taken to preventing inversion of the soil layers and preserve any vegetation in place. Deep sandy soils do not need to be decompacted and will not be ripped. Noxious Weed Abatement Implementation actions are included in post-construction monitoring and treatment, as necessary.

5.2.2 Topsoil Replacement

Salvaged topsoil will be replaced and dispersed evenly over the surface of disturbed sites. The purpose of this practice is to prevent mixing fertile, shallow soils with deeper infertile soils that may be less productive in the re-establishment of habitats due to rock, gravel, sand, calcareous layers, salinity or other chemical components that would adversely affect

the desired vegetation. The site will be left adequately rough after surface soil placement to provide micro sites for seed germination and to prevent significant movement of soil by seasonal weather events (wind or rain). In addition, further erosion control and soil stabilization methods (i.e., hydromulch) may be required to minimize soil movement, particularly for heavily sloped areas or for fine-textured soils. Surface soil will not be handled excessively during windy conditions.

5.2.3 Seeding

As stated in VEG-CEQA-1, reseeding involves planting new seed of desired plant species in affected areas. Federal land management agencies will approve the appropriate seed mix of species best suited to each reseeding site. A BLM or agency designated botanist or Authorized Officer will approve the seed mixes, seeding method, amendments, and timing. Further descriptions on preferred methods and plant palettes is found in the Vegetation Management Plan (Appendix F-7 of the POD).

The federal land-management agencies will be open to suggestions for seed mix revision, but they must approve any changes suggested by the Construction Contractor(s). Seed mixes will be based on vegetation communities described in Section 3 – Overview of Existing Environments and site-specific vegetation conditions identified in the field by the Construction Contractor(s) or Reclamation Subcontractor and approved by a BLM Authorized Officer. Reseeding shall be conducted at the first appropriate time after completion of construction (required for air quality, see BMP-AQ-01 in Table L-1-1).

5.2.4 Alternative Seeding

Within the Arizona portion of the Project, alternative seeding is primarily administered for ground cover in disturbed or weed infested areas by seeding of annual grasses and/or forbs. Annuals provide short-term soil cover, stabilization and a source of organic litter until other vegetation can become established (required for air quality BMP, see BMP-AQ-01 in Table L-1-1). Standard or priority reclamation areas may be treated with this reclamation action to manage noxious weed infestations. The annual grasses are usually sterile rye or oats since the regeneration of non-natives is not desirable. Similar to regular seeding, alternative seed mix compositions and methods of dispersing seeds will be determined through coordination with a BLM representative. See also the Vegetation Management Plan (Appendix F-7 of the POD).

5.2.5 Transplant Salvage

In coordination with a qualified BLM specialist, succulent plants, such as cacti, yucca, and agave species will be replanted in the same general location (as much as possible) and with the proper compass orientation as recorded prior to initial removal (as stated in BMP-BIO-41 in Table L-1-1). Plants transplanted from permanent use areas will be relocated to areas adjacent to the ROW, as close as possible to original conditions and similarly oriented. All salvaged plant material will be replanted in natural patterns. Saguaros (*Carnegiea gigantea*) and large yucca species will be carefully removed from the ground, taking care to not damage stems, roots or the base of the plant. Yuccas will be re-planted in groups of three or more for a natural effect. Each transplant will be filled with water and allowed to drain once.

Salvaged plants may require the installation of temporary protective measures to minimize herbivory and/or disturbance from off-highway vehicle users. Prior to removal of saguaros,

BLM requires a qualified biologist to inspect flagged saguaros for nests to avoid impacts to migratory birds during the nesting season (February 15 through August 1). The plants will be adequately maintained for one full year to ensure protective measures are intact. If salvaged plants are in an area susceptible to off-highway vehicle access, the closure of access roads may be recommended in specific areas, as approved by the BLM.

Salvaged succulents may be strategically placed or concentrated in certain areas to deter access. A combination of plants, snags or rocks may be used in these areas, where appropriate, as directed by the BLM. Transplantation and maintenance of plant material will be performed in accordance with the survival rates and success criteria described below in Section 8. See the Succulent Management Plan and Vegetation Management Plan for further descriptions on plant and succulent salvage as well as requirements for saguaros (both plans within Appendix F-7 of the POD).

5.2.6 Supplemental Mulch

Mulch usually consists of shredded plant material (i.e., hydroseeding, or similarly bonded fiber matrix mulch), but also includes wood fiber, paper mulch or biodegradable erosion matting. Due to straw mulch not being conducive to desert conditions (significantly slow biodegradation), hydroseeding, wood fiber, use of tackifiers, or erosion blankets would be the most favorable option. Hydroseeding is also a viable seeding method.

The quantity of mulch to be used will be recommended based on site conditions and will be installed according to the manufacturer's specifications. Alternative mulches will be certified weed-free as specified in the Noxious and Invasive Weed Management Plan (Section 18 within Appendix F-7 of the POD).

5.2.7 Off-highway Vehicle Deterrents

Operation of off-highway vehicles can cause physical damage to stabilization structures and soils as well as mortality to plants. Access by such vehicles will be limited in areas of reclamation. Measures to control off-highway vehicles and other unauthorized vehicle use of the ROW will be determined in coordination with the BLM at the appropriate time.

Specific areas of potential access to the ROW by off-highway vehicles will be identified and measures to minimize and discourage access will be developed as appropriate. These measures may include the installation of signs, fences with latching/locking gates, selectively placed boulders and salvage transplants, and/or mulch of heavy woody material.

When instances of unmanaged off-highway vehicle traffic occur, they will be accurately documented in a timely manner and provided to the BLM. Development of off-highway vehicle deterrents will be determined on a case-by-case basis based on BLM requirements and Construction Contractor(s) recommendations.

5.2.8 Signage

Reclamation areas will require informational signs pertaining to reclamation efforts in order to prevent further disturbance by the public. DCRT will install and provide notification of sign locations to the BLM, following completion of post-construction reclamation actions and prior to the initiation of reclamation monitoring.

5.2.9 Reclamation Monitoring

As stated in MM VEG-CEQA-1, reclamation monitoring will be conducted prior to construction and continue through post-construction phases of the Project – see Section 6. Evaluation of reclamation success will be based on criteria as described in Section 6.3. See also the Vegetation Management Plan (Appendix F-7 of the POD).

5.3 Modifications and Field Changes

Adjustments to RLs or actions by the Construction Contractor(s) may be necessary if the Project conditions change. However, any changes to these RLs and the associated reclamation actions will be reviewed and approved by the BLM and/or respective federal land-management agency (i.e., Bureau of Reclamation, Department of Defense, USFWS). Specific guidance on coordination with agencies in the process of implementation of reclamation actions and any associated adjustments are specified in the Environmental Compliance Management Plan (Appendix F-1 of the POD).

This Plan is intended to provide flexibility with respect to construction and unknown constraints that may be encountered in the field. Necessary changes to the original disturbance level or duration will be documented by the Construction Contractor(s) and RLs will be reassessed using Tables L-1-4 and L-1-5 to ensure that appropriate reclamation actions are implemented.

6 Monitoring

In accordance with APM/BMP-BIO-15, MM VEG-CEQA-1, and the Vegetation Management Plan (Appendix F-7 of the POD), post-construction monitoring is required to evaluate reclamation success of restored areas associated with the construction of Project facilities. This section of the Plan will accomplish the following:

1. Describe the purpose of the monitoring process.
2. Define the reclamation monitoring practices to be implemented.
3. Present reclamation goals and success standards.
4. Discuss adaptive management measures and site release from monitoring.

As discussed previously, DCRT, Construction Contractor, and/or Reclamation Subcontractor will be responsible for monitoring reclamation efforts for the Project. Per MM VEG-CEQA-1, reclamation monitoring efforts will be conducted by a qualified biologist that is knowledgeable in vegetation management and restoration specific to the vegetation communities within and adjacent to the Project. Reclamation success standards will be used by the BLM to determine if the implemented reclamation actions have adequately achieved the goals and objectives outlined in this Plan with consideration for the local site conditions. The monitoring practices include standard techniques for monitoring sites, data collection, and the measures used in calculating reclamation success.

Specific monitoring requirements, including the data analysis protocol, will be developed by the Construction Contractor and/or the Reclamation Subcontractor in cooperation with the BLM. This will allow the BLM to make more accurate conclusions pertaining to reclamation

success based on site conditions, such as biotic community and climatic conditions once construction has been completed. Adaptive management may be necessary to determine appropriate remedial actions for sites that have not demonstrated a trend toward reclamation success.

Implementation of remedial actions will be based on the monitoring data and an annual report will be submitted for up to five years following completion of construction. After five years of post-construction monitoring, a final report will be submitted to the BLM summarizing monitoring data, observations and the overall trend toward reclamation. Once the report is accepted by the BLM and the reclamation goals have been deemed achieved, DCRT will be released from further reclamation and monitoring.

6.1 Monitoring Methodology

All monitoring sites will be delineated during pre-construction activities and will include the collection of baseline data for subsequent post-construction monitoring. Post-construction monitoring and data collection will be conducted during spring and/or fall, after construction and reclamation actions are complete. After each monitoring effort, a summary of monitoring information will be provided to the BLM for review and discussion of reclamation conditions. As currently anticipated, construction activities will result in varying disturbance levels that will require two types of monitoring:

- General Route Monitoring – general field reconnaissance (windshield survey) and reporting of conditions in treated areas along the entire length of the Project ROW.
- Site Monitoring – detailed field reconnaissance and reporting at designated reclamation monitoring sites and control areas along the Project ROW.

The Construction Contractor(s) or Reclamation Subcontractor will consult with the BLM in order to adapt these protocols, as needed, and meet localized conditions and concerns. Details of the monitoring types and how these practices will be assigned to the areas affected by the Project is presented below.

6.1.1 Route Monitoring

Route monitoring is a general field review of the entire Project ROW, where accessible by vehicle, to be conducted in conjunction with site monitoring. When an area is not accessible by vehicle, the surveyor can access it on foot or using off-highway vehicles such as a quad or all-terrain vehicle. This review will document the overall recovery conditions associated with the construction of the transmission line. Items reviewed may include but are not limited to: the application of preserved and/or salvaged plants; successful performance of the noxious weed management plan; and/or the performance of erosion prevention techniques applied to a site.

Upon observation of unauthorized access, conditions regarding disturbance it caused along the ROW should be documented. Where reclamation signage and/or deterrents have been removed or damaged, the BLM should be notified so remedial actions can take place. Potential remediation locations should be documented by the transmission line structure number or global positioning system coordinates.

6.1.2 Site Monitoring

Preliminary site monitoring locations (transects) will be established along the ROW where necessary prior to construction. Locations will take into consideration resource data collected during pre-construction surveys and Project engineering data provided in the Project's Layout Maps (Appendix A of the POD). Once the site monitoring locations have been identified, the results will be provided to the BLM to determine the quantity of site monitoring locations required for the Project. Subsequently, BLM will approve the final determination of transect site locations.

Cooperation with the Construction Contractor(s) and/or Reclamation Subcontractor may be necessary immediately prior to construction if changes to the construction work area(s) affect the location of the preliminary transect monitoring site. Once transect locations are finalized, photographs will be taken: (1) prior to any construction-related disturbance, (2) when initial reclamation efforts have been completed, and (3) during each monitoring visit.

Paired vegetation transects will be installed for each transect monitoring site and documented as treatment or control for quantitative monitoring. In general, the treatment transect will be placed within an affected area (normally within the immediate ROW), and the control transect will be placed immediately adjacent to the ROW, on undisturbed ground. Size and quantity of each transect will be based on the final footprint of disturbed areas, in cooperation with the BLM. For consistency, transect pairs should be sized and oriented in a similar manner; especially if terrain or construction conditions require deviation. In addition, the location of transect sites should avoid areas susceptible to future human disturbance (e.g. off-highway vehicle, transmission line maintenance, or planned future utilities), where possible, to preserve the integrity of each transect for the duration of the monitoring period.

Following completion of construction, plots will be examined on a quarterly basis during the first year and biannually during years two and three. Parameters that will be used to measure reclamation success are presented within Section 6.3 of this Plan but may be modified in coordination with BLM and based on the Construction Contractor and/or Reclamation Subcontractor retained to collect the data. During site monitoring, an assessment of noxious and invasive weed establishment will be completed, along with subsequent recommendation for removal or treatment, if necessary. However, it should be noted that monitoring for known noxious weeds locations may occur independently from reclamation monitoring as outlined in the Noxious Weed Management Plan (Section 5 within Appendix F-7 of the POD).

Erosion control will also be considered in reclamation monitoring as a key indicator to measure the trend toward reclamation success (where applicable), and remedial actions may be taken in conjunction with monitoring efforts to control erosion, as recommended by the BLM (refer to BMP-AQ-01 in Table L-1-1). These remedial actions will also follow stipulations in the Fugitive Dust Control Plan and Construction Emissions Mitigation Plan (Appendix H-1 of the POD).

6.2 Monitoring Requirements

Construction features, their disturbance type, and the expected duration associated with these features are addressed by monitoring reclamation according to the RLs and their correspondence with the construction features. A summary of reclamation monitoring requirements for these construction components is shown in Table L-1-7.

TABLE L-1-7 RECLAMATION AND MONITORING COMPONENTS¹

Construction Feature	Disturbance Type	Disturbance Duration		Reclamation Level	Restoration Monitoring
		Permanent	Temporary		
Structure work area	Drive and crush		X	RL2	Route
	Clear and cut		X	RL3	Route
	Grade	X	X	RL5	Route, Site ²
Wire pulling and tensioning sites; laydown yards	Drive and crush		X	RL2	Route
	Clear and cut		X	RL3	Route
Structure base area	Grade	X		RL4	None
Existing paved roads, access roads (no improvements)	No new disturbance	X		RL1	None
Existing access roads (with improvements)	Grade	X		RL4	None
New access road	Drive and crush		X	RL2	Route
	Clear and cut		X	RL3	Route
	Grade	X	X	RL4/RL5	None/Route, Site ²

¹ Table derived from EC Source 2017a.

² Site monitoring will be conducted for priority reclamation areas where RL5 actions have been implemented.

6.3 Reclamation Goals and Success Standards

Reclamation success is defined by the progression of vegetation and soils towards pre-construction disturbance conditions, to the extent practicable. The primary goal of revegetation will be achievement of at least 70 percent of the pre-construction percent coverage within a 5-year reclamation monitoring period or as further specified by the BLM. Nonetheless, success is dependent on environmental conditions and proper implementation of reclamation actions to avoid future disturbance and protect the natural recovery of vegetation communities.

Reclamation will be pursued immediately on disturbed lands where future operations and maintenance are not needed. The four categories of reclamation success standards include surface and soil stabilization, control sites, revegetation, and landscape reconstruction. These success standards apply on BLM lands, unless additional federally-managed lands are specified. Particular reclamation success standards on private lands and state lands may vary and will be developed in coordination with private landowners and/or the State Land Board, as appropriate.

6.3.1 Surface and Soil Stabilization Standards

Contaminated soils, hazardous materials, or any other undesirable material on a site will be isolated and removed to protect the landscape and reclamation efforts. To conserve soils and minimize erosion or sedimentation, recontouring will try to match the surface of the site according to the natural landscape around the site. Water management techniques will be implemented to establish stable slopes and drainage features (also protecting surface water and groundwater resources). The soil surface must be stable while obtaining adequate surface roughness to reduce runoff and capture rainfall (SWCA 2011).

6.3.2 Control Site Standards

Control sites will exhibit the target plant community that is located adjacent to, or near, the Project-affected treatment sites. Control sites will be established within areas that were not disturbed by the Project and will allow the monitor to objectively assess the progression of reclamation success of the site monitoring locations.

If the final monitoring report provides the evidence that typical environmental conditions are being met, reclamation actions properly implemented, and disturbances are being replaced by vegetation similar to surrounding areas, the Plan is trending towards its goals of success. Target percentages (to be determined by the BLM) of native species cover (amount vegetation canopy per unit) and density (number of plant species per unit) for reclamation success will be evaluated relative to control conditions. Percent cover and density will be based on the quantitative data collected from the control plot for each site monitoring location.

6.3.3 Revegetation Standards

The vegetation will stabilize the sites and support the planned post-disturbance land use, provide for natural plant community succession and development, be self-perpetuating, and noxious weeds will be control in accordance to Appendix 2B of the POD. Revegetation will be deemed successful after the monitoring time frame is complete or when the following revegetation criteria are met (SWCA 2011; EC Source 2017b):

- A self-sustaining, and approved native vegetative stand is established on the site. Vegetation density will be sufficient to control soil erosion as well as non-native plant invasion and re-establish wildlife habitat.
- Seed mixtures will be developed based on site-specific characteristics following BLM guidance. If the first seeding does not exhibit signs of successful stand establishment by the next seeding window, seeding methods will be applied once again. If no evidence of seedlings or seed take is shown, methods and procedures will be re-evaluated, and proposed actions submitted in the annual report. If evidence of growth is occurring after a seeding session, only areas with little to no growth evidence will be treated within the following seeding season. If the same treated areas are not presenting signs of success, methods and procedures will be evaluated with the BLM.
- Diversity of species will be sufficient and established on sites within public lands. No single species within seed mixes will account for more than 30 percent of total vegetative composition on public lands unless it is reflected in adjacent undisturbed reference sites.
- After a vegetative stand is established, individual pad site regrowth percentages must achieve at least 70 percent cover of the adjacent control site percentages within a 5-year reclamation monitoring period or as further specified by the BLM. Desired cover percentages will be based on basal coverage; where the stem meets the ground. Cover percentages will be calculated using the point-intercept method (see below) at each paired control and treatment transect/site monitoring location to collate the ecological growth for each year. No sites can be submitted for release prior to three growth seasons starting from the first seeding session.

- Part of successful revegetation includes maintaining native plant communities with minimal weed occurrences. Reclamation species should be outcompeting weed species within a few years of reclamation initiation; however, total percent cover of these species should be commensurate with adjacent reference sites. The BLM has zero tolerance for state-listed noxious weed species and all noxious weeds will be controlled.

Initial point-intercept data will be collected for each site monitoring location by randomly establishing linear transects within the fully reclaimed area of the site. Transect size and quantity will be determined based on the final footprint of disturbed areas and structure work areas anticipated to be temporarily disturbed, in cooperation with BLM. Study plots must be placed only in areas that were seeded. Transects will be plotted by Universal Transverse Mercator coordinates at the start and end point of each line will be documented in a Project spreadsheet in order to be used for future data collections. The same study plots will be used for each site monitoring season to maintain a baseline of consistency and fairness to all parties. Place holders or “hubs” may be used to mark the start/end location of each plot in the field. No place holder will be used that may pose a risk to plant growth, wildlife, or the public (EC Source 2017b).

Each transect will contain a specific number of points (i.e., one point per 10 centimeters or per foot). Each point that hits a desired species will be tallied, and overall species intercept points will be divided by the overall number of points for that plot. The two plots will then be averaged together for the overall cover percentage of that site. Averaging will be fulfilled by adding the two percentages together and dividing by two. Site percentage must reach 70 percent of control site cover percentages. For example, if a control site percentage yields 80 percent cover, then a 56 percent cover will need to be achieved for that pad site to satisfy release criteria. Field data sheets pertaining to cover percentage calculations will be kept and provided within the annual report (EC Source 2017b).

6.3.4 Landscape Reconstruction Standards

Landscape reconstruction will be deemed successful when the original landform has been restored or approximated for disturbed areas that are not required for regular operations and maintenance activities. For landscape reconstruction to be deemed successful, the reclaimed landscape will have the characteristics that approximate the visual quality of adjacent areas with regard to location, scale, contour, color, and orientation of major landscape features and will support existing and future land uses. Erosional features will be less than or equal to the surrounding area (SWCA 2011).

6.4 Data Collection

Reclamation monitoring will include both quantitative (numerical) and qualitative (descriptive) data collection at the designated monitoring sites approved by the BLM. Quantitative monitoring will document the trend and degree of change at each site while qualitative monitoring will detect the initiation of change and changes resulting from environmental conditions, such as precipitation, allowing for a record of change over time.

Observations of vegetation and soil conditions will be used as the main indicator of reclamation recovery and when assessing progress toward functionality. Measurements and descriptions will be accompanied by photographs that will be used to document the status of recovery at all monitoring sites.

For monitoring consistency, a protocol for photo documentation, sampling points, and standardized data-recording forms will be developed by the Construction Contractor(s) and/or Reclamation Subcontractor. Photographic reference points will be the primary method of qualitative monitoring; however, qualitative and quantitative information will be gathered during the general route monitoring and site monitoring for the Project. Qualitative and quantitative data are described in detail below.

6.4.1 Qualitative Data

Qualitative monitoring provides a tangible method to document site conditions and ensure that sites are progressing toward the success standard established by the BLM. Qualitative monitoring will occur for both routing and site monitoring. Per MM VEG-CEQA-1, qualitative monitoring will be performed monthly in all vegetation management areas for the first year following the completion of the Project and subsequent vegetation management implementations. Thereafter, qualitative monitoring will be conducted on a quarterly basis, until final completion and approval by the BLM. Unpredictable weather patterns may affect reclamation success within the BLM-approved monitoring time frame. Qualitative evaluations conducted at predetermined monitoring sites will serve as a representative indicator for similarly disturbed areas in the same vegetation community. In addition, they will also serve as a baseline when conducting overall route surveys for the remainder of the treated areas within that vegetation community.

Photographic documentation of during data reconnaissance will be taken for accuracy. Photographs of the control sites and structure pad site study areas will be taken with the bi-annual inspections and must contain temporary placards or signs indicating the site location (i.e., "structure 13-2"). Photographs will be included for structure pad sites requesting release by the Construction Contractor(s) or Reclamation Subcontractor.

Any non-Project related disturbances that affect the reclamation success shall be recorded and photographed during route monitoring. In some instances, conflicting land management, grazing habitats, unmanaged off-highway vehicle traffic, severe weather events, or overlapping construction of other projects may inhibit reclamation success in affected areas. If reclamation failure is determined because of these external influences, DCRT will not be held responsible for continued reclamation activity and associated monitoring of these areas.

Recovery from construction disturbance activities (e.g., clearing and grading) within semi-arid and arid climatic zones typically require several years; thus, the monitoring plan will assess the trend toward reclamation success standards as outlined in Section 8.3. Trends include the following:

- Seedbank recruitment - Presence and condition of certain site characteristics that encourage recruitment of native vegetation, indicating important functional processes are in place that initiate regeneration (i.e., pollination and seed dispersal). Site characteristics include, but are not limited to, the presence of: seedlings, flowering plants, insects, birds, and/or bats.
- Stabilization of soils – Lack of erosion is typically evidence that soils have been adequately stabilized.

- Avoidance of species competition – Noxious weeds could potentially compete with native perennial species; relatively high abundances of noxious weeds can have negative effects on site conditions.
- Animal presence - Evidence of animal use indicates habitat conditions have been restored, however, grazing by domestic animals can negatively affect reclamation success if unmanaged. Areas that received heavy use by domestic livestock will be recorded with photographs. Additionally, areas that receive heavy use by domestic livestock over repeated years will be considered to have met reclamation standards.
- Patterns of vegetation - Patches of established vegetation can be indicative of successful site conditions if they reflect patterns observed in surrounding (control) vegetation. Once recruitment conditions have been met, established vegetation is anticipated to contribute to the maintenance and functionality of the community to ensure continued success after monitoring has concluded.

6.4.2 Quantitative Data

Per MM VEG-CEQA-1, a qualified biologist will conduct quantitative monitoring annually for year one through five, or for subsequent years until the success standards has been met. The desirable vegetation cover will be numerically measured (percent of canopy cover per unit of area) on treatment sites identified as priority reclamation areas and approved by the BLM, during the second- and third-year growing seasons. In turn, the measurements will be compared to the control transect for each site to determine if there is evidence of a trend reclamation success. In terms of measurements, the MM VEG-CEQA-1 specifies the qualified biologist(s) will record data using a sampling method (series of one meter square quadrants within each vegetation management area) to measure the absolute and relative cover and density of each plant species.

In year two or three, the qualitative monitoring methods will be dependent on growth within the vegetation management and may deviate from the quadrat methodology to a method called the toe-point transects (sampling mark created using boot-notch during a 5-paced transect; Evans and Love 1957) or other method as instructed by the BLM. Data will include, but not be limited to: measuring native species growth performance, estimating native and non-native species coverage, seed mix germination, native species recruitment and reproduction, and species diversity. Based on these results, the designated biologist(s) will provide recommendations for maintenance, adaptive management, or remedial work efforts that may be needed to meet success standards. During subsequent years of quantitative assessments, vegetation will have had enough time to display establishment on the areas affected by the Project. In addition, the trends toward reclamation success and remedial actions will be identified, as necessary. By the final year of quantitative monitoring, it is anticipated that the effects of remedial actions or climatic events will be discernibly evident on treated sites.

Vegetation density monitoring (number of plants per unit of area) is sensitive to changes in the vegetation community caused by climate conditions and resource uses and shall document information on seedling emergence, survival, and mortality. The qualified biologist(s) will focus on dominant or indicator perennial species as determined by control-site observations of the adjacent plant community. Like vegetation cover, species density will be evaluated by comparing the total number of indicator species in the treatment site to that of the control site. Other plant species will be inventoried but densities will not be

evaluated. Density and cover data, along with other biometrics, will be logged on standard field data sheets developed by the Construction Contractor(s) and/or Reclamation Subcontractor with prior BLM approval.

6.4.3 Monitoring Reports

As stated in MM VEG-CEQA-1 for quarterly reporting, data collected for post-construction reclamation monitoring will be compiled within a Post-Construction Vegetation Management Quarterly Monitoring Progress Report developed by the Construction Contractor(s) and/or Reclamation Subcontractor for the first year for the reclamation monitoring. Reports will include the following:

- Summary of overall site status and remedial recommendations.
- Estimated species coverage and diversity.
- Health and overall stamina of plant species.
- Establishment of volunteer native species.
- Topographical/soils conditions.
- Problems or development of weed species.
- Usage of the site by wildlife, as feasible.
- Significant signs of drought stress.
- Recommended adaptive management measures deemed necessary to ensure compliance with specific success standards (see below), in the case where standards are not fulfilled.

In addition, and as stated in MM VEG-CEQA-1, an Annual Post-construction Vegetation Management Report will be completed for years one through five by the Construction Contractor(s) and/or Reclamation Subcontractor, providing the results of annual quantitative monitoring. Annual reporting will include, at a minimum, the following:

- Name, title, and company of all persons involved in restoration monitoring and report preparation.
- Maps or aerials showing vegetation management (i.e., restoration and invasive weed management areas), transect locations, and photos documentation with locations.
- Explanation of the methods used to perform vegetation management, including, but not limited to, the number of acres for restoration and/or areas treated for removal of non-native plants.
- Assessment of the treatment success.
- List of plant species and their coverage and diversity measured during yearly quantitative surveys.

- Compliance/non-compliance with required vegetation management success standards.
- Summary of species health and overall vigor.
- Establishment of volunteer native species.
- Hydrological and topographical conditions.
- Usage of the site by wildlife, as feasible.
- Presence and development of invasive weed species.
- Recommended adaptive management measures deemed necessary to ensure compliance with specific success standards (see below), in the case where standards are not fulfilled.

The Construction Contractor(s) and/or Reclamation Subcontractor will forward annual reports to BLM, CPUC, and CDFW at the end of each year following implementation of the reclamation monitoring, until the established success criteria have been met.

6.5 Adaptive Management and Site Release

The BLM requires that an adaptive management protocol is implemented as part of reclamation monitoring activities for the Project. The adaptive management actions allow frequent review and feedback on the progress of reclamation. Effective monitoring is an essential element of adaptive management because it provides reliable feedback on the effects of reclamation actions, resulting in early implementation of remedial actions.

Adaptive management actions may be recommended on a case-by-case basis where feasible, and as determined by the BLM, within the monitoring time frame. If adaptive measures become necessary, monitoring data will identify the deficient components of reclamation efforts such as native vegetation cover, soil compaction or lack of natural surface material. Examples of reclamation actions may include measures such as supplemental seeding, mulching and additional weed and/or erosion control measures. Recommendations could also include waiting prior to taking remedial action to determine if favorable germination/establishment conditions are affected.

There is a possibility that some sites will be incapable of progressing towards the established success standards. This may be due to conflicting land management, environmental limitation, or other conditions not associated with the Project. Some cases could include unmanaged off-highway vehicle access, grazing of domestic livestock, natural disasters, or construction from other projects. If BLM determines reclamation failure has been caused by similar types of conditions, neither DCRT nor any of its contractors or subcontractors will be held responsible for continued reclamation and monitoring of these sites.

All adaptive management actions will be subject to review and approval by the BLM. The Construction Contractor(s) and/or Reclamation Subcontractor hired to complete reclamation actions and monitoring will use all reasonable methods to ensure that reclamation is progressing toward the success standards identified in Section 8.3 of this Plan. Once the final report documenting reclamation success has been completed, approved success

standards have been met, and are accepted by the BLM, DCRT will be released from further reclamation and monitoring.

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2B.11 VEGETATION MANAGEMENT PLAN

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June 2019

BUREAU OF LAND MANAGEMENT

Ten West Link Transmission Project

Vegetation Management Plan

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154320

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Vegetation Management Plan

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ATTACHMENT B	INSPECTION RECORDS (TBD)
ATTACHMENT C	AGENCY VEGETATION MANAGEMENT REGULATORY MANUALS
ATTACHMENT D	FORMS (TBD)
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ATTACHMENT F	SAGUARO PLANTING DETAIL
ATTACHMENT G	BLM-APPROVED HERBICIDES

ACRONYMS AND ABBREVIATIONS

ADOT	Arizona Department of Transportation
AGFD	Arizona Game and Fish Department
ANPL	Arizona Native Plant Law
APM	Applicant Proposed Measure
APS	Arizona Public Service
AZDA	Arizona Department of Agriculture
BIO	Biology
BLM	Bureau of Land Management
BMP	Best Management Practices
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Commission
CFR	Code of Federal Regulations
CIC	Compliance Inspection Contractor
cm	centimeter
CMA	Conservation Management Actions
CPUC	California Public Utilities Commission
CRPR	California Rare Plant Ranking
DCRT	Delaney Colorado River Transmission, LLC
DRECP	Desert Renewable Energy Conservation Plan
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
gal/min	gallons per minute
GPS	geographic positioning system
kV	kilovolt
LUPA	Land Use Plan Amendment
MM	Mitigation Measure
MVCD	Minimum Vegetation Clearance Distance
NERC	North American Electric Reliability Corporation
NRCS	Natural Resources Conservation Service
Plan	Vegetation Management Plan
POD	Plan of Development
Project	Ten West Link Transmission Project
Proponent	Delaney Colorado River Transmission, LLC
psi	pounds per square inch
ROD	Record of Decision
ROW	Right-of-way
SCE	Southern California Edison
Ten West Link	Ten West Link Transmission Project
U.S.C.	United States Code
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
WEAP	Worker Environmental Awareness Program

1 Introduction

The Ten West Link Transmission Line Project (Ten West Link or Project) proposed by Delaney Colorado River Transmission, Limited Liability Corporation (DCRT) would consist of a transmission line between the Delaney Substation in Maricopa County, Arizona and the Colorado River Substation in Riverside County, California. A detailed Project Description is provided in Section 3, below, and further described the Project's Plan of Development (POD).

This document outlines the establishment of a Vegetation Management Plan (Plan) that has been developed for the Project. The purpose of the Plan is to establish a procedure for maintaining right-of-way (ROW) conductor vegetation clearance, clearing of access roads, work areas, and associated Project facilities, protection of special status species, prevention of the introduction of noxious weeds, and to prevent vegetation-related outages associated with the Project. This Plan includes measures designed to reduce long-term impacts to visual resources.

This Plan further includes a Succulent Management section (Section 15), which describes the approaches for succulents throughout the Project area; a Special Status Plant Transplantation and Compensation section (Section 16), which sets forth the options for transplanting or compensating for impacts to special status plants; Rare Plant Linear ROW Protection for Harwood's Eriastrum (Section 17), which describes the protection measures to be implemented to minimize impacts to the Harwood's eriastrum; and a Noxious and Invasive Weed Management section (Section 18), which spells out the methods to be utilized to minimize the introduction or spreading of noxious and invasive weeds to or within the Project area.

The techniques and procedures to manage, monitor, mitigate, and restore native vegetation and habitat and are documented in Appendix L-1 Reclamation, Vegetation, and Monitoring Plan.

The route for the proposed transmission line Project has not yet been secured; once the route has been finalized any changes will be reflected in the final draft of this Plan.

2 Permits and Governing Documents

Portions of the Project will be governed by a Bureau of Land Management (BLM) ROW Grant and Record of Decision (ROD). Vegetation management activities must be conducted as regulated by these documents and as described within the Project, North American Electric Reliability Corporation (NERC) guidelines, Arizona Native Plant Law (ANPL), and California regulations associated with vegetation removal and plant salvage, where applicable, or as directed by the California Public Utilities Commission (CPUC) during the process to obtain a Certificate of Public Convenience and Necessity.

If, during the course of work, additional permitting requirements are identified as needed, DCRT will take measures to acquire these permits and incorporate them into this Plan. Additional permitting may include but is not limited to a Collectors Permit and Removal Permit from the Arizona Department of Agriculture (AZDA) for saguaro cactus relocation. On BLM lands, the contractor must get a shipping permit from BLM before transporting the plants. Associated fees from obtaining permits related to allowing for impacts (removal/relocation) of these plant species will be paid by DCRT.

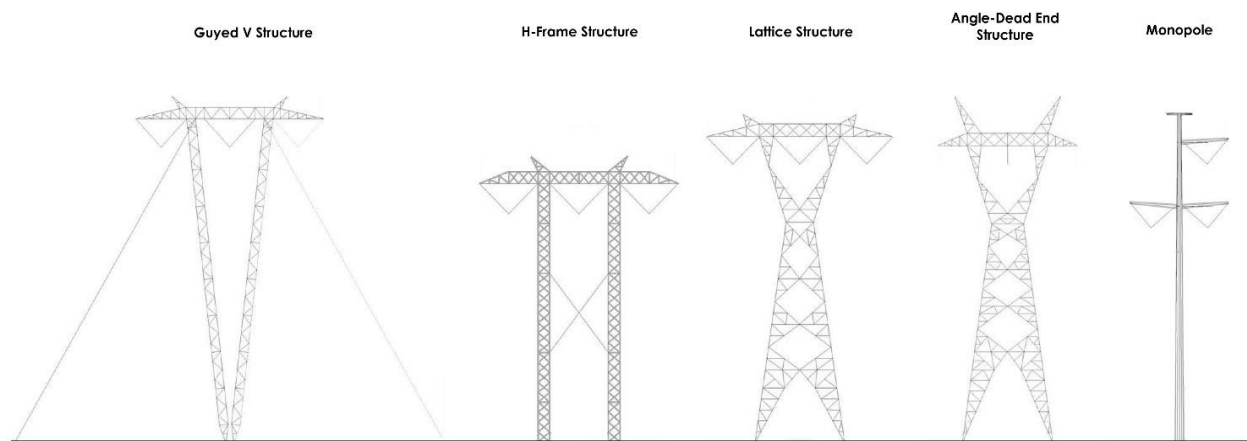
3 Project Location and Overview

The proposed Project consists of the construction of approximately 125 miles of a new single-circuit 500 kilovolt (kV) transmission line along with associated access roads. Approximately 103.4 miles of the line in will be in Maricopa and La Paz Counties, Arizona and 21.6 miles in Riverside County, California with 79.4 of those miles on BLM-administered federal lands. The new line will provide service between the Arizona Public Service (APS) Delaney Substation, located near Tonopah, Arizona, and the Southern California Edison (SCE) Colorado River Substation, located just southwest of Blythe, California. The Project ROW will be located within varying elevations from 100 feet elevation in desert and agricultural vegetation communities up to 4,000 feet in the mountain terrain. The proposed route will parallel existing linear utility corridors including transmission lines and natural gas pipelines.

The structures proposed for the Project will be comprised of different lattice tower configurations and monopoles as shown below in Figure F-7-1. Depending on the topography and span length (400 feet to 2,300 feet) the structures will vary in height from 72 feet to 195 feet. DCRT proposes to acquire a 200-foot-wide ROW for construction, operation, and maintenance of the 500 kV line.

Project maps further detailing the structure locations, access roads and sensitive areas will be located in the Appendix A of the Final POD.

FIGURE F-7-1 TEN WEST STRUCTURE TYPES



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4 Vegetation Overview

The predominant native vegetation communities include Sonora-Mojave-creosote-bush-white-bursage-desert-scrub and mixed-cacti-desert-scrub. Project vegetation communities are further described within POD Appendix L-1 – Reclamation, Vegetation and Monitoring Plan.

Preconstruction plant surveys will be completed by a biological monitor prior to construction activities on non-cultivated lands. These surveys will be conducted to establish a native percent background vegetation which will ultimately be utilized for restoration goals. Vegetation clearing for access roads and work areas will occur within the Project disturbance footprint; however, DCRT anticipates that the majority of Project clearing activities for conductor clearance will occur within the Copper Bottom Pass Area and in areas that have ironwood (*Olneya-tesota*), palo verde (*Parkinsonia* spp.) and honey mesquite (*Prosopis glandulosa*) species. Some tree clearing of 40-foot-tall salt cedar (*Tamarix ramosissima*) will also occur near the transmission line crossing of the Colorado River.

The Project area falls within two subdivisions of the Sonoran Desert: Lower Colorado River Valley and Arizona Uplands, represented by various plant associations and habitat types with vegetation that is tolerant of extremely high temperatures and drought. Tall growing vegetation that may require trimming, pruning, or removal may include saguaro cacti (*Cereus giganteus*), ironwood, and palo verde. This vegetation (if growing within the ROW below the conductor spans) has potential to come in contact with the line at certain heights and would need to be removed to maintain a safe clearance. Furthermore, this reduces the risk of power outages, fires, and other damage.

Other large desert species that may pose a safety hazard, but are eligible for salvage include saguaros, Joshua trees, yuccas, agave, and ocotillos. See Section 15 of this Plan for more information on saguaro cacti salvage.

Any vegetation removed that can be used in reclamation efforts (i.e., plant material or slash) will be maintained on site for use during reclamation. This plant material can be used as a windrow for habitat creation or scattered across this site after seeding has been completed.

DCRT will coordinate with all agencies and private landowners prior to any vegetation removal.

5 Vegetation Surveys

Since the Project spans two states (California and Arizona), the requirements for surveys prior to vegetation removal will be specific to that region and planning area, including the BLM. In Arizona, a plant inventory will be conducted prior to any vegetation removal or relocation activities to survey for plants protected under the ANPL as required by the AZDA. Vegetative surveys for plants in California will be in compliance with the Manual of California Vegetation, and the California Desert Conservation Area Plan.

The plant surveys will be conducted within the approved ROW, along the Project's access roads and all other associated disturbances for the Project. Surveys will be completed

during the appropriate time of year for noxious weeds, protected plants, and areas that are identified as habitat for special status species. No plant species currently listed or proposed for listing under the Endangered Species Act (ESA) are expected to be found within the Project ROW.

A qualified botanical monitor will conduct pre-construction surveys during the pre-construction phase of the Project. If plants, with any type of special status as indicated in this Plan, are discovered during these surveys all applicable mitigation measures will be implemented. Mitigation measures will be in compliance with ANPL, California regulations, and BLM requirements associated with vegetation removal and plant salvage, where applicable.

6 Environmental Protection Measures

All impacts would be minimized through implementation the Project's Applicant Proposed Measures (APM) and BLM-Required Best Management Practices (BMP). A monitor will be present during earth disturbing activities within habitat of special-status animal/plant species. Post construction surveys and monitoring for re-vegetation success will be completed once construction and initial reclamation has been completed.

The environmental protection measures that apply to the vegetation management plan include the following:

- APM/BMP BIO-01: Worker Environmental Awareness Program (WEAP)
- APM/BMP BIO-02: Biological Monitoring and Preconstruction Survey
- APM/BMP BIO-03: Approved Work Areas
- APM BIO-04: Environmentally Sensitive Areas and Fencing
- APM BIO-05: Additional Prohibitions
- APM BIO-10: Erosion and Dust Control
- APM/BMP BIO-11: Vegetation Management Plan
- APM BIO-12: Noxious and Invasive Species Control
- APM BIO-14: Minimizing Vegetation Clearing
- APM/BMP BIO-15: Reclamation and Restoration
- APM BIO-16: Treatment of Saguaro Cactus
- APM BIO-17: Limit Off-road Vehicle Travel
- BMP BIO-24: Sensitive Plant Surveys
- APM BIO-26: Arizona Protected Plant Inventory
- BMP BIO-31: Treatment of Harwood's Eriastrum
- BMP BIO-32: Seasonal Restriction Dates
- BMP BIO-37: Native Plant Collection Prohibition
- BMP BIO-38: Use of State of the Art Technology
- BMP BIO-41: Succulent Management

- BMP BIO-42: Dead and Downed Wood
- BMP BIO-43: Collection of Plant Material
- BMP BIO-46: Compensation for Loss of Desert Riparian Woodland
- BMP BIO-47: Riparian Functioning Condition
- BMP BIO-50: Engineering Controls
- BMP BIO-51: Conductor Clearance
- BMP BIO-52: California Riparian Habitat and Rare Plant Alliance Avoidance (California only)
- BMP BIO-53: Protection of Dune Vegetation (California only)
- BMP BIO-54: Protection of Sand Transport (California only)
- BMP BIO-55: Access within Focus and BLM special Status Species Suitable Habitat (California only)
- BMP VEG-01: Removal of Vegetation
- BMP VEG-02: Avoid Vegetation Removal
- BMP TT-08: Prohibit Cross-Country Vehicle Use Outside Designated Work Areas (California only)
- APM AES-01: Vegetation Removal and Grading

There are additional mitigation measures that are limited in scope to California as part of the California Environmental Quality Act (CEQA). These include:

- MM BIO-CEQA-4: Develop a Habitat Restoration, Mitigation, and Monitoring Plan
- MM BIO-CEQA-5: Develop a Special Status Plant Transplantation and Compensation Plan
- MM BIO-CEQA-12: Compensation for Impacts to Sensitive Vegetation Communities
- MM VEG-CEQA-1: Develop and Implement a Vegetation Management Plan
- MM VEG-CEQA-2: Conduct Pre-Construction Floristic Surveys
- MM VEG-CEQA-3: Conduct Focused Surveys for Harwood's Eriastrum
- MM VEG-CEQA-4: Compensation for Impacts to Special-Status Plant Species and Sensitive Communities

7 Safety

Safety is of utmost importance for all Project work activities. Federal and State Occupational Safety and Health Administration and American National Standard Institute safety requirements governing vegetation management work practices shall be followed at all times. Activities shall be conducted in a manner that minimizes both vegetation management crew and public safety risks. All employees involved in vegetation management work activities will have all necessary training in the use of any tools and/or equipment to be utilized. Training shall include proper use of personal protective equipment, proper operating techniques, and establishment of safe work areas appropriate to the work

being performed. In addition, a Fire Protection and Prevention Plan (Appendix J-2) has been prepared for the Project, which addresses items such as fire emergency procedures, fire suppression and prevention measures, and fire incident reporting.

8 Planned Vegetation Management Sequence

Vegetation management activities and estimated timeframes follow:

Pre-Construction Surveys	TBD
Salvage	TBD
Work Area and Access Road Clearing	TBD
ROW Clearing Between Spans	TBD
Final Grading, Cleanup, and Restoration	TBD
Seeding for Permanent Stabilization	TBD
Post-Construction Surveys	TBD
Monitoring	TBD
Reporting	TBD

9 Techniques and Methods

All vegetation management activities will be performed in compliance with NERC and Federal Energy Regulatory Commission (FERC) vegetation management specifications, relevant items from the BLM Manual 1740-2 Integrated Vegetation Management and IB-2012-097 and stipulation found within the Project's Final POD, ROD and ROW Grant. The documents referenced above cover policies and techniques to manage vegetation that has the potential to come in contact with the transmission line creating a fault or cascading effect. If there is a conflict between the POD, and the requirements of the land-manager/ landowner or NERC and FERC vegetation management requirements, DCRT will work with the appropriate parties to resolve the situation. A copy of BLM Manual 1740-2, IB-2012-097, and NERC Standard FAC-003-2 can be found in Attachment C – Agency Vegetation Management Regulatory Manuals. Additionally, the Project will comply with FERC Standards and the National Electrical Safety Code.

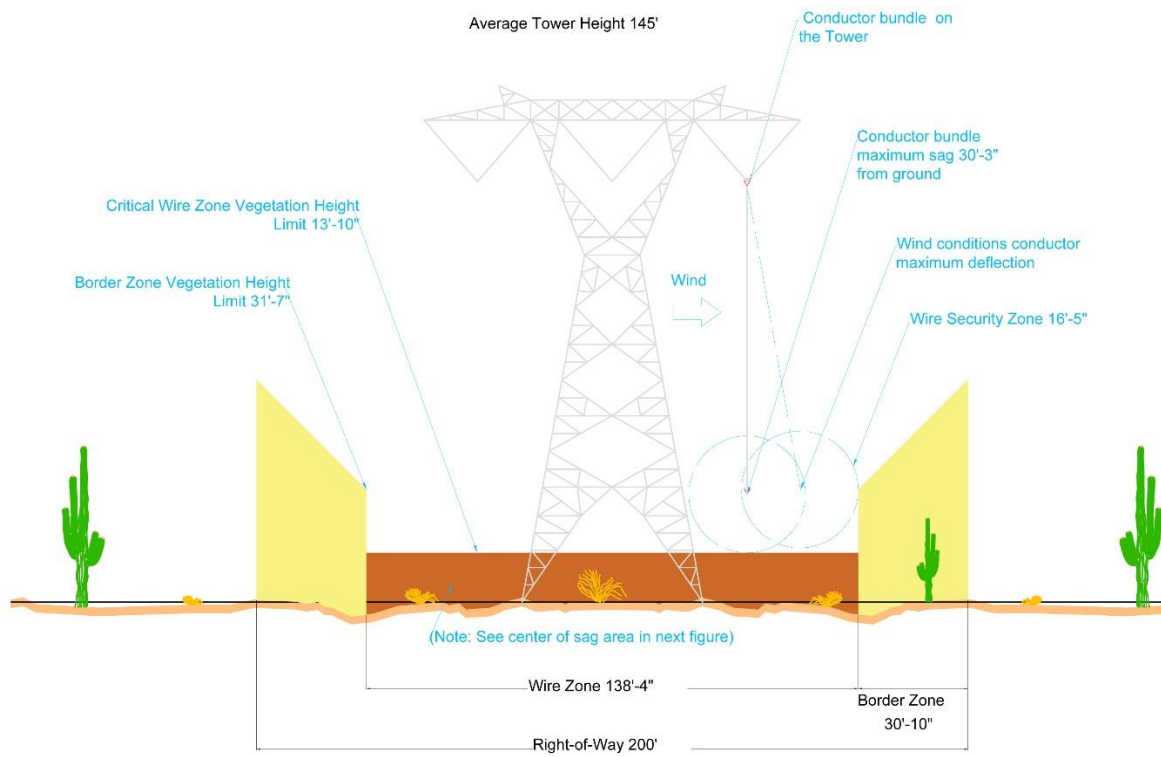
The majority of the clearing activities will need to be planned for the area in the ROW (200 feet wide) and more specifically the wire zone area. There are only a few spots where the Project might experience blowout outside of the 200-foot corridor. However, these are at spots with long spans, such as going up a large hill or across a canyon. At these locations, the conductors will be high up so vegetation management will not be a factor. The wire zone is a 139-foot-wide section of the ROW located directly under the wires and the border zones extends outward about approximately 31 feet on either side of the wire zone. The wire zone is required to be cleared of high vegetation to minimize the likelihood of a plant, shrubs, or tree, encountering the line. High-growing vegetation is permitted in the border zone, but

may be pruned if it begins to encroach on the wire zone. The wire zone and border zone may be adjusted, as appropriate, based on topography. Please reference Figure F-7-2 shown below, as adapted from the Draft Environmental Impact Statement (EIS) Appendix 7 Part 1 Figure 2.2-23a. DCRT will identify tall growing vegetation species within the wire zone anticipation species include, but are not limited to, saguaro cactus, ironwood, palo verde, cottonwood (*Populus* sp.), goodding willow (*Salix gooddingii*) and mesquite (*Prosopis* spp.).

The transmission line must maintain a clearance of 30 feet between the conductor sag and the ground. Please reference Figure F-7-3 shown below, as adapted from the Draft EIS Appendix 7 Part 1 Figure 2.2-9b. The Minimum Vegetation Clearance Distance (MVCD) required by the NERC for a 500 kV transmission line is 7.4 feet, at an elevation between 2,000 and 3,000 feet. Additionally, the desert has a high probability for windy conditions and so vegetation may need to be removed if it falls within the Wire Security Zone. The Wire Security Zone would add nine feet (three feet for vegetation growth plus a six-foot buffer) to the MVCD, for a total of 16 feet five inches beyond the point of conductor maximum sag or deflection. Therefore, the maximum height of vegetation vertically and radially from the conductors at maximum sag or deflection would be approximately 13 feet 10 inches. Border zone vegetation would be height limited to 31 feet seven inches, gradually increasing as the distance to the conductor increases.

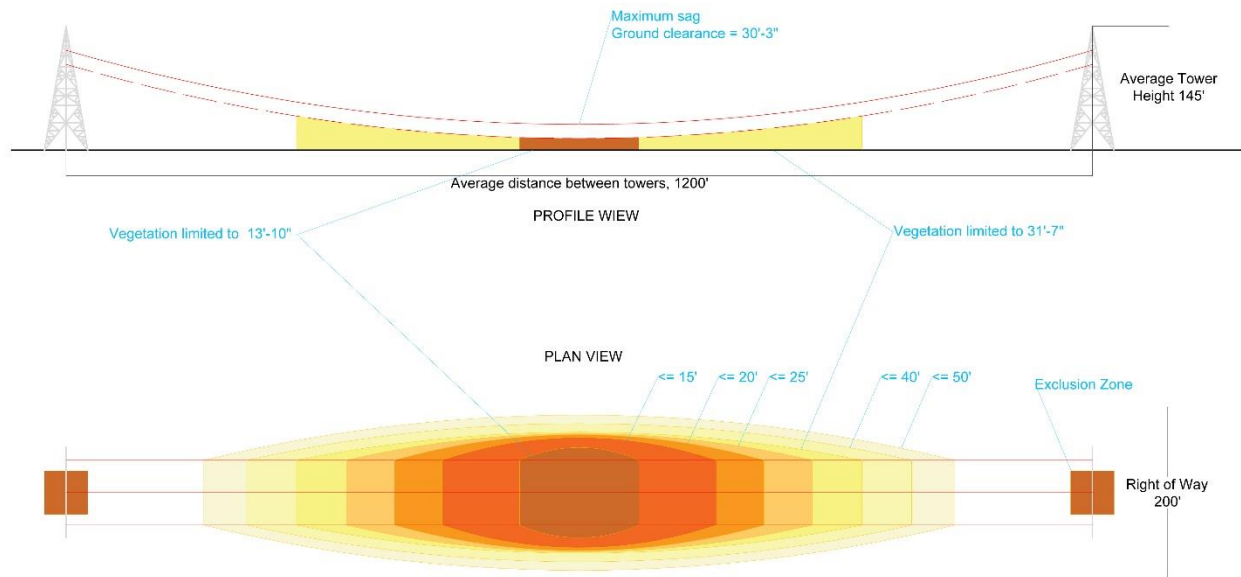
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FIGURE F-7-2 DESERT ENVIRONMENT WIRE ZONE



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FIGURE F-7-3 DESERT ENVIRONMENT WIRE ZONE



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9.1 Chemical Control Methods

In select areas, herbicides may be used to control incompatible tree species that have the potential to regenerate from the root systems and grow into the minimum conductor-vegetation clearance requirements. All herbicide applications will be performed in accordance with federal, state, and local regulations, and in compliance with land manager and/or landowner requirements. All herbicide applications on federal lands will be in accordance with the applicable Pesticide Use Proposals obtained for the Project.

The purpose of herbicide treatment is to efficiently maintain clearances obtained following mechanical and/or manual treatments. Use of herbicides to manage vegetation along the ROW also lengthens the maintenance cycle and reduces the need for future hand and mechanical treatments. Vegetation targeted for herbicide treatments includes most vegetation that is targeted for manual and mechanical treatment, the exception being that saguaros would not be treated using herbicides. Herbicide treatment involves vegetation that is less than 10 feet tall whose physiology is such that it could encroach within the associated FAC-003 clearance distance, impact the reliability of the transmission line or transmission line facilities (e.g., structures, guy wires) or poses a fire fuel load concern. Only BLM-approved products from the approved California herbicide list would be used in California and only upon prior approval of the BLM Authorized Officer or landowner.

All herbicide treatment will be documented on pesticide application records for each herbicide approved by a Pesticide Use Proposal and kept in the Project office on site.

Additional restrictions on Project herbicide applications can be found in Section 18 of this Plan – Noxious and Invasive Weed Management Plan.

9.2 Additional Vegetation Clearing Requirements During Construction

Clearing of vegetation in and adjacent to the ROW will be minimized to limit disturbance to resources, reduce visual contrast, and protect nesting habitats, to the extent practicable while still satisfying conductor-clearance requirements. Vegetation will be removed selectively to blend the edge of the ROW into adjacent vegetation patterns, as practicable and appropriate. Vegetation will be removed selectively in riparian habitats and will be minimal along the Colorado River to protect sensitive resources in those area.

Where the ROW crosses sensitive roads and trails, such as scenic or historic designated routes, selective clearing shall allow natural vegetation to be left in the ROW on each side (as possible). Also, cutting or pruning of trees will occur so the fresh cut is oriented away from these areas where possible. To the extent practicable, pruning should occur around the entire tree, to reduce the appearance of flat sided trees facing facilities.

Danger trees shall be identified individually for trimming or removal. Danger trees are those which are located off the ROW and may contact electric facilities either through growth or if it should fall. DCRT will coordinate with the BLM prior to any off ROW tree trimming or removal.

9.3 Routine and Hazard Maintenance

DCRT will perform continued vegetation inspections throughout the life of the Project (pre-, during-, and post-construction). The owner (DCRT) will perform maintenance once yearly during the post construction phase for the up to 50 years of the BLM land lease. A crew with an accompanying environmental specialist will access areas requiring pruning or removal and acquire proper permitting or permission prior to any vegetation removal. Vegetation maintenance will also be performed with avian nesting practices in mind, either by performing it outside the typical nesting season or in coordination with a qualified biologist to inspect as necessary. Mowing will only occur in the immediate area around the structures. In other areas, vegetation that can get high enough to become a danger will be cut. Other relatively low-growing vegetation will remain under the conductors.

Mechanical tree clearing methods will involve the use of equipment such as chain saws, rakes, shovels, brush hooks, and mowers to clear vegetation. Manual treatment methods will include hand crews for all hazard vegetation work and for some routine vegetation maintenance work. Hand crews consist of line clearance tree workers that use hand tools (e.g., chain saws, hand saws, rope) to cut down or prune vegetation. Typically, only pick-up trucks are used as a means of travel to the work site, but a bucket truck and/or chipper may also be used.

Vegetation management crews will prune trees in preference to cutting trees and will cut trees in preference to removing them completely. Cut material may be placed in slash piles and/or used as vertical mulch as approved by the BLM and other acting agencies. Pruning will be accomplished by use of pruning saws, power saws, nippers, bow saws, or cross-cuts. Use of axes for pruning will be prohibited.

Vegetation that presents a hazard to the power line and structures require treatment on an ongoing basis outside the routine maintenance cycle. The need to treat hazard vegetation is not common due to the ongoing routine maintenance but is occasionally required.

These hazards are categorized into three levels and are treated slightly different for each level:

Level 1 Emergency Hazard: An emergency caused by vegetation occurs when vegetation is arcing to the line, has caused a power fault, is burning from contact or arcing with the line, and when all or a portion of a tree is in contact with the line from falling or growth into wires. Emergencies due to vegetation on a large 500 kV line are uncommon, but if it were to occur, it is a very serious threat. DCRT must act immediately to eliminate the hazard no matter the weather, road conditions, or time of day or year.

Level 2 Imminent Threat Hazard: There can be two types of imminent threat hazards: 1) alive or dead standing tree or vegetation having defects in the roots, butt, bole or limbs, which predispose it to imminent mechanical failure which could damage whole or part of the power line or structure; and 2) an imminent threat hazard may also be a tree or branch that has come close enough to the power line such that it poses a safety risk to the public and tree workers. Imminent threat hazards must be treated as soon as possible once the hazard is identified. These hazards are typically treated within a week of identification.

Level 3 Off Cycle Hazard: This type of hazard includes any live or dead tree that poses a future threat to the power line or structures and cannot be left untreated for the next growing season or next maintenance cycle. These hazards do not pose an immediate threat but must be treated prior to the next growing season, or out of cycle, before it becomes an

imminent threat. Treatment of Off Cycle trees may sometimes be scheduled around seasonal timing restrictions.

Vegetation maintenance protocol typically includes:

- Tall growing vegetation within the ROW is cut down and may be treated with herbicides.
- For each structure along the line, woody vegetation, including tall shrubs and trees, would be cut down and treated with herbicides (herbicide treatment excludes cacti) underneath the structure and 50 feet out from each footer of the structure.
- Low lying vegetation (e.g., creosote bush and grasses) within 50 feet around the structures will remain in place during maintenance. Maintenance vehicles will crush vegetation within 50 feet around each structure, but woody shrubs would be removed because they create puncture and tripping hazards.
- Lower growing vegetation, such as creosote bush and small cacti, that do not fall within 50 feet around the structures are left on the site untreated unless: 1) the shrub or cacti blocks access on the existing access routes within the ROW; or 2) the shrub density is high, causing a fuel load issue under the line. In the case of high density vegetation, the shrubs are thinned to a reasonable and safe density level while providing as much protection as possible to the line and structures in case of fire.
- Where line spans high above canyons and slopes, either no treatment will be needed, or some thinning may be needed to break up fuels under the line.
- Stumps from vegetation treatments are cut no greater than 12 inches above the ground, and where possible, are cut flush to the ground. For the hand crew operations, slash is lopped and scattered throughout the immediate area in a manner such that the debris lies no deeper than 18 to 24 inches above the ground. Where chippers are used, the chips are broadcast across the ROW. For mower operations, the majority of vegetation, except larger logs, are mulched by the mower and material is broadcast across the ROW.
- Access for all treatment methods is done using only established roads and access routes to approach the ROW. Crews performing vegetation maintenance may need to access cacti that are sited for trimming or removal that are outside of structure work areas or the Project's access road plan due to clearance issues. If this is required, vehicles will travel within the ROW and will use drive and crush methods whenever possible to minimize disturbance.
- Vegetation maintenance crews will make every effort to keep impacts within the ROW to a minimum. DCRT will only work within the ROW when the soils are dry enough to prevent ruts.
- All vehicles will be operated in a safe and prudent manner.

10 Access Road and Work Area Vegetation Clearing

Where necessary, vegetation will be cleared in approved locations to construct safe and operational work spaces. As with tree clearing for conductor clearance, the least invasive

and most efficient methods will be utilized in accordance with POD directives. Areas requiring clearing will include access roads, fly yards, structure work areas, pulling and tensioning sites, splicing locations, and turn out locations within Project access roads.

Vegetation clearing activities along access roads will also be performed in accordance with the restrictions provided for each access road type. The five Access Road types discussed below are described in further detail in Section 3 of the Project's POD:

- Access Type A – existing maintained public and private roads, which are paved, gravel, or dirt. These roads will be left in their original condition with no additional disturbance outside of the existing road matrix necessary to accommodate Project construction vehicles and equipment.
- Access Type B – existing roads that may require some level of improvement to accommodate Project construction vehicles and equipment.
- Access Type C – access roads that will be created, where necessary, to provide access along the length of the Project's ROW. DCRT will blade these roads along the transmission line's outermost conductor phase, but inside the Project's 200-foot-wide ROW to the extent possible.
- Access Type D – access spur roads that DCRT will blade to connect Access Types A, B, or C roads to structure work areas along the Project's ROW.
- Access Type E –helicopter assist access. In areas of biological, topographical, archaeological, and visual concerns, the use of helicopter-assisted construction may be implemented for construction activities. Light-duty pickup trucks, tracked equipment, and off-highway vehicles may be used.

Appendix K1 – Access Road Plan and Appendix K2 – Traffic and Transportation Management Plan of the POD provides further definition of Project access road types. Access road types for specific roads are further identified within the POD Map Sets. Please reference the POD for further information.

11 Landowner/Land Manager Coordination

All private landowners will be contacted by DCRT a minimum of 48 hours or as required by easement agreements prior to the start of vegetation management activities on their respective properties. All landowner communications will be documented and maintained by DCRT's Land Agent. Additionally, DCRT will coordinate with the BLM or their designated representative for vegetation management activities on BLM-administered lands.

12 Inspection

Safety and environmental inspections of vegetation management activities will be routinely conducted by Project personnel during construction. Areas inspected and found to be inadequate will be promptly addressed. All follow-up and corrective actions will be documented and coordinated with the appropriate persons.

The Project would be inspected annually to check for vegetation growth within the Project's ROW and proximity to the conductor. Palo verde are predicted to be the quickest growing large vegetation that could interfere with the conductor; however, all vegetation will be

inspected within the wire zone that could either vertically or radially come in contact with any lines.

13 Environmental Resources

All POD requirements pertaining to the protection of environmental resources will be followed. This includes implementation of mitigation measures intended to reduce impacts to streams, washes, wetlands, springs, soils, cultural resources, paleontology, sensitive wildlife species, sensitive plant species, land use, and visual resources.

14 Responsible Parties

A list of personnel responsible for the management and implementation of this Plan can be found below.

TABLE F-7-1 CONTACT LIST

Name	Title	Company	Contact Information
(TBD)	Project Manager	DCRT	(TBD)
(TBD)	Environmental Manager	DCRT	(TBD)
(TBD)	Project Manager	Subcontractor	(TBD)
(TBD)	Environmental Manager	Subcontractor	(TBD)
(TBD)	Safety Director	Subcontractor	(TBD)
(TBD)	Lead Environmental Inspector	Subcontractor	(TBD)
(TBD)	Lead Biologist	Subcontractor	(TBD)

15 Succulent Management

15.1 Introduction

15.1.1 Purpose

This Succulent Management section represents the commitment on the part of DCRT to protect succulent plant species. The overall objective is to provide measures to protect these resources from potential impacts during construction, operation, and maintenance and salvage those plants which cannot be protected. This Succulent Management section incorporates environmental protection measures contained in the Draft Environmental Impact Statement for the Project. This Succulent Management section is intended for use as a guide to determine the appropriate site-specific measures to be implemented during construction activities.

15.1.2 Goals and Objectives

Certain succulent species (especially some cacti) have physiological adaptations that result in high success rate for salvage and transplant. The goals of this Succulent Management section are to: 1) provide insight into the succulent types present in the Project area and their salvage assessment criteria and the regulations governing them; and 2) identify salvage methods for succulent plant species to implement prior to construction activities. These activities would support and achieve agency and state requirements to:

- Protect native succulent plant species.
- Salvage native succulent plant species.

15.2 Regulatory Compliance

The following provides a brief overview of federal and state legislation and regulatory compliance applicable to biological resources in the Project area that were considered in the development of this section.

15.2.1 Federal

The federal ESA, Section 7 (16 United States Code [U.S.C.] § 1531 et seq., 50 Code of Federal Regulations [CFR] Part 17.1 et seq.) provides for the designation and protection of threatened and endangered plants, as well as animal species, and habitat critical to their survival. The ESA authorizes the United States Fish and Wildlife Service (USFWS) to review a proposed federal action to assess potential impacts to listed species. Listed species are those that have been listed in the Federal Register as threatened or endangered as defined by the ESA. The ESA prohibits the “take” of listed species. The ESA and implementing regulations define “take” to include mortality and other actions that could result in adverse impacts such as harassment, harm, or loss of critical habitat.

The BLM does not allow the collection or the take of cacti and yucca on federally-managed lands without a special use or other applicable permit. Although most cactus species are not on the BLM's Sensitive Plant List, the BLM typically requires some level of salvage of succulent species. These standards usually follow a hierarchy of perceived horticultural value, whereby those species most valued by landscapers and collectors (hence, those most commonly lost due to poaching on federal lands) are most frequently identified for salvage. The BLM District office will determine which succulent species will require salvage as well as any management requirements.

15.2.2 States

15.2.2.1 Arizona

The ANPL (Arizona Revised Statutes §§ 3-901 et seq.) was enacted to protect rare plant species and to protect some species from being over harvested. There are four Protected Native Plant Categories:

1. Highly Safeguarded – These plants are threatened for survival or are in danger of extinction. Protection includes not only the plants themselves, but their plant parts such as fruits, seeds and cuttings. A few examples of species in this category are

saguaro, Arizona willow, and some agave and cacti (*Agavaceae* and *Cactaceae* families).

2. Salvage Restricted – This large group of plants are subject to damage and vandalism. This is a large list of species with 32 plant families represented, the largest being numerous species of cacti.
3. Salvage Assessed – This much smaller group of plants have enough value if salvaged to support the cost of salvaging. This list includes desert willow (*Chilopsis linearis*), palo verde, ironwood, smoke tree (*Psoralea argophylla*) and several mesquite species.
4. Harvest Restricted – Also a smaller group, these plants are protected due to the fact that they are subject to excessive harvesting because of the intrinsic value of products made with their wood or fiber. Included in this group are bear grass (*Nolina microcarpa*), yucca (*Yucca* spp.), ironwood, and mesquite.

15.2.2.2 California Endangered Species Act

The California ESA was enacted in 1984 to parallel the federal ESA and allows the California Fish and Game Commission (CFGC) to designate species, including plants, as threatened or endangered. Under the California ESA it is illegal to import, export, “take,” possess, purchase, sell, or attempt to do any of those actions to species that are designated as threatened, endangered, or candidates for listing, unless permitted by California Department of Fish and Wildlife (CDFW). “Take” is defined as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” There are 156 species, subspecies, and varieties of plants that are protected due to their threatened or endangered status under California ESA. Under California ESA, CDFW may permit take or possession of threatened, endangered, or candidate species for scientific, educational, or management purposes, and may also permit take of these species that is incidental to otherwise lawful activities if certain conditions are met. Some of the conditions for incidental take include that the take is minimized and fully mitigated, that adequate funding is ensured for this mitigation, and that the activity will not jeopardize the continued existence of the species.

The Native Plant Protection Act of the 1977 Fish and Game Code (Sections 1900 through 1913) directed the CFGC to carry out the Legislature’s intent to “preserve, protect and enhance rare and endangered plants in this State.” The Native Plant Protection Act gave the CFGC the power to designate native plants as “endangered” or “rare” and protect endangered and rare plants from take.

The California Desert Native Plants Act of 1983 (Division 23 [commencing with Section 80001]) of the Food and Agricultural Code is intended to protect California desert plants from unlawful harvesting on both public and privately held lands, and to provide the information necessary to legally harvest native plants. This code allows removal of certain non-listed desert plants under permits issued by the county agricultural commissioner or sheriff. The Act specifically defines plants that may have limited harvest with appropriate landowner approval and permitting. “Landowner” includes the public agency administering any public lands within the areas subject to this division. The county agricultural commissioner may establish specific cutting, harvesting, and plant care criteria that would include the most favorable and practical horticultural methods and seasons to ensure the survivability of the plants, as well as to ensure compliance with existing local, state, and federal regulations.

Under California Penal Code Section 384a, a person shall not willfully or negligently cut, destroy, mutilate, or remove plant material that is growing upon state or county highway ROWs. In addition, a person shall not willfully or negligently cut, destroy, mutilate, or remove plant material that is growing upon public land or upon land that is not his or hers without a written permit from the owner of the land, signed by the owner of the land or the owner's authorized agent. In addition, removing or damaging plants from property that a person does not own without permission may constitute trespass and/or petty theft.

15.3 Succulent Plant Management

15.3.1 Succulent Plants Occurring in the Project Area

No plant species listed under the federal ESA would be expected to occur in the Project area. However, in Arizona more than 200 species protected by the ANPL, including 16 cacti or succulents (e.g., saguaro, cholla, pincushion, hedgehog, and beavertail), occur within the Project area. In California, only one succulent species was identified as likely to occur in the Project area (the saguaro cactus), and it is considered fairly endangered by California Rare Plant Ranking (CRPR) (not an endangered species, but "Least Concern"). The saguaro cactus is protected under the California Desert Native Plants Act. Table F-7-2 identifies the 16 succulent plant species likely to be present in the Project area.

TABLE F-7-2 SUCCULENTS LIKELY TO BE PRESENT IN THE PROJECT AREA

Scientific Name ¹	Common Name	Arizona Designation ²	California Designation ³	Growth Form ⁴
<i>Agave deserti</i> spp. <i>simplex</i>	Desert agave	ANPL-SR	-	Y
<i>Carnegiea gigantea</i>	Saguaro cactus	ANPL-SR	CRPR: 2B.2	S
<i>Carnegiea gigantea</i>	Saguaro cactus 'crested'	ANPL-HS	-	S
<i>Cylindropuntia acanthocarpa</i> var. <i>acanthocarpa</i>	Buckhorn cholla	ANPL-SR	-	J
<i>Cylindropuntia bigelovii</i>	Teddy-bear cholla	ANPL-SR	-	J
<i>Cylindropuntia echinocarpa</i>	Silver cholla	ANPL-SR	-	J
<i>Cylindropuntia kunzei</i>	Devil's cholla	ANPL-SR	-	J
<i>Cylindropuntia leptocaulis</i>	Pencil cholla	ANPL-SR	-	J
<i>Cylindropuntia ramosissima</i>	Diamond cholla	ANPL-SR	-	J
<i>Echinocereus engelmannii</i> var. <i>chrysocentrus</i>	Hedgehog cactus	ANPL-SR	-	S
<i>Echinomastus johnsonii</i>	Beehive cactus	ANPL-SR	-	S
<i>Fouquieria splendens</i>	Ocotillo	ANPL-SR	-	J
<i>Mammillaria tetrancistra</i>	Pincushion cactus	ANPL-SR	-	S
<i>Peniocereus greggii</i>	Night blooming cereus	ANPL-SR	-	S
<i>Peniocereus greggii</i> var. <i>transmontanu</i>	Arizona queen-of-the-night	ANPL-SR	-	S
<i>Opuntia basilaris</i> var. <i>basilaris</i>	Beavertail cactus	ANPL-SR	-	J

Source: Draft Environmental Impact Statement

¹ Additional cacti and yucca protected under the ANPL could be present in the Project area.

² ANPL status: HS – Highly Safeguarded, SR – Salvage Restricted, SA – Salvage Assessed, HR- Harvest Restricted

³ California Rare Plant Ranking (CRPR): List 2B – Plants rare, threatened, or endangered in California, but more common elsewhere; List 0.2 – Fairly endangered in California.

⁴ S – single-stemmed cacti, J – jointed (segmented) cacti, Y – yucca and agave.

15.3.2 Growth Forms

The cacti, agave and yucca (collectively termed “succulents”) of the Project area are all native species; there are no introduced non-native succulents in the area. All of these plants store moisture in plant tissues above the ground, and for some of these succulents (barrel cacti), their entire aboveground biomass acts as a single water storage organ. Cacti are also leafless, and their chlorophyllous surfaces consist of the tissue covering their stems. Most taxa are heavily armed with stout siliceous spines. Many species of *Opuntia* are also armed with glochids, millimeter-scale spines that readily detach and penetrate the skin. Cactus species readily generate rootlets and root systems in response to seasonal increases in soil moisture. However, even with these commonalities, there are several distinct morphologies among these Sonoran Desert succulents that are relevant to their handling and salvage.

15.3.2.1 Single-stemmed Succulents

The single-stemmed succulents are those cactus species characterized by a single stem, usually slightly inflated. The single-stemmed succulent species are indicated in Table F-5-1. The barrel cactus a prominent plant of the Sonoran Desert, is an example of a single-stemmed succulent. It is a single stemmed columnar cactus that typically grows to a height of three to five feet, although taller specimens do occur (Benson 1977). Barrel cacti have a shallow root system that may extend two feet below the surface dependent upon the species. Single-stemmed succulents also include plants that have up to a dozen stems sprouting out to make up one individual, such as a barrel cactus with many heads or a hedgehog cactus (*Echinocereus engelmannii*). However, these stems always branch from the ground-level perennating (that is, persistent from year-to-year) buds, and the stems neither branch nor are they segmented.

The saguaro is another prominent plant of the Sonoran Desert that is classified as a single-stemmed succulent. It is a large, long lived, columnar cactus that is typically found on rocky or gravelly soils of foothills, canyons, and benches at 600 to 3,600 feet elevation (Benson 1977). The saguaro lifespan is estimated to be up to 200 years and can grow to a height of 50 feet and attain a weight of six to seven tons (Kearney and Peebles 1969). The saguaro is a very slow growing plant; it may only stand two feet at 30 years and reaches sexual maturity around 60 years of age. The saguaro root system is shallow, generally less than four inches deep and spreading in all directions to a distance approximately equal to the height of the plant. The shallow roots provide support and allow the plant to take advantage of even very light showers. A few roots may descend to three feet.

15.3.2.2 Segmented Succulents

The segmented, or jointed, cacti in the Project area as indicated in Table F-5-1. include chollas (*Opuntia* subgen. *Cylindropuntia*), ocotillo (*Fouquieria splendens*), and prickly-pears, such as the beavertail cactus (*Opuntia basilaris* var. *basilaris*). Chollas are typically ascendant and shrub-like, although their branching architecture consists of succulent, cylindrical joints. Buckhorn chollas (*O. acanthocarpa*) can exceed five feet in height and, with dense golden spines, can be more visually appealing compared to the nondescript and smaller silver cholla (*O. echinocarpa*). Cholla joints are cylindrical, and those of most

species are relatively short and detach easily from the mother plant with no injury to the plant. Their spines are typically sheathed with microscopic recurved barbs designed to “hitchhike” once they attach to the foot of an animal. Accordingly, cholla cacti often reproduce through vegetative propagation as dropped joints are scattered beyond the parent plant to, take root elsewhere.

An ocotillo is not a cactus, but a woody shrub that grows 10 to 20 feet tall with a short thick trunk and many long, spiny branches. Ocotillo, like cacti, use several genetic adaptations for the Sonoran Desert habitat. Its roots have a layer of cork-like cells around them to retain moisture. It is able to quickly leaf and blossom any time there is enough water. It waits for moisture in a leafless and dry stage. The south facing side of the plant is tougher and more heat resistant than the north side. The ocotillo can reproduce by fertilization and dispersal of seed, but generally has more success by vegetative propagation.

Prickly-pear cacti are ascendant plants with an architecture composed of flat, jointed, succulent pads. Some prickly-pears (*Opuntia chlorotica*) can grow up to five feet tall in the Project area, while other taxa (e.g., *O. basilaris*) can be diminutive, consisting of a few to approximately a dozen pads that do not branch extensively.

15.3.2.3 Yucca and Agave

Although technically succulents, yucca and agave species are unrelated to cacti. They are perennial monocots (grasses and allies) and are classified in the lily hierarchy. Agave and yucca belong to the same subfamily (Agavoideae) and have a similar appearance, with long, thin leaves bearing a sharp point at the end, radiating from a central stem to form a symmetric rosette. The main distinguishing features for yucca include leaves which are narrower, thinner, and less tapering than agave, as well as the absence of spines along the edges of the leaves, but often bear thin, curly white hairs instead. Agave leaves are generally wider, thicker, more tapering (lanceolate) and are often edged by spines without thin hairs. There were no known yucca species identified in the Project area, but one agave species was identified, desert agave (*Agave deserti* spp. *simplex*). Yuccas and agaves do not possess the same physiological attributes of cacti and thus do not respond as well to transplantation.

15.3.3 Succulent Adaptation to Desert Environments

The ecophysiology of North American cacti was a principal subject of study during the first decades of the twentieth century, as summarized by McGinnies (1981). Cacti resist desiccation partly because they lack traditional leaves and have a very small surface-to-mass ratio. Their cuticle is also thick, with stomata that close tightly during the day, open after dark, and respire at night to reduce moisture loss. Their root systems can also grow rapidly in response to increases in soil moisture, and rootlets also dieback readily, minimizing moisture loss caused by soil desiccation. Injuries, whether to the stem or root system of cacti, also callous quickly in the absence of fungi or other pathogens. Cacti are also rich in water and nutrients.

Many of the physiological adaptations of succulents to desert environments allow them to be relatively easy to transplant successfully if appropriate measures are taken. Some of these measures anticipate the vulnerability of cacti to soil pathogens. Rooted primarily in dry soils, cacti typically do not have the resistance to fungal pathogens possessed by most plants of more humid habitats.

The transplant success rates for yucca species are significantly below those for cactus species.

15.3.4 Succulents to be Salvaged

Pre-construction surveys and monitoring will be conducted to minimize impacts to succulents by identifying species and recording their location. The survey information will be provided to the BLM for approval prior to transplantation. Plant salvage assessments will be conducted in both Arizona and California in 2019, Post-Record of Decision on BLM administered lands for the Final Route. The procedure will entail an on-site pedestrian survey for BLM listed salvageable species. For each individual succulent species encountered, an assessment will be made of the likelihood that the salvage, propagation, and transplantation of that individual would be successful. DCRT and/or their contractor will perform health assessments based on: 1) height; 2) size class; 3) overall health of the plants (necrosis, trunk damage, etc.); and 4) feasibility of transplant assessments by looking at surrounding topography, soil, slope, and final placement area. Each succulent plant determined to be within height restrictions (discussed in the following sections), feasibly able to transplant, and in good or excellent condition will be salvaged. The general health condition of each plant will be assessed and evaluated using the following assessment criteria:

- Excellent – Over 80 percent live branches and stable root system. Vibrant green, few holes or marks, no evidence of rot or damage. Plump, Evidence of new growth.
- Good – Over 60 percent live branches and mostly stable root system. Green throughout, some holes or marks, but no evidence of rot. Skin generally even and smooth, appearance generally plump.
- Fair – Less than 60 percent live branches and/or mostly stable root system. Generally green, holes or marks with some indication of rot. Skin generally uneven in texture. Lacking girth.
- Poor – Less than 40 percent live branches and unstable root system. Yellowish color, evident damage or rot on skin, appearance of wrinkling or wilting. Retains tissue connection to base. Thin. Leaning. Top of main stem shrunken or leaning.
- Imminent Mortality – Dry, brown base, no green tissue connecting base and upper green, partly green or yellow tissue.
- Dead – Dry, brown, no green tissue.

Evidence of old tissue damage, scarring, and holes or roots do not directly indicate a saguaro is in poor health. A saguaro should not be disregarded for lack of plumpness if it is in similar condition to other saguaros in the area.

The following APMs and BMPs will ensure proper identification and treatment of succulents to be salvaged.

APM-BIO-11: Vegetation Management Plan – The Vegetation Management Plan would be approved by the BLM and implemented. That Plan describes the surveys, permitting, fee payments, and plant protection to be conducted in areas where Project design would not eliminate the need for vegetation control for the Project to be in compliance with NERC requirements. Vegetation would be trimmed or otherwise controlled for safe operation of the transmission line and would be designed to minimize impacts on special status species to the extent practicable. At a minimum, vegetation treatments shall incorporate the measures identified in the June 2006 Memorandum of Understanding regarding vegetation

management along ROW for electrical transmission and distribution facilities (United States Department of Agriculture [USDA] 2006). The Plan also would describe how vegetation would be salvaged, as needed, in order to comply with the applicable ANPL and California regulations.

BMP-BIO-11: Vegetation Management Plan – In addition to the description of the Vegetation Management Plan in the corresponding APM-BIO-11, the plan would also:

- Meet BLM guidelines for mapping and surveying of cacti, yuccas, and succulents.
- Include a wire zone/border zone/effective border zone approach to vegetation maintenance.
- Identify tall vegetation species by geographic reach and growth rates, from relevant scientific literature (such as Drezner 2003), to be used to determine maximum allowable vegetation heights in the context of wire zone/border zone/effective border zone concepts, to accommodate identified growth periods (e.g., 10 years) based on the specific vegetation community. Species examples include, but are not limited to, saguaro cactus, ironwood, palo verde, cottonwood, Goodding's willow.

APM-BIO-26: Arizona Protected Plant Inventory – An inventory of plants protected under the ANPL would be conducted on State Trust lands as required by the Arizona State Land Department. Similar surveys would be conducted on lands managed by BLM, as directed by that agency.

BMP-BIO-41: Succulent Management (Compliance with CMA-LUPA-BIO-VEG-1 General Vegetation Management and CMA-LUPA-BIO-VEG-5 and 6) – Management of cactus, yucca, and other succulents would adhere to current up-to-date BLM policy. All activities would follow applicable BLM state and national regulations and policies for salvage and transplant of cactus, yucca, and other succulents. Preconstruction surveys of disturbance zones would include preparation of maps delineating special vegetation features. BLM may consider disposal of succulents through public sale, as per current up-to-date state and national policy.

CMA-LUPA-BIO-VEG-5 (California only) – All activities will follow applicable BLM state and national regulations and policies for salvage and transplant of cactus, yucca, other succulents, and BLM Sensitive plants.

15.3.4.1 Single-stemmed Succulents

The species listed in Table F-7-3 will be salvaged by transplanting (removing the entire plant) wherever possible in situations where they will be threatened with destruction by construction activities (blading, crushing, or flail mowing). These single-stemmed succulents are not adapted to vegetative propagation like the segmented (jointed) cacti. Therefore, their salvage will involve transplantation of whole plants. The number of plant species included in Table F-7-3 may change once pre-construction surveys for succulents are complete.

TABLE F-7-3 SINGLE-STEMMED SUCCULENTS TO BE SALVAGED BY TRANSPLANTING THE ENTIRE INDIVIDUAL

Scientific Name ¹	Common Name
<i>Carnegiea gigantea</i>	Saguaro cactus
<i>Carnegiea gigantea</i>	Saguaro cactus 'crested'
<i>Echinocereus engelmannii</i> var. <i>chrysocentrus</i>	Hedgehog cactus

Scientific Name ¹	Common Name
<i>Echinomastus johnsonii</i>	Beehive cactus
<i>Peniocereus greggii</i>	Night blooming cereus
<i>Peniocereus greggii</i> var. <i>transmontanu</i>	Arizona queen-of-the-night
<i>Ferocactus wislizeni</i>	Fishhook barrel cactus

¹ Additional cacti protected under the ANPL could be present in the Project area.

Barrel Cacti: The fishhook barrel cactus (*Ferocactus wislizeni*) is classified as Salvage Restricted under the ANPL. The Natural Resources Conservation Service ([NRCS] 2009) and Arizona Department of Transportation ([ADOT] 2012) indicates a small-sized cacti species such as a two-foot-tall saguaro or small barrel cacti can attain a 95 percent survival rate. This report includes all barrel cacti of the small and medium size categories, those that fit into a one- to five-gallon bucket as eligible for salvage assessment.

Saguaro: Saguaro cacti are classified as Salvage Restricted under the ANPL and CRPR classifies saguaro cacti as 2B.2. (List 2B – Plants rare, threatened, or endangered in California, but more common elsewhere; List 0.2 – Fairly endangered in California). Crested saguaros are classified as Highly Safeguarded under the ANPL and are not classified in California.

DCRT will work with the BLM to determine which saguaros may be salvageable, to be determined on an individual plant basis within the ROW. Factors such as terrain, access, health, and number of arms on a saguaro would determine if it can be salvaged. Where possible, DCRT would relocate saguaros that meet all the following criteria in accordance with the Record of Decision; *Salvage Techniques for Saguaro Cacti, Barrel Cacti and Ocotillo* produced by NRCS in 2009; *Evaluation of Salvage and Replanted Native Plants on ADOT Projects* (ADOT 2012); the *Long-term Study of Preserved and Transplanted Saguaro in an Urban Housing and Golf Course Development* by Harris et al. 2004; the *Native Plant Preservation Manual* produced by Pima County Development Services in 1998; and *Best Management Practices for Saguaro Translocation and Replanting* by Arizona Game and Fish Department (AGFD) in 2019. Vegetative species deemed as highly safeguarded or salvage restricted will be evaluated for potential transplantation based on the following criteria:

- All efforts should be made to avoid moving these cacti to the extent practicable.
- The saguaro is within the clearance limits and 15 feet tall or less.
- The saguaro is within the wire zone of the lines or could potentially grow to become a hazard to the lines in the future within the line easement period.
- The saguaro does not occur within a cultural site; if so, the proper protocol for Historic Properties Protection will be followed. This might include hand salvage with proper cultural monitors present.
- Terrain, access, and other environmental or logistical factors are favorable to relocation of the saguaro (e.g., minimal difficulty of extraction or transplantation).
- The saguaro is in good health (absent of necrosis, sunburn, tissue rot, parasites, etc.), with minimal arms as determined by qualified biologists or the BLM or BLM-approved contractor. Saguaro with arms longer than seven to eight feet, central stem lengths greater than 25 feet, and more than seven to eight arms are likely nearing the end of their lifespans. Those that are thinning and balding at the tops

with spine loss, numerous bird holes, or other obvious damage and blemishes are also poor candidates (AGFD 2019).

- Substrate is conducive to successful salvage (e.g., no bedrock, rocky steep terrain).
- There are no accessibility constraints.
- There are no safety hazards for the salvage equipment.

Saguaros that do not meet the criteria outlined above may be removed by mechanical crews if they are close enough to be a potential threat to the transmission line (approximately 22 feet from wires) as determined by DCRT. Additionally, prior to removal of saguaros during nesting seasonal restrictions (February 15 through August 31), a qualified biologist will inspect flagged saguaros for nests to avoid impacts on migratory bird nesting season.

APM-BIO-16: Treatment of Saguaro Cactus – Measures would be implemented to minimize the number of saguaro cacti that must be relocated for the safe construction and operation of the transmission line. In accordance with the Vegetation Management Plan a survey of saguaros within the ROW would be conducted before construction and where possible, the transmission line would be designed to minimize the number of saguaros affected by adjusting tower locations and conductor height. The Plan would address plant salvaging, storing, and replanting requirements and methods, only those saguaro that are within 50-feet of the outermost conductors and could be tall enough to pose a hazard would be removed if they cannot be avoided through Project design. When possible, saguaro that must be removed would be relocated as directed by the BLM and state agency protocols. Monitoring and management of saguaros during operations would occur as described in the Vegetation Management Plan.

15.3.4.2 Segmented Succulents

The species listed in Table F-7-4 can be vegetatively propagated and therefore, their salvage will be primarily through the recovery of cuttings of pads (prickly-pears) or joints (chollas). Prickly-pear and cholla species will be salvaged by uprooting them during construction and leaving them within the slash piles to be spread by equipment post-reclamation. The number of plant species listed in Table F-7-4 may change once pre-construction surveys for succulents are complete.

TABLE F-7-4 SEGMENTED SUCCULENTS TO BE SALVAGED USING PADS, JOINTS, OR CUTTINGS REMOVED FROM THE PLANT

Scientific Name ¹	Common Name
<i>Agave deserti</i> spp. <i>simplex</i>	Desert agave
<i>Cylindropuntia acanthocarpa</i> var. <i>acanthocarpa</i>	Buckhorn cholla
<i>Cylindropuntia bigelovii</i>	Teddy-bear cholla
<i>Cylindropuntia echinocarpa</i>	Silver cholla
<i>Cylindropuntia kunzei</i>	Devil's cholla
<i>Cylindropuntia leptocaulis</i>	Pencil cholla
<i>Cylindropuntia ramosissima</i>	Diamond cholla
<i>Fouquieria splendens</i>	Ocotillo

Scientific Name ¹	Common Name
<i>Opuntia basilaris</i> var. <i>basilaris</i>	Beavertail cactus

¹ Additional cacti protected under the ANPL could be present in the Project area.

15.3.4.3 Yucca and Agave

Yuccas are often transplanted on desert restoration sites. However, survivorship is notably reduced in yucca transplants compared to other succulents, and the costs may be much higher (Bainbridge 2007; Bamberg Ecological 2006). At Castle Mountain Mine, transplanted Mojave yucca (*Yucca schidigera*) mortality within three years after planting was reported from 30 to over 50 percent. Subsequent years saw higher mortality rates, and by the end of the study, the transplant program for yuccas was not considered successful (Bamberg Ecological 2005 and 2006). In a study reported by Abella and Newton (2009), double-transplanted Mojave yucca had survival rates of only 39 to 53 percent over the limited (two-year) monitoring period; rainfall was potentially above average for the study period.

Yucca: Yucca species (*Yucca* var.) are listed under the Salvage Restricted category within the ANPL under the Agavaceae (Agave) Family. According to the Standard Operating Procedures for the Salvage, Transportation, and Care of Cacti and Yucca on BLM Land by the BLM (n.d.) all yucca less than six feet tall could be salvaged, though it is not recommended due to high mortality rates. All yucca over six feet tall have high mortality rates when transplanted and will be deemed unsalvageable.

Agave: All Agave (*Agave* var.) are considered Highly Safeguarded by the ANPL. If encountered on the ROW, Agave will be evaluated for species verification. Currently, there are no federally-listed agave species in the Project area. All agave encountered will be considered eligible for Salvage Assessment, although it is not recommended due to the potential mortality of species after transplant.

15.3.5 Salvage Techniques

All personnel engaged in succulent salvage will wear appropriate protective clothing and receive safety training that will include coaching regarding how best to avoid *Opuntia* glochids and the crushing hazard posed by the weight of a mature barrel cactus.

15.3.5.1 Succulent Salvage and Cleaning

Single-stemmed Cacti, Yucca, and Agave

Data from pre-construction surveys for succulents will be used for planning and relocation operations. Underground utilities will be marked prior to salvage activities. The larger single-stemmed cactus, such as the saguaro, will be salvaged using a hand crew or an excavator with a special attachment. The plant will first be wrapped with burlap or other appropriate material, and a guide rope will be affixed, if necessary. The bucket of the equipment or hand crew will then scoop the plant (including the proximal portion of the root mass) out of the ground. The minimum length for the saguaro excavated taproot is 18 inches, but if soil conditions allow for a deeper excavation and removal of more of the tap root, this should be done (AGFD 2019).

Smaller single-stemmed succulents will be salvaged using two-man crews with shovels. The succulent will be manually dug out of the ground, taking care to minimize damage to the roots proximal to the plant. Each plant will bear a vinyl tag identifying its provenance and date of harvest. For efficiency, the tags will be color-coded and labeled prior to the beginning of each day's work.

If a saguaro appears fully hydrated and is in superb condition, then generally watering is not necessary prior to extraction. A fully hydrated saguaro before a move creates a reserve the plant can use while regenerating the 80 percent or more of the roots it will lose when excavated (AGFD 2019). If the saguaro is dehydrated (shrunken ribs, pinched tips), and/or the hot season is approaching, then it is recommended that they be well watered at least once prior to extraction (AGFD 2019). Since the saguaro cacti for this Project are in remote locations, an attempt will be made to water dehydrated saguaros prior to extraction, but is not probable without roads and therefore watering will occur post extraction, if necessary.

Segmented Cacti

Because they grow readily from cuttings (actual cuttings, or just joints or pads removed from the plant), most species of segmented cacti (Table F-7-4) can be more efficiently salvaged by removing parts of the plant, rather than transplanting the entire plant. This also allows for economy of scale to the extent that one plant can yield several new plants depending on how many of its cuttings are propagated.

Prickly-pear and cholla species will be salvaged by uprooting them during construction and leaving them within the slash piles to be spread by equipment post-reclamation.

15.3.6 Salvage Protocol

15.3.6.1 Tagging

Upon Health and Feasibility Assessments, DCRT and/or their contractor will tag individual plants with a plant identification number and document their Global Position System (GPS) location. Plant identification numbers are written on color coded vinyl tags specific to withstand weather. These tags are attached to individual plants using either 26-gauge silver, galvanized steel wire, or thin braided rope so as not to endanger the health of the plant by the introduction of ferrous microbes. Plant identification tags are color coded by three colors to simplify communication to construction crews, which diminishes confusion. Colors are picked for three categories: 1) salvageable, 2) non-salvageable, 3) avoid.

Red will be used for those who meet all requirements for translocation, blue for species who did not meet requirements for salvage and will be deemed "unsalvageable" and consequently removed mechanically, and yellow for cacti to be avoided. A tracking sheet will be kept with plant identification, salvage status, health status, and feasibility, and will be available to the Compliance Inspection Contractor (CIC) or BLM upon request.

For all single-stemmed cacti and yucca undergoing whole plant transplant, all individuals would be flagged on the north side to facilitate correct orientation during transplantation. Saguaro cacti will be flagged on the north side at one foot above ground level to facilitate replanting the saguaro facing the same direction, and to the same depth, at which it was growing.

15.3.6.2 Transplanting

Moving salvaged plants multiple times can lead to lower survivability and undue stress on the individuals. Mature salvaged saguaros exhibited higher chances of survival using the “once-move” technique in which they were only relocated once (ADOT 2012). As indicated by the study, each saguaro has an approximate 50 percent chance of survival with saguaros 12 feet and under exhibiting a 70 percent chance when salvaged, however each move lowers survival by 20 percent after the initial relocation each time Harris et al. (2004) and ADOT (2012) found the taller saguaros had a lower survival rate and exhibited poorer health due to their weight damaging trunk tissue and depth required for root survival. In addition, the presence of arms had a negative effect on saguaro survival rate and overall health following transplant (APS 2017). Thus, the “move once” (i.e., extracted and loaded onto the cradle, transported to the new permanent site, and then directly re-planted from the cradle) technique will be employed for this Project for on-site salvage of all types of succulents.

Saguaros and other cacti can be planted essentially throughout the year, although spring is the most ideal season. The days when the soils are saturated by rains (summer or winter) should be avoided because the monsoons can result in excess soil moisture which promotes root rot (AGFD 2019).

Shallow swales and holes will be scooped-out and individual cactus placed upright. For saguaro, excavate the new hole to a width twice as wide as the extant root ball. The cactus will be oriented correctly in the north-facing direction to the extent possible and roots covered by pushing soil around the plant base. The saguaro should be replanted no deeper (or within one to two inches) than its original level in the ground. A saguaro planting detail is included as Attachment F. For the native soil used as backfill, it is especially important to remove any rocks or caliche chunks over three inches in diameter, as these large rocks could damage roots they contact. The backfill must be firmly compacted around the plant. If the north marking tag gets lost, the north side of a saguaro may be determined by: 1) saguaros generally have a sloping top that is oriented to the south, and 2) the north side of the saguaro is a lighter green color than the south side (AGFD 2019). Positioning will be checked for stability and adjusted as necessary. Saguaro will be vertically straight and balanced.

Taller cactus may be supported by loosely tying to lathe strips or other upright support. Experience indicates that saguaros less than 12 feet do not require additional support if the backfill is well tamped (AGFD 2019). This height can be extended to 15 feet for saguaros with no arms. Saguaros over 15 feet tall or those between 12 to 15 feet with arms should have additional support or bracing (AGFD 2019). The preferred support system consists of three guy wires strung through sections of fiber-reinforced hose or tree straps. Galvanized wire rope is recommended. Sections of hose are placed around the plant two-thirds up from the base of the saguaro. Triangulate the three guy wires from the hose sections surrounding the plant column and stake them into the ground using 24-inch #4 rebar. Ensure the collar is not too tight around the stem. The use of wooden 2x4 supports covered with carpet at the point of contact with the stem are not recommended as the carpet can retain moisture which promotes decay. Lath and support structures will be removed following the five-year monitoring period.

Create a tapered mound or cone of soil around the base of the saguaro to divert water away from the stem to reduce rot or pathogens from contacting the stem base. The cone is not compacted so it will eventually erode away. Some of the excavated dirt should be used to create a water-collecting basin around the saguaro. These designs facilitate the efficient use of supplemental water and also capture some additional runoff water from rainfall events.

Salvaging techniques for transplant along access roads, structure sites, or general ROW may require the off-road drive-and-crush travel of rubber-tired vehicles such as a backhoe for placement. Off-road travel will be limited to 10 to 15 feet from disturbance area. Off-road travel is predicted to be required for translocation of saguaro cacti which cannot be done by hand due to their weight. Prior to this technique, all other salvageable species within the area in danger of being crushed will be transplanted.

Plant species that can be salvaged are transplanted adjacent to, or within a similar area, of original terrain and slope orientation. Species such as saguaros have been salvaged using a specialized attachment carpeted for species' protection, on a backhoe or excavator. Impressions are made within the dirt of the final location area for water catchment. Final transplant location areas are identified with GPS coordinates and documented. The BLM may also use transplanted succulents to rehabilitate previously disturbed areas within their jurisdiction.

Placement of Salvaged Species will occur along existing access roads and structure work areas outside of wire clearance specifications and construction activities. Placing Species along the roads and structure work areas will provide access by water trucks in which they will be watered by hose or spray within two weeks of transplant. Hose and/or spray watering techniques will be done at a low velocity so as not to damage the species further or cause excessive puddling.

All cultural sites would be located and flagged with a buffer prior to saguaro removal and relocation. If a saguaro occurs in a cultural site, it would not be relocated or treated using mechanical equipment unless the proper monitors are present. Saguaro and Salvage Species in cultural sites that are within 22 to 30 feet vertical distance and 50 feet horizontal distance of the conductors as maximum load conditions will be cut using hand crews or else pruned. Specimens considered unsalvageable outside of cultural areas will be treated mechanically. Mechanical methods may include mowers, excavators, and pruning.

A Collectors Permit and Removal Permit will be obtained from the AZDA for the saguaro salvage operation on non-BLM lands, if required. On BLM lands, the contractor must get a shipping permit from BLM before transporting the plants. Saguaro to be relocated would be moved to an area absent of cultural resources outside of the wire zone and away from the low sag area for these lines. Wherever possible, transplanted saguaros within the ROW on BLM land would be relocated to an acceptable area or along the edge of the ROW near to where they were removed so that they may continue to be beneficial to local wildlife. As an alternative to relocation or removal, pruning may be used as determined by the BLM. Saguaro may require future treatment if pruning is implemented and they grow within the 22- or 50-foot violation distance. Pruning of the plant would involve topping or removing arms, making cuts at a 45-degree angle and sealing the wound with a sealing compound.

15.3.6.3 Saguaro Post-Planting Care and Monitoring

Watering Newly Transplanted Saguaro

Plant the cactus into dry ground, backfill and do not water immediately to settle the backfill. Recommended watering regimes will vary by season and transplantation date. Initiate post-transplant saguaro watering according to the following guidelines:

- The initial post-transplant watering regime should emphasize avoiding prolonged excessively moist conditions by providing intermittent watering in well drained conditions.
- Saguaro transplanted in the spring, summer, or early fall months should remain in the dry backfill soil for four weeks before initial watering begins. Four weeks is the recommended time for plants whose roots were not air-dried.
- If saguaros are transplanted in the later fall or early winter, they should have a full month of dry soil time to reduce any onset of root rot, but they can receive an initial watering after this dry period if there has been no rainfall. Root development and activity is generally inhibited by the cooler weather, and the cool, moist conditions may facilitate root rot. However, it is also not advisable that a newly transplanted saguaro should stand without any water for many months. The recommended schedule is to provide some water for those cacti which are disposed to use it, but also long enough periods between watering to deter the continued development of any root rot that might start.

Watering will be done by water truck as the roads are available and are being watered, otherwise supplemental watering will not be provided.

Other Post-Planting Management Practices

Do not cultivate and otherwise disturb area around the trunk (up to seven feet diameter) to avoid damaging shallow roots. Do not mulch with any material that reflects or intensifies light. Do not cover soil with plastic sheets. Fertilization is generally not necessary.

15.3.7 Succulent Salvage Techniques Summary

The following conclusions are based upon *Salvage Techniques for Saguaro Cacti, Barrel Cacti, and Ocotillo* completed by NRCS (2009). This information was gathered from available sources including interviews with salvage contractors and experts in the field, and literature review. This information is meant to summarize the most technically correct procedures for removing and transplanting saguaros, barrel cacti, and ocotillos.

1. Saguaro and barrel cacti can be transplanted at any time of the year with success, except during the winter rainy season when cool temperatures and moisture promote decay in fresh transplants. This may require some advanced scheduling to prevent a long operation from advancing into the wet season. Spring is the optimum time due to the typically dry weather and dry soil conditions which help reduce transplant rot. Although monsoons occur during the summer, the rain tends to be short duration with little soil penetration and the hot weather tends to prevent fungal growth.
2. Saguaro and barrel cacti less than five feet tall can be transplanted by hand. For cacti above five feet, a cradle which supports the plant to a holding yard or to a new location, will be necessary.
3. All three species incur damage when moved. The plants must have a two-week healing period before water is applied. This period allows the roots time to dry, sealing wounds, cuts, and abrasions. When removing saguaro, take as much of the root system as possible from the excavated area.

4. The preferred support system for saguaro consists of three guy wires strung through sections of hose. The sections of hose are placed around the plant two thirds up from the base. Triangulate the three guy wires from the hose sections surrounding the plant column and stake them into the ground, making sure the collars are not too tight. Carpet should not be substituted for hose sections. Carpet retains excess moisture and promotes decay. Storing plants is only recommended when circumstances dictate. Immediate transfer of plants to their permanent location ensures the best survival rate. This method results in the reduction of excessive mechanical handling, reducing the probability of plant damage.
5. The commonly accepted industry standard to determine saguaro transplant success is one to two years after transplanting. The consensus of the technical community is that four to five years is necessary to determine survival.
6. A small mound of soil should be built around and against the base of the saguaro (below the fleshy part to prevent decay). The mound should slope away from the saguaro into a basin that surrounds the cactus. The basin should be three to four inches deep and three times the diameter of the plant.
7. Backfill will consist of native soil. It is important that there is no standing water against the fleshy parts of the saguaro. The water should drain down and away from the plant to prevent fungal infection and decay. This is also true for barrel and ocotillo. The planting depth for the barrel and saguaro cacti should not exceed the callused portion of the base. Moisture contact to the callused area does not appear to promote plant tissue degeneration.
8. Generally, transplant success is greater with barrel cactus followed by saguaros.
9. Duplication of solar orientation when transplanting is crucial for cacti but not necessary for smaller ocotillo. It may be beneficial for large, old ocotillo to be planted in its original solar orientation. Saguaro and barrel cacti that were removed from the shade of another plant (such as palo verde) should be transplanted into locations that will provide shade or they may sunburn and their survival could be diminished.

15.3.8 Succulent Reuse, Donation, Sale, or Nurseries

Although it has been suggested for this Project that salvaged succulents could be used for seed source, this practice is not widely used in revegetation in the arid west because vegetative propagation of cacti is simple and effective.

Approved donation or approved sale of cacti may be identified by DCRT and the BLM as appropriate manners of disposition of the cacti not immediately transplanted. There would be some use for cacti in revegetation of temporary disturbance areas, but this use would be limited. Succulents will be transplanted into recently seeded areas to provide increased microhabitat heterogeneity.

Although not recommended for this Project, an open-air nursery could be used to house succulents if the plants are not immediately transplanted, donated, or transferred to another party. Cacti planted in the open-air nursery for long-term stockpiling can be accessed to collect seed in favorable years after they set fruit. Their proximity in the nursery should promote good pollination.

15.3.9 Compensation

On state-owned lands in Arizona, DCRT may choose to pay for succulent plant damage instead of relocating these plants. Compensation fees are governed by the state. Generally, the BLM and ADOT require salvage, but ultimately the BLM will decide the species to salvage.

15.3.10 Monitoring and Reporting

Monitoring and reporting will begin the quarter (three months) after the first target species are salvaged and continue for up to five years or until success criteria are met, whichever occurs first.

15.3.10.1 Monitoring

Pre-Construction to Five-years Post-Construction

A BLM approved third-party consultant Botanist will monitor all transplanted individuals monthly for a period of two years post-transplantation using a schedule that includes irrigation if necessary and the removal of invasive plant species. After two years, the BLM approved third-party consultant Botanist, will implement a quarterly monitoring schedule until a period of up to five years, or until the success criteria are met or otherwise noted by the AZDA and/or BLM. Lath and support structures will be removed following the five-year monitoring period.

Success Criteria

After two years, a success threshold of 50 percent survivorship of salvaged and transplanted species is targeted and will be the measurable objective that defines success.

Adaptive Management

Documentation of techniques used, timing, weather conditions, changes in protocol, and success or failure will be performed by an authorized Botanist at regular intervals. Adaptive management may be employed whenever necessary and will be determined by the Project's Environmental Compliance Monitor, Designated Biologist, and an Authorized Botanist in coordination with the BLM.

15.3.10.2 Reporting

Monitoring reports are required to evaluate monitoring results to determine if success standards are being met; and if not, to determine what adaptive control measures should be implemented and the rationale for the use of these measures and evaluation of the success of these measures.

Quarterly Reports

Quarterly monitoring results will be presented in a summary report and will include:

- Summaries of any transplanting or seed collection/cuttings conducted in the previous quarter.
- Adaptive management efforts implemented, including date, location, type of treatment, and results.
- Ongoing evaluation of success of transplantation and seedling propagation measures.

Copies of these reports will be kept on file and a copy of each quarterly summary will be sent to the BLM, AZDA, and CDFW for review and comment.

Annual Reports

Annual salvage and transplantation results will be presented in an annual report that will include:

- All salvage and transplantation activities conducted in the previous year.
- Adaptive management efforts implemented, including date, location, type of treatment, and results.
- Ongoing evaluation of success of transplantation and seedling propagation measures.

Copies of these reports will be kept on file and a copy of each annual report will be sent to the BLM, AZDA, and CDFW for review and comment.

Special Reports

Two-Year Post-Construction Monitoring Report

After the initial two-year post-transplanting monitoring is completed, a comprehensive monitoring report will be produced to describe the outcome of vegetation salvage and transplantation on the Project for the initial two-year period. This report will be submitted to the BLM, AZDA, and CDFW for review and comment.

Five-Year Post-Construction Monitoring Report

After the five-year post-construction monitoring has been completed, a final and comprehensive monitoring report will be produced to describe the outcome of vegetation salvage and transplantation on the Project. This report will be submitted to the BLM, AZDA, and CDFW for review and comment.

15.3.11 Environmental Protection Measures

Implementation of the Succulent Management section, environmental protection measures described in this section, as well as adherence to the following environmental protection measures will ensure succulent plant species are managed accordingly during construction activities, reclamation, and operation and maintenance activities associated with the Project:

- BMP-BIO-01: WEAP

- BMP-BIO-43: Collection of Plant Material
- BMP-VEG-01: Removal of Vegetation
- BMP-VEG-02: Avoid Vegetation Removal

15.3.12 California Environmental Quality Act Compliance

There are additional mitigation measures that are limited in scope to California. These include:

- MM BIO-CEQA-4: Develop a Habitat Restoration, Mitigation, and Monitoring Plan
- MM BIO-CEQA-5: Develop a Special Status Plant Transplantation and Compensation Plan
- MM BIO-CEQA-12: Compensation for Impacts to Sensitive Vegetation Communities
- MM VEG-CEQA-1: Develop and Implement a Vegetation Management Plan
- MM VEG-CEQA-2: Conduct Pre-Construction Floristic Surveys
- MM VEG-CEQA-3: Conduct Focused Surveys for Harwood's Eriastrum
- MM VEG-CEQA-4: Compensation for Impacts to Special-Status Plant Species and Sensitive Communities

16 Special Status Plant Transplantation and Compensation

16.1 Introduction

This Special Status Transplantation and Compensation section sets forth the methods DCRT and its Construction Contractor(s) will undertake to transplant special status plant species and/or compensate for damage or removal of special status plant species during construction, operation, and maintenance of the Ten West Link.

16.1.1 Purpose

This Special Status Plant section represents the commitment on the part of DCRT to protect special status plant species. The overall objective is to provide measures to protect these resources from potential impacts during construction, operation, and maintenance and salvage and transplant those plants which cannot be protected. Compensation may be required for special status plants which are impacted and cannot be salvaged and/or transplanted in California. This Special Status Plant section incorporates environmental protection measures contained in the Draft EIS for the Project. This Special Status Plant section is intended for use as a guide to determine the appropriate site-specific measures to be implemented during construction activities.

16.1.2 Goals and Objectives

The goals of this Special Status Plant section are to: 1) identify the special status plant species present in the Project area and the regulations governing them; 2) identify transplantation methods for special status plant species to implement prior to construction activities; and 3) present compensation options for impacts to special status plant species in California. These activities would support and achieve agency and state requirements to:

- Protect native special status plant species.
- Salvage and transplant native special status plant species.
- Use salvaged native special status plant species in reclamation activities.
- Compensate for potential loss of special status plant species.

16.2 Regulatory Compliance

For an overview of the federal and state legislation and regulatory compliance applicable to special status plant resources in the Project area that were considered in the development of this plan, see the Succulent Management section (Section 15) and the Linear ROW Rare Plant Protection section for Harwood's Eriastrum (Section 17).

16.3 Special Status Plant Species Eligible for Transplantation

Certain succulent species (especially some cacti) have physiological adaptations that result in high success rate for salvage and transplant. Other species including trees, shrubs, and annual and perennial herbs are not candidates for transplant due to low success rate for salvage and transplant.

16.3.1 Endangered Species Act Threatened, Endangered, and Proposed Plant Species

No plant species listed under the ESA would be expected to occur within the Project area.

16.3.2 Other Special Status Plant Species - Arizona

The AZDA maintains a list of plants protected under the ANPL. That list includes four categories of protected plants: Highly Safeguarded, Salvage Restricted, Salvage Assessed, and Harvest Restricted. Highly Safeguarded plants include rare species; many of the species under other classifications are widespread throughout the Project area. Table F-7-2 in the Succulent Management Section (Section 15) lists succulent plant species protected under the ANPL that are likely to be present in the Project area in Arizona.

16.3.3 Other Special Status Plant Species – California

In addition to BLM designated sensitive plant species, the BLM confers sensitive status on California State endangered, threatened, and candidate species, and rare plant species with a California Rare Plant Rank of 1B (rare, threatened, or endangered in California and elsewhere) that are on BLM-administered land or affected by BLM actions (Land Use Plan

Amendment [LUPA]). Sixteen special status plant species have been found or could be present in the Project area. However, none of those species are classified as endangered, threatened, or rare by the California Fish and Game Commission (CDFW 2019). Only one of these 16 plant species is a succulent: the saguaro. The CRPR for the saguaro is 2B.2. The 2B ranking indicates the plants are rare, threatened, or endangered in California, but more common elsewhere and the 0.2 ranking indicates the plant is fairly endangered (not an endangered species, but “Least Concern”) in California. The saguaro cactus is protected under the California Desert Native Plants Act.

16.4 Special Status Species to be Transplanted

Pre-construction surveys and monitoring will be conducted to minimize impacts to succulents by identifying species and recording their location. The survey information will be provided to the BLM for approval prior to transplantation. Plant salvage assessments will be conducted in both Arizona and California in 2019, Post-Record of Decision on BLM administered lands for the Final Route. The procedure will entail an on-site pedestrian survey for BLM listed salvageable species. For each individual succulent species encountered, an assessment will be made of the likelihood that the salvage, propagation, and transplantation of that individual would be successful as described in the Succulent Management Section.

16.5 Salvage Techniques and Protocol

The salvage techniques and protocol described in the Succulent Management Section will be followed for special status succulent plant species.

16.6 Re-planting Techniques

The re-planting techniques described in Succulent Management Section will be followed for special status succulent plant species.

17 Rare Plant Linear ROW Protection for Harwood’s Eriastrum

17.1 Applicable Regulations and Management Policies

17.1.1 Desert Renewable Energy Conservation Plan and Land Use Plan Amendment

The LUPA, prepared to implement the Desert Renewable Energy Conservation Plan (DRECP), is applicable only to BLM-administered land in California. The DRECP and LUPA provide a landscape approach to renewable energy and conservation planning in the California desert that streamlines the process for development of utility-scale renewable energy generation and transmission consistent with federal and state renewable energy targets and policies, while simultaneously providing for the long-term conservation and management of special status species and vegetation types. In addition to BLM designated sensitive species, the LUPA identifies additional “Focus” species, which it defines as species whose conservation and management are provided for in the DRECP BLM LUPA.

17.1.2 BLM Manual 6840: Special Status Species Management

This manual provides policy and guidance for conserving species classified as Special Status species by the BLM. BLM Special Status species include species listed or proposed for listing under the federal ESA and species identified by the BLM State Director as requiring special management considerations to promote their conservation and to reduce the likelihood and need for future listing under the ESA.

17.1.3 California Native Plant Protection Act of 1977 (CFGF 1900-1913)

This CFGF law includes provisions that prohibit the taking of listed rare or endangered plants from their natural habitat. The law also includes a salvage requirement for landowners. Furthermore, it gives the CDFW the authority to designate native plants as endangered or rare and provides specific protection measures for identified populations.

17.2 Purpose and Objectives

As the lead federal agency, the BLM released the Draft EIS on August 31, 2018 (BLM 2018), including an appendix providing CEQA documentation, and is currently developing the Final EIS. APMs, BLM-Required BMPs, and CEQA Mitigation Measures (MMs) contained within the EIS require DCRT to prepare and implement a Rare Plant Linear ROW Protection Plan for Harwood's Eriastrum (*Eriastrum harwoodii*).

The Project is required to comply with Conservation and Management Actions (CMAs) from the DRECP LUPA for all Project activities on BLM land in California.

Under the Agency-Preferred Alternative, the BLM would amend the California Desert Conservation Area Plan of 1980, as amended to state:

The Ten West Link Project is authorized to include construction within 0.25-mile of occurrences of Harwood's eriastrum, provided that a Linear Right-of-Way Rare Plant Protection Plan for Harwood's eriastrum is developed and approved by the California State Director. The Rare Plant Linear ROW Protection Plan would meet the DRECP goal of promotion of the ecological processes in the BLM Decision Area that sustain vegetation types of Focus and BLM Special Status Species and their habitat. The Rare Plant Linear ROW Protection Plan would have the objectives of:

- 1. Avoidance of take of Harwood's eriastrum individuals to the maximum extent practical; and*
- 2. Avoidance of impacts to Harwood's eriastrum suitable habitat to the maximum extent practical.*

For the purposes of implementing this Rare Plant Linear ROW Protection Plan for Harwood's Eriastrum, "take" is defined as the killing of live plants. Disturbance of the soil seedbank is not considered take, though potential seedbank disturbance will be minimized to the greatest extent practicable. The California BLM State Director would approve the Harwood's Eriastrum Rare Plant Linear ROW Protection Plan prior to ground or vegetation disturbing activities commencing on public lands in California.

APMs and BMPs contained in Appendix 2A of the Draft EIS and summarized below in Section 17.3 of this Harwood's eriastrum Plan, would also apply and reduce the impacts of the Project on BLM special status plant species.

17.3 Avoidance and Minimization Measures

The primary avoidance and minimization measure applicable to this Harwood's eriastrum section and protection of Harwood's eriastrum is APM/BMP BIO-31, which includes the following:

1. Pre-construction surveys would be required for non-agricultural areas in California.
2. Avoid Harwood's eriastrum individuals through micro-siting facilities to the maximum extent practical.
3. Within suitable habitat for Harwood's eriastrum, use overland travel (drive and crush) in lieu of road construction to pad sites to the maximum extent practical.
4. On non-agricultural Public Lands in California, an authorized botanist would be on-site for all construction activities involving surface disturbance or overland travel.
5. Within suitable habitat for Harwood's eriastrum, keep equipment to the minimum necessary to accomplish the work.
6. On public lands in California, avoid establishing features that would interfere with the movement of sand to the maximum extent practical.
7. Laydown and temporary use sites would not be located within suitable habitat for Harwood's eriastrum.
8. On public lands in California, use existing roads or routes to the maximum extent practical.
9. Develop and implement an Invasive Species Management Plan (specific to the rare plant habitat) that the California State Director would approve prior to a notice to proceed for work on public lands in California.
10. No surface disturbance or overland travel would occur within occupied habitat for Harwood's eriastrum from 15 February through the 31 July. This stipulation does not apply to verified, unoccupied habitat. (It is important to clarify that not all suitable habitat is occupied. As defined in the Draft EIS, occupied habitat is classified by the location of a live Harwood's eriastrum plant. Presence/absence surveys conducted at the appropriate time of year [as described in Section 17.5.2 below] may verify that some habitat is unoccupied during a particular year).
11. No take of Harwood's eriastrum individuals would be allowed without California BLM State Director approval.
12. Prepare a Harwood's eriastrum Linear ROW Protection Plan.
13. Project impacts to suitable habitat combined with current impacts shall be limited (capped) to a maximum of one percent of Harwood's eriastrum habitat across all BLM lands included within the DRECP.

Additional APM/BMPs contained within the Final EIS are anticipated to avoid and minimize impacts to Harwood's eriastrum. APM/BMPs anticipated to benefit Harwood's eriastrum are

provided in a bulleted list below. The full text of all APM/BMPs may be found in Appendix 2c of the Draft EIS.

- MM-VEG-CEQA-3: Conduct Focused Surveys for Harwood's Eriastrum
- MM-VEG-CEQA-4: Compensation for Impacts to Special-Status Species and Sensitive Communities
- BIO-01: WEAP
- BIO-02: Biological Monitoring and Preconstruction Survey
- BIO-03: Approved Work Areas
- BIO-04: Environmentally Sensitive Areas and Fencing
- BIO-05: Additional Prohibitions
- BIO-10: Erosion and Dust Control
- BIO-11: Vegetation Management Plan
- BIO-12: Noxious and Invasive Species Control
- BIO-14: Minimizing Vegetation Clearing
- BIO-15: Reclamation and Restoration
- BIO-17: Limit Off-road Vehicle Travel
- BIO-24: Sensitive Plant Surveys
- BIO-31: Treatment of Harwood's eriastrum
- BIO-32: Seasonal Restriction Dates
- BIO-37: Native Plant Collection Prohibition
- BIO-38: Use of State of the Art Technology
- BIO-53: Protection of Dune Vegetation
- BIO-54: Protection of Sand Transport
- BIO-55: Access within Focus and BLM special Status Species Suitable Habitat
- MM-BIO-01: Compensation Plan

17.4 Species Habitat and Occurrence Within the Project Area

Harwood's eriastrum (*Eriastrum harwoodii*), also known as Harwood's woollystar, is the only BLM-designated sensitive species known to be present within the Project area. Harwood's eriastrum is a small, annual forb endemic to California. It grows to 20 centimeters (cm) tall, with densely wooly, linear, threadlike 1.0 to 3.5 cm long leaves. The species blooms from March to June and has small (6.0 to 7.5 millimeter-wide) five-petaled, pale yellow to white flowers (DeGroot et al. 2015).

Harwood's eriastrum grows only on active windblown sand deposits within California. The species has never been documented within Arizona. Potentially suitable habitat occurs in the portions of the Project area on the Palo Verde Mesa, which include the non-agricultural lands in California, which are in or near a series of sand dunes. This dune system relies on free movement of wind-transported sand. Harwood's eriastrum has been documented within

the Project area on the Palo Verde Mesa. As an annual with variable germination rates dependent on rainfall and shifting sand conditions, the abundance and location of Harwood's eriastrum individuals may vary among years reflecting scattered rainfall events as well as shifting sand dune habitat. According to the Draft EIS, surveys of the Project area in 2016 did not locate this species, but during 2017 surveys, 94 Harwood's eriastrum plants were recorded in the Project area. Figure F-7-4, reproduced from Figure 3.4 of the Draft EIS, shows where rare plants were located during 2017 surveys. Other projects have previously documented over 3,000 Harwood's eriastrum plants on the deep sandy soils of the Palo Verde Mesa (Ironwood Consulting, Inc. 2016).

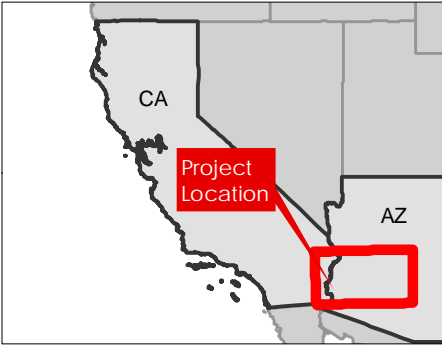
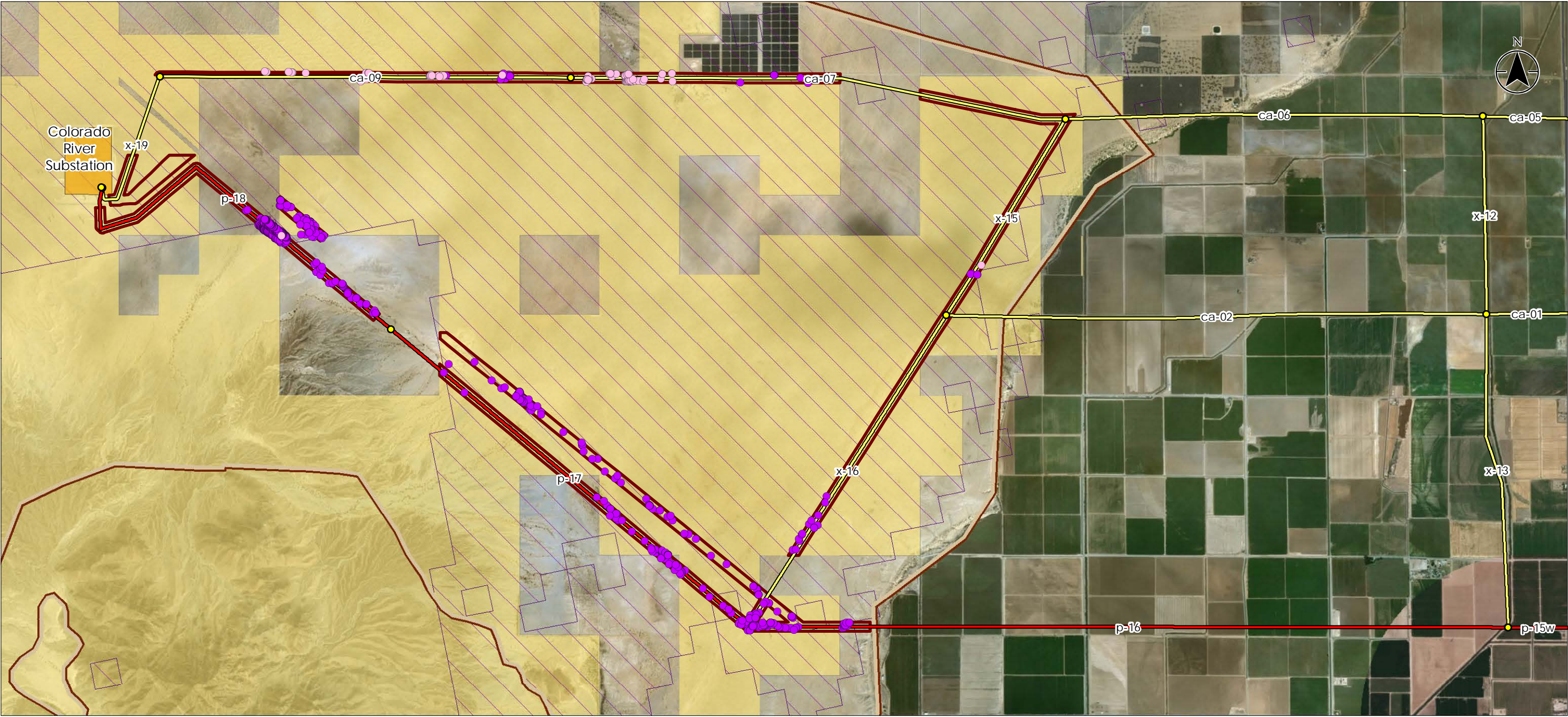
17.5 Implementation

17.5.1 Planning Phase Avoidance and Minimization

The Project's Draft EIS analyzed the cumulative impact of the Project and previous developments on Harwood's eriastrum habitat across all BLM lands within the DRECP in relation to the one percent limit specified within the DRECP-LUPA and in BMP BIO-31. It was concluded that the sum of impacted habitat from the Project and other evaluated projects is below the one percent limit. The DRECP modeled 288,404 acres, including most of the Palo Verde Mesa and nearby Chuckwalla Valley, as the distribution of Harwood's eriastrum on BLM lands addressed by the DRECP-LUPA. According to the Draft EIS, all Project-related ground disturbance activities were calculated for each Project Alternative, using the DRECP habitat model. Project disturbance would depend on which alternative is selected, with the most impactful alternative resulting in disturbance of 48.2 acres of Harwood's eriastrum habitat (only 0.017 percent of the total modeled habitat range-wide). However, this estimate of Project impact acreages does not consider additional reductions in disturbance that would be achieved through micro-siting. Other BLM-approved projects have occurred on the Palo Verde Mesa and nearby Chuckwalla Valley, including the Colorado River Substation, Desert Sunlight Solar Farm, and Genesis Solar Energy Project. A total of 313.6 acres of modeled Harwood's eriastrum habitat has been impacted by these past projects (Colorado River Substation 77.3 acres; Desert Sunlight Solar Farm 0 acre; Genesis Solar Energy Project 236.3 acres). This total acreage of impacted DRECP-modeled habitat would increase to 361.8 acres of DRECP-modeled habitat upon construction of the Project. There is a total of 103,958 acres of modeled Harwood's eriastrum habitat in the Chuckwalla Valley; all projects in Chuckwalla Valley combined result in impacts to 0.35 percent of DRECP-modeled Harwood's eriastrum habitat within Chuckwalla Valley, or 0.12 percent of modeled habitat range-wide.

Several Project design features will minimize impacts to Harwood's eriastrum habitat. Laydown yards or staging areas will not be located on the Palo Verde Mesa or within potential Harwood's eriastrum habitat elsewhere in California. During the initial micro-siting of structures, pulling and tensioning sites, and access routes, previously documented locations of Harwood's eriastrum (e.g., from 2017 Project surveys, California Natural Diversity Database data, or additional preconstruction surveys) will be avoided to the greatest extent practicable. To the extent feasible, final micro-siting (e.g., overland access routes) will be adjusted based on the most recent preconstruction Harwood's eriastrum surveys. To avoid or minimize construction of new roads in potential Harwood's eriastrum habitat, existing roads and overland travel will be used to the greatest extent practicable. If deemed appropriate, Project access (outside of the February 15-July 31 growing season) through recently occupied habitat may utilize timber mats to decrease potential soil compaction and seedbank disturbance.

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Notes
1. Coordinate System: World Mercator
2. Data Source(s): Project data - HDR; Land Status - BLM; Rare Plant Surveyed Points - Transcon Environmental 2017
3. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Route Segment Node
- Proposed Action*
- Alternative Route Segment
- Substation
- Harwood's Eriastrum Surveyed Points (Transcon 2017)
- Harwood's Milkvetch Surveyed Points (Transcon 2017)
- Rare Plant Survey Area
- Harwood's Eriastrum - Species Distribution Model (DRECP)
- Sand and Dune Systems (DRECP)
- Land Status**
 - Bureau of Land Management
 - Private

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Figure F7-4
Reproduced from Figure 3-4 of the DEIS
Ten West Link
Harwood's Eriastrum Survey Results and DRECP-Modeled Habitat.

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Though the DRECP-LUPA maps most of the Palo Verde Mesa as potential Harwood's eriastrum habitat (Figure F-7-4), the Project's Draft EIS states that active sand transport is limited primarily to a corridor north of the Colorado River Substation. This corridor is about 1.0-mile-wide extending approximately five miles to the east, consistent with the location of highest concentrations of Harwood's eriastrum in the Project area, based on previous surveys. This is illustrated in Figure F-7-5, which is reproduced from Figure 3-5 of the Draft EIS. In accordance with BMP-BIO-53 and BMP-BIO-54, within aeolian (wind-transport) corridors that transport sand to dune formations, activities will be designed and operated to facilitate the flow of sand. Any access roads constructed in dune habitat would be designed and constructed to be at grade with the ground surface to avoid inhibiting sand transport. Structure design and micro-siting will take into account the direction of sand flow and, to the extent feasible, structures will be built and aligned to allow sand to flow through the site unimpeded. If construction of fencing is necessary, it will be designed to allow sand to flow through and not be trapped.

17.5.2 Invasive Species Management

Maintenance of sand dune habitat is dramatically affected by the presence of the non-native, invasive Sahara mustard, and Russian thistle, which in some years may virtually shut down aeolian sand migration. The Noxious and Invasive Weed Management Section (Section 18) describes the approach that will be used to control and manage these and other invasive plant species with potential to degrade sand dune habitat.

17.6 Preconstruction Surveys

Per MM VEG-CEQA-3, prior to conducting any activities that may modify vegetation, surveys for Harwood's eriastrum will be conducted by qualified botanist(s) in all non-agricultural areas in California where Project activities will result in vegetation disturbance (e.g., clearing, mowing, or ground-breaking). The qualified botanist will be approved by the CPUC, BLM, and CDFW. If possible, these surveys will be conducted concurrent with surveys for other special status plant species (as required by APM/BMP-BIO-24 and MM VEG-CEQA-2). During the floristic surveys every plant taxon that occurs on site will be identified to the taxonomic level necessary to determine species listing and status. Surveys will adhere to the following protocols:

- Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plant (USFWS 2000).
- Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Sensitive Natural Communities (CDFW 2018).
- Survey Protocols Required for National Environmental Policy Act/ESA Compliance for BLM Special-Status Plant Species (BLM 2009).

To maximize the likelihood of locating Harwood's eriastrum, if present, surveys will be conducted during the appropriate bloom season. The general blooming season for Harwood's eriastrum is March to June (DeGroot et al. 2015), but the optimal survey timing for this and other sensitive species may vary from year to year, depending on annual variations in weather. Prior to surveying, the BLM botanist (Palm Springs Field Office) will be consulted regarding optimal timing for surveys of Harwood's eriastrum and other special status plant species. Because this annual species has highly variable germination rates, dependent on rainfall, plant locations may shift among years reflecting scattered rainfall events. Therefore, surveys from past years may not accurately reflect distribution of

individual plants in the current year. If construction in potential Harwood's eriastrum habitat is scheduled to occur between February 15 and July 31, preconstruction surveys would occur during the same season as construction, to determine occupancy. If individuals and/or populations of Harwood's eriastrum are determined present within the Project area during pre-construction floristic surveys, Project activities shall be reduced and minimized to avoid impacts to the extent feasible, as described below in Section 17.7.

A pre-construction Harwood's Eriastrum Floristic Survey Report will document the methods and results of the surveys and will document measures to avoid, minimize, or mitigate for Harwood's eriastrum. The report will be submitted to the appropriate federal and state agencies. The floristic survey results will also be documented in this Vegetation Management Plan.

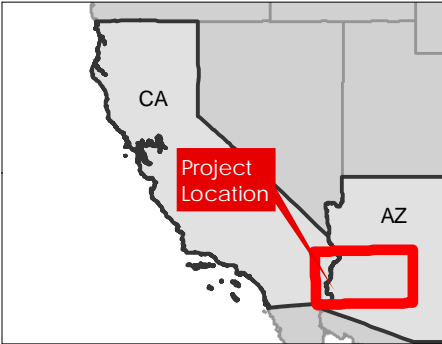
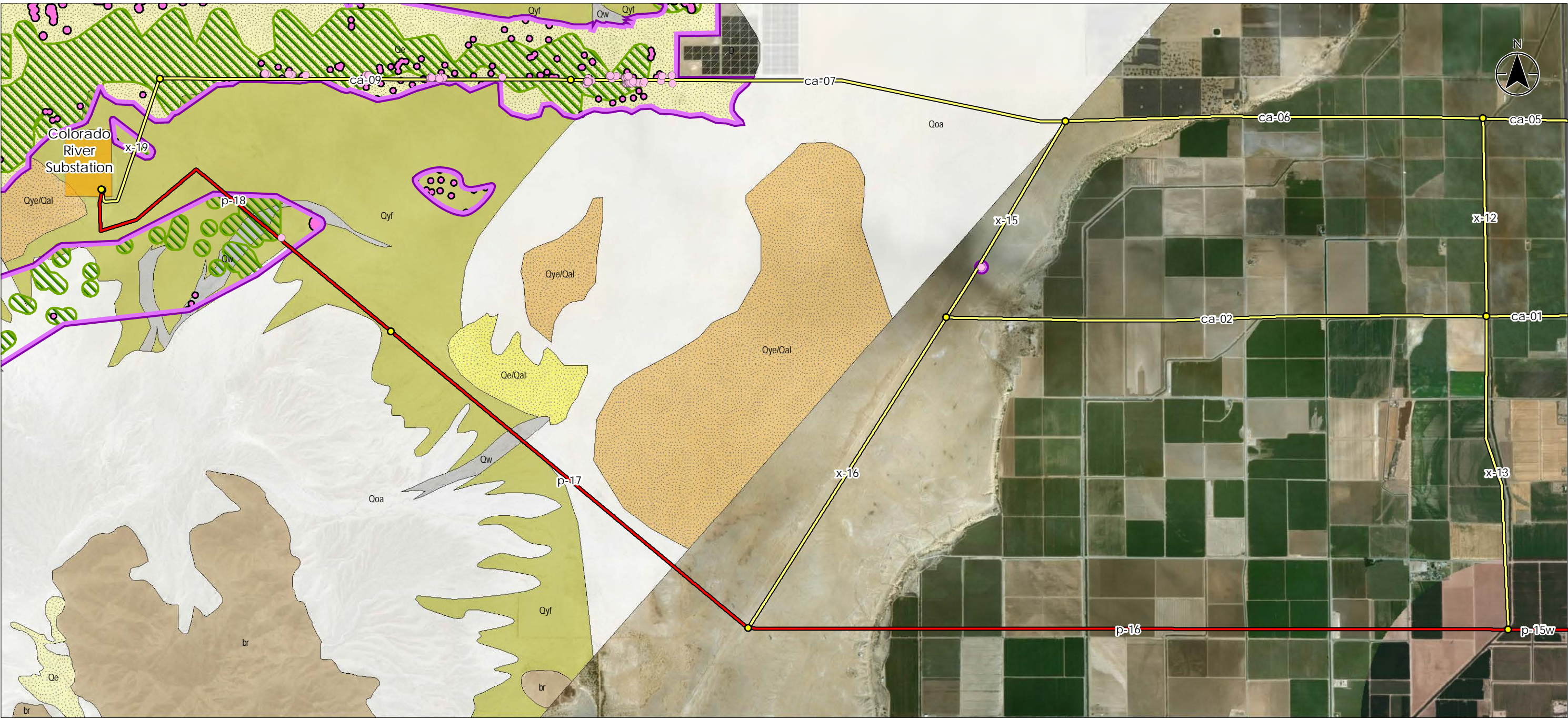
17.7 Construction Phase Avoidance and Minimization

Vegetation management will be implemented during construction as required by MM-VEG-CEQA-1 and described in this Plan. The Vegetation Management Plan includes Succulent Management (Section 15), Special Status Plant Transplantation and Compensation (Section 16), and Noxious Weed and Invasive Species Management (Section 18).

Since Harwood's eriastrum is an annual, individuals will be avoided to the maximum extent feasible through micro-siting facilities after identification of current populations. No surface disturbance or overland travel will take place within occupied habitat for Harwood's eriastrum from February 15 through July 31. This stipulation does not apply to unoccupied habitat, as verified during same-year surveys. Occupied habitat is defined as the location of a live Harwood's eriastrum plant. Upon the death and desiccation of the annual plant, or the absence of germination due to lack of precipitation, the area would be included as suitable habitat but would not be considered occupied habitat. If construction will occur outside of, but adjacent to occupied habitat, appropriate signage, barrier fences, and/or stakes would be installed at the edge of the approved work area or around the occupied habitat to minimize the possibility of inadvertently encroaching onto occupied habitat. A site-specific buffer zone will be developed to prevent direct or indirect disturbance to Harwood's eriastrum from construction activities, erosion, inundation, or dust. The size of the buffer will depend upon the proposed use of the immediately adjacent lands and the plant's ecological requirements to be specified by the designated qualified biologist/botanist (see Section 17.5.4). The minimum buffer will be 50 feet from the perimeter of the occupied habitat or the individual. If a smaller buffer is necessary due to other Project constraints, then DCRT will develop and implement site-specific monitoring and put other measures in place to avoid species impacts.

Prior to commencing onsite work all construction personnel will attend a Worker Environmental Awareness Program, which will educate the participants regarding pertinent environmental issues and stipulations to be implemented during construction.

Within suitable habitat, construction equipment will be kept to the minimum necessary to accomplish the work. In these areas, construction will use drive and crush access wherever possible to minimize disturbance to potential seedbank areas. Stockpiling of material would be allowed only within established work areas and will not be located within suitable habitat for Harwood's eriastrum. Vehicles and equipment would be parked on pavement, existing roads, and previously disturbed areas within identified work areas or access roads, and to the extent practicable, new routes outside of those Project approved will not be established that interfere with Harwood's eriastrum habitat or with the movement of sand.



- Route Segment Node
- Proposed Action*
- Alternative Route Segment
- Substation
- Harwood's Eriastrum Surveyed Points (Transcon 2017)
- Boundary of Presumed Harwood's Eriastrum Habitat

- California Natural Diversity Database (CNDDDB) Species
- Harwood's Eriastrum
 - Mojave Fringe-toed Lizard
- Aeolian System Mapping for the DRECP, California Geological Survey
- D - Developed areas
 - Qe - Active windblown deposits >1.5 m thick

- Qe/Qal - Active windblown deposits < 1.5 m thick
- Qoa - Pleistocene alluvial deposits
- Qw - Alluvial wash deposits
- Qye/Qal - Stabilized windblown deposits
- Qyf - Alluvial fan deposits
- br - Bedrock

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Figure F7-5
Reproduced from Figure 3-5 of the DEIS
Ten West Link
Harwood's Eriastrum Occurrence Records and DEIS-Modeled Presume Habitat.

Notes
1. Coordinate System: World Mercator
2. Data Source(s): Project data - HDR; Land Status - BLM; Aeolian System Mapping - Lancaster 2014
3. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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17.8 Construction Monitoring

On non-agricultural public lands in California, a qualified botanist (approved by CPUC, BLM, and CDFW) will be onsite for all construction activities involving surface disturbance or overland travel. The onsite botanist will reassess each area for presence of Harwood's eriastrum individuals and monitor construction activities to ensure proper implementation of Harwood's eriastrum avoidance and minimization measures. The onsite botanist will provide brief weekly reports to the BLM botanist via email and, as necessary, keep the BLM botanist apprised of any emerging issues relevant to Harwood's eriastrum.

In the event that avoidance of one or more Harwood's eriastrum individuals is deemed particularly difficult or impractical, the California State Director would be consulted prior to any activity that could result in the take of the species. No take of Harwood's eriastrum individuals would be allowed without prior California State Director approval.

17.9 Post-construction Avoidance, Minimization, and Mitigation

In conformance with MM-BIO-01, a Compensation Plan will be prepared. The Compensation Plan will include calculations of compensation ratios and mitigation acreages for loss of habitat for any biological resources requiring additional mitigation. If take of Harwood's eriastrum during construction is unavoidable and, with permission from the California State Director, live plants are killed, the Compensation Plan would outline compensation requirements based on the estimated number of plants taken.

A Reclamation, Vegetation, and Monitoring Plan has been developed and included in the POD as Appendix L-1. Pending approval by BLM, that plan will be implemented for construction, operation and maintenance of the Project. The Reclamation, Vegetation, and Monitoring Plan includes protocols and methods for the revegetation of all sites disturbed during construction for which revegetation will not conflict with safe operation of the transmission line, and restoration of disturbed areas to the extent practicable, given the arid desert environment. The Reclamation, Vegetation, and Monitoring Plan provides detailed methods for surveying and characterizing vegetation in disturbed areas before construction, topsoil salvage and management, erosion control, post-construction recontouring and site preparation, seeding and planting, and post-construction watering, monitoring, and remediation. To the extent practicable, it is designed to reduce impacts on Special Status species, including Harwood's eriastrum. Additionally, topsoil stripped in Harwood's eriastrum habitat will be stored separately from other topsoil and replaced during reclamation to facilitate revegetation, should seeds exist.

The Noxious Weed and Invasive Species Management Section (Section 18 of this Plan) describes the approach that will be used before, during, and after construction to control and manage invasive plant species with potential to degrade sand dune habitat.

During the operation and maintenance of the Project, to the extent practicable, surface disturbance will be avoided between February 15 and July 31 within occupied or potentially occupied habitat of Harwood's eriastrum. This stipulation does not apply to unoccupied habitat, as verified during the current year's surveys. Occupied habitat is defined as the location of a live Harwood's eriastrum plant. Upon the death and desiccation of the annual plant, or the absence of germination due to lack of precipitation, the area would not be considered occupied habitat.

In the event that avoidance of occupied or potentially occupied Harwood's eriastrum habitat is deemed to be inconsistent with the operational and maintenance needs of the Project, the California State Director would be consulted prior to any activity that could result in take of the species. No take of Harwood's eriastrum individuals would be allowed without prior California State Director approval. An exception to this rule would be made in cases of emergency, where immediate access is necessary for safety reasons, and the necessary timing precludes the ability to contact the California State Director prior to access. As Harwood's eriastrum is an annual plant, transplantation of live plants would not be practical or recommended. However, if take of Harwood's eriastrum is unavoidable and approved by the California State Director, an effort will be made to collect seeds from the impacted plants or from the nearest practical Harwood's eriastrum populations and the collected seeds would be used to reseed the affected area during reclamation. Additionally, any loss of occupied habitat will be compensated offsite at a ratio of 3:1, as described in the Compensatory Mitigation Plan (POD Appendix B-3).

18 Noxious and Invasive Weed Management

18.1 Introduction

This Noxious and Invasive Weed Management section sets forth the methods DCRT and its Construction Contractor(s) will undertake to prevent, mitigate and control the spread of noxious and invasive weeds during construction and operation and maintenance of the Ten West Link.

Federal Invasive Species Executive Order 13112 defines an invasive plant as an alien, non-native, species whose introduction causes or is likely to cause economic or environmental damage or harm to human health (United States Federal Register 1999). The BLM defines a noxious weed as a plant that interferes with management objectives for a given area of land at a given point in time. A noxious weed is any plant designated by a federal, state, or county government as injurious to public health, agriculture, recreation, wildlife or property. Noxious weeds are opportunistic plant species that readily flourish in disturbed areas, thereby preventing native plant species from re-establishing communities.

Road construction and other ground-disturbing activities associated with construction, operation and maintenance of the Project could potentially allow noxious weed species to establish in new locations or for a pre-existing noxious weed location to increase in extent and/or density. Prevention, treatment, monitoring, and documentation measures, as described in this section, would reduce the probability of this occurring as a result of the Project. This section describes the status of noxious weed species in the Project area, the regulatory agencies responsible for the control of noxious and invasive weeds, and steps that DCRT and its Construction Contractor(s) would take to prevent the establishment and spread of noxious weed species due to Project construction, operation and maintenance activities. Updates to this section would include information on locations of weed problem areas within the Project footprint and proposed treatment methods as applicable.

18.1.1 Purpose

The purpose of this section is to describe and recommend methods for managing noxious weeds during and after construction of the Project that would meet federal and state regulatory requirements and guidelines for noxious weed management. These methods are

described in this section as follows: 1) plan purpose, goals, and objectives; 2) noxious weed inventory; 3) management practices and agency requirements; 4) the use of herbicides; and 5) monitoring.

The focus of noxious weed control efforts is to prevent establishment of new infestations and to prevent existing infestations from expanding (as documented by pre-construction surveys) as a result of Project activities. DCRT is only responsible for the control of noxious weeds that are a result of construction-related, surface-disturbing activities. DCRT is not responsible for noxious weed species that occur adjacent to Project areas or for controlling or eradicating a species that were present prior to the Project. Eradication of these infestations is not the responsibility of DCRT and would not be attempted, although containment would be the goal where required by state regulations. The control of invasive species (not classified as noxious weeds) is addressed in Appendix L-1, Reclamation, Vegetation, and Monitoring Plan.

18.1.2 Goals and Objectives

The goals of this section are to: 1) prevent the spread of existing noxious weeds; and 2) avoid noxious weed invasion into new sites during and following construction of the Project. This would be accomplished by executing agency requirements to:

- Prevent and manage the spread of noxious weeds.
- Implement weed control measures for the Project.
- Use herbicides safely.
- Monitor noxious weed management effectiveness.

Information gathered during pre-construction surveys and provided by land management agencies may be used to monitor and control the spread of noxious weeds on the Project ROW. Proposed noxious weed management measures are listed in this document along with relevant regulatory requirements.

18.2 Regulatory Compliance

The following provides a brief overview of federal and state legislation and regulatory compliance applicable to biological resources in the Project area that were considered in the development of this section.

18.2.1 All Lands

Relevant regulations applicable to all lands include:

- Noxious Weed Act of 1974 - Public Law 93-629 (7 U.S.C. § 2801 et seq.; 88 Stat. 2148).
- United States Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act (7 CFR Part 136, 40 CFR Parts 140-189).
- Clean Water Act Sections 303(d) and 404.
- ESA of 1973, as amended Section 7(a)(2).

- USDA State Noxious-Weed Seed Requirements Recognized in the Administration of the Federal Seed Act – 7 CFR Part 201.
- Noxious Weed Control and Eradication Act of 2004, 7 U.S.C. §§7781-7786, Subtitle E.
- Plant Protection Act of 2000, 7 U.S.C. § 7701 et seq. (supersedes the Federal Executive Order 13112 of February 3, 1999, on Invasive Species).
- National Invasive Species Act of 1996, 16 U.S.C. § 4701.
- Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, 16 U.S.C. § 4701.

18.2.2 Bureau of Land Management

Relevant regulations applicable to BLM lands include:

- Federal Land Policy and Management Act Sec. 101(a)(8).
- United States Department of Interior Manual 517 DM 1—Integrated Pest Management Policy.
- Final Vegetation Treatments Using Herbicides Programmatic Environmental Impact Statement.
- BLM Integrated Vegetation Management Handbook H1740-2.
- BLM Terms and Conditions of ROW Grants and Temporary Use Permits 43 CFR Part 2881.2.
- BLM Field Office Resource Management Plans.

18.2.3 Bureau of Reclamation

Relevant regulations applicable to Bureau of Reclamation lands include:

- Federal Land Policy and Management Act Sec. 101(a)(8).
- United States Department of Interior Manual 517 DM 1—Integrated Pest Management Policy.

18.2.4 State of Arizona

- Arizona Revised Statutes, Title 3 Agriculture: Chapter 2, Article 1 – Dangerous Plant Pests and Diseases; Chapter 2, Article 5 – Pesticides; Chapter 2, Article 6 – Pesticide Control; Chapter 2, Article 6.1 – Integrated Pest Management Program.

18.2.5 State of California

- California Food and Agriculture Code: Division 4, Part 4 – Weeds and Pest Seeds; Division 6 – Pest Control Operations; Division 7, Chapter 2 – Pesticides and Chapter – Restricted Materials.

18.2.6 Federal- and State-Listed Noxious Weeds

Table F-7-5 identifies the 15 noxious weed species known to be present in the BLM planning areas which are crossed by the route.

TABLE F-7-5 FEDERAL AND STATE-REGULATED NOXIOUS WEEDS FOUND IN OR NEAR THE BIOLOGICAL STUDY AREA

Scientific Name	Common Name	Federal Designation	Arizona Designation ¹	California Designation
<i>Acroptilon repens</i>	Russian knapweed	-	Prohibited; Restricted	Noxious
<i>Alhagi maurorum</i>	Camelthorn	-	Prohibited; Restricted	Noxious
<i>Arundo donax</i>	Giant-reed	-	-	Noxious
<i>Carduus nutan</i>	Musk thistle	-	-	Noxious
<i>Centaurea diffusa</i>	Diffuse knapweed	-	Prohibited; Restricted	Noxious
<i>Centaurea solstitialis</i>	Yellow star thistle	-	Prohibited; Restricted	Noxious
<i>Cuscuta</i> spp.	Dodder	-	Prohibited; Restricted	Noxious
<i>Eichhornia crassipes</i>	Water hyacinth	-	Prohibited; Restricted	-
<i>Halogeton glomeratus</i>	Halogeton	-	Prohibited; Restricted	Noxious
<i>Hydrilla verticillata</i>	Hydrilla	-	Prohibited	Noxious
<i>Onopordum acanthium</i>	Scotch thistle	-	Prohibited; Restricted	Noxious
<i>Salvinia molesta</i>	Giant salvinia	Noxious	Prohibited	-
<i>Salsola tragus</i>	Prickly Russian thistle	-	-	Noxious
<i>Tamarix</i> spp.	Saltcedar	-	-	Noxious
<i>Tribulus terrestris</i>	Puncturevine	-	Prohibited; Regulated	Noxious

¹ Regulated - may be controlled to prevent further infestation or contamination; Restricted - shall be quarantined to prevent further infestation or contamination; Prohibited - prohibited from entering the state.
Source: BLM 2018.

18.2.7 Responsible Parties

DCRT will have the overall responsibility of directing and monitoring noxious weed management efforts for the Project. The Construction Contractor(s) may retain the services of a company who specializes in noxious weed management to implement the protocols identified in this section during construction. It is anticipated that post-construction noxious weed monitoring would occur concurrently with the practices outlined in Appendix L-1 – Reclamation, Vegetation, and Monitoring Plan as appropriate.

18.3 Noxious Weed Management

The management of noxious weeds will be considered throughout all stages of the Project including:

- Educating all construction personnel regarding the identified problem areas and the importance of preventive measures and treatment methods.

- Specific measures to prevent the spread of noxious weeds during construction and operation and maintenance activities.
- Preconstruction and post-construction treatment methods to be applied to areas where noxious weeds are present.

The following is a description of the measures that may be required for noxious weed management as directed by the BLM Authorized Officer or State Quarantine Officer. Applicable measures will be agreed on prior to the onset of any ground disturbing activities, and this Noxious and Invasive Weed Management Plan will be modified accordingly. The APM with regards to noxious weed management is

APM-BIO-12: Noxious and Invasive Species Control (Compliance with CMALUPA-BIO-6, 10 and 11) – A Noxious Weed Control Plan would be developed, approved by the BLM, and implemented prior to initiation of ground disturbing activities. That Plan would identify noxious and invasive species to be addressed in the Project Area, describe measures to conduct preconstruction weed surveys, reduce the potential introduction or spread of noxious weeds and invasive species during construction, and monitor and control weeds during operation of the transmission line. It would be designed to minimize impacts on special status species to the extent practicable. Coordination with resource agencies regarding invasive plant species would be conducted before construction. BMPs would include use of weed-free straw, fill, and other materials; requirements for washing vehicles and equipment arriving on site; proper maintenance of vehicle inspection and wash stations; requirements for managing infested soils and materials; requirements and practices for the application of herbicides; and other requirements in applicable BLM Weed Management Plans.

CEQA Compliance

The following MMs will ensure compliance with CEQA in the California portions of the Project:

- MM-BIO-CEQA-1
- MM-VEG-CEQA-1

18.3.1 Identification of Problem Areas and Education

Prior to the initiation of construction activities, all construction personnel will be instructed on the importance of controlling noxious weeds through the Worker Environmental Awareness Program. As part of start-up activities, the Construction Contractor(s) will provide information and training to all personnel regarding noxious weed management. The importance of preventing the spread of noxious weeds in areas not infested and controlling the proliferation of weeds already present will be emphasized. Prior to construction, areas of concern previously identified during the weed survey will be flagged by the Construction Contractor(s) and reviewed by the CIC. This flagging will alert construction personnel to the presence of noxious weeds and prevent area access until noxious weed management control measures, as described below, have been implemented.

The type and locations of Project-specific noxious and invasive weed species are unknown as of right now. Noxious and invasive plant surveys will be conducted May to October 2019 on BLM administered lands for the Final Route. Once the noxious and invasive weed

species are known, specific pesticide use will be submitted for treatment in a BLM Pesticide Use Proposal and approved prior to use.

CEQA Compliance

The following MM will ensure compliance with CEQA in California portions of the Project: MM-VEG-CEQA-2.

18.3.1.1 Weed Management Personnel Requirements

Weed Management actions shall be carried out by a weed management specialist with the following qualifications:

- Training and experience in native plant taxonomy/identification.
- Training and experience in field ecology and plant community mapping.
- Possession of a Commercial Applicator's License for pesticides from the Arizona Department of Agriculture and/or California Department of Food and Agriculture (if chemical control is needed).
- Training in weed management or Integrated Pest Management with an emphasis in weeds.
- Experience in coordination with agency and private landowners.
- Attendance at a BLM-approved noxious weed training course.

18.3.2 Other Specific Stipulations and Methods

18.3.2.1 Invasive Species Management within Harwood's Eriastrum Habitat

The BLM sensitive species Harwood's eriastrum inhabits sand dune habitat along the western end of the Project area. This habitat is often impacted by noxious weeds as well as other non-native, invasive weeds such as Sahara mustard. Within this habitat area, efforts will be made to avoid introduction and spread of invasive weeds, regardless of its status as a noxious weed, as described previously. Implementation of various mitigation APMs and BMPs would attempt to control direct and non-direct impacts to native desert plant communities and special status plants. Application of the mitigation measures defined in this plan would ultimately minimize the potential introduction of noxious and/or invasive weeds in these habitats.

During any pre- and post-construction monitoring for weeds, any identified weed infestation areas that may need treatment within Harwood's eriastrum habitat would be surveyed for the presence of Harwood's eriastrum individuals. If any individuals of Harwood's eriastrum are found, control methods would avoid take of Harwood's eriastrum by careful spot treatment of non-native, invasive species and/or temporal avoidance of the Harwood's eriastrum growing season (approximately February 15 – July 15), and would avoid methods with potential to kill or otherwise impact the Harwood's eriastrum seedbank within the soil. Chemical treatment would only be applied if absolutely necessary and if approved by BLM.

18.3.2.2 Preventative Measures

The following preventative measures will be implemented to prevent the spread of noxious weeds during construction activities, reclamation and rehabilitation efforts, and maintenance operations associated with the Project. Detailed information regarding reclamation, along with the control of invasive plant species is provided in Appendix L-1 – Reclamation, Vegetation, and Monitoring Plan.

All equipment, tools, and tires shall be properly cleaned and decontaminated of noxious weeds before entering the Project region. Prior to construction activities (e.g., including clearing, grubbing), a Weed Decontamination Form (Attachment D) will be submitted to the Project Designated Biologist. The Weed Decontamination Form shall verify that construction related equipment used by the contractor(s), has been cleaned and deemed weed free, before entering the Project region.

These preventative measures are to be applied on a case-by-case basis, where applicable and necessary, at the discretion of the BLM, CIC, and the Construction Contractor's environmental monitors (weed specialists).

CMA-LUPA-BIO-10 (California only): Standard Practices for Weed Management (portions) - Closely monitor the types of materials brought onto the site to avoid the introduction of invasive weeds and non-native species. Use certified weed-free mulch, straw, hay bales, or equivalent fabricated materials for installing sediment barriers. Reestablish native vegetation quickly on disturbed sites.

18.3.2.3 Control Measures

DCRT and their Construction Contractor(s) will implement noxious weed control measures in accordance with existing regulations and BLM requirements. Control measures will be based on species-specific and site-specific conditions (e.g., proximity to water or riparian areas, agricultural areas, and season) and will be coordinated with the BLM Authorized Officer or his/her designated representative, the CIC, and the Construction Contractor's weed management specialist. If existing populations are currently under treatment by the BLM or other individuals, DCRT and their Construction Contractor are encouraged to engage in cooperative management efforts to treat the noxious weeds associated with the Project area. In the event new noxious weed populations are identified on the Project in the future, the protocols and methods outlined in this section will be followed. The weed management specialist contracted by the Construction Contractor(s) shall provide a detailed control methodology for each noxious weed species documented. The BLM Authorized Officer will review and approve this Noxious and Invasive Weed Management section prior to implementation. Control measures may include one or more of the following methods prior to implementation of reclamation actions.

Mechanical

Mechanical methods rely on cutting roots with a shovel or other hand tools or equipment that can be used to mow or disc weed populations. This type of methodology is useful for smaller, isolated populations in areas of sensitive habitats or if larger populations occur in agricultural lands where tillage can be implemented. Some rhizomatous plants can spread by discing or tillage and implementation will be species specific. If such a method is used in areas to be reclaimed, subsequent seeding will be conducted to re-establish a desirable

vegetative cover that will stabilize the soils and slow the potential re-invasion of noxious weeds.

Wash Stations

This section summarizes the concepts for removing seeds from vehicles and equipment to control the spread of noxious weeds and invasive species. One method of removing weeds is to use air compressors or an air knife to blow the weeds off vehicles. Another method of removing weeds is to use water to wash away the weed seeds from equipment before it leaves a weed-infested area. This will prevent transporting and spreading seeds and spores. Seeds and spores are found in vegetation, dirt, and mud clinging to the undercarriage or underbody parts (such as wheels, wheel wells, running boards, drive train, and bumpers). Equipment and technologies related to the use of weed wash stations that may be employed for the Project are described below: runoff containment, spraying equipment, water supply, filtration, water treatment, and pumping equipment.

Runoff Containment - Even when containment is used, invasive seeds may be blown beyond the containment system during washing. To mitigate this, the Construction Contractor will inspect wash sites regularly and treat for weeds as necessary. Wastewater containment can be accomplished several ways. Four typical forms of containment discussed below are consistent with BMPs.

- **Geotextile cloth** – The cloth captures large particles in the permeable barrier and allows water to percolate back into the soil. Because most seeds are larger than 200 microns, the cloth prevents or reduces seed transplantation at the loading area. Geotextile cloth is made of a polycarbonate fiber with a natural affinity for hydrocarbons, which prevents oil or grease from draining into the soil.
- **Geotextile lined rock pits** – These pits are a 10-foot by 10-foot area of bull-rock or smaller that is underlain by geotextile. When weed wash stations are decommissioned, the rock is removed from the pit in a manner that allows treatment with herbicides. The rock and geotextile will be tagged as weed infested and disposed of properly. Records are kept of all herbicides used, treatment dates, target species treated, and progression of infestation areas.
- **Flexible mat** – Flexible mats come in many sizes and styles. They serve as portable berm systems to contain wash water and debris. They are a durable, chemical-resistant rubber material. Some models have berms that are permanently attached to the perimeter, while others have removable inserts. Permanent berms on flexible mats can make storage difficult. One plain rubberized mat has polyvinyl chloride sewer pipe fitted under the sides with foam cushions under the approach and departure ends. Prior to installation, lay geotextile or similar cloth underneath to prevent sharp rocks from penetrating the mat. The plain mat rolls or folds up for handling and storage.

Flexible mats may tear, but onsite repairs are easy. It is recommended that conveyor belting in the wheel tracks be used to prevent punctures or tears. Flexible mats, and the materials used to form containment berms, can be installed by two people. The material is easily transported in a 1/2- to 3/4-ton truck. Low-ground-clearance vehicles can be accommodated with this system. One problem with this system is that flexible mats may create sludge puddles that vehicles track through, picking up the just washed off mud. Flexible mats require workers to bend over more often than when using an elevated rack system to wash vehicles.

- **Elevated washrack:** Some manufacturers build portable elevated wash racks. One option is a wash rack with panels in 10-, 12-, and 14-foot widths. The eight-foot-long panels are placed side by side to the desired length. They are designed to carry axle loads of 12 tons, and need support on just two sides. Another option is a similar modular wash rack with six- by eight-foot panels designed to handle 15,000-pound wheel loads. Both systems can handle wheeled or tracked equipment, and the runoff is collected in the center or in a gutter alongside. Raised panels make it easier to wash the underbody. Containment walls are available that allow access to both sides of the vehicle and reduce overspray when the walls are set in a staggered position. Washracks can have automatic sprayers or may be operated manually.

Spraying Equipment - Two methods of spraying are standard in the vehicle-and equipment-washing installations: high pressure with low volume and low pressure with high volume. High pressure is above 1,000 pounds per square inch (psi), and high volume is more than 10 gallons per minute (gal/min). In both categories, hand-held (wand) systems and automated systems are available. Although simplicity of operation might favor an automated system, reliability, effectiveness, efficiency, and economy favor manual sprayers.

It is recommended that heavy debris first be removed manually by trowel, shovel, or brush before the vehicle returns to the loading area. All remaining debris can be washed off before the equipment is loaded. Some manual follow-up spray cleaning should accompany automated systems use.

- **High-Pressure, Low-Volume Spraying** - Many household and industrial pressure washers have outputs of up to 4,000 psi. Flows generally range from two to five gal/min and with attachments, these high-energy spraying systems can remove the most tenacious debris. Models are available at home improvement stores. The low-water consumption reduces supply water and wastewater needs. However, these high-pressure sprayers produce large amounts of debris scatter and overspray.
- **Low-Pressure, High-Volume Spraying** - The one-inch combination barrel nozzle is particularly effective for equipment washing. It uses 13 gal/min at 50 psi when adjusted for a narrow cone spray pattern. A one- inch ball shutoff ahead of the nozzle minimizes spray pattern adjustments and enables instant shutoff. The long spray range and low-pressure coverage minimizes injury. The combination barrel nozzle requires a high-water volume compared to other high-pressure washing systems.
- **Undercarriage Spray Bars** - Undercarriage spray bars (and other somewhat automatic systems) use lower pressure and higher flow. The number, size, nozzle shape or holes in a spray bar, and water pressure determine water-use rate. Spray bars fabricated from pipe with threaded ports and individual nozzles have many spray patterns.

The Construction Contractor will select the appropriate spraying equipment based on the needs of the Project.

Water Supply - The Construction Contractor will select and provide water and water disbursing equipment as necessary for Project needs. Water trucks are typical and range from 1,000 to 4,000 gallons in general. Water would be obtained from private wells and/or municipal supplies with permitted and allocated water rights. Collecting and recycling of water is an option, especially with automated sprayers.

Filtration - If wash water will be recycled and reused in any wash system, filtration will be used to remove invasive seeds from the used wash water and prevent vehicle cross-contamination. In addition, water treatment may be necessary to kill small bacteria, fungi, or neutralize other contaminants. Before dumping in a sanitary sewer system, wastewater often requires filtration or treatment. Several types of water filters are suited for this purpose. Often, filter technology developed for agriculture (irrigation), industrial waste treatment, and household swimming pools can be adapted to wash-station water treatment. Filter types include: gravity, centrifugal, screen, disk, bag, cartridge, and particle media (sand).

All filters have limitations regarding the particle size they can trap. Most weed seeds exceed 100 microns, and most fungal spores exceed five microns. Filtration below 10 microns is possible but not practical at higher flows in heavily contaminated water with a portable system. Most filtration systems incrementally reduce particle size by stages. The first stage might be a coarse bag filter and/or a settling tank. Other stages could be used depending on the final particle size to be removed and the systems flow rate.

Pumping Equipment - Water trucks, water trailers, and portable wildfire pumps could provide primary spray or recovery pumps for wash systems. Water trucks can draft and pump simultaneously without drawing from their reservoir; however, some water trucks have a bypass line that constantly sends a small amount of process water back to the freshwater tank. For that reason, water truck pumps are not recommended for drafting unless they are drafting from a postfilter sump.

Spraying, recovering, and filtering operations require pumps. A wash system has at least two pumps – a sump pump and a pressure pump – and, depending on filtration methods for water recycling, a third pump for the filters.

Conservation Management Action

The following CMA will be applied to this Project. CMA-LUPA-BIO-10 is the Project requirement and the runoff containment, etc., described above is how the weed washing will be mitigated.

CMA-LUPA-BIO-10 (California only): Standard Practices for Weed Management – Consistent with BLM state and national policies and guidance, integrated weed management actions, will be carried out during all phases of activities, as appropriate, and at a minimum will include the following:

- Thoroughly clean the tires and undercarriage of vehicles entering or reentering the project site to remove potential weeds.
- Store project vehicles on site in designated areas to minimize the need for multiple washings whenever vehicles re-enter the project site.
- Properly maintain vehicle wash and inspection stations to minimize the introduction of invasive weeds or subsidy of invasive weeds.
- Closely monitor the types of materials brought onto the site to avoid the introduction of invasive weeds and non-native species.
- Reestablish native vegetation quickly on disturbed sites.

- Monitor and quickly implement control measures to ensure early detection and abatement of weed invasions to avoid the spread of invasive weeds and non-native species on site and to adjacent off-site areas.
- Use certified weed-free mulch, straw, hay bales, or equivalent fabricated materials for installing sediment barriers.

Behavioral

Behavioral control methods rely on preventative education of the public and construction, operation, and maintenance personnel. Behavioral control of noxious weeds can also include the minimization of vehicular travel through areas of known populations. Noxious weed populations identified during surveys or by BLM/county weed control officials will be cordoned off (except where access for construction or maintenance is required) to avoid spreading seed or plant materials.

Biological

Biological control involves using living organisms (insects, diseases, livestock) to control noxious weeds to achieve management objectives. Many noxious weed species have been introduced recently into North America and have few natural enemies to control their populations. The biological control agent is typically adapted to a specific species and selected for their ability to attack critical areas of the plant that contribute to its persistence. The use of biological control methods is not expected for this Project.

Chemical

Chemical control can effectively abate noxious weeds through use of selective herbicides. Pesticide treatment can be temporarily effective for large populations of noxious weed where other means of control may not be feasible. Before construction, only pesticides approved by the BLM will be applied to the identified noxious weed populations on BLM administered land to reduce their spread. Pesticide applications will be controlled, as described in Section 18.5 – Pesticide Application, Handling, Spills, and Cleanup, to minimize the impacts on the surrounding vegetation. In areas of dense noxious weed populations, a broader application will be used and a follow-up seeding program will be implemented. Attachment G includes a list of BLM-Approved Herbicides. A Pesticide Use Proposal and Safety Data Sheets for the chemicals, which will be compiled by the Construction Contractor(s) and submitted to the BLM for review and approval prior to initiation of construction activities.

Reclamation Actions

As specified in Appendix L-1 – Reclamation, Vegetation, and Monitoring Plan, areas where weed control measures have been implemented and require post-construction reclamation actions (e.g., seeding), the following specific stipulations and methods are applicable.

18.3.3 Agency Specific Requirements

Through the implementation of this section and in conjunction with the BLM, the Project will comply with Arizona and California state statutes. The following is a discussion regarding BLM stipulations, and personnel and equipment requirements.

18.3.3.1 Bureau of Land Management

The *Final Programmatic Environmental Impact Statement on Vegetation Treatment on BLM Land in Seventeen Western States (BLM 2016)* lists herbicides acceptable (refer to Attachment G – BLM-Approved Herbicides) for use on BLM-administered lands. Herbicides listed in Table 1 in Attachment G may be used in the Project area after approval by the BLM; however, some herbicides may not be approved for use on land administered by the BLM Colorado River District Office. The herbicides approved for use on the Project will be reviewed and approved by the BLM prior to beginning construction. Guidelines for use of chemical control of vegetation on BLM-administered lands are presented in the Chemical Pest Control Manual. These guidelines require submittal of a Pesticide Use Proposal and Safety Data Sheets for the chemicals, which will be compiled by the Construction Contractor(s) and submitted to the BLM for review and approval prior to initiation of construction activities. A Pesticide Application Record will be submitted to BLM to document the treatments that took place under the Pesticide Use Proposal.

The occurrence of noxious weeds within the Project will be reported to the lead BLM district office for the Project. The appropriate weed control procedures, including target species, timing of control, and method of control, will be determined in consultation with the BLM and the Construction Contractor(s), based on the procedures outlined in this section. The Proponent may be able to take advantage of any existing cooperative agreements between the BLM and the counties by providing the funds required for county personnel to implement the necessary weed control procedures. If not, the Proponent will be responsible for providing the necessary personnel or hiring a contractor to implement the weed control procedures with the qualifications as described in Section 18.3.1.1- Weed Management Personnel Requirements. All Project-related weed control activities will be conducted in accordance with local BLM management requirements.

18.4 Monitoring

A weed management specialist or approved biologist, contracted by the Proponent, will monitor the Project and any other areas of disturbance associated with the Project during operation and maintenance activities. Monitoring will be conducted biannually during the spring and fall and will coincide with seasons when the species identified during preconstruction inventories may be identified in the field. This monitoring may coincide with the reclamation monitoring identified and outlined in Appendix L-1 – Reclamation, Vegetation, and Monitoring Plan. Growing seasons will vary from year-to-year; therefore, the length of monitoring will vary as well.

18.4.1 Reclamation Monitoring

During reclamation monitoring, the Proponent, or representative contractor for the Proponent, will initiate monitoring of previously identified affected/disturbed areas during the first spring following construction and proceed with monitoring during subsequent intervals. Monitoring will occur in all areas where the Project has a high risk of introducing or spreading noxious weeds, including previous weed wash station areas and areas of ground disturbance or vegetation clearing.

Noxious weed monitoring will occur biannually for five years following completion of each portion of the Project. In addition, noxious weed conditions will be included in the evaluations of revegetation success as described in Appendix L-1 – Reclamation, Vegetation, and Monitoring Plan. The Proponent will document its observations following

the above-noted field inspections and make these monitoring reports available to the BLM and states, as required.

Sensitive plant occurrences affected by Project activities will be monitored annually for the first five years following Project implementation. Individual counts of sensitive plants will be undertaken in affected areas to determine whether the sensitive plants are recolonizing the site. An annual report with photographs from permanent photo plots, individual plant counts within the affected areas, and noxious weed presence and treatment data would be provided to the BLM botanist.

Areas where the spread of noxious weeds are noted, particularly in previously unaffected locations, will be further evaluated to determine if these areas require remedial action and additional treatment. The Proponent will identify such areas to the agencies, state, county, and milepost (or nearest transmission structure number) and will record any additional noxious weed control treatment. A report summarizing ROW stability, revegetation progress, percent of cover, and weed populations will be provided to the BLM as described in Appendix L-1 – Reclamation, Vegetation, and Monitoring Plan.

18.4.2 Ongoing Monitoring and Control

The Proponent will be responsible for ongoing weed monitoring and control inside of the ROW for the five-year monitoring phase. The Proponent will consult with the BLM and counties should they have a concern pertaining to noxious weeds within their jurisdiction. The BLM also may contact the Proponent to report on the presence of noxious weeds. The Proponent will be required to monitor and control noxious weeds at a level that does not exceed the density or extent of their conditions identified during preconstruction surveys for the full term of the ROW grant/special-use authorization and will manage any new population that is demonstrated to be the result of Project construction (i.e., not introduced to the ROW because of new populations surrounding the ROW), operation, or maintenance of the Project.

The Proponent will not be responsible for the eradication or management of pre-existing noxious weed populations or new or recurring noxious weed populations caused by the spread of noxious weeds from adjacent lands. Also, the Proponent will not be responsible for noxious weeds introduced into the Project area by activities other than Project construction, operation, and maintenance (e.g., recreational use, grazing, other construction project); natural occurrences (e.g., fire); noxious weeds outside the Project ROW; or noxious weeds along existing access roads not improved by the Project.

Operations personnel will be trained in the identification of predominant noxious weed populations, and the Proponent will control the weeds on a case-by-case basis in consultation with the BLM as appropriate. If determined necessary, a report on actions taken will be provided in the form of monitoring reports to the BLM on a predetermined schedule.

18.5 Pesticide Application, Handling, Spills and Cleanup

18.5.1 Pesticide Application and Handling

Only BLM specified non-toxic substances approved by state and federal regulations shall be used for noxious and invasive weed control. The use of any chemical weed control

measures on or near any area that may wash into or blow onto Metropolitan Water District of Southern California property or agricultural lands participating in the Fallowing Program will be conditioned on the approval of Metropolitan or its designated representative. The list of pesticides to be used will be reviewed and approved by the BLM prior to construction, and pesticide application will be based on information gathered from the weed districts and BLM. The tentative Project-approved pesticides are listed in Attachment G – BLM-approved Herbicides. Before application, all required permits from the local authorities will be obtained (the weed districts and BLM). Permits may contain additional terms and conditions that go beyond the scope of this management plan. The following BMP and CMA will be applied to the Project.

BMP-HAZ-04: DCRT would provide the BLM with a Pesticide/Herbicide Use Proposal, outlining the pesticides and herbicides that would be proposed for use on the Project (the 12 kV line would not require pesticide/herbicide use), demonstrating conformance with BLM requirements, and seeking preapproval before use. Only BLM approved products would be used.

CMA-LUPA-BIO-11 (California only): Nuisance Animals and Invasive Species – Manage the use of widely spread herbicides and do not apply herbicides effective against dicotyledonous plants within 1,000 feet from the edge of a 100-year floodplain, stream and wash channels, and riparian vegetation or to soils less than 25 feet from the edge of drains. Exceptions will be made when targeting the base and roots of invasive riparian species such as tamarisk and *Arundo donax* (giant reed). Manage herbicides consistent with the most current national and California BLM policies. Minimize herbicide, pesticide, and insecticide treatment in areas that have a high risk for groundwater contamination. Clean and dispose of pesticide containers and equipment following professional standards. Avoid use of pesticides and cleaning containers and equipment in or near surface or subsurface water. When near surface or subsurface water, restrict pesticide use to those products labeled safe for use in/near water and safe for aquatic species of animals and plants.

18.5.2 Pesticide Spills and Cleanup

All reasonable precautions will be taken to avoid pesticide spills. APM-HAZ-01 outlines several preventative measures to be taken for the Project to achieve this.

APM-HAZ-01: Hazardous Substance Control and Emergency Response (Compliance with CMA-LUPA-BIO-09, CMA-LUPA-SW-06 and 07) - DCRT would implement its hazardous substance control and emergency response procedures as needed in conjunction with a Hazardous Substance Control and Containment Plan and Emergency Response Plan for the Project. The procedures identify methods and techniques to minimize the exposure of the public and site workers to potentially hazardous materials during all phases of Project construction through operation. They address worker training appropriate to the site worker's role in hazardous substance control and emergency response. The procedures also require implementing appropriate control methods and approved containment and spill-control practices for construction and materials stored on site. If it were necessary to store chemicals on site, they would be managed in accordance with all applicable regulations. Material safety data sheets would be maintained and kept available on site, as applicable.

All hazardous materials and hazardous wastes would be handled, stored, and disposed of in accordance with all applicable regulations by personnel qualified to handle hazardous materials. The hazardous substance control and emergency response procedures include, but are not limited to, the following:

- Proper disposal of potentially contaminated soils.
- Establishing site-specific buffers for construction vehicles and equipment near sensitive resources.
- Emergency response and reporting procedures to address hazardous material spills.
- Stopping work at that location and contacting the County Fire Department Hazardous Materials Unit immediately if visual contamination or chemical odors are detected; work would be resumed at this location after any necessary consultation and approval by the Hazardous Materials Unit.

DCRT would complete its Emergency Action Plan Form as part of Project tailgate meetings. The purpose of the form is to gather emergency contact numbers, first aid location, work site location, and tailgate information.

18.5.3 Worker Safety and Spill Reporting

In addition to the environmental protection measures described in Section 18.5.2, more information regarding handling of hazardous materials may be found in Appendix I-1 – Hazardous Materials Containment Plan and Appendix I-2 – Spill Prevention, Control, and Countermeasures Plan.

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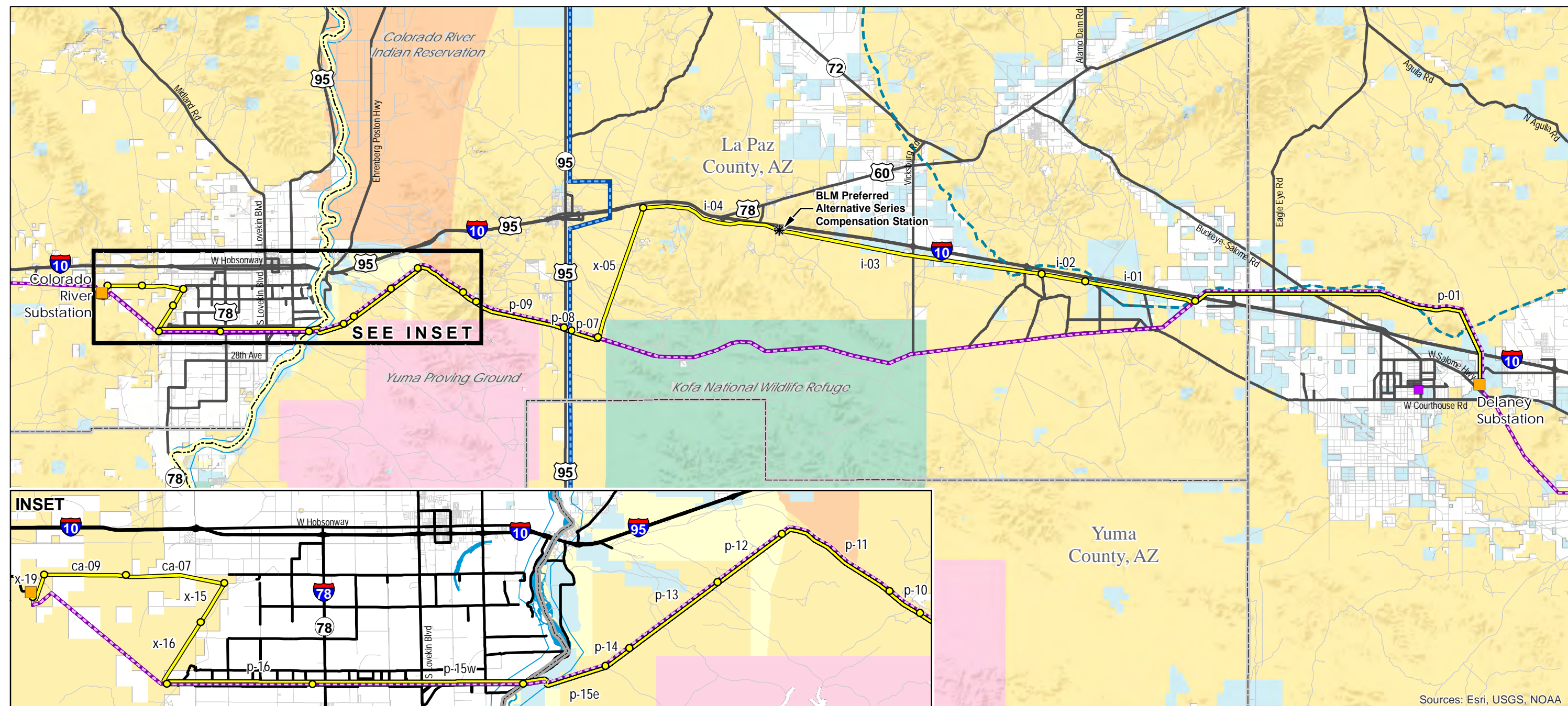
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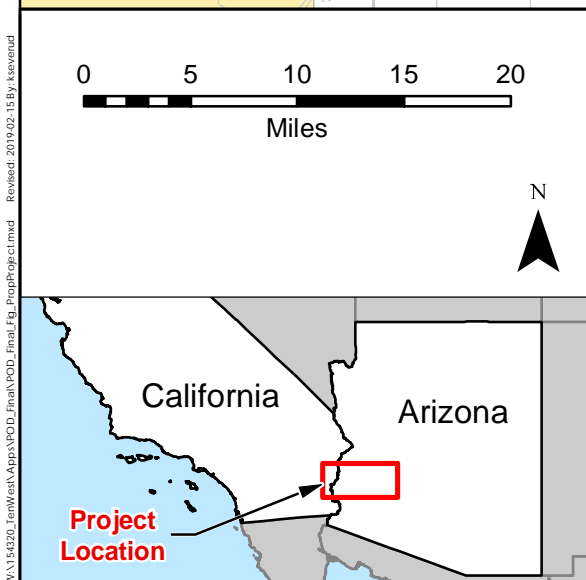
ATTACHMENT A PROPOSED PROJECT

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Sources: Esri, USGS, NOAA



Project Components

- Substation
- ✱ BLM Preferred Alternative Series Compensation Station
- Route Segment Node
- BLM Preferred Alternative*

Base Features

- Existing DPV1 500kV Transmission Line
- Existing WAPA 161kV Transmission Line
- Harquahala Power Plant
- CAP Canal
- Interstate Highway
- Major Road
- Local Road
- State Boundary
- County Boundary

Land Status

- Bureau of Land Management
- Bureau of Reclamation
- Local or State Parks
- Colorado River Indian Tribe Lands
- Department of Defense
- Private
- State
- USFWS

Ten West Link

Proposed Project

*DPV1, the DEIS Alternative Route Segments, and the BLM Preferred Alternative are cartographically offset for display purposes. Because the routes are cartographically offset, in some cases, the routes do not precisely depict the estimated TWL alignment.

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ATTACHMENT B INSPECTION RECORDS (TBD)

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ATTACHMENT C AGENCY VEGETATION MANAGEMENT REGULATORY MANUALS

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ATTACHMENT D FORMS (TBD)

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ATTACHMENT E PLAN AMENDMENT LOG

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ATTACHMENT F SAGUARO PLANTING DETAIL

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ATTACHMENT G BLM-APPROVED HERBICIDES

The *Final Programmatic Environmental Impact Statement on Vegetation Treatment Using Herbicides on BLM Land in Seventeen Western States* lists herbicides acceptable for use on BLM-administered lands. Table F-7-G1 shows the chemicals approved for use in Arizona and California.

TABLE F-7-G1 HERBICIDES APPROVED FOR USE ON PUBLIC LANDS IN ARIZONA AND CALIFORNIA

Chemical Name	Chemical Name
2,4-D	Hesazinone
2,4-DP	Imazapyr
Asulam	Mefluidide
Atrazine	Metasulfuron methyl
Bromacil	Picloram
Chlorsulfuron	Simazine
Clpyralid	Sulfoneturon methyl
Dicamba	Tebuthiuron
Fosamine	Triclopyr
Glyphosate	

A Pesticide Use Proposal will be submitted to the lead BLM district office and it will specify the herbicide to use based on the noxious and invasive species found.

2B.12 FUGITIVE DUST CONTROL AND CONSTRUCTION EMISSIONS PLAN

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June 2019

BUREAU OF LAND MANAGEMENT

Ten West Link Transmission Project

Fugitive Dust Control Plan and Construction Emissions Mitigation Plan

PROJECT NUMBER:
154320

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Fugitive Dust Control Plan and Construction Emissions Mitigation Plan

PREPARED FOR: BUREAU OF LAND MANAGEMENT

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APPENDICES:

ATTACHMENT A	MARICOPA COUNTY AIR QUALITY DEPARTMENT APPLICATION
ATTACHMENT B	MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT APPLICATION

ACRONYMS AND ABBREVIATIONS

ADEQ	Arizona Department of Environmental Quality
APM	Applicant Proposed Measures
BMP	Best Management Practices
BLM	Bureau of Land Management
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CMA	Conservation Management Actions
CPUC	California Public Utilities Commission
DCRT	Delaney Colorado River Transmission, LLC
EIS	Environmental Impact Statement
LUPA	Land Use Plan Amendment
MCAQD	Maricopa County Air Quality Department
MDAQMD	Mojave Desert Air Quality Management District
MM	Mitigation Measure
NEPA	National Environmental Policy Act
Plan	Fugitive Dust Control Plan and Construction Emissions Mitigation Plan
PM ₁₀	particulate matter 10 micrometers or less in diameter
PM _{2.5}	particulate matter 2.5 micrometers or less in diameter
Project	Ten West Link Transmission Project
Proponent	Delaney Colorado River Transmission, LLC
ROW	right-of-way
SCAQMD	South Coast Air Quality Management District
SWPPP	Stormwater Pollution Prevention Plan
Ten West Link	Ten West Link Transmission Project
USEPA	United States Environmental Protection Agency

1 Introduction

Construction of the Ten West Link Transmission Project (Project or Ten West Link) has the potential to temporarily increase fugitive dust particularly in areas with high winds and fragile soils. Ambient levels of criteria air pollutants such as nitrogen oxides, hydrocarbons, particulate matter, and carbon monoxide may also be temporarily increased near the construction zone due to emissions from heavy construction equipment. The nitrogen oxide, hydrocarbon, and carbon monoxide compounds are considered ozone precursor emissions. Notably, reductions of greenhouse gas emissions are a major concern in California.

This Fugitive Dust Control Plan and Construction Emissions Mitigation Plan (Plan) describes Delaney Colorado River Transmission, LLC (DCRT or Proponent) and/or its contractor's approach for avoiding and minimizing impacts to air quality due to fugitive dust and construction emissions from the proposed Project.

1.1 Plan Purpose

This Plan represents the commitment on the part of DCRT to protect air quality resources. The overall objective is to provide measures to protect these resources from potential impacts during construction, operation, and maintenance of the transmission line. This plan incorporates mitigation measures contained in the Draft Environmental Impact Statement (EIS) for the Project. This Plan is intended for use as a guide to determine the appropriate site-specific measures to be implemented during construction activities. The goals of this Plan are to control Project-related fugitive dust and construction emissions as a factor in air quality.

2 Regulatory Compliance

Construction, operation, and maintenance of the Project would include activities that create fugitive dust and construction emissions that could impact air quality resources. The following regulations and associated permits and authorizations may be required for the Project.

2.1 Federal

- The Clean Air Act, which was last amended in 1990, requires the United States Environmental Protection Agency (USEPA) to set National Ambient Air Quality Standards (40 Code of Federal Regulations [CFR] Part 50) for pollutants considered harmful to public health and the environment. The Clean Air Act identifies two classifications of national ambient air quality standards: primary and secondary. Primary standards provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.
- Bureau of Land Management (BLM) – Right-of-way (ROW) grant and temporary use permit: Federal Land Policy and Management Act of 1976; 43 United States Code §§1761-1771; 43 CFR Part 2800.

2.2 State Regulations

2.2.1 Arizona

- Arizona Department of Environmental Quality (ADEQ), Arizona Pollutant Discharge Elimination System, Stormwater Construction General Permit; Arizona Revised Statutes Title 49, Chapter 2, Article 3.1; Arizona Administrative Code Title 18, Chapter 9, Article 9 and Chapter 11, Article 1.
- ADEQ, Air Quality Division, administers a Fleet Vehicle Inspection Program that allows owners or lessees of fleet vehicles to inspect their vehicles for compliance with emissions, rather than taking them to the state inspection stations. Permits are available for the inspection of non-diesel vehicles, diesel vehicles, or a combination thereof.
- ADEQ may require a Concrete Batch Plant General Permit. This permit would allow the production of concrete by the Construction Contractor at the associated material storage or laydown yard, if needed. This permit covers the following types of equipment: silos, boilers, internal combustion engines, baghouses, storage bins, storage piles, wash plants, direct-fired fuel burning equipment and vehicular traffic.
- ADEQ may require a General Permit for Vehicle and Equipment Washes. Every person who applies for a Type 3 general permit, as provided by Arizona Administrative Code Title 18, Chapter 9, Article 3, must file a Notice of Intent to Discharge required by Arizona Administrative Code R18-9-A301(B). In addition to this form, applicants must complete the appropriate Notice of Intent Supplemental Form. A separate Notice of Intent form and Notice of Intent Supplemental form must be completed for each discharging facility (i.e., unit, discharge point) intended to be covered under a general permit. A person intending to operate under a general permit must comply with all the provisions of the general permit and other applicable requirements of statute and rule.

2.2.2 California

- The California Environmental Protection Agency, California Pollutant Discharge Elimination System, Construction General Permit Order 2009-0009-DWQ (amended by 2010-0014-DWQ and 2012-0006-DWQ). In California, the Stormwater Program is administered by the California Regional Water Quality Control Boards. The Project is within the Colorado River Regional Water Quality Control Board.
- The California Air Resources Board has oversight over air quality in the state of California. Regulation of individual stationary sources and area sources has been delegated to local air pollution control agencies. The Project is within the Mojave Desert Air Quality Management District (MDAQMD). MDAQMD may require the following permits:
 - Rule 201 Permit to Construct - A person shall not build, erect, install, alter or replace any equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate, reduce or control the issuance of air contaminants without first obtaining written authorization for such construction from the Air Pollution Control Officer.

- Rule 202 Temporary Permit to Operate – for operation of equipment.
- Rule 203 Permit to Operate – A person shall not operate or use any equipment, the use of which may cause the issuance of air contaminants or the use of which may reduce or control the issuance of air contaminants, without first obtaining a written permit from the Air Pollution Control Officer or except as provided in Rule 202.
- Rule 206 Posting of Permit to Operate – A person granted a permit under Rule 203 shall not operate or use any equipment unless the entire permit to operate or a legible facsimile of the entire permit is affixed upon the equipment in such a manner that the permit number, equipment description, and the specified operating conditions are clearly visible and accessible.
- Rule 403 covers fugitive dust for areas in attainment of PM₁₀ (particulate matter 10 micrometers or less in diameter) and PM_{2.5} (particulate matter 10 micrometers or less in diameter).
- Truck and Bus Regulation - The regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Newer heavier trucks and buses must meet PM filter requirements beginning January 1, 2012. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent.
- Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation – The tractors and trailers subject to this regulation must use United States Environmental Protection Agency SmartWaySM certified tractors and trailers or retrofit their existing fleet with SmartWaySM verified technologies.
- In-Use Off-Road Diesel-Fueled Fleets Regulation - On July 26, 2007, the California Air Resources Board adopted a regulation to reduce diesel particulate matter and oxides of nitrogen emissions from in-use (existing) off-road heavy-duty diesel vehicles in California.
- The new Portable Equipment Registration Program Regulation and the Portable Diesel Engine Airborne Toxic Control Measure went into effect November 30, 2018.
- Mobile Sources Certification Programs - New motor vehicles and engines must be certified by the California Air Resources Board for emission compliance before they are legal for sale, use, or registration in California.
- Title 13 of California Code of Regulations § 2485. If a vehicle is not required for use immediately or continuously for construction activities or other safety-related reasons, its engine would be shut off.
- Application for Internal Combustion Engine – for use of equipment such as electrical generator, compressor, pump, paint spray gun, conveyor or drive, and fire pump.
- Concrete Batch Plant Operation – Certification, permitting and emissions inventory for operation of a concrete batch plant.

- Dust Control Permit – Required if dust generating activities would be more than insignificant.

2.3 Local Regulations

2.3.1 Arizona

- The Maricopa County Air Quality Department (MCAQD) has jurisdiction over the protection of air quality in Maricopa County, Arizona. Rule 310 of Regulation III, “Control of Air Contaminants” limits particulate matter emissions from operations and activities that generate sources of fugitive dust. The rule requires measures to prevent, reduce and/or mitigate emissions of particulate matter. Attachment A includes the MCAQD application package and it will be completed and submitted prior to construction activities.
- Section 302 of MCAQD Rule 310 requires that earthmoving activities disturbing areas larger than 0.1 acre obtain a dust control permit from MCAQD. The construction site superintendent (or other onsite representative) and all water truck (water-pull) operators must complete MCAQD’s Basic Dust Control Training (Section 309 of Rule 310) every three years. Sites at which greater than five acres are disturbed must designate a Dust Control Coordinator who has full authority to implement compliance with dust control requirements including dust suppression measures, construction site inspections and management controls. The designated Dust Control Coordinator must complete an approved Comprehensive Dust Control Training Class at least once every three years. The Dust Control Coordinator’s training identification card must be readily available while he/she is acting as the Dust Control Coordinator.
- Section 401 of MCAQD Rule 310 outlines Dust Control Permit requirements. A Dust Control Plan must be submitted with the application for a Dust Control Permit. The required contents of a Dust Control Plan are found in Section 402.3 of MCAQD Rule 310. The plan must be approved by MCAQD and must effectively control dust at the Project site. The contents of the plan must be kept current and if it is found to be ineffective, it must be revised to better control Project-related dust.
- MCAQD also requires signs for construction activities that may produce fugitive dust. For all sites with a Dust Control permit that are five acres or larger, except for routine maintenance and repair done under a Dust Control Block permit, the owner and/or operator shall erect and maintain a Project information sign at the main entrance such that members of the public can easily view and read the sign at all times. Such sign shall have a white background, have black block lettering that is at least four inches high, and shall contain at least all of the following information: 310-21 308.1 Project name and permittee’s name; 308.2 Current Dust Control permit number; 308.3 Name and local phone number of person(s) responsible for dust control matters; 308.4 For dust complaints call MCAQD at (602) 372-2703 or 1-800-635-4617.
- MCAQD does not issue a permit for general combustion emissions associated with earthmoving equipment and construction vehicles. However, operators of certain types of portable combustion equipment like emergency generators and concrete batch plants may be required to apply for a permit to operate the equipment.

3 Overview

The air quality study area for the Draft EIS is a 31-mile (50-kilometer) radius around the Proposed Action and Action Alternatives. A 31-mile radius was chosen to be consistent with minimum air quality analyses required by the USEPA Prevention of Significant Deterioration regulations. Current air quality conditions in the study area were obtained from the USEPA's AirData website for the nearest monitor locations for each pollutant considered (carbon monoxide, nitrogen dioxide, ozone, PM₁₀, PM_{2.5}, and sulfur dioxide). Given the rural, unpopulated nature of the study area, concentrations of most pollutants are well below the National Ambient Air Quality Standards. The exception is ozone, and the eastern portion of the study area near Phoenix is in a nonattainment area. The USEPA estimated that Arizona greenhouse gas emissions were approximately 92.3 million metric tons per year for calendar year 2000. The California Air Resources Board estimated 440.4 million metric tons of carbon dioxide equivalent for the state in 2015.

Per the Draft EIS, the Proposed Action would result in emissions of criteria pollutants, hazardous air pollutants, and greenhouse gases, but operational emissions and impacts would be much lower than construction phase emissions (Draft EIS, Appendix 4, Tables 4.2-1 through 4.2-3). Fugitive dust, engine exhaust, concrete batch plant emissions, and sulfur hexafluoride emissions from gas insulated circuit breakers in the switchyards would be the sources of air quality impacts. The emissions of criteria air pollutants would not exceed the conformity emissions thresholds for the Phoenix nonattainment/maintenance area or the daily and annual MDAQMD significance thresholds for the Riverside corridor.

4 Fugitive Dust

Soil conservation for the Project includes minimizing impacts that will negatively affect soils from the construction and operation of the Project, such as minimizing wind and water erosion, surface disturbance, and construction activities in highly erodible soils. Erosion potential is the result of several factors including slope, vegetation cover, climate, and the physical and chemical characteristics of the soil. Increased soil erosion may occur when vegetation is removed during construction, or in areas where the surface is disturbed by heavy equipment. Wind is also an erosion factor throughout portions of the Project area.

Where disturbance is anticipated in areas of steep terrain with high potential for erosion, vegetation clearing, and grading will be conducted in a manner to minimize these effects. Soil stabilization and reclamation practices will also be implemented to reduce erosion. In areas of soil disturbance or compaction (e.g., temporary work areas) soil treatment and reclamation will be implemented as directed in Appendix G-2 Stormwater Pollution Prevention Plan and Appendix L-1 – Reclamation, Vegetation, and Monitoring Plan.

Air quality control measures are intended to minimize fugitive dust and air emissions, and to maintain conditions as free from air pollution where practical. All requirements of those entities having jurisdiction over air quality matters will be adhered to, and any permits needed for construction activities will be obtained, as described in Section 2. The Construction Contractor(s) will not proceed with any construction activities without taking appropriate precautions to prevent excessive particulate matter from becoming airborne and creating nuisance conditions.

Where necessary, water may be used as BLM-approved dust control methods during construction, including for the grading of roads or the clearing of vegetation in the ROW, and

will be applied on unpaved roads, material stockpiles, and other surfaces, which can create airborne dust. Water for the Project will be obtained from the following potential sources: 1) drawn from Central Arizona Project canal locations with permits through the Central Arizona Project and water withdrawal agreements; 2) from municipal resources using water use agreements (typically from metered set-up at fire hydrants); or 3) from private wells under water use agreements with landowners. Where application of water is not possible, material stockpiles will be enclosed or covered. In addition, open bodied trucks transporting materials likely to become airborne will be covered. Soil tracks or other materials that may become airborne will promptly be removed from paved roads. Techniques to minimize and control dust during rock blasting operations will be implemented.

4.1 Environmental Protection Measures

4.1.1 Erosion Control Measures

- Vegetation will be cleared, and the construction ROW will be graded only to the extent necessary. Vegetation within the ROW will be trampled or cut at or near the ground level.
- Except for the areas to be excavated, the vegetative root systems and subsurface soils will be left intact to the greatest extent practicable to help stabilize the soils during construction.
- Trees will be trimmed instead of cutting down, where possible, and cut at the base rather than bulldozing them.
- ROW boundaries will be clearly staked or flagged and no disturbance will be allowed beyond these limits.
- Access roads will be designed to fit the terrain by avoiding unstable slopes and highly erodible conditions, to the extent practicable.
- Signs will be placed along access roads to discourage off-road vehicle use in adjacent areas.
- Utilize mulch, tracking, matting or slope length shortening to protect soils and prevent excessive erosion and sedimentation.
- Utilize appropriate drainage control structures to direct surface water runoff away from road surfaces to prevent rilling and rutting and to control sediment discharges.
- Appropriate site-specific seed mixes for revegetation will be used along with salvaged native plants.

APM-GEO-01: Erosion and Sedimentation (Compliance with Conservation Management Actions [CMA]-LUPA-SW-8) – DCRT would implement a Stormwater Pollution Prevention Plan (SWPPP) for the Project. A monitoring program would be established to ensure that the prescribed Best Management Practices (BMPs) are followed throughout transmission line construction. Examples of these BMPs include the following:

- Preparation, training, and maintenance for clear work-site practices, tracking controls, and materials management to minimize the direct work impacts on soil and erosion.
- Installation of temporary silt fences and other containment features (including gravel bags and fiber rolls) surrounding work areas to prevent the loss of soil during rain events and other disturbances.
- Utilization of storm drain inlet protection, including sediment filters and ponding barriers, to retain sediments on site and prevent excess discharge into storm drains.
- Implementation of soil erosion controls, including preservation of existing vegetation, temporary soil stabilization through hydroseeding, mulching, and other techniques.
- Stockpiling soils at least 100 feet from drainages to the extent possible. If soil stockpiles are within 100 feet from a drainage proper measures would be implemented such as soil tackifiers, straw wattles around the pile, and/or covering the stockpile.

APM-BIO-07: Monofilament Plastic (Compliance with CMA-LUPA-BIO-9) – No monofilament plastic would be used for erosion control (for example, matting, fiber roll, wattles, silt fencing backing). Appropriate materials include burlap, coconut fiber, or other materials as identified in the general and site-specific SWPPP.

APM-BIO-10: Erosion and Dust Control (Compliance with CMA-LUPA-BIO-9) – The BMPs included in the SWPPP would be implemented during construction to minimize impacts associated with erosion. Watering for dust control during construction would also be used as described previously (AQ-01). Watering shall not result in prolonged ponding of surface water that could attract wildlife to the work area. Minimal or no vegetation clearing and/or soil disturbance would be conducted for site access and construction in areas with suitable topography (i.e., overland driving/overland access).

BMP-BIO-38: Use of State-of-the-Art and Commercially-Available Technology (Compliance with CMA-LUPA-BIO-9 and CMA-LUPA-BIO-15) – Use state-of-the-art, commercially-available construction and installation techniques, as approved by BLM, appropriate for the specific activity/project and site, that minimize new site disturbance, soil erosion and deposition, soil compaction, disturbance to topography, and removal of vegetation.

BMP-BIO-50: Engineering Controls - Appropriate engineering controls would be used to minimize impacts on dry wash, dry wash woodland, and chenopod scrub, including downstream occurrences, resulting from surface water runoff, erosion, sedimentation, altered hydrology, accidental spills, or fugitive dust deposition to these habitats. Appropriate buffers and engineering controls would be determined through agency consultation.

APM-WQ-01: SWPPP Development and Implementation (Compliance with CMA-LUPA-BIO-9) – Following Project approval, DCRT or their contractor would prepare and implement a SWPPP or an amendment to an existing SWPPP to minimize construction impacts on surface water and groundwater quality. Implementation of the SWPPP would help stabilize graded areas and reduce erosion and sedimentation. The Plan would designate BMPs that would be adhered to during construction activities. Erosion and sediment control measures, such as straw wattles, covers, and silt fences, would be installed prior to ground disturbance, based on the anticipated volume and intensity of precipitation, the nature of stormwater runoff in the Project Area, and the soil types within the Project Area. Suitable

stabilization measures would be used to protect exposed areas during construction activities, as necessary and final stabilization would be completed when construction materials, waste, and temporary erosion and sediment control measure have been removed. During construction activities, measures would be implemented to prevent contaminant discharge from vehicles and equipment, including complying with the Spill Prevention, Control, and Countermeasures requirements in 40 CFR Part 112. The Project SWPPP would include erosion control and sediment transport BMPs to be used during construction. BMPs, where applicable, would be designed by using specific criteria from recognized BMP design guidance manuals. Erosion-minimizing efforts may include measures such as the following:

- Defining ingress and egress within the Project site.
- Implementing a dust control program during construction.
- Properly containing stockpiled soils.

Erosion control measures identified would be installed in an area before construction begins and would be properly maintained until construction is complete and final stabilization begins. Temporary measures such as silt fences or wattles, intended to minimize sediment transport from temporarily disturbed areas, would remain in place until disturbed areas have stabilized. The Plan would be updated during construction as required by the State Water Resources Control Board and ADEQ. The Plan would include the following components, in accordance with ADEQ requirements for coverage under the General Permit:

- Stormwater team qualifications and contact information.
- Identification of operators.
- Nature of construction activities.
- Sequence and estimated dates of construction activities.
- Site description.
- Site map(s).
- Receiving waters.
- Control measures to be used during construction activity.
- Summary of potential pollutant sources.
- Use of treatment chemicals.
- Pollution prevention procedures, including spill prevention and response and waste management procedures.

APM-WQ-02: Worker Environmental Awareness Program Development and Implementation – The Project's worker environmental awareness program would communicate environmental issues and appropriate work practices specific to this Project. This awareness would include spill prevention and response measures and proper BMP implementation. The training would emphasize site-specific physical conditions to improve hazard prevention (such as identification of flow paths to nearest water bodies) and would include a review of all site-specific water quality requirements, including applicable portions of erosion control and sediment transport BMPs, Health and Safety Plan, and Hazardous Substance Control and Emergency Response Plan.

California

BMP-SOIL-07 (California only): (Compliance with CMA-LUPA-SW-10) – To the extent possible, avoid disturbance of desert biologically intact soil crusts and soils highly susceptible to wind and water erosion.

4.1.2 Working in Wet Soils

- Construction and operation and maintenance activities will be restricted to properly support construction or maintenance equipment (i.e., when heavy equipment creates ruts greater than four inches deep over a distance of 100 feet or more).
- Construction or maintenance activities will be re-routed around wet areas, ensuring that the new route does not cross into sensitive resource areas.
- Use wide-track or balloon-tire vehicles and equipment, or other weight dispersing systems, use geotextile cushions, prefabricated equipment pads or similar materials to minimize damage to the substrate.

See BMPs, Applicant Proposed Measures (APMs) and mitigation measures (MM) in Section 4.1.1.

4.1.3 Dust Control Measures

- Minimize disturbed land areas to the extent practicable with Project design considerations.
- Use frequent watering to maintain visible moisture and/or form a soil crust, while preventing pooling to the extent possible.
- Use a water truck to maintain moist disturbed surfaces and actively spread water during visible dusting episodes to minimize visible fugitive dust emissions. For projects with exposed sand or fines deposits (and for projects that expose such soils through earthmoving), chemical stabilization or covering with a stabilizing layer of gravel will be required to eliminate visible dust/sand from sand/fines deposits.
- Treat actively disturbed areas with BLM-approved dust palliatives. Only BLM specified non-toxic substances approved by state and federal regulations shall be used for dust control. The use of any chemical dust control measures on or near any area that may wash into or blow onto Metropolitan Water District of Southern California fee property or agricultural lands participating in the Following Program will be conditioned on the approval of Metropolitan or its designated representative.
- Maintain a visible crust and sufficient moisture on any storage piles or cover with tarps.
- All maintenance and access vehicular roads and parking areas shall be stabilized with either chemical or gravel or application of water, sufficient to eliminate visible fugitive dust from vehicular travel and wind erosion. Take actions to prevent Project-related track-out onto paved surfaces, and clean any Project-related track-out within 24 hours. Install track-out control devices such as grizzly bars grates, wheel washers or gravel pads located at all entrances and exits, as required by

dust control regulations. All other earthen surfaces within the Project area shall be stabilized by natural or irrigated vegetation, water, compaction, chemical or other means sufficient to prohibit visible fugitive dust from wind erosion. Utilize street sweepers to remove any visible soil/mud/dirt tracked onto paved access roads.

- Helicopter landing and takeoff areas shall be stabilized with either dust palliatives or water to reduce fugitive dust created by the aircraft.
- Limit vehicle speeds on access roads to less than 15 miles per hour.
- Cover haul truck cargo bed with tarps and maintain six inches of freeboard.
- Halt dust generating activities on high-wind event days, and/or during periods of adverse meteorological conditions which could cause or contribute to violations of air quality standards. In California, adhere to MDAQMD rules.
- All perimeter fencing shall be wind fencing or the equivalent, to a minimum of four feet of height or the top of all perimeter fencing. The owner/operator shall maintain the wind fencing as needed to keep it intact and remove windblown dropout. This wind fencing requirement may be superseded by local ordinance, rule or Project-specific biological mitigation prohibiting wind fencing.
- After work is completed in each project area, revegetate to stabilize soils.
- During post-construction, apply dust suppression measures such as watering, application of approved dust palliatives, or cover vacant lots with gravel.

APM-AQ-01: Fugitive Dust (Compliance with Conservation Management Action [CMA]/ Land Use Plan Amendment [LUPA]-AIR-2, 3, and 5) - The following control measures would be implemented, as applicable, to reduce PM₁₀ and PM_{2.5} emissions during construction, in conjunction with an Erosion, Dust Control, and Air Quality Plan and Fugitive Dust Control Plan for the Project.

Basic Control Measures

The following measures would be implemented as applicable at all construction sites:

- Water active construction areas sufficiently to minimize fugitive dust.
- Dust control would include the use of one or more water trucks that would water access roads daily as needed to control dust throughout the construction period.
- Cover trucks hauling soil, sand, and other loose materials and require all trucks to maintain at least six inches of freeboard.
- Pave, apply water, or apply nontoxic soil stabilizers as applicable on for all unpaved access roads, parking areas, and staging areas at construction sites to minimize fugitive dust.

Enhanced Control Measures

In addition to the “basic control measures” listed above, the following control measures may be implemented at all construction sites greater than four acres:

- Water, hydroseed, or apply nontoxic soil stabilizers to inactive construction areas to minimize fugitive dust.
- Enclose, cover, water, or apply nontoxic soil binders to exposed stockpiles.
- Limit traffic speeds on unpaved roads.
- Replant vegetation in disturbed areas as quickly as possible, consistent with seasonal survival considerations.

Optional Control Measures

Depending on the extent of dust generation, implementation of the following optional control measures may occur at larger construction sites, near sensitive receptors (residences or other occupied buildings, parks, or trails within 1,000 feet of earthmoving operations that are substantial; for example, more than excavation for tower foundations), or in situations which for any other reason may warrant additional emissions reductions:

- Install wheel washers for all exiting trucks or wash off the tires or tracks of all trucks and equipment leaving the site.
- Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 miles per hour.

Limit the area subject to excavation, grading, and other construction activity at any one time.

APM-AQ-04: Minimize Potential Emissions of Naturally Occurring *Coccidioides immitis* Fungal Spores – In addition to the AQ-01 measures to control general fugitive dust emissions, the following measures would be implemented prior to and during construction to create awareness of the risks and inhalation prevention procedures with respect to *Coccidioides immitis* fungal spores, which are naturally present in soils in the desert southwest, and inhalation of which can cause Valley Fever:

- Prior to construction, and for each phase of construction, implement an Environmental Awareness Program for workers to ensure they are informed of the risks of contracting Valley Fever and the protective measures needed to minimize personal exposure to fugitive dust, as well as to minimize possible dust exposure of nearby residents and the public.
- Inform workers of the possible symptoms of Valley Fever and encourage them to seek medical treatment if these symptoms manifest.

BMP-AQ-01: Dust Palliatives – Dust palliatives would be applied, in lieu of water, to inactive construction areas (disturbed lands or soil stockpiles that are unused for 14 consecutive days). Dust palliatives would be chosen by the Dust Control Site Coordinator and or construction contractor. Dust palliatives would be environmentally safe; comply with federal, state, and local regulations; and would not produce a noxious odor or contaminate surface water or groundwater and, therefore, would not pose runoff concerns during rain events. Application rates for dust palliatives would follow the manufacturer's recommendations. Material Safety Data Sheets for any palliatives would be available on site and provided to the BLM 14 days prior to use.

California

BMP-AQ-05 (California only): Air Quality Regulation and Standard Conformance (Compliance with CMA/LUPA-AIR-02) – All activities would meet the requirements of the Clean Air Act (Sections 110, 118, 160, and 176[c]) and the applicable local Air Quality Management jurisdiction(s). Fugitive dust cannot exceed local standards and requirements.

CMA-LUPA-AIR-1 (California only) – All activities must meet the following requirements:

- Applicable National Ambient Air Quality Standards (Section 109).
- State Implementation Plans (Section 110)
- Prevention of Significant Deterioration, including visibility impacts to mandatory Federal Class I Areas (Section 160 et seq.).
- Conformity Analyses and Determinations (Section 176[c]).
- Apply BMPs on a case by case basis.
- Applicable local Air Quality Management Jurisdictions (e.g., 403 South Coast Air Quality Management District [SCAQMD]).

CMA-LUPA-AIR-2 (California only) – Because Project authorizations are a federal undertaking, air quality standards for fugitive dust may not exceed local standards and requirements.

CMA-LUPA-AIR-4 (California only) – Because fugitive dust is the number one source of PM₁₀ and PM_{2.5} emissions in the Mojave and Sonoran Deserts, fugitive dust impacts to air quality must be analyzed for all activities/projects requiring an EIS and Environmental Assessment.

The National Environmental Policy Act (NEPA) air quality analysis may include modeling of the sources of PM₁₀ and PM_{2.5} that occur prior to construction and/or ground disturbance from the activity/project, and show the timing, duration and transport of emissions off site. When utilized, the modeling will also identify how the generation and movement of PM₁₀ and PM_{2.5} will change during and after construction and/or ground disturbance of the activity/project under all activity/project specific NEPA alternatives. The BLM air resource specialist and Authorizing Officer will determine if modeling is required as part of the NEPA analysis based on estimated types and amounts of emissions. The BLM National Operations Center in conjunction with the California BLM determined modeling is not required for this Project (Draft EIS 2018, Appendix 2C-35, Table 2C.1.2 Air Resources).

CMA-LUPA-AIR-5 (California only) – A fugitive Dust Control Plan will be developed for all projects where the NEPA analysis shows an impact on air quality from fugitive dust. (The development of this plan satisfies CMA-LUPA-AIR-5.)

4.1.4 Construction Phase

The Environmental Compliance Manager will regularly inspect or coordinate the inspection of project activities for compliance with dust control and air quality regulations. Environmental inspectors perform daily inspections, identify sensitive resources, act as a

resource to construction personnel and oversee any corrective actions. Daily logs will be completed by inspectors as necessary; issues of noncompliance will be documented and addressed as quickly as possible. The Compliance Inspection Contractor works under the director control and supervision of the BLM and will be responsible for overseeing implementation of the environmental protection measures identified in Section 4.

The construction contractor(s) will be contractually bound to comply with all laws, regulations and permit requirements, including the mitigation measures and other stipulations and methods set forth in the ROW grant, Plan of Development, and Record of Decision throughout all phases of the Project. The contractor(s), serving as an “operator” under ADEQ’s Construction General Permit and California Environmental Protection Agency’s Construction General Permit, will submit a Notice of Intent.

4.1.4.1 Training

All construction personnel will participate in environmental trainings to build the Project safely and in compliance with erosion prevention, dust control, and air quality protection regulations. The general orientation would include definitions and a discussion of the main areas of focus on construction projects which are fugitive dust and engine emissions. Training would include a discussion of the following applicable Project rules and regulations: The federal Clean Air Act, Maricopa County Rule 310, and Mojave Desert Dust Control. Personnel will attend training as appropriate and required.

Training would include a discussion of BMPs, Valley Fever facts, and Valley Fever prevention as indicated below.

- BMPs for the control of fugitive dust may include, but are not limited to:
 - Preservation of vegetation.
 - Maximum speed of 15 miles per hour unless posted otherwise.
 - Stabilized construction exits.
 - Water application along access roads and work sites.
 - Application of dust suppressants and tackifiers.
 - Topsoil and spoil stock pile management.
- Valley Fever
 - It is caused by spores of the fungus *Coccidioides immitis* or *Coccidioides posadasii*.
 - Valley fever is also referred to as “San Joaquin Valley fever” or “desert rheumatism.”
 - Valley fever lives in soil of southwest United States, south central Washington and parts of Mexico and South America.
 - Sickness comes from breathing in airborne fungal spores; usually affects the lungs but can spread in severe cases.

- Five to ten percent of infections cause lasting lung damage.
- Symptoms are flu-like and may take one to three weeks to appear and last for weeks or months.
- Valley Fever Prevention
 - Use proper dust prevention/control practices to limit fugitive dust.
 - Limit exposure to outdoor dust in endemic areas.
 - Avoid areas with a lot of dust like construction/excavation sites.
 - Wear an N95 or better respirator.
 - Stay inside during dust storms; close windows.
 - Avoid activities that involve disturbance and contact with dirt or dust, including yard work, gardening, and digging.
 - Use air filtration measures indoors.
 - Clean skin injuries well with soap and water to reduce the chances of developing a skin infection, especially if the wound was exposed to dirt or dust.
 - Take preventive antifungal medication if your healthcare provider says you need it.

Rule 310 of the MCAQD includes the following requirements for basic dust control training:

- a. At least once every three years, the persons specified in Section 309.1(b) or Section 309.1(c) of this rule shall successfully complete a Basic Dust Control Training Class conducted or approved by the Control Officer.
- b. The following persons present at a site that is subject to a permit issued by the Control Officer requiring control of PM₁₀ emissions from dust-generating operations shall complete a Basic Dust Control Training Class as specified in Section 309.1(a) of this rule: 1) water truck drivers; 2) water-pull drivers; and 3) the site superintendent or other designated on-site representative of the permit holder, if present at a site that has more than one acre of disturbed surface area.
- c. A Dust Control Block Permit permittee/holder shall have, at a minimum, one individual trained in accordance with the Basic Dust Control Training Class as specified in Section 309.1(a) of this rule, if present at a site that has more than one acre of disturbed surface area.
- d. All persons having successfully completed training during the 2018 and 2019 calendar years shall be deemed to have satisfied the requirement to successfully complete the Basic Dust Control Training Class, if the training that was completed was conducted or approved by the Control Officer. Completion of the Comprehensive Dust Control Training Class, as required in Section 309.2 of this rule, shall satisfy the requirement of this section of this rule.

- e. The Control Officer may suspend or revoke for cause including, but not limited to, inappropriate ethical activities or conduct associated with the dust control program or repeated failure to follow the training requirements, a certification issued to a person having successfully completed a Basic Dust Control Training Class conducted or approved by the Control Officer. The Control Officer will provide written notification to such person regarding such suspension or revocation.

Rule 310 of the MCAQD includes the following requirements for comprehensive dust control training:

- a. At least once every three years, the Dust Control Coordinator, who meets the requirements of Section 310 of this rule, shall successfully complete the Comprehensive Dust Control Training Class conducted or approved by the Control Officer.
- b. The Control Officer may suspend or revoke for cause including, but not limited to, inappropriate ethical activities or conduct associated with the dust control program or repeated failure to follow the training requirements, a certification issued to a person having successfully completed a Comprehensive Dust Control Training Class conducted or approved by the Control Officer. The Control Officer will provide written notification to such person regarding such suspension or revocation.

Rule 310 of the MCAQD includes the following requirements for the dust control coordinator:

- 310.1 The permittee for any site of five acres or more of disturbed surface area subject to a permit issued by the Control Officer requiring control of PM₁₀ emissions from dust-generating operations shall have on-site at least one Dust Control Coordinator trained in accordance with Section 309.2 of this rule at all times during primary dust-generating operations related to the purposes for which the Dust Control permit was obtained.
- 310.2 The Dust Control Coordinator shall have full authority to ensure that dust control measures are implemented on-site, including conducting inspections, deployment of dust suppression resources, and modifications or shut-down of activities as needed to control dust.
- 310.3 The Dust Control Coordinator shall be responsible for managing dust prevention and dust control on the site.
- 310.4 At least once every three years, the Dust Control Coordinator shall successfully complete a Comprehensive Dust Control Training Class conducted or approved by the Control Officer.
- 310.5 The Dust Control Coordinator shall have a valid dust training certification identification card readily accessible on-site while acting as a Dust Control Coordinator.
- 310.6 The requirement for a Dust Control Coordinator shall lapse when all of the following actions/events/procedures occur: a) the area of disturbed surface area becomes less than five acres; b) the previously disturbed surface areas have been stabilized in accordance with/in compliance with the standards and/or requirements of this rule; and c) the Dust Control permit holder provides notice to the Control Officer of acreage stabilization.

- 310.7 The Dust Control Block Permit permittee/holder shall have on sites that have more than one acre of disturbed surface area at least one individual, who has been trained in accordance with the requirements of Section 309.1(c) of this rule. One such individual shall be designated by the Dust Control Block Permit permittee/holder as the Dust Control Coordinator. The Dust Control Coordinator shall be present onsite at all times during primary dust-generating activities that are related to the purposes for which the permit was obtained.

4.2 California Environmental Quality Act

In compliance with the California Environmental Quality Act (CEQA) the following mitigation measure will be adhered to:

MM-AQ-CEQA-1 – Consistent with APM AQ-01, and MDAQMD Rule 403.2, a Fugitive Dust Control Plan shall be prepared for the Project prior to the start of construction and shall be implemented throughout all construction phases of the Project. This Fugitive Dust Control Plan shall be prepared by the Proponent at least 30 days prior to construction which shall be approved by the California Public Utilities Commission (CPUC) and MDAQMD. The Proponent shall ensure that the Fugitive Dust Control Plan is implemented throughout construction activities and shall keep records of compliance on site and submit monthly reports to CPUC and MDAQMD. This Fugitive Dust Control Plan shall comply with the MDAQMD Guidelines and include all of the control measures listed in APM AQ-01. In addition to these control measures, the Fugitive Dust Control Plan shall also include signage related to fugitive dust that will include the following specifications:

- A minimum 48-inch high by 96-inch wide sign containing the following shall be located within 50 feet of each Project site entrance, meeting the specified minimum text height, black text on white background, on one-inch A/C laminated plywood board, with the lower edge between six and seven feet above grade, with the contact name of a responsible official for the site and a local or toll-free number that is accessible 24 hours per day:
 - [Site Name] {four-inch text}
 - [Project Name/Project Number] {four-inch text}
 - IF YOU SEE DUST COMING FROM {four-inch text}
 - THIS PROJECT CALL: {four-inch text}
 - [Contact Name], PHONE NUMBER XXX-XXXX {six-inch text}
 - If you do not receive a response, Please Call {three-inch text}
 - The MDAQMD at 1-800-635-4617 {three-inch text}

Additionally, the following control measures shall be included in the Fugitive Dust Control Plan:

- Traffic speeds on unpaved roads shall not exceed 15 miles per hour.

- Drop heights from excavators and loaders shall be minimized to distances no more than five feet.
- Appoint a construction relations officer to act as a community liaison concerning on-site construction activity, including resolution of issues related to PM₁₀ and PM_{2.5} generation from combustion emissions and fugitive dust generation.
- An on-site supervisor with a current fugitive dust control class certification shall be present who is available within 30 minutes to respond to any fugitive dust control issue at the site during normal business hours.
- The operation shall keep on-site records of specific dust control actions taken.
- All perimeter fencing shall be wind fencing or the equivalent of four feet of height or the top of all perimeter fencing (this wind fencing requirement may be superseded by local ordinance, rule, or Project-specific biological mitigation prohibiting wind fencing).
- A wheel washing system shall be installed and used to remove bulk material from tires and vehicle undercarriages before vehicles exit the unpaved construction site.

Responsible Party: The Applicant shall be responsible for ensuring the Fugitive Dust Control Plan is prepared and implemented throughout construction activities.

Timing: The Fugitive Dust Control Plan shall be prepared at least 30-days prior to the start of construction and implemented throughout all construction activities.

Mitigation Monitoring and Reporting Program: Monthly reports shall be prepared by the Applicant and submitted to the CPUC and MDAQMD. These monthly reports shall include a summary of any calls received regarding fugitive dust and all compliance actions taken.

Standards for Success: Fugitive dust will be minimized throughout all construction activities and compliance with MDAQMD Rule 403.2 shall be achieved.

5 Construction Emissions

Vehicles emit many pollutants into the air, including carbon monoxide, carbon dioxide, hydrocarbons, nitrogen oxides, sulfur oxides, and volatile organic compounds. These pollutants then combine to form secondary pollutants such as fine particulate matter and ozone.

Given the rural, unpopulated nature of the Project area, concentrations of most pollutants are well below the National Ambient Air Quality Standards. The exception is ozone, and the eastern portion of the study area near Phoenix is in a nonattainment area (Draft EIS 2018).

Construction of the Project would result in emissions of criteria pollutants, hazardous air pollutants, and greenhouse gases, but operational emissions and impacts would be much lower than construction phase emissions. However, any increase in greenhouse gas construction emissions may be offset to the extent the Project allows for the displacement of fossil fuel energy generation with renewable energy sources through the provision of new transmission infrastructure to interconnect future renewable energy resources in both

Arizona and California. As such, there may be a beneficial contribution to anthropogenic climate change (BLM 2019).

Construction emission mitigation measures are intended to minimize air quality impacts, and to maintain conditions as free from air pollution where practical. All requirements of those entities having jurisdiction over air quality matters will be adhered to, and any permits needed for construction activities will be obtained. The Construction Contractor(s) will not proceed with any construction activities without taking reasonable precautions to prevent excessive particulate matter from becoming airborne and creating nuisance conditions.

Excessive exhaust emissions from vehicles and heavy equipment will be prevented by proper maintenance. Idling of equipment will be limited to reduce exhaust emissions. There will be no open burning of construction trash or other open fires.

5.1 Environmental Protection Measures

In addition to applicable design and operational standards, regulations, laws and permit requirements, the following design features and BMPs, APMs, and mitigation measures have been identified to avoid or minimize potential fugitive dust and construction emissions related impacts. Another applicable plan includes the K-2 Traffic and Transportation Management Plan.

5.1.1 Air Quality Measures

To alleviate traffic congestion and decrease the number of vehicles traveling to the Project work areas, the Construction Contractor will encourage personnel to carpool to work each day. Additionally, crews will commute from show up yards to the work sites in company provided crew vehicles after meeting at the show-up yard locations. Additionally, the following general practices will help to reduce construction vehicle emissions.

- Minimize construction related trips of workers and equipment.
- Use existing roads for construction and access whenever possible and minimize areas disturbed outside of the power line ROW.
- Eliminate or minimize idling of motor vehicles and motorized equipment.
- Follow manufacturer recommendations for engine maintenance and operation to optimize emission performance.
- Utilize newer equipment that meets the most stringent federal or state standards as much as practicable.
- Locate diesel engines, motors and equipment as far as practicable from sensitive areas and receptors.

California

APM-AQ-02 (California only): Exhaust Emissions (Compliance with CMA/LUPA-AIR-3) – The following measures would be implemented during construction to further minimize greenhouse gas emissions (carbon dioxide, methane, and nitrous oxide) per California

AB32 and criteria air pollutants from vehicle and machinery and in conjunction with this Construction Emissions Mitigation Plan for the Project:

- Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time depends on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times that limit their availability for use following startup. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The Project would apply a “common sense” approach to vehicle use, such that idling is reduced as far as possible below the maximum of five consecutive minutes required under 13 California Code of Regulations § 2485. If a vehicle is not required for use immediately or continuously for construction activities or other safety-related reasons, its engine would be shut off.
- Encourage use of natural gas- or electric-powered vehicles for light-duty trucks where feasible and available.

CMA-LUPA-AIR-1 (California only) – All activities must meet the following requirements:

- Applicable National Ambient Air Quality Standards (Section 109).
- State Implementation Plans (Section 110)
- Prevention of Significant Deterioration, including visibility impacts to mandatory Federal Class I Areas (Section 160 et seq.).
- Conformity Analyses and Determinations (Section 176[c]).
- Apply best management practices on a case by case basis.
- Applicable local Air Quality Management Jurisdictions (e.g., 403 SCAQMD).

CMA-LUPA-AIR-3 (California only) – Where impacts to air quality may be significant under NEPA, requiring analysis through an EIS, require documentation for activities to include a detailed discussion and analysis of Ambient Air Quality conditions (baseline or existing), National Ambient Air Quality Standards, criteria pollutant nonattainment areas, and potential air quality impacts of the proposed Project (including cumulative and indirect impacts and greenhouse gas emissions). This content is necessary to disclose the potential impacts from temporary or cumulative degradation of air quality. The discussion will include a description and estimate of air emissions from potential construction and maintenance activities, and proposed mitigation measures to minimize net PM₁₀ and PM_{2.5} emissions. The documentation will specify the emission sources by pollutant from mobile sources, stationary sources, and ground disturbance. A Construction Emissions Mitigation Plan will be developed.

5.2 California Environmental Quality Act

In compliance with CEQA the following mitigation measure will be adhered to in California:

MM-AQ-CEQA-1 – Consistent with APM AQ-02 a Construction Emissions Mitigation Plan shall be developed by the Applicant for the Project at least 30-days prior to the start of

construction activities and shall be implemented by the Applicant throughout all construction activities. The Construction Emissions Control Plan shall be approved by the CPUC and MDAQMD and the Applicant shall keep records of compliance with this Plan on site and submit monthly reports to CPUC and MDAQMD. Successful implementation of with measure will result in minimization of exhaust emissions from worker vehicles, construction equipment, and vehicles. The Construction Emissions Mitigation Plan may include the following measures:

- Use ultra-low sulfur diesel fuel (e.g., <15 parts per million).
- Use clean-burning on- and off-road diesel engines. Heavy-duty diesel-powered construction equipment manufactured after 1996 (with federally mandated “clean” diesel engines) shall be utilized.
- The Applicant shall develop a program and require construction workers to carpool to construction sites.
- Restrict construction vehicle idling time to less than five minutes.
- Properly maintain mechanical equipment.
- Use particle traps and appropriate controls to reduce diesel particulate matter. Other equipment includes devices such as specialized catalytic converters (oxidation catalysts) control approximately 20 percent of diesel particulate matter, 40 percent of carbon monoxide, and 50 percent of hydrocarbon emissions.
- Provide temporary traffic controls, such as a flag person, during all phases of construction to maintain a smooth traffic flow (see Appendix K-2 Traffic and Transportation Plan, MM-TRANS-CEQA-2 for more details).
- Provide dedicated turn lanes for movement of construction trucks and equipment on- and off-site.
- During Project construction, all off-road diesel-powered construction equipment greater than 50 horsepower shall meet the Tier 4 emissions standards, where available. In addition, all construction equipment shall be outfitted with the Best Available Control Technology devices certified by California Air Resources Board. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 4 diesel emissions control strategy for a similarly sized engine as defined by California Air Resources Board regulations (i.e., if Project construction goes beyond the anticipated schedule).
- A copy of each unit’s certified tier specification, Best Available Control Technology documentation, and California Air Resources Board or MDAQMD operating permit shall be provided to the CPUC at the time of mobilization for each applicable unit of equipment.

Responsible Party: The Applicant shall be responsible for ensuring the Construction Emissions Control Plan is prepared and implemented throughout construction activities.

Timing: The Construction Emissions Control Plan shall be prepared at least 30 days prior to the start of construction and implemented throughout all construction activities.

Mitigation Monitoring and Reporting Program: Monthly reports shall be prepared by the Applicant and submitted to the CPUC and MDAQMD. These monthly reports shall include a summary of any compliance actions taken.

Standards for Success: Construction emissions will be minimized and would not exceed MDAQMD significance thresholds. Additionally, any State standards regulating construction emissions would be met (i.e., California Air Resources Board Tier 4 emission standards and Title 1. California Code of Regulations Section 2485 standards).

6 Reclamation

Upon completion of the Project construction activities, the construction contractor's environmental inspectors will monitor the implementation of the reclamation treatments as stipulated in Appendix L- Reclamation, Vegetation, and Monitoring Plan of the Plan of Development. Reclamation activities will continue to minimize fugitive dust and construction emissions. On federal lands, the Compliance Inspection Contractor and BLM Authorized Officer must approve proposed site stabilization/reclamation measures before construction activities are considered complete for the Project. DCRT and/or its contractors will also be required to meet the stabilization requirements and post-construction conditions of the Arizona and California Construction General Permit. The same practices for fugitive dust control and construction emissions as described in this Plan will occur during reclamation, except for dust palliatives.

7 Operation and Maintenance Phase

After construction and reclamation, operation and maintenance activities will continue to incorporate BMPs and other mitigations discussed throughout this Plan to minimize fugitive dust and construction vehicle emissions, as needed. Protocol may be adapted based on the applicability to the operation and maintenance task.

8 References

Bureau of Land Management (BLM). 2018. Draft Environmental Impact Statement (EIS) and Draft Resource Management Plan Amendments for the TenWest Link Transmission Line Project. 2018. Bureau of Land Management, Colorado River District Office.

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ATTACHMENT A MARICOPA COUNTY AIR QUALITY DEPARTMENT APPLICATION

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ATTACHMENT B MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT APPLICATION

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2B.13 PALEONTOLOGICAL RESOURCES TREATMENT, MONITORING, AND DISCOVERY PLAN

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PALEONTOLOGICAL RESOURCES IMPACT MITIGATION MONITORING PLAN

TEN WEST LINK TRANSMISSION LINE PROJECT

DCR Transmission, LLC



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1.0 EXECUTIVE SUMMARY

This Paleontological Resource Impact Mitigation and Monitoring Plan (PRIMMP) was prepared by Paleo Solutions, Inc. (Paleo Solutions) in support of the DCR Transmission, LLC (DCRT) Ten West Link Transmission Line Project (Project). The PRIMMP is designed to mitigate effects to paleontological resources, through implementation of monitoring and a plan for discoveries, in accordance with the National Environmental Policy Act (NEPA), and to reduce impacts on paleontological resources to below the level of significance pursuant to the California Environmental Quality Act (CEQA). This PRIMMP serves as the Paleontological Resource Treatment Plan, Paleontological Monitoring and Discovery Plan, and the Paleontological Resources Monitoring and Mitigation Plan required for this Project, as directed by Mitigation Measure (MM) CUL-CEQA-3. This work was required by the Bureau of Land Management (BLM) Colorado River District Office in order to fulfill their responsibilities as the lead agency under NEPA, as well as the California Public Utilities Commission (CPUC) as the lead agency under CEQA. This report was prepared in accordance with BLM procedures (BLM IM 2016-124 [2016] and BLM Manual and Handbook H-8270-1 [1998]), and the requirements of Applicant Proposed Measure (APM) PALEO-01, Best Management Practice (BMP) PALEO-02, and MM CUL-CEQA-3 (see Appendix E).

DCRT proposes to construct, operate, maintain, and decommission a series-compensated, 500 kilovolt (kV) alternating current (AC) overhead transmission line within a 200-foot right-of-way (ROW), which spans approximately 114 miles from the Arizona Public Services Company (APS) Delaney Substation near the community of Tonopah, Maricopa County, Arizona to the Southern California Edison Company (SCE) Colorado River Substation near the City of Blythe, Riverside County, California. The purpose of the Project is to transmit 3,200 megawatts (MW) between the two substations and to provide connection capability for new energy projects in the region. The 114-mile route proposed by DCRT (i.e., the Proposed Action of the Draft Environmental Impact Statement [EIS]) would parallel an existing transmission line and other linear facilities, such as the Devers to Palo Verde Number 1 Transmission Line, with 97 miles in Arizona and 17 miles in California. The Proposed Action would cross federal lands administered by the BLM, the Bureau of Reclamation (BOR), the U.S. Fish and Wildlife Service (USFWS) (Kofa National Wildlife Refuge), the Department of Defense (DOD) (Yuma Proving Ground), and the Bureau of Indian Affairs (BIA) (Colorado River Reservation). In addition to the 114-mile route, a transmission line series compensation station, which includes a 12 kV electric distribution line, would be situated along the middle of the route and would be constructed parallel to the Devers to Palo Verde Number 1 Transmission Line, south of Vicksburg, Arizona. In addition to the Proposed Action described above, the Draft EIS identified Four Action Alternatives and associated subalternatives, which are composed of individual segments that can be interchanged among the different alternatives. For the purposes of this PRIMMP, the BLM preferred route(s), composed of various individual segments and alternative segments extracted from portions of the Proposed Action and all Four Action Alternatives and associated subalternatives, is discussed herein and referred to as “the Project”; however, note that the Project alignment has not been finalized at the time of drafting this PRIMMP and may change after approval of the Final EIS in 2019. The BLM preferred route (i.e., the Project area) intersects land administered by the State of Arizona, BLM, BOR, and DOD (Yuma Proving Ground), as well as private/undetermined land. The subalternative route CB-03, which is not part of the BLM’s preferred route, also intersects land administered by the BIA (Colorado River Reservation) and is included in this report (Table 1; Appendices B and F).

In the baseline technical study of the proposed route (i.e., the Proposed Action) and the alternative segments in support of the Draft EIS, the BLM’s Potential Fossil Yield Classification (PFYC) system was used to classify mapped geologic units based on the relative abundance of vertebrate fossils or scientifically significant invertebrate or plant fossils and their sensitivity to adverse impacts. For this PRIMMP, Paleo Solutions has refined the geologic mapping of the Project area to use the highest



resolution geologic maps available and published by Miller (1970), Ort and Skotnicki (1993), Richard et al. (1994), Sherrod et al. (1990), and Stone (1988-1990, and 2006). Additionally, the paleontological potential of the Project area was re-assessed based on the refined geologic mapping and fossil occurrence data.

Geologic units underlying the Project area and within a quarter-mile buffer were mapped by Miller (1970), Ort and Skotnicki (1993), Richard et al. (1994), Sherrod et al. (1990), and Stone (1988-1990 and 2006). In total, 42 geologic units and their PFYC were assessed within a quarter-mile buffer of the Project area, including Proterozoic slaty metavolcanics rocks (Xm); middle Proterozoic granitoid (Yg); Precambrian quartz monzonite (pCqm); Precambrian or Mesozoic metavolcanics rocks (pCv); Paleozoic(?) rocks and Precambrian and Mesozoic rocks, undifferentiated (pCu); Paleozoic(?) quartz-albite-muscovite-chlorite schist with meta-tuffaceous rock, Unit 3 (pC3); Paleozoic(?) vitreous quartzite, medium to massively bedded, Unit 4 (pC4); Paleozoic(?) dolomite, tan, chert, massively bedded, Unit 5 (pC5); Jurassic volcanic rocks (Jv); Jurassic volcanic rocks of Dome Rock sequence (Jv); Jurassic volcanic rocks of Dome Rock sequence, upper bedded unit (Jvbu); Cretaceous or Jurassic McCoy Mountains Formation, lower part, undivided (KJmlu); Miocene and Oligocene(?) volcanic rocks of Bear Hills (Tbh); Miocene and Oligocene(?) fanglomerate, sedimentary breccia, and slide blocks (Tf); Miocene or Oligocene andesite (Ta); Miocene or Oligocene lower basaltic volcanic rocks (Tbl); Miocene middle basalt unit (Tbm); Miocene felsic volcanic rocks (Tf); Miocene basalt of New Water Mountains (Tnw); Miocene fanglomerate (Tf); Tertiary(?) tufa (Tbt); Tertiary older hornblende-biotite andesite (Ta); Quaternary and Tertiary(?) alluvial fan and fluvial deposits (QTa); Quaternary or Tertiary hornblende-biotite andesite (QTa); Quaternary or Tertiary basalt of Black Mesa (QTbu); Quaternary or Tertiary dissected fan deposits (QTdf); Quaternary or Tertiary older alluvium (QToa); Pleistocene and/or Pliocene alluvial deposits of the Ehrenberg area (QTe); Pleistocene or Pliocene alluvial deposits of Mule Mountains (QTmm); Quaternary alluvium and talus (Qat); Quaternary alluvium of modern washes (Qw); Quaternary surficial deposits (Qs); late to early Pleistocene alluvium (Qm/Qo); Pleistocene alluvial deposits of Palo Verde Mesa (Qpv); Holocene and late Pleistocene talus (Qt); Holocene and late Pleistocene alluvium/eolian deposits (Qyc/Qye/Qy); Holocene and Pleistocene alluvium (Qa); Holocene and Pleistocene alluvial-fan and alluvial-valley deposits, Unit 3 (Qa3); Holocene alluvial-fan and alluvial-valley deposits (Qa6); Holocene alluvium of modern Colorado River flood plain (Qr); Holocene eolian sand (Qs); and Holocene alluvium of modern washes (Qw). Note that geologic ages tagged with a "(?)" are estimates and represent poorly constrained geologic ages.

The Project area is underlain by moderate paleontological potential (PFYC 3), unknown potential (PFYC U), low potential (PFYC 2), and very low potential (PFYC 1). In accordance with APM PALEO-01, BMP PALEO-02, and MM CUL-CEQA-3 a paleontological monitor will conduct full-time monitoring during all excavations impacting native sediments with moderate paleontological potential (PFYC 3). Part-time monitoring (i.e., spot-checking) will be conducted daily in areas with unknown paleontological potential (PFYC U). If sediments are deemed to be non-conducive to fossil preservation (e.g., high energy [very coarse grained], heavily oxidized [indicating long sediment exposure at the surface], etc.), then monitoring in those areas may be reduced at the discretion of the Project Paleontologist in consultation with the BLM. Construction activities will be spot-checked when excavation depths exceed 10 feet in areas mapped as low paleontological potential (PFYC 2) geologic units to check for the presence of underlying geologic units of higher paleontological potential. If it is subsequently determined that paleontologically sensitive deposits will not be impacted by Project activities, then monitoring in those areas may be reduced at the discretion of the Project Paleontologist in consultation with the BLM. Paleontological monitoring will not be conducted for excavations impacting very low paleontological potential (PFYC 1) (see Tables 2 and 3; see Appendix C).

Prior to earthmoving activities, a paleontological resource awareness training shall be conducted to inform construction personnel of the possibility for fossil discoveries. In such a case, all activity



within a 50-foot radius of the discovery site will cease until a qualified paleontologist has examined and evaluated the find. If the discovery is determined to be significant, the BLM Colorado River District Office and the appropriate BLM field office shall be consulted, and the discovery will be salvaged and prepared to the point of curation and permanent preservation. All significant paleontological resources will be curated at the Natural History Museum of Los Angeles County (NHMLA), which is the approved repository on Paleo Solutions' BLM paleontological use permits for California and Arizona (Appendix D), or another BLM-approved fossil repository, along with their associated field data. Upon conclusion of ground disturbance, a confidential paleontological monitoring report, including detailed locality data, shall be prepared according to BLM specifications. A non-confidential report shall be submitted to DCRT.



2.0 INTRODUCTION

This PRIMMP was prepared by Paleo Solutions in support of the Ten West Link Transmission Line Project. The PRIMMP is designed to mitigate effects to paleontological resources, through implementation of monitoring and a plan for discoveries, in accordance with NEPA, and to reduce impacts on paleontological resources to below the level of significance pursuant to CEQA. This PRIMMP serves as the Paleontological Resource Treatment Plan, Paleontological Monitoring and Discovery Plan, and the Paleontological Resources Monitoring and Mitigation Plan required for this Project, as directed by MM CUL-CEQA-3. This work was required by the BLM Colorado River District Office in order to fulfill their responsibilities as the lead agency under NEPA, as well as the CPUC as the lead agency under CEQA. This report was prepared in accordance with BLM procedures (BLM IM 2016-124 [2016] and BLM Manual and Handbook H-8270-1 [1998]), and the requirements of APM PALEO-01, BMP-PALEO-02, and MM-CUL-CEQA-3 (see Appendix E).

This PRIMMP was prepared by Paleo Solutions' Qualified Paleontologist Geraldine Aron, M.S., Principal Investigator Courtney Richards, M.S., and Senior Paleontologist Mathew Carson, M.S. GIS mapping was provided by GIS Analyst Barbara Webster, M.S., and Senior Paleontologist Mathew Carson, M.S.

2.1 PROJECT DESCRIPTION AND LOCATION

2.1.1 Project Description

DCRT proposes to construct, operate, maintain, and decommission a series-compensated, 500 kV AC overhead transmission line within a 200-foot ROW, which spans approximately 114 miles from the APS Delaney Substation near the community of Tonopah, Maricopa County, Arizona to the SCE Colorado River Substation near the City of Blythe, Riverside County, California (Figure 1). The purpose of the Project is to transmit 3,200 MW between the two substations and to provide connection capability for new energy projects in the region. The 114-mile route proposed by DCRT (i.e., the Proposed Action of the Draft EIS) would parallel an existing transmission line and other linear facilities, such as the Devers to Palo Verde Number 1 Transmission Line, with 97 miles in Arizona and 17 miles in California. The Proposed Action would cross federal lands administered by the BLM, the BOR, the USFWS (Kofa National Wildlife Refuge), the DOD (Yuma Proving Ground), and the BIA (Colorado River Reservation) (Figure 1). In addition to the 114-mile route, a transmission line series compensation station, which includes a 12 kV electric distribution line, would be situated along the middle of the route and would be constructed parallel to the Devers to Palo Verde Number Transmission Line, south of Vicksburg, Arizona (Figure 1).

Due to the scope of the Project and its intersections with federal lands, the BLM required an EIS to study impacts of the Project and to assess Project alternatives. In addition to the Proposed Action described above, the Draft EIS identified Four Action Alternatives and associated subalternatives, which are composed of individual segments that can be interchanged among the different alternatives. The four alternatives include Alternative 1: Interstate 10 Route, Alternative 2: BLM Utility Corridor, Alternative 3: Avoidance Route, and Alternative 4: Public Lands Emphasis Route; the Draft EIS contains a detailed description and assessment of the Four Action Alternatives, so they will not be discussed in detail here. For the purposes of this PRIMMP, the BLM preferred route(s), composed of various individual segments and alternative segments extracted from portions of the Proposed Action and all Four Action Alternatives and associated subalternatives, is discussed herein and referred to as "the Project" (Figure 1; Appendix B); however, note that the Project alignment has not been finalized at the time of drafting this PRIMMP and may change after approval of the Final EIS in 2019. The BLM preferred route (i.e., the Project area) intersects land administered by the State of Arizona, BLM, BOR, and DOD (Yuma Proving Ground), as well as private/undetermined land



(Table 1). The subalternative route CB-03, which is not part of the BLM's preferred route, also intersects land administered by the BIA (Colorado River Reservation) and is included in this report (Table 1; Appendices B and F).

2.1.2 Project Location

The Project spans from the APS Delaney Substation near the community of Tonopah, Maricopa County, Arizona to the SCE Colorado River Substation near the City of Blythe, Riverside County, California (Figure 1; Appendix B). The Project area and additional subalternatives described in this PRIMMP encompass approximately 4,457 acres and are mapped on the USGS Saddle Mountain (AZ), Burnt Mountain (AZ), Big Horn Peak (AZ), Courthouse Well (AZ), Lone Mountain (AZ), Hope SE (AZ), Hope SW (AZ), New Water Well (AZ), Vicksburg (AZ), Bear Hills (AZ), Plomosa Pass (AZ), Quartzsite (AZ), South of Quartzsite (AZ), Cunningham Mountain (AZ), Dome Rock Mountains SW (AZ), Blythe (AZ and CA), Ripley (CA), and Roosevelt Mine (CA) 7.5-minute topographic quadrangles. The Project area intersects land administered by the State of Arizona, BLM, BOR, and DOD (Yuma Proving Ground), as well as private/undetermined land. Public Land Survey System (PLSS) and land surface management/ownership are provided in Appendix F.

2.2 POTENTIAL FOSSIL YIELD CLASSIFICATION SYSTEM

The PFYC system was developed by the BLM (BLM, 2016). Because of its demonstrated usefulness as a resource management tool, the PFYC system has been utilized for many years for projects across the country, regardless of land ownership. It is a predictive resource management tool that classifies geologic units on their likelihood to contain paleontological resources on a scale of 1 (very low potential) to 5 (very high potential) and U (unknown potential). This system is intended to aid in predicting, assessing, and mitigating paleontological resources. The PFYC ranking system is summarized in Table 2.

In the baseline technical study of the proposed route (i.e., the Proposed Action) and the alternative segments in support of the Draft EIS, the BLM's PFYC system was used to classify mapped geologic units based on the relative abundance of vertebrate fossils or scientifically significant invertebrate or plant fossils and their sensitivity to adverse impacts. The baseline technical study used existing PFYC maps and geologic unit tables published by the BLM, including the BLM's Desert Renewable Energy Conservation Plan EIS and its supporting paleontological resource appendix (BLM, 2014), and the U.S. Department of Energy and BLM Programmatic EIS, Designation of Energy Corridors on Federal land in 11 Western States and its supporting PFYC appendix (U.S. Department of Energy and BLM, 2007) to classify geologic units within the Ten West Link Transmission Line corridor(s) within California and Arizona, respectively. Geologic mapping data was based on digital geologic maps of California and Arizona from the U.S. Geological Survey (2014); however, these geologic maps are at low geographic resolutions, such as 1:750,000 scale for California and 1:1,000,000 scale for Arizona, which do not comply with MM CUL-CEQA-3, which requires all geologic and paleontological potential (PFYC) maps to be assessed at a scale resolution of 1:100,000 or higher. Moreover, the low resolution of geologic mapping used in the baseline study resulted in a broad range of PFYC assignments (PFYC 2/3/U) for one mapped geologic unit, which is unsuitable for defining paleontological mitigation and/or monitoring requirements. Additionally, some of the geologic units were given PFYC assignments based on previous versions of the BLM PFYC system classes and not on the most recent BLM (2016) description of the PFYC system (Table 2). For example, some Holocene-age sedimentary geologic units were assigned Very Low (PFYC 1) paleontological potential; however, these units should be Low (PFYC 2) paleontological potential based on the most recent version of the BLM's PFYC system (BLM, 2016) (Table 2).

For this PRIMMP, Paleo Solutions has refined the geologic mapping of the Project area to use the highest resolution geologic maps available and published by Miller (1970), Ort and Skotnicki (1993),



Richard et al. (1994), Sherrod et al. (1990), and Stone (1988-1990, and 2006), ranging in scale from 1:24,000 and 1:100,000, pursuant to MM CUL-CEQA-3 and following best practices in mitigation paleontology (Murphey et al., 2014). Additionally, the paleontological potential of the Project area was re-assessed based on the refined geologic mapping and fossil occurrence data.

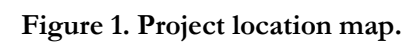




Table 1. Surface Management of the BLM Preferred Route(s) and Subalternatives

Segment	State	Surface Management
CA-06	CA	BLM
CA-07	CA	BLM
CA-09	CA	BLM
CB-01	AZ	BLM
CB-02	AZ	BLM
CB-03	AZ	BLM; BIA Colorado River Reservation
CB-04	AZ	BLM; BOR
CB-05	AZ	BLM; BOR
CB-06	AZ	BLM; BOR
I-01	AZ	BLM; BOR; PVT; ST
I-02	AZ	BLM
I-03	AZ	BLM; PVT; ST
I-04	AZ	BLM
I-05	AZ	BLM
Line Measure	CA	BLM
Proposed P-01	AZ	BLM; PVT; ST
P-07	AZ	BLM
P-08	AZ	BLM
P-08/09 North Alternative	AZ	BLM
P-09	AZ	BLM; DOD Yuma Proving Ground
P-10	AZ	BLM
P-11 Alternative	AZ	BLM; BOR
P-12	AZ	BLM; BOR
P-13	AZ	BLM
P-14	AZ	BLM
P-15E	AZ	BLM; ST
P-15W	AZ; CA	ST
P-16	CA	BLM
P-16S	AZ; CA	BLM; ST
P-17	CA	BLM
P-18	CA	BLM
X-05	AZ	BLM
X-06	AZ	BLM
X-15	CA	BLM
X-16	CA	BLM
X-19	CA	BLM



Table 2. Potential Fossil Yield Classification (BLM, 2016)

BLM PFYC Designation	Assignment Criteria Guidelines and Management Summary (PFYC System)
1 = Very Low Potential	Geologic units are not likely to contain recognizable paleontological resources.
	Units are igneous or metamorphic, excluding air-fall and reworked volcanic ash units.
	Units are Precambrian in age.
	Management concern is usually negligible, and impact mitigation is unnecessary except in rare or isolated circumstances.
2 = Low	Geologic units are not likely to contain paleontological resources.
	Field surveys have verified that significant paleontological resources are not present or are very rare.
	Units are generally younger than 10,000 years before present.
	Recent eolian deposits
	Sediments exhibit significant physical and chemical changes (i.e., diagenetic alteration) that make fossil preservation unlikely
	Management concern is generally low, and impact mitigation is usually unnecessary except in occasional or isolated circumstances.
3 = Moderate Potential	Sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence.
	Marine in origin with sporadic known occurrences of paleontological resources.
	Paleontological resources may occur intermittently, but these occurrences are widely scattered
	The potential for authorized land use to impact a significant paleontological resource is known to be low-to-moderate.
	Management concerns are moderate. Management options could include record searches, pre-disturbance surveys, monitoring, mitigation, or avoidance. Opportunities may exist for hobby collecting. Surface-disturbing activities may require sufficient assessment to determine whether significant paleontological resources occur in the area of a proposed action and whether the action could affect the paleontological resources.
4 = High Potential	Geologic units that are known to contain a high occurrence of paleontological resources.
	Significant paleontological resources have been documented but may vary in occurrence and predictability.
	Surface-disturbing activities may adversely affect paleontological resources.
	Rare or uncommon fossils, including nonvertebrate (such as soft body preservation) or unusual plant fossils, may be present.
	Illegal collecting activities may impact some areas.
	Management concern is moderate to high depending on the proposed action. A field survey by a qualified paleontologist is often needed to assess local conditions. On-site monitoring or spot-checking may be necessary during land disturbing activities. Avoidance of known paleontological resources may be necessary.
5 = Very High Potential	Highly fossiliferous geologic units that consistently and predictably produce significant paleontological resources.
	Significant paleontological resources have been documented and occur consistently
	Paleontological resources are highly susceptible to adverse impacts from surface disturbing activities.
	Unit is frequently the focus of illegal collecting activities.
	Management concern is high to very high. A field survey by a qualified paleontologist is almost always needed and on-site monitoring may be necessary during land use activities. Avoidance or resource preservation through controlled access, designation of areas of avoidance, or special management designations should be considered.



BLM PFYC Designation	Assignment Criteria Guidelines and Management Summary (PFYC System)
U = Unknown	Geologic units that cannot receive an informed PFYC assignment
	Geological units may exhibit features or preservational conditions that suggest significant paleontological resources could be present, but little information about the actual paleontological resources of the unit or area is unknown.
	Geologic units represented on a map are based on lithologic character or basis of origin, but have not been studied in detail.
	Scientific literature does not exist or does not reveal the nature of paleontological resources.
	Reports of paleontological resources are anecdotal or have not been verified.
	Area or geologic unit is poorly or under-studied.
	BLM staff has not yet been able to assess the nature of the geologic unit.
	Until a provisional assignment is made, geologic units with unknown potential have medium to high management concerns. Field surveys are normally necessary, especially prior to authorizing a ground-disturbing activity.



3.0 DEFINITION AND SIGNIFICANCE OF PALEONTOLOGICAL RESOURCES

As defined by Murphy and Daitch (2007): “Paleontology is a multidisciplinary science that combines elements of geology, biology, chemistry, and physics in an effort to understand the history of life on earth. Paleontological resources, or fossils, are the remains, imprints, or traces of once-living organisms preserved in rocks and sediments. These include mineralized, partially mineralized, or unmineralized bones and teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains. Paleontological resources include not only fossils themselves, but also the associated rocks or organic matter and the physical characteristics of the fossils’ associated sedimentary matrix.

The fossil record is the only evidence that life on earth has existed for more than 3.6 billion years. Fossils are considered non-renewable resources because the organisms they represent no longer exist. Thus, once destroyed, a fossil can never be replaced. Fossils are important scientific and educational resources because they are used to:

- Study the phylogenetic relationships amongst extinct organisms, as well as their relationships to modern groups;
- Elucidate the taphonomic, behavioral, temporal, and diagenetic pathways responsible for fossil preservation, including the biases inherent in the fossil record;
- Reconstruct ancient environments, climate change, and paleoecological relationships;
- Provide a measure of relative geologic dating that forms the basis for biochronology and biostratigraphy, and which is an independent and corroborating line of evidence for isotopic dating;
- Study the geographic distribution of organisms and tectonic movements of land masses and ocean basins through time;
- Study patterns and processes of evolution, extinction, and speciation; and
- Identify past and potential future human-caused effects to global environments and climates.”

Fossil resources vary widely in their relative abundance and distribution and not all are regarded as significant. According to the BLM IM 2009-011, a “Significant Paleontological Resource” is defined as:

“Any paleontological resource that is considered to be of scientific interest, including most vertebrate fossil remains and traces, and certain rare or unusual invertebrate and plant fossils. A significant paleontological resource is considered to be of scientific interest if it is a rare or previously unknown species, it is of high quality and well-preserved, it preserves a previously unknown anatomical or other characteristic, provides new information about the history of life on earth, or has an identified educational or recreational value. Paleontological resources that may be considered not to have scientific significance include those that lack provenience or context, lack physical integrity due to decay or natural erosion, or that are overly redundant or are otherwise not useful for research. Vertebrate fossil remains and traces include bone, scales, scutes, skin impressions, burrows, tracks, tail drag marks, vertebrate coprolites (feces), gastroliths (stomach stones), or other physical evidence of past vertebrate life or activities” (BLM, 2008).

Vertebrate fossils, whether preserved remains or track ways, are classified as significant by most state and federal agencies and professional groups (and are specifically protected under the California Public Resources Code). In some cases, fossils of plants or invertebrate animals are also considered significant and can provide important information about ancient local environments.



The full significance of fossil specimens or fossil assemblages cannot be accurately predicted before they are collected, and in many cases, before they are prepared in the laboratory and compared with previously collected fossils. Pre-construction assessment of significance associated with an area or formation must be made based on previous finds, characteristics of the sediments, and other methods that can be used to determine paleoenvironmental and taphonomic conditions.

4.0 LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

This section of the report presents the federal, state, and local regulatory requirements pertaining to paleontological resources that will apply to this project.

4.1 FEDERAL REGULATORY SETTING

If any federal funding is used to wholly or partially finance a project, it is sited on federal lands, involves a federal permit, and/or includes a perceived federal impact, federal laws and standards apply, and an evaluation of potential impacts on paleontological resources may be required. The management and preservation of paleontological resources may be required. The management and preservation of paleontological resources on public and federal lands are prescribed under various laws, regulations, and guidelines.

4.1.1 National Environmental Policy Act (16 USC Section 431 et seq.)

The National Environmental Policy Act of 1969, [NEPA] as amended (Pub. L. 91-190, 42 U.S.C. 4321-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, and Pub. L. 97-258 § 4(b), Sept. 13, 1982) recognizes the continuing responsibility of the Federal Government to "preserve important historic, cultural, and natural aspects of our national heritage . . ." (Sec. 101 [42 USC § 4321]) (#382). With the passage of the Paleontological Resources Preservation Act (PRPA) (2009), paleontological resources are considered to be a significant resource and it is therefore now standard practice to include paleontological resources in NEPA studies in all instances where there is a possible impact.

4.1.2 Antiquities Act of 1906 (16 USC 431-433)

The Antiquities Act of 1906 states, in part:

That any person who shall appropriate, excavate, injure or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States, without the permission of the Secretary of the Department of the Government having jurisdiction over the lands on which said antiquities are situated, shall upon conviction, be fined in a sum of not more than five hundred dollars or be imprisoned for a period of not more than ninety days, or shall suffer both fine and imprisonment, in the discretion of the court.

Although there is no specific mention of natural or paleontological resources in the act itself, or in the act's uniform rules and regulations (43 CFR 3), "objects of antiquity" has been interpreted to include fossils by the National Park Service, the BLM, the US Forest Service, and other federal agencies. Permits to collect fossils on lands administered by federal agencies are authorized under this act. However, due to the large gray areas left open to interpretation due to the imprecision of the wording, agencies are hesitant to interpret this act as governing paleontological resources.



4.1.3 Paleontological Resources Preservation, Omnibus Public Lands Act, Public Law 111-011, Title VI, Subtitle D (PRPA, 2009)

This legislation directs the Secretaries (Interior and Agriculture) to manage and protect paleontological resources on federal land using “scientific principles and expertise.” PRPA incorporates most of the recommendations of the report of the Secretary of the Interior entitled Assessment of Fossil Management on Federal and Indian Lands (2000) in order to formulate a consistent paleontological resources management framework. In passing the PRPA, Congress officially recognized the scientific importance of paleontological resources on some federal lands by declaring that fossils from these lands are federal property that must be preserved and protected. The PRPA codifies existing policies of the BLM, National Park Service, U.S. Forest Service, Bureau of Reclamation, and U.S. Fish and Wildlife Service, and provides the following:

- Uniform criminal and civil penalties for illegal sale and transport, and theft and vandalism of fossils from federal lands;
- Uniform minimum requirements for paleontological resource-use permit issuance (terms, conditions, and qualifications of applicants);
- Uniform definitions for “paleontological resources” and “casual collecting”; and
- Uniform requirements for curation of federal fossils in approved repositories.

This document does not specifically trigger any paleontological requirements, other than those under NEPA for project impact evaluations if there is a federal nexus.

4.1.4 Federal Land Policy and Management Act (FLPMA) of 1976

The Federal Land Policy and Management Act (FLPMA) of 1976 (43 U.S.C. 1712[c], 1732[b]); sec. 2, Federal Land Management and Policy Act of 1962 [30 U.S.C. 611]; Subpart 3631.0 et seq.), Federal Register Vol. 47, No. 159, 1982 does not refer specifically to fossils. However, “significant fossils” are understood and recognized in policy as scientific resources. Permits, which authorize the collection of significant fossils for scientific purposes, are issued under the authority of FLPMA. Under FLPMA, federal agencies are charged to:

Manage public lands in a manner that protects the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, archaeological, and water resources, and, where appropriate, preserve and protect certain public lands in their natural condition (Section 102 (a)(8) (11));

Periodically inventory public lands so that the data can be used to make informed land-use decisions (Section 102(a)(2)); and

Regulate the use and development of public lands and resources through easements, licenses, and permits (Section 302(b)).

4.1.5 BLM Procedures and Policies for Managing Paleontological Resources

The PFYC system was developed by the BLM (2016) and provides an estimate of the potential that significant paleontological resources will be discovered within a particular mapped geological unit. The system is used to determine potential impacts to paleontological resources for federal actions involving surface disturbance, land use planning, or land tenure adjustment. Implementation of the PFYC system does not require changes to existing land use plans, project plans, or other completed efforts. However, integration into plans presently being developed is recommended. The IM 2016-124 revision is an update to the guidance that was introduced in IM 2008-009 (2007).



The BLM Manual and Handbook H-8270-1 [1998] provides policies and direction for the BLM's Paleontological Resource Management Program as well as detailed procedures and standards for implementing policies. According to Section 6 of the BLM Manual and Handbook H-8270-1 [1998], it shall be BLM's policy to:

- 1) Actively work with other Federal, State, and Local Government Agencies, professional organizations, private land owners, educational institutions, and other interested parties to enhance and further the BLM's and the public's needs and objectives for paleontological resources.
- 2) Consider paleontological resource management a distinct BLM program, to be given full and equal consideration in all its land use planning and decision making actions.
- 3) Maintain a staff of professional paleontologists to provide BLM decision makers with the most current and scientifically sound paleontological resource data and advice.
- 4) Mitigate adverse impacts to paleontological resources as necessary.
- 5) Facilitate appropriate public and scientific use of and interest in paleontological resources.
- 6) Utilize the additional skills and resources of the Bureau's recreation and minerals programs to develop and implement interpretation strategies and products to enhance public understanding, appreciation, and enjoyment of paleontological resources.
- 7) Vigorously pursue the protection of paleontological resources from theft, destruction, and other illegal or unauthorized uses.
- 8) Authorize land tenure adjustments, when appropriate, as means to protect paleontological localities.

4.2 STATE REGULATORY SETTING

4.2.1 State of California

California Environmental Quality Act (CEQA)

The procedures, types of activities, persons, and public agencies required to comply with CEQA are defined in the Guidelines for Implementation of CEQA (State CEQA Guidelines), as amended on March 18, 2010 (Title 14, Section 15000 et seq. of the California Code of Regulations) and further amended January 4th, 2013. One of the questions listed in the CEQA Environmental Checklist is: "Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?" (State CEQA Guidelines Section 15064.5 and Appendix G, Section V, Part C).

State of California Public Resources Code

The State of California Public Resources Code (Chapter 1.7), Sections 5097 and 30244, includes additional state level requirements for the assessment and management of paleontological resources. These statutes require reasonable mitigation of adverse impacts to paleontological resources resulting from development on state lands, and define the excavation, destruction, or removal of paleontological "sites" or "features" from public lands without the express permission of the jurisdictional agency as a misdemeanor. As used in Section 5097, "state lands" refers to lands owned by, or under the jurisdiction of, the state or any state agency. "Public lands" is defined as lands



owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.

4.3 LOCAL REGULATORY SETTING

Maricopa County and La Paz County do not contain goals or policies pertaining to paleontological resources within their respective county Comprehensive Plans (County of Maricopa, 2016; County of La Paz, 2005). Additionally, the Tonopah/Arlington Area Plan (County of Maricopa, 2000) and the Town of Quartzsite, Arizona General Plan (2014) do not contain goals or policies pertaining to paleontological resources. Therefore, these jurisdictions are omitted from this report.

4.3.1 Riverside County

The Riverside County General Plan requires consideration of paleontological resources under the Multipurpose Open Space Element of the general plan (County of Riverside, 2015). The Riverside County General Plan recommendations are based on the Society of Vertebrate Paleontology (SVP) Guidelines (SVP, 2010) for the mitigation of paleontological resources. The Multipurpose Open Space Element of the general plan (County of Riverside, 2015) provides the following requirements for paleontological sensitive areas within the county:

- OS 19.6 Whenever existing information indicates that a site proposed for development has high paleontological sensitivity as shown on Figure OS-8, a paleontological resource impact mitigation program (PRIMP) shall be filed with the County Geologist prior to site grading. The PRIMP shall specify the steps to be taken to mitigate impacts to paleontological resources.
- OS 19.7 Whenever existing information indicates that a site proposed for development has low paleontological sensitivity as shown on Figure OS-8, no direct mitigation is required unless a fossil is encountered during site development. Should a fossil be encountered, the County Geologist shall be notified and a paleontologist shall be retained by the project proponent. The paleontologist shall document the extent and potential significance of the paleontological resources on the site and establish appropriate mitigation measures for further site development.
- OS 19.8 Whenever existing information indicates that a site proposed for development has undetermined paleontological sensitivity as shown on Figure OS-8, a report shall be filed with the County Geologist documenting the extent and potential significance of the paleontological resources on site and identifying mitigation measures for the fossil and for impacts to significant paleontological resources prior to approval of that department.
- OS 19.9 Whenever paleontological resources are found, the County Geologist shall direct them to a facility within Riverside County for their curation, including the Western Science Center in the City of Hemet.

4.3.2 City of Blythe

The City of Blythe General Plan 2025 requires consideration of paleontological resources under the Open Space and Conservation Elements section of the general plan (City of Blythe, 2007). The general plan requires that a site-specific analysis is conducted for future development projects within the planning area (City of Blythe, 2007). The City of Blythe General Plan 2025 contains one guiding policy, *Policy 25: Protect archaeological, historic, and paleontologic resources for their aesthetic, scientific, educational, and cultural value* (City of Blythe, 2007). Furthermore, the Open Space and Conservation Elements section contains two implementation policies, which require institutional records searches for areas of high sensitivity, retention of a consulting archaeologist (or paleontologist) to conduct field



reconnaissance surveys, and/or preparation of a mitigation plan outlining mitigation measures that are consistent with state law.

5.0 GEOLOGY AND PALEONTOLOGY

The Project area is located within the Basin and Range Geomorphic Province in Arizona, as well as the eastern portion of the Colorado Desert Geomorphic Province in California. The Basin and Range includes most of the western United States and portions of northwestern Mexico that formed as a result of tectonic compression and subsequent extension approximately 20 to 17 million years ago during the Miocene. The Basin and Range is characterized by northwest-southeast-trending mountain ranges of igneous-metamorphic formations, separated by broad, nearly flat depositional basins filled with relatively younger alluvial or volcanic deposits (Norris and Webb, 1990). The Colorado Desert lies mostly below sea level and is located on the land extension of the Gulf of California. The province is bounded in the north by the southern edge of the Transverse Ranges, in the east by the Colorado River, in the west by the Peninsular Ranges, and in the south by Mexico (Norris and Webb, 1990) and represents a depression block formed as a result of tectonic rifting along the Gulf of California.

Geologic history of the overall region spans the Proterozoic to the present. Within the Basin and Range, the oldest rocks are early to middle Proterozoic granitic basement rocks formed deep below the earth's surface and early to middle Proterozoic high- to low-grade metamorphic rocks, such as gneiss, schist, and phyllite. Portions of the Project area situated north-northwest of the Delaney Substation are near the southern edge of the Big Horn Mountains, which consist of Proterozoic metamorphic rocks with Mesozoic igneous intrusions, which were subsequently overlain by Miocene basalt-rhyolite volcanic rocks and sedimentary rocks. West of Delaney Substation and south of the Project alignment, the northwest- to southeast-trending Eagletail Mountains consist of eroded basaltic cliffs and peaks of Tertiary- to Quaternary-age. The Plomosa and Dome Rock mountain ranges, located adjacent to Quartzsite, Arizona and Blythe, California, consist of sedimentary geologic units formed during the Paleozoic, as well as volcanic and sedimentary rocks of Mesozoic-age. Within the Colorado Desert of California, the Project area transverse the Palo Verde Valley, which consists of Pliocene- through Holocene-age alluvial deposits underlain by Miocene- and Pliocene-age sedimentary deposits and Miocene-age conglomerate deposits. Situated northwest of the Palo Verde Valley, the McCoy Mountains consist of sandstone, mudstone, and conglomerate of the McCoy Mountains Formation, with extensive igneous rocks, composed of andesite, rhyolite, granite, and basalt rocks, with flows, dikes, and pyroclastic deposits (Norris and Webb, 1990).

Geologic units underlying the Project area and within a quarter-mile buffer were mapped by Miller (1970), Ort and Skotnicki (1993), Richard et al. (1994), Sherrod et al. (1990), and Stone (1988-1990 and 2006) (Appendix B). In total, 42 geologic units were assessed within a quarter-mile buffer of the Project area, including Proterozoic slaty metavolcanics rocks (Xm); middle Proterozoic granitoid (Yg); Precambrian quartz monzonite (pCqm); Precambrian or Mesozoic metavolcanics rocks (pCv); Paleozoic(?) rocks and Precambrian and Mesozoic rocks, undifferentiated (pCu); Paleozoic(?) quartz-albite-muscovite-chlorite schist with meta-tuffaceous rock, Unit 3 (pC3); Paleozoic(?) vitreous quartzite, medium to massively bedded, Unit 4 (pC4); Paleozoic(?) dolomite, tan, chert, massively bedded, Unit 5 (pC5); Jurassic volcanic rocks (Jv); Jurassic volcanic rocks of Dome Rock sequence (Jv); Jurassic volcanic rocks of Dome Rock sequence, upper bedded unit (Jvbu); Cretaceous or Jurassic McCoy Mountains Formation, lower part, undivided (KJmlu); Miocene and Oligocene(?) volcanic rocks of Bear Hills (Tbh); Miocene and Oligocene(?) conglomerate, sedimentary breccia, and slide blocks (Tf); Miocene or Oligocene andesite (Ta); Miocene or Oligocene lower basaltic volcanic rocks (Tbl); Miocene middle basalt unit (Tbm); Miocene felsic volcanic rocks (Tf); Miocene basalt of New Water Mountains (Tnw); Miocene conglomerate (Tf); Tertiary(?) tufa (Tbt); Tertiary older hornblende-biotite andesite (Ta); Quaternary and Tertiary(?) alluvial fan and fluvial deposits (QTa);



Quaternary or Tertiary hornblende-biotite andesite (QTa); Quaternary or Tertiary basalt of Black Mesa (QTbu); Quaternary or Tertiary dissected fan deposits (QTdf); Quaternary or Tertiary older alluvium (QToa); Pleistocene and/or Pliocene alluvial deposits of the Ehrenberg area (QTe); Pleistocene or Pliocene alluvial deposits of Mule Mountains (QTmm); Quaternary alluvium and talus (Qat); Quaternary alluvium of modern washes (Qw); Quaternary surficial deposits (Qs); late to early Pleistocene alluvium (Qm/Qo); Pleistocene alluvial deposits of Palo Verde Mesa (Qpv); Holocene and late Pleistocene talus (Qt); Holocene and late Pleistocene alluvium/eolian deposits (Qyc/Qye/Qy); Holocene and Pleistocene alluvium (Qa); Holocene and Pleistocene alluvial-fan and alluvial-valley deposits, Unit 3 (Qa3); Holocene alluvial-fan and alluvial-valley deposits (Qa6); Holocene alluvium of modern Colorado River flood plain (Qr); Holocene eolian sand (Qs); and Holocene alluvium of modern washes (Qw). Note that geologic ages tagged with a "(?)" are estimates and represent poorly constrained geologic ages. These geologic units are described below, and their paleontological potential classifications as interpreted by Paleo Solutions are summarized in Table 3 (maps are presented in Appendix B).

5.1 PROTEROZOIC TO QUATERNARY INTRUSIVE AND EXTRUSIVE IGNEOUS ROCKS

The Project area is underlain by two Proterozoic intrusive igneous rocks and 14 Proterozoic to Quaternary extrusive igneous rocks, all of which have a very low (PFYC 1) potential to produce scientifically important paleontological resources (Appendix B; Table 3).

Igneous rocks are crystalline or non-crystalline rocks that form through the cooling and subsequent solidification of lava or magma. Intrusive (plutonic) igneous rocks form below the earth's surface, and extrusive (volcanic) rocks form on the earth's surface. Lava and magma are formed by the melting of pre-existing plutonic rocks in the earth's crust or mantle due to increases in temperature, changes in pressure, or changes in geochemical composition. Extreme temperatures in the environments in which intrusive igneous rocks form prevent the preservation of fossils. The formation of extrusive igneous rocks as a result of volcanic processes is associated with extremely high temperatures that also generally prevents the preservation of fossils.

The following Proterozoic to Quaternary intrusive and extrusive igneous rocks are present within the Project area or its quarter-mile buffer (Miller, 1970; Ort and Skotnicki, 1993; Richard et al., 1994; Sherrod et al., 1990; and Stone, 1988-1990; 2006):

- Granitoid (Yg), Middle Proterozoic: Undivided granitoid unit ranging from porphyritic biotite monzogranite to granodiorite; lacks pre-Mesozoic tectonic fabric (Richard et al., 1994).
- Slaty metavolcanics rocks (Xm), Proterozoic: Green-colored, fine-grained metavolcanics rocks; slaty fabric, likely originating from andesite; unit contains lenses of banded iron formation and quartz veins (Orts and Skotnicki, 1991).
- Quartz monzonite (pCqm), Precambrian: An intrusive igneous rock composed of even-grained biotite quartz monzonite, spanning an area of approximately four square miles (Miller, 1970).
- Metavolcanic rocks (pCv), Precambrian or Mesozoic: Partially metamorphosed rhyolitic to dacitic intrusive, flow, and tuffaceous rocks derived from volcanic activity; dark green to light gray in color; sheared from tectonic activity in some areas and locally schistose (Miller, 1970).



- Volcanic rocks (Jv), Jurassic: Mainly light gray to light greenish-gray, rhyodacitic volcanic and metavolcanics rocks composed of microcrystalline, felsic groundmass and phenocrysts of felsic minerals; generally unbedded, but commonly foliated and metamorphosed; deposited in an ash-flow tuff, flows, and hypabyssal porphyry (Richard et al., 1994; Stone, 2006).
- Volcanic rocks of Dome Rock sequence (Jv), Jurassic: Rhyolitic to dacitic, massive volcanic quartz porphyry, composed of microcrystalline, felsic groundmass and phenocrysts of quartz, feldspar, and biotite; foliated and metamorphosed, with local sandstone and conglomerate of reworked volcanics (Stone, 1988-1990).
- Volcanic rocks of Dome Rock sequence, upper bedded unit (Jvbu), Jurassic: Felsic tuff and tuffaceous sedimentary rock, thinly to thickly bedded; overlain by the McCoy Mountains Formation (Stone, 1988-1990).
- Volcanic rocks of Bear Hills (Tbh), Miocene and Oligocene?: Primarily basalt lava flows, with breccia, scoria, felsic tuff, andesite and rhyolite lava flows, and rhyolite plugs; includes minor sandstone, siltstone, and evaporite deposits; overlain by the New Water Mountains (Tnw) basalt (Sherrod et al., 1990).
- Andesite (Ta), Miocene or Oligocene: Andesitic lavas and hypabyssal intrusive rocks, with associated breccia and tuff; dark reddish-brown to gray; large flow deposits in which bedding and/or flow foliation is highly variable; present within the southern Little Harquahala Mountains, northwestern Eagletail Mountains, northwestern Bear Hills, and within the Bouse Hills (Richard et al., 1994).
- Lower basaltic volcanic rocks (Tbl), Miocene or Oligocene: Mafic volcanic rocks located throughout the Bouse Hills, Big Horn Mountains, Eagletail Mountains, and the Harquahala Mountains; ranges in lithology from vascular to amygdaloidal andesitic to basaltic lava flows; widely altered, including local replacement by brown to tan calcite; contains interbedded units of brown to reddish-brown sandstone, felsic tuff, conglomerate, monolithologic breccia, gray limestone, and orange iron-stained siliceous rock beds (Richard et al., 1994).
- Middle basalt unit (Tbm), Miocene: Includes Burnt Mountain volcanic rocks in Big Horn Mountains; rock types include aphyric to crystal-poor, slightly vesicular basalt lava, gray and brown variably porphyritic and vesicular andesite lava flows, and associated tuffs, lahars, and breccias (Richard et al., 1994).
- Felsic volcanic rocks (Tf), Miocene: Dacitic to rhyolitic lavas and pyroclastic rocks, forming dome complexes with associated breccia rinds and block and ash deposits; light colored with distal portions grading into light gray to white, massive to flow-banded felsic minerals, laterally grading into breccia and tuff (Richard et al., 1994).
- Basalt of New Water Mountains (Tnw), Miocene: Porphyritic to aphyric olivine basalt lava flows, with vesicles filled with calcite and silica, and interbedded with silicic volcanic rocks, including invasive and subjacent tuff and tuffaceous sandstone; overlain by fanglomerate deposits (Sherrod et al., 1990).
- Older hornblende-biotite andesite (Ta), Tertiary: Andesite breccia deposit, possibly several thousand feet thick, and composed of pink, gray, and reddish-brown hornblende-biotite andesite flow deposits, interbedded locally with tuffaceous sediments (Miller, 1970).
- Hornblende-biotite andesite (QTa), Quaternary and Tertiary: Dark gray to black; 200 to 400 feet thick, with individual flow approximately 50 feet thick; uncomfortably overlies andesite



- breccia and older hornblende andesite (Ta); composed of small phenocrysts of hornblende, biotite, and plagioclase, with groundmass of plagioclase, glass, and opaque minerals; formed as lava flows, which abut against older volcanic rocks (Miller, 1970).
- Basalt of Black Mesa (QTbu), Quaternary and Tertiary: Volcanic deposits containing mineral olivine; subdivided into two parts: lower interbedded tuffaceous rocks, approximately 400 to 500 feet thick, with beds 10 to 50 feet thick; and upper basalt flows, approximately 700 feet thick, with individual flows 20 to 50 feet thick (Miller, 1970).

5.2 PALEOZOIC(?) METAMORPHIC ROCKS

The Project area is underlain by two Paleozoic(?) metamorphic rock units, both of which have a very low (PFYC 1) potential to produce scientifically important paleontological resources (Appendix B; Table 3).

Metamorphic rocks result from the transformation of other rocks due to high temperature and high pressure. The parent rock can be igneous, sedimentary, or a pre-existing metamorphic rock. Metamorphic rocks comprise a large portion of the earth's crust and are classified on the basis of their chemistry and mineralogy. Most do not preserve fossils due to the conditions under which they were formed. However, metasedimentary rocks are formed from common sedimentary rock types such as limestone, shale, mudstone, siltstone, sandstone, and conglomerate. These types of metamorphic rocks do sometimes preserve fossils, but rarely fossils of scientific importance. Examples of fossils in metasedimentary rock include mollusks preserved in marble and echinoderms and graptolites preserved in slate.

The following Paleozoic metamorphic rocks are present within the Project area or its quarter-mile buffer (Miller, 1970):

- Quartz-albite-muscovite-chlorite schist, metatuffaceous rock, Unit 3 (pC3), Paleozoic(?): Approximately 450 feet thick, predominately quartz-albite-muscovite-chlorite schist, interbeds composed of buff- to pink-colored, carbonate, calcareous quartzite and approximately 10 feet thick; likely originated from fine-grained sedimentary clastic rock with interbeds of extrusive volcanic flows or intrusive hypabyssal sills (Miller, 1970).
- Vitreous quartzite, medium to massively bedded, Unit 4 (pC4), Paleozoic(?): Approximately 400 feet thick, overlying quartz-albite-muscovite-chlorite schist, metatuffaceous rock, Unit 3 (pC3) with a gradational contact; quartzite is massively bedded, vitreous, light tan to white, well sorted (Miller, 1970). According to Miller (1970), this unit may be correlative or equivalent to the Coconino Sandstone of the areas north and west of Black Mesa.

5.3 PALEOZOIC SEDIMENTARY ROCKS

According to Miller (1970), Paleozoic(?) rocks and Precambrian or Mesozoic rocks, undifferentiated (pCu) are present within a quarter-mile buffer of the Project area and may belong to the Precambrian or Mesozoic metavolcanic rocks described in section 5.1. These rocks consist of deformed dolomite and sheared metavolcanic rocks (Miller, 1970); however, they remain poorly studied and may be correlative to other Paleozoic sediments or volcanic deposits in the immediate vicinity (Appendix B; Table 3).

Overlying the Paleozoic(?) metamorphic vitreous quartzite, medium to massively bedded, Unit 4 (pC4) is the Paleozoic(?) dolomite, tan, chert, massively bedded, Unit 5 (pC5) (Appendix B; Table 3). Unit 5 consists of tan, massively bedded carbonate rock, with irregularly distributed chert masses, and is approximately 400 feet thick; though, the true thickness is difficult to ascertain due to its poor bedding (Miller, 1970). The lower contact between the underlying Unit 4 and Unit 5 consists of a



bedding-fault, and the upper contact of Unit 5 is also faulted, abutting Unit 5 against the underlying Unit 3.

The Paleozoic(?) dolomite, tan, chert, massively bedded, Unit 5 (pC5), as well as the underlying metamorphic Units 4 and 3 (see previous section), have undergone extreme plastic deformation, in stark contrast to the brittle deformation of the rocks in the Quartzsite region (Miller, 1970). Unit 5 may be correlative or equivalent to the Mississippian-age Escabrosa Limestone, which consists of 415 feet of dolomite, limestone, cherty limestone of southeastern Arizona, which has yielded invertebrate fossils of *Syringopora surcularia* (tabulate coral) and *Vesiculophyllum* cf. *V. incrassatum* (rugose coral); however, Miller (1970) cautions that this correlation may not be positive.

The Paleobiology Database (PBDB) and the University of California Museum of Paleontology (UCMP) collections database contain no records of Paleozoic fossils within the alignment of the Project area or its vicinity (PBDB, 2018; UCMP, 2018). However, Paleozoic sedimentary rocks from northern, eastern, and southern Arizona in general have yielded numerous invertebrate fossil taxa, including corals, brachiopods, bryozoans, bivalves, gastropods, and echinoderms, as well as vertebrate fossils of shark (Chondrichthyes) (PBDB, 2018; UCMP, 2018). Although dolomitized limestone typically does not yield well preserved fossils due to chemical alterations of the original calcium carbonate sediments and shelly fossils, Paleozoic(?) rocks and Precambrian or Mesozoic rocks, undifferentiated (pCu), and Paleozoic(?) dolomite, tan, chert, massively bedded, Unit 5 (pC5) may contain fossils, especially if correlative or equivalent to fossiliferous limestone units elsewhere in Arizona, as suggested by Miller (1970). Therefore, until these geologic units can be further assessed in the field, Paleozoic(?) rocks and Precambrian or Mesozoic rocks, undifferentiated (pCu), and Paleozoic(?) dolomite, tan, chert, massively bedded, Unit 5 (pC5) both have an unknown (PFYC U) paleontological potential.

5.4 CRETACEOUS AND JURASSIC SEDIMENTARY ROCKS

One Cretaceous and Jurassic sedimentary rock unit is mapped by Stone (1988-1990; 2006), consisting of the McCoy Mountains Formation, lower part, undivided (KJmlu) (Appendix B; Table 3). This geologic unit is present within the McCoy Mountains, Dome Rock Mountains, Plomosa Mountains, and Livingston Hills and is composed of tan quartzose sandstone and maroon mudstone and siltstone, correlative to the Member A, consisting of tan, fine- to medium-grained quartzite and minor chert- and quartzite-clast conglomerate interbedded with maroon mudstone and siltstone that yields calcareous nodules and lenses (Stone, 1988-1990). Conglomerate clasts of the McCoy Formation, lower part, undivided are also composed of volcanic rocks (Stone, 1988-1990). Stone (2006) further elaborates that the McCoy Mountains Formation is primarily sandstone and conglomerate, with minor shale, mudstone, and siltstone, and is largely or entirely of fluvial origin. Geologic mapping by Stone (1988-1990) divides the McCoy Mountains Formation, lower part, into five informal members (Members A through E), with the upper part contain seven additional informal members (Members F through I) (Stone, 2006). The maximum thickness of the lower part is approximately 7,710 feet (Stone 1988-1990).

According to the PBDB (2018) and the UCMP (2018) online database, no paleontological resources have been recovered from the McCoy Mountains Formation, lower part, undivided (KJmlu). However, sandstone, shale, mudstone, and siltstone layers of fluvial origin may contain scientifically significant paleontological resources. Therefore, the McCoy Mountains Formation, lower part, undivided (KJmlu) has a moderate (PFYC 3) paleontological potential.

5.5 MIOCENE AND OLIGOCENE SEDIMENTARY ROCKS

According to geologic mapping by Stone (2006), Miocene and Oligocene(?) fanglomerate, sedimentary breccia, and slide blocks, undivided (Tf), are exposed along Riverside Mountains and



consist of distinctly to indistinctly bedded, poorly to well sorted conglomerate and sandstone, consisting of angular to rounded clasts transported downslope. The total thickness of these deposits can be more than 1 kilometer thick (Stone, 2006). Additionally, another Miocene-age fanglomerate (Tf) unit is mapped by Sherrod et al. (1990) in the Vicksburg quadrangle and consists of poorly to moderately sorted, moderately to well-consolidated sand and gravel exposed the Basalt of Black Mesa (Tbm). Megabreccia and sedimentary breccia are also present near the base of the Tertiary stratigraphic section in the Eagletail Mountains and near the top of the stratigraphic section in the Big Horn Mountains (Richard et al., 1994) (Appendix B; Table 3).

Because these geologic units are not given formal formation names, they are not searchable within the PBDB and the UCMP online database. Fanglomerates and breccias form under high-energy conditions that would destroy any possible fossil material during transport and deposition. However, interbedded finer-grained deposits within the fanglomerate and breccias may contain scientifically significant paleontological resources. Therefore, until these geologic units can be further assessed in the field, Miocene and Oligocene(?) fanglomerate, sedimentary breccia, and slide block, undivided (Tf) and Miocene-age fanglomerate (Tf) have an unknown (PFYC U) paleontological potential.

According to geologic mapping by Stone (1988-1990), Tertiary(?) tufa (Tbt) deposits are present in the Blythe 30' x 60' quadrangle, and consist of thin, locally extensive sheets of white to light-gray limestone, derived from carbonate mineral precipitate from ambient temperature water. These tufa deposits have been noted to coat Miocene and older bedrock units and locally includes minor conglomerate deposits (Stone, 1988-1990). Tertiary(?) tufa (Tbt) deposits have a very low (PFYC 1) paleontological potential.

5.6 UNNAMED TERTIARY AND OLDER QUATERNARY SEDIMENTARY DEPOSITS

The Project area and its quarter-mile buffer are underlain by 14 unnamed Tertiary and older Quaternary (Pleistocene to Holocene) sedimentary deposits (Miller, 1970; Ort and Skotnicki, 1993; Richard et al., 1994; Sherrod et al., 1990; and Stone, 1988-1990; 2006), which have a moderate (PFYC 3) to low (PFYC 2) paleontological potential (Appendix B; Table 3).

Geologic units with a moderate (PFYC 3) paleontological potential are: Quaternary and Tertiary(?) alluvial fan and fluvial deposits (QTa), Quaternary and Tertiary dissected fan deposits (QTdf), Quaternary and Tertiary older alluvium (QToa), Pleistocene and/or Pliocene alluvial deposits of the Ehrenberg area (QTe), Pleistocene and Pliocene alluvial deposits of Mule Mountains (QTmm), late to early Pleistocene alluvium (Qm/Qo), and Pleistocene alluvial deposits of Palo Verde Mesa (Qpv), which are described below.

- Alluvial fan and fluvial deposits (QTa), Quaternary and Tertiary(?): Unconsolidated to weakly consolidated gravel and sand forming alluvial fans and terraces of the Colorado River; alluvial fans consist of angular, poorly sorted gravel and sand derived from nearby areas of high topographic relief; fluvial deposits consist of rounded, moderately to well sorted gravel and sand transported by the ancestral Colorado River, with crossbedded structures (Stone 1988-1990).
- Dissected fan deposits (QTdf), Quaternary and Tertiary: Consists of weakly consolidated fanglomerate gravel and sand, deeply dissected, forming longitudinal hills near mountain slopes (Stone, 1988-1990).
- Older alluvium (QToa), Quaternary and Tertiary: Within the Quartzsite quadrangle, consists of unconsolidated to poorly consolidated older alluvium, poorly sorted; distinguished from younger alluvium only by its topographic expression and degree of dissection (Miller, 1970).



- Alluvial deposits of the Ehrenberg area (QTe), Pleistocene and/or Pliocene: Heterogeneous deposits of sand and gravel, dissected; well-exposed on cliff faces and edge of the Colorado River flood plain and its tributary washes; consists of weakly to moderately consolidated, light gray to brownish-gray, fine- to coarse-grained sandstone, planar laminated to cross stratified; calcareous cementation of sand grains; sandstone unit contains pebbles and conglomeratic lenses, the latter of which can be several feet thick, of locally derived rounded and angular gravel (Stone, 2006).
- Alluvial deposits of Mule Mountains (QTmm), Pleistocene or Pliocene: Characterized by weakly to moderately consolidated sand and pebbly sand deposits, interbedded with locally derived gravel deposits; light gray, tan, and light reddish-brown, fine- to coarse-grained, well to moderately sorted, thin bedded, and locally cross-bedded; sand clasts contain rounded river pebbles of quartzite and chert; unit is deeply dissected (Stone, 2006).
- Alluvium (Qm/Qo), late to early Pleistocene: Middle to older alluvial deposits consisting undivided younger and older middle alluvium (Qm) and older alluvial deposits of coarse gravel and cobbles to boulders, with minor amounts of fine-grained sediments (Qo). Older alluvium commonly forms a 1-5 meters thick veneer unconformably overlying older basin fill or bedrock; both deposits are deeply dissected (Richard et al., 1994).
- Alluvial deposits of Palo Verde Mesa (Qpv), Pleistocene: Consists of unconsolidated to weakly consolidated deposits of sand, pebbly sand, silt, and clay exposed along the scarp of the Paleo Verde Mesa near the flood plain of the Colorado River; scarp consists of 20 to 30 meters thick exposures, with an upper, slope-forming unit of tan to light gray, sandy and pebbly alluvium and a lower, cliff-forming unit of light reddish-brown, interbedded fine-grained sand, silt, and clay (Stone, 2006).

Geologic units with a low (PFYC 2) paleontological potential are Quaternary alluvium and talus (Qat), Quaternary alluvium of modern washes (Qw), Quaternary surficial deposits (Qs), Holocene and late Pleistocene talus (Qt), Holocene and late Pleistocene alluvium/eolian deposits (Qyc/Qye/Qy), Holocene and Pleistocene alluvium (Qa), and Holocene and Pleistocene alluvial-fan and alluvial-valley deposits, Unit 3 (Qa3), which are described below.

- Alluvium and talus (Qat), Quaternary: Undifferentiated in the Quartzsite quadrangle; consists of heterogeneous mixture of angular, unsorted boulders, cobbles, sand, and fine-grained sediments (Miller, 1970).
- Alluvium of modern washes (Qw), Quaternary: Unconsolidated, locally derived gravel and sand (Stone, 1988-1990).
- Surficial deposits (Qs), Quaternary: Consists of unconsolidated alluvium, colluvium, talus, sand, and gravel in modern washes; surficial sediments consist of unconsolidated to poorly consolidated gravel, sandy gravel, and sand, with silt and boulders; boulders and disaggregated rock rubble are also present around steep slopes (Ort and Skotnicki, 1993).
- Talus (Qt), Holocene and late Pleistocene: Consisting of unconsolidated, poorly sorted, angular gravel to boulder-sized sediments along the sides of steep slopes (Richard et al., 1994).
- Alluvium/eolian deposits (Qyc/Qye/Qy), Holocene and late Pleistocene: Active alluvial deposits consist of primarily sand and silt confined to active and recently active (Holocene-age) deposits of major drainages; eolian deposits consist of young (Holocene-age) fine-grained, non-indurated sand; and young alluvium (Holocene- to late Pleistocene-age) consists



- of surfaces primarily underlain by well-sorted sand and silt, with occurrences of fine gravel, slightly to highly dissected by active drainages (Richard et al., 1994).
- Alluvium (Qa), Holocene and Pleistocene: Poorly to moderately sorted, unconsolidated to weakly consolidated sand and gravel; alluvial fans that are deeply dissected, especially in intermontane areas, streams, and terraces along active washes of the New Water Mountains (Sherrod et al., 1990).
 - Alluvial-fan and alluvial-valley deposits, Unit 3 (Qa3), Holocene and Pleistocene: Consists of alluvial-fan deposits of gravel and sand, slightly to heavily dissected, with desert pavement, consisting of moderately to highly compacted, angular to subangular rock fragments; dark brown to black desert varnish on some clasts, with relatively abundant granitic gravel with no varnish; pavement surfaces contain networks of sandy channels, varying in depth (Stone, 2006).

According to the UCMP online database (2018) numerous fossils have been recovered from unnamed Tertiary and Quaternary deposits throughout Arizona and California. From Maricopa County, Arizona, fossil tortoise (*Gopherus huecoensis*) and unspecified invertebrates have been recorded from unnamed Tertiary-age (Pliocene) deposits. From La Paz County, Arizona near Quartzsite, fossil gastropod (*Epiphragmophora butsoni*) has been recorded from Quaternary to Recent deposits. Elsewhere in Arizona, Yavapai County has yielded Miocene-age horse (Hipparionini), oreodont (*Merychys minimus*), and indeterminate mammal (Mammalia). From Mohave County, numerous fossil vertebrates have been recorded, including bird (Aves), fox (*Vulpes*), carnivorous mammals (Fissipeda), horse (*Pliohippus*, Hipparionini), and eutherian mammal (Eutheria), as well as fossil plants of Miocene-age. Within Coconino County, extinct hyena (*Chasmaporthetes ossifragus*), giant marmot (*Paenemarmota barbouri*), and tortoise (*Gopherus huecoensis*) have been recorded from Pliocene-age deposits. Navajo County has yielded Pleistocene-age fossil localities, including bighorn sheep (*Ovis canadensis*) and unspecified vertebrate and invertebrate fossils. From an unspecified county within Arizona, a fossil locality yielded Pleistocene-age horse (*Equus major*). The UCMP (2018) also contains records of fossil vertebrates and invertebrates of Plio-Pleistocene-age recorded within Riverside County, California, with one locality yielded unspecified vertebrate fossils from near Blythe.

Based on the widely spread, but scientifically significant, vertebrate, invertebrate, and plant fossils of Tertiary- to Quaternary-age, excluding late Pleistocene-age to Holocene-age deposits, from southwestern Arizona and southeastern California, these geologic units have a moderate (PFYC 3) paleontological potential. Late Pleistocene- to Holocene-age Quaternary sediments are likely too young to contain paleontological resources near the surface; thus, these geologic units have a low (PFYC 2) paleontological potential.

5.7 UNNAMED HOLOCENE SEDIMENTARY DEPOSITS

The Project area is underlain by four unnamed Holocene-age sedimentary deposits, all of which have a low (PFYC 2) potential to produce scientifically important paleontological resources (Appendix B; Table 3).

Holocene-age (less than 11,000 years old) sediments are typically too young to contain fossilized material (Society of Vertebrate Paleontology [SVP], 2010), but they may overlie sensitive older (e.g., Pliocene- and Pleistocene-age) deposits at variable depth. Holocene-age deposits are assigned a low (PFYC 2) paleontological potential at the surface using BLM (2016) guidelines; however, they have an unknown paleontological potential in the subsurface since there is potential for these deposits to be conformably underlain by older, paleontologically sensitive geologic units.

The following Holocene-age sedimentary deposits are present within the Project area (Stone, 2006):



- Alluvial-fan and alluvial-valley deposits (Qa6), Holocene: Characterized by a lack of desert varnish, fine-grained in size, consisting of sand, pebbly sand, and sandy pebble-gravel, with thin accumulations of eolian sand not mapped are present within this unit; proximal to mountain ranges, deposits consist of coarse-grained, unvarnished gravel deposits that grade downslope to fine-grained deposits; also includes minor washes and channels comparable to Holocene-age alluvium of modern washes (Qw) (Stone, 2006).
- Alluvium of modern Colorado River flood plain (Qr), Holocene: Consists of unconsolidated clay, silt, and sand; presently covered by agricultural land or thick vegetation (Stone, 2006).
- Eolian sand (Qs), Holocene: Consists of unconsolidated sand dunes and sheets, partially stabilized by vegetation (Stone, 2006).
- Alluvium of modern washes (Qw), Holocene: Characterized as unconsolidated, angular to subangular gravel and sand transported from local mountain ranges, with boulder- to cobble-sized clasts in wash deposits near mountain ranges, grading downstream to pebble and sand deposits; wash sediments grade laterally and downstream into alluvial sand and gravel (Stone, 2006).

Table 3. Paleontological Potential (PFYC) by Geologic Unit

Geologic Unit	Map Abbreviation	Age	Paleontological Potential (PFYC)
Slaty metavolcanic rocks	Xm	Proterozoic	Class 1 – Very Low
Granitoid	Yg	Middle Proterozoic	Class 1 – Very Low
Quartz monzonite	pCqm	Precambrian	Class 1 – Very Low
Metavolcanic rocks	pCv	Precambrian or Mesozoic	Class 1 – Very Low
Paleozoic(?) rocks and Precambrian and Mesozoic rocks, undifferentiated	pCu	Paleozoic?	Class U – Unknown
Quartz-albite-muscovite-chlorite schist; meta-tuffaceous rock, Unit 3	pC3	Paleozoic?	Class 1 – Very Low
Vitreous quartzite, medium to massively bedded, Unit 4	pC4	Paleozoic?	Class 1 – Very Low
Dolomite; tan, chert, massively bedded, Unit 5	pC5	Paleozoic?	Class U – Unknown
Volcanic rocks	Jv	Jurassic	Class 1 – Very Low
Volcanic rocks of the Dome Rock sequence	Jv	Jurassic	Class 1 – Very Low
Volcanic rocks of the Dome Rock sequence, upper bedded unit	Jvbu	Jurassic	Class 1 – Very Low
McCoy Mountains Formation, lower part, undivided	KJmlu	Cretaceous or Jurassic	Class 3 - Moderate
Volcanic rocks of Bear Hills	Tbh	Miocene and Oligocene?	Class 1 – Very Low
Fanglomerate, sedimentary breccia, and slide blocks	Tf	Miocene and Oligocene?	Class U – Unknown
Andesite	Ta	Miocene or Oligocene	Class 1 – Very Low
Lower basaltic volcanic rocks	Tbl	Miocene or Oligocene	Class 1 – Very Low
Middle basalt unit	Tbm	Miocene	Class 1 – Very Low
Felsic volcanic rocks	Tf	Miocene	Class 1 – Very Low
Basalt of New Water Mountains	Tnw	Miocene	Class 1 – Very Low



Geologic Unit	Map Abbreviation	Age	Paleontological Potential (PFYC)
Fanglomerate	Tf	Miocene	Class U – Unknown
Tufa	Tbt	Tertiary?	Class 1 – Very Low
Older hornblende-biotite andesite	Ta	Tertiary	Class 1 – Very Low
Alluvial fan and fluvial deposits	QTa	Quaternary and Tertiary?	Class 3 - Moderate
Hornblende-biotite andesite	QTa	Quaternary or Tertiary	Class 1 – Very Low
Basalt of Black Mesa	QTbu	Quaternary or Tertiary	Class 1 – Very Low
Dissected fan deposits	QTdf	Quaternary or Tertiary	Class 3 - Moderate
Older alluvium	QToa	Quaternary or Tertiary	Class 3 - Moderate
Alluvial deposits of the Ehrenberg area	QTe	Pleistocene and/or Pliocene	Class 3 - Moderate
Alluvial deposits of the Mule Mountains	QTmm	Pleistocene or Pliocene	Class 3 - Moderate
Alluvium and talus	Qat	Quaternary	Class 2 - Low
Alluvium of modern washes	Qw	Quaternary	Class 2 - Low
Surficial deposits	Qs	Quaternary	Class 2 - Low
Alluvium	Qm/Qo	Late to early Pleistocene	Class 3 - Moderate
Alluvial deposits of Palo Verde Mesa	Qpv	Pleistocene	Class 3 - Moderate
Talus	Qt	Holocene and late Pleistocene	Class 2 - Low
Alluvium/Eolian deposits	Qyc/Qye/Qy	Holocene and late Pleistocene	Class 2 - Low
Alluvium	Qa	Holocene and Pleistocene	Class 2 - Low
Alluvial-fan and alluvial-valley deposits, Unit 3	Qa3	Holocene and Pleistocene	Class 2 - Low
Alluvial-fan and alluvial-valley deposits, Unit 6	Qa6	Holocene	Class 2 - Low
Alluvium of modern Colorado River flood plain	Qr	Holocene	Class 2 - Low
Eolian sand	Qs	Holocene	Class 2 - Low
Alluvium of modern washes	Qw	Holocene	Class 2 - Low
Water	H2O	N/A	Class W - Water

6.0 RESEARCH GOALS

The sediments in the Project area have the potential to contain scientifically important fossil remains that could be unearthed during construction in areas where native sediments of moderate or unknown paleontological potential are disturbed, either at the surface or in the subsurface. The fossils found in southwestern Basin and Range and eastern Colorado Desert geomorphic provinces provide critically important paleoecological and paleoenvironmental data. They provide direct



evidence of the composition and phylogenetic diversity of the paleobiota, paleobiologic features of individual taxa, and evolutionary relationships of the fauna and flora through time. In combination, the fossil assemblages at individual localities, together with the sediments in which they are preserved, also provide indirect evidence of the nature of paleoclimates and paleoenvironments, and importantly, the geographic distributions of different paleoenvironment types, such as the fluctuating ocean shorelines, locations of inland lakes and swamps, upland habitats, and lowland habitats, such as basin floors. It is important to bear in mind that the type and scope of research that can be accomplished by the receiving institution or others, is entirely dependent upon the types and numbers of fossils that are discovered and their stratigraphic and sedimentological context. If no fossils are discovered, then no paleontological research will be possible.

The recovery of fossils from Project excavations as the result of implementation of the mitigation measures outlined below and in Appendix E, would add to existing paleontological data and help better document the prehistory of southwestern Arizona, where fossil locality data is scant, and of southeastern California. The recovered fossils will provide information that may be useful in more accurately and precisely determining the ages of the sedimentary units in which they were preserved depending upon the biostratigraphic utility of the fossil specimens and potential for radiometric dating. Depending upon the types of fossils that are recovered from Project excavations and the quality of their preservation, the existing fossil record of Arizona and California will be enhanced by the addition of new specimens of known taxa, the discovery of taxa that have not been previously reported from the general area, and possibly the discovery of previously unknown taxa. In combination, the fossil assemblage from the Project area would have the potential to add new paleoecologic and paleoenvironmental information to our existing knowledge of the Paleozoic to Holocene of southwestern Arizona and southeastern California.

7.0 MITIGATION AND FOSSIL RECOVERY PLAN

The mitigation and fossil recovery plan is designed to mitigate effects to paleontological resources in accordance with NEPA, and to reduce impacts on paleontological resources to below the level of significance pursuant to CEQA. The proposed mitigation plan consists of the following ten components that will be more fully described below:

- 1) Construction Monitoring
- 2) Fossil Recovery
- 3) Screenwashing of Bulk Matrix Sampling
- 4) Laboratory Preparation, Analysis, and Museum Pre-Curation
- 5) Reporting
- 6) Significance Criteria
- 7) Staffing and Schedule
- 8) Unanticipated Discoveries
- 9) Curation
- 10) Permits

7.1 CONSTRUCTION MONITORING

A BLM approved Project Paleontologist will attend the Project's pre-construction meeting to discuss mitigation concerns, field procedures for paleontology, safety protocols, and establish communications. Following the meeting, a site specific health and safety plan (HASP) with emergency contact information should be prepared. All monitoring personnel will be required to review the HASP prior to entry to the site and shall have a copy in their vehicle at all times. Prior to any project excavation, a Worker Environmental Awareness Program (WEAP) training for all earth moving personnel and their supervisors will be presented to inform them of the possibility for fossil



discoveries, as required by MM CUL-CEQA-3. The program will inform personnel of the types of fossils that may be encountered, the types of lithologies in which fossils could be preserved, the monitor's authority to temporarily halt or redirect work to evaluate discoveries, procedures to be followed if potential fossils are unearthed at the project site, and the penalties for disturbing paleontological resources.

In accordance with APM PALEO-01, BMP PALEO-02, and MM CUL-CEQA-3 a paleontological monitor will conduct full-time monitoring during all excavations impacting native sediments with moderate paleontological potential (PFYC 3), including Cretaceous or Jurassic McCoy Mountains Formation, lower part, undivided (KJmlu); Quaternary and Tertiary(?) alluvial fan and fluvial deposits (QTa); Quaternary and Tertiary dissected fan deposits (QTdf); Quaternary and Tertiary older alluvium (QToa); Pleistocene and/or Pliocene alluvial deposits of the Ehrenberg area (QTe); Pleistocene and/or Pliocene alluvial deposits of the Mule Mountains (QTmm); late to early Pleistocene alluvium (Qm/Qo); and Pleistocene alluvial deposits of Palo Verde Mesa (Qpv) (see Tables 2 and 3; see Appendix C).

Spot checking will be conducted daily in areas with unknown paleontological potential (PFYC U), including Paleozoic(?) rocks and Precambrian and Mesozoic rocks, undifferentiated (pCu); Paleozoic(?) dolomite; tan, chert, massively bedded, Unit 5 (pC5); Miocene and Oligocene(?) fanglomerate, sedimentary breccia, and slide blocks (Tf); and Miocene fanglomerate (Tf) (see Tables 2 and 3; see Appendix C). If sediments are deemed to be non-conducive to fossil preservation (e.g., high energy [very coarse grained], heavily oxidized [indicating long sediment exposure at the surface], etc.), then monitoring in those areas may be reduced at the discretion of the Project Paleontologist in consultation with the BLM.

Construction activities will be spot-checked when excavation depths exceed 10 feet in areas mapped as low paleontological potential (PFYC 2) geologic units to check for the presence of underlying geologic units of higher paleontological potential, including Quaternary alluvium and talus (Qat); Quaternary alluvium of modern washes (Qw); Quaternary surficial deposits (Qs); Holocene and late Pleistocene talus (Qt); Holocene and late Pleistocene alluvium/eolian deposits (Qyc/Qye/Qy); Holocene and Pleistocene alluvium (Qa); Holocene and Pleistocene alluvial-fan and alluvial-valley deposits, Unit 3 (Qa3); Holocene alluvial-fan and alluvial-valley deposits, Unit 6 (Qa6); Holocene alluvium of modern Colorado River flood plain (Qr); Holocene eolian sand (Qs); and Holocene alluvium of modern washes (Qw) (see Tables 2 and 3; see Appendix C). If it is subsequently determined that paleontologically sensitive deposits will not be impacted by Project activities, then monitoring in those areas may be reduced at the discretion of the Project Paleontologist in consultation with the BLM.

Paleontological monitoring will not be conducted for excavations impacting very low paleontological potential (PFYC 1) Proterozoic slaty metavolcanic rocks (Xm); middle Proterozoic granitoid (Yg); Precambrian quartz monzonite (pCqm); Precambrian and Mesozoic Metavolcanic rocks (pCv); Paleozoic(?) quartz-albite-muscovite-chlorite schist; metatuffaceous rock, Unit 3 (pC3); Paleozoic(?) vitreous quartzite, medium to massively bedded, Unit 4 (pC4); Jurassic volcanic rocks (Jv); Jurassic volcanic rocks of the Dome Rock sequence (Jv); Jurassic volcanic rocks of the dome rock sequence, upper bedded unit (Jvbu); Miocene and Oligocene(?) volcanic rocks of Bear Hills (Tbh); Miocene or Oligocene andesite (Ta); Miocene and Oligocene lower basaltic volcanic rocks (Tbl); Miocene middle basalt unit (Tbm); Miocene felsic volcanic rocks (Tf); Miocene basalt of New Water Mountains (Tnw); Tertiary(?) tufa (Tbt); Tertiary older hornblende-biotite andesite (Ta); Quaternary or Tertiary hornblende-biotite andesite (QTa); and Quaternary or Tertiary basalt of Black Mesa (QTbu) (see Tables 2 and 3; see Appendix C).

Paleontological resource monitoring of construction excavations involves field inspections of cut slopes, trenches, spoils piles, and all graded surfaces in accordance with project safety requirements for occurrences of freshly exposed fossil remains. The primary responsibility of paleontological



monitors should always be to adhere to all project safety requirements, and to only inspect and evaluate fossil discoveries when conditions are safe to do so. If a fossil is discovered by a monitor in a construction excavation, the monitor must immediately notify the equipment operator and/or site project manager to stop work, and then mark the area surrounding the site with flagging until the discovery can be fully explored and evaluated. The paleontological monitor shall notify the Project Paleontologist, who shall notify DCRT and the BLM via a phone call followed up by written documentation, photographs, and significance determination. If the fossil is collected, a letter to this effect will be submitted to the BLM along with a locality form. If it is a non-significant fossil discovery, the Project Paleontologist will notify the resident engineer and work may resume. Construction activities in the immediate vicinity of the site shall stop until authorization for work to continue is provided by the Project Paleontologist. If a concentration of fossils is found, the area will be flagged and the site project manager and Project Paleontologist will be notified to determine necessary action. Any action will be communicated to BLM.

All paleontological monitors will be trained in commercially reasonable construction site safety protocols prior to entering any construction site. Additional safety training may be provided to paleontological monitors by the contractor and required prior to entry to the project site. Paleontological monitors should always wear all required project specific personal protective equipment (PPE), review and retain a copy of a site-specific health and safety plan, and attend any required safety meetings. Monitors should be equipped with flagging, survey stakes, and tools for fossil exploration and recovery including x-acto knives, awls, brushes, picks, chisels and shovels. Other essential tools for monitors include chemical preservatives such as vinac or butvar, cyanoacrylate glue, specimen containers such as vials and plastic bags, a GPS receiver, a field notebook, data recording forms, a digital camera, and a plaster kit. All paleontological monitoring will be conducted by qualified monitors approved by the BLM under the direction of a Project Paleontologist who meets the criteria outlined in BMP PALEO-02 and MM CUL-CEQA-3.

Monitors will prepare daily monitoring logs that will be submitted to the Project Paleontologist.

7.2 FOSSIL RECOVERY

When scientifically significant fossil discoveries are made by construction monitors, they will be quickly and professionally explored and evaluated in order to minimize construction delays. Additional paleontologists should be brought to assist with the recovery as needed. Recoveries may consist of the relatively rapid removal of small isolated fossils from an active cut, to hand-quarrying of larger fossils over several hours, to excavations of large fossils or large numbers of smaller fossils from a bone bed over several days. The duration of each excavation is determined by the size, preservation, and number of fossils at each locality, and all excavations must be carried out in consultation with the site project manager.

Paleontological resources will be mapped, photographed, recorded, and collected for later documentation that will be included in the final technical report. At each paleontological locality, data recorded will minimally include the field number, date of discovery and date of collection, geographic coordinates, elevation, formation, stratigraphic provenance, lithologic description of sediment that produced the fossil(s), type(s) of fossils and type(s) of element(s), taphonomic and paleoenvironmental interpretations, associations with other fossils, photograph(s), and collector(s). All fossils must be properly labeled prior to removal from the locality where they were discovered. All scientifically important fossils should be recovered and fully documented within a detailed stratigraphic framework as construction conditions and safety considerations permit. Significance criteria and recovery procedures are discussed below.



7.3 SCREENWASHING OF BULK MATRIX SAMPLES

Scientifically significant fossils of small or even microscopic size consisting of vertebrates, invertebrates, plants, or trace fossils, may be discovered during the monitoring program. At the discretion of the Project Paleontologist in consultation with the BLM and DCRT, bulk matrix samples should be collected from such localities if it is determined that the fossils could yield scientifically important information. Such samples would be transported to the paleontological laboratory for soaking, re-drying, washing, and picking/sorting in order to fully document the microfaunal and microfloral diversity. The Society of Vertebrate Paleontology (SVP) guidelines (2010) recommend a minimum sample size of 2,000 pounds. However, in practice, the amount of matrix sampled should depend on the abundance or lack thereof of fossils preserved within the matrix (Murphey et al., 2014), which is typically ascertained by wet-screening of 20-pound test samples in the field. Sampling should be done in such a way as to prevent or minimize interference with construction. For example, construction equipment can often expedite the sampling process by assisting with the removal of matrix from the excavation and establishment of a stockpile in an area removed from construction equipment in order to permit the paleontological monitor to transfer the matrix from the stockpile to buckets and remove them from the site.

7.4 LABORATORY PREPARATION, ANALYSIS, AND MUSEUM PRE-CURATION

Following preparation, all fossils should be inventoried as part of the pre-curation process and then identified to taxon and element by a technical specialist, as necessary. Pre-curation involves the assignment of locality numbers and preparation of fossil locality forms, the assignment of unique catalogue numbers to each specimen, the application of specimen numbers to each fossil specimen, entry of specimen data into a computerized database, and the placement of each fossil into archival vials, trays or cradles, depending upon its size. The inventoried collection should be transferred to a paleontological repository along with all associated data. Fossil identification should be to the lowest taxonomic possible level (ideally Family or lower). All fossils should be labeled with their field locality number, which is traceable to the metadata including collector, date of collection, UTM coordinates (NAD83 datum), elevation, lithologic description, taxon, and element description at a minimum. The properly inventoried fossil collection should then be analyzed taxonomically, taphonomically, and/or biostratigraphically. The types of analyses that can be performed will be dependent upon the nature of the fossil collection. All data, including the results of the analysis, should be compiled along with the fossil specimen inventory and detailed paleontological locality forms, maps and photos for inclusion in the paleontological monitoring report. All scientifically significant fossils collected during the monitoring program will be transferred to the NHMLA, the current repository listed on Paleo Solutions' California and Arizona BLM Paleontological Use Permits, or another BLM-approved repository, where those fossils deemed to be appropriate for curation by the museum will be accessioned and permanently housed so that they will be available for scientific research, education, and display. Upon receipt of the fossil collection, a signed repository receipt form will be issued, and a copy will be appended in the final mitigation report.

7.5 REPORT

A confidential paleontological mitigation report will be prepared within 90 days of the completion of field work. The report shall include dates of field work, results of monitoring, fossil analysis, significance evaluation, conclusions, locality forms, and an itemized list of specimens. A signed confidential copy of the paleontological monitoring report shall be submitted to BLM, and approval will be requested to release the confidential report to CPUC. A signed non-confidential copy of the report shall be submitted to DCRT. Additionally, if construction monitoring results in the discovery



and recovery of paleontological resources, a copy of the report will be submitted along with the recovered fossils to the NHMLA (or another appropriate fossil repository). The report will be prepared according to BLM specifications, which includes two (2) confidential hardcopies sent to the BLM. Copies of the report in electronic (PDF) format will be sent to other agencies and DCRT. BLM approval of this report will signify the completion of the paleontological mitigation program.

7.6 SIGNIFICANCE CRITERIA

For the purpose of this project, scientifically significant fossils are generally defined as those that are identifiable to taxon and/or element, and thus are potentially useful for scientific research purposes. However, unidentifiable fossils may also be collected if they are potentially useful to the overall analysis (see Section 3). For example, an unidentifiable bone fragment of late Pleistocene age may be suitable for radiocarbon dating depending upon the preservation state of the bone. Rock or sediment samples may also be collected if they provide information necessary for depositional and paleoenvironmental interpretations.

Paleontological monitors should always use caution when making decisions about significance in the field, and collect fossils if they are unsure of their significance. For example, when monitoring construction sites, it is often difficult to see the full extent of a fossil being recovered because it is collected partially encased in sedimentary matrix and as a result it may not be possible to determine the significance of a fossil specimen until it has been partially prepared. Generally, bone fragments with no articular surfaces that are not associated with other fragments to which they might be re-assembled in the laboratory should not be collected, or should be discarded if they are found to be non-significant once they have been partially prepared in the laboratory.

7.7 UNANTICIPATED DISCOVERIES

Prior to earthmoving activities, the paleontological monitor shall inform construction personnel of the possibility for fossil discoveries, and will instruct personnel to immediately inform their supervisor if any bones or other potential fossils are unearthed at the Project site and a paleontological monitor is not present. In such a case, workers should immediately cease all activity within a 50-foot radius of the discovery site until a paleontologist can be mobilized to the Project site to examine and evaluate the find. Work may not resume in the discovery area until it has been authorized by the Project Paleontologist.

7.8 STAFFING AND SCHEDULE

A construction schedule has not been determined at this time, but the project is expected to start in 2019. The construction manager will notify the paleontological contractor at least 24 hours in advance (and up to 48 hours in advance when possible), when a monitor is needed on the construction site. It is not possible to predict the number and type(s) of fossils that may be discovered and recovered during construction.

All paleontological monitoring will be conducted by qualified monitors approved by the BLM under the direction of a Project Paleontologist who meets the criteria outlined in BMP PALEO-02.

7.9 CURATION

If significant paleontological resources are recovered, they will be curated at the NHMLA, the current repository listed on Paleo Solutions' California and Arizona BLM Paleontological Use Permits, or another BLM-approved repository. Storage fees will be paid for by the project owner, not the BLM, CPUC, or paleontological consultant. A curation agreement for NHMLA is attached as Appendix D.



7.10 PERMITS

All paleontological work will be conducted under California BLM Paleontological Use Permit CA-16-03P (Expiration March 16, 2019) and Arizona BLM Paleontological Use Permit AZ-000669 (Expiration August 13, 2021) (Appendix A). Fieldwork Authorizations will be obtained from the BLM Palm Springs-South Coast and Yuma Field Offices. Qualified Paleontologist, Geraldine Aron, M.S., will oversee all work as the permit holder and administer for the Project in collaboration with Paleo Solutions' Principal Investigator Courtney Richards, M.S., with oversight by Vertebrate Paleontologist Paul Murphey, Ph.D.



8.0 REFERENCES

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APPENDIX A: BLM PALEONTOLOGICAL USE PERMITS



United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Arizona State Office
One North Central Avenue, Suite 800
Phoenix, Arizona 85004-4427
www.blm.gov/az/



AUG 28 2018

8270 (9300)
Permit No. AZ-000669

Paleo Solutions
Attention: Geraldine Aron
911 S. Primrose Avenue, Unit N
Monrovia, CA 91016

Dear Ms. Aron:

Enclosed is a permit to conduct paleontological investigations on land administered by the Bureau of Land Management (BLM). Your permit number is AZ-000669. Please include it in any permit-related correspondence. Your permit is for survey/reconnaissance and limited surface collection of paleontological materials for 3 years, beginning August 13, 2018.

The Special Conditions attached to your permit contain permitting requirements. We would like to call your attention to the following three requirements, in particular:

1. Prior to beginning each season's field work, you must contact the Field Manager(s) who administers the area in which you will be working and obtain their signature on a copy of your permit. Maps and the addresses of BLM Arizona Field Offices are included with this letter.
2. A completed Paleontological Locality Form (8270-3) must be submitted for each location where fossils are collected or recorded.
3. Annual and final reports must be submitted as described in the Special Conditions.

If your work plans or any other stipulations of your permit change, please notify this office immediately to obtain appropriate modifications to your permit. If you have questions about our permitting requirements, please contact Matt Basham, Deputy Preservation Officer, at 602-417-9216, or by email at mbasham@blm.gov.

Sincerely,

Jody L. Weil
Deputy State Director
Resources and Planning

Enclosures



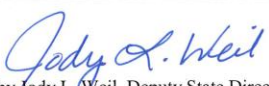
Form 8270-2
June 1999

Permit Number: AZ-000669

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

PALEONTOLOGICAL RESOURCES USE PERMIT

Sec. 302(b) of P.L. 94-579, October 21, 1976, 43 U.S.C. 1732

1a. Permittee: Geraldine Aron, Courtney Richards, Paul Murphey	1b. Affiliation: Paleo Solutions, Inc.
2. Mailing address: 911 S. Primrose Ave., Unit N Monrovia, CA 91016	3. Telephone number: 562-7713 Fax: 626-359-0712 Field party: Fax:
4. Nature of authorized paleontological fieldwork: <input checked="" type="checkbox"/> Survey and limited surface collection <input type="checkbox"/> Excavation	
5. Location of authorized paleontological fieldwork on public lands: Public lands administered by the BLM Arizona.	
6. Authorized start date: 08/13/2018	7. Expiration date: 08/13/2021
8. Name(s) of individual(s) responsible for planning, supervising, and carrying out fieldwork: Geraldine Aron, Courtney Richards, Paul Murphey, Betsy Kruk, Joey Raum, Kate Zubin-Stathopolous, Madeline Weigner, Matthew Carson,	
9. Repository name and address: Natural History Museum of Los Angeles County, 900 Exposition Blvd., Los Angeles, CA 90007	
SPECIAL CONDITIONS ATTACHED TO THIS PERMIT ARE MADE A PART HEREOF.	
Approved by  Jody L. Weil, Deputy State Director, Resources, Planning and Fire Date: 8/28/18	

Note: This permit is not valid unless signed by the appropriate Field Manager(s) at the beginning of each field season. The permittee is responsible for obtaining the Field Manager's signature, below:

_____	_____
Field Manager, Field Office	Date
_____	_____
Field Manager, Field Office	Date
_____	_____
Field Manager, Field Office	Date



United States Department of the Interior
BUREAU OF LAND MANAGEMENT

California State Office
2800 Cottage Way, Suite W1623
Sacramento, CA 95825
www.blm.gov/ca



March 16, 2016

In Reply Refer To:
CA930 8151(P)

Geraldine Aron
Paleo Solutions, Inc.
911 S. Primrose Ave, Unit N
Monrovia, CA 91016

Dear Ms. Aron:

The Bureau of Land Management (BLM) is pleased to issue a 3-year Scientific Paleontological Permit (CA-16-03P) to Paleo Solutions, Inc. for use on Public Lands managed by California BLM as specified in your permit. This permit is issued under the authority of the Federal Land Policy and Management Act (FLPMA) and the Antiquities Act of 1906. Keep a copy with you at all times in the field.

This permit authorizes the permit holder to conduct and collect paleontological resources pertaining to both scientific research and commercial projects. BLM would like to emphasize a few points. First, this permit assigns to your firm the responsibility to submit reports and other documents in a timely fashion and such submittal will be a major point of review of your firm's performance under this permit. Second, you are required to contact the appropriate Field Office to obtain a Field Use Authorization before you begin any fieldwork. Please allow the Field Office sufficient lead-time to process your application for a Field Use Authorization. The Field Office may impose additional conditions and stipulations at that time. Third, please be mindful that it is your firm's responsibility to ensure assignment of supervisory field personnel (crew chiefs) to projects that have at least four months' local experience and who otherwise meet the standards of the Bureau.

Our office is enclosing a map of California BLM Field Offices with phone numbers of cultural heritage staff and a copy of your permit with attached National special permit conditions. BLM draws your attention to these stipulations and encourages you to read and understand them. Please sign page 5, as indicated, and **return a copy of this signature page to the California BLM State Office within 30 days of your receipt of the permit.** Your permit will be valid after your signature is received.

Should you have any questions contact James Barnes at email jjbarnes@blm.gov or by phone 916-978-4676.

Sincerely,

Tom Pogachnik
Deputy State Director
Natural Resources Division

Enclosures as stated



DI Form 1991 (Rev Sept 2004)
 OMB No. 1024-0037
 Exp. Date (01/31/2008)

United States Department of the Interior
PERMIT FOR PALEONTOLOGICAL INVESTIGATIONS

To conduct archeological work on Department of the Interior lands and Indian lands under the authority of:

- ☐ The Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa-mm) and its regulations (43 CFR 7).
- ☒ The Antiquities Act of 1906 (P.L. 59-209; 34 Stat. 225, 16 U.S.C. 431-433) and its regulations (43 CFR 3).
- ☐ Supplemental regulations (25 CFR 262) pertaining to Indian lands.
- ☒ Bureau-specific statutory and/or regulatory authority: Federal Land Policy and Management Act of 1976 (Public Law 94-570), and Section 302 of Public Law 94-4579

Please use this number when referring to this permit
 No.: CA-16-03P

1. Permit issued to Paleo Solutions, Inc.		2. Under application dated January 21, 2016	
3. Address 911 S. Primrose Ave., Unit N, Monrovia, CA 91016		4. Telephone number(s) (562) 818-7713	
		5. E-mail address(es) geraldine@paleosolutions.com	
6. Name of Permit Administrator Geraldine Aron Telephone number(s): (562) 818-7713 Email address(es): geraldine@paleosolutions.com		7. Name of Principal Investigator(s) Geraldine Aron, Paul Murphy, Jennifer Kelly, Courtney Richards Telephone number(s): GA: (562) 818-7713, PM: (303) 514-1095, JK: (714) 206-5433, CR: (626) 716-2000 Email address(es): geraldine@paleosolutions.com, pmurphy@paleosolutions.com, jkelly@paleosolutions.com, crichards@paleosolutions.com	
8. Name of Field Director(s) authorized to carry out field projects		Telephone number(s): Email address(es):	
9. Activity authorized Survey and limited surface collection			
10. On lands described as follows All lands managed by the Bureau of Land Management-California			
11. During the duration of the project From March 16, 2016 To March 16, 2019			
12. Name and address of the curatorial facility in which collections, records, data, photographs, and other documents resulting from work under this permit shall be deposited for permanent preservation on behalf of the United States Government. Natural History Museum of Los Angeles County, 900 Exposition Blvd., Los Angeles, CA 90007			
13. Permittee is required to observe the listed standard permit conditions and the special permit conditions attached to this permit.			
14. Signature and title of approving official  Tom Pogacnik, Deputy State Director, Natural Resources Division			15. Date 03/17/2016



Permit No.CA-16-03P

DI Form 1991 (Rev Sept 2004) Page 2

15. Standard Permit Conditions

- a. This permit is subject to all applicable provisions of 43 CFR Part 3, 43 CFR 7, and 25 CFR 262, and applicable departmental and bureau policies and procedures, which are made a part hereof.
- b. The permittee and this permit are subject to all other Federal, State, and local laws and regulations applicable to the public lands and resources.
- c. This permit shall not be exclusive in character, and shall not affect the ability of the land managing bureau to use, lease or permit the use of lands subject to this permit for any purpose.
- d. This permit may not be assigned.
- e. This permit may be suspended or terminated for breach of any condition or for management purposes at the discretion of the approving official, upon written notice.
- f. This permit is issued for the term specified in 11 above.
- g. Permits issued for a duration of more than one year must be reviewed annually by the agency official and the permittee.
- h. The permittee shall obtain all other required permit(s) to conduct the specified project.
- i. Archeological project design, literature review, development of the regional historic context framework, site evaluation, and recommendations for subsequent investigations must be developed with direct involvement of an archeologist who meets the Secretary of the Interior's Standards for Archeology and Historic Preservation; fieldwork must be generally overseen by an individual who meets the Secretary of the Interior's Standards for Archeology and Historic Preservation.
- j. Permittee shall immediately request that the approving official (14. above) make a modification to accommodate any change in an essential condition of the permit, including individuals named and the nature, location, purpose, and time of authorized work, and shall without delay notify the approving official of any other changes affecting the permit or regarding information submitted as part of the application for the permit. Failure to do so may result in permit suspension or revocation.
- k. Permittee may request permit extension, in writing, at any time prior to expiration of the term of the permit, specifying a limited, definite amount of time required to complete permitted work.
- l. Any correspondence about this permit or work conducted under its authority must cite the permit number. Any publication of results of work conducted under the authority of this permit must cite the approving bureau and the permit number.
- m. Permittee shall submit a copy of any published journal article and any published or unpublished report, paper, and manuscript resulting from the permitted work (apart from those required in items q. and s., below), to the approving official and the appropriate official of the approved curatorial facility (item 12 above).
- n. Prior to beginning any fieldwork under the authority of this permit, the permittee, following the affected bureau's policies and procedures, shall contact the field office manager responsible for administering the lands involved to obtain further instructions.
- o. Permittee may request a review, in writing to the official concerned, of any disputed decision regarding inclusion of specific terms and conditions or the modification, suspension, or revocation of this permit, setting out reasons for believing that the decision should be reconsidered.
- p. Permittee shall not be released from requirements of this permit until all outstanding obligations have been satisfied, whether or not the term of the permit has expired. Permittee may be subject to civil penalties for violation of any term or condition of this permit.



15. Standard Permit Conditions (continued)

- q. Permittee shall submit a preliminary report to the approving official within a timeframe established by the approving official, which shall be no later than 6 weeks after the completion of any episode of fieldwork, setting out what was done, how it was done, by whom, specifically where, and with what results, including maps, GPS data, an approved site form for each newly recorded archeological site, and the permittee's professional recommendations, as results require. If other than 6 weeks, the timeframe shall be specified in Special Permit Condition p. Depending on the scope, duration, and nature of the work, the approving official may require progress reports, during or after the fieldwork period or both, and as specified in Special Permit Condition r.
- r. Permittee shall submit a clean, edited draft final report to the agency official for review to insure conformance with standards, guidelines, regulations, and all stipulations of the permit. The schedule for submitting the draft shall be determined by the agency official.
- s. Permittee shall submit a final report to the approving official not later than 180 days after completion of fieldwork. Where a fieldwork episode involved only minor work and/or minor findings, a final report may be submitted in place of the preliminary report. If the size or nature of fieldwork merits, the approving official may authorize a longer timeframe for the submission of the final report as specified in Special Permit Condition q.
- t. Two copies of the final report, a completed NTIS Report Documentation Page (SF-298), available at <http://www.ntis.gov/pdf/rdpform.pdf>, and a completed NADB-Reports Citation Form, available at http://www.cr.nps.gov/aad/tools/nadbform_update.doc, will be submitted to the office issuing the permit.
- u. The permittee agrees to keep the specific location of sensitive resources confidential. Sensitive resources include threatened species, endangered species, and rare species, archeological sites, caves, fossil sites, minerals, commercially valuable resources, and sacred ceremonial sites.
- v. Permittee shall deposit all artifacts, samples and collections, as applicable, and original or clear copies of all records, data, photographs, and other documents, resulting from work conducted under this permit, with the curatorial facility named in item 12, above, not later than 90 days after the date the final report is submitted to the approving official. Not later than 180 days after the final report is submitted, permittee shall provide the approving official with a catalog and evaluation of all materials deposited with the curatorial facility, including the facility's accession and/or catalog numbers.
- w. Permittee shall provide the approving official with a confirmation that museum collections described in v. above were deposited with the approved curatorial facility, signed by an authorized curatorial facility official, stating the date materials were deposited, and the type, number and condition of the collected museum objects deposited at the facility.
- x. Permittee shall not publish, without the approving official's prior permission, any locational or other identifying archeological site information that could compromise the Government's protection and management of archeological sites.
- y. For excavations, permittee shall consult the OSHA excavation standards which are contained in 29 CFR §1926.650, §1926.651 and §1926.652. For questions regarding these standards contact the local area OSHA office, OSHA at 1-800-321-OSHA, or the OSHA website at <http://www.osha.gov>.
- z. Special permit conditions attached to this permit are made a part hereof.



Permit No.CA-16-03P

DI Form 1991 (Rev Sept 2004) Page 4

16. Special Permit Conditions

- ☒ a. Permittee shall allow the approving official and bureau field officials, or their representatives, full access to the work area specified in this permit at any time the permittee is in the field, for purposes of examining the work area and any recovered materials and related records.
- ☒ b. Permittee shall cease work upon discovering any human remains and shall immediately notify the approving official or bureau field official. Work in the vicinity of the discovery may not resume until the authorized official has given permission.
- ☒ c. Permittee shall backfill all subsurface test exposures and excavation units as soon as possible after recording the results, and shall restore them as closely as reasonable to the original contour.
- ☒ d. Permittee shall not use mechanized equipment in designated, proposed, or potential wilderness areas unless authorized by the agency official or a designee in additional specific conditions associated with this permit.
- ☒ e. Permittee shall take precautions to protect livestock, wildlife, the public, or other users of the public lands from accidental injury in any excavation unit.
- ☒ f. Permittee shall not conduct any flint knapping or lithic replication experiments at any archeological site, aboriginal quarry source, or non-site location that might be mistaken for an archeological site as a result of such experiments.
- ☒ g. Permittee shall perform the fieldwork authorized in this permit in a way that does not impede or interfere with other legitimate uses of the public lands, except when the authorized officer specifically provides otherwise.
- ☒ h. Permittee shall restrict vehicular activity to existing roads and trails unless the authorized officer provides otherwise.
- ☒ i. Permittee shall keep disturbance to the minimum area consistent with the nature and purpose of the fieldwork.
- ☒ j. Permittee shall not cut or otherwise damage living trees unless the authorized officer gives permission.
- ☒ k. Permittee shall take precautions at all times to prevent wildfire. Permittee shall be held responsible for suppression costs for any fires on public lands caused by the permittee's negligence. Permittee may not burn debris without the authorized officer's specific permission.
- ☒ l. Permittee shall conduct all operations in such a manner as to prevent or minimize scarring and erosion of the land, pollution of the water resources, and damage to the watershed.
- ☒ m. Permittee shall not disturb resource management facilities within the permit area, such as fences, reservoirs, and other improvements, without the authorized officer's approval. Where disturbance is necessary, permittee shall return the facility to its prior condition, as determined by the authorized officer.
- ☒ n. Permittee shall remove temporary stakes and/or flagging, which the permittee has installed, upon completion of fieldwork.
- ☒ o. Permittee shall clean all camp and work areas before leaving the permit area. Permittee shall take precautions to prevent littering or pollution on public lands, waterways, and adjoining properties. Refuse shall be carried out and deposited in approved disposal areas.
- ☐ p. Permittee shall submit the preliminary report within _____ days/weeks of completion of any episode of fieldwork..
- ☐ q. Permittee shall submit the final report within _____ days/weeks/months after completion of fieldwork..
- ☐ r. Permittee shall submit progress reports every _____ months over the duration of the project.
- ☒ s. California special permit conditions are attached.



Permit No. CA-16-03P

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Special Permit Conditions Continuation Sheet: California Conditions

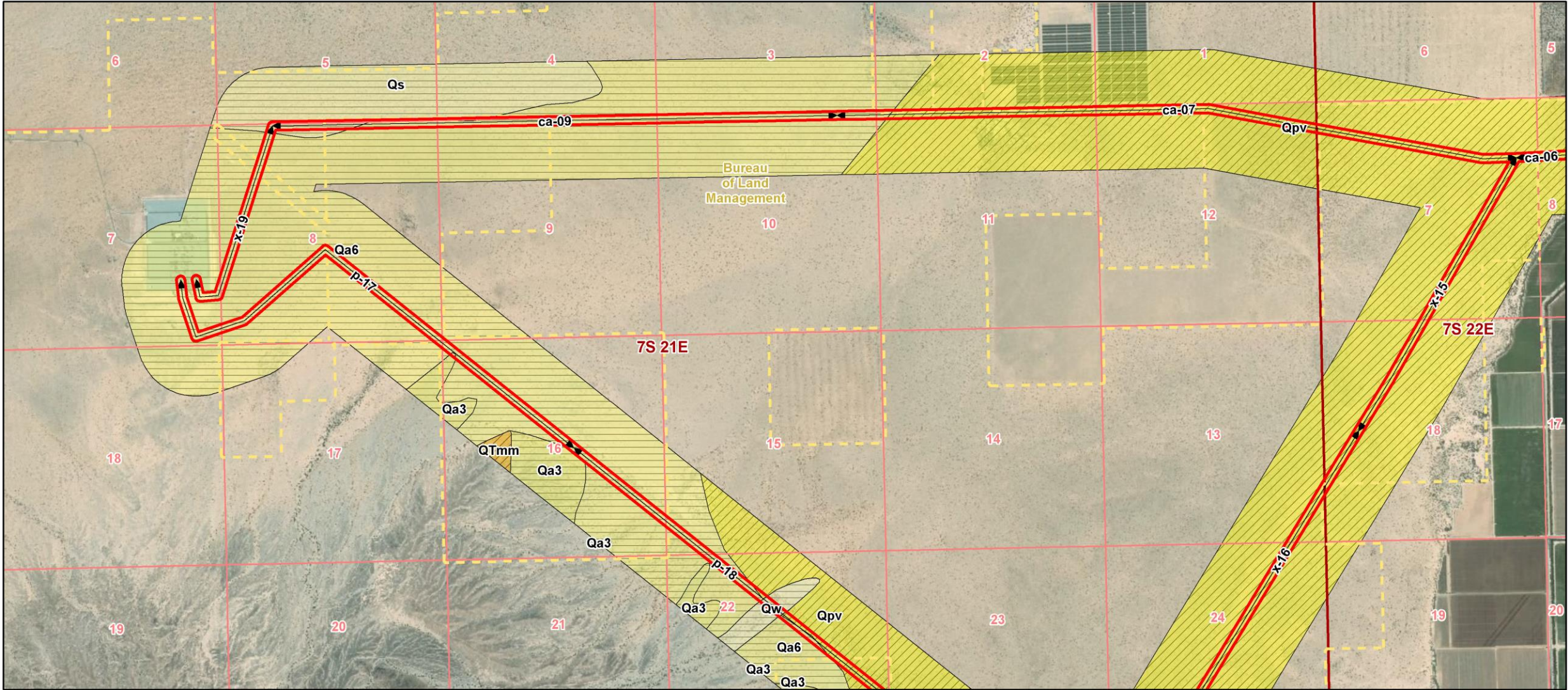
- a. Work under this permit is limited to specific service approved for each permit. This may consist of non-collection survey, limited testing to determine site content and limits or extensive testing emergency excavation and/or salvage projects. Testing/ excavation projects may be conducted under the authority of this permit only upon completion of ARPA consultation with Native American Groups and written approval from the Bureau for such work. (CARIDAPs for the purpose of the identification of archaeological resources are authorized under a FLPMA/ARPA Permit).
- b. Permittees shall verbally and subsequently in writing contact the appropriate BLM Field Manager prior to the beginning of each of his field operations (with follow-up written notification) to inform the BLM of specific work to be conducted. At this time, the BLM Field Manager may impose additional stipulation as deemed necessary to provide for the protection and management of resource values in the general site or project area.
- c. All cultural artifacts and other related materials such as notes, photographs, etc., acquired under the provisions of this permit **remain the property of the United States Government and may be recalled at any time for the use of the Department of the interior or other agencies of the Federal Government.** Cultural materials collected under the provisions of this permit must be curated at a repository approved by the BLM. Curation shall be at a local qualified repository, if feasible, and an approved curation facility shall be designated prior to all field projects. An itemized list of all materials with accession numbers, curated at the repository will be submitted to the State Office and to the appropriate Field Office within 180 days of the completion of individual field projects. A copy of a receipt from the curation facility must be submitted with the list or catalogue.
- d. Permittees shall acquire a primary number from the appropriate Information Center for each cultural resource documented while undertaking work authorized by this permit.
- e. The BLM Field Manager or authorized representative may require a monthly letter progress report outlining what was accomplished. This report, if required, is due by the fifth day of the following month, unless different arrangements are approved.
- f. The individual(s) in direct charge must be academically qualified and possess adequate field experience. At least two weeks prior to initiation field work, the permittees must provide the BLM Field Manager with the vitae of individuals proposed to be in direct charge if not approved at the time of permit issuance. A list of field crew members should be submitted at the same time. Only the individual(s) listed in Item No. 8 of the permit is/are authorized to be in direct charge of field work conducted under this permit.
- g. The person(s) in direct charge of field work, shall be on site at all times when work is in progress. Failure to comply with permit stipulations will result in removal of subject's name(s) from the approved list of person-in-direct-charge.
- h. Care should be exercised to avoid directly or indirectly increasing access or potential vandalism to sensitive sites.
- i. All National Permit Stipulations are binding. The authority for issuing permits in the Bureau of Land Management rests solely with the State Director as Delegated by the Secretary of the Interior and all further delegation is prohibited by Secretarial Order. No Modification of National Permit Conditions 8 or 9 or of the California Special Permit Conditions may occur except by written decision of the State Director.
- j. The Bureau of Land Management shall be cited in any report of work done under this permit, including publications such as books, news articles and scientific publications, as well as oral reports, films, television programs, and presentations in other media.

By signing below, I, the Principal Investigator, acknowledge that I have read and understand the Permit for Archeological Investigations and agree to its terms and conditions as evidenced by my signature below and initiation of work or other activities under the authority of this permit.

Signature and title: 	Date: 03/17/2016
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APPENDIX B: GEOLOGIC AND PALEONTOLOGICAL POTENTIAL MAPS



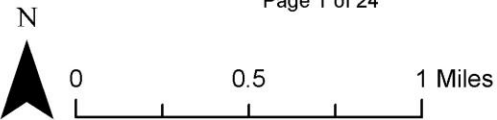
Basemap from ESRI; Geology from Miller, 1970; Ort and Skotnicki, 1993; Richard et al., 1994; Sherrod et al., 1990; and Stone, 1988-1990 and 2006.

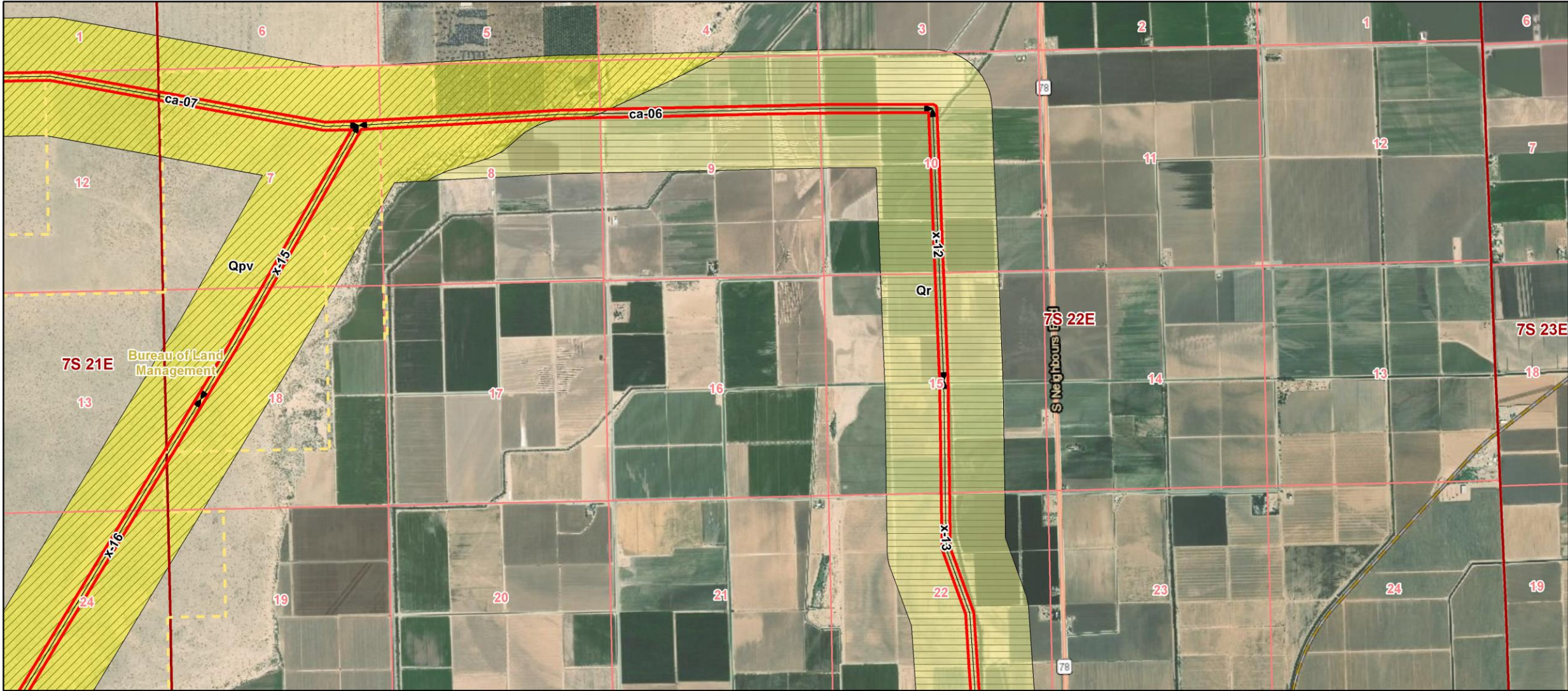
Ten West Link Transmission Line Project

- ROW of BLM Preferred Route(s) and Subalternatives
- Centerline (Arrows Denote Ends of Segments)
- Bureau of Land Management (BLM)
- PLSS Township
- PLSS Section
- Geology Description**
- Qw: Alluvium of modern washes (Holocene)

- Qs: Eolian sand (Holocene)
- Qa6: Alluvial-fan and alluvial-valley deposits, Unit 6 (Holocene)
- Qa3: Alluvial-fan and alluvial-valley deposits, Unit 3 (Holocene and Pleistocene)
- Qpv: Alluvial deposits of Palo Verde Mesa (Pleistocene)
- QTmm: Alluvial deposits of the Mule Mountains (Pleistocene or Pliocene)

- Paleontological Potential (PFYC)**
- Class 2 - Low
- Class 3 - Moderate





Basemap from ESRI; Geology from Miller, 1970; Ort and Skotnicki, 1993; Richard et al., 1994; Sherrod et al., 1990; and Stone, 1988-1990 and 2006.

Ten West Link Transmission Line Project

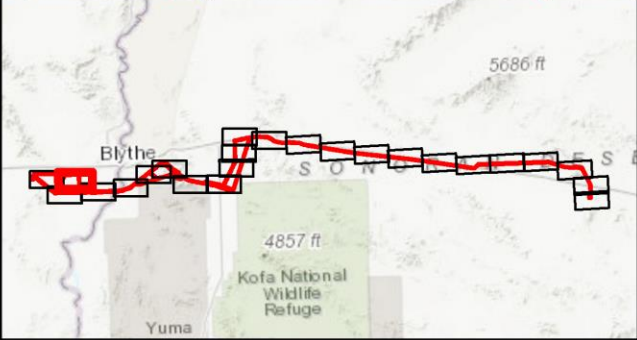
- ROW of BLM Preferred Route(s) and Subalternatives
- Centerline (Arrows Denote Ends of Segments)
- Bureau of Land Management (BLM)
- PLSS Township
- PLSS Section

Geology Description

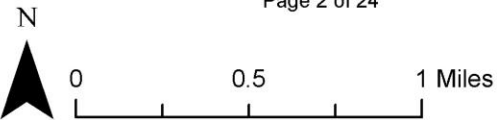
- Qr: Alluvium of the modern Colorado River flood plain (Holocene)
- Qpv: Alluvial deposits of Palo Verde Mesa (Pleistocene)

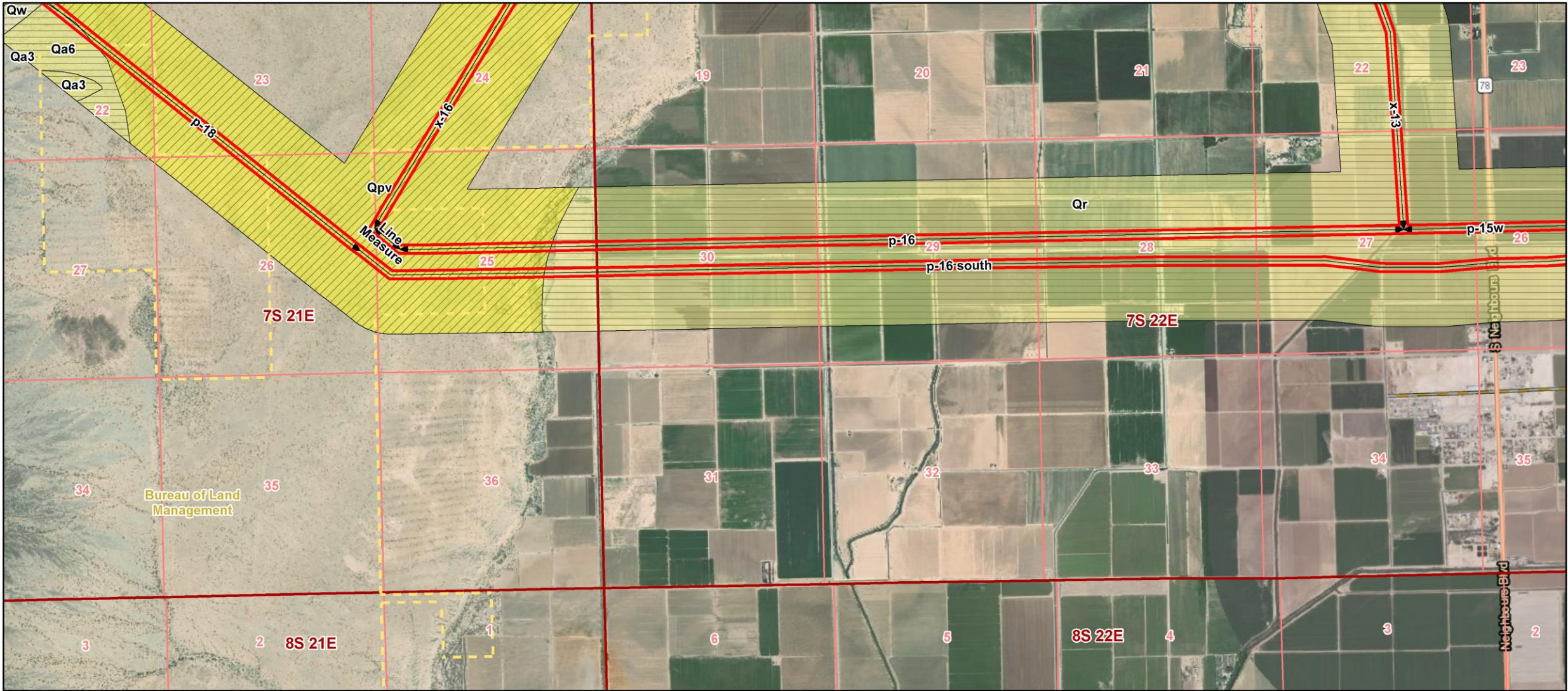
Paleontological Potential (PFYC)

- Class 2 - Low
- Class 3 - Moderate



Page 2 of 24





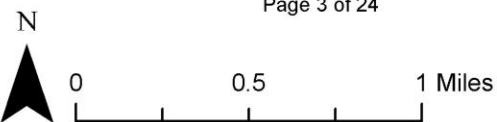
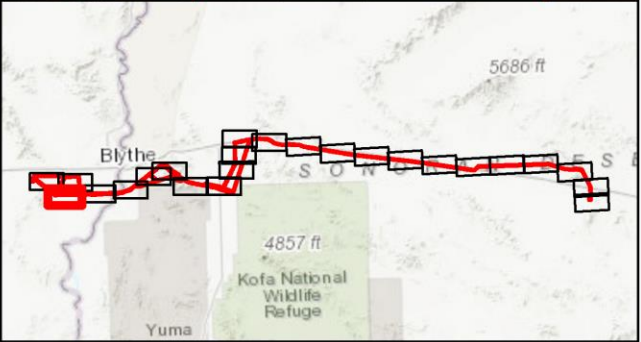
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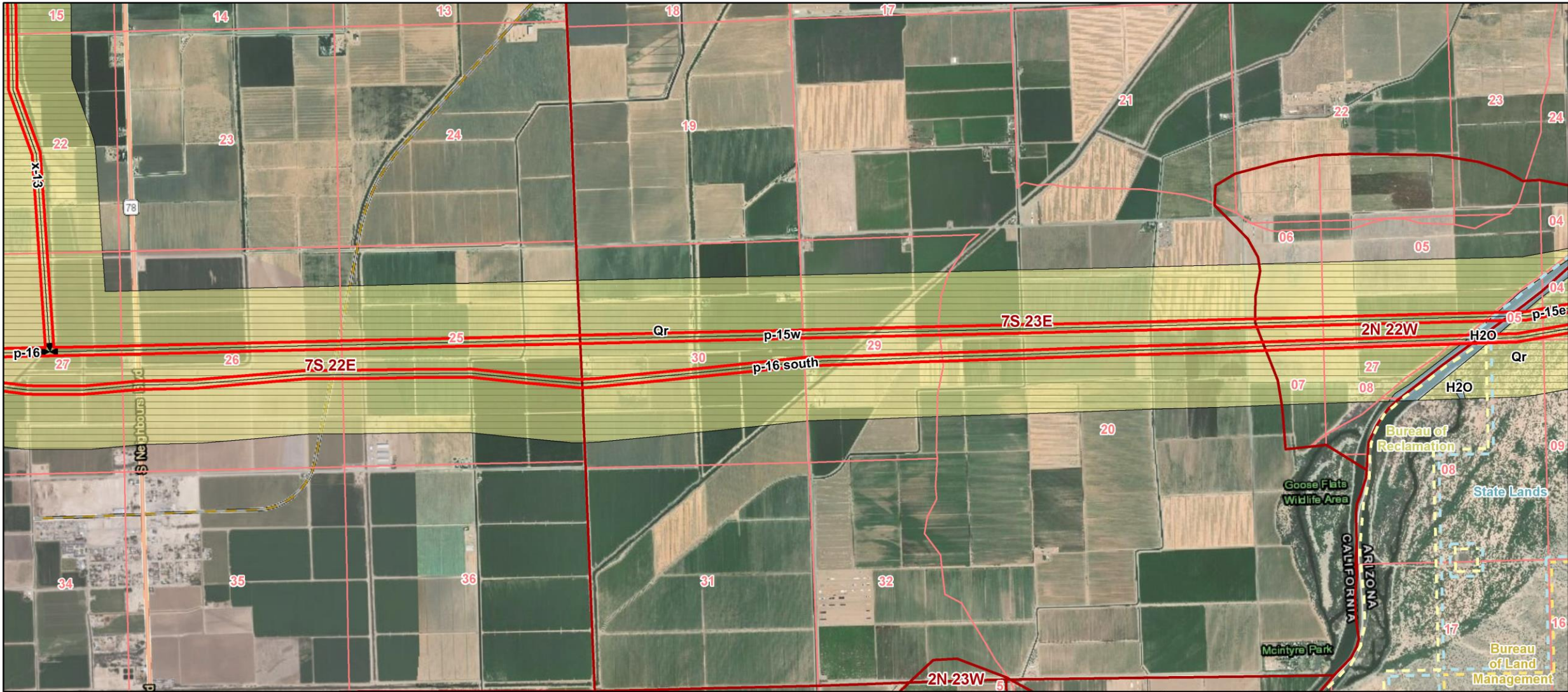
Ten West Link Transmission Line Project

- ROW of BLM Preferred Route(s) and Subalternatives
- Centerline (Arrows Denote Ends of Segments)
- Bureau of Land Management (BLM)
- PLSS Township
- PLSS Section
- Geology Description**
- Qw: Alluvium of modern washes (Holocene)

- Qr: Alluvium of the modern Colorado River flood plain (Holocene)
- Qa6: Alluvial-fan and alluvial-valley deposits, Unit 6 (Holocene)
- Qa3: Alluvial-fan and alluvial-valley deposits, Unit 3 (Holocene and Pleistocene)
- Qpv: Alluvial deposits of Palo Verde Mesa (Pleistocene)

- Paleontological Potential (PFYC)**
- Class 2 - Low
 - Class 3 - Moderate

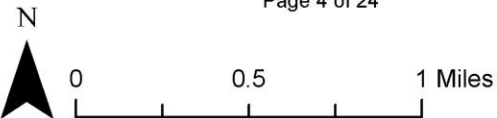
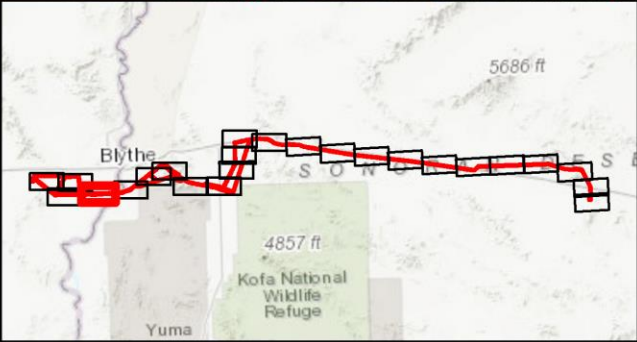


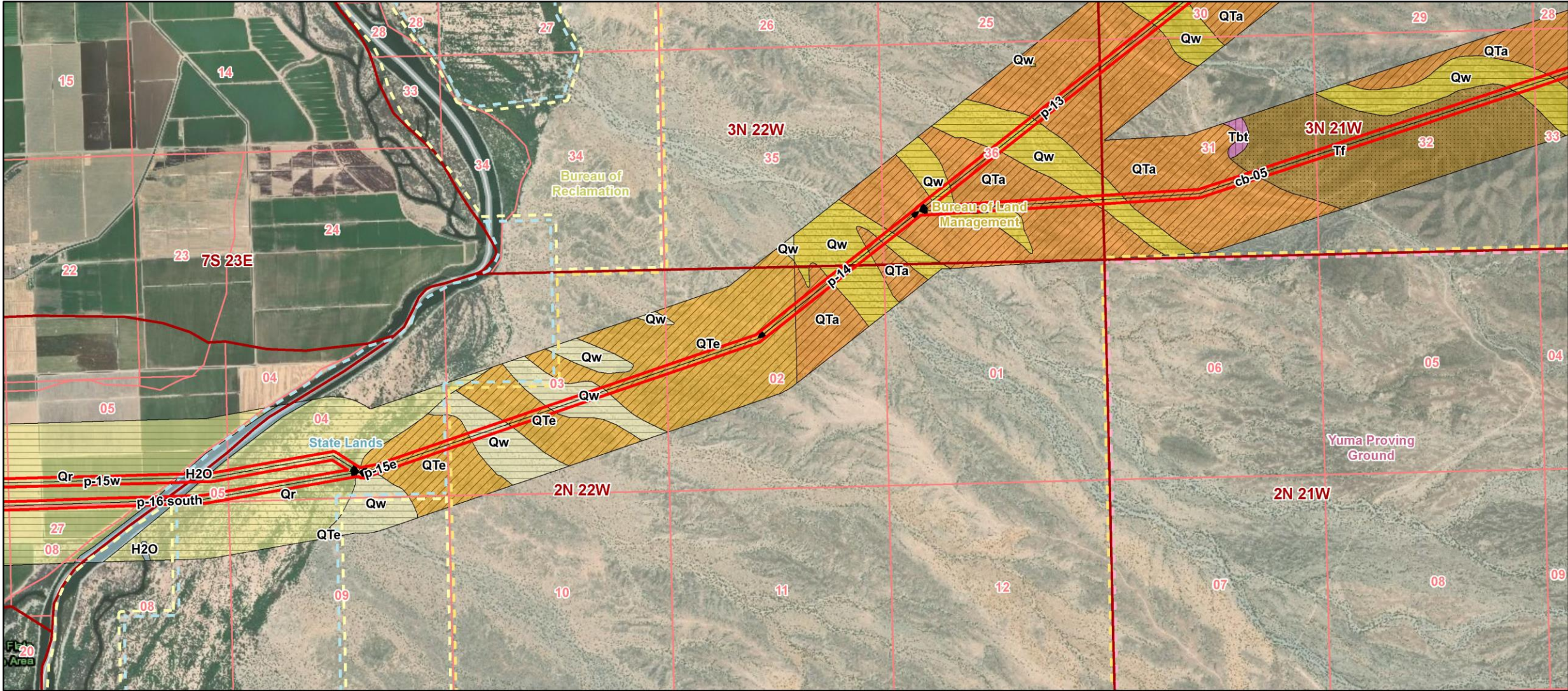


Ten West Link Transmission Line Project

Basemap from ESRI; Geology from Miller, 1970; Ort and Skotnicki, 1993; Richard et al., 1994; Sherrod et al., 1990; and Stone, 1988-1990 and 2006.

- | | |
|---|--|
| ROW of BLM Preferred Route(s) and Subalternatives | Geology Description |
| Centerline (Arrows Denote Ends of Segments) | H2O: water |
| Bureau of Land Management (BLM) | Qr: Alluvium of the modern Colorado River flood plain (Holocene) |
| Bureau of Reclamation (BOR) | Paleontological Potential (PFYC) |
| State | Class 2 - Low |
| PLSS Township | Class W - Water |
| PLSS Section | |





Ten West Link Transmission Line Project

Basemap from ESRI; Geology from Miller, 1970; Ort and Skotnicki, 1993; Richard et al., 1994; Sherrod et al., 1990; and Stone, 1988-1990 and 2006.

- ROW of BLM Preferred Route(s) and Subalternatives
- Centerline (Arrows Denote Ends of Segments)
- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- Bureau of Reclamation (BOR)
- State
- PLSS Township

Geology Description

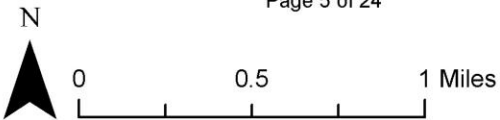
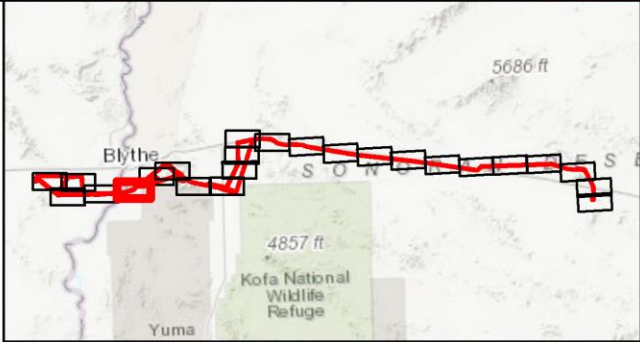
- H2O: water
- Qw: Alluvium of modern washes (Holocene)
- Qr: Alluvium of the modern Colorado River flood plain (Holocene)
- Qw: Alluvium of modern washes (Quaternary)

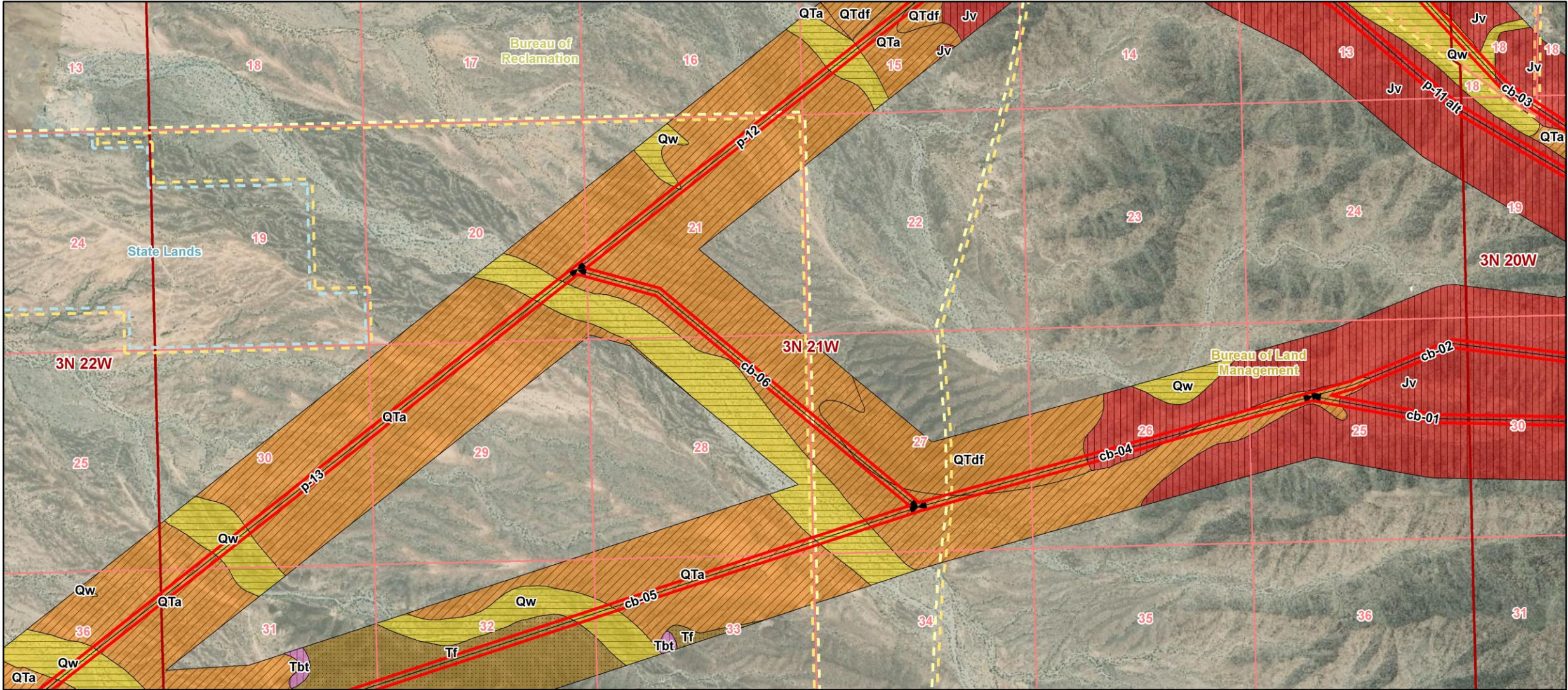
- QTe: Alluvial deposits of the Ehrenberg area (Pleistocene and/or Pliocene)
- QTa: Alluvial fan and fluvial deposits (Quaternary and Tertiary?)
- Tbt: Tufa (Tertiary?)
- Tf: Fanglomerate, sedimentary breccia, and slide blocks (Miocene and Oligocene?)

Paleontological Potential (PFYC)

- Class 1 - Very Low

- Class 2 - Low
- Class 3 - Moderate
- Class U - Unknown Potential
- Class W - Water





Ten West Link Transmission Line Project

- ROW of BLM Preferred Route(s) and Subalternatives
- Centerline (Arrows Denote Ends of Segments)
- Bureau of Land Management (BLM)
- Bureau of Reclamation (BOR)
- Bureau of Indian Affairs (BIA)
- State
- PLSS Township

PLSS Section

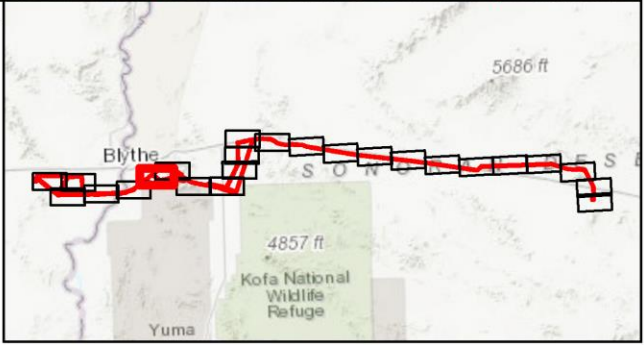
Geology Description

- Qw: Alluvium of modern washes (Quaternary)
- QTdf: Dissected fan deposits (Quaternary or Tertiary)
- QTa: Alluvial fan and fluvial deposits (Quaternary and Tertiary?)
- Tbt: Tufa (Tertiary?)

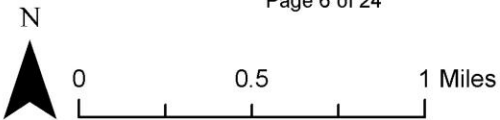
- Tf: Fanglomerate, sedimentary breccia, and slide blocks (Miocene and Oligocene?)
- Jv: Volcanic rocks of the Dome Rock sequence (Jurassic)

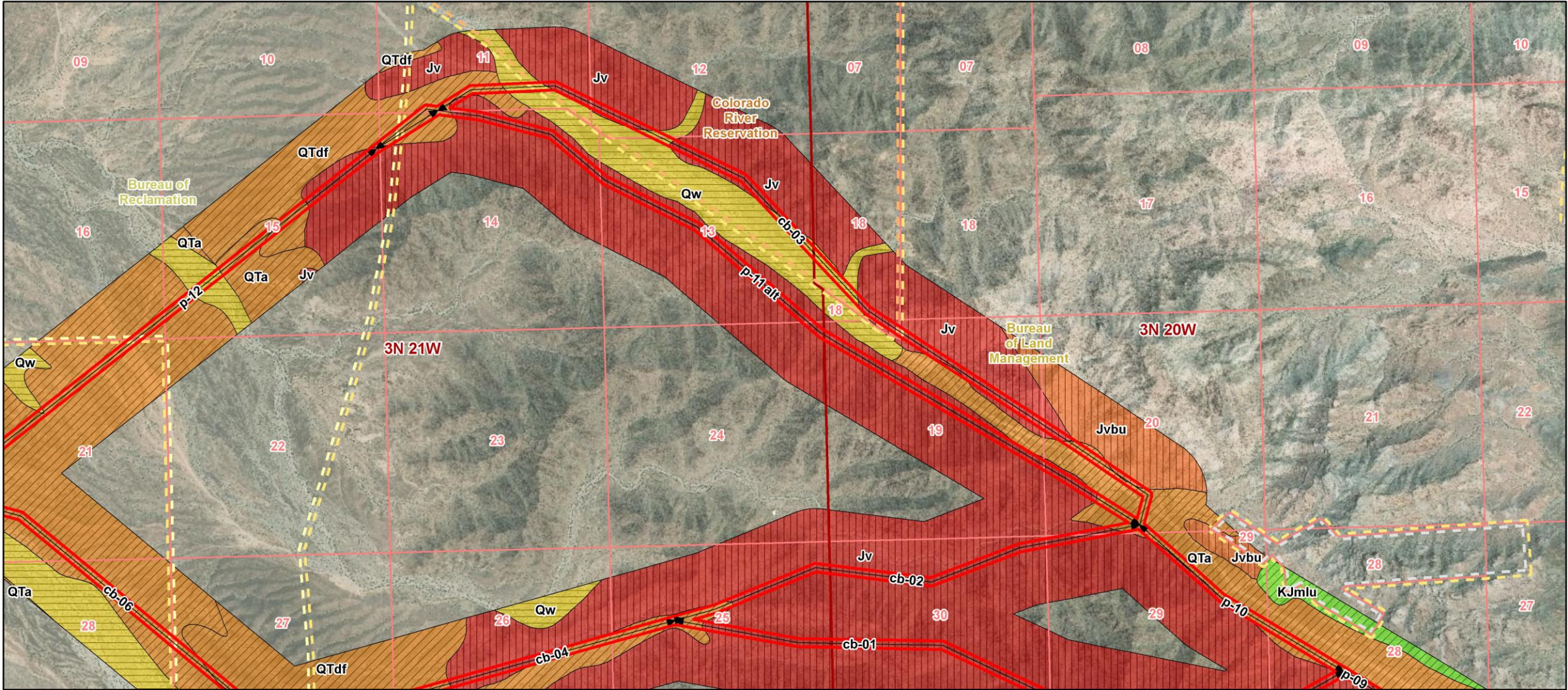
Paleontological Potential (PFYC)

- Class 1 - Very Low
- Class 2 - Low
- Class 3 - Moderate
- Class U - Unknown Potential



Page 6 of 24





Basemap from ESRI; Geology from Miller, 1970; Ort and Skotnicki, 1993; Richard et al., 1994; Sherrod et al., 1990; and Stone, 1988-1990 and 2006.

Ten West Link Transmission Line Project

- ROW of BLM Preferred Route(s) and Subalternatives
- Centerline (Arrows Denote Ends of Segments)
- Bureau of Land Management (BLM)
- Bureau of Reclamation (BOR)
- Bureau of Indian Affairs (BIA)
- Private or Unknown
- PLSS Township

PLSS Section

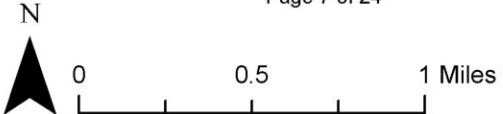
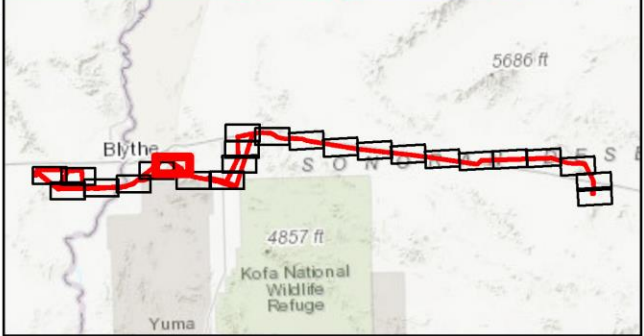
Geology Description

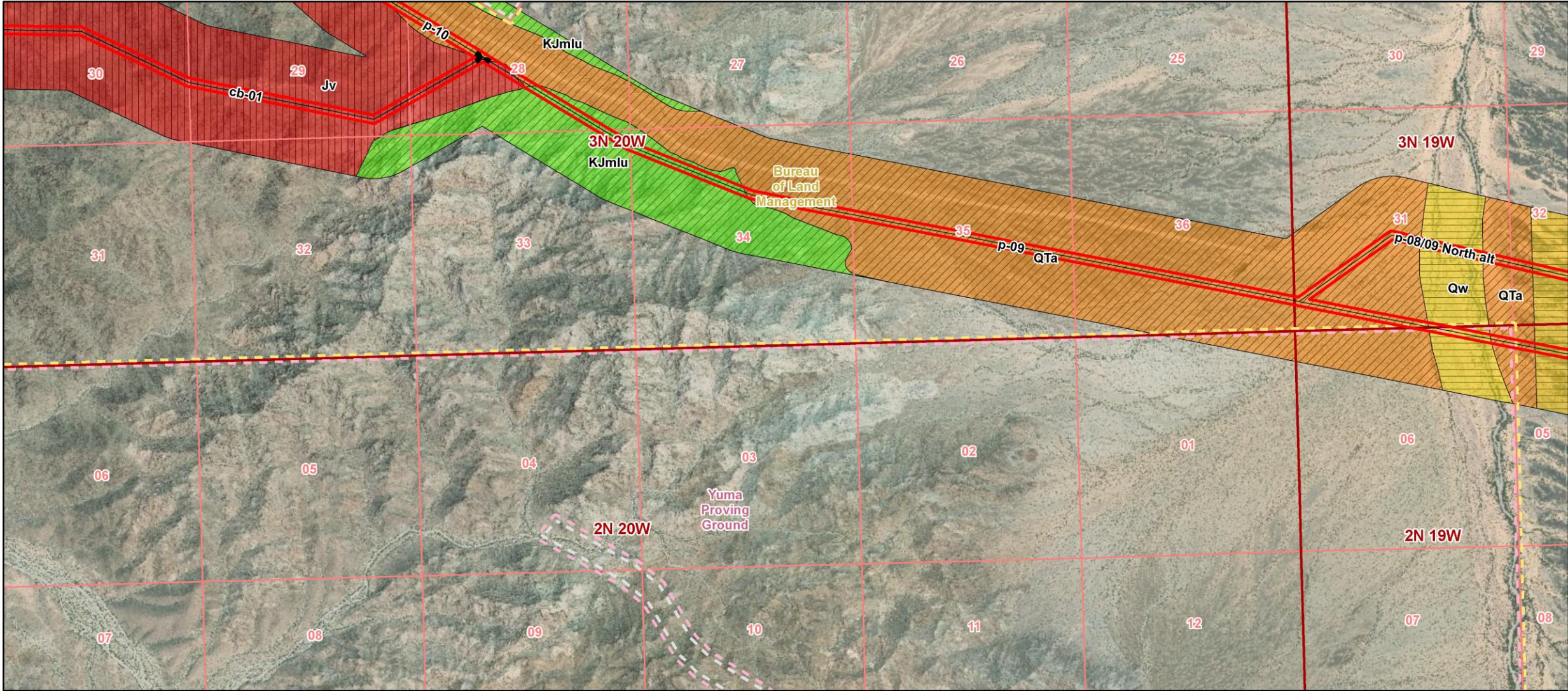
- Qw: Alluvium of modern washes (Quaternary)
- QTdf: Dissected fan deposits (Quaternary or Tertiary)
- QTa: Alluvial fan and fluvial deposits (Quaternary and Tertiary?)
- KJmlu: McCoy Mountains Formations, lower part, undivided (Cretaceous or Jurassic)

- Jvbu: Volcanic rocks of the Dome Rock sequence, upper bedded unit (Jurassic)
- Jv: Volcanic rocks of the Dome Rock sequence (Jurassic)

Paleontological Potential (PFYC)

- Class 1 - Very Low
- Class 2 - Low
- Class 3 - Moderate





Basemap from ESRI; Geology from Miller, 1970; Ort and Skotnicki, 1993; Richard et al., 1994; Sherrod et al., 1990; and Stone, 1988-1990 and 2006.

Ten West Link Transmission Line Project

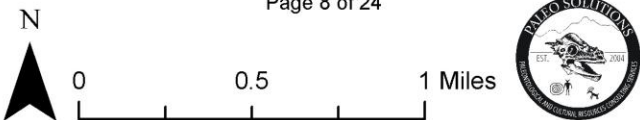
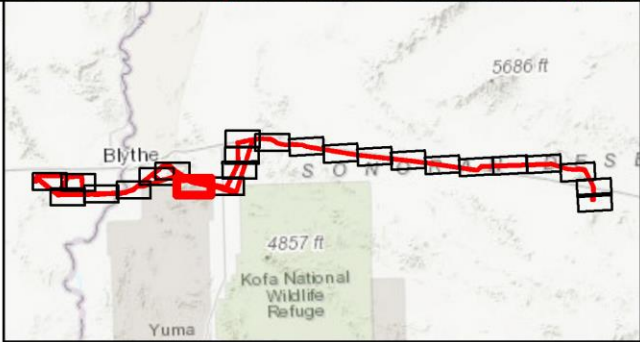
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- Centerline (Arrows Denote Ends of Segments)
- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- Private or Unknown
- PLSS Township
- PLSS Section

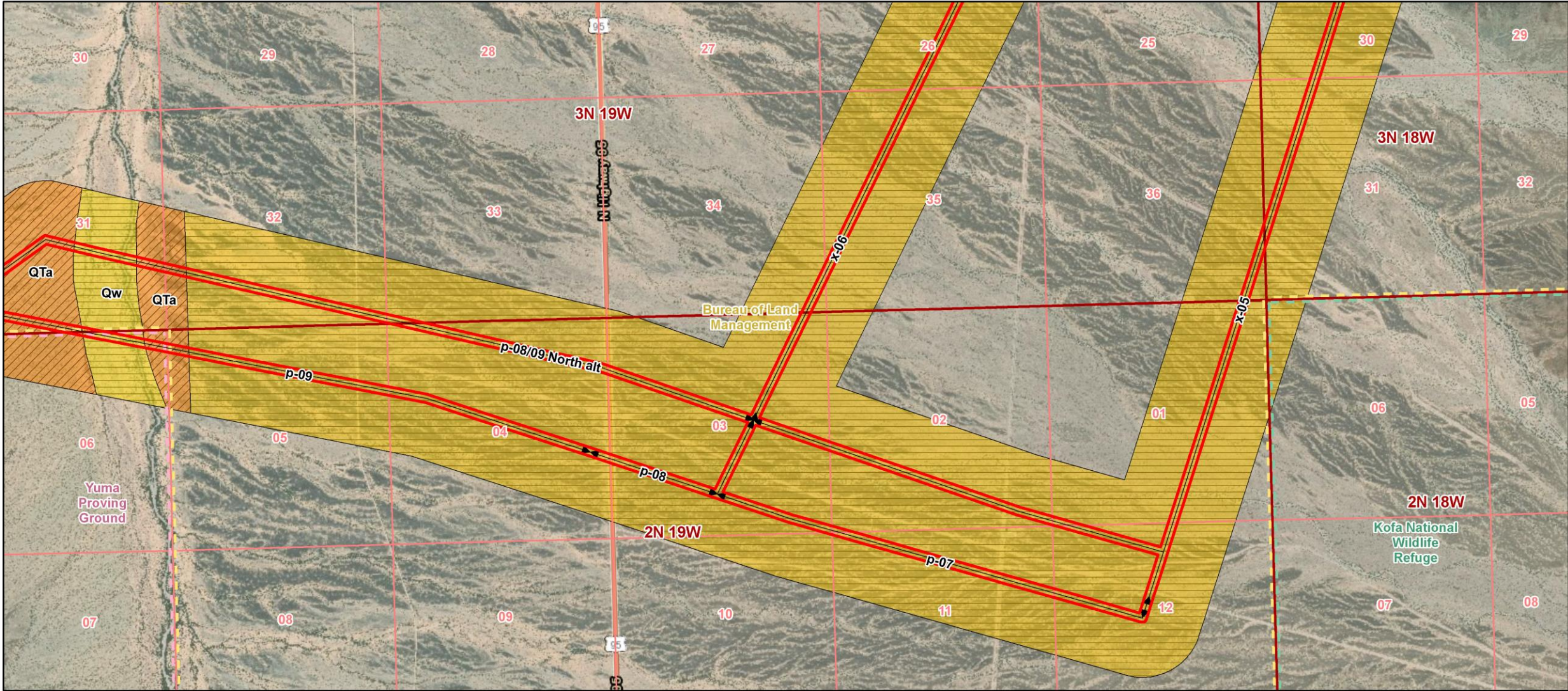
Geology Description

- Qw: Alluvium of modern washes (Quaternary)
- Qat: Alluvium and talus (Quaternary)
- QTa: Alluvial fan and fluvial deposits (Quaternary and Tertiary?)
- KJmlu: McCoy Mountains Formations, lower part, undivided (Cretaceous or Jurassic)
- Jv: Volcanic rocks of the Dome Rock sequence (Jurassic)

Paleontological Potential (PFYC)

- Class 1 - Very Low
- Class 2 - Low
- Class 3 - Moderate





Basemap from ESRI; Geology from Miller, 1970; Ort and Skotnicki, 1993; Richard et al., 1994; Sherrod et al., 1990; and Stone, 1988-1990 and 2006.

Ten West Link Transmission Line Project

- ROW of BLM Preferred Route(s) and Subalternatives
- Centerline (Arrows Denote Ends of Segments)
- Department Of Defense (DOD)
- Bureau of Land Management (BLM)
- US Fish and Wildlife (USFW)
- PLSS Township
- PLSS Section

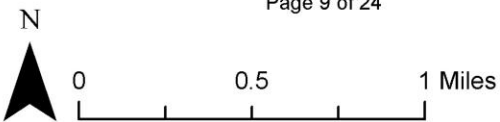
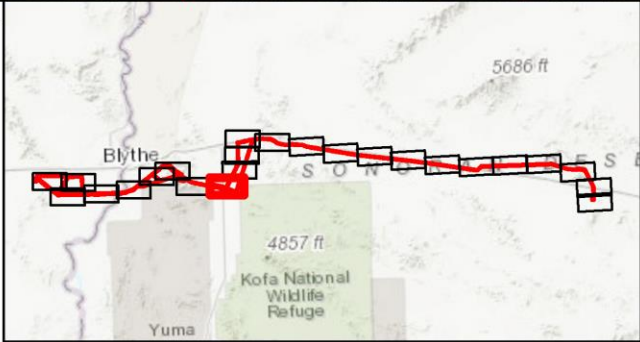
Geology Description

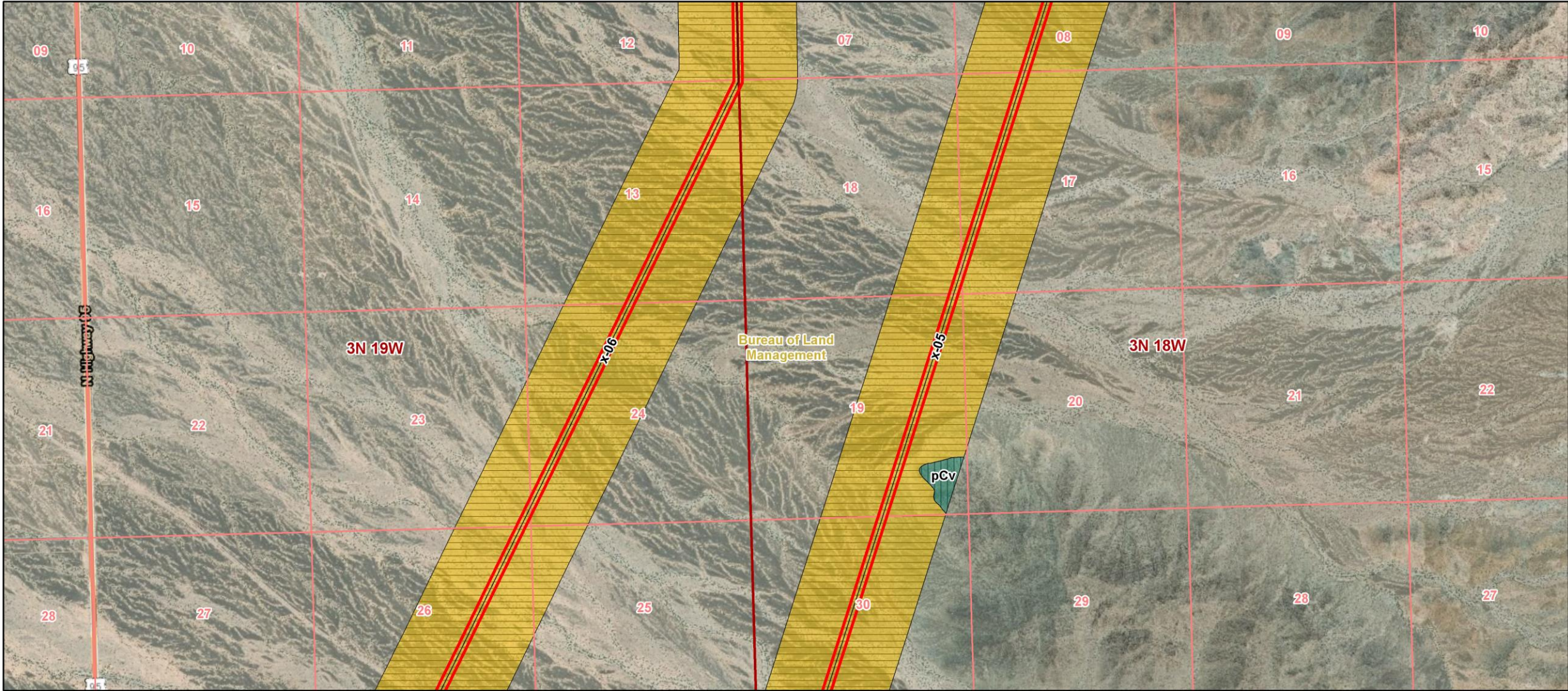
- Qw: Alluvium of modern washes (Quaternary)
- Qat: Alluvium and talus (Quaternary)
- QTa: Alluvial fan and fluvial deposits (Quaternary and Tertiary?)

Paleontological Potential (PFYC)

- Class 2 - Low










- Class 3 - Moderate

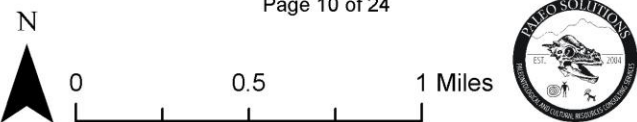
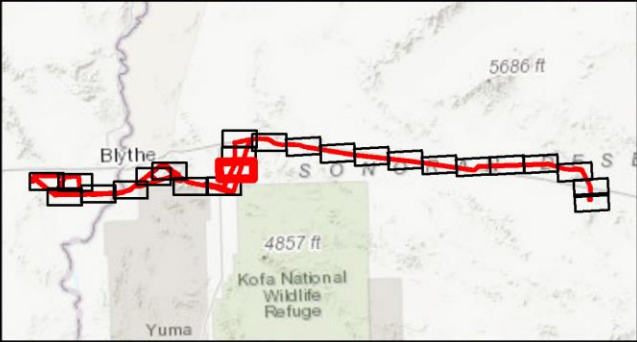


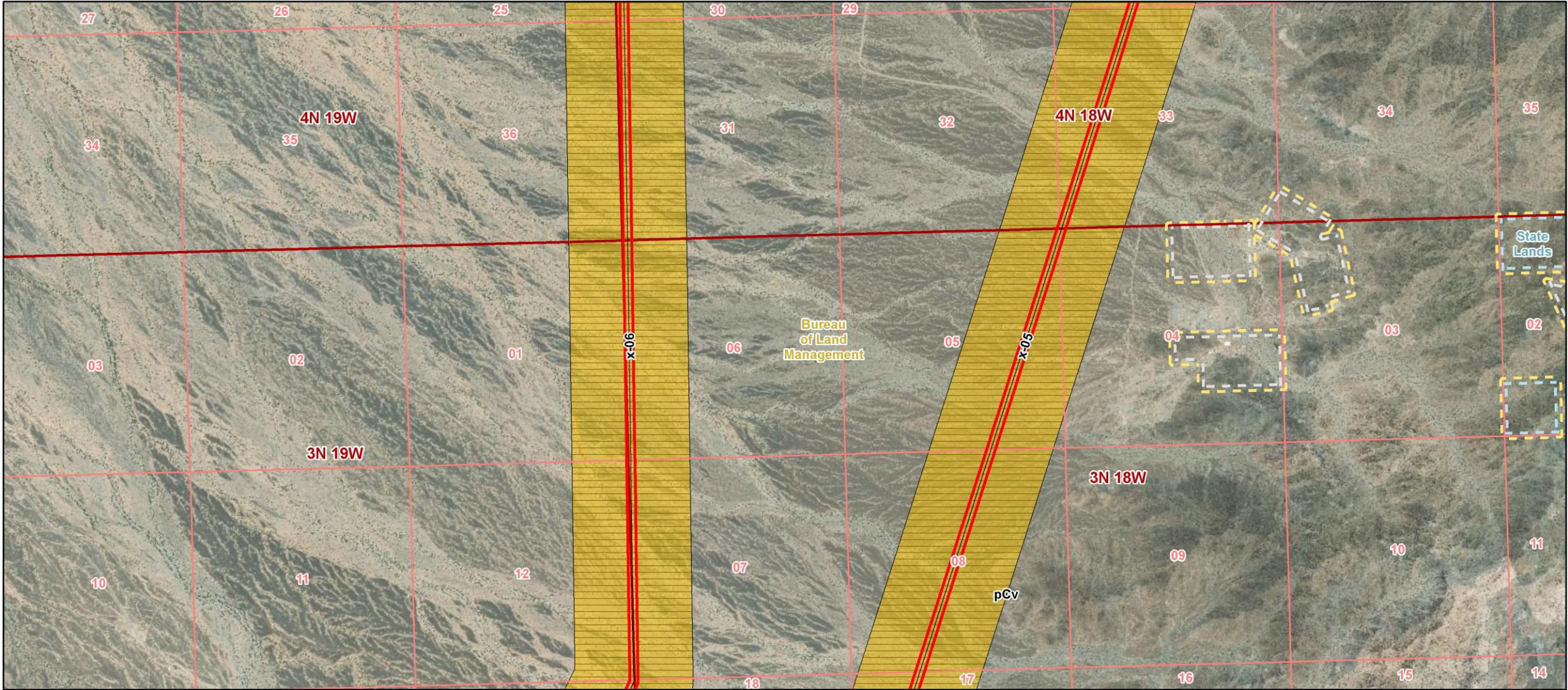


Basemap from ESRI; Geology from Miller, 1970; Ort and Skotnicki, 1993; Richard et al., 1994; Sherrod et al., 1990; and Stone, 1988-1990 and 2006.

Ten West Link Transmission Line Project

- | | |
|---|---|
|  ROW of BLM Preferred Route(s) and Subalternatives |  pCv: Metavolcanic rocks (Precambrian or Mesozoic) |
|  Centerline (Arrows Denote Ends of Segments) | Paleontological Potential (PFYC) |
|  Bureau of Land Management (BLM) |  Class 1 - Very Low |
|  PLSS Township |  Class 2 - Low |
|  PLSS Section | |
| Geology Description | |
|  Qat: Alluvium and talus (Quaternary) | |



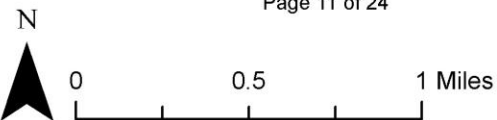


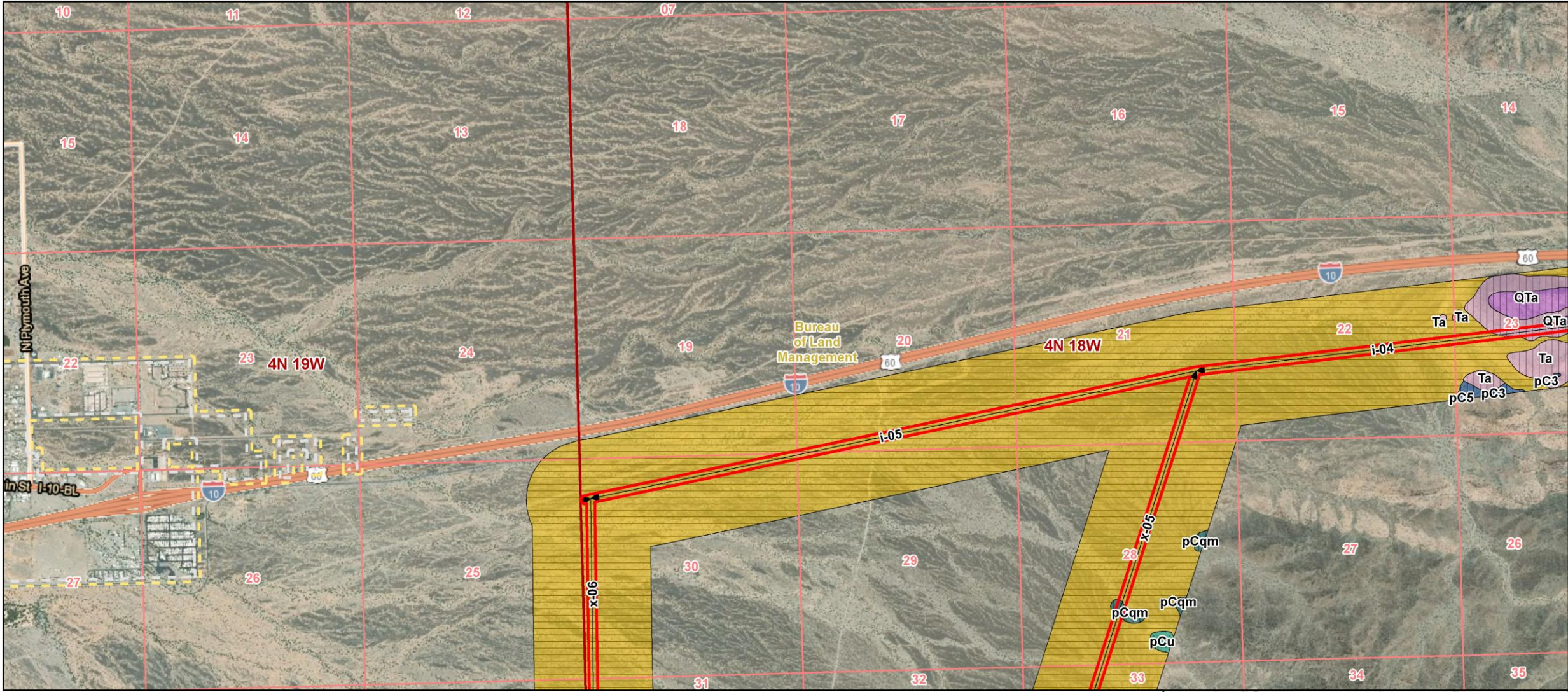
Basemap from ESRI; Geology from Miller, 1970; Ort and Skotnicki, 1993; Richard et al., 1994; Sherrod et al., 1990; and Stone, 1988-1990 and 2006.

Ten West Link Transmission Line Project

- ROW of BLM Preferred Route(s) and Subalternatives
- Centerline (Arrows Denote Ends of Segments)
- Bureau of Land Management (BLM)
- State
- Private or Unknown
- PLSS Township
- PLSS Section

- Geology Description**
- Qat: Alluvium and talus (Quaternary)
 - pCv: Metavolcanic rocks (Precambrian or Mesozoic)
- Paleontological Potential (PFYC)**
- Class 1 - Very Low
 - Class 2 - Low





Ten West Link Transmission Line Project

Basemap from ESRI; Geology from Miller, 1970; Ort and Skotnicki, 1993; Richard et al., 1994; Sherrod et al., 1990; and Stone, 1988-1990 and 2006.

- ROW of BLM Preferred Route(s) and Subalternatives
- Centerline (Arrows Denote Ends of Segments)
- Bureau of Land Management (BLM)
- Private or Unknown
- PLSS Township
- PLSS Section

Geology Description

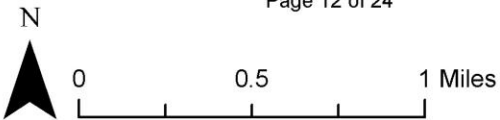
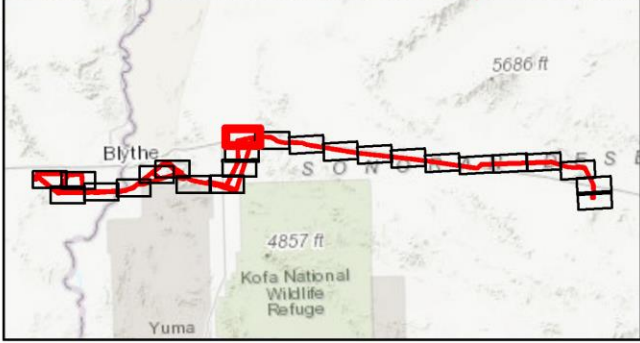
- Qat: Alluvium and talus (Quaternary)
- QTa: Hornblende-biotite andesite (Quaternary or Tertiary)
- Ta: Older hornblende-biotite andesite (Tertiary)
- pC5: Dolomite; tan, chert, massively bedded, Unit 5 (Paleozoic(?))

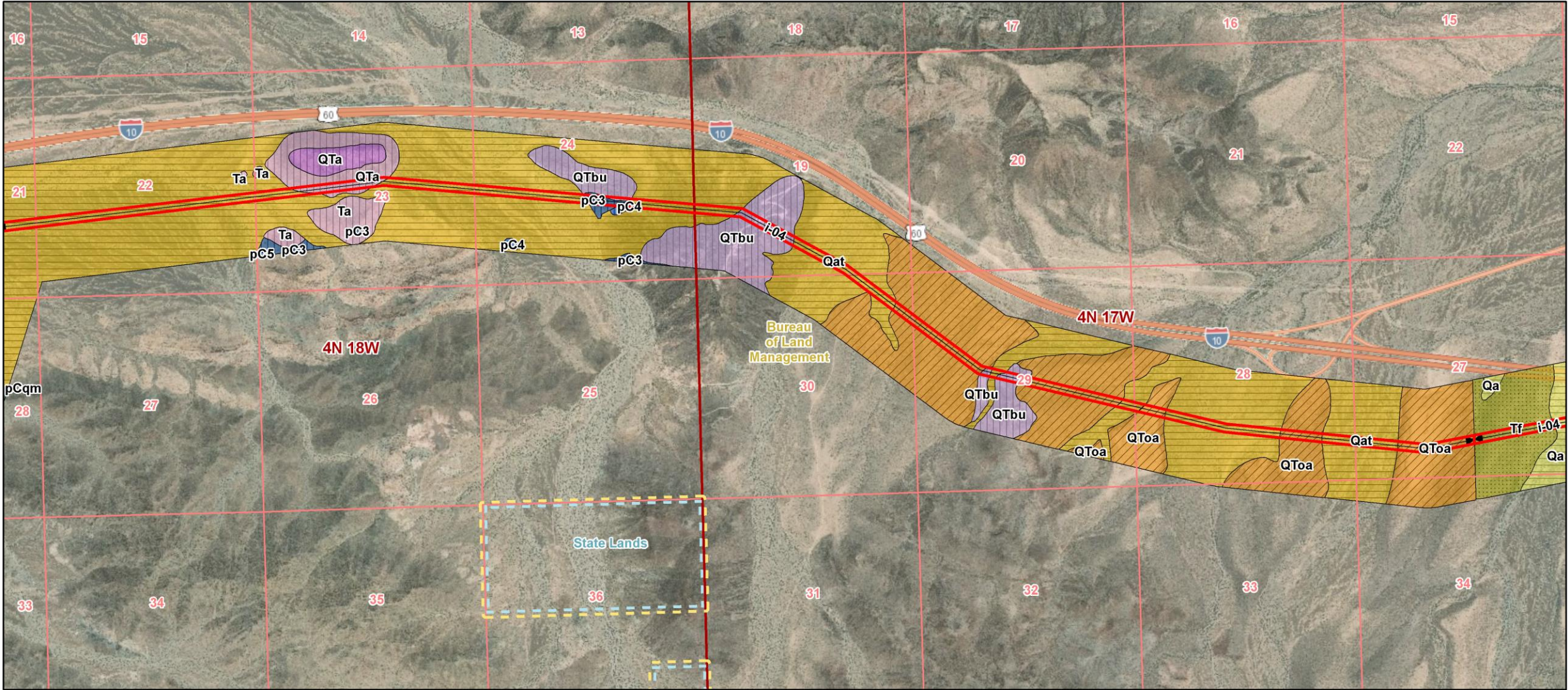
- pC3: Quartz-albite-muscovite-chlorite schist; meta-tuffaceous rock, Unit 3 (Paleozoic(?))
- pCu: Paleozoic(?) rocks and Precambrian or Mesozoic rocks, undifferentiated (Paleozoic(?))
- pCqm: Quartz monzonite (Precambrian)

Paleontological Potential (PFYC)

- Class 1 - Very Low
- Class 2 - Low

- Class U - Unknown Potential





Basemap from ESRI; Geology from Miller, 1970; Ort and Skotnicki, 1993; Richard et al., 1994; Sherrod et al., 1990; and Stone, 1988-1990 and 2006.

Ten West Link Transmission Line Project

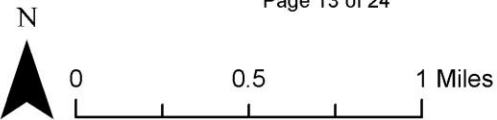
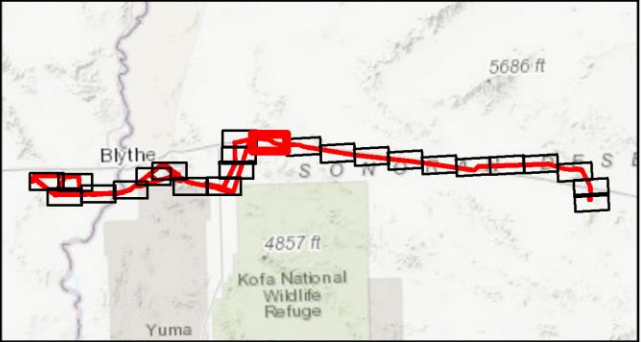
- ROW of BLM Preferred Route(s) and Subalternatives
- Centerline (Arrows Denote Ends of Segments)
- Bureau of Land Management (BLM)
- State
- PLSS Township
- PLSS Section

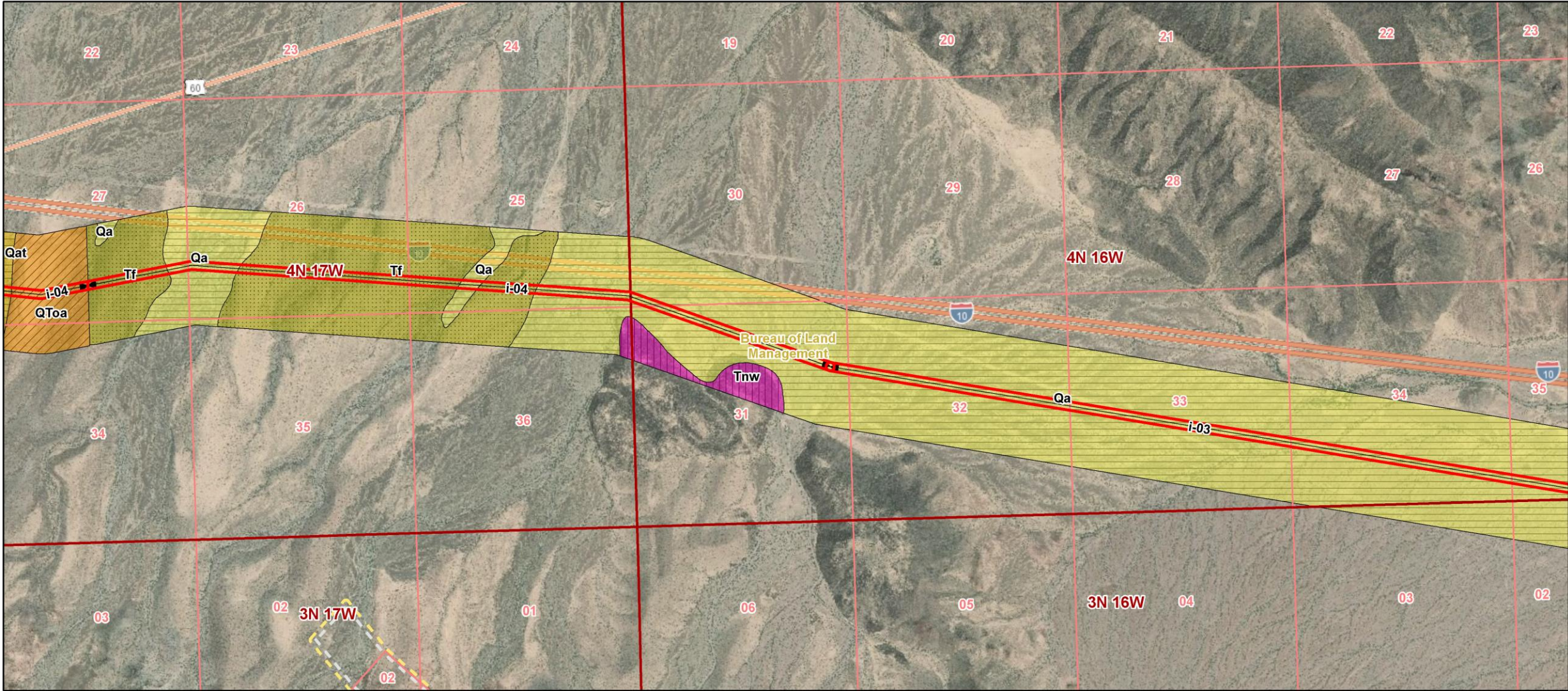
Geology Description

- Qa: Alluvium (Holocene and Pleistocene)
- Qat: Alluvium and talus (Quaternary)
- QToa: Older Alluvium (Quaternary or Tertiary)
- QTbu: Basalt of Black Mesa (Quaternary or Tertiary)
- QTa: Hornblende-biotite andesite (Quaternary or Tertiary)

- Ta: Older hornblende-biotite andesite (Tertiary)
- Tf: Fanglomerate (Miocene)
- pC5: Dolomite; tan, chert, massively bedded, Unit 5 (Paleozoic(?))
- pC4: Vitreous quartzite, medium to massively bedded, Unit 4 (Paleozoic(?))
- pC3: Quartz-albite-muscovite-chlorite schist; meta-tuffaceous rock, Unit 3 (Paleozoic(?))

- pCqm: Quartz monzonite (Precambrian)
- Paleontological Potential (PFYC)**
- Class 1 - Very Low
- Class 2 - Low
- Class 3 - Moderate
- Class U - Unknown Potential





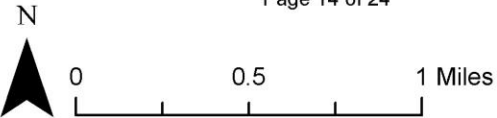
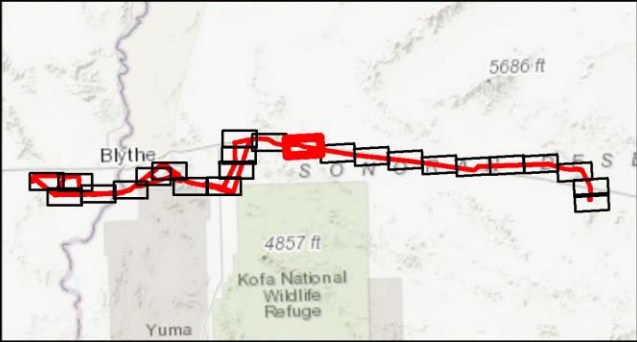
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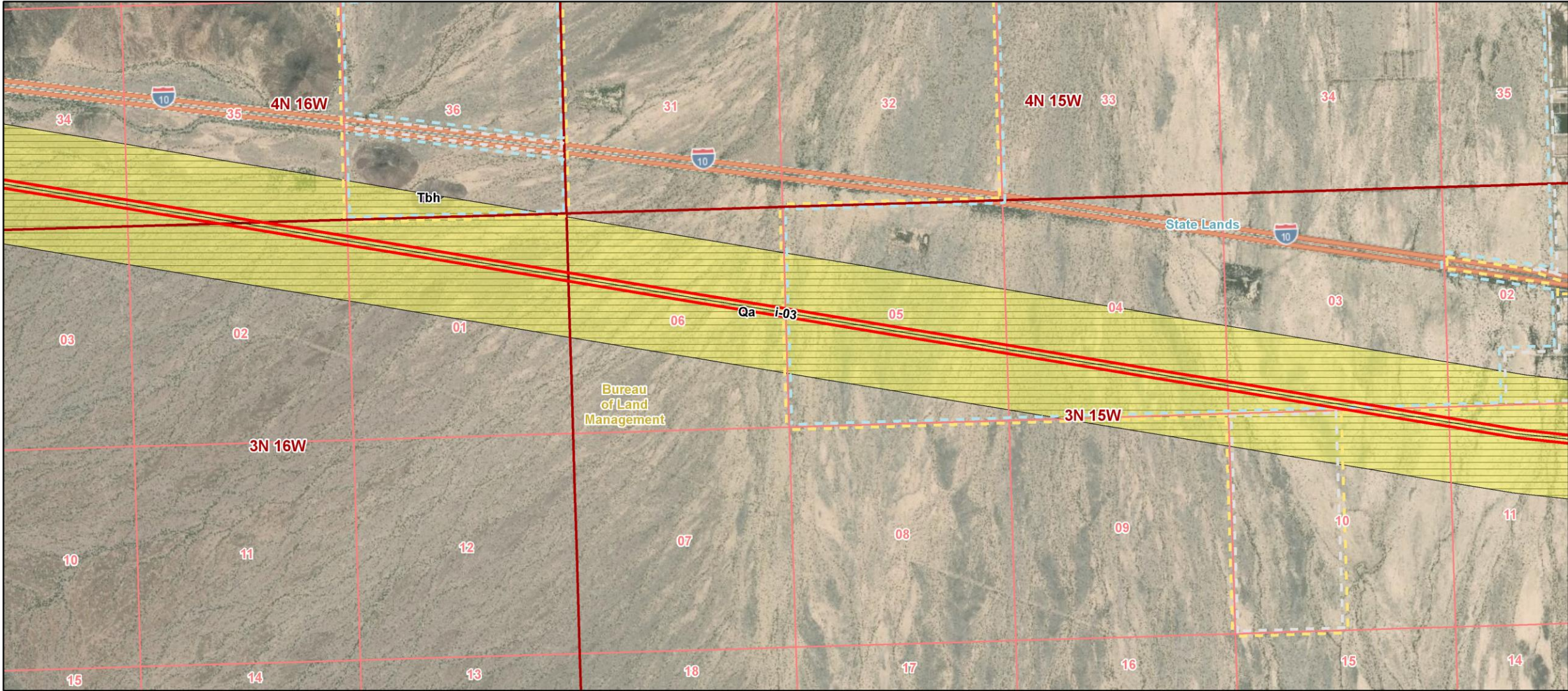
Ten West Link Transmission Line Project

- ROW of BLM Preferred Route(s) and Subalternatives
- Centerline (Arrows Denote Ends of Segments)
- Bureau of Land Management (BLM)
- Private or Unknown
- PLSS Township
- PLSS Section

- Geology Description**
- Qa: Alluvium (Holocene and Pleistocene)
 - Qat: Alluvium and talus (Quaternary)
 - QToa: Older Alluvium (Quaternary or Tertiary)
 - Tf: Fanglomerate (Miocene)
 - Tnw: Basalt of New Water Mountains (Miocene)

- Paleontological Potential (PFYC)**
- Class 1 - Very Low
 - Class 2 - Low
 - Class 3 - Moderate
 - Class U - Unknown Potential



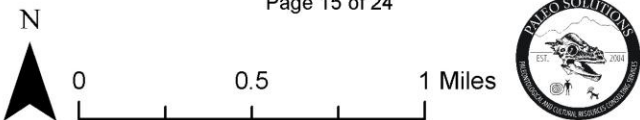
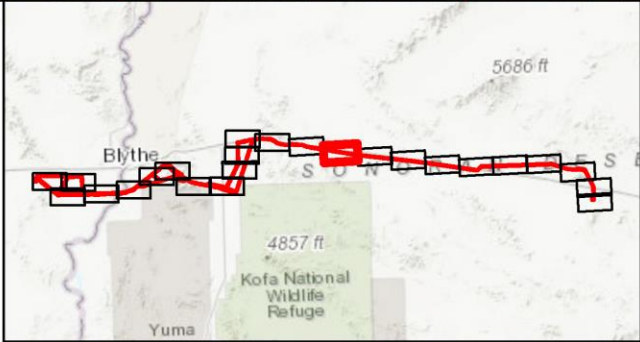


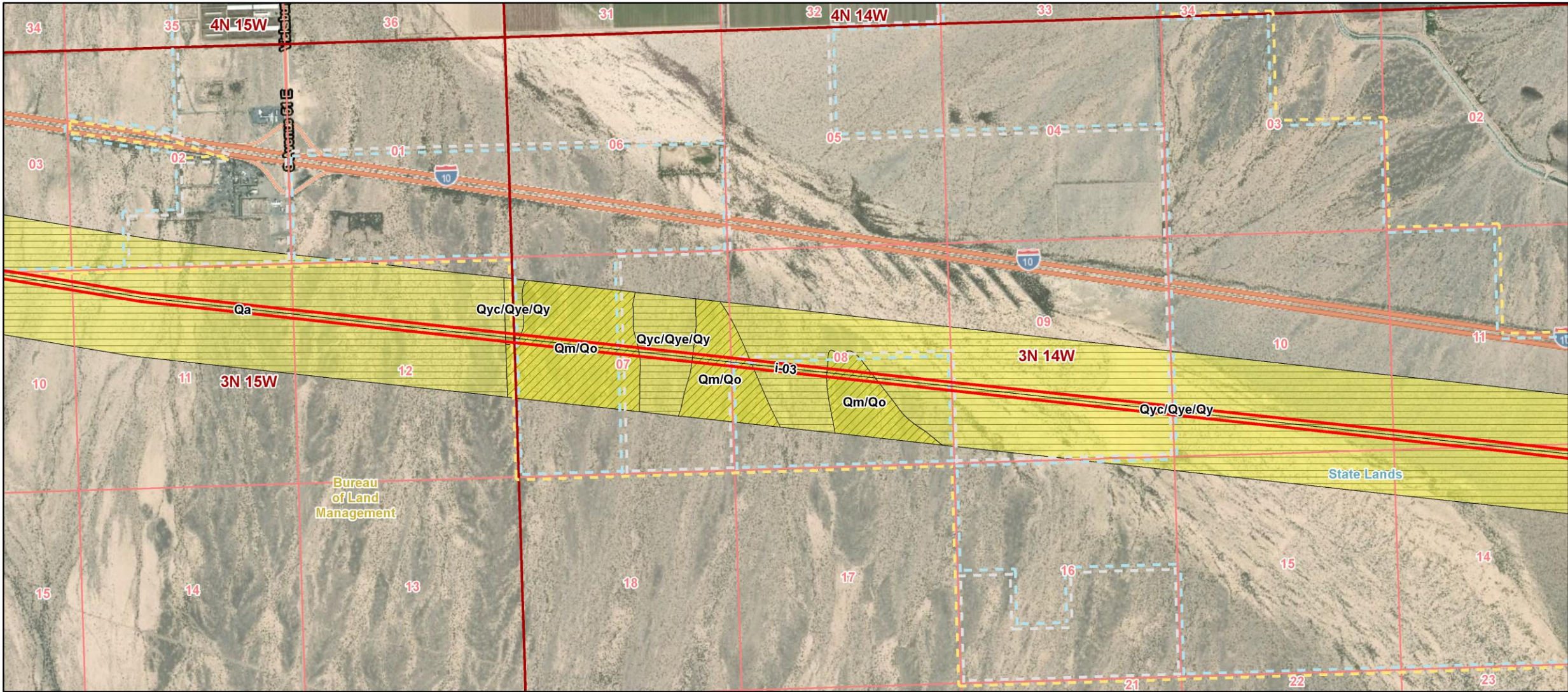
Basemap from ESRI; Geology from Miller, 1970; Ort and Skotnicki, 1993; Richard et al., 1994; Sherrod et al., 1990; and Stone, 1988-1990 and 2006.

Ten West Link Transmission Line Project

- ROW of BLM Preferred Route(s) and Subalternatives
- Centerline (Arrows Denote Ends of Segments)
- Bureau of Land Management (BLM)
- State
- Private or Unknown
- PLSS Township
- PLSS Section

- Geology Description**
- Qa: Alluvium (Holocene and Pleistocene)
 - Tbh: Volcanic rocks of Bear Hills (Miocene and Oligocene?)
- Paleontological Potential (PFYC)**
- Class 1 - Very Low
 - Class 2 - Low





Ten West Link Transmission Line Project

Basemap from ESRI; Geology from Miller, 1970; Ort and Skotnicki, 1993; Richard et al., 1994; Sherrod et al., 1990; and Stone, 1988-1990 and 2006.

- ROW of BLM Preferred Route(s) and Subalternatives
- Centerline (Arrows Denote Ends of Segments)
- Bureau of Land Management (BLM)
- State
- Private or Unknown
- PLSS Township
- PLSS Section

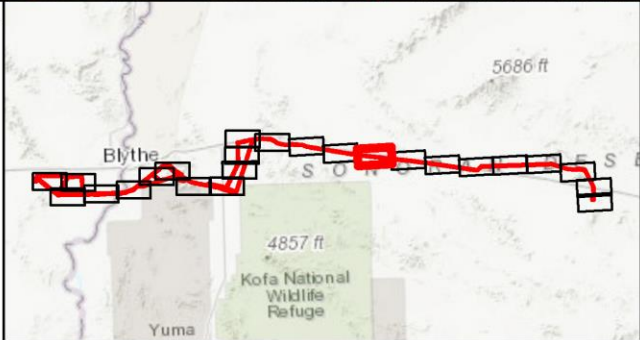
Geology Description

- Qa: Alluvium (Holocene and Pleistocene)
- Qyc/Qye/Qy: Alluvium/Eolian deposits (Holocene and late Pleistocene)
- Qm/Qo: Alluvium (Late to early Pleistocene)

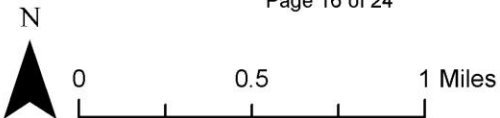
Paleontological Potential (PFYC)

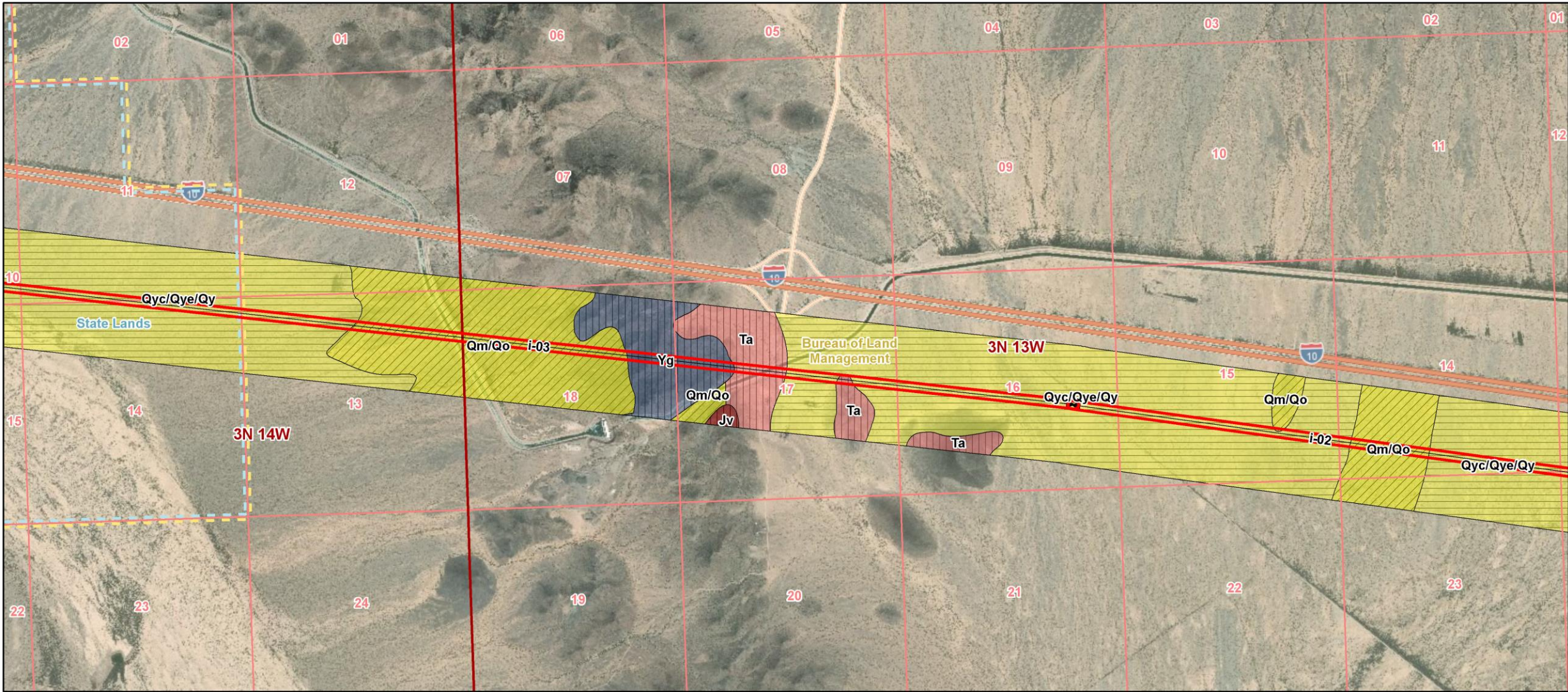
- Class 2 - Low

- Class 3 - Moderate



Page 16 of 24





Basemap from ESRI; Geology from Miller, 1970; Ort and Skotnicki, 1993; Richard et al., 1994; Sherrod et al., 1990; and Stone, 1988-1990 and 2006.

Ten West Link Transmission Line Project

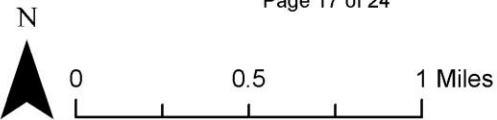
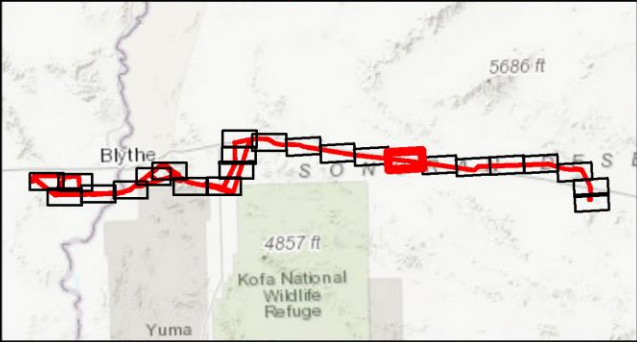
- ROW of BLM Preferred Route(s) and Subalternatives
- Centerline (Arrows Denote Ends of Segments)
- Bureau of Land Management (BLM)
- State
- PLSS Township
- PLSS Section

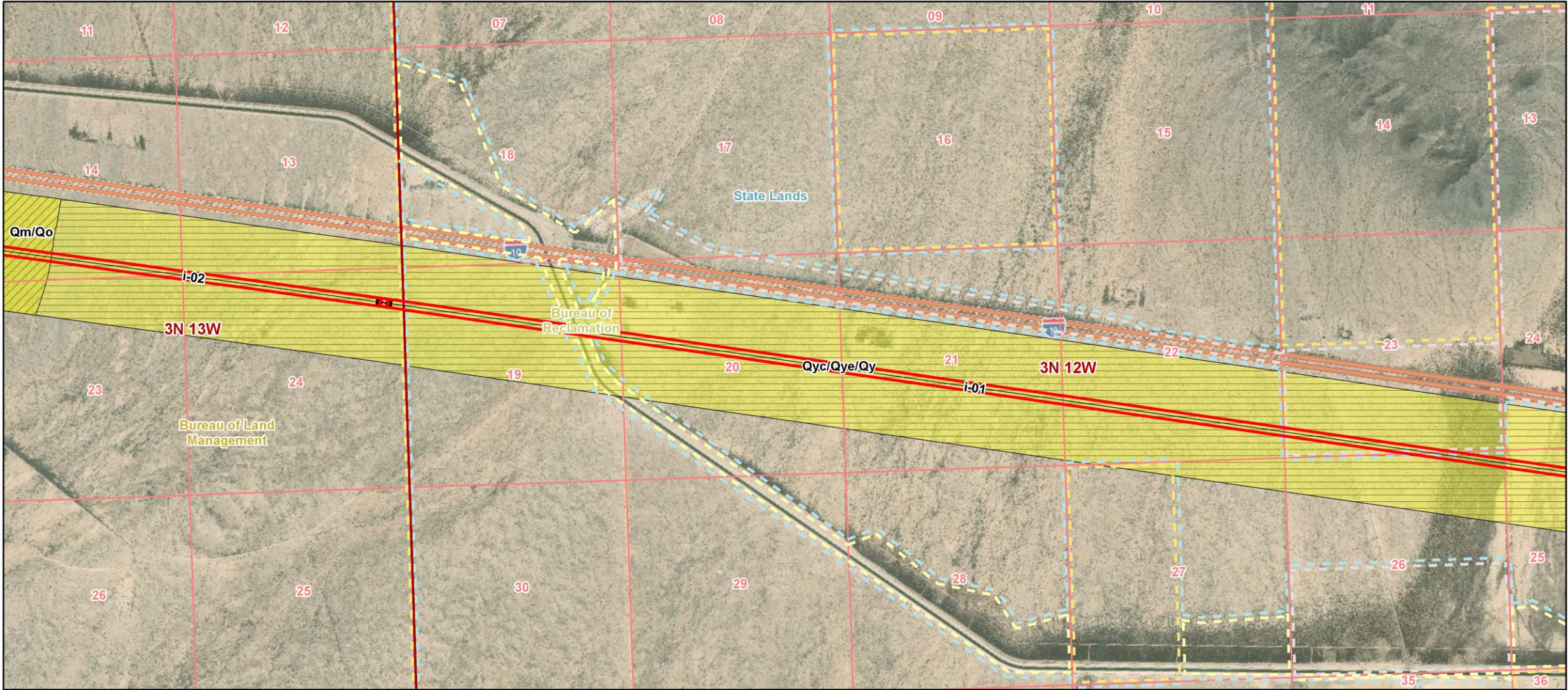
Geology Description

- Qyc/Qye/Qy: Alluvium/Eolian deposits (Holocene and late Pleistocene)
- Qm/Qo: Alluvium (Late to early Pleistocene)
- Ta: Andesite (Miocene or Oligocene)
- Jv: Volcanic Rocks (Jurassic)
- Yg: Granitoid (middle Proterozoic)

Paleontological Potential (PFYC)

- Class 1 - Very Low
- Class 2 - Low
- Class 3 - Moderate

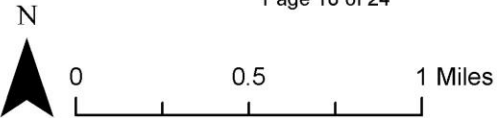
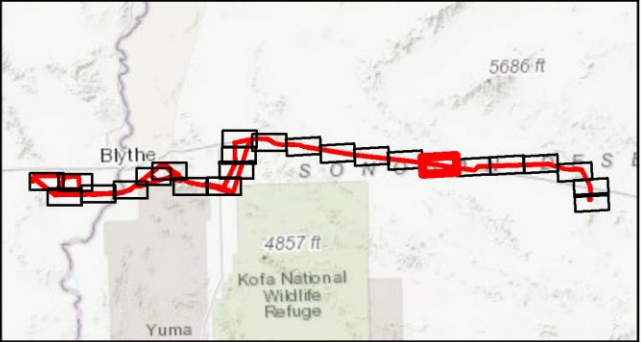


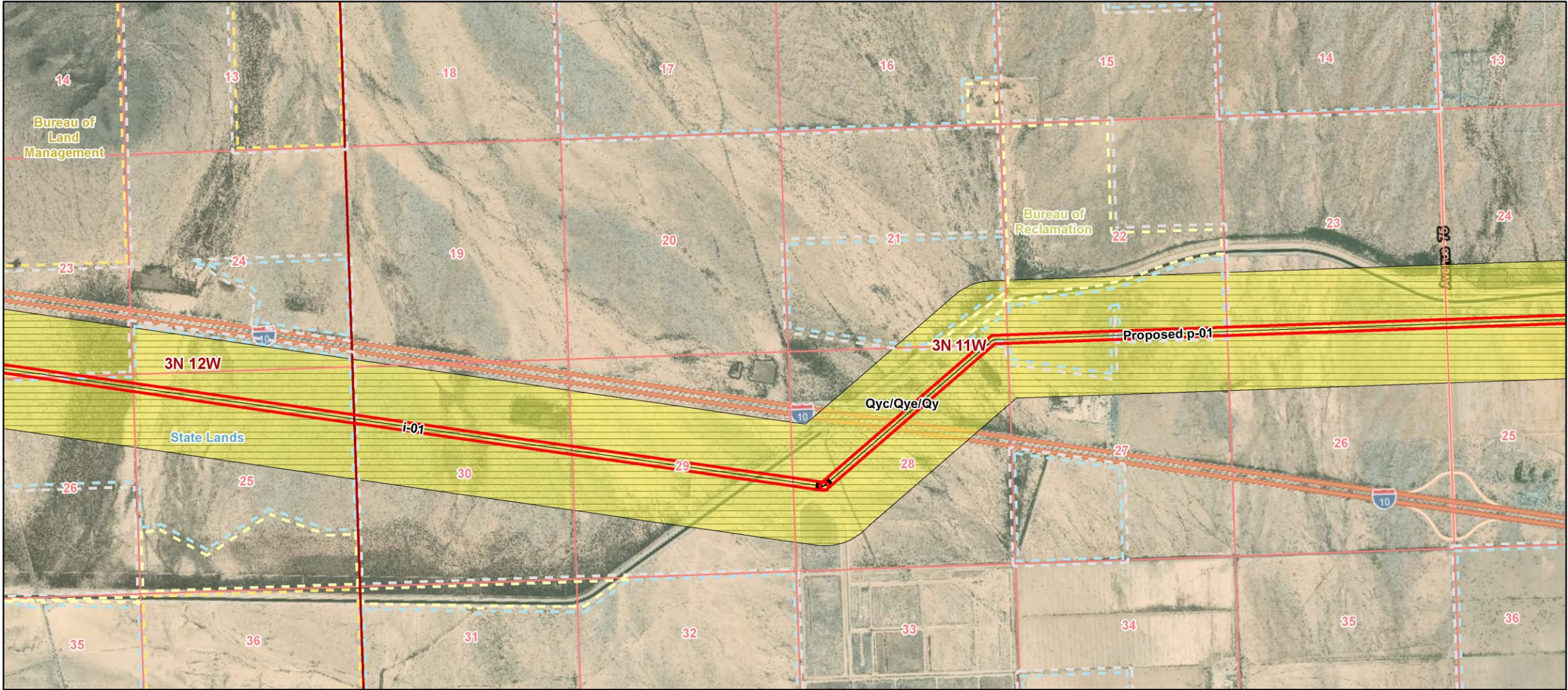


Basemap from ESRI; Geology from Miller, 1970; Ort and Skotnicki, 1993; Richard et al., 1994; Sherrod et al., 1990; and Stone, 1988-1990 and 2006.

Ten West Link Transmission Line Project

- | | | |
|---|--|--------------------|
| ROW of BLM Preferred Route(s) and Subalternatives | PLSS Section | Class 3 - Moderate |
| Centerline (Arrows Denote Ends of Segments) | Geology Description | |
| Bureau of Land Management (BLM) | Qyc/Qye/Qy: Alluvium/Eolian deposits (Holocene and late Pleistocene) | |
| Bureau of Reclamation (BOR) | Qm/Qo: Alluvium (Late to early Pleistocene) | |
| State | Paleontological Potential (PFYC) | |
| Private or Unknown | Class 2 - Low | |
| PLSS Township | | |

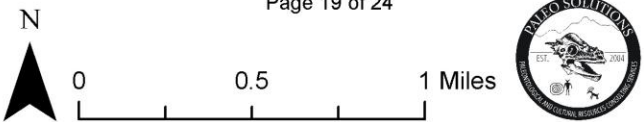
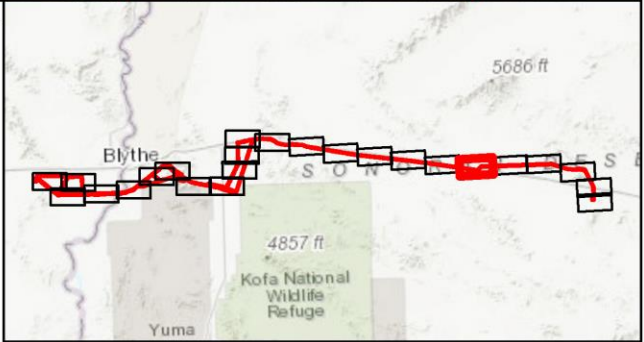


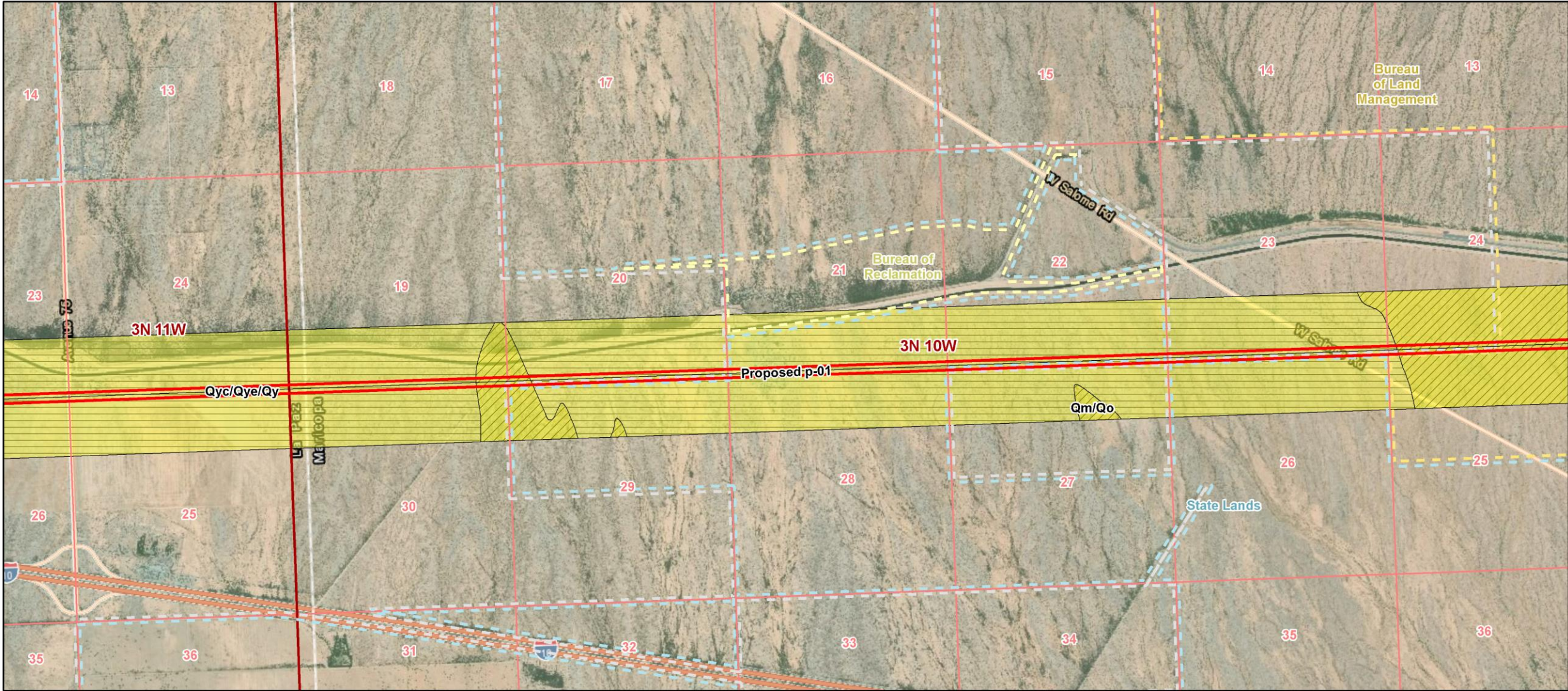


Basemap from ESRI; Geology from Miller, 1970; Ort and Skotnicki, 1993; Richard et al., 1994; Sherrod et al., 1990; and Stone, 1988-1990 and 2006.

Ten West Link Transmission Line Project

- | | |
|---|--|
| ROW of BLM Preferred Route(s) and Subalternatives | PLSS Section |
| Centerline (Arrows Denote Ends of Segments) | Geology Description |
| Bureau of Land Management (BLM) | Qyc/Qye/Qy: Alluvium/Eolian deposits (Holocene and late Pleistocene) |
| Bureau of Reclamation (BOR) | Paleontological Potential (PFYC) |
| State | Class 2 - Low |
| Private or Unknown | |
| PLSS Township | |

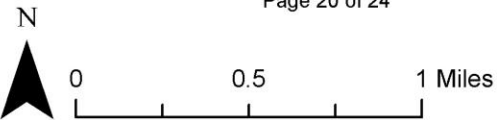
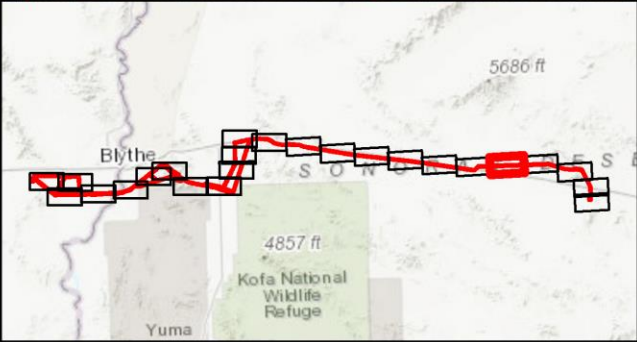


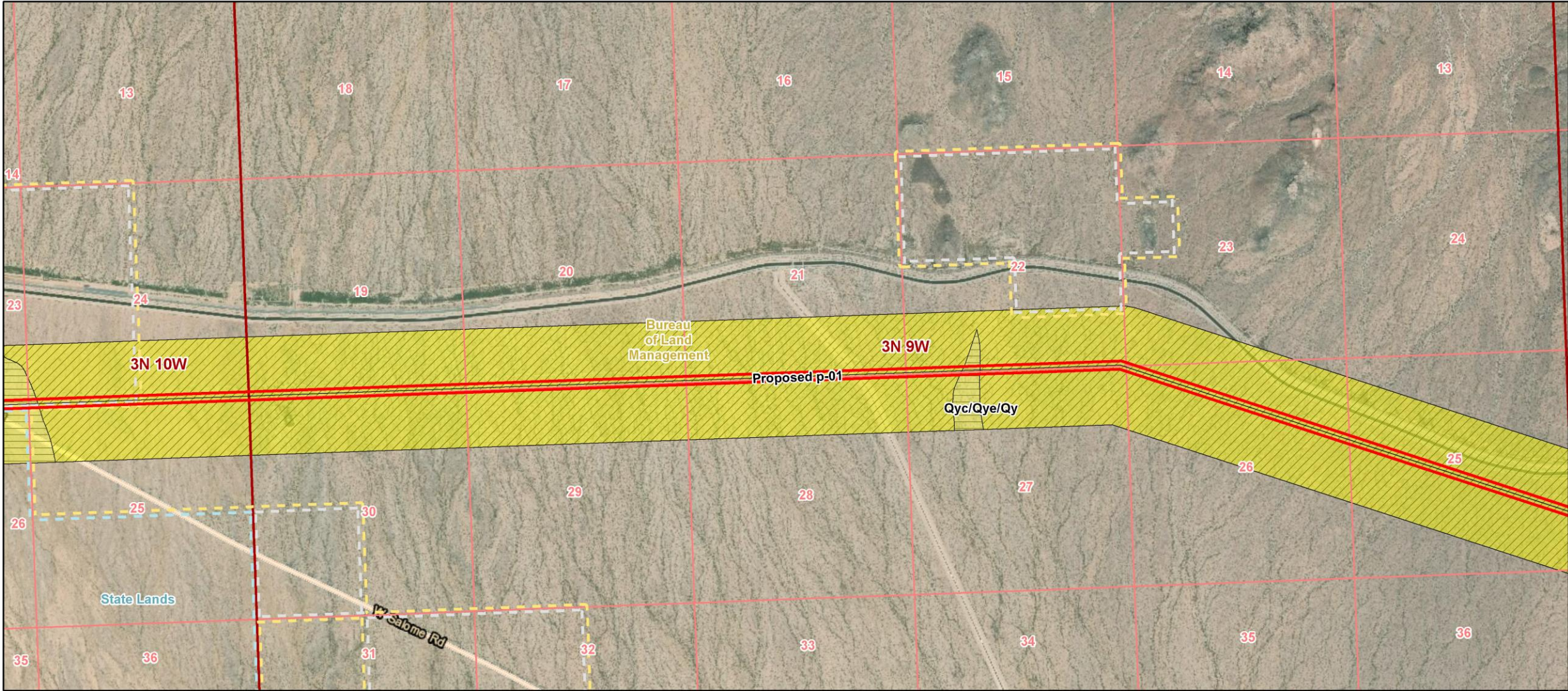


Basemap from ESRI; Geology from Miller, 1970; Ort and Skotnicki, 1993; Richard et al., 1994; Sherrod et al., 1990; and Stone, 1988-1990 and 2006.

Ten West Link Transmission Line Project

- | | | |
|---|--|--------------------|
| ROW of BLM Preferred Route(s) and Subalternatives | PLSS Section | Class 3 - Moderate |
| Centerline (Arrows Denote Ends of Segments) | Geology Description | |
| Bureau of Land Management (BLM) | Qyc/Qye/Qy: Alluvium/Eolian deposits (Holocene and late Pleistocene) | |
| Bureau of Reclamation (BOR) | Qm/Qo: Alluvium (Late to early Pleistocene) | |
| State | Paleontological Potential (PFYC) | |
| Private or Unknown | Class 2 - Low | |
| PLSS Township | | |





Basemap from ESRI; Geology from Miller, 1970; Ort and Skotnicki, 1993; Richard et al., 1994; Sherrod et al., 1990; and Stone, 1988-1990 and 2006.

Ten West Link Transmission Line Project

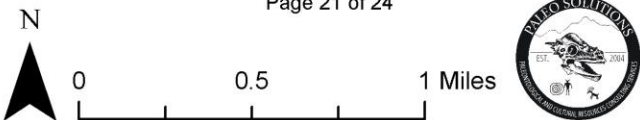
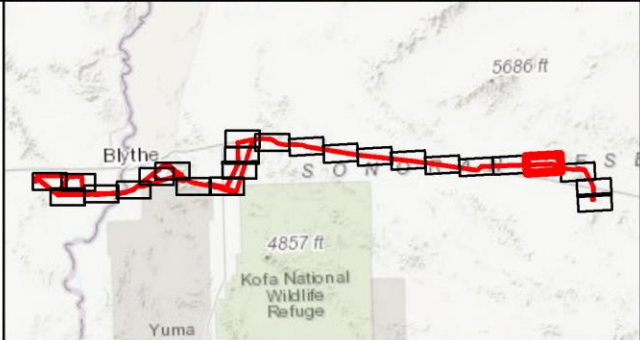
- ROW of BLM Preferred Route(s) and Subalternatives
- Centerline (Arrows Denote Ends of Segments)
- Bureau of Land Management (BLM)
- State
- Private or Unknown
- PLSS Township
- PLSS Section

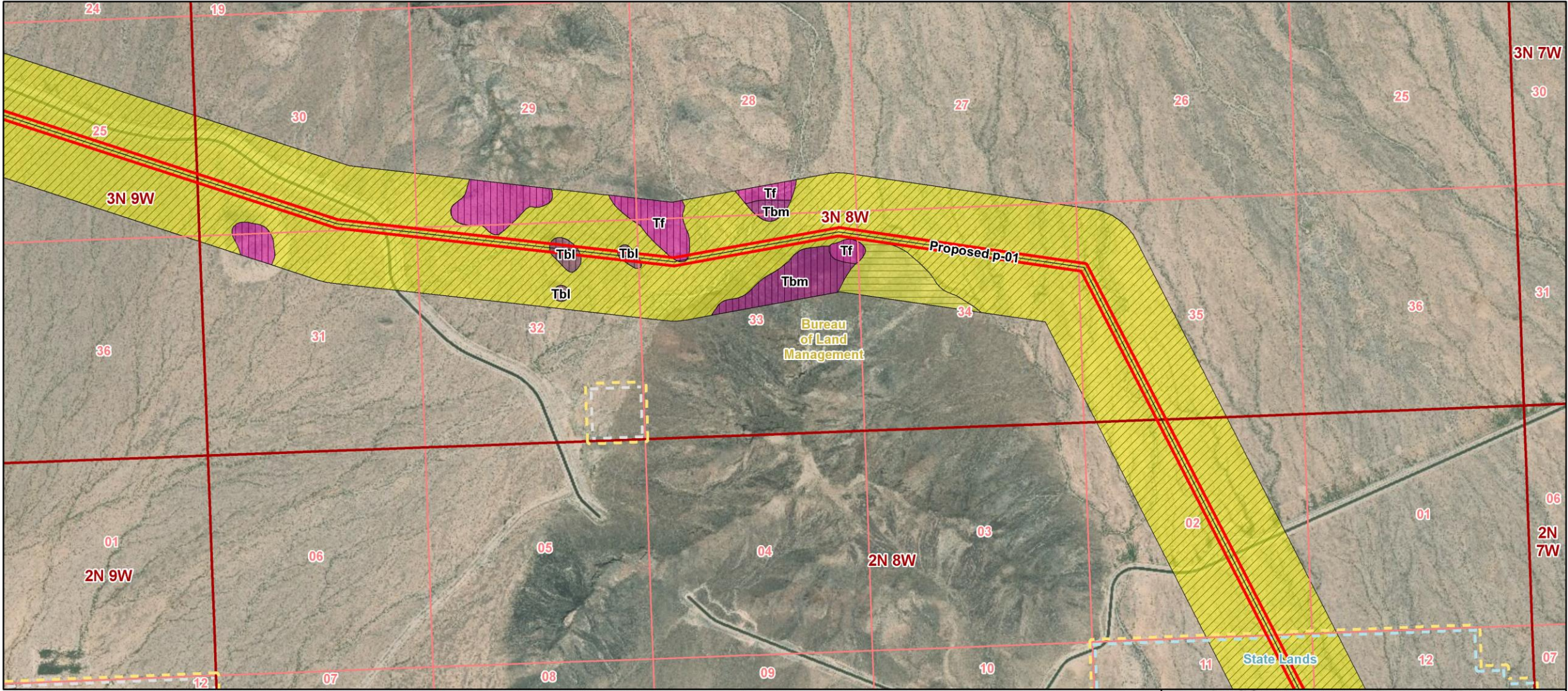
Geology Description

- Qyc/Qye/Qy: Alluvium/Eolian deposits (Holocene and late Pleistocene)
- Qm/Qo: Alluvium (Late to early Pleistocene)

Paleontological Potential (PFYC)

- Class 2 - Low
- Class 3 - Moderate





Basemap from ESRI; Geology from Miller, 1970; Ort and Skotnicki, 1993; Richard et al., 1994; Sherrod et al., 1990; and Stone, 1988-1990 and 2006.

Ten West Link Transmission Line Project

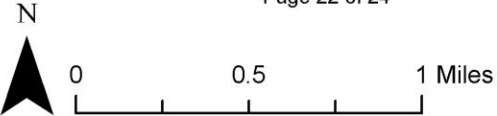
- ROW of BLM Preferred Route(s) and Subalternatives
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- Bureau of Land Management (BLM)
- State
- Private or Unknown
- PLSS Township
- PLSS Section

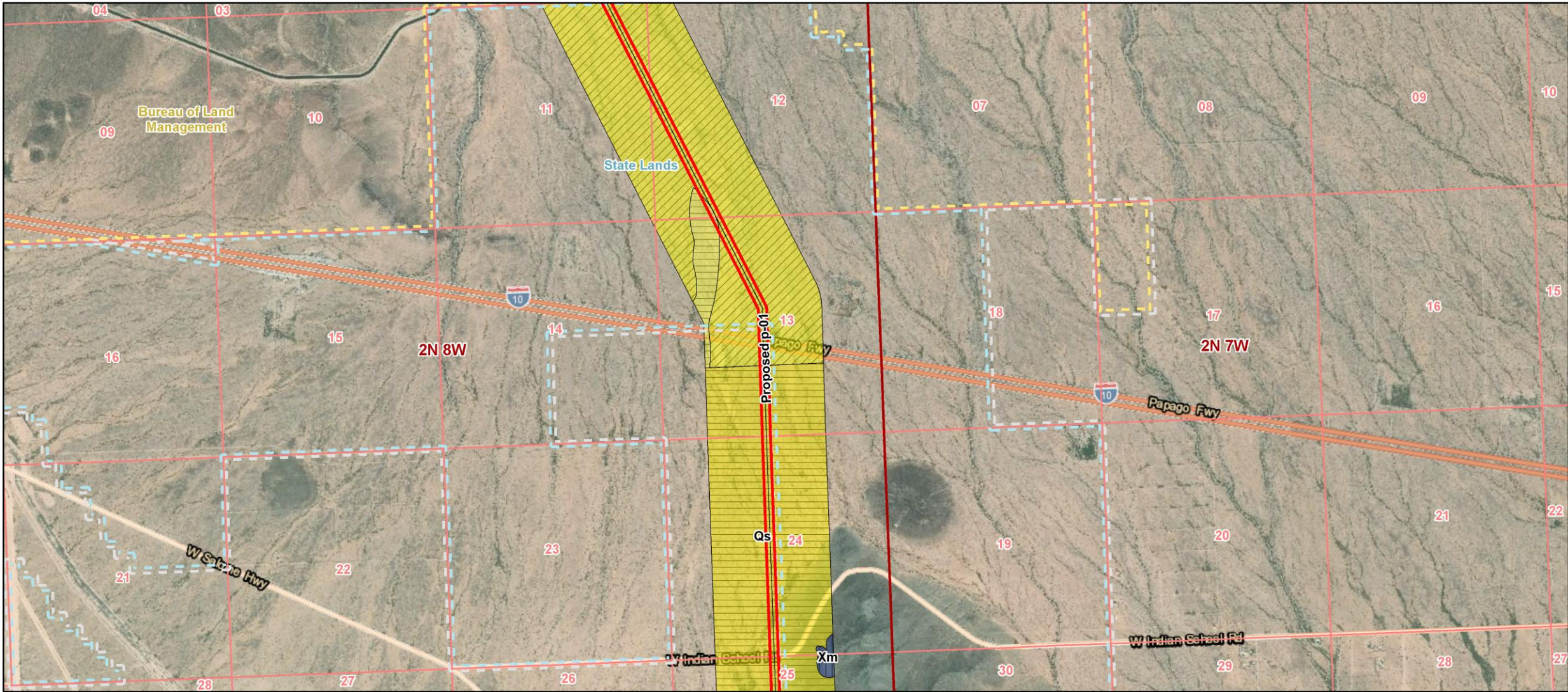
Geology Description

- Qt: Talus (Holocene and late Pleistocene)
- Qm/Qo: Alluvium (Late to early Pleistocene)
- Tf: Felsic volcanic rocks (Miocene)
- Tbm: Middle basalt unit (Miocene)
- Tbl: Lower basaltic volcanic rocks (Miocene or Oligocene)

Paleontological Potential (PFYC)

- Class 1 - Very Low
- Class 2 - Low
- Class 3 - Moderate





Ten West Link Transmission Line Project

Basemap from ESRI; Geology from Miller, 1970; Ort and Skotnicki, 1993; Richard et al., 1994; Sherrod et al., 1990; and Stone, 1988-1990 and 2006.

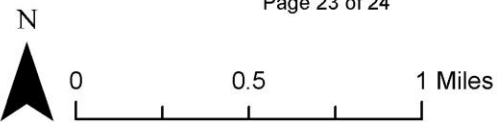
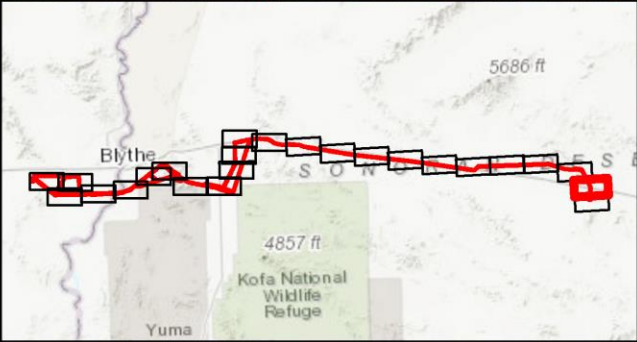
- ROW of BLM Preferred Route(s) and Subalternatives
- Centerline (Arrows Denote Ends of Segments)
- Bureau of Land Management (BLM)
- State
- Private or Unknown
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- PLSS Section

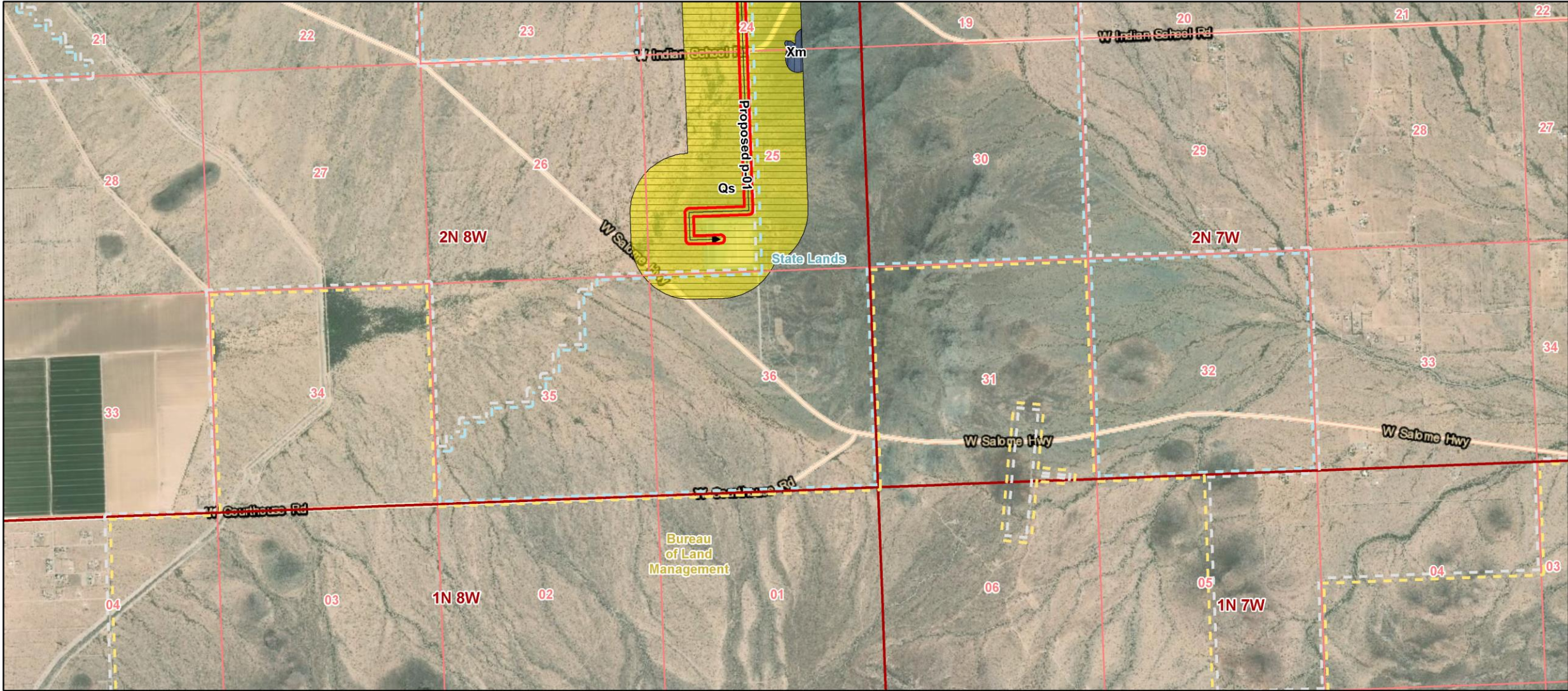
Geology Description

- Qyc/Qye/Qy: Alluvium/Eolian deposits (Holocene and late Pleistocene)
- Qm/Qo: Alluvium (Late to early Pleistocene)
- Qs: Surficial Deposits (Quaternary)
- Xm: Slaty metavolcanic rocks (Proterozoic)

Paleontological Potential (PFYC)

- Class 1 - Very Low
- Class 2 - Low
- Class 3 - Moderate



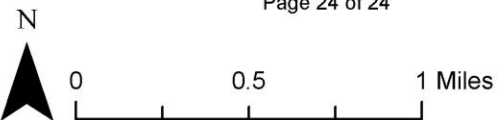
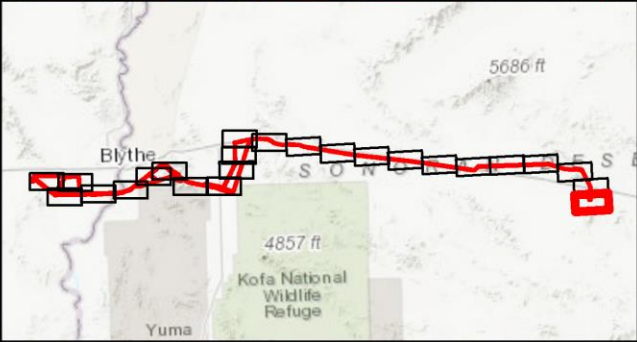


Basemap from ESRI; Geology from Miller, 1970; Ort and Skotnicki, 1993; Richard et al., 1994; Sherrod et al., 1990; and Stone, 1988-1990 and 2006.

Ten West Link Transmission Line Project

- ROW of BLM Preferred Route(s) and Subalternatives
- Centerline (Arrows Denote Ends of Segments)
- Bureau of Land Management (BLM)
- State
- Private or Unknown
- PLSS Township
- PLSS Section

- Geology Description**
- Qs: Surficial Deposits (Quaternary)
 - Xm: Slaty metavolcanic rocks (Proterozoic)
- Paleontological Potential (PFYC)**
- Class 1 - Very Low
 - Class 2 - Low





APPENDIX C: MONITORING REQUIREMENTS BY WORK LOCATION



Segment	Geologic Unit	Paleontological Potential (PFYC)	Paleontological Requirements
ca-06	Qr: Alluvium of the modern Colorado River flood plain (Holocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
	Qpv: Alluvial deposits of Palo Verde Mesa (Pleistocene)	Class 3 - Moderate	Full-time monitoring
ca-07	Qa6: Alluvial-fan and alluvial-valley deposits, Unit 6 (Holocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
	Qpv: Alluvial deposits of Palo Verde Mesa (Pleistocene)	Class 3 - Moderate	Full-time monitoring
ca-09	Qa6: Alluvial-fan and alluvial-valley deposits, Unit 6 (Holocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
	Qs: Eolian sand (Holocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
cb-01	QTa: Alluvial fan and fluvial deposits (Quaternary and Tertiary?)	Class 3 - Moderate	Full-time monitoring
	Jv: Volcanic rocks of the Dome Rock sequence (Jurassic)	Class 1 - Very Low	No monitoring
cb-02	QTa: Alluvial fan and fluvial deposits (Quaternary and Tertiary?)	Class 3 - Moderate	Full-time monitoring
	Jv: Volcanic rocks of the Dome Rock sequence (Jurassic)	Class 1 - Very Low	No monitoring
cb-03	QTdf: Dissected fan deposits (Quaternary or Tertiary)	Class 3 - Moderate	Full-time monitoring
	Qw: Alluvium of modern washes (Quaternary)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
	Jv: Volcanic rocks of the Dome Rock sequence (Jurassic)	Class 1 - Very Low	No monitoring
	Jvbu: Volcanic rocks of the Dome Rock sequence, upper bedded unit (Jurassic)	Class 1 - Very Low	No monitoring
	QTa: Alluvial fan and fluvial deposits (Quaternary and Tertiary?)	Class 3 - Moderate	Full-time monitoring
cb-04	QTa: Alluvial fan and fluvial deposits (Quaternary and Tertiary?)	Class 3 - Moderate	Full-time monitoring
	Jv: Volcanic rocks of the Dome Rock sequence (Jurassic)	Class 1 - Very Low	No monitoring
	QTdf: Dissected fan deposits (Quaternary or Tertiary)	Class 3 - Moderate	Full-time monitoring
cb-05	QTa: Alluvial fan and fluvial deposits (Quaternary and Tertiary?)	Class 3 - Moderate	Full-time monitoring
	Tf: Fanglomerate, sedimentary breccia, and slide blocks (Miocene and Oligocene?)	Class U - Unknown Potential	Part-time monitoring during excavations (no depth threshold)



Segment	Geologic Unit	Paleontological Potential (PFYC)	Paleontological Requirements
	Qw: Alluvium of modern washes (Quaternary)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
cb-06	QTa: Alluvial fan and fluvial deposits (Quaternary and Tertiary?)	Class 3 - Moderate	Full-time monitoring
	QTdf: Dissected fan deposits (Quaternary or Tertiary)	Class 3 - Moderate	Full-time monitoring
i-01	Qyc/Qye/Qy: Alluvium/Eolian deposits (Holocene and late Pleistocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
i-02	Qyc/Qye/Qy: Alluvium/Eolian deposits (Holocene and late Pleistocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
	Qm/Qo: Alluvium (Late to early Pleistocene)	Class 3 - Moderate	Full-time monitoring
i-03	Qa: Alluvium (Holocene and Pleistocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
	Qm/Qo: Alluvium (Late to early Pleistocene)	Class 3 - Moderate	Full-time monitoring
	Qyc/Qye/Qy: Alluvium/Eolian deposits (Holocene and late Pleistocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
	Yg: Granitoid (middle Proterozoic)	Class 1 - Very Low	No monitoring
	Ta: Andesite (Miocene or Oligocene)	Class 1 - Very Low	No monitoring
i-04	QToa: Older Alluvium (Quaternary or Tertiary)	Class 3 - Moderate	Full-time monitoring
	Qat: Alluvium and talus (Quaternary)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
	QTa: Hornblende-biotite andesite	Class 1 - Very Low	No monitoring
	Tf: Fanglomerate (Miocene)	Class U - Unknown Potential	Part-time monitoring during excavations (no depth threshold)
	Qa: Alluvium (Holocene and Pleistocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
	QTbu: Basalt of Black Mesa (Quaternary or Tertiary)	Class 1 - Very Low	No monitoring
	pC3: Quartz-albite-muscovite-chlorite schist; meta-tuffaceous rock, Unit 3 (Paleozoic(?))	Class 1 - Very Low	No monitoring



Segment	Geologic Unit	Paleontological Potential (PFYC)	Paleontological Requirements
	pC4: Vitreous quartzite, medium to massively bedded, Unit 4 (Paleozoic(?))	Class 1 - Very Low	No monitoring
	Ta: Older hornblende-biotite andesite (Tertiary)	Class 1 - Very Low	No monitoring
i-05	Qat: Alluvium and talus (Quaternary)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
Line Measure	Qpv: Alluvial deposits of Palo Verde Mesa (Pleistocene)	Class 3 - Moderate	Full-time monitoring
p-07	Qat: Alluvium and talus (Quaternary)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
p-08	Qat: Alluvium and talus (Quaternary)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
p-08/09 North alt	QTa: Alluvial fan and fluvial deposits (Quaternary and Tertiary?)	Class 3 - Moderate	Full-time monitoring
	Qw: Alluvium of modern washes (Quaternary)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
	Qat: Alluvium and talus (Quaternary)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
p-09	KJmlu: McCoy Mountains Formations, lower part, undivided (Cretaceous or Jurassic)	Class 3 - Moderate	Full-time monitoring
	QTa: Alluvial fan and fluvial deposits (Quaternary and Tertiary?)	Class 3 - Moderate	Full-time monitoring
	Qw: Alluvium of modern washes (Quaternary)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
	Jv: Volcanic rocks of the Dome Rock sequence (Jurassic)	Class 1 - Very Low	No monitoring
	Qat: Alluvium and talus (Quaternary)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
p-10	QTa: Alluvial fan and fluvial deposits (Quaternary and Tertiary?)	Class 3 - Moderate	Full-time monitoring
	Jv: Volcanic rocks of the Dome Rock sequence (Jurassic)	Class 1 - Very Low	No monitoring
p-11 alt	QTdf: Dissected fan deposits (Quaternary or Tertiary)	Class 3 - Moderate	Full-time monitoring
	QTa: Alluvial fan and fluvial deposits (Quaternary and Tertiary?)	Class 3 - Moderate	Full-time monitoring
	Jv: Volcanic rocks of the Dome Rock sequence (Jurassic)	Class 1 - Very Low	No monitoring



Segment	Geologic Unit	Paleontological Potential (PFYC)	Paleontological Requirements
p-12	QTa: Alluvial fan and fluvial deposits (Quaternary and Tertiary?)	Class 3 - Moderate	Full-time monitoring
	QTdf: Dissected fan deposits (Quaternary or Tertiary)	Class 3 - Moderate	Full-time monitoring
	Qw: Alluvium of modern washes (Quaternary)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
	Jv: Volcanic rocks of the Dome Rock sequence (Jurassic)	Class 1 - Very Low	No monitoring
p-13	QTa: Alluvial fan and fluvial deposits (Quaternary and Tertiary?)	Class 3 - Moderate	Full-time monitoring
	Qw: Alluvium of modern washes (Quaternary)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
p-14	QTa: Alluvial fan and fluvial deposits (Quaternary and Tertiary?)	Class 3 - Moderate	Full-time monitoring
	Qw: Alluvium of modern washes (Quaternary)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
	QTe: Alluvial deposits of the Ehrenberg area (Pleistocene and/or Pliocene)	Class 3 - Moderate	Full-time monitoring
p-15e	H2O: water	Class W - Water	No monitoring
	QTe: Alluvial deposits of the Ehrenberg area (Pleistocene and/or Pliocene)	Class 3 - Moderate	Full-time monitoring
	Qr: Alluvium of the modern Colorado River flood plain (Holocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
	Qw: Alluvium of modern washes (Holocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
p-15w	Qr: Alluvium of the modern Colorado River flood plain (Holocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
	H2O: water	Class W - Water	No monitoring
p-16	Qr: Alluvium of the modern Colorado River flood plain (Holocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
	Qpv: Alluvial deposits of Palo Verde Mesa (Pleistocene)	Class 3 - Moderate	Full-time monitoring
p-16 south	Qr: Alluvium of the modern Colorado River flood plain (Holocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
	H2O: water	Class W - Water	No monitoring



Segment	Geologic Unit	Paleontological Potential (PFYC)	Paleontological Requirements
	Qpv: Alluvial deposits of Palo Verde Mesa (Pleistocene)	Class 3 - Moderate	Full-time monitoring
	QTe: Alluvial deposits of the Ehrenberg area (Pleistocene and/or Pliocene)	Class 3 - Moderate	Full-time monitoring
	Qw: Alluvium of modern washes (Holocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
p-17	Qa6: Alluvial-fan and alluvial-valley deposits, Unit 6 (Holocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
	Qa3: Alluvial-fan and alluvial-valley deposits, Unit 3 (Holocene and Pleistocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
p-18	Qa6: Alluvial-fan and alluvial-valley deposits, Unit 6 (Holocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
	Qa3: Alluvial-fan and alluvial-valley deposits, Unit 3 (Holocene and Pleistocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
	Qpv: Alluvial deposits of Palo Verde Mesa (Pleistocene)	Class 3 - Moderate	Full-time monitoring
	Qw: Alluvium of modern washes (Holocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
Proposed p-01	Qyc/Qye/Qy: Alluvium/Eolian deposits (Holocene and late Pleistocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
	Tf: Felsic volcanic rocks (Miocene)	Class 1 - Very Low	No monitoring
	Tbl: Lower basaltic volcanic rocks (Miocene or Oligocene)	Class 1 - Very Low	No monitoring
	Qm/Qo: Alluvium (Late to early Pleistocene)	Class 3 - Moderate	Full-time monitoring
	Qs: Surficial Deposits (Quaternary)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
x-05	pCqm: Quartz monzonite (Precambrian)	Class 1 - Very Low	No monitoring
	Qat: Alluvium and talus (Quaternary)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
x-06	Qat: Alluvium and talus (Quaternary)	Class 2 - Low	Part-time monitoring during



Segment	Geologic Unit	Paleontological Potential (PFYC)	Paleontological Requirements
			excavations 10 feet deep or greater
x-12	Qr: Alluvium of the modern Colorado River flood plain (Holocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
x-13	Qr: Alluvium of the modern Colorado River flood plain (Holocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
x-15	Qpv: Alluvial deposits of Palo Verde Mesa (Pleistocene)	Class 3 - Moderate	Full-time monitoring
x-16	Qpv: Alluvial deposits of Palo Verde Mesa (Pleistocene)	Class 3 - Moderate	Full-time monitoring
x-19	Qa6: Alluvial-fan and alluvial-valley deposits, Unit 6 (Holocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater
	Qs: Eolian sand (Holocene)	Class 2 - Low	Part-time monitoring during excavations 10 feet deep or greater



APPENDIX D: CURATION AGREEMENT



Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.DINO
www.nhm.org

Vertebrate Paleontology Section
Telephone: (213) 763-3325
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8 January 2016

Paleo Solutions Inc
911 South Primrose Avenue, Unit J
Monrovia, CA 91016

Attn: Jennifer Kelly, Assistant Project Manager

Subject: Acceptance of fossil vertebrate remains from Paleontological Mitigation Related
Projects on Bureau of Land Management properties in California

Dear Jennifer:

This letter will confirm our conditions regarding acceptance of the fossil vertebrate remains from Paleontological Mitigation Related Projects on Bureau of Land Management properties in California by the Department of Vertebrate Paleontology of the Natural History Museum of Los Angeles County [LACM-VP]. The Department is willing to consider accepting the collection(s) if all the following conditions are met:

All localities must be described according the standard format used on the LACM-VP locality form, including a description of the geographic position, lithology, stratigraphy, and depositional environment if known.

All localities must be plotted on standard USGS topographic maps.

All specimens must be fully stabilized and prepared.

All specimens must be designated in such a way as to directly tie them to the localities described above.

All specimens must be identified to the lowest taxonomic level possible.

Inspiring wonder, discovery and responsibility for our natural and cultural worlds.



The collection must be accompanied by both printed and digital copies of any field notes and mitigation or salvage reports.

The collection must be accompanied by a deed-of-gift or letter of transmittal giving free and clear title of the collection to the Natural History Museum of Los Angeles County.

The collection must be accompanied by specimen cabinets, drawers and trays similar to those used by the LACM-VP. This requirement is waived for a relatively small collection.

We estimate our costs for curation tasks for the localities described above, as well as the actual cataloguing of the specimens including placing the numbers on the bones, at \$20 per locality and \$15 per specimen. We further estimate our costs for the permanent storage and maintenance of a collection at \$300 per cubic foot of fully prepared vertebrate fossils. If the equipment and supplies, including specimen cabinets, drawers, and trays, as well as the curation tasks for localities and specimens, are not provided by the donor, then we would greatly appreciate a donation to offset our costs. Any donation must be accompanied by a letter clearly stating that the donation is to be used solely for the permanent curation and storage of a specific collection of vertebrate fossils.

Sincerely,

A handwritten signature in cursive script that reads "Samuel A. McLeod".

Samuel A. McLeod, Ph.D.
Vertebrate Paleontology



APPENDIX E: PALEONTOLOGICAL RESOURCES MITIGATION MEASURES



- APM PALEO-01: Paleontological Resources Treatment Plan. DCRT would prepare a Paleontological Resources Treatment Plan that would describe procedures to be followed in the event of the discovery of paleontological resources during implementation of the Project. Upon approval of the draft plan, DCRT would follow the procedures set forth in that Plan during implementation of the Project.
- BMP PALEO-02: Paleontological Resources Monitor. A qualified paleontologist would provide monitoring for paleontological resources during construction in areas of high or unknown fossil potential.
- MM CUL-CEQA-3 Protect Paleontological Resources. The mitigation actions required by APM PALEO-01 and BMP PALEO-02 shall be accomplished by following the guidance within BLM IM 2009-11, which the CPUC has accepted as appropriate for CEQA (DRECP EIS/EIR). The following steps should be taken:
 - Project developers shall document in a paleontological resources assessment report whether paleontological resources exist in a project area on the basis of the following: the geologic context of the region and site and its potential to contain paleontological resources (including the PFYCs on site), a records search of institutions holding paleontological collections from California desert regions, a review of published and unpublished literature for past paleontological finds in the area, and coordination with paleontological researchers working locally in potentially affected geographic areas (or studying similar geologic strata).
 - If the PFYC (or PFYCs) of the geologic units to be encountered during project construction has not been determined, the project developer shall use the best available data and field surveys, as applicable, to develop a site-specific map of the PFYC ratings. The PFYC map shall be at a scale equal to or more detailed than 1:100,000. Depending on the extent of existing information available and the sensitivity of the site, development of the resource assessment and PFYC map could require the completion of a paleontological survey.
 - If paleontological resources are present at the site or if the geologic units to be encountered by the project (at the surface or the subsurface) have a PFYC Class of 3, 4, or 5, a Paleontological Resources Management Plan shall be developed. The elements of the plan shall be consistent with BLM IM 2009-11 and shall be prepared and implemented by a professional paleontologist as defined under Secretary of the Department of the Interior Standards. The plan shall include the following:
 - The qualifications of the principal investigator and monitoring personnel
 - Construction crew awareness training content, procedures, and requirements
 - Any measures to prevent potential looting, vandalism, or erosion impacts
 - The location, frequency, and schedule for on-site monitoring activities
 - Criteria for identifying and evaluating potential fossil specimens or localities



- A plan for the use of protective barriers and signs, or implementation of other physical or administrative protection measures
 - Collection and salvage procedures
 - Identification of an institution or museum willing and able to accept any fossils discovered
 - Compliance monitoring and reporting procedures
- The Paleontological Resources Management Plan shall also identify if all geologic units that would be affected by the project have been determined to be within an area with a PFYC Class of 1 or 2, the lead agency shall include paleontological resources as an element in construction worker awareness training and shall include measures to be followed in the event of unanticipated discoveries, including suspension of construction activities in the vicinity. The measure shall stipulate that the site be protected from further earth moving or damage until a qualified paleontologist can assess the significance and importance of the find and until the fossil specimen or locality can be recorded and salvaged, if necessary.
 - The Paleontological Resources Management Plan shall evaluate all of the construction methodologies proposed on a site, including destructive excavation techniques. Where applicable, the principal investigator shall include in the plan an evaluation of the potential for such techniques to disturb or destroy paleontological resources, an evaluation of whether loss of such fossils would represent a significant impact, and discussion of mitigation or compensatory measures (such as recordation/recovery of similar resources elsewhere on the site) that are necessary to avoid or substantially reduce the impact.



APPENDIX F: PLSS AND SURFACE MANAGEMENT



Quarter-Quarter	Section	Township	Range	State	Land Administer
L1, NWSE, SENE, SWNE, SWSE, SWSW	1	2N	19W	AZ	Bureau of Land Management (BLM)
NESW, NWSW, SESE, SESW, SWSE, SWSW	2	2N	19W	AZ	BLM
L1, L4, NESE, NESW, NWSE, NWSW, SENE, SENW, SESE, SESW, SWNE, SWNW, SWSE	3	2N	19W	AZ	BLM
L1, L2, L3, L4, NESE, NWSE, SENE, SENW, SWNE, SWNW	4	2N	19W	AZ	BLM
L1, L2, L3, L4, SENE, SWNE	5	2N	19W	AZ	BLM
L1, L2	6	2N	19W	AZ	BLM; Department of Defense (DOD) Yuma Proving Ground
NENE	10	2N	19W	AZ	BLM
NENE, NENW, NWNE, NWNW, SENE	11	2N	19W	AZ	BLM
NENW, NWNE, NWNW, SENW, SWNW	12	2N	19W	AZ	BLM
L1, L2, L3, SENW, SWNE, SWNW	2	2N	22W	AZ	BLM
NESE, NESW, NWSE, NWSW, SENE, SWSW	3	2N	22W	AZ	BLM
NESE, SESE, SESW, SWSE, SWSW	4	2N	22W	AZ	BLM, State (ST)
L6	5	2N	22W	AZ	Bureau of Reclamation (BOR); ST
L6, NENE	8	2N	22W	AZ	BOR; ST
L3, L7, L8, L10, L14, SESE, SWSE	2	2N	8W	AZ	BLM; ST
NENE, SENE	11	2N	8W	AZ	ST
NWSW, SESW, SWNW, SWSW	12	2N	8W	AZ	ST
NENW, NESW, SENW, SESW	13	2N	8W	AZ	Private/Undetermined (PVT); ST
NENW, NESW, SENW, SESW	24	2N	8W	AZ	PVT
NEWN, NESW, NWSW, SENW, SESW, SWSW	25	2N	8W	AZ	PVT
L4, SESE, SESW, SWSE	19	3N	10W	AZ	PVT
SESE, SESW, SWSE, SWSW	20	3N	10W	AZ	PVT; ST
SESE, SESW, SWSE, SWSW	21	3N	10W	AZ	PVT; ST
SESE, SESW, SWSE, SWSW	22	3N	10W	AZ	PVT; ST
SESE, SESW, SWSE, SWSW	23	3N	10W	AZ	BLM; PVT; ST
SESE, SESW, SWSE, SWSW	24	3N	10W	AZ	BLM; PVT
NENE, NENW, NWNE, NWNW	25	3N	10W	AZ	BLM



Quarter-Quarter	Section	Township	Range	State	Land Administer
NENE, NENW, NWNE, NWNW	26	3N	10W	AZ	BLM; ST
NENE, NENW, NWNE, NWNW	27	3N	10W	AZ	PVT; ST
NENE, NWNE	28	3N	10W	AZ	PVT; ST
SESE	21	3N	11W	AZ	PVT; ST
SESE, SESW, SWSE, SWSW	22	3N	11W	AZ	PVT; ST
SESE, SESW, SWSE, SWSW	23	3N	11W	AZ	PVT
SESE, SESW, SWSE, SWSW	24	3N	11W	AZ	PVT
NENE, NESW, NWNE, NWSW, SENW, SWNE	28	3N	11W	AZ	PVT
NESE, NESW, NWSE, SENW, SWNE, SWNW	29	3N	11W	AZ	PVT
L1, L2, SENE, SENW, SWNE	30	3N	11W	AZ	PVT
L1, NENW, NWNE, SENE, SENW, SWNE	19	3N	12W	AZ	BOR; ST
NESE, SENE, SENW, SWNE, SWNW	20	3N	12W	AZ	ST
NESE, NESW, NWSE, NWSW	21	3N	12W	AZ	ST
NESW, NWSW, SESE, SESW, SWSW	22	3N	12W	AZ	PVT; ST
SESE, SESW, SWSE, SWSW	23	3N	12W	AZ	PVT; ST
NENE, NENW, NWNE, NWNW, SESE	25	3N	12W	AZ	PVT; ST
NENE, NWNE	26	3N	12W	AZ	ST
SWSW	13	3N	13W	AZ	BLM
SESE, SESW, SWSE, SWSW	14	3N	13W	AZ	BLM
NESW, NWSE, NWSW, SESE, SESW, SWSE	15	3N	13W	AZ	BLM
NESE, NESW, NWSE, NWSW, SWNW	16	3N	13W	AZ	BLM
NESE, SENE, SENW, SWNE, SWNW	17	3N	13W	AZ	BLM
L1, L2, NENW, SENE, SENW, SWNE	18	3N	13W	AZ	BLM
NENE	23	3N	13W	AZ	BLM
NENE, NENW, NWNE, NWNW	24	3N	13W	AZ	BLM; ST
L2, NESE, SENE, SENW, SWNE	7	3N	14W	AZ	PVT; ST
NESE, NESW, NWSE, NWSW, SWNW	8	3N	14W	AZ	PVT; ST
NESE, NESW, NWSE, NWSW, SESE, SWSE	9	3N	14W	AZ	PVT; ST
SESE, SESW, SWSE, SWSW	10	3N	14W	AZ	ST
SESW, SWSE, SWSW	11	3N	14W	AZ	ST



Quarter-Quarter	Section	Township	Range	State	Land Administer
NENE, NENW, NWNE, NWNW	13	3N	14W	AZ	BLM
NENE, NENW, NWNE	14	3N	14W	AZ	BLM; ST
SESW, SWSE, SWSW	3	3N	15W	AZ	BLM; ST
NESW, NWSW, SESE, SESW, SWSE	4	3N	15W	AZ	ST
NESE, NESW, NWSE, NWSW, SWNW	5	3N	15W	AZ	ST
L5, NESE, SENE, SENW, SWNE	6	3N	15W	AZ	BLM; ST
NENE, NWNE	10	3N	15W	AZ	BLM
NENE, NENW, NWNE, NWNW	11	3N	15W	AZ	BLM
NENW, NWNW, SENE, SENW, SWNE, SWNW	12	3N	15W	AZ	BLM; ST
N/A	1	3N	16W	AZ	BLM
N/A	2	3N	16W	AZ	BLM
L4	4	3N	18W	AZ	BLM
L1, NESE, NWSE, SENE, SESE, SWSE	5	3N	18W	AZ	BLM
L4, L5, L6, L7	6	3N	18W	AZ	BLM
L1, L2, L3, L4	7	3N	18W	AZ	BLM
NESW, NWNE, NWSE, SENW, SESW, SWNE	8	3N	18W	AZ	BLM
NENW, NWNW, NWSW, SWNW, SWSW	17	3N	18W	AZ	BLM
L1, SESE	18	3N	18W	AZ	BLM
NEE, NESE, NWSE, SENE, SWSE	19	3N	18W	AZ	BLM
L4, NESW, NWNE, SENW, SESW, SWNE	30	3N	18W	AZ	BLM
L1, L2, L3, L4, NENW	31	3N	18W	AZ	BLM
NESE, SENE, SESE	1	3N	19W	AZ	BLM
NENE, NESE, SENE, SESE	12	3N	19W	AZ	BLM
NENE, NESE, NWSE, SENE, SESW, SWNE, SWSE	13	3N	19W	AZ	BLM
SESE	23	3N	19W	AZ	BLM
NENW, NWSW, SENW, SWNW, SWSW	24	3N	19W	AZ	BLM
NENE, NWSE, SENE, SESW, SWNE, SWSE	26	3N	19W	AZ	BLM
L3, L4, NESE, NESW, NWSE, SESW, SWSE	31	3N	19W	AZ	BLM; DOD Yuma Proving Grounds
NWSW, SESE, SESW, SWSE, SWSW	32	3N	19W	AZ	BLM
SWSW	33	3N	19W	AZ	BLM
SESE	34	3N	19W	AZ	BLM
NENW, NWSW, SENW, SWNW, SWSW	35	3N	19W	AZ	BLM
NESE, SESE	36	3N	19W	AZ	BLM
L4, L5	18	3N	20W	AZ	Bureau of Indian Affairs (BIA) Colorado River



Quarter-Quarter	Section	Township	Range	State	Land Administer
					Reservation; BLM
N/A	19	3N	20W	AZ	BIA Colorado River Reservation; BLM
N/A	20	3N	20W	AZ	BLM
N/A	28	3N	20W	AZ	BLM
N/A	29	3N	20W	AZ	BLM
N/A	30	3N	20W	AZ	BLM
N/A	33	3N	20W	AZ	BLM
NENW, NWNW, SENE, SENW, SWNE	34	3N	20W	AZ	BLM
NESE, NESW, NWSE, SENW, SWNW	35	3N	20W	AZ	BLM
NESW, NWSE, NWSW, SESE, SESW, SWSE	36	3N	20W	AZ	BLM
L3, L4, L8, NESE, SESW, SWSW	11	3N	21W	AZ	BIA Colorado River Reservation; BLM
L1, SESW	12	3N	21W	AZ	BIA Colorado River Reservation
L1, L3, L4, L5, L7, L8, L9, L10, NENE, NESW, NWNE, SWSE	13	3N	21W	AZ	BIA Colorado River Reservation; BLM
L1, NEW, NWNE, NWNW, SENE	14	3N	21W	AZ	BLM; BOR
NENE, NESW, NWSE, NWSW, SENE, SENW, SWNE, SWSW	15	3N	21W	AZ	BOR
SESE	16	3N	21W	AZ	BLM; BOR
NESE, SESE, SESW, SWSE	20	3N	21W	AZ	BLM
NENE, NENW, NWNE, NWSW, SENW, SESW, SWNE, SWNW, SWSE, SWSW	21	3N	21W	AZ	BLM
NENE	24	3N	21W	AZ	BLM
NENE, NWNE, SENE, SENW, SWNE, SWNW	25	3N	21W	AZ	BLM
NESW, NWSE, NWSW, SENE, SWNE	26	3N	21W	AZ	BLM
NESE, NESW, NWSE, NWSW, SESE, SESW, SWNW, SWSE, SWSW	27	3N	21W	AZ	BLM; BOR
NEE, NWNE, SENE, SESE, SWSE	28	3N	21W	AZ	BLM; BOR
NENW, NWNE, NWNW, SWNW	29	3N	21W	AZ	BLM
L4, NESE, NESW, NWSE, SENE, SESW, SWSE	30	3N	21W	AZ	BLM
L1, L3, NESE, NESW, NWSE	31	3N	21W	AZ	BLM
NENE, NWSW, SENE, SENW, SWNE, SWNW	32	3N	21W	AZ	BLM
NENE, NENW, NWNE, NWNW, SWNW	33	3N	21W	AZ	BLM



Quarter-Quarter	Section	Township	Range	State	Land Administer
SESE	35	3N	22W	AZ	BLM
NENE, NESE, NESW, NWSE, NWSW, SENE, SESW, SESE, SESW, SWNE, SWSE, SWSW	36	3N	22W	AZ	BLM
N/A	30	3N	8W	AZ	BLM
N/A	31	3N	8W	AZ	BLM
NENE, NENW, NWNE, NWNW	32	3N	8W	AZ	BLM
N/A	33	3N	8W	AZ	BLM
N/A	34	3N	8W	AZ	BLM
N/A	35	3N	8W	AZ	BLM
L4, SESE, SESW, SWSE	19	3N	9W	AZ	BLM
SESE, SESW, SWSE, SWSW	20	3N	9W	AZ	BLM
SESE, SESW, SWSE, SWSW	21	3N	9W	AZ	BLM
SESE, SESW, SWSE, SWSW	22	3N	9W	AZ	BLM
SWSW	23	3N	9W	AZ	BLM
NESE, NESW, NWSE, SENE, SESE, SWNW	25	3N	9W	AZ	BLM
NEWN, NWNE, NWNW, SENE, SWNE	26	3N	9W	AZ	BLM
NENE, NENW, NWNE, NWNW	27	3N	9W	AZ	BLM
NENE, NENW, NWNE, NWNW	28	3N	9W	AZ	BLM
NENE, NENW, NWNE, NWNW	29	3N	9W	AZ	BLM
L1, NENE, NENW, NWNE	30	3N	9W	AZ	BLM
L4	30	4N	16W	AZ	BLM
L1, NENE, NENW, NWNE, SENE, SWNE	31	4N	16W	AZ	BLM
NESE, SENE, SENW, SWNE, SWNW	32	4N	16W	AZ	BLM
NESE, NESW, NWSE, NWSW, SWNW	33	4N	16W	AZ	BLM
NESW, NWSW, SESE, SESW, SWSE, SWSW	34	4N	16W	AZ	BLM
SESW, SWSE, SWSW	35	4N	16W	AZ	BLM
N/A	19	4N	17W	AZ	BLM
N/A	25	4N	17W	AZ	BLM
N/A	26	4N	17W	AZ	BLM
N/A	27	4N	17W	AZ	BLM
N/A	28	4N	17W	AZ	BLM
N/A	29	4N	17W	AZ	BLM
N/A	30	4N	17W	AZ	BLM
SESE	19	4N	18W	AZ	BLM
SESE, SESW, SWSE, SWSW	20	4N	18W	AZ	BLM
NESE, NESW, NWSE, SESE, SESW, SWSE,	21	4N	18W	AZ	BLM



Quarter-Quarter	Section	Township	Range	State	Land Administer
SWSW					
NESE, NESW, NWSE, NWSW	22	4N	18W	AZ	BLM
NESE, NESW, NWSE, NWSW, SWNE	23	4N	18W	AZ	BLM
NESE, NESW, NWSE, NWSW	24	4N	18W	AZ	BLM
NESW, NWNW, NWSE, SESW, SWNE	28	4N	18W	AZ	BLM
NWNW	29	4N	18W	AZ	BLM
L1, L2, L3, L4, NENE, NENW, NWNE	30	4N	18W	AZ	BLM
L1, L2, L3, L4	31	4N	18W	AZ	BLM
SESE	32	4N	18W	AZ	BLM
NENW, NWSW, SENW, SWNW, SWSW	33	4N	18W	AZ	BLM
SESE, SESW, SWSE, SWSW	3	7S	21E	CA	BLM
SESE, SESW, SWSE, SWSW	4	7S	21E	CA	BLM
SESE, SESW, SWSE, SWSW	5	7S	21E	CA	BLM
NESE, SESE	7	7S	21E	CA	BLM
NENW, NESW, NWNW, NWSW, SESE, SESW, SWNW, SWSW	8	7S	21E	CA	BLM
NENE, NENW, NWNE, SWSW	9	7S	21E	CA	BLM
NENE, NENW, NWNE, NWNW	10	7S	21E	CA	BLM
NENE, NENW, NWNE, NWNW	11	7S	21E	CA	BLM
NENE, NENW, NWNW	12	7S	21E	CA	BLM
NESE, SESE	13	7S	21E	CA	BLM
SWSW	15	7S	21E	CA	BLM
SESE	16	7S	21E	CA	BLM
NENE	17	7S	21E	CA	BLM
NENW, NESE, NWNE, NWNW, SENE, SENW, SWNE	22	7S	21E	CA	BLM
NWSW, SESW, SWSW	23	7S	21E	CA	BLM
NENE, NESW, NWNE, NWSE, SESW, SWNE, SWSW	24	7S	21E	CA	BLM
NESW, NWNW, NWSW, SENW, SWNW	25	7S	21E	CA	BLM
NENW, NESE, NWNE, SENE, SWNE	26	7S	21E	CA	BLM
N/A	7	7S	22E	CA	BLM
N/A	8	7S	22E	CA	BLM
N/A	18	7S	22E	CA	BLM
N/A	Unsectioned	7S	23E	CA	ST

2B.14 FIRE PROTECTION PLAN

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June 2019

BUREAU OF LAND MANAGEMENT

Ten West Link Transmission Project

Fire Protection and Prevention Plan

PROJECT NUMBER:
154320

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Fire Protection and Prevention Plan

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ACRONYMS AND ABBREVIATIONS

BLM	Bureau of Land Management
CEQA	California Environmental Quality Act
CIC	Compliance Inspection Contractor
CPUC	California Public Utilities Commission
DCRT	Delaney Colorado River Transmission, LLC
FMO	Fire Management Officer
Plan	Fire Protection and Prevention
Project	Ten West Link Transmission Project
Proponent	DCRT Transmission, LLC
ROW(s)	right(s)-of-way
Ten West Link	Ten West Link Transmission Project

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1 Introduction

This Fire Protection and Prevention Plan (Plan) describes the measures to be taken by Delaney Colorado River Transmission, LLC (DCRT or Proponent) and its Construction Contractor(s) to ensure fire prevention and suppression measures are carried out in accordance with federal, state, and local regulations for the Ten West Link Transmission Project (Project or Ten West Link). Measures identified in this Plan apply to work within the Project area defined as the right-of-way (ROW); access roads; temporary work and storage areas; and other areas used during construction, operation, maintenance, and decommissioning of the Project.

1.1 Plan Purpose

The purpose of the Plan is to provide safe procedural practices, environmental protection measures, and other specific stipulations and methods to prevent and respond to fires during construction and operation of the Project. The final Plan will provide construction crews, environmental monitors, the Construction Contractor's Fire Marshal, and Compliance Inspection Contractor (CIC) with Project-specific information concerning fire protection procedures. The detailed final Plan will define fire prevention practices, establish fire protection requirements, control of combustible materials and flammable liquids and establish communication for agency responses in the event of a fire. Procedures in this Plan will apply to all land jurisdictions.

2 Regulatory Compliance

The Bureau of Land Management (BLM) requires holders of ROW grants to prepare a Fire Protection and Prevention Plan and adhere to its requirements during construction. The Project will be subject to state, county and federally enforced laws, ordinances, rules and regulations that pertain to fire prevention and suppression activities. Key regulatory agencies include the BLM, Blythe Fire Departments, California Department of Forestry and Fire Protection, and Maricopa, La Paz, Yuma, and Riverside County Fire Districts near the Project area.

3 Responsibilities

3.1 Project Proponent

DCRT and its' contractors are responsible for identifying fire prevention measures, monitoring adherence to fire protection protocols, developing emergency response procedures and communicating this information to Project personnel. To facilitate this goal, DCRT, through its Project Manager and Environmental Compliance Manager, will maintain regular and consistent communication with the Construction Contractor's Fire Marshal, CIC, environmental inspectors and Construction Contractor(s) to implement fire prevention measures and response to fire incidents throughout the construction process. In the event of a fire, the BLM Fire Management Officer (FMO), Construction Contractor's personnel, operations and maintenance crews (as applicable), DCRT Project Manager, and local fire departments would be involved in the emergency response.

3.2 Bureau of Land Management and Other Land Jurisdictions

The BLM FMO will oversee all fire control activities in his/her administrative unit. The FMO will coordinate with the CIC and/or BLM Authorized Officer in the event of a fire to review follow-up reporting and suggested adaptive management measures. All wildfires will be managed in accordance with the BLM's Phoenix District Fire Management Plan and California Desert District Fire Management Plan.

Procedures in this Plan will apply to all land jurisdictions within the Project area.

3.3 Compliance Inspection Contractor

In the event of a fire on BLM land, and all other land jurisdictions, the CIC will report the incident to the Prescott Dispatch Center, Federal Interagency Communication Center, and Perris Emergency Coordination Center and assist with follow-up investigations of the incident with the FMO, Construction Contractor's Fire Marshal, and BLM Authorized Officer.

3.4 Construction Contractor

Fire prevention measures identified in this Fire Protection and Prevention Plan will be implemented and adhered to by all construction personnel, operation and maintenance personnel, and decommissioning personnel. Contractor(s) will provide fire suppression training and equipment to their employees to prevent or minimize the spreading of fires that may occur. Training should include identifying predetermined locations for employees to assemble should a fire occur that cannot be safely controlled with the personnel and resources available.

During Project construction, the contractor(s) will be responsible for fire prevention, initial fire suppression actions and rehabilitation as directed by the DCRT Project Manager. Fires resulting from contractor activities, occurring in or out of the Project area, will be addressed immediately, in a manner that protects personnel safety. In the event of a fire, it will be the responsibility of the Construction Contractor(s) to respond to the incident and report to the DCRT Project Manager, CIC, Environmental Compliance Manager and the Construction Contractor's Fire Marshal. The Construction Contractor(s) will be responsible for any fire started, in or out of the Project area, by its employees or operations during construction as well as for fire suppression and rehabilitation. The Construction Contractor(s) will take aggressive action to prevent and suppress fires on, and adjacent to, the Project area and will utilize personnel and equipment for fighting fires within the Project area. If a fire is started by construction crews and can be adequately and sufficiently put out with the tools on-site then crews will do so, if the fire spreads quicker than expected the first concern is personnel safety and the site should be evacuated. The site should also be evacuated if the fire is exceptionally hot or has toxic fumes. Project personnel will not fight large fires with water trucks or equipment unless instructed by the BLM or emergency crews. On-site Project water trucks will be used for fire control if requested by the BLM or emergency crews.

Specific construction-related activities and safety measures will be implemented during construction of the transmission line to prevent fires and to ensure quick response and suppression in the event a fire occurs as specified in this Fire Protection and Prevention Plan. Fire prevention and protection measures shall be utilized for construction, reclamation, operation and maintenance and decommissioning if needed.

3.4.1 Construction Contractor's Fire Marshal

Each Construction Contractor will identify a Fire Marshal for the transmission line construction project. A Fire Marshal(s) shall be dedicated for construction, reclamation, operation and maintenance, and decommissioning if needed. The Fire Marshal's responsibilities include the following:

- Participate in communications with the CIC.
- Issue current fire potential and fire safety warnings.
- Perform inspections of contractor storage areas, especially areas where flammable materials are stored, to ensure safety measures are being followed.
- Perform corrective actions when fire protection requirements are not in compliance.
- Inspect tools, first-aid supplies and fire suppression equipment to ensure readiness in the event of an emergency.
- Post smoking and fire rules at centrally visible locations.
- Identify activities that present fire risk, issue warnings as appropriate and communicate prevention strategies to construction personnel.
- Communicate activities that must be limited or modified during periods of increased fire danger.
- Periodically conduct briefings for personnel to remind of the requirements of the Fire Protection and Prevention Plan.
- Enforce Project rules on smoking in the Project area, including prohibiting smoking in areas other than those designated by the BLM.
- Report all wildfires in accordance with the notification procedures described in the notification section (below).
- Report fires to 911 first and then to the CIC, and DCRT Project Manager in accordance with the notification procedures identified in this Plan.
- Coordinate initial response to contractor-caused fires with the Project areas. Suppression activities should be continued until fire response agencies have arrived and taken control of the site. Fire suppression personnel and equipment, including water trucks, will be dispatched within 15 minutes from the time a fire is reported.
- Assist with follow-up investigations of the fire incident with the CIC, FMO, and DCRT Project Manager as needed. Provide adaptive management measures, as necessary, to prevent future fire incidents.
- Manage rehabilitation efforts in accordance with BLM and DCRT directives.

3.4.2 Contractor Employees

The Contractor Employees' responsibilities include the following:

- Be familiar with and implement fire prevention measures included in this Fire Protection and Prevention Plan.
- Communicate any concerns regarding fire risks to your company's Fire Marshal.
- In the event of a fire, immediately call 911, then notify the Contractor Project Manager and CIC and initiate fire suppression activities in accordance with your level of emergency response training.
- Know the locations of Project tools, fire suppression equipment, first-aid kits and safety zone assembly areas.

4 Fire Prevention Plan

4.1 Preconstruction and Construction

The National Fire Protection Association codes and standards includes numerous documents which are applicable to this Project including, but not limited to the following:

- Standard for Electrical Safety in the Workplace
- Standard for Fire Prevention During Welding, Cutting, and Other Hot Work
- Standard for Safe Havens and Interchange Lots for Vehicles Transporting Explosives
- Recommended Practice on Static Electricity
- Standard for Portable Fire Extinguishers
- Standard for General Storage
- Standard for Wildfire Control

Methods and procedures to be implemented prior to and during construction, operation, maintenance, and termination of the Project to minimize the risk of fire are described in the following sections.

4.1.1 Training

The Construction Contractor will train all personnel on the measures to take in the event of a fire. The Construction Contractor will also inform each construction crew member of fire dangers, locations of extinguishers and equipment, safe locations, and escape routes should a fire exceed immediate control and individual responsibilities for fire prevention and suppression during regular safety briefings. Smoking and fire rules also will be discussed with the Construction Contractor and all field personnel during the Project's environmental training.

4.1.2 Pioneering Activities

Pioneering activities have the potential to start fires. Sparks can be created as a result of metal blades on bulldozers or excavators hitting rock. Fire prevention practices may be necessary during these situations and proper fire-fighting tools will be on site such as backpack water pumps (five-gallon minimum capacity), shovels, Pulaski, and fire extinguishers, etc.

4.1.3 Warning Devices

Only battery-powered or electric warning devices are approved for use in the Project area. Torches, highway flares, fuses, and any device using an open flame are prohibited.

4.1.4 Burning

No fires or barbeques are allowed on any construction-related area including the transmission ROW, material storage areas, construction laydown areas, access roads, substation areas, or other construction area. This prohibits fires of any type, for any purpose.

4.1.5 Explosives and Flammable Materials

In the event that blasting activities are necessary during the course of construction, the CIC and Construction Contractor's Fire Marshal must receive prior notification. Fire suppression equipment must be available in the blasting contractor's vehicle.

Flammable materials must be kept clear (a minimum of 10 feet away) from areas where sparks or flames may be generated. Flammable materials will be appropriately stored; for example, oxygen cylinders must be separated from fuel gas cylinders or other combustible items a minimum distance of 20 feet. Otherwise, a non-combustible barrier which provides an appropriate fire resistance rating may be provided, and the minimum separation distance can be reduced to five feet. Outdoor storage of flammable liquids in approved containers with no more than 60-gallon capacity are subject to the following restrictions:

- The total capacity of any one group of containers stored together must not exceed 1,100 gallons. Each group of containers must be at least five feet apart, and each group must be at least 20 feet away from any building or other combustibles.
- Each group of containers must be adjacent to an access way at least 12 feet wide to facilitate the use of firefighting equipment.

4.1.6 Welding

Welding and cutting activities are anticipated during construction. The contractor's Construction Manager must approve welding or cutting of transmission line equipment and components.

Grinding, cutting and welding must take place in areas where vegetation and flammable materials have been cleared. Preventive equipment such as spark shields may be used; vegetation in the immediate area may be wetted as a precaution and a spotter should

monitor the area for ignitions for at least one hour after the activity takes place. The spotter should have fire suppression equipment including ABC-rated five-pound extinguishers, backpack water pumps (five-gallon minimum capacity) and a round-blade shovel.

4.1.7 Spark Arrestors

Spark arrestors that meet agency standards must be used on internal combustion engines on roads where vegetation is present. All spark arrestors must be maintained in good working order. Light trucks and cars equipped with factory-installed mufflers (in good condition) are allowed on roads where the vegetation has been cleared from the roadway. Since vehicles equipped with catalytic converters are potential fire hazards, they must be parked in areas cleared of vegetation. Flues used in work areas must also be equipped with working spark arrestors that comply with agency standards.

4.1.8 Power Saws

Approved spark arrestors and mufflers are required on all gasoline-powered saws. This equipment must be maintained in proper working condition and should be inspected periodically. Chain saws must be managed under the following restrictions:

- Spark arrestors/mufflers must include a 0.023-inch mesh, stainless steel screen.
- Operators using power saws must have an approved, portable fire extinguisher and a long-handled, round blade, size 0 shovels in proper working condition.
- Power saws shall be refueled in an area cleared of flammable materials and the operator must not restart the equipment until it has been moved at least 10 feet from the refueling location. Gasoline must be contained in approved metal safety containers.

4.1.9 Refueling

Fuel trucks must carry a 35-pound minimum fire extinguisher intended for use on electrical and fuel fires. Standard operating procedures pertaining to fueling will be in place and will be followed. While helicopters are fueled, the fuel truck must be grounded to the helicopter.

4.1.10 Smoking

Smoke only in approved areas. No smoking will be allowed while operating equipment, near flammable materials, or while walking or working in areas with vegetation. In areas where smoking is allowed, completely extinguish tobacco products and matches, disposing of them in ash trays or other designated locations. Discarded cigarettes would be properly disposed of and would not be littered on the ROW. These items are NEVER to be thrown on the ground. Review and comply with smoking and fire hazard information posted on project bulletin boards, portable restroom facilities, break areas, material storage areas and parking lots.

4.1.11 Communications

The Construction Contractor will be responsible for maintaining contact with fire-control agencies and will be equipped with a radio or cellular telephone to enable immediate contact with local fire-control agencies when the fire is onsite or adjacent to the Project. If cellular telephone coverage is not available, the Construction Contractor will use the radio to contact their base, who will telephone emergency dispatch.

4.1.12 Motorized Vehicles

Vehicles shall be operated on roadways and parked in designated areas or areas with vegetation less than eight inches tall to ensure the hot vehicle undercarriage does not start a fire. No idling of equipment or vehicles would occur on tall vegetative areas. Personnel should check the underside of vehicles and equipment frequently, removing any vegetation that has accumulated.

4.1.13 Construction Work Sites

Crews will stay within the boundaries and confines of disturbance limits; such disturbance limits would have cleared/crushed vegetation or bare mineral soils.

Good housekeeping techniques will be used such as keeping work sites clean, using properly maintained and undamaged tools and equipment, keep passageways free of obstructions, empty trash receptacles before they overflow, etc., as a means of helping to prevent fires.

4.2 Restricted Operations

4.2.1 Fire Danger Ratings

The United States Forest Service Wildland Fire Assessment Program and National Weather Service have developed Fire Danger Ratings and Red Flag Warnings that consider weather conditions, available fuel and moisture content of available fuel to assist land managers with identifying when additional mitigation is warranted and when operations need to be modified, reduced or halted. These systems will be used by the Construction Contractor's Fire Marshal to determine when increased mitigation or modified work practices will be implemented during transmission line construction. The Construction Contractor's Fire Marshal will consult with the CIC to resolve any questions regarding the level of fire danger in the Project area.

DCRT and the Construction Contractor(s) would check the weather forecast and verify applicable fire danger and fire precautions, if any, before initiating activities that represent potential ignition sources or sparks.

TABLE J-2-1 FIRE DANGER RATINGS

Fire Danger Rating and Color Code	Description
Low (L) Dark Green	Fires do not ignite readily from small firebrands although a more intense heat source, such as lightning, may start fires in duff or punky wood. Fires in open cured grasslands may burn freely a few hours after rain, but wood fires spread slowly by creeping or smoldering and burn in irregular fingers. There is little danger of spotting.
Moderate (M) Light Green or Blue	Fires can start from most accidental causes, but with the exception of lightning fires, in some areas, the number of starts is generally low. Fires in open cured grasslands will burn briskly and spread rapidly on windy days. Timber fires spread slowly to moderately fast. The average fire is of moderate intensity, although heavy concentrations of fuel, especially draped fuel, may burn hot. Short-distance spotting may occur, but is not persistent. Fires are not likely to become serious and control is relatively easy.
High (H) Yellow	All fine dead fuels ignite readily and fires start easily from most causes. Unattended brush and campfires are likely to escape. Fires spread rapidly, and short-distance spotting is common. High-intensity burning may develop on slopes or in concentrations of fine fuels. Fires may become serious and their control difficult unless they are attacked successfully while small.
Very High (VH) Orange	Fires start easily from all causes and, immediately after ignition, spread rapidly and increase quickly in intensity. Spot fires are a constant danger. Fires burning in light fuels may quickly develop high intensity characteristics such as long-distance spotting and fire whirlwinds when they burn into heavier fuels.
Extreme (E) Red	Fires start quickly, spread furiously and burn intensely. All fires are potentially serious. Development into high intensity burning will usually be faster and occur from smaller fires than in the very high fire danger class. Direct attack is rarely possible and may be dangerous except immediately after ignition. Fires that develop headway in heavy slash or in conifer stands may be unmanageable while the extreme burning condition lasts. Under these conditions the only effective and safe control action is on the flanks until the weather changes or the fuel supply lessens.

<http://www.wfas.net/index.php/fire-danger-rating-fire-potential--danger-32>.

4.2.2 Red Flag Warnings

When the National Weather Service has issued a Red Flag Warning for low humidity and high winds, the Fire Precaution Levels in Table J-2 will be adhered to. Red Flag Warning information for Arizona and California can be found at: <http://wrh.noaa.gov/firewx/main.php>.

4.3 Project Activity Levels

Table J-2-2 establishes work restrictions and precautions the contractor must observe on Red Flag days and they apply to all land jurisdictions. The Construction Contractor's Fire Marshal will track and report Red Flag Warnings as necessary.

TABLE J-2-2 PROJECT ACTIVITY REQUIREMENTS

Level	Project Activity Requirements
A	Minimum required
B	Furnish fire patrol. A fire patrol person is required for mechanical operations from cessation of operations until two hours after operations cease or sunset, whichever occurs first. Tank truck or trailer shall be on or adjacent to landing.

Level	Project Activity Requirements
C	<p>Fire patrol person is required until sunset local time.</p> <p>The following operations are prohibited from 1:00 p.m. until 8:00 p.m. local time:</p> <ul style="list-style-type: none"> Operating high-speed rotary head equipment Blasting
D	<p>All following activities may operate:</p> <ul style="list-style-type: none"> Welding or cutting of metal only by special permit Road maintenance Culvert installation Dirt moving Helicopter yarding <p>A fire patrol person is required to walk all areas treated that day once per hour until sunset local time. This includes metal track skidding, machines with chainsaw cutting heads, and mastication equipment.</p>
E	<p>All following activities may operate:</p> <ul style="list-style-type: none"> Equipment at approved sites may be serviced. Roads: dust abatement or rock aggregate installation (does not include pit development). <p>All other operations may continue until 1:00 p.m. local time when Construction Contractor's Fire Marshal and CIC agree to variance.</p>
Ev	<p>Same as E with the exception that if site-specific conditions warrant a variance permitting operations, the Construction Contractor's Fire Marshal and CIC will provide the specified emergency precautions needed.</p>

All of the precautions listed above apply unless the Authorized Official agrees to a change in writing. Such written agreement, or substitute precautions shall prescribe measures taken by the Construction Contractor to reduce the risk of ignition, and/or spread of fire. A fire hazard analysis form is located in Attachment A.

4.4 Inspections

The Construction Contractor will be responsible for compliance with all provisions of this Plan. Regular inspections of the Project work area and personnel may include ensuring that new workers receive fire training, taking additional measures to lower the chance of fires in newly identified high-risk areas, equipment inspections, and work site procedures. In addition, federal, state, and local fire-control agencies may perform inspections in areas under their jurisdiction at their discretion.

5 Fire Emergency Response Plan

5.1 Fire Suppression Equipment

Fire suppression equipment identified in this section shall be available during the life of Project. All firefighting equipment will be periodically inspected and maintained in operating condition. Defective equipment shall be immediately replaced. (Occupational Safety and Health Act Publication 3080 [USDL 2002] provides information on proper maintenance of hand and power tools.) Fire suppression equipment will allow Project personnel the resources necessary to immediately respond to a fire, with the potential of extinguishing or controlling the fire.

5.1.1 Motorized Vehicles

During the fire season (typically May through September, but generally there is less risk during monsoon season, which is June 15 to September 30) motorized vehicles shall be stocked with a long-handled round blade shovel, an axe or Pulaski fire tool, a five-pound ABC dry chemical fire extinguisher, a five-gallon water backpack (or equivalent container) full of water or a chemical fire suppressant, and personal protective equipment including hardhat, work gloves and eye protection.

Fueling trucks must be equipped with a 35-pound fire extinguisher containing chemicals designed for use on electrical and fuel fires.

5.1.2 Construction Work Sites

The use of power saws in areas away from the contractor's vehicle requires a five-pound ABC dry chemical fire extinguisher and a long-handled round blade shovel. The saw must be equipped with an approved spark arrestor.

For activities more likely to cause a fire such as welding or cutting, the fire response equipment shall be increased to at least two extinguishers and two shovels.

Work sites where higher risk activities are performed shall be equipped with back pumps filled with water: 1) at welding sites; and 2) at both wood cutting sites and structure construction and installation areas.

When Red Flag Warning days are indicated by National Oceanic and Atmospheric Administration, a fire suppression vehicle equipped with at least a 500-gallon water tank, a 20-gallon per minute pump and 250 feet of 0.75-inch rubber hose must be stationed near the Project area.

The fire suppression vehicle in place during times of Red Flag Warning days, must contain a dedicated fire protection tool set that includes two long-handled round blade shovels, two axes or Pulaski fire tools, a chainsaw of at least 3.5 horsepower and a cutting bar at least 20 inches in length.

The construction site must have communication devices, such as radios and cellular or satellite telephones, as appropriate for the Project location to be used to contact emergency responders and project officials.

5.2 Immediate Fire Suppression Activity

In the event of a fire in the Project area that can be managed with the equipment and resources available, construction and project-related personnel should initiate fire suppression activities to either extinguish or control the spread of the fire. Fire suppression activity includes direct treatment to burning fuel such as wetting, smothering, or chemically quenching the fire, or by physically separating the burning from not burned fuel. Training provided to project personnel will address response actions that should be taken by contractors, conditions that warrant evacuating project personnel, evacuation routes and assembly areas, and notification procedures.

If a fire cannot be managed safely and/or the fire is exceptionally hot and/or or has toxic fumes, personnel will evacuate the area and call 911. When calling 911 the following information will be provided.

- Your name
- Call back telephone number
- Project name
- Location
 - Legal description (township, range, section) or GPS location (latitude and longitude)
 - Descriptive location (reference point)
- Fire information
 - Size of fire
 - Rate of spread
 - Wind conditions
- Access
- Hazards to personnel

Immediately following any fire related emergency and a 911 call, the Construction Contractor's Fire Marshal will be notified as indicated in the following section.

5.3 Notifications

After the 911 call is made, the CIC will contact the Prescott Dispatch Center, Federal Interagency Communication Center, and Perris Emergency Coordination Center, and other notifications shall be made (see Table J-2-3), providing information indicated in Section 5.2. All fires, regardless of size, must be reported to the Project personnel included in this table. Fire notification procedures will be applied to all land jurisdictions.

The Construction Contractor's Fire Marshal shall notify both the CIC and DCRT Project Manager, who will coordinate to notify the BLM authorized representative or designee and FMO, in the event of a fire in the Project area during construction. DCRT's Project Manager will be responsible for these notifications during the operations and maintenance phase of the Project. Both the Construction Contractor's Fire Marshal and DCRT or its designee shall make emergency notification numbers available to all personnel in case of a fire (see Table J-2-3). These numbers must be kept up-to-date during the life of the Project.

TABLE J-2-3 FIRE NOTIFICATION CONTACTS AND NUMBERS

Contact Person	Phone Number
911 – Emergency	911
Prescott Dispatch Center	928-777-5700
Federal Interagency Communication Center	Business and after hours: 909-383-5652
Perris Emergency Coordination Center	951-940-6949
BLM Authorized Officer or Designee	TBD
BLM FMO	TBD
CIC	TBD
DCRT Construction Project Manager	TBD
Construction Contractor's Fire Marshal: TBD	TBD

Prior to commencing work, the Construction Contractor will furnish the information in Tables J-2-4 and J-2-5 relating to key personnel, tools, and equipment available for the purpose of fighting wildland fires within and adjacent to the Project area.

TABLE J-2-4 KEY PERSONNEL IN ORDER OF CALL PREFERENCE

Title	Name	Phone Number
Construction Contractor's Fire Marshal	TBD	
Fire Patrolperson	TBD	

TABLE J-2-5 PERSONNEL AND EQUIPMENT

Fire Fighters and Positions	Equipment	Type, Make and Mode
TBD		

6 Post-Fire Rehabilitation

If the cause of a fire is determined to be the result of the Project, the Construction Contractor(s) will implement reclamation measures as required by the BLM (see Appendix L-1 – Reclamation, Vegetation, and Monitoring Plan), and the following post-fire reclamation measures will be implemented:

- Burn areas that are Project-related must be reclaimed as specified by the BLM. Small burn areas are revegetated with native vegetation using seed mixtures identified by BLM near reclamation time to ensure seed availability. Larger areas may require specific restoration plans. Coordination with the BLM is necessary to determine requirements for each particular area, depending on the size and location of a fire, and the location of sensitive resources.
- To prevent the spread of noxious weeds and invasive species during post-fire reclamation, the measures outlined in Appendix F-7 – Vegetation Management Plan will be implemented by the Construction Contractor(s).

7 Operation and Maintenance

During Project operation and maintenance, the Final Fire Protection and Prevention Plan will be implemented, including all measures and stipulations contained therein.

8 Decommissioning

During Project decommissioning activities, the Final Fire Protection and Prevention Plan will be implemented, including all measures and stipulations contained therein.

9 Environmental Protection Measures

This section includes relevant mitigation measures, example ROW grant stipulations, and best management practices specific to protection against fire. These measures and stipulations were pulled from the project-wide environmental mitigation measures within Appendix B of the Plan of Development.

APM-BIO-05 Additional Prohibitions: Trash dumping, firearms, open fires, and pets would be prohibited at all work locations and access roads. Smoking would be prohibited along the Project alignment.

APM-HAZ-02 Fire Avoidance and Suppression: Per the Fire Protection and Prevention Plan for the Project: DCRT would select a welding site that is void of native combustible material and/or would clear such material for 10 feet around the area where the work is to be performed. DCRT would follow its standard practice for clearing in wildland areas. Project personnel would be directed to drive on areas that have been cleared of vegetation, park away from dry vegetation, and carry water, shovels, and fire extinguishers in times of high fire hazard. DCRT would also prohibit trash burning. Additionally, fire-suppression materials and equipment would be kept adjacent to all areas of work and in staging areas and would be clearly marked.

BMP-HAZ-02 Fire Avoidance and Suppression: APM-HAZ-02 would not interfere with APM BIO-14, which encourages overland driving/access. Vehicle and equipment operators would drive on cleared areas and park away from vegetation where possible, would be responsible to monitor for fire ignition by vehicles and equipment; and would be equipped and trained to provide first response to an inadvertent wildland fire ignition associated with the Project.

BMP-PHS-02 A Fire Prevention Plan would be developed for the Project.

CMA-DFA-VPL-BIO-FIRE-1 Implement the following standard practice for fire prevention/protection: Implement site-specific fire prevention/protection actions particular to the construction and operation of renewable energy and transmission project that include procedures for reducing fires while minimizing the necessary amount of vegetation clearing, fuel modification, and other construction related activities. At a minimum these actions will include designating site fire coordinators, providing adequate fire suppression equipment (including in vehicles), and establishing emergency response information relevant to the construction site.

10 California Environmental Quality Act

In compliance with the California Environmental Quality Act (CEQA) the following mitigation measure will be adhered to in California:

MM-HAZ-CEQA-1 – As discussed in APM-HAZ-02, BMP-PHS-02, and CMA-DFA-VPL-BIO-FIRE-1, a Fire Prevention Plan shall be developed and implemented for the Project throughout construction and operation and maintenance. The Applicant shall develop a Project Fire Prevention Plan in consultation with the appropriate local fire agencies at least 30-days prior to the start of construction activities. The Plan shall cover the construction and operations/maintenance phases of the Project. The Applicant shall monitor Project-related activities to ensure implementation and effectiveness of the Plan. The final Plan will be approved by the consulted fire agencies prior to the initiation of construction activities and shall be implemented during all Project-related activities by the Applicant. Information contained in the Plan and location of fire-suppression materials and equipment shall be included as part of the Worker Environmental Awareness Program discussed in APM BIO-01. Successful implementation of this Plan shall result in a less than significant impact to the potential for construction-related fires. At minimum, the Plan shall include the following:

- Procedures for minimizing potential ignition, including, but not limited to, vegetation clearing, parking requirements/restrictions, idling restrictions, smoking restrictions, proper use of gas-powered equipment, use of spark arrestors, hot work restrictions, and timing of vegetation treatment or maintenance. Where necessary, vegetation management or clearing necessary to mitigate fire risk shall supersede other measures for vegetation protection and avoidance. Applicable permitting, compensation, and mitigation resulting from such activity shall be the responsibility of the Applicant.
- Proper use of construction, maintenance, and decommissioning equipment.
- Work restrictions during Red Flag Warnings and High to Extreme Fire Danger days.
- Fire coordinator and fire patrol roles and responsibilities.

- Worker training for fire prevention, initial attack firefighting, and fire reporting.
- Emergency fire suppression equipment/tools inventory and maintenance.
- Emergency communication, response, and reporting procedures.
- Coordination with local fire agencies to facilitate emergency access through the Project site.
- Emergency contact information.
- Compliance with applicable wildland fire management plans and policies established by state and local agencies.
- Other information as required by responsible and consulted agencies.

Responsible Party: The Applicant shall develop the Fire Protection and Prevention Plan and ensure that it is implemented throughout construction activities

Timing: The Proponent shall develop the Fire Prevention Plan at least 30-days prior to the start of construction activities. The Plan shall be implemented throughout all construction activities.

Mitigation Monitoring and Reporting Program: The Applicant shall ensure that the information in the Fire Prevention Plan is included in the Worker Environmental Awareness Program. Documentation of any Red Flag Warnings or High to Extreme Fire Danger days shall be kept on file and submitted to the applicable local fire agencies as well as the BLM and California Public Utilities Commission (CPUC).

Standards for Success: Construction impacts related to fires is reduced to a less than significant level and no fires are started as a result of construction activities.

11 References

United States Department of Labor (USDOL). 2002 (Revised). Occupational Safety and Health Act Publication 3080. Available at:
<https://www.osha.gov/Publications/osh3080.html>. Accessed March 2019.

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ATTACHMENT A EXAMPLE FIRE HAZARD ANALYSIS

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FIRE HAZARD ANALYSIS

Job # _____ Job Name _____ Job Location _____

General Foreman _____

Designated Fire Watch _____

Emergency Contact Number _____

Emergency 911 _____

Nearest Hospital _____

Medical Care Facility _____

Hotline Number _____ Level _____

Task Description _____

Job Site (Check All That Apply)

<input type="checkbox"/>	Contact hotline for project activity level	<input type="checkbox"/>	Open flame operation required (welding)
<input type="checkbox"/>	Flammable gas identified	<input type="checkbox"/>	Assess area for fire hazard potential
<input type="checkbox"/>	Welding area prepared for use	<input type="checkbox"/>	Chemical source identified
<input type="checkbox"/>	Firefighting equipment inspected	<input type="checkbox"/>	Spark source identified prior to use
<input type="checkbox"/>	Wildlife (bugs, insects, bees, etc.)	<input type="checkbox"/>	Discuss an emergency escape plan
<input type="checkbox"/>	Wildlife (dogs, raccoons, rodents, etc.)	<input type="checkbox"/>	Area prepared for use of spark equipment
<input type="checkbox"/>	Communication equipment working	<input type="checkbox"/>	Firefighting equipment in place
<input type="checkbox"/>	Identify need for additional water support	<input type="checkbox"/>	Pulaski
<input type="checkbox"/>	Eliminate housekeeping hazards	<input type="checkbox"/>	Shovels
<input type="checkbox"/>	Smoking in designated area only	<input type="checkbox"/>	Backpack water pump inspected
<input type="checkbox"/>	Fire extinguisher(s) inspected	<input type="checkbox"/>	Native vegetation identified and cleared
<input type="checkbox"/>	Uneven surfaces	<input type="checkbox"/>	Ice, mud, snow
<input type="checkbox"/>	Fire patrol notified	<input type="checkbox"/>	Identify second in command
<input type="checkbox"/>	Drinking water	<input type="checkbox"/>	Personal protective equipment
<input type="checkbox"/>		<input type="checkbox"/>	
<input type="checkbox"/>		<input type="checkbox"/>	
<input type="checkbox"/>		<input type="checkbox"/>	

Fire Job Hazard Analysis

What is the fire hazard associated with this job?

What are the necessary procedures to reduce the possibility of a spark or fire?

What special precautions shall be taken to ensure a fire does not occur?

What fire defenses are in place to prevent the spread of a fire and to protect the lives of employees on the work site?

Changes (Any of the changes indicated below necessitates completing a New "Job Briefing")

Change of conditions ☐ Yes ☐ NA Job scope ☐ Yes ☐ NA Change in person in charge ☐ Yes ☐ NA

Attendees and visitors to the job site are required to review the "Job Briefing" with the person in charge and sign below.

Date: _____

[illegible]

2B.15 TRAFFIC AND TRANSPORTATION MANAGEMENT PLAN

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June 2019

BUREAU OF LAND MANAGEMENT

Ten West Link Transmission Project

Traffic and Transportation Management Plan

PROJECT NUMBER:
154320

PROJECT CONTACT:
Mike Strand
EMAIL:
mike.strand@powereng.com
PHONE:
562-298-6282



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Traffic and Transportation Management Plan

PREPARED FOR: BUREAU OF LAND MANAGEMENT

PREPARED BY: CHARLES HUTCHINSON

303-914-2285

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ATTACHMENT:

ATTACHMENT A – SAMPLE TRAFFIC CONTROL PLAN

ACRONYMS AND ABBREVIATIONS

ADOT	Arizona Department of Transportation
APM	Applicant Proposed Measure
BLM	Bureau of Land Management
BMPs	Best Management Practices
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CPUC	California Public Utilities Commission
DCRT	Delaney Colorado River Transmission, LLC
FAA	Federal Aviation Administration
I-10	Interstate 10
MDAQMD	Mojave Desert Air Quality Management District
MM	Mitigation Measure
OHV	off-highway vehicle
Plan	Traffic and Transportation Management Plan
Project	Ten West Link Transmission Project
ROW	right-of-way
U.S.	United States

1 Introduction

Delaney Colorado River Transmission, LLC (DCRT) prepared this Traffic and Transportation Management Plan (Plan) for the Ten West Link Transmission Project (Project) to address traffic and transportation concerns associated with the Project's construction, operation, maintenance, and decommissioning activities. This Plan addresses regulatory compliance, traffic management practices, and types of right-of-way (ROW) access. Additionally, this Plan describes Applicant Proposed Measures (APMs), Bureau of Land Management (BLM)-required Best Management Practices (BMPs), and mitigation measures (MMs) that DCRT will implement to reduce the Project's impacts on traffic volumes and the transportation network in the Project's vicinity.

2 Regulatory Compliance

Many federal, state, and local government agencies oversee the use and improvement of transportation facilities that the Project's activities will use. Such agencies include the BLM; Federal Highway Administration; Federal Aviation Administration (FAA) for helicopter use; Arizona Department of Transportation (ADOT); Arizona Department of Public Safety; California Department of Transportation (Caltrans); California Office of Traffic Safety; and law enforcement agencies and highway departments in La Paz and Maricopa counties in Arizona and in Riverside County, California. Appendix H-1 – Fugitive Dust Control Plan and Construction Emissions Mitigation Plan addresses the California Air Resources Board's fugitive dust and vehicle emissions' regulations and describes methods for reducing the Project's transportation-related emissions.

Prior to commencing construction activities, DCRT will file encroachment permit applications with appropriate highway departments for areas where the Project-related traffic will enter or where the proposed transmission line will cross public roads (e.g., Interstate 10 [I-10], United States [U.S.] Highway 95, California State Route 78-S, Neighbours Boulevard), and numerous named county roads.

Project personnel who are responsible for transportation activities will be familiar with this Plan and relevant sections of the Project's Plan of Development.

Additionally, as described in Appendix K-3 – Helicopter Flight Plan/Flight and Safety Plan, DCRT will coordinate its construction activities with local air traffic control operators and implement a Congested Area Plan, per FAA regulations, if required.

3 Traffic Management Practices

3.1 Ground Travel

During the Project's construction activities, ground travel will be the primary means of transporting construction and maintenance crews and equipment to and from staging areas and structure work areas. All drivers will obey jurisdictional traffic speed regulations and posted speed limits. Speeds along upgraded existing access roads, new centerline access roads, and access spur roads adjacent to and along the Project's ROW will be limited to 15 miles per hour or to posted speed limits to prevent excessive amounts of construction-

related dust (see Appendix H-1 – Fugitive Dust Control Plan and Construction Emissions Mitigation Plan). Before construction, authorized access roads will be clearly marked in the field with signs or flagging. The Construction Contractor(s) will review the location of proposed access roads and will be responsible for ensuring that construction travel is limited to designated areas that clearly identify the limits of disturbance. During construction, gates or other deterrents may be required to limit access along the ROW for public safety and environmental resource protection.

Project field personnel will attend an environmental training program. This program will instruct field personnel to use only approved access roads, drive in the delineated road limits, and obey jurisdictional and posted speed limits to minimize potential impacts to biological, paleontological, and cultural resources. The Construction Contractor(s), Compliance Inspection Contractor, and environmental monitors will maintain a communications network that consists of one or both of the following devices: two-way radios and/or cellular phones. This will allow for safe coordination of equipment traffic along existing access roads to minimize impacting public safety and traffic volumes.

In general, the number of construction vehicles needed for the Project is not expected to substantially increase existing traffic volumes in the Project's vicinity. Similarly, road and lane closures are anticipated to be minimal, and will most likely occur during conductor-stringing activities or during blasting. If road and lane closures are needed (e.g., to pull the transmission line across major roadways), the appropriate regulatory agencies, affected parties, and emergency service providers will be notified in advance of the anticipated closure. Prior to transporting oversize and/or overweight loads on California highways or freeways, DCRT will coordinate with Caltrans to obtain the applicable permits, as needed.

Construction traffic is not expected to disrupt access to residences along the ROW. However, adjacent landowners will be notified of the construction schedule, where appropriate. Where feasible, construction traffic will be routed away from residences and schools. Signs will be posted in the Project area to notify landowners and others, including off-highway vehicle (OHV) users of the construction activity. Construction crews will park only in designated areas and will be shuttled to the appropriate work sites, if necessary. If existing roads and trails on public lands are blocked due to construction activities, signs will be posted to notify the public. Attachment A includes a sample traffic control plan.

To alleviate traffic congestion and decrease the number of vehicles traveling to the Project work areas, the Construction Contractor(s) will encourage personnel to carpool to work each day. Additionally, crews will commute from show-up yards to the work sites in company provided crew vehicles after meeting at the show-up yard locations.

3.1.1 Ground Travel in Arizona

The Construction Contractor(s) will comply with the 2009 *Arizona Supplement to the Manual on Uniform Traffic Control Devices* for public roads that the Project would impact. Along the BLM Preferred Alternative's route in Arizona where the proposed transmission line would cross I-10 twice, the Construction Contractor(s) will comply with ADOT's *Guideline for Accommodating Utilities on Highway Rights-of-Way*. Both locations are outside of interchange areas. In these locations, the Construction Contractor(s) will install the proposed transmission line's support structures outside of the control of access line. Project work performed in highway ROW will conform to recognized standards of utility construction, the *Arizona Department of Transportation Standard Specifications for Road and Bridge Construction*, and the conditions that the encroachment permit and/or utility permit specify.

3.1.2 Ground Travel in California and California Environmental Quality Act Compliance

In Riverside County, California, the Construction Contractor(s) will comply with the 2014 *California Manual on Uniform Traffic Control Devices* for public roads that the Project would impact. More specifically, the Construction Contractor(s) will comply with the manual's *Part 6 – Temporary Traffic Control*, incorporating the elements below:

- Temporary traffic control plans and control zones.
- Pedestrian and worker safety.
- Flagger control.
- Temporary traffic control zone devices.
- Temporary traffic control zone activities.
- Controlling traffic through traffic incident management areas.

The California Public Utilities Commission requires through their California Environmental Quality Act (CEQA) review, that DCRT also implement the following mitigation measures to help control Project-related construction vehicle traffic (and MM Trans-CEQA-2 per development of this Plan):

- Identify truck routes designated by Riverside County and local jurisdictions' haul routes that minimize truck traffic on local roadways.
- Provide sufficient-sized staging areas for trucks accessing work zones to minimize disruption of access to adjacent public ROWs.
- Schedule truck trips outside the peak morning and evening commute hours.
- Store all equipment and materials in designated contractor staging areas on or adjacent to the work site, such that traffic obstruction is minimized.
- Implement roadside safety protocols including advance "Road Work Ahead" warning and speed control signs, which shall be posted to reduce and provide safe traffic flow through the work zone.
- Provide advance notification to administrators of police and fire stations, including fire protection agencies; ambulance service providers; and recreational facility managers of the timing, location, and duration of construction activities and the locations of detours and lane closures. Maintain access for emergency vehicles within and/or adjacent to roadways affected by construction activities at all times.
- Repair and restore adversely affected roadway pavements to their pre-construction condition per the following direction:
 - Damage will be documented by the Project Applicant and the applicable jurisdiction, that is, Caltrans, Riverside County, or individual will be notified within 24 hours. The Applicant will work with the jurisdiction affected and will repair the damage within 30 days.

- Coordinate individual traffic plans for the Project and nearby projects.
- Coordinate with Riverside County to develop circulation and detour plans that include safety features, for example, signage and flaggers. The circulation and detour plans will address:
 - Full and partial roadway closures.
 - Circulation and detour plans to include the use of signage and flagging to guide vehicles through and/or around the construction zone, as well as any temporary traffic control devices.
 - Bicycle detour plans, where applicable.
 - Parking along arterial and local roadways.
 - Haul routes for construction trucks and staging areas for instances when multiple trucks arrive at a work site.
- Update this Plan to account for delays or changes in the schedules of individual projects.
- Maintain inspection logs that document construction transportation and access problems and solutions.

In compliance with CEQA, the following mitigation measures will be adhered to:

MM-TRANS-CEQA-2 – The California Public Utilities Commission (CPUC) requires the following with regards to the development and implementation of this Plan (e.g., MM Trans-CEQA-2):

Responsible Party: The Applicant shall be responsible for ensuring that the Traffic, Transportation, and Access Management Plan is prepared and implemented throughout construction activities.

Timing: The Traffic, Transportation, and Access Management Plan shall be prepared at least 30 days prior to the start of construction and shall be implemented throughout all construction activities.

Mitigation Monitoring and Reporting Program: The Applicant shall monitor construction transportation and access to ensure that the Traffic, Transportation, and Access Management Plan is implemented successfully as documented in inspection logs.

Standards for Success: Traffic flow remains at acceptable levels, emergency access remains possible at all times, the public is reasonably notified of any road closures, delays, or lane restrictions, and the Project area remains in compliance with all applicable transportation goals, policies, and requirements.

MM-AQ-CEQA-1 – Consistent with APM AQ-01, and Mojave Desert Air Quality Management District (MDAQMD) Rule 403.2, a Fugitive Dust Control Plan shall be prepared for the Project prior to the start of construction and shall be implemented throughout all construction phases of the Project. This Fugitive Dust Control Plan shall be prepared by the

Applicant at least 30 days prior to construction which shall be approved by the CPUC and MDAQMD. The Applicant shall ensure that the Fugitive Dust Control Plan is implemented throughout construction activities and shall keep records of compliance on site and submit monthly reports to CPUC and MDAQMD. This Fugitive Dust Control Plan shall comply with the MDAQMD Guidelines and include all of the control measures listed in APM AQ-01. In addition to these control measures, the Fugitive Dust Control Plan shall also include signage related to fugitive dust that will include the following specifications:

- A minimum 48-inch high by 96-inch wide sign containing the following shall be located within 50 feet of each Project site entrance, meeting the specified minimum text height, black text on white background, on one-inch A/C laminated plywood board, with the lower edge between six and seven feet above grade, with the contact name of a responsible official for the site and a local or toll-free number that is accessible 24 hours per day:
 - [Site Name] {four-inch text}
 - [Project Name/Project Number] {four-inch text}
 - IF YOU SEE DUST COMING FROM {four-inch text}
 - THIS PROJECT CALL: {four-inch text}
 - [Contact Name], PHONE NUMBER XXX-XXXX {six-inch text}
 - If you do not receive a response, Please Call {three-inch text}
 - The MDAQMD at 1-800-635-4617 {three-inch text}

Additionally, the following control measures shall be included in the Fugitive Dust Control Plan:

- Traffic speeds on unpaved roads shall not exceed 15 miles per hour.
- Drop heights from excavators and loaders shall be minimized to distances no more than five feet.
- Appoint a construction relations officer to act as a community liaison concerning on-site construction activity, including resolution of issues related to PM₁₀ and PM_{2.5} generation from combustion emissions and fugitive dust generation.
- An on-site supervisor with a current fugitive dust control class certification shall be present who is available within 30 minutes to respond to any fugitive dust control issue at the site during normal business hours.
- The operation shall keep on-site records of specific dust control actions taken.
- All perimeter fencing shall be wind fencing or the equivalent of four feet of height or the top of all perimeter fencing (this wind fencing requirement may be superseded by local ordinance, rule, or Project-specific biological mitigation prohibiting wind fencing).

- A wheel washing system shall be installed and used to remove bulk material from tires and vehicle undercarriages before vehicles exit the unpaved construction site.

Responsible Party: The Applicant shall be responsible for ensuring the Fugitive Dust Control Plan is prepared and implemented throughout construction activities.

Timing: The Fugitive Dust Control Plan shall be prepared at least 30-days prior to the start of construction and implemented throughout all construction activities.

Mitigation Monitoring and Reporting Program: Monthly reports shall be prepared by the Applicant and submitted to the CPUC and MDAQMD. These monthly reports shall include a summary of any calls received regarding fugitive dust and all compliance actions taken.

Standards for Success: Fugitive dust will be minimized throughout all construction activities and compliance with MDAQMD Rule 403.2 shall be achieved.

3.2 Helicopter Use

In addition to minimizing the impacts associated with ground travel, the Construction Contractor(s) will coordinate construction activities with jurisdictional utilities and the FAA, as needed for helicopter activity. During wire-stringing activities over roads, the Construction Contractor(s) will use traffic controls, which will influence local traffic patterns. A helicopter may be used to move personnel and equipment, and/or assist with structure assembly and erection and wire-stringing, if the Construction Contractor(s) determine that standard, ground-based construction methods are not feasible. Refer to Appendix K-3 – Helicopter Flight Plan/Flight and Safety Plan. The Helicopter Flight Plan provides detailed information, including safety measures that will be implemented during helicopter use along the ROW for the Project's construction, operation, and maintenance activities. During these activities, DCRT will use dust palliatives to reduce the amount of fugitive dust that helicopter takeoffs and landings can generate. Appendix H-1 provides more information on dust palliatives.

The task-specific flight plan will be prepared for helicopter-related uses and will be reported to DCRT's Project Manager, Construction Contractor(s) Manager, Compliance Inspection Contractor, and Environmental Compliance Manager at least 48 hours prior to flight. Ground crew needed on the ROW near a task location will be notified of helicopter use and briefed on safety measures outlined in the Helicopter Flight Plan/Flight and Safety Plan.

4 Types of Right-of-Way Access

As described in detail in Section 3 of the Project's Plan of Development, five different types of access will be used for the Project:

- Access Type A – existing maintained public and private roads, which are paved, gravel, or dirt. These roads will be left in their original condition with no additional disturbance necessary to accommodate Project construction vehicles and equipment.
- Access Type B – existing roads that may require some level of improvement to accommodate Project construction vehicles and equipment.

- Access Type C – centerline access roads that DCRT will create, where necessary, to provide access along the length of the Project's ROW. DCRT will blade these roads along the transmission line's outermost conductor phase, but inside the Project's 200-foot-wide ROW.
- Access Type D – access spur roads that DCRT will blade to connect Access Types A, B, or C roads to structure work areas along the Project's ROW.
- Access Type E – helicopter access. In areas of biological, topographical, archaeological, and visual concerns, the use of helicopter-assisted construction may be implemented for construction activities. Light-duty pickup trucks, tracked equipment, and OHVs may be used in combination with a helicopter. If such vehicles are used for construction and road construction is necessary, such road construction would fall into the Type A, B, C or D access.

For the purpose of this Plan, only Access Type A roads are discussed below. Appendix K-1– Access Road Plan discusses Access Types B, C, and D roads. Appendix K-3 describes Access Type E roads and helicopter operations.

The analysis area for traffic and transportation resources analyzed in the BLM's Environmental Impact Statement covers a 10-mile-wide corridor; five miles on either side of the proposed transmission line's route. In this analysis area, Access Type A Roads include the following:

- I-10, U.S. Highways 60 and 95, Arizona State Route 95, California State Route 78, and Business Route 10.
- Roads and streets in the Town of Quartzsite, Arizona and in the City of Blythe, California.
- Dedicated county roads.
- Local roads and dirt trails on BLM-administered land and on private property.
- Trails providing access to utility corridors and recreation areas.

Along these Access Type A roads, the Project's construction activities would be expected to add approximately 160 personal vehicles to the existing traffic volumes. However, as the Project's construction activities would occur in phases along different segments of the proposed transmission line, not all of these additional personal vehicles would travel in the same direction at the same time. Additionally, these 160 personal vehicles represent the maximum number of vehicles expected to travel to and from construction work areas. Furthermore, DCRT would arrange shuttles or carpooling to transport construction workers, thereby reducing impacts on existing traffic volumes and the transportation network in the analysis area.

5 Decommissioning

At the end of the Project's useful life, if the transmission line and associated facilities were no longer required, or if the BLM or other federal land management agencies do not re-issue authorizations at the time the original authorizations expire, the transmission line and

associated facilities will be decommissioned. Subsequently, conductors, insulators, and hardware will be dismantled and removed from the ROW. Tower structures will be removed and foundations broken off below ground surface. If the transmission line and associated ROW are abandoned at some future date, the ROW will be available for the same uses that existed prior to construction of the Project. Following abandonment and removal of the transmission line from the ROW, any areas disturbed to dismantle the line will be restored and rehabilitated as near as possible to their original condition. During the decommissioning process, DCRT will implement the same or similar traffic management practices as described above for the Project's construction activities.

6 APMs, BMPs, and Mitigation Measures

This section includes relevant APMs, BMPs, and MMs specific to this Plan.

6.1 General BMPs

- All construction vehicle movement outside of the Project's ROW will be restricted to predesignated access roads, Construction Contractor-acquired access roads, or public roads. To the extent practicable, construction vehicle movement in the ROW will be limited to predesignated disturbance areas and access routes.
- The width of construction and new temporary access roads will be kept to the absolute minimum needed, avoiding sensitive areas where possible and limiting disturbance to vegetation.
- Where appropriate (e.g., adjacent to sensitive areas or resources), signs will be placed along access roads to discourage OHV users and Project personnel from driving into unauthorized adjacent areas.
- Where roads that service transmission facilities cross fences, a gate will be installed to standard BLM specifications. The gates will be built prior to construction activities and will be kept closed, except during active construction at the fence site.
- Prior to entering a Project work area, Project vehicles and heavy equipment used to complete, maintain, inspect, or monitor ground-disturbing activities will be cleaned of soil and debris capable of transporting weed propagules. Cleaning vehicles will reduce transporting vehicle-borne noxious and invasive weed seeds, roots, or rhizomes.
- Prior to vehicles and equipment entering a Project area, a weed scientist or qualified biologist will identify, flag, and record areas of noxious weed presence. If necessary during construction, mitigation measures such as a weed wash station will be used to control the transport of noxious weeds.

6.2 BLM-Required BMPs

- BMP-Recreation-01: Alternative Access and Parking Signs

- Signs directing vehicles to alternative park access and parking would be posted in the event construction temporarily obstructs parking areas near trailheads.
- BMP-Recreation-02: Recreation User Signs
 - Signs advising recreation users of construction activities and directing them to alternative trails or bikeways would be posted on both sides of all trail intersections or as determined through DCRT coordination, with the respective jurisdictional agencies. A schedule of construction activities would be posted near entrances to recreational areas as well as on the Project website. Signs would be installed near access roads notifying the public of construction activities in the area and the presence of permanent transmission facilities.
- BMP-Recreation-04: Alternate Route Signage
 - Alternate route(s) of equal or greater standard and access to specially designated areas would be provided, if roads, primitive roads, or trails used for recreation are temporarily closed or otherwise significantly affected. The alternate route(s) would be clearly identified on signage.
- BMP-Traffic and Transportation-02: Structure Lighting in Military Training Routes
 - Project structures that are located within Military Training Routes would be fitted with night-vision-compatible red lighting emitting an infrared energy between 675 and 900 nanometers.
- BMP-Traffic and Transportation-09: Repairs to Local Roads
 - Local roads would be restored if road damage occurred due to Project construction.

6.3 BLM-Required MMs

- MM-Recreation-01: To mitigate effects related to the temporary construction closure of the proposed Arizona Peace Trail and other OHV routes through Johnson Canyon, MM REC-01 would require that construction of the Project occur outside of peak OHV season. Construction in Johnson Canyon would occur between the months of July and September.
- MM-Recreation-03: New access roads will be gated where appropriate, and signage including road status will be posted at all new access road junctions.
- MM-Traffic and Transportation-01: Structures and lines within Segment ca-05 would constitute a moderate to major, long-term effect associated with a collision hazard at the Cyr Aviation Airport. The marking of structures and lines within 0.5 mile of such facilities with spherical markers and lighting would reduce this effect to minor to moderate.
- MM-Traffic and Transportation-02: Structures and lines within Segments in-01 and i-04 where they pass through the Plomosa Mountains and Segments i-06, cb-01, cb-

02, cb-03, and cb-04 in the Dome Rock Mountains would constitute a moderate to major, long-term effect on the safety of Arizona Game and Fish Department aircraft conducting aerial wildlife surveys. The marking of structures and lines in these locations would reduce this effect to minor.

6.4 Applicant Proposed Measures

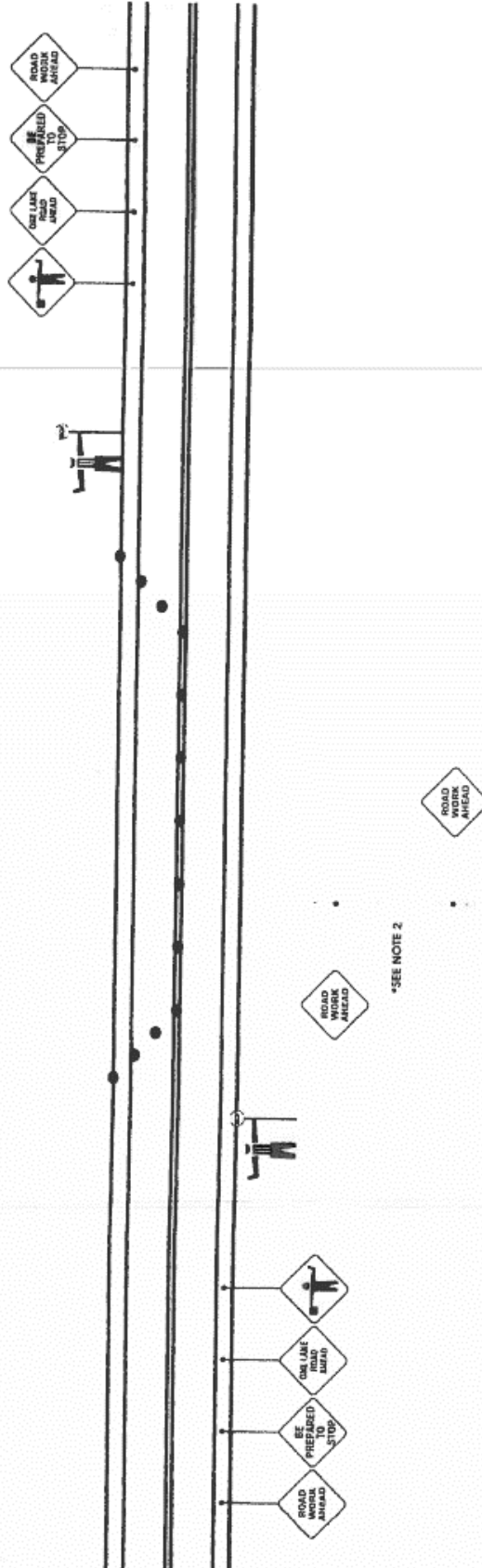
- APM-Biology-18: Copper Bottom Pass (Arizona Only)
 - Control of construction activities and use of construction-related vehicles in the Copper Bottom Pass area would be maintained to ensure that only planned construction traffic is allowed in the area and that minimal trips are planned to minimize disturbance to bighorn sheep. This mitigation measure does not apply to non-construction-related public use of the Copper Bottom Pass area.
- APM-Traffic and Transportation-01
 - Emergency service providers would be notified of the timing, location, and duration of construction activities. Traffic control devices and signs would be used as needed. These measures would be implemented in conjunction with a Traffic and Transportation Management Plan for the Project. This plan would also include measures/protocols for aviation, including helicopter use, coordination with local air traffic control, and a Congested Area Plan, pursuant to FAA regulations.

ATTACHMENT A – SAMPLE TRAFFIC CONTROL PLAN

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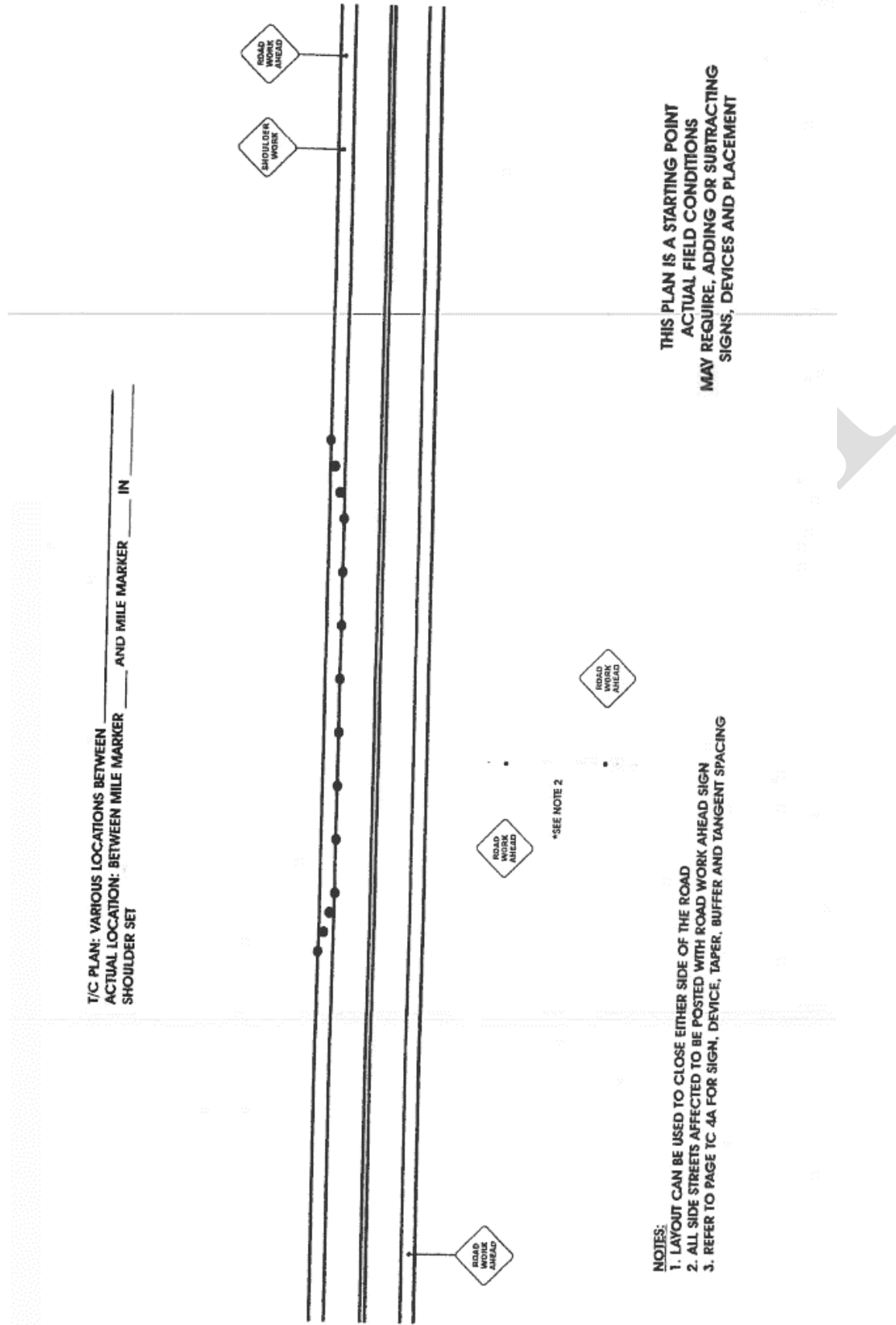
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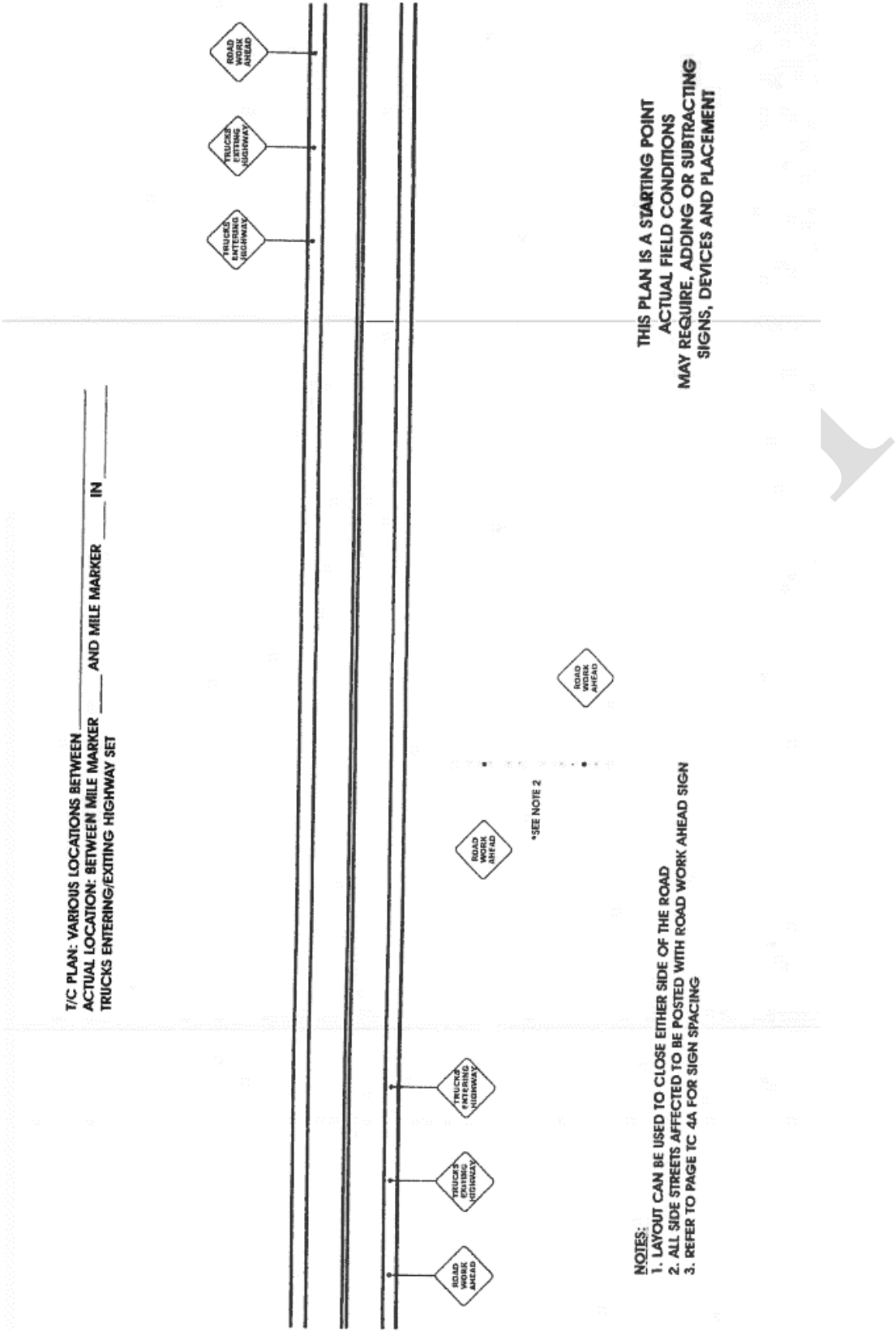
T/C PLAN: VARIOUS LOCATIONS BETWEEN _____ AND MILE MARKER _____ IN _____
ACTUAL LOCATION: BETWEEN MILE MARKER _____ AND MILE MARKER _____ IN _____
ONE LANE FLAGGER SET



THIS PLAN IS A STARTING POINT
ACTUAL FIELD CONDITIONS
MAY REQUIRE, ADDING OR SUBTRACTING
SIGNS, DEVICES AND PLACEMENT

- NOTES:
1. LAYOUT CAN BE USED TO CLOSE EITHER SIDE OF THE ROAD
 2. ALL SIDE STREETS AFFECTED TO BE POSTED WITH ROAD WORK AHEAD SIGN
 3. REFER TO PAGE TC 4A FOR SIGN, DEVICE, TAPER AND BUFFER SPACING





- NOTES:
1. LAYOUT CAN BE USED TO CLOSE EITHER SIDE OF THE ROAD
 2. ALL SIDE STREETS AFFECTED TO BE POSTED WITH ROAD WORK AHEAD SIGN
 3. REFER TO PAGE TC 4A FOR SIGN SPACING

2B.16 STORMWATER POLLUTION AND PREVENTION PLAN

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June 2019

BUREAU OF LAND MANAGEMENT

Ten West Link Transmission Project

Stormwater Pollution Prevention Plan

PROJECT NUMBER:
154320

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Stormwater Pollution Prevention Plan

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ACRONYMS AND ABBREVIATIONS

ADEQ	Arizona Department of Environmental Quality
ADWQ	Arizona Department of Water Quality
APM	Applicant Proposed Measure
BLM	Bureau of Land Management
BMP	Best Management Practice
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CGP	Construction General Permit
CMA	Conservation Management Action
CPUC	California Public Utilities Commission
CWA	Clean Water Act
DCRT	Delaney Colorado River Transmission, LLC
EIS	Environmental Impact Statement
LUP	Linear Underground/Overhead Project
LUPA	Land Use Plan Amendment
NOI	Notice of Intent
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
NWP	Nationwide Permit Number 12
OAW	Outstanding Arizona Waters
PCN	Preconstruction notification
Plan	Stormwater Pollution Prevention Plan
POD	Plan of Development
Project	Ten West Link Transmission Project
ROD	Record of Decision
ROW	right-of-way
RUSLE2	Revised Universal Soil Loss Equation
SCS	Series Compensation Station
SWPPP	Stormwater Pollution Prevention Plan
Ten West Link	Ten West Link Transmission Project
TMDL	Total Maximum Daily Load
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
WEAP	Worker Environmental Awareness Program

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1 Introduction

This framework Stormwater Pollution Prevention Plan (SWPPP or Plan) addresses measures to be undertaken by Delaney Colorado River Transmission, LLC (DCRT) and/or its Construction Contractor(s) to prevent stormwater pollution and comply with Section 402 of the Clean Water Act (CWA) administered by the United States Environmental Protection Agency (USEPA) for the Ten West Link Transmission Project (Project or Ten West Link). This Plan also includes mitigation plans for erosion and sediment control, and a plan addressing for avoiding and minimizing impacts to soil and hydrological resources.

1.1 Plan Purpose

The purpose of a SWPPP is to identify potential stormwater pollutants and stormwater pollution prevention measures to reduce the quantity of impacted runoff and to control runoff in a manner that minimizes environmental impacts during construction of the Project. The proper implementation of mitigation measures associated with a SWPPP is imperative during all construction activities. These activities will be conducted in an environmentally sensitive and responsible manner, so no discharge of sediment or contaminants may be conveyed as either direct or indirect discharge to Waters of the United States or state waters.

Final development, implementation and maintenance of the SWPPP will be the responsibility of the Construction Contractor. The SWPPP will fulfill the following:

- Define the characteristics of the site and the types of construction that will occur at each site.
- Describe the practices which will be implemented to control erosion and the release of pollutants in stormwater.
- Outline an implementation schedule to ensure the practices described in the SWPPP are in fact implemented and to evaluate the Plan's effectiveness in reducing erosion, sedimentation and pollutant levels in stormwater discharge from the site.
- Describe the final stabilization design to minimize erosion and prevent stormwater impacts after construction is complete.

2 Regulatory Compliance

Construction, operation, and maintenance of the Project would include ground disturbing activities that could impact soil and water resources. The following regulations and associated permits and authorizations may be required for the Project.

2.1 Federal Regulations

2.1.1 Soil Resources

Soil resources are managed through a broad set of regulations, guidelines, and formal planning processes. These controls and directions are administered through federal, state, or local units of government. At the federal level, the primary land management agency for the Project is the Bureau of Land Management (BLM). Through state and local agency offices, the Natural Resources Conservation Service administers soil conservation programs on private lands. In addition, the Natural Resources Conservation Service inventories Prime and Unique Farmlands, as identified in 7 Code of Federal Regulations (CFR) Part 657. These farmlands are of statewide or local importance to crop production. The Farmland Protection Policy Act states that federal programs that contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses will be minimized and shall be administered in a manner that, as practicable, are compatible with state and local government and private programs and policies to protect farmland.

On lands administered by the BLM, the agency addresses soil resources primarily through BLM Handbook H-4810-1, "Rangeland Health Standards." The Rangeland Health Standards are based on 43 CFR Part 4180.1, "Fundamentals of Rangeland Health" (BLM 2001). This regulation calls on the BLM to ensure that "watersheds are in, or are making significant progress toward, properly functioning physical condition, including their upland, riparian-wetland, and aquatic components; soil and plant conditions support infiltration, soil moisture storage, and the release of water that are in balance with climate and landform and maintain or improve water quality, water quantity, and timing and duration of flow." Individual BLM districts and field offices administer these regulations and guidelines, including soil conservation considerations, through Resource Management Plans and project-level assessments.

2.1.2 Water Resources

The CWA (33 United States Code [U.S.C.] §1251 et seq., formerly the Federal Water Pollution Control Act of 1972) (USEPA 1972) was enacted with the intent of restoring and maintaining the chemical, physical and biological integrity of the Waters of the United States. Specific sections of the CWA that may apply to the Project are described below, followed by a brief description of the associated permits.

2.1.3 Clean Water Act – Section 303(d) List of Impaired Waters

Section 303(d) of the federal CWA requires states to assess the condition of state waters to determine where water quality is impaired (does not fully support uses identified in the stream classification or does not meet all water quality standards) or threatened (is likely to become impaired in the near future). The result of this review is the compilation of a 303(d) list, which states must submit to the USEPA biannually.

The Colorado River is the only water body in the Project area on the 303(d) list of impaired waters. The Colorado River is listed in California for toxicity, but this section of the Colorado River is not on the 303(d) list of impaired waters for Arizona.

2.1.4 Clean Water Act – Section 130.7 Total Maximum Daily Load

Section 130.7 of the CWA required states to establish Total Maximum Daily Load (TMDL) programs, which are approved by the USEPA for streams and lakes that do not meet adopted water quality standards. A TMDL includes a quantitative assessment of water quality problems, contributing sources, and load reductions or control actions needed to restore and protect water bodies. A TMDL budget takes into account loads from point, nonpoint, and natural background sources. National Pollutant Discharge Elimination System (NPDES) permits address point-source pollution to surface waters. Non-point source pollution is addressed by the application of Best Management Practices (BMPs) and environmental mitigation measures.

In compliance with the federal CWA, the Arizona Department of Environmental Quality (ADEQ) and California Environmental Protection Agency have identified Section 303(d) water quality limited streams and lakes for development of TMDL criteria. TMDLs have been established for surface waters in Arizona and California. From the time a water body is listed as impaired, a TMDL for that water body would be developed within one to five years.

The Colorado River is the only water body in the Project area on the 303(d) list and it is listed for toxicity.

2.1.5 Clean Water Act – Section 401 Water Quality Certification

Pursuant to Section 401 of the federal CWA, any permit or license issued by a federal agency for an activity that may result in a discharge into Waters of the United States requires certification from the state in which the discharge originates. This requirement allows each state to have input into federally approved projects that may affect its waters (rivers, streams, lakes, and wetlands) and to ensure the projects will comply with state water quality standards and any other water quality requirements of state law. State certification ensures that the Project will not adversely impact impaired waters (waters that do not meet water quality standards) and that the Project complies with applicable water quality improvement plans (total maximum daily loads). The states must grant, deny, or waive water quality certification for a project before a federal permit or license can be issued. The ADEQ and Regional Water Quality Board in California must provide Section 401 Water Quality Certifications for the federally issued permits, including the 404 permits in both states.

2.1.6 Clean Water Act – Section 402 National Pollutant Discharge Elimination System Permits

To comply with criteria described in the USEPA's CWA, all construction site operators engaged in clearing, grading, and excavating activities that disturb one acre or more, must obtain an NPDES permit for stormwater discharges (40 CFR Parts 122 and 123) (USEPA 1972). NPDES permits (also called Construction General Permits) are issued by the USEPA or similar authorized state entity following submittal of a Notice of Intent (NOI) for construction activities, and preparation of a SWPPP that describes how erosion and sediment transport will be minimized to adjacent water bodies.

The Construction Contractor(s) will be responsible for implementing site-specific SWPPPs and is required to perform routine inspections throughout the duration of construction activities until the Notice of Termination (NOT) is filed.

2.1.7 Clean Water Act – Section 404 Waters of the United States Permits

Waters of the United States, including wetlands, are subject to the United States Army Corps of Engineers (USACE) jurisdiction under Section 404 of the CWA. A Section 404 permit is required for the discharge of dredged or fill material into Waters of the United States. Section 404 of the CWA applies to all jurisdictional Waters of the United States, including wetlands that have significant nexus to interstate commerce. The USACE jurisdiction over non-tidal Waters of the United States extends to the “ordinary high water mark provided the jurisdiction is not extended by the presence of wetlands” (33 CFR Part 328.4 [USEPA 1972]); and under 40 CFR Part 230.3 (s)(1) (USEPA 1972). Jurisdictional waters include surface waters, such as navigable waters and their tributaries, all interstate waters and their tributaries, natural lakes, all wetlands adjacent to other jurisdictional waters and all impoundments of these waters.

The entire Project is within the Los Angeles District of the USACE and would provide regulatory review and permitting services for the entire Project.

Under Section 404, the USACE issues a number of Nationwide Permits (NWP) for different types of activities that result in minimal individual and cumulative adverse effects on the aquatic environment and Individual Permits for larger and more complex impacts.

The USACE NWP Number 12 (NWP 12), Utility Line Activities authorizes the discharges of dredge or fill material into Waters of the United States during construction, maintenance, repair and removal of utility lines, including the associated excavation, backfill, or bedding for the utility lines, provided that the activity at any single waterbody crossing does not result in the permanent loss of greater than a 0.5 acre of non-tidal Waters of the United States. In accordance with NWP 12 a preconstruction notification (PCN) to the USACE district engineer must be submitted prior to commencement of activity if any of the following criteria is met:

1. The activity involves mechanized land clearing in a forested wetland for the utility line right-of-way (ROW).
2. A Section 10 permit (obstruction or alteration of navigable Waters of the United States) is required.
3. The utility line (in waters), excluding overhead lines, exceeds 500 feet.
4. The utility line is placed within a jurisdictional area (waters) and runs parallel to a stream bed that is within that jurisdictional area.
5. The discharges result in the loss of more than 0.1 acre of regulated waters.
6. Permanent access roads are constructed above grade in regulated waters for a distance of more than 500 feet.
7. Permanent access roads are constructed in regulated waters with impervious materials.

Field surveys and analysis of the survey data from all potential Waters of the United States associated with the Project indicates that submittal of a PCN may be required.

Specifically, a PCN may be required for towers sited within the ordinary high water mark of the Colorado River in which a Section 10 permit is to be submitted because utility lines consisting of aerial electric power transmission lines crossing navigable Waters of the United States (which are defined at 33 CFR part 329 [USEPA 1972] and include the Colorado River) must comply with the applicable minimum clearances specified in 33 CFR Part 322.5(i) (USEPA 1972). A PCN is not predicted to be required for foundations within 404 jurisdictional washes since foundation footings will be micro-sited outside of 404 jurisdictional washes where possible and the maximum permanent loss of Waters of the United States at any tower totals much less than 0.5 acre. The maximum permanent impact for each type of foundation pier and the foundation pier permanent footprint is as follows:

- Guyed-V Structure (Tangent): Typical foundation = 9.0 feet in diameter by 24 feet deep (one per structure); additional four grouted anchors for the guys. Guys would be located within the ROW limits and would include a one-foot square footprint, typically. Helical anchors would require a four-square foot footprint = 85 square feet.
- H-Frame Lattice or Steel Pole (Tangent): foundation five feet in diameter by 24 feet deep (two per structure) = 20 square feet.
- Self-supporting Tangent and Dead-end Structures: foundation four to six feet in diameter by 38 feet deep (four per structure) = 28 square feet.
- Drilled Pier (Steel Monopole): foundation four to six feet in diameter by 38 feet deep (one per structure) = 28 square feet.

Type A roads (well-maintained county dirt roads, private roads, and all paved roads) and Type B roads (existing dirt roads – improvements required) will be utilized to the maximum extent feasible to reduce disturbances caused by access road construction. Type A roads require no improvements. Utilization and maintenance of Type B roads will require blading and widening the existing roadway including some areas that cross 404-regulated washes at grade. Other existing roads may have already been established above grade particularly in Segments P10, P11, and 15e. No impervious surfaces or above grade crossings will be added that exceed the NWP 12 threshold for a PCN, and temporarily impacted crossings will be restored to pre-construction contours. Therefore, maintenance of Type B roads is expected to only result in temporary impacts to Waters of the United States.

Where roads do not currently exist (Type C and Type D roads, respectively), they will be widened or constructed at grade to the maximum extent feasible and no impervious surfaces will be added. Where roads cross Waters of the United States, an at-grade crossing, commonly known as an “Arizona Crossing” would typically be maintained or constructed. Such crossings account for the geography when siting roads to cross them, such as avoidance of steep banks or rock outcroppings, and are constructed to leave the bed of the wash intact or at grade if un-grouted rock is added for stabilization. All crossings will be constructed in a manner that does not change the historical flow by +/- one cubic foot nor change the direction of the flow. Additionally, any grading necessary to achieve appropriate grade for heavy equipment clearances would start at the ordinary high water mark and work laterally pulling native material away from the channel. Because surface flows would be maintained across the road, and the channel bed would not be filled or raised, crossings of this type do not result in a loss of Waters of the United

States even if matts or un-grouted rock are added for stabilization. Matts or rock added for stabilization would ultimately be removed at reclamation.

Should any new above-grade crossings or fill be necessary, they would not be expected to exceed 0.5 acre or 500 linear feet of permanent fill and loss of waters at any single crossing or within any single waterbody. Therefore, a PCN for access road maintenance, improvements, and construction are not anticipated.

2.1.8 Rivers and Harbors Appropriation Act of 1899, Section 10

Under Section 10 of the Rivers and Harbors Appropriation Act of 1899 (33 U.S.C. § 403; Chapter 425, March 3, 1899; 30 Stat. 1151), the building of any wharfs, piers, jetties and other structures is prohibited without Congressional approval, and excavation or fill within navigable waters requires the approval of the Chief of Engineers. Authority of the USACE to issue permits for the discharge of refuse matter into or affecting navigable waters under Section 13 of the 1899 Act (33 U.S.C. § 401; 30 Stat. 1152) was modified by Title IV of P.L. (33 U.S.C. §§ 1341-1345; 86 Stat. 877), as amended, which established the NPDES permits.

USACE permits are required under Section 10 for structures and/or work in or affecting navigable Waters of the United States except as otherwise noted by USACE. Certain activities specified in 33 CFR Part 330 are permitted by that regulation ("nationwide general permits"). Other activities may be authorized by district or division engineers on a regional basis ("regional general permits"). If an activity is not exempted by USACE or authorized by a general permit, an individual Section 10 permit will be required for the proposed activity.

The Fish and Wildlife Coordination Act (16 U.S.C. §§ 661-667e; 48 Stat. 401), as amended, provides authority for the United States Fish and Wildlife Service (USFWS) to review and comment on the effects on fish and wildlife of activities proposed to be undertaken or permitted by the USACE.

The Colorado River is the only navigable water in the Project area. A Section 10 permit from the USACE would be required for an overhead transmission line crossing of the Colorado River.

2.1.9 Other Federal Permits and Programs

Executive Order 11988 requires federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. In accomplishing this objective, "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by flood plains in carrying out its responsibilities."

Executive Order 11990, Protection of Wetlands (42 Federal Register 26961), directs all federal agencies to minimize the destruction, loss, or degradation of wetlands, and to enhance the natural and beneficial values of wetlands.

2.2 State Regulations

2.2.1 Soil Resources

State conservation laws have been enacted in all the states that would be traversed by the proposed Project. Through state legislation, local resource conservation districts have been formed. These report to state administrative agencies, typically conservation commissions associated with state departments. The latter include the California Department of Conservation and Arizona State Land Department. The resource conservation districts are responsible for local planning, program development, and reporting to administer soil and water conservation programs. They interact with their respective state-level departments as well as the Natural Resources Conservation Service.

2.2.2 Water Resources

Many states regulate waterways and adjacent wetlands, either through specific regulatory programs or via Section 401 of the CWA, also known as 401 Water Quality Certification. State regulatory programs may incorporate permitting procedures to authorize jurisdictional impacts to waterways and wetlands and may require compensatory mitigation for unavoidable impacts. In the absence of a specific regulatory program, states may utilize 401 Water Quality Certification to require measures over and above those required by the USACE Section 404 permit. Section 401 allows a state to review, authorize or deny, and implement requirements additional to those of the USACE 404 permit. If a state chooses to utilize its authority under Section 401, the Section 404 permit does not go into effect until the state issues the 401 Water Quality Certification.

The state agencies, authorizations and guidance that are applicable to wetlands and Waters of the United States permitting and mitigation requirements for the Project are summarized below.

2.2.3 Arizona

Arizona Department of Water Quality (ADWQ) is responsible for the following:

- CWA Section 401 Water Quality Certification. A 401 Certification is required for a project or activity requiring a federal permit or license that will result in a discharge to Waters of the United States. These projects include:
 - A CWA Section 404 Permit from the USACE to allow discharges of dredged or fill materials to Waters of the United States.
 - A Rivers and Harbors Act Section 9 or 10 Permit.
 - Applying for a federal permit for projects involved in the construction of hydroelectric dams, power plants, or other facilities regulated by Federal Energy Regulatory Commission licenses.
 - Other federal permits or licenses that may result in a discharge to Waters of the United States.

- Request for certification submitted to ADWQ by USACE for Section 404 permits.
- Section 401 certification issued by ADWQ prior to federal Section 404 approval.
- In 2017, the ADWQ certified, with conditions, the use of NWP 12 in the state of Arizona.
- CWA Section 402 NPDES permit for construction stormwater discharge.

Arizona SWPPP – The State of Arizona Construction General Permit (CGP) for stormwater discharges associated with construction activities regulates stormwater discharges from all construction activities that disturb one or more acres. Under this permit, an “operator” is required to obtain an Arizona Pollutant Discharge Elimination System permit in order to discharge stormwater. Prior to obtaining this permit, the entity must prepare a SWPPP and submit it along with an NOI application to ADEQ Quality 30 days before beginning construction activities. The SWPPP describes potential pollution sources and the BMPs, which will be used to prevent stormwater contamination. The NOI describes the construction project and route(s) that stormwater may take from the construction site to surface Waters of the State.

ADEQ reviews the NOI to determine if the operator may discharge stormwater under the CGP, or if an individual permit is required.

It is unlikely a Municipal Separate Storm Sewer System permit would be required for Project batch plants as they would be located outside of municipalities.

2.2.4 California

California Department of Fish and Wildlife (CDFW) is responsible for protecting and conserving fish and wildlife resources, and the habitats upon which they depend per the following:

- California Fish and Game Code, Sections 1600-1616, as Amended: The CDFW regulates activities that would divert or obstruct the natural flow or otherwise substantially change the bed, channel, or bank of any river, stream, or lake, or that would deposit or dispose of debris, waste, or other material where it may pass into any river, stream, or lake that supports fish or wildlife. This jurisdiction also applies to riparian habitats associated with watercourses.
 - The Lake and Streambed Alteration Program (Section 1602) reviews projects that would alter any river, stream, or lake and conditions projects to conserve existing fish and wildlife resources. The California Department of Fish and Wildlife must be notified if a project will substantially modify a river, stream, or lake.
- California Fish and Game Code, Sections 5650-5656, as Amended: These codes state that it is unlawful to deposit in, permit to pass into, or place where it can pass into Waters of the State any substance that is deleterious to fish, plant life, mammals, or bird life.

Porter-Cologne Water Quality Control Act, as Amended: This law gives broad authority to the State Water Resources Control Board and California’s nine Regional Water Quality

Control Boards to establish water quality standards and discharge prohibitions, issue waste discharge requirements, and implement provisions of the federal CWA, including Section 401 Water Quality Certification. The Project lies within the jurisdiction of the Colorado River Water Quality Control Board, which administers the Water Quality Control Plan for protection of beneficial uses of surface and groundwater for this part of the state.

Executive Order W-59-93: Established state policy guidelines with two primary goals for wetlands conservation: to ensure no overall net loss and to achieve a long-term net gain in the quantity, quality, and permanence of wetland acreage in the state.

In 2014, California Department of Water Resources prioritized groundwater basins through its California Statewide Groundwater Elevation Monitoring Program, which was established in response to the legislation enacted in California's 2009 Comprehensive Water package. The 2014 California Statewide Groundwater Elevation Monitoring Program Basin Prioritization classified basins as high, medium, low, or very low based on the consideration of factors described in the legislation. The Project area is classified as very low to low priority.

California SWPPP – The state of California CGP for stormwater discharges associated with construction activities regulates stormwater discharges from all construction activities that disturb one or more acres. To obtain coverage under this CGP, the appropriate legally responsible person must electronically file the Permit Registration Documents, which include an NOI, SWPPP, and other documents required by this CGP, and mail the appropriate permit fee to the State Water Resources Control Board, prior to commencement of construction activities. The SWPPP describes potential pollution sources and the BMPs, which will be used to prevent stormwater contamination. The NOI describes the construction project and route(s) that stormwater may take from the construction site to surface Waters of the State.

It is expected that as the stormwater program develops, the Colorado River Regional Water Control Board may issue General Permits or Individual Permits that contain more specific permit provisions. When this occurs, the General Permit will no longer regulate those dischargers that obtain coverage under Individual Permits. There is no specified time table for when these provisions may occur.

A copy of the applicable SWPPP shall remain with the Construction Manager on the construction site or at a staging area(s). The SWPPP must be readily available while the Project is under construction, from the start of construction activities until the NOT is filed.

The Construction Contractor(s) must retain a set of construction site maps for the duration of the Project and for three years after the NOT, that delineates the following items:

- Areas of soil disturbance that have been stabilized.
- Areas to be graded along with a time schedule.
- Areas of potential soil erosion where control practices will be implemented.
- Types of control practices and time schedule for implementation.
- Locations of any post-construction projects.
- Topography.

- Existing cover.
- Drainage patterns.
- Buffer areas (environmentally sensitive areas, wetlands, waterways, etc.).
- Surface waters.

To ensure that water quality is being protected, the CGP requires that all SWPPPs be written, amended, and certified by a Qualified SWPPP Developer. A Qualified SWPPP Developer must possess one of the eight certifications and or registrations specified in the CGP and effective two years after the adoption date of the CGP, must have attended a State Water Resources Control Board-sponsored or approved Qualified SWPPP Developer training course.

Each project must complete a risk determination analysis, which determines sampling, monitoring, and reporting requirements. There are two major requirements related to site planning and risk determination in the CGP; the project's overall risk is broken up into two elements: 1) project sediment risk (the relative amount of sediment that can be discharged, given the project and location details); and 2) receiving water risk (the risk sediment discharges pose to the receiving waters).

It is unlikely a Municipal Separate Storm Sewer System permit would be required for activities within Riverside County, California as Project activities are predominately located outside of municipalities.

3 SWPPP Components

3.1 Project Information

Project/Site Name: Ten West Link Transmission Project

Project Description and Location: The Ten West Link Transmission Line Project proposed by DCRT would consist of a single-circuit, series-compensated, 500 kilovolt transmission line between the Arizona Public Service Delaney Substation in Maricopa County, Arizona and the Southern California Edison Colorado River Substation in Riverside County, California. The Project would be designed with a conductor capacity to transmit 3,200 megawatts and provide interconnection capability for new energy projects located in the region.

The land use of the Project area includes mainly rural, sparsely populated lands under federal management as well as some state and private lands. There is relatively little private residential land in the Project area. Residences are typically scattered on large lots and generally increase in density near cities and towns within the Project Area. Towns near the Project include Brenda, Arizona; Quartzsite, Arizona; and Blythe, California.

The only perennial water course in the Project area is the Colorado River. The Colorado River is also the only water body in the Project area on the California 303(d) list. There are numerous ephemeral washes, canals, irrigation ditches, stock ponds, floodplains, groundwater basins, wells, and springs in the Project area. Water resources in the Project area reflect the area's arid land where: channels are generally dry for long periods of time;

streamflow results from high-intensity, short-duration summer thunderstorms and less intense, longer duration winter storms; runoff is typically erratic and sediment-laden; springs are few and limited in extent; and wetlands and shallow groundwater are localized.

The intermittent movement of water from the higher elevations is towards the south and southeast towards the Gila River as well as north, northeast, and east towards the Colorado River. The Colorado River moves water from north to south through the Project area.

3.2 Nature and Sequence of Construction Activities

Construction of the transmission line(s) would include the following sequence of activities:

1. Surveying and staking the transmission centerline, structure locations, environmental cultural resources sensitive areas, other Project features, and work areas.
2. Upgrading or constructing short- and long-term access roads.
3. Clearing and grading the structure sites, and short- and long-term work areas.
4. Excavating and installing foundations.
5. Assembling and erecting structures with short- and long-term work areas.
6. Stringing conductors and shield wires.
7. Installing counterpoise (structure grounds), where needed.
8. Post-construction cleaning up.
9. Constructing the Series Compensation Station (SCS) and associated power connection to the distribution line.
10. Reclamation.

In addition to these activities, other preconstruction and construction components include:

- Preconstruction resource surveys and aerial photography.
- Construction storage yards and concrete batch plants located in previously disturbed areas and areas of lesser ecological impact to the extent practicable.
- Equipment staging areas located in previously disturbed areas and areas of lesser ecological impact to the extent practicable.
- Equipment and fuel staging and storage areas in conformance with the Project Spill Prevention, Control, and Countermeasure Plan.
- Flagging, fencing, and signs in areas of active construction activities or where required for employee and public safety.

- Transportation management for Project access and public safety as in conformance with the Project Traffic and Transportation Management Plan.
- Fire protection as identified in the Project Fire Prevention and Protection Plan (Appendix J-2).
- Blasting in areas of hard rock not removable by heavy excavators; in conformance with the Project Blasting Plan.
- Erosion/dust control and air quality management in conformance with the Project Fugitive Dust Control Plan and Construction Emissions Mitigation Plan (Appendix H-1).
- Hazardous materials management in conformance with the Project Hazardous Materials Management Plan.
- Emergency preparedness and response in conformance with the Project Emergency Preparedness and Response Plan.
- Control of noxious weeds in conformance with the Project Vegetation Management Plan (Appendix F-7).

Further information and details regarding sequencing and the nature of construction are outlined in the Chapters 3 and 4 of the Project Plan of Development (POD).

3.2.1 Access

Access to the ROW would be provided by existing roads and trails, such as those associated with the Devers Palo Verde transmission line and nearby pipelines, to the extent practicable. Access for the Project would be in accordance with the Access Road Plan and Section 3.1.10 of the Project POD. Access is divided into five categories - Types A through E. These have associated disturbance estimated, as described in Table G-2-1, below.

TABLE G-2-1 ACCESS ROAD DISTURBANCE

ACCESS ROAD DISTURBANCE WIDTHS		ROAD TYPE				
		Access Type A (existing maintained public or private roads)	Access Type B (upgraded existing roads ¹)	Access Type C (new centerline access ¹)	Access Type D (access spur roads ¹)	Access Type E (Helicopter Access)
Slope	Flat (0-7.99%)	-	18 ²	22 ²	22 ²	-
	Moderate (8-14.99%)	-	25 ²	30 ²	30 ²	-
	Steep (15% and above)	-	30	50	76	-

¹ Measured in feet.

² Does not include wash areas.

3.2.2 Transmission Structures

Proposed support structures would typically be steel structures of various configurations. The primary structures types would be self-supporting, four-legged tangent and dead-end steel lattice structures; guyed-V structures with a single footing and four support guy wires; and two-legged, H-frame (steel lattice) structures. Lattice H-frame or steel monopole structures may be used for areas of active agricultural activity and/or to facilitate entrance into substations. In certain high off-highway vehicle use areas, self-supporting lattice structures or monopoles would replace guyed-V structures to eliminate hazards to those recreationists (Draft Environmental Impact Statement [EIS]), Section 2.4 in Appendix 2). Typical span length for structures would be approximately 1,500 feet. On average, three to eight structures would be placed per mile, depending on the structure type, topography, and angles of the route.

Guyed-V structures are proposed to be used in areas that do not parallel existing self-supporting lattice structures along the route. Guyed-V structures use four guying lines per structure. Guy lines would be located within the ROW, would have to remain at the grade that they were installed, and would have reduced distances extending from the structure foundation for lower height guyed-V structure.

3.2.3 Foundations and Structure Construction

Each structure type requires specific foundation configurations. A temporary disturbance area of approximately 1.1 acres is estimated for each structure site. A long-term work area at the base of each structure would be required for long-term maintenance. These areas would be somewhat larger than the structure foundations and vary based on structure type.

Each support structure would require the installation of foundations, which are typically drilled concrete piers. The foundation for the structures would be long-term disturbance for the life of the Project. The long-term work area at the base of each structure would be required for long-term maintenance. While revegetation would occur in this work area, minimal contouring would be performed.

A typical temporary disturbance area of up to 1.1 acres has been assumed for each structure work area, which would be used for assembly, erection, and crane pads. Short-term disturbance estimates are based on this assumption; however, actual disturbance would be reduced to the minimum size required to the extent practicable, based on site-specific conditions, during field staking prior to construction (see Draft EIS, BMP-MISC-02; Appendix 2A). Actual dimensions of the temporary area of disturbance may vary, depending on factors such as terrain, structure size, and vegetation.

If foundation type requires the use of cast-in-place concrete, standard BMPs for concrete disposal and handling of concrete wash waste water will be used in accordance with all proper federal and state rules.

3.2.4 Conductors

The conductors are the wire cables strung between transmission line structures over which the electric current flows.

In the process of conductor installation, insulators and stringing sheaves would be installed on the structures (short-term disturbance already accounted for at structure sites), pulling the pilot line through the sheaves, which would connect to and pull the conductor; and pulling/tensioning of the conductor. Additional temporary disturbance work areas to support conductor, ground wire, and optical ground wire pulling, and snubbing sites include the use of puller/tensioner sites, snubbing sites, and splicing areas.

Pulling sites would be approximately 600 feet by 200 feet in size. Snubbing sites (where a conductor is temporarily fixed or attached to the ground for conductor-sagging purposes) would be located within the ROW and are locations where conductors are spliced together approximately every 15,000 to 18,000 feet along the transmission line route. Access to both sites would be required for necessary equipment. Snub sites will be 200 feet wide by 600 feet long. In addition, there will be puller and tensioner sites at each angle, in the dimensions of 500 feet by 200 feet. All puller/tensioner sites, where possible, will be deemed drive and crush with the utilization of a soil compactor to reach compaction necessary for heavy equipment to travel sufficiently without risk of roll over, spinning out, or rutting. In instances where drive and crush disturbance cannot reach a level enough plain for the stated heavy equipment necessary, then blading will have to occur in order to keep pullers, tensioners, and wire boats level for efficient and safe wire conducting activities. All blading associated with puller/tensioner sites will be temporary. Temporary blading is also important and necessary on the temporary roads associated with access to the puller/tensioner sites for the Project.

3.2.5 Series Compensation Station

A new SCS system would be located primarily within the 200-foot-wide ROW parallel to an existing SCS associated with the Devers Palo Verde transmission line, approximately 47 miles from the Arizona Public Service Delaney Substation.

The SCS will be integrated into the footprint of the transmission line within a 200-foot by 315-foot (1.5 acre) fenced area. Clearing of all vegetation would be required for the entire SCS area, including a distance of 10 feet outside the fence, for a total long-term disturbance of 1.7 acres. A layer of minimum four-inch deep crushed, 0.75-inch to 1.0-inch grade, washed rock will be used throughout the station area and up to three feet beyond the fence boundary. The new SCS would be connected to an Arizona Public Service 12 kilovolt distribution line located near Brenda, Arizona within a 20-foot-wide ROW. The distribution line would be approximately 3.13 miles long with a 20-foot-wide ROW. A crossing of Interstate 10 would be required for the distribution line.

Access roads for the transmission lines would be utilized for access to the SCS. The entire perimeter of the SCS would be enclosed with security fencing to protect equipment and prevent accidental contact with energized electrical equipment. Stormwater runoff containment ponds may be installed to moderate the discharge of stormwater offsite if determined to be necessary in the course of design.

3.2.6 Substations Upgrades

The equipment required to interconnect the Project to the Delaney and Colorado River substations is expected to be similar in type and size to the existing equipment at each substation. There would be no new disturbance associated with these installations.

3.2.7 Temporary Use Areas

Temporary use areas would be required for material storage, laydown yards, and batch plants during construction. These areas would be selected based upon the final Project alignment and located in previously disturbed areas to the extent practicable. Material storage/laydown yards would be active during construction. Material staging/storage areas, averaging approximately 10 acres each, would be strategically located along the Project transmission line routes, approximately 20 miles apart. Staging areas would be fenced with locked gates and may have security. Temporary staging areas would be powered by local distribution lines if available and necessary, or by a diesel generator; in California, renewable energy sources would be used if feasible and available. Some staging areas would also be used for concrete batch plant operations. If diesel generators or batch plants are implemented in the temporary use areas, any applicable air quality permits or otherwise will be acquired by the Construction Contractor.

3.2.8 Construction Water Requirements

Water would be required for concrete structure foundation construction at the batch plants and dust control during construction. Water for the Project will be obtained from the following potential sources: 1) drawn from Central Arizona Project locations with permits through the Central Arizona Project and water draw agreements; 2) from municipal resources using water use agreements (typically from metered set-up at fire hydrants); or 3) from private wells under water use agreements with landowners. Water use estimates for dust control, restoration and construction are detailed in Table 3-9 and Table 4-1 of the POD (Volume I).

3.2.9 Disposal and Cleanup

Construction would generate non-hazardous solid wastes, including material packaging, concrete, hardware and scrap metal. However, the volume of these wastes is not expected to be substantial. Personal trash would be removed from the ROW on a daily basis. Construction waste (boxes, crates, etc.) would be removed from the transmission ROW shortly after each crew completes their specific task on site. The solid wastes generated during construction would be hauled away for recycling or disposal at approved disposal sites.

3.2.10 Construction Reclamation

Construction reclamation, including cleanup, soil stabilization, and revegetation would occur at the end of the construction process, as described in Appendix L-1 – Reclamation, Vegetation, and Monitoring Plan.

3.2.11 Construction Workforce and Schedule

The Project is expected to be constructed in up to two simultaneous work fronts with over 100 workers on each work front and is expected to take approximately 1.5 years to complete. The SCS construction effort would require approximately 10 workers and is expected to take about 120 days to complete. Crew parking would be located at one of the material storage yards closest to the work area. Upon obtaining all permits and ROW approvals, DCRT would commence construction activities. Additional details on construction workforce is provided in Section 4.4 Volume I of the POD; a representative

schedule (approximate calendar day durations) for major Project activities are also detailed in Section 4.6, Volume I of the POD, and is as follows:

- Construction Mobilization and Recruitment: 15 days
- Access Road Construction: 128 days
- Foundation Installation: 365 days
- Structure Erection and Assembly: 363 days
- Wire Stringing and Installation of Cables and Accessories: 213 days
- Commissioning and Testing: 57 days
- SCS construction: 120 days

3.2.12 Project Construction Closeout

Upon completion of construction and commissioning for the Project, DCRT and the construction contractor(s) would coordinate with the Compliance Inspection Contractor, BLM, and other permitting agencies to conduct final on-the-ground inspections of Project conditions. After BLM's determination of successful construction completion on BLM-administered lands, the Compliance Inspection Contractor would submit a final summary report to the BLM Authorized Officer documenting the construction process. When the BLM Authorized Officer determines that construction (including initial reclamation activities) has been completed in compliance with the ROW grant, Record of Decision (ROD), POD, and any other applicable permits, the Compliance Inspection Contractor, construction contractor(s), and DCRT's construction roles would be considered complete. This determination would initiate the post-construction monitoring phase for reclamation success for which DCRT would remain responsible.

3.2.13 Operation and Maintenance

After construction, Project operation and maintenance would be an ongoing activity including ROW safety requirements, transmission line inspections, preventative and emergency maintenance, vegetation management including trimming and removal of vegetation within the ROW, SCS maintenance, substation maintenance, and long-term access to the ROW through general road maintenance and installation of signs and markers. DCRT will obtain any necessary stormwater permits necessary for these activities.

3.3 Subcontractors

Subcontractors are required to comply with the SWPPP for any work that is performed on-site. Any person or group who violates any condition of the SWPPP may be subject to substantial penalties or loss of contract. Subcontractors will instruct their employees, working on this project, about the requirements of the SWPPP. A copy of the SWPPP will be available for review at the office trailer.

Each subcontractor engaged in activities at the construction site that could impact stormwater must be identified and sign a certification statement, which, under penalty of law, certifies that the person understands the terms and conditions of the CGP and SWPPP that authorizes the stormwater discharges associated with construction activity associated with this Project.

3.4 Responsibilities and Delegation of Authority

3.4.1 Responsible Parties

At a minimum the stormwater team is comprised of individuals who are responsible for overseeing the development, implementation, and maintenance of the SWPPP, any later modifications to it, and for compliance with the requirements in this permit (i.e., installing and maintaining stormwater controls, submitting reports, conducting site inspections, taking corrective actions where required, employee training, and testing for non-stormwater discharges).

Operator(s)

The operator(s) who will be engaged in construction activities at the site:

Company: TBD

Name:

Address:

City, State, Zip Code:

Telephone Number:

Fax/Email:

Area of control (if more than one operator at the site):

Emergency 24-Hour Contact

Company Name: TBD

Name:

Telephone:

Site Supervisor(s)

Company Name: TBD

Name:

Address:

City, State, Zip Code:

Telephone Number:

Fax/Email:

Area of control (if more than one operator at site):

Subcontractor(s)

Company Name: TBD

Name:

Address:

City, State, Zip Code:
Telephone Number:
Fax/Email:
Area of control (if more than one operator at site:

A delegation of authority must be signed by the person designated as the duly authorized representative for the purpose of overseeing compliance with environmental requirements, including the CGP at the Ten West Link construction site. The designee is authorized to sign any reports, SWPPPs, and all other documents required by the permit.

3.5 Stormwater Discharge

Sediment would be the primary source of stormwater discharge from soil-disturbing construction activities. Erosion takes many forms owing to the effects of climate, topography, land use, groundcover, and the erodibility of the soil type. The main agent of erosion in the Project area is rainfall which leads to splash erosion, rill erosion, tunnel erosion, gully erosion, and sheet erosion. Wind is a secondary agent of erosion. Soil characteristics identified for this Project suggest that disturbed areas would experience low to high erosion potential either by water and/or wind. Sediment redistribution of the soil resource as a result of wind and water erosion could cause damages to Waters of the United States, state prime farmlands, and air quality.

Potential risk for erosion could be increased on disturbed areas after soil salvage operations due to removal of the vegetative cover and the loss of surface soil structure. Cutting and removal of vegetation will occur; however, where practicable, downed vegetation and undisturbed low vegetation would be left in place within the disturbance areas to serve as soil protection and erosion control. Vegetation would only be cleared to the extent necessary, minimizing impacts to soil resources (see Appendix F-7, Vegetation Management Plan).

Soil erosion after redistribution on re-graded sites would also be a risk, thus BMPs (listed in Section 4) would include limiting the amount of time this soil is exposed and seeding shortly thereafter if season allows. Windblown dust could result from the disturbance of fine textured soils during construction and reclamation activities, however dust control measures outlined in Appendix H-1 of the POD (Fugitive Dust Control Plan and Construction Emissions Mitigation Plan) will be followed through the completion of the Project.

Potential stormwater pollutants other than sediment may include:

- Construction Yard – Portable toilets, general building materials, solvents, adhesives and trash.
- Designated Fueling Areas (if applicable) – Fueling activities and minor equipment maintenance.
- Construction Activities – Leaks from construction equipment.

3.6 Non-stormwater Discharge

Potential sources of non-stormwater discharges may include:

- Discharges from emergency fire-fighting activities.
- Water used to control dust.
- Water used to rinse or weed wash vehicles and equipment.
- Water used for compacting soil.
- Water used for drilling and coring such as for evaluation of foundation materials.
- Water obtained from dewatering operations/foundations in preparation for and during excavation and construction.

3.7 Waters of the United States and Impaired Waters

The only perennial water course in the Project area is the Colorado River, which is considered jurisdictional due to its' designation as a navigable water by the USACE. The Colorado River is also the only water body in the Project area on the 303(d) list of impaired waters. The Colorado River is on the California 303(d) list and is listed for toxicity. This section of the Colorado River is not on the 303(d) list of impaired waters in Arizona.

Although no wetlands or springs have been identified at this time, field work would be conducted using the USACE *Wetlands Delineation Manual* (Environmental Laboratory 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008a) to confirm.

Some of the numerous ephemeral washes may be considered Waters of the United States. This determination would be made by field work to identify the ordinary high-water mark using the USACE *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b).

There are no outstanding Arizona waters (OAW) within the Project area.

3.8 Best Management Practices

3.8.1 Selection of Best Management Practices

Selection of the most appropriate combination of BMPs for a specific construction site should be based upon a careful review of the areas of the site that affect its potential for erosion and stormwater runoff contamination. These potential problem areas are:

1. Slope protection.
2. Soil mounds and material stockpile.
3. Excavated area (trenches, pits, etc.).
4. Perimeter and access controls.
5. Inlet drain protection.

6. Channels or medians.
7. Equipment storage and maintenance.
8. Debris management, cleanup, and washout.
9. Landscaping and vegetation.

For each of the nine potential problem areas, there is often more than one BMP available to effectively reduce the volume and velocity of stormwater runoff, the amount of the site exposed to erosion, and the potential for stormwater runoff pollution. BMPs are generally categorized into three main groups: erosion control, sediment and pollutant control, and general housekeeping. Erosion control is preventative; controlling erosion at its source. Sediment and pollutant control treats runoff to remove eroded sediment and other associated stormwater pollutants. Good housekeeping measures are less structured and address general operations and maintenance activities. Typical BMP techniques are discussed in the following sections.

Guidance documents for BMP selection include USEPA's "Developing Your Stormwater Pollution Prevention Plan – A Guide for Construction Sites" and the California Department of Transportation's "Construction Site Best Management Practices (BMP) Manual" available at <http://www.dot.ca.gov/hq/construc/stormwater/CSBMP-May-2017-Final.pdf>. Erosion Control.

3.8.2 Erosion Control

Erosion control refers to methods for reducing the volume or velocity of stormwater runoff, which will come into contact with exposed areas of the Project site. Erosion control methods involve limiting the exposure of graded areas to offsite runoff through modifications of the construction design plan or scheduling, reducing runoff velocities, providing vegetative cover, installing structural controls, and implementing other onsite management options. If a pre-manufactured product is to be implemented on a site for erosion control, the contractor should always follow the manufacturer's installation and maintenance recommendations as the primary reference for implementation. Erosion control BMPs include:

- Erosion Control Mats – Geotextiles, mats, plastic covers, or erosion control blankets designed to stabilize disturbed soil areas and protect soils from erosion by wind or water.
- Mulching – Providing a stabilized surface for seeding and/or prevention of erosion. Mulches include organic materials, straw, wood chips, bark or other wood fibers, decomposed granite, gravels, a variety of netting or mats of organic or non-organic materials, and chemical soil stabilization.
- Protection of Trees and Vegetation in Construction Areas – Preservation of existing vegetation is the identification and protection of desirable vegetation in order to provide erosion and sediment control and protect desirable trees from mechanical damage while the land is being developed.
 - Vegetation Feathering – The edge of the ROW would be cleared in a manner to emulate the natural open spaces of adjacent landscapes.

Mature vegetation will be put in a gradual transition between two habitat types and other specimens will be placed in varying heights (“edge feathering”). The total area to be cleared would be determined by the size, type, and density of adjacent vegetation as well as the natural clearings of the surrounding landscape.

- **Pipe Slope Drains** – A temporary rigid or flexible pipe that conveys runoff down un-stabilized slopes. The drain is anchored on the upstream end with some form of headwall to limit erosion, secure the pipe, and direct water into the pipe inlets.
- **Stabilized Construction Entrance** – A stabilized pad of aggregate underlain with filter cloth located at any point where traffic will be entering or exiting a construction site to or from a public ROW, street, alley, sidewalk or parking area. For added effectiveness, a wheel wash or wash rack area can be incorporated into the design to further reduce sediment tracking.
- **Construction Road Stabilization** – The temporary stabilization of the subgrade, sub-base, and base of access roads, subdivision roads, parking areas, and other onsite vehicle transportation routes for dust and erosion control.
- **Dust Control** – A comprehensive plan to limit offsite sediment depression by minimizing or controlling airborne fugitive dust. There are three methods of dust control: 1) Geotextiles, mats, plastic covers, and other mechanical methods; 2) dust palliatives (soil binders); and 3) revegetation.
- **Temporary Access Waterway Crossing** – A temporary access stream crossing is a structure placed across a waterway to provide access for construction purposes for a period of less than one year. There are two main temporary access waterway crossings that are generally constructed:
 - Temporary access culverts - are effective in controlling erosion, easily constructed, and allow for heavy equipment loading.
 - Temporary access fords - offer very little sediment and erosion control and are only effective in ephemeral stream channels. Temporary fords are the least expensive waterway crossing, allow for maximum load limits, and require minimal maintenance.
- **Diversion Dikes** – A ridge of compacted soil (recommended with a vegetated lining) that is often located at the top or base of a sloping disturbed area and redirects runoff to a less sensitive outfall or area.
- **Drainage Swales** – A drainage way with a lining of grass, stone, asphalt, concrete, or other material. Permanent channels must be designed and constructed in accordance with appropriate local design standards.
- **Outlet Protection, Velocity Dissipation Devices** – Structures and devices placed at pipe outlets to prevent scour and reduce the velocity and/or energy of stormwater flows. These structures may include a section of rock, grouted riprap, and concrete rubble placed at the outlet end of culverts, conduits, or channels. Various products can also be installed for velocity reduction including hydrobrakes, vortex valves, and drop shafts.

- **Surface Roughening** – A temporary erosion control practice often used in conjunction with grading. Soil roughening involves increasing the relief of a bare soil surface with horizontal grooves, stair-stepping (running parallel to the contour of the land), or tracking using construction equipment. Slopes that are not fine graded and that are left in a roughened condition can also reduce erosion.

3.8.3 Sediment and Pollutant Control

Sediment and pollutant control include methods for separating and containing suspended sediment and other construction related pollutants from the stormwater before the water leaves the Project site and enters a storm drain inlet or a receiving natural water body. These methods involve constructing organic, sand, and rock barriers to filter sediment-laden runoff, protecting storm drain inlets, and constructing settling ponds. If a pre-manufactured product is to be implemented on a site for sediment or pollutant control, the contractor should always follow the manufacturer's installation and maintenance recommendations as the primary reference for implementation. Typical sediment and pollutant controls include:

- **Organic Filter Barrier** – A temporary linear sediment barrier consisting of straw bales, sediment wattles or similar material, designed to intercept and slow sediment-laden sheet flow runoff. Organic filter barriers allow sediment to settle from runoff before water leaves the construction site. Organic filter barriers include straw bales, sediment wattles, and other organic filter berms.
- **Sand Bag Barrier** – A temporary berm constructed of stacked sandbags, along the perimeter of a site, installed across a channel, or along the ROW in a disturbed area. The sandbags may be filled with pea-sized gravel to enhance filtration.
- **Gravel Filter Berms** – A temporary berm constructed of open graded rock or bags of gravel installed at the toe of a slope, or the perimeter of a developing or disturbed area.
- **Check Dams** – Small barriers consisting of rock, sand bag, or earth berms placed across a drainage swale or ditch. Typically, they are used in conjunction with other channel protection techniques such as vegetation lining and turf reinforcement mats.
- **Silt Fence** – A geotextile fabric stretched between either wooden or metal posts with the lower edge of the fabric securely embedded in the soil. The fence is typically located downstream of disturbed areas to intercept sheet flow runoff.
- **Revegetation** – Revegetation consists of an area of trees, shrubs, vines, and ground covers that create a buffer or a groundcover between a disturbed construction area and neighboring areas, particularly natural water bodies.
- **Storm Drain Inlet Protection** – A variety of methods of intercepting sediment at low point inlets through the use of stone, filter fabric, inlet inserts, and other materials. This is normally located at the inlet, providing either detention or filtration to reduce sediment and floatable materials in stormwater.

- Temporary Sediment Basins – A pond area formed by constructing an embankment of compacted soil across a drainageway with a controlled outlet in which sedimentary laden runoff is directed to allow settling of suspended sediment from the runoff.
- Temporary Sediment Traps – A sediment trap is a temporary containment area that allows sediment in collected stormwater to settle out during infiltration or before the runoff is discharged through a stabilized spillway. Sediment traps are formed by excavating or constructing an earthen embankment across a waterway or low drainage area. Sediment traps are smaller and less expensive to install than sediment basins, but generally settle out coarser particles than sediment basins.
- Sediment Dewatering Operations – A filtration bag or sediment bag is a large bag made of geotextile that is used for filtering water pumped as part of dewatering a worksite. The bag is hooked up to a hose and water is pumped through the bag. The water seeps through the geotextile fabric and the sediment is trapped in the bag.
- Waterbars - A small ditch or ridge of material is constructed diagonally across a road or ROW to divert stormwater runoff from the road surface, wheel tracks, or a shallow road ditch.

3.8.4 Good Housekeeping

General housekeeping refers to any management and/or work practices implemented on a construction site to prevent the contamination of stormwater by materials other than sediment. General housekeeping practices involve proper management of chemicals and other potentially hazardous construction materials, equipment, and wastes. Managing potential pollutants offsite (i.e., conducting equipment maintenance back at the maintenance shop rather than at the site) is an effective method of eliminating potential spills and contamination on the construction site. If a pre-manufactured product is to be implemented on a site for general housekeeping, the contractor should always follow the manufacturer's installation and maintenance recommendations as the primary reference for implementation. Good housekeeping BMPs include:

- Chemical Management – Chemical management includes the proper labeling, handling, storage and disposal of chemical. Proper chemical management prevents, or at least minimizes, stormwater runoff from being polluted through spills or other forms of contact. It is not intended to supersede or replace normal site assessment and remediation procedures. Chemical management practices, along with the applicable Occupational Safety and Health Administration, Department of Transportation, and USEPA guidelines, should be incorporated at all construction sites that use or generate potentially hazardous wastes. Target chemicals include:
 - Paints, solvents, and stains.
 - Fuel, lube oils, grease, and cutting oils.
 - Pesticides, herbicides, and fertilizer.

- Solid Waste Management – The routine collection, recycling, and disposal of accumulated solid waste generated at the construction site.
- Equipment Maintenance Procedures – Establish a program of equipment maintenance procedures, which will reduce contamination of onsite soils.
- Designated Washdown Areas – Procedures and practices that are designed to minimize or eliminate the discharge of concrete waste materials to the storm drain systems of watercourses. Standard practices include:
 - Adequate sizing of concrete washouts to accommodate anticipated washout water and potential rainwater.
 - Frequent inspection of concrete wash areas to check for leaks or integrity/degradation.
 - Siting concrete washouts in construction areas close to the concrete pouring activity but not within 50 feet of wetlands or storm drains.
 - Providing proper ingress/egress to concrete washout areas to encourage vehicle traffic.
 - Educate personnel and subcontractor on proper concrete washout procedures.
 - Installation of signage that identifies concrete washout areas.
 - Removal of excess concrete when the system reaches 50 percent of its capacity.
- Spill Containment Plan – An emergency plan to contain spills of dangerous, hazardous, or toxic wastes, which mitigates environmental damage and provides prompt notice to proper authorities.
- Road Sweeping and Road Track-out Cleaning – Road track-out cleaning procedures refer to methods to remove tracked sediment around construction site points of egress.

3.9 Monitoring, Inspections, and Corrective Action

The Construction Contractor(s) shall properly install and maintain all erosion and sediment control treatments and adequately execute erosion and sediment control measures and techniques. Proper operation and maintenance will also include appropriate quality assurance procedures.

As part of the SWPPP, the Construction Contractor(s) will be required to develop an inspection schedule and conduct routine inspections to identify conditions that could lead to discharges of pollutants or contact stormwater with storm drainages or surface waters. Schedules will be established for regular inspections of equipment, and erosion and sediment control measures. Inspections of the construction site shall occur in accordance with each applicable state CGP to identify areas contributing to a stormwater discharge and to evaluate whether industry standards are in place and functioning properly. During

inspections, the Construction Contractor(s) will also determine if the industry standards identified in the SWPPP are adequate and whether additional control measures are needed. All monitoring and inspection records which have been produced in association with the SWPPP will be retained for a period of at least three years.

To monitor the mitigation's effectiveness and to evaluate whether additional mitigation measures are required a monitoring program and reporting system will be established by the Construction Contractor(s) and followed per the applicable state and federal requirements and guidelines.

3.9.1 Monitoring

3.9.1.1 Arizona

Operators of projects that are located within 0.25 mile of impaired OAWs shall prepare and implement a monitoring program that meets the requirements of this Part. The Colorado River is not on the Arizona 303(d) list of impaired waters for this section of the river and there are no OAWs in the Project area.

The operator shall develop a written monitoring program for analytical monitoring of stormwater unless an acceptable rationale demonstrates that stormwater monitoring is not necessary, in accordance with Part 7.1 of the CGP. The monitoring program shall be a part of the SWPPP as either an appendix or separate SWPPP section. The monitoring program shall include:

1. Locations of monitoring sites.
2. The name(s) and title of the person(s) who will perform the monitoring.
3. A map showing the segments or portions of the receiving water that are most likely to be impacted by the discharge of pollutant(s).
4. Water quality parameters/ pollutants to be sampled.
5. The citation and description of the sampling protocols to be used.
6. Identification of the analytical methods and related method detection limits (if applicable) for each parameter required. Method detection limits shall be below applicable surface water quality standards when possible.
7. Additionally, for construction sites within 0.25 mile of an impaired water, the monitoring program shall include:
 - a. An identification of the pollutant(s) of concern based on the most recent 305(b) / 303(d) listing or other information available.
 - b. A description of potential source(s) of this pollutant(s) from the Project, if any.

3.9.1.2 California

Attachment A of the CGP establishes minimum monitoring and reporting requirements for all linear underground/overhead projects (LUPs). It establishes different monitoring requirements depending on project complexity and risk to water quality. The monitoring requirements for Type 1 LUPs are less than Type 2 and 3 projects because Type 1 projects have a lower potential to impact water quality. Some type of monitoring will be required for this Project.

A discharger shall prepare a monitoring program prior to the start of construction and immediately implement the program at the start of construction for LUPs. The monitoring program must be implemented at the appropriate level to protect water quality at all times throughout the life of the Project.

3.9.2 Inspections

3.9.2.1 Arizona

The Arizona CGP inspection schedule is indicated below:

At a minimum, operator shall conduct a site inspection in accordance with one of the schedules listed below. The operator shall document in the SWPPP, which schedule is being used and, when necessary the location of the rain gauge or weather station used to obtain rainfall information. ADEQ encourages adding inspections before and/ or during predicted storm events and "spot" inspections to ensure control measures will be effective in managing stormwater runoff and associated pollutants.

1. Routine Inspection Schedule. The operator shall ensure inspections are performed at the site as indicated below to ensure control measures are functional and that the SWPPP is being properly implemented. To determine the amount of rainfall from a storm event that occurs on the site (in accordance with options b. or c.), the operator shall obtain rainfall information (in accordance with Part 4.4(3) of the CGP) from either a properly maintained rain gauge on the site, or a weather station that is representative of the site's location. For any day of rainfall during normal business hours that measures 0.25 inch or greater, the total rainfall measured for that day shall be recorded in accordance with Part 4.4(3) of the CGP.
 - a. The site will be inspected a minimum of once every seven calendar days, or
 - b. The site will be inspected a minimum of once every 14 calendar days, and also within 24 hours of each storm event of 0.5 inch or greater in 24 hours; or
 - c. The site will be inspected a minimum of once per month, but not within 14 calendar days of the previous inspection and within 24 hours of the occurrence of a storm event of 0.25 inch or greater.

2. **Reduced Inspection Schedule.** The operator may reduce inspection if the entire site has been temporarily stabilized, discharges are unlikely based on seasonal rainfall patterns, or runoff is unlikely due to winter conditions (e.g., site is covered with snow, ice, or frozen ground exists). With a reduced inspection schedule, the site shall be inspected at least once per month (but not within 14 calendar days of the previous inspection) and before an anticipated storm event and within 24 hours of each storm event of 0.5 inch or greater in 24 hours.
3. **Inspection Schedule for Sites within 0.25 mile of Impaired Waters or OAWs.** If any portion of the construction site is within 0.25 mile of an impaired water or OAW, the operator shall inspect the site at least once every seven calendar days. The operator may reduce inspections to the schedule specified in Part 4.2(2) for those areas of the construction site that have undergone temporary or final stabilization.
4. **Inspection Schedule for Inactive and Unstaffed Sites.** A site is inactive and unstaffed that will have an anticipated period of no construction activity for at least six consecutive months. Inactive and unstaffed sites within 0.25 mile of an impaired water or OAW are not eligible for this reduced inspection frequency unless they have undergone temporary stabilization. Operator's responsibilities include:
 - a. Immediately before becoming inactive and unstaffed, the operator shall perform an inspection in accordance with Part 4.4 of the CGP. All control measures must be in operational condition in accordance with Part 3.1 of the CGP prior to becoming inactive and unstaffed.
 - b. During the time the site is inactive and unstaffed, the operator shall perform an inspection at least once every six months and within 24 hours of each storm event of 0.5 inch or greater in 24 hours.
 - c. Non-storm event inspections must be at least three months apart.
 - d. All control measures must be maintained in operational condition.
 - e. The site shall be secured, such as limited access, blocking or fencing.
 - f. Maintain a statement in the SWPPP as required in Part 6.4 (11) of the CGP indicating that the construction site is inactive and unstaffed. The statement must be signed and certified in accordance with Appendix B, Subsection 9 of the CGP.
 - g. If circumstances change and the site becomes active and/or staffed, this exception no longer applies, and the operator shall immediately resume the routine inspection schedule.

ADEQ retains the authority to revoke this exception from routine inspections where it is determined that the discharge causes, has a reasonable potential to cause, or contribute to an exceedance of an applicable water quality standard, including designated uses.

5. **Inspections are only required during the Project's normal working hours.** If an inspection day (except those required relative to a rainfall event) falls on a

Saturday or holiday, the inspection may be conducted on the preceding workday. If the inspection day falls on a Sunday, the inspection may be conducted on the following Monday. If rainfall events occur on the weekend or holiday, an inspection relative to that event may be conducted the following workday.

6. Inspections are not required under Adverse Conditions. The operator is not required to inspect areas that, at the time of the inspection, are considered unsafe for inspection personnel. Inspections may be postponed when conditions such as local flooding, high winds, or electrical storms, or situations that otherwise make inspections unsafe. The inspection must resume as soon as conditions are safe.

3.9.2.2 California

The CGP requires visual monitoring at all sites, and effluent water quality at all Risk Level 2 and 3 sites. It requires receiving water monitoring at some Risk Level 3 sites. All sites are required to submit annual reports, which contain various types of information, depending on the site characteristics and events. A summary of the monitoring requirements is found in Table G-2-2.

TABLE G-2-2 REQUIRED MONITORING ELEMENTS FOR RISK LEVELS-CALIFORNIA

Risk Level	Visual	Non-Visible Pollutant	Effluent	Receiving Water
1	Three types required for all risk levels: Non-stormwater Pre-rain Post-rain	As needed for all risk levels	Where applicable	Not required
2			pH, turbidity	Not required
3			pH, turbidity	If receiving water monitoring trigger exceeded: pH, turbidity and suspended sediment concentration. Bioassessment for sites 30 acres or larger.

Type 1 Monitoring Requirements: A discharger must conduct daily visual inspections of Type 1 linear underground/overhead projects during working hours while construction activities are occurring. Inspections are to be conducted by qualified personnel and can be conducted in conjunction with other daily activities. Inspections will be conducted to ensure the BMPs are adequate, maintained, and in place at the end of the construction day. The discharger will revise the SWPPP, as appropriate, based on the results of the daily inspections. Inspections can be discontinued in non-active construction areas where soil disturbing activities have been completed and final stabilization has been achieved (e.g., trench has been paved, substructures have been installed, and successful final vegetative cover or other stabilization criteria have been met).

A discharger shall implement the monitoring program for inspecting Type 1 projects. This program requires temporary and permanent stabilization BMPs after active construction is completed. Inspection activities will continue until adequate permanent stabilization has been established and will continue in areas where re-vegetation is chosen until minimum vegetative coverage has been established. Photographs shall be taken during site inspections and submitted to the State Water Resources Control Board.

Type 2 and 3 Monitoring Requirements: A discharger must conduct daily visual inspections of Type 2 and 3 projects during working hours while construction activities are occurring. Inspections are to be conducted by qualified personnel and can be in conjunction with other daily activities.

All dischargers of Type 2 and 3 projects are required to conduct inspections by qualified personnel of the construction site during normal working hours prior to all anticipated storm events and after actual storm events. During extended storm events, the discharger shall conduct inspections during normal working hours for each 24-hour period. Inspections can be discontinued in non-active construction areas where soil disturbing activities have been completed and final stabilization has been achieved (e.g., trench has been paved, substructures installed, and successful vegetative cover or other stabilization criteria have been met).

The goals of these inspections are: (1) to identify areas contributing to a stormwater discharge; (2) to evaluate whether measures to reduce pollutant loadings identified in the SWPPP are adequate and properly installed and functioning in accordance with the terms of the CGP; and (3) to determine whether additional control practices or corrective maintenance activities are needed. Equipment, materials, and workers must be available for rapid response to failures and emergencies. All corrective maintenance to BMPs shall be performed as soon as possible, depending upon worker safety.

All dischargers shall develop and implement a monitoring program for inspecting Type 2 and 3 projects that require temporary and permanent stabilization BMPs after active construction is completed. Inspections will be conducted to ensure the BMPs are adequate and maintained. Inspection activities will continue until adequate permanent stabilization has been established and will continue in areas where revegetation is chosen until minimum vegetative coverage has been established.

A log of inspections conducted before, during, and after the storm events must be maintained in the SWPPP. The log will provide the date and time of the inspection and who conducted the inspection. Photographs must be taken during site inspections and submitted to the State Water Resources Control Board.

Rain Event Action Plan: A Rain Event Action Plan is a written document, specific for each rain event. This plan should be designed that when implemented it protects all exposed portions of the site within 48 hours of any likely precipitation event forecast of 50 percent or greater probability.

This CGP requires Risk Level 2 and 3 dischargers to develop and implement a plan designed to protect all exposed portions of their sites within 48 hours prior to any likely precipitation event. The plan requirement is designed to ensure that the discharger has adequate materials, staff, and time to implement erosion and sediment control measures that are intended to reduce the amount of sediment and other pollutants generated from the active site. A plan must be developed when there is likely a forecast of 50 percent or greater probability of precipitation in the Project area. The National Oceanic and Atmospheric Administration defines a chance of precipitation as a probability of precipitation of 30 percent to 50 percent chance of producing precipitation in the Project area. NOAA defines the probability of precipitation as the likelihood of occurrence (expressed as a percent) of a measurable amount (0.01 inch or more) of liquid precipitation (or the water equivalent of frozen precipitation) during a specified period of time at any given point in the forecast area.) Forecasts are normally issued for 12-hour time periods. Descriptive terms for uncertainty and aerial coverage are used as follows:

TABLE G-2-3 NATIONAL OCEANIC AND ATMOSPHERIC DEFINITION OF PROBABILITY OF PRECIPITATION

Probability of Precipitation	Expressions of Uncertainty	Aerial Coverage
0 percent	None used	None used
10 percent	None used	Isolated
20 percent	Slight chance	Isolated
30-50 percent	Chance	Scattered
60-70 percent	Likely	Numerous
80-100 percent	None used	None used

The discharger must obtain the precipitation forecast information from the National Weather Service Forecast Office (<http://www.srh.noaa.gov/>).

3.9.3 Corrective Action

Corrective actions are actions the operator takes in compliance with this Part to modify, or replace any control measure that failed to meet the conditions of the Permit. ADEQ does not consider routine maintenance or repairs as corrective actions. If any of the following conditions at the construction site occur resulting in or from a failure of a control measure, the operator shall implement new or modified control(s):

1. A necessary control measure was never installed, was installed incorrectly, or
2. One of the prohibited discharges as indicated in the Permit has occurred; or
3. The permitting authority determines that modifications to the control measures are necessary.

On the same day a condition requiring corrective action is discovered, the operator shall take all reasonable steps to minimize or prevent the discharge of pollutants until a permanent solution is installed and made operational. However, if the problem is identified when it is too late in the work day to initiate a corrective action, the corrective action shall be initiated on the following work day, unless the condition poses imminent endangerment to human health or the environment, in which case the operator shall take immediate action.

Any control measures or repairs required must be made operational, or completed, by no later than seven calendar days from the time of discovery. If the operator cannot complete the necessary repairs or installation of controls within seven calendar days, the SWPPP shall include the following:

1. The reason it is infeasible to complete the installation or repair within the seven-calendar day timeframe; and
2. The schedule for installing and making the control measure(s) operational as soon as practicable after the seven-day timeframe.

Any corrective actions that result in changes to any of the control measures or procedures shall be documented in the SWPPP within seven calendar days of completing the corrective action work.

3.10 Training

Training of Project employees and subcontractors on environmental topics including stormwater pollution prevention will be provided during general Project orientation. Stormwater training topics will include: stormwater regulations, erosion control BMPs, sediment control BMPs, non-stormwater BMPs, and good housekeeping BMPs. Training records will be maintained by the Construction Contractor and will be made available upon request. Additional training will be tailored and/or supplemented as required for those employees with specific stormwater responsibilities, as described below.

Arizona and California: Properly trained personnel are more capable of preventing spills, responding safely and effectively to accidents and recognizing situations that could lead to stormwater contamination. The Construction Contractor(s) will be responsible for familiarizing personnel with the information contained in the SWPPP. Training meetings will be held for new personnel who join the Project after the initial training has been provided. The purpose of these meetings will be to review the proper installation methods and maintenance of all erosion control measures to be used for the Project. The monitoring/inspection program and all required maintenance and repair will be conducted by trained personnel. The SWPPP must identify the name, title and a description of the qualifications and a copy of any training certificates of team members and Project-specific training must be documented.

The following personnel, at a minimum, must receive training:

- Personnel who are responsible for the design, installation, maintenance, and/or repair of stormwater controls (including pollution prevention measures);
- Personnel responsible for the application and storage of treatment chemicals (if applicable);
- Personnel responsible for conducting inspections as required; and
- Personnel responsible for taking corrective actions as required.

California: To ensure that the preparation, implementation, and oversight of the SWPPP is sufficient for effective pollution prevention, the Qualified SWPPP Developer and Qualified SWPPP Practitioners responsible for creating, revising, overseeing, and implementing the SWPPP must attend a State Water Resources Control Board sponsored or approved Qualified SWPPP Developer and Qualified SWPPP Practitioner training course.

Environmental protection measures associated with training include the following:

Applicant Proposed Measure (APM)-WQ-02: Worker Environmental Awareness Program (WEAP) Development and Implementation – The Project's worker environmental awareness program would communicate environmental issues and appropriate work practices specific to this Project. This awareness would include spill prevention and response measures and proper BMP implementation. The training would emphasize site-

specific physical conditions to improve hazard prevention (such as identification of flow paths to nearest water bodies) and would include a review of all site-specific water quality requirements, including applicable portions of erosion control and sediment transport BMPs, Health and Safety Plan, and Hazardous Substance Control and Emergency Response Plan.

MM-BIO-California Environmental Quality Act (CEQA)-1 Implement a WEAP: Prior to any work activities on the Project site, including surveying, mobilization, fencing, grading, or construction, a WEAP will be prepared; the WEAP will be approved by the California Public Utilities Commission (CPUC) with a final version complete prior to the issuance of construction permits. The WEAP will be implemented throughout the duration of Project related construction activities, including operation and maintenance phases. The WEAP will include, at a minimum, the following items:

- Maps showing the known locations of listed and/or special status wildlife, populations of listed and rare plants and sensitive vegetation communities, riparian habitats, seasonal depressions and known waterbodies, wetland habitat, exclusion areas, and other construction limitations.
- A discussion of measures to be implemented for avoidance of sensitive resources discussed in the EIS (including this appendix) and the identification of an onsite contact in the event of the discovery of sensitive species on the site; this will include a discussion on micro trash.
- Training materials and briefings will include but not be limited to: a discussion of the federal and state Endangered Species Acts, Bald and Golden Eagle Protection Act, and the Migratory Bird Treaty Act; the consequences of non-compliance with these acts; identification and values of plant and wildlife species and significant natural plant community habitats; hazardous substance spill prevention and containment measures; a contact person and phone number in the event of the discovery of dead or injured wildlife; and a review of mitigation requirements.
- Protocols to be followed when road kill is encountered in the work area or along access roads and the identification of an onsite representative to whom the road kill will be reported. Road kill will be reported to the appropriate local animal control agency and CPUC within 24 hours. Road kill of special status species will also be reported to the CDFW and USFWS (for federally-listed species) per MM BIO-CEQA-2. Special status species mortalities should be reported to the CPUC, CDFW, and USFWS within 24 hours or as otherwise required by the project's regulatory permits.
- Literature and photographs or illustrations of potentially occurring special status plant and/or wildlife species will be provided to all Project contractors and heavy equipment operators.
- A special hardhat sticker or wallet size card will be issued to all personnel completing the training, which will be carried with the trained personnel at all times while on the Project site.
- All new personnel will receive this training and may work in the field for no more than 5 days without participating in the WEAP. A log of all personnel who have completed the WEAP training will be kept on site.

- A copy of the WEAP will be kept at an easily accessible location within the Project site (e.g., foreman's vehicle, construction trailer) for the duration of the Project.
- A standalone version of the WEAP will be developed, that covers all previously discussed items above, and that can be used as a reference for maintenance personnel during Project operations.

3.11 Project Modifications

The Construction Contractor(s) is responsible for maintaining a current SWPPP and shall amend the SWPPP whenever there is a change in construction or operations that may affect the discharge of pollutants to surface waters or groundwater. The SWPPP shall also be amended if it is in violation of the CGP or has not achieved the general objective of eliminating pollutants in stormwater discharges. The SWPPP shall be amended and implemented in a timely manner, but in no case more than 14 days after it has been determined that the SWPPP is inadequate. All amendments should be dated and directly attached to the SWPPP per agency regulations.

3.12 Recordkeeping

A copy of this SWPPP and all associated documents will be maintained on site for the duration of construction activities and for a period of at least three years from the date that the site has been finally stabilized and the NOI has been filed. These records may be kept electronically and will be available to agencies upon request. This will include, but is not limited to:

- Records of all data used to complete the NOI.
- SWPPP and all associated appendices.
- Dates of grading, construction activities and stabilization activities.
- A copy of the CGP.
- The signed and certified NOI form or permit application.
- Inspection Records.
- Corrective action logs.
- A copy of the NOT.

3.13 Post-Construction Stormwater Management

Mitigation measures used to reduce pollutants in stormwater discharges after all construction phases are complete, should take into account local post-construction stormwater management requirements, policies and guidelines, as well as site-specific and seasonal conditions. Post-construction mitigation measures will be assessed during future transmission line maintenance. Any areas disturbed by Project construction that are observed to be eroding sediment into drainages will be assessed for the appropriate

permanent mitigation measure to control sediment movement off the disturbed area. Disturbed areas will also be reclaimed per POD Appendix L-1 – Reclamation, Vegetation, and Monitoring Plan.

4 Environmental Protection Measures

Preparation of an Arizona SWPPP and a California SWPPP would meet the following APM. These measures are broken out by Project-wide and California-specific measures:

4.1 Project-Wide Measures

APM-WQ-01: SWPPP Development and Implementation – Following Project approval, DCRT would prepare and implement a SWPPP or an amendment to an existing SWPPP to minimize construction impacts on surface water and groundwater quality. Implementation of the SWPPP would help stabilize graded areas and reduce erosion and sedimentation. The Plan would designate BMPs that would be adhered to during construction activities. Erosion and sediment control measures, such as straw wattles, covers, and silt fences, would be installed prior to ground disturbance, based on the anticipated volume and intensity of precipitation, the nature of stormwater runoff in the Project Area, and the soil types within the Project Area. Suitable stabilization measures would be used to protect exposed areas during construction activities, as necessary and final stabilization would be completed when construction materials, waste, and temporary erosion and sediment control measure have been removed. During construction activities, measures would be implemented to prevent contaminant discharge from vehicles and equipment, including complying with the Spill Prevention, Control, and Countermeasures requirements in Title 40 CFR Part 112. The Project SWPPP would include erosion control and sediment transport BMPs to be used during construction. BMPs, where applicable, would be designed by using specific criteria from recognized BMP design guidance manuals. Erosion-minimizing efforts may include measures such as the following:

- Defining ingress and egress within the Project site.
- Implementing a dust control program during construction.
- Properly containing stockpiled soils.

Erosion control measures identified would be installed in an area before construction begins and would be properly maintained until construction is complete and final stabilization begins. Temporary measures such as silt fences or wattles, intended to minimize sediment transport from temporarily disturbed areas, would remain in place until disturbed areas have stabilized. The Plan would be updated during construction as required by the State Water Resources Control Board and ADEQ. The Plan would include the following components, in accordance with ADEQ requirements for coverage under the CGP:

- Stormwater team qualifications and contact information.
- Identification of operators.
- Nature of construction activities.

- Sequence and estimated dates of construction activities.
- Site description.
- Site map(s).
- Receiving waters.
- Control measures to be used during construction activity.
- Summary of potential pollutant sources.
- Use of treatment chemicals.
- Pollution prevention procedures, including spill prevention and response and waste management procedures.

Other environmental protection measures which may assist with implementation and adherence to the SWPPP include:

APM-WQ-03: Vehicles and Equipment Fueling and Maintenance – Vehicle and equipment fueling and maintenance operations would be conducted in designated areas only; these areas would be equipped with appropriate spill control materials and containment.

BMP-WQ-05: Water Use (Compliance with Conservation Management Action [CMA]/ Land Use Plan Amendment [LUPA]-SW-18) – Water extracted or consumptively used for the construction, operation, maintenance, or remediation of the Project shall be solely for the beneficial use of the Project or its associated mitigation and remediation measures, as specified in approved plans and permits.

BMP-WQ-06: Avoidance of Hydrologic Alterations (Compliance with CMA/LUPA-SW-21 and 22) – Considerations shall be given to design alternatives that maintain the existing hydrology of the site or redirect excess flows created by hardscapes and reduced permeability from surface waters to areas where they would dissipate by percolation into the landscape. All hydrologic alterations shall be avoided that could reduce water quality or quantity for all applicable beneficial uses associated with the hydrologic unit in the Project area, or specific mitigation measures shall be implemented that would minimize unavoidable water quality or quantity impacts, as determined by BLM in coordination with USFWS, CDFW, and other agencies, as appropriate.

BMP-WQ-07: Structures in Floodplains – No permanent structures would be placed in floodplains that are narrower at the ROW crossing than the typical span width of 1,200 feet (i.e., it is assumed that such floodplains could be spanned and avoided).

BMP-AQ-01: Dust Palliatives (Compliance with CMA-LUPA-BIO-6 and 13) – Dust palliatives would be applied, in lieu of water, to inactive construction areas (disturbed lands or soil stockpiles that are unused for 14 consecutive days). Dust palliatives would be chosen by the Dust Control Site Coordinator and or construction contractor. Dust palliatives would be environmentally safe; comply with federal, state, and local regulations; and would not produce a noxious odor or contaminate surface water or groundwater and, therefore, would not pose runoff concerns during rain events. Application rates for dust palliatives would follow the manufacturer's recommendations.

Material Safety Data Sheets for any palliatives would be available on site and provided to the BLM 14 days prior to use.

BMP-SOIL-03 (Compliance with CMA/LUPA-BIO-7): Covers for topsoil stockpiles would be of materials resistant to damage and/or degradation from exposure to ultraviolet light and other elements and would be replaced (as needed) if they deteriorate, become worn, or damaged.

BMP-SOIL-04 (Compliance with CMA/LUPA-SW-9): The disruption of desert pavement and desert varnish shall be minimized to the extent feasible. Grading for new access roads or work areas in areas covered by desert pavement and/or desert varnish shall be avoided if possible.

APM-BIO-07: Monofilament Plastic – No monofilament plastic would be used for erosion control (for example, matting, fiber roll, wattles, silt fencing backing). Appropriate materials include burlap, coconut fiber, or other materials as identified in the general and site-specific SWPPP.

APM-BIO-10: Erosion and Dust Control – The BMPs included in the SWPPP would be implemented during construction to minimize impacts associated with erosion. Watering for dust control during construction would also be used as described previously (AQ-01). Watering shall not result in prolonged ponding of surface water that could attract wildlife to the work area. Minimal or no vegetation clearing and/or soil disturbance would be conducted for site access and construction in areas with suitable topography (i.e., overland driving/overland access).

APM-BIO-14: Minimizing Vegetation Clearing – In areas with suitable topography, minimal or no vegetation clearing, and soil disturbance would be conducted for site access and construction (i.e., overland driving/overland access). Overland driving/overland access would be used in areas that support the necessary construction equipment. Upgrading of existing access roads and construction of new access roads would be implemented as necessary for the safe construction activities.

BMP-BIO-15: Reclamation and Restoration (Compliance with CMA/LUPA-BIO-7 and 8) – As a part of the Habitat Restoration and Monitoring Plan, the soil horizons would be stored separately for the areas where the success of restoration could be crucial for rare plant species.

BMP-BIO-19: Colorado River (Compliance with CMA/LUPA-SW-13 and 16) – In the vicinity of the Colorado River, existing structure spacing and conductor heights would be matched to the greatest extent practical to reduce the potential for bird collisions with the power line. The transmission line would span the Colorado River and the minimum number of structures possible would be located within the undeveloped floodplain. The term “vicinity of the Colorado River” is defined to mean the river crossing, floodplain, and associated agricultural lands. In these areas, conductor bundles would be in a horizontal, parallel configuration, and match existing structure spacing and conductor heights to the greatest extent practical to reduce the potential for bird collisions with the power line. No guyed structures would be used at these locations.

BMP-BIO-38: Use of State of the Art and Commercially-Available Technology (Compliance with CMA - LUPA-BIO-9 and 15) – Use state-of-the-art, commercially-available, construction and installation techniques as approved by BLM, appropriate for

the specific activity/project and site, that minimize new site disturbance, soil erosion and deposition, soil compaction, disturbance to topography, and removal of vegetation.

BMP-BIO-42: Dead and Downed Wood (Compliance with CMA-LUPA-BIO-VEG-2) – Promote appropriate levels of dead and downed wood on the ground, outside of campground areas, to provide wildlife habitat, seed beds for vegetation establishment, and reduce soil erosion, as determined appropriate on an activity-specific basis.

BMP-BIO-47: Riparian Functioning Condition (Compliance with CMA-LUPA-SW-13) – BLM would manage all riparian areas on BLM land to be maintained at, or brought to, proper functioning condition.

BMP-AES-09: Site Linear Facilities along Natural Lines within the Landscape – Siting of facilities, especially linear facilities (e.g., transmission lines, pipelines, roads), should take advantage of natural lines within the landscape (e.g., natural breaks in the landscape topography, the edges of clearings, or transitions in vegetation). Siting of facilities on steep slopes should be avoided. Siting linear facilities along naturally occurring lines in the landscape can reduce apparent contrast through repetition of the line element or through combination of multiple line elements into a single line element. Facilities sited on steep slopes are often more visible (particularly if either the Project or viewer is elevated); they may also be more susceptible to soil erosion, which could also contribute to negative visual impacts.

APM-GEO-01: Erosion and Sedimentation – DCRT would implement a SWPPP for the Project. A monitoring program would be established to ensure that the prescribed BMPs are followed throughout transmission line construction. Examples of these BMPs include the following:

- Preparation, training, and maintenance for clear work-site practices, tracking controls, and materials management to minimize the direct work impacts on soil and erosion.
- Installation of temporary silt fences and other containment features (including gravel bags and fiber rolls) surrounding work areas to prevent the loss of soil during rain events and other disturbances.
- Utilization of storm drain inlet protection, including sediment filters and ponding barriers, to retain sediments on site and prevent excess discharge into storm drains.
- Utilization of storm drain inlet protection, including sediment filters and ponding barriers, to retain sediments on site and prevent excess discharge into storm drains.
- Stockpiling soils at least 100 feet from drainages to the extent possible. If soil stockpiles are within 100 feet from a drainage proper measures would be implemented such as soil tackifiers, straw wattles around the pile, and/or covering the stockpile.

APM-HAZ-01: Hazardous Substance Control and Emergency Response – DCRT would implement its hazardous substance control and emergency response procedures as needed in conjunction with a Hazardous Substance Control and Containment Plan and Emergency Response Plan for the Project. The procedures identify methods and

techniques to minimize the exposure of the public and site workers to potentially hazardous materials during all phases of Project construction through operation. They address worker training appropriate to the site worker's role in hazardous substance control and emergency response. The procedures also require implementing appropriate control methods and approved containment and spill-control practices for construction and materials stored on site. If it were necessary to store chemicals on site, they would be managed in accordance with all applicable regulations. Material safety data sheets would be maintained and kept available on site, as applicable. Project construction would involve soil surface blading/leveling and excavation. In the event that soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are removed during site grading activities or excavation activities, the excavated soil would be tested and, if contaminated above hazardous waste levels, would be contained and disposed of at a licensed waste facility. The presence of known or suspected contaminated soil would require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations.

All hazardous materials and hazardous wastes would be handled, stored, and disposed of in accordance with all applicable regulations by personnel qualified to handle hazardous materials. The hazardous substance control and emergency response procedures include, but are not limited to, the following:

- Proper disposal of potentially contaminated soils.
- Establishing site-specific buffers for construction vehicles and equipment near sensitive resources.

As part of the Project tailgate meetings, DCRT or their contractor would gather emergency contact numbers, first aid location, and work site location in case of emergency.

4.2 California-Specific Measures

BMP-WQ-04: Non-petroleum Dust Palliatives – Palliatives used for dust control would be non-petroleum products in addition to nontoxic, as specified in AQ-01.

BMP-SOIL-01: During reclamation and revegetation efforts, a BLM soil scientist and/or botanist review plans and approve, as appropriate, to determine type and location of any scarification.

BMP-SOIL-02: During reclamation and revegetation efforts, the BLM would review plans and approve, as appropriate, to determine where soil compaction would be appropriate, to avoid potential adverse conditions created by compaction.

BMP-SOIL-05: (Compliance with CMA/LUPA-SW-9) – Desert pavement and desert varnish in activity areas in California shall be assessed by qualified geological or biological monitors prior to construction. If disturbance from an activity is likely to exceed 10 percent of the desert pavement and/or desert varnish identified within the activity boundary, the BLM would determine whether the erosional and ecologic impacts of exceeding the 10 percent cap by the proposed amount would be insignificant and/or whether the activity should be redesigned to minimize desert pavement and/or desert varnish disturbance.

BMP-SOIL-06: (Compliance with CMA/LUPA-SW-11) – Side-casting of soil during road construction shall be avoided.

BMP-SOIL-07: (Compliance with CMA/LUPA-SW-10) – To the extent possible, avoid disturbance of desert biologically intact soil crusts, and soils highly susceptible to wind and water erosion.

CMA-LUPA-BIO-9: Water and Wetland Dependent Species Resources – Implement the following general LUPA CMA for water and wetland dependent resources:

- Implement construction site standard practices to prevent toxic chemicals, hazardous materials, and other fluids from entering vegetation type streams, washes, and tributary networks through water runoff, erosion, and sediment transport by, at a minimum, implementing the following:
 - On project sites, vehicles and other equipment will be maintained in proper working condition and only stored in designated containment areas where runoff is collected or controlled and that are located outside of streams, washes, and distributary networks to minimize accidental fluids and hazardous materials spills.
 - Hazardous material leaks, spills, or releases will be immediately cleaned and equipment will be repaired upon identification. Removal and disposal of spill and related cleanup materials will occur at an approved off-site landfill.
 - Maintenance and operations vehicles will carry the appropriate equipment and materials to isolate, clean up, and repair any hazardous material leaks, spills, or releases.
- Activity-specific drainage, erosion, and sedimentation control actions, which meet the approval of BLM and the applicable regulatory agencies, will be carried out during all appropriate phases of the approved project. These actions, as needed, will address measures to ensure the proper protection of water quality, site-specific stormwater and sediment retention, and design of the project to minimize site disturbance, including the following:
 - Identify site-specific surface water runoff patterns and implement measures to prevent excessive and unnatural soil deposition and erosion.
 - Implement measures to maintain natural drainages and to maintain hydrologic function in the event drainages are disturbed.
 - Reduce the amount of area covered by impervious surfaces through use of permeable pavement or other pervious surfaces. Direct runoff from impervious surfaces into retention basins.
 - Stabilize disturbed areas following grading in the manner appropriate to the soil type so that wind or water erosion is minimized.
 - Minimize irrigation runoff by using low or no irrigation native vegetation landscaping for landscaped retention basins.

- Conduct regular inspections and maintenance of long-term erosion control measures to ensure long - term effectiveness.

CMA-LUPA-BIO-13: General Siting and Design (portions) – Implement the following CMA for project siting and design:

- Use nontoxic road sealants and soil stabilizing agents.

CMA-LUPA-BIO-15: Use state-of-the-art, as approved by BLM, construction and installation techniques, appropriate for the specific activity/project and site, that minimize new site disturbance, soil erosion and deposition, soil compaction, disturbance to topography, and removal of vegetation.

CMA-LUPA-BIO-VEG-2: Promote appropriate levels of dead and downed wood on the ground, outside of campground areas, to provide wildlife habitat, seed beds for vegetation establishment, and reduce soil erosion, as determined appropriate on an activity-specific basis.

CMA-LUPA-SW-1: Soil and Water General – Stipulations or conditions of approval for any activity will be imposed that provide appropriate protective measures to protect the quantity and quality of all water resources (including ephemeral, intermittent, and perennial water bodies) and any associated riparian habitat (see biological CMAs for specific riparian habitat CMAs). The water resources to which this CMA applies will be identified through the activity-specific National Environmental Policy Act analysis.

CMA-LUPA-SW-2: Soil and Water General – Buffer zones, setbacks, and activity limitations specifically for soil and water (ground and surface) resources will be determined on an activity/site-specific basis through the environmental review process and will be consistent with the soil and water resource goals and objectives to protect these resources. Specific requirements, such as buffer zones and setbacks, may be based, in part, on the results of the Water Supply Assessment defined below. In general, placement of long-term facilities within buffers or protected zones for soil and water resources is discouraged but may be permitted if soil and water resource management objectives can be maintained.

CMA-LUPA-SW-3: Soil and Water General – Where a seeming conflict between CMAs within or between resources arises, the CMA(s) resulting in the most resource protection apply.

CMA-LUPA-SW-4: Soil and Water General – Nothing in the “Exceptions” below applies to or takes precedence over any of the CMAs for biological resources.

CMA-LUPA-SW-5: Groundwater Resources – Exceptions to any of the specific soil and water stipulations contained in this section, as well as those listed below under the subheadings “Soil Resources,” “Surface Water,” and “Groundwater Resources,” may be granted by the authorized officer if the applicant submits a plan, or, for BLM-initiated actions, the BLM provides documentation, that demonstrates:

- The impacts are minimal (e.g., no predicted aquifer drawdown beyond existing annual variability in basins where cumulative groundwater use is not above perennial yield and water tables are not currently trending downward) or can be adequately mitigated.

CMA-LUPA-SW-12: Surface Water – Except in Development Focus Areas, exclude long-term structures in, playas (dry lake beds), and Wild and Scenic River corridors, except as allowed with minor incursions (see definition in the Glossary of Terms).

CMA-LUPA-SW-14: Surface Water – All relevant requirements of Executive Orders 11988 (Floodplain Management) and 11990 (Protection of Wetlands) will be complied with.

CMA-LUPA-SW-15: Surface Water – Surface water diversion for beneficial use will not occur absent a state water right.

CMA-LUPA-SW-21: Consideration shall be given to design alternatives that maintain the existing hydrology of the site or redirect excess flows created by hardscapes and reduced permeability from surface waters to areas where they will dissipate by percolation into the landscape.

CMA-LUPA-SW-22: All hydrologic alterations shall be avoided that could reduce water quality or quantity for all applicable beneficial uses associated with the hydrologic unit in the Project area, or specific mitigation measures shall be implemented that will minimize unavoidable water quality or quantity impacts, as determined by BLM in coordination with USFWS, CDFW, and other agencies, as appropriate. These beneficial uses may include municipal, domestic, or agricultural water supply; groundwater recharge; surface water replenishment; recreation; water quality enhancement; flood peak attenuation or flood water storage; and wildlife habitat.

5 Erosion Control Plan (California Environmental Quality Act Compliance)

Per CEQA the Applicant shall develop and submit an Erosion Control Plan to the CPUC and BLM at least 60-days prior to the start of construction activities. The Erosion Control Plan shall be developed in conjunction with the SWPPP.

5.1 Sustainable Erosion Control

Soil, water, and vegetation must all be considered to achieve successful, self-sufficient erosion control at a project site. The goals of sustainable erosion control are to meet or exceed stormwater quality requirements and minimize life cycle costs by:

- Creating long-term soil health.
- Establishing the most appropriate vegetation.
- Achieving permanent soil stabilization.

The objectives for soils include optimal infiltration, adequate organic matter, sufficient water holding capacity, and favorable soil biology and healthy microbes. The objectives for vegetation include healthy plant communities, diverse species composition, and optimal rooting depth. The objectives for water include surface erosion reduction, runoff reduction, and no-to-low and temporary impacts to water quality.

5.2 Collect Site-Specific Desktop Data

A desktop assessment will be conducted to collect pertinent site information prior to a site visit. The following resources will be assessed based on availability:

- Environmental. Review any previous environmental studies of the area.
- Aerial Map. Review of vegetation and other land cover.
- Topographic Map. Review slope steepness and drainage flow patterns.
- Soils Map. Determine soil types.
- Geology Map. Determine slope stability.
- Local Annual Rainfall. Determine the amount and intensity of local rainfall.
- Erosivity. Obtain R-Values from Natural Resources Conservation Service National Revised Universal Soil Loss Equation (RUSLE2) Database online at: https://fargo.nserl.purdue.edu/rusle2_dataweb/RUSLE2_Index.htm.

5.3 Site Reconnaissance

Depending on the available desktop information, a site reconnaissance visit may be required to obtain additional pertinent information about the Project area. Site reconnaissance activities may include the following:

- Soil. Inspect eroded areas, inspect fills and cuts, locate discharge point(s), identify topsoil location and depth, review potential disturbed soil areas.
- Water. Identify run-on and runoff areas and direction of sheet and concentrated flow. Identify water sources not found in the desktop assessment.
- Vegetation. Inspect existing vegetation, identify litter/duff location and depth.
- Other considerations. Identify potential environmentally sensitive areas.

5.4 Assess Erosion Potential

The RUSLE2 can assist in this assessment process, so the scope of problem can be adequately addressed with appropriate BMP selection. There are several key design considerations to reduce erosion and increase water quality which include:

- Increase infiltration-incorporate organic matter where feasible.
- Provide surface protection from raindrop impact.
- Incorporate slope breaks, surface roughness, fiber rolls, etc., to slow runoff.
- Control runoff to prevent concentrated flows.

- Divert run-on at top of slope.
- Stabilize toe of slope.

RUSLE2 is a quantitative procedure for estimating soil loss in tons per acre per year. It applies to all land uses where mineral soil is exposed to the erosive forces of raindrop impact and runoff. RUSLE2 applies to all land uses including cropland but is not specific to construction sites; by design, RUSLE2 is more applicable to rural sites.

RUSLE2 must be used as a predictive tool only. Basic information can be found online at: <http://www.iwr.msu.edu/rusle/>.

5.5 Evaluate and Select Best Management Practices

BMPs are structural, non-structural, and management practices that are recognized to be the most effective and practical means of minimizing soil loss and reducing water quality degradation. There are two main classifications of BMPs for construction projects: “Erosion and Sediment Control” and “Non-Stormwater and Waste/Material Management.”

Erosion and Sediment Control BMPs:

- Minimize disturbed areas.
- Stabilize disturbed areas.
- Protect slopes and channels.
- Control site perimeter.
- Retain sediment.

Non-stormwater and Waste/Material Management BMPs:

- Practice good housekeeping.
- Contain and safely dispose materials and waste.
- Follow spill prevention protocol.

5.6 Evaluate and Select Sustainable Vegetation

Selecting appropriate plants is critical to achieving a sustainable erosion control design that stabilizes disturbed soil areas and helps promote succession. Succession seeks to re-establish natural stages of vegetation growth by providing early successional species as initial plant cover and creating conditions that support the establishment of later successional species.

Many disturbed sites are naturally “colonized” by early succession plants such as annual grasses and are then later supported by a more diverse cover of perennials, woody shrubs and trees. Selecting a balance of early and late succession plants in the Project design is appropriate. The Project’s selected control site will help identify climax species

and determine which early and late succession plants will be most successful. Control sites will exhibit the target plant community that is located adjacent to, or near, the Project-affected treatment sites. Control sites will be established within areas that are not disturbed by the Project per Appendix L-1, Reclamation, Vegetation, and Monitoring Plan.

There are many potential site constraints that might inhibit the succession process. These include but are not limited to drought, poor soils, and noxious weed infestations on or near the Project site.

The following methods may be utilized to evaluate potential plant species for the Project:

- Location. Select seed species based on regional and site-specific requirements (e.g., climate, soil).
- Observation. Finalize plant species list based on the vegetation that occurs on the control site.
- Calculation. Determine density by species and frequency of occurrence.
- Documentation. Evaluate photographs and unidentifiable plant specimens.
- Consultation. A qualified or BLM designated biologist/botanist can aid in identifying plants and noxious weeds. Federal land management agencies will approve the appropriate seed mix of species best suited to each reseeding site, including seed mixes, seeding method, amendments, and timing.

5.7 Environmental Protection Measures

In addition to the environmental protection measures described in Section 4, the following measure will ensure compliance with CEQA (i.e., in California) during construction, operation and maintenance of the Project.

MM-GEO-CEQA-2: The Applicant shall develop and submit an Erosion Control Plan to the CPUC and BLM at least 60-days prior to the start of construction activities. The Erosion Control Plan shall be developed in conjunction with the SWPPP (see APM WQ-01) and shall be kept onsite and readily available upon request. Successful implementation of the Erosion Control Plan will result in a less than significant impact related to erosion during all construction activities.

Soil disturbance at structures and access roads is to be minimized and designed to prevent long-term erosion. The Erosion Control Plan shall include:

- The location of all soil-disturbing activities, including, but not limited to new and/or improved access and spur roads.
- The location of all streams and drainage structures that would be directly affected by soil-disturbing activities (such as crossings or public storm drains by the ROW and access roads).
- BMPs to protect drainage structures, such a public storm drains, downstream of soil disturbance activities as well as to prevent loss of top soils and erosion during construction (see BMP SOIL-01 through -07).

- Design features to be implemented to minimize erosion during construction.
- If soil cement is proposed, the specific locations must be defined in this Plan, and evidence of approval by the appropriate jurisdiction shall be submitted to the CPUC and BLM prior to use.
- If design features include the use of retaining structures and/or walls, the design of the features shall be consistent with MM VIS-06 (under Section 2.1.6 above) to use structure type to match the existing structures in the area and reduce form contrast.
- The location and type of BMPs that would be installed to prevent off-site sedimentation.
- Specification for the implementation and maintenance of erosion control measures and description of the erosion control practices, including appropriate design and installation details.
- Proposed schedule for inspection of erosion control/SWPPP measures and schedule for corrective actions/repairs, if required. Erosion control/SWPPP inspection reports shall be provided to the CPUC.

The locations requiring erosion control/SWPPP corrective actions/repairs shall be tracked by the Applicant, including dates of completion, and documented during inspections. Inspections and monitoring shall be performed in compliance with the federal and California Construction General Permits. The inspection reports shall be maintained and kept in their respective SWPPP, kept on site as required by the federal and state Construction General Permits, and made available to the Regional Water Quality Control Board, CPUC, BLM, counties, local municipalities, and tribal governments, on request. Additionally, an Annual Report shall be filed for each reporting period in compliance with the federal and California Construction General Permit reporting requirements.

The Applicant shall submit to the CPUC and the BLM any grading plans that define the locations of the specific features listed.

The Applicant shall submit to the CPUC and BLM evidence of possession of applicable required permits for the representative land disturbance prior to engaging in any soil-disturbance or construction activities. Such permits may include, but are not limited to, a CWA Section 402 NPDES California General Permit for Stormwater Discharges Associated with Construction Activities (General Permit) from the applicable Regional Water Quality Control Boards, and the federal General Permit for Stormwater Discharges Associated with Construction Activities on Tribal Land.

Prior to ground disturbance in stream channels or other waters jurisdictional to the state of California or the federal government, the Applicant shall obtain a Streambed Alteration Agreement from the CDFW, a Section 404 permit from the USACE, and a CWA Section 401 certification from the State Water Resources Control Board.

Responsible Party: The Applicant shall develop the Erosion Control Plan and ensure that it is implemented throughout construction activities. The Applicant shall also be responsible for obtaining all necessary permits related to erosion and water quality control.

Timing: The Erosion Control Plan shall be developed at least 60-days prior to construction and shall be implemented throughout all construction activities. Any permits required for the Project shall be obtained prior to the start of construction.

Mitigation Monitoring and Reporting Program: The Applicant shall develop the Erosion Control Plan in conjunction with the SWPPP required for the Project. The Applicant shall keep on file any corrective actions related to erosion control and the SWPPP and submit these records to the Regional Water Quality Control Board, CPUC, BLM, and any applicable counties, local municipalities, or tribal governments upon request. The Annual Report shall be developed and filed by the Applicant for each reporting period. Any permits required shall be developed by the Applicant and submitted to the applicable agency for approval. The Applicant shall maintain a record of all permits and associated approvals to be kept on file.

Standards for Success: The Project will comply with federal and California Construction General Permit reporting requirements and any stipulations of applicable permits related to erosion control or the SWPPP.

6 Site Plan for Soils and Hydrology

6.1 Introduction

The following Site Plan for Soils and Hydrology describes DCRT's and/or its contractor's approach for avoiding and minimizing impacts to soil and hydrology resources from the proposed Ten West Link. The following information will be used in developing state-specific SWPPPs and the CPUC-required Erosion Control Plan.

6.1.1 Purpose and Objectives

This section represents the commitment on the part of DCRT to protect soil and water resources. The overall objective is to provide measures to protect these resources from potential impacts during construction, operation, and maintenance. This plan incorporates environmental protection measures contained in the Final EIS/ROD for the Project. This Plan is intended for use as a guide to determine the appropriate site-specific measures to be implemented during construction activities. The goals of this plan are to control Project-related erosion and sedimentation of soils that may impact soil resources and hydrological conditions.

6.2 Overview of Resources

6.2.1 Soils

The soils in the study area are associated with a variety of climates, vegetative cover, topography, and geology. Their properties vary depending on environmental conditions, but area soils were typically developed under hot, dry conditions characterized as having thermic or hyperthermic temperature regimes and arid or semi-arid moisture regimes.

The Natural Resource Conservation Service develops and maintains several soil geographic databases. Only the relatively general State Soil Geographic dataset was

used in the Final EIS/ROD and subsequently in this report. State Soil Geographic soil associations within the study area are generally characterized as having moderate to severe water erosion potential and slight to high wind erosion potential.

Sensitive soils in the study area may include desert pavement, biological soil crusts, calcareous soils, and wetland soils. Sand dunes are mapped along the western end of the study area near the Colorado River Substation and are described further under the active windblown sand, dunes, and sand transport corridors subheading below. Wetland soils in the study area are limited to only small areas along the Colorado River and across several low-lying basins associated with agricultural fields near the towns of Tonopah and Blythe. Similarly, alluvial soils can be found in the alluvial bottom lands associated with rivers and ephemeral drainage channels.

Soils with high shrink-swell (expansive) characteristics, corrosive soils, and collapsible soils may all occur within the study area. Expansive, corrosive, or collapsible soil characteristics are identified locally through site-specific geotechnical testing, and associated hazards can be addressed through soil correction during construction or engineering design.

Valley fever is another potential hazard naturally occurring in some soils in the Project Area. Valley fever spores survive in the top two to 12 inches of soil in many parts of Arizona and California.

6.2.1.1 Active Windblown Sand, Dunes, and Sand Transport Corridors

The Chuckwalla Valley of the Mojave Desert, located along Interstate 10 between Blythe and Desert Center, is an example of a sand transport corridor. This valley supports sand dune habitats that depend upon delivery of fine sand from aeolian (wind-driven) and fluvial (river-driven) processes. These sand dunes have an active layer of mobile sand and exist in a state of dynamic equilibrium as they continuously lose sand downwind and gain sand upwind. Dunes move within sand transport corridors, as wind direction and other factors change. Active sand dunes also provide important habitat for species that rely on regular supply of wind-blown sand.

The Desert Renewable Energy Conservation Plan identifies the entire western portion of the Project area on BLM-administered land west of Blythe as dune systems and aeolian sand transport corridors. Sand transport corridors and sand dunes move over time so the figure is approximate. Sand transport corridors and areas of active windblown sand, such as the one just north of the Colorado River Substation, are sensitive to development.

6.2.1.2 Soil Associations

Table G-2-4 presents the soil associations within the Project area.

TABLE G-2-4 SUMMARY OF STATE SOIL GEOGRAPHIC MAPPED SOILS IN THE PROJECT AREA

Soil Association	Draft EIS Segment Location	Description	Wind Erodibility Group	Shrink/Swell Potential
Rositas-Ripley-Indio-Gilman (s275)	Colorado River and California Zone (ca-01, ca-02, ca-04, ca-05, ca-06, p-15w, p-16, x-09, x-10, x-11, x-12, x-13, x-15, x-16)	The soil association consists of very deep, well, or moderately well to somewhat excessively drained soils that formed in stratified stream alluvium, alluvium from mixed rock sources or from sandy aeolian material. The soils are on floodplains and alluvial fans, lacustrine basins, floodplains, dunes or sand sheets and have slopes of 0 to 30 percent.	1-6	0
Rositas-Orita-Carrizo-Aco (s1041)	Colorado River and California Zone (ca-02, ca-06, ca-07, ca-09, p-16, p-17, p-18, x-15, x-16)	The soil association consists of very deep, well drained to excessively drained soils formed in sandy aeolian material, alluvium from mixed sources, and mixed igneous alluvium. The soils are on dunes and sand sheets, fan remnants and terraces, floodplains, fan piedmonts, and bolson floors. Slope ranges from 0 to 30 percent.	1-3, 5-6	0.14, 1.0
Rillito-Gunsight (s1140)	Colorado River and California Zone (p-17, p-18)	The soil association consists of very deep, somewhat excessively drained soils that formed in mixed alluvium. Gunsight soils are strongly calcareous. The soil association is on fan terraces or stream terraces. Slopes are predominantly 0 to 60 percent.	4L-6	0.5
Rositas-Dune land-Carsitas (s1136)	Colorado River and California Zone (ca-09, p-18, x-19)	The soil association consists of very deep, somewhat excessively drained soils formed in sandy aeolian material or alluvium from granitoid and/or gneissic rocks. The soils are on dunes and sand sheets, alluvial fans, fan aprons, valley fills, dissected remnants of alluvial fans and in drainageways. Slope ranges from 0 to 30 percent.	1, 2, 6	0
Vaiva-Quilotosa-Hyder-Cipriano-Cherioni (s1141)	Colorado River and California Zone (ca-09, p-18, x-19)	The soil association consists of very shallow and shallow, well drained to somewhat excessively drained soils formed in slope alluvium from granite and gneiss, and alluvium from rhyolite and related volcanic rocks. The soils are on hills and mountains, or fan terraces with slopes of 1 to 70 percent.	None available	0.5
Ligurta-Gunsight-Cristobal (s290)	Colorado River and California Zone (cb-10, i-08s, p-15e, x-11) Copper Bottom Zone (cb-03, cb-04, cb-05, cb-06, i-06, i-07, p-09, p-11, p-13, p-14, x-08) East Plains and Kofa Zone (i-04, in-01, p-06) Quartzsite Zone (p-07, p-08, qn-01, qn-02, qs-01, qs-02, i-05, x-05, x-06, x-07)	The soil association series consists of very deep, well drained to somewhat excessively drained, strongly saline soils that formed in fan alluvium weathered from a wide variety of rocks. The soils are on fan terraces or stream terraces with slopes of 0 to 60 percent.	5, 6	1

Soil Association	Draft EIS Segment Location	Description	Wind Erodibility Group	Shrink/Swell Potential
Schenco-Rock outcrop-Laposa (s295)	Copper Bottom Zone (cb-01, cb-02, cb-03, cb-04, cb-05, cb-06, i-06, p-09, p10, p-11, p12, x-08) East Plains and Kofa Zone (i-04, in-01, p-06) Quartzsite Zone (qn-02, qs-01, qs-02, x-05)	The soil association consists of very shallow and shallow to moderately deep, well drained to somewhat excessively drained soils formed in slope alluvium from schist, granite, gneiss, rhyolite, and aeolian deposits. The soils are on hill slopes, hills and mountains and have slopes of 3 to 75 percent. Average annual precipitation is about 4 to 8 inches and the mean annual temperature is about 72 to 73 degrees Fahrenheit.	8	None available
Hyder-Coolidge-Cipriano-Cherioni (s289)	East Plains and Kofa Zone (d-01, i03, i-04, in01, p-03, p04, p-05, p06, x-01, x02, x-03, x04) Quartzsite Zone (x-05)	The soil association consists of very shallow and shallow to very deep, well drained to somewhat excessively drained soils that formed in fan or stream alluvium from rhyolite and related volcanic rocks. The soils are on fan terraces, stream terraces, mountains, and hills and have slopes of 0 to 70 percent.	None available	1
Momoli-Denure-Carrizo (s281)	East Plains and Kofa Zone (d-01, p01)	The soil association consists of very deep, well drained to excessively drained soils formed in fan alluvium and aeolian deposits and mixed igneous alluvium. The soils are on stream terraces and fan terraces, alluvia fans, relict basin floors, floodplains, fan piedmonts, and boldon floors and have slopes of 0 to 15 percent.	3, 5, 6	None available
Pahaka-Estrella-Antho (s299)	East Plains and Kofa Zone (d-01, i01, i-02, i-03, p-01, p-02, p03, p-04, p05, p-06, x01, x-02, x03, x-04)	The soil association consists of very deep, well drained to somewhat excessively drained soils that formed in mixed and stratified fan alluvium. The soils are on alluvial fans, terraces, and floodplains with slopes ranging from 0 to 5 percent.	3, 5	0.06, 0.08, 0.09
Rillito-Gunsight-Denure-Chuckawalla (s288)	East Plains and Kofa Zone (d-01, i01, i-02, i-03, p-01, p-06, x01, x-02, x04)	The soil association consists of very deep, well drained to somewhat excessively drained soils that formed in mixed alluvium. Gunsight soils are strongly calcareous. The soils are formed in alluvium from mixed sources and are on fan terraces or stream terraces and relict basin floors. Slopes are 0 to 60 percent.	3, 4L, 5, 6, 8	1
Rock outcrop-Quilotosa-Hyder-Gachado (s294)	East Plains and Kofa Zone (d-01, p01)	The soil association consists of very shallow and shallow, well drained to somewhat excessively drained soils that formed from granitic and metamorphic rocks or in alluvium from rhyolite and related volcanic rocks. The soils are on hills and mountains and have slopes of 1 to 70 percent.	None available	None available
Rock outcrop-Quilotosa-Momoli (s293)	East Plains and Kofa Zone (i-03, x04)	The soil association consists of very shallow and shallow to very deep, somewhat excessively-drained to excessively drained soils that formed from granitic and metamorphic rocks or in fan alluvium and aeolian deposits. The soils are on hills and mountains, stream terraces, and fan terraces and have slopes of 0 to 65 percent.	6	None available

Soil Association	Draft EIS Segment Location	Description	Wind Erodibility Group	Shrink/Swell Potential
Rock outcrop-Lehmans-Gran (s316)	East Plains and Kofa Zone (i-04, p06) Quartzsite Zone (x-05)	The soil association consists of very shallow and shallow, well drained soils formed in slope alluvium-colluvium from volcanic rock. The soils are on pediments, hill slopes, and mountain slopes and have slopes of 1 to 65 percent.	None available	None available
Valencia-Estrella-Cuerda (s300)	East Plains and Kofa Zone (i-03, p04, p-05, p06, x-01, x-02, x-03, x04)	The soil association consists of very deep, well drained soils formed in recent alluvium and stratified mixed alluvium. The soils are on floodplains and alluvial fans and have slopes of 0 to 5 percent.	3, 5	0.06, 0.08, 0.09

6.3 Hydrology

The hydrologic setting of the region is extreme aridity and seasonally varying precipitation. The few perennial streams in the region arise mainly at higher altitudes, where there is more moisture and lower evaporation rates. As these streams descend to the desert plains, evaporative losses and seepage to the groundwater system greatly reduce or eliminate surface flows.

Water resources were considered a non-key resource in the Draft EIS. There is one perennial surface water and numerous ephemeral washes, canals, irrigation ditches, stock ponds, wetlands, floodplains, groundwater basins, wells, springs, and water rights in the Project area. Water resources in the Project area reflect the area's arid land where: channels are generally dry for long periods of time; streamflow results from high-intensity, short duration summer thunderstorms and less intense, longer duration winter storms; runoff is typically erratic and sediment-laden; springs are few and limited in extent; and wetlands and shallow groundwater are localized.

The intermittent movement of water from the higher elevations is towards the south and southeast towards the Gila River as well as north, northeast, and east towards the Colorado River. The Colorado River moves water from north to south through the Project area.

6.4 Management Techniques

6.4.1 Soils

6.4.1.1 Topsoil

Clearing of vegetation and topsoil would be required. These activities could result in newly exposed, disturbed soils that could be subject to topsoil loss and degradation. Indirect impacts associated with topsoil removal may include invasive plant colonization, soil erosion, and reduction of soil water retention. Preservation of topsoil is important for successful reclamation such as re-establishment of native vegetation, minimization of soil erosion, and retained or improved soil water retention. Topsoil that is used to reclaim disturbed areas immediately after construction activities would begin to revert to more natural conditions.

Temporary use areas such as staging/storage and concrete batch plants would be located in areas of lesser ecological impact and previously disturbed areas to the extent practicable. This approach would minimize adverse impacts to topsoil. Some temporary use areas may be necessary in previously undisturbed areas. In these cases, proactive measures would be taken to preserve the local topsoil and return the sites to their pre-disturbance conditions following completion of construction activities. For all temporary use areas, a layer of topsoil would be initially removed from the area, in conformance with the Appendix L-1 – Reclamation, Vegetation, and Monitoring Plan.

In general, the need for soil removal from temporary disturbance areas is anticipated to be minimal and would ultimately depend upon local site conditions at the selected area. Limited soil removal may be required for temporary disturbance areas based on geologic conditions for the following scenarios:

- Areas with unconsolidated soils, which could not support the types of vehicles required to be used, soil types would typically include sandy soils. In this scenario, a temporary rock base may be installed to support vehicle traffic, and one to two inches of sandy soil may be temporarily displaced when the temporary rock base is removed.
- Areas with soils utilized for agricultural activities. In this scenario, topsoil may be removed from sites where temporary construction activities would occur and stored in an area where contamination would be limited. Typically, three to six inches of fertile topsoil may be temporarily displaced during construction activities.
- Areas where uneven soils are present and not able to support construction of transmission structures. In this scenario, grading of 0.5 to three feet of topsoil may be required where terrain would not allow a usable working pad. Soil would be temporarily displaced, then graded and contoured once construction is complete.
- Areas where terrain may cause erosion during construction. In this scenario, topsoil may be disturbed to place erosion control measures in place during construction and through site reclamation.

6.4.1.2 Topsoil Stripping

Topsoil stripping may be necessary where land is to be disturbed due to construction activities. The minimal amount of topsoil will be removed or stripped to accommodate construction activities. Stockpiling of topsoil may be necessary until construction activities are completed and the topsoil can be re-applied. Freshly stripped and placed topsoil retains more viable seed, micro-organisms and nutrients than stockpiled soil. Vegetation establishment is generally improved by the direct return of topsoil and is considered a BMP for topsoil management.

A general procedure for soil handling during topsoil stripping is presented below and includes soil handling measures which optimize the retention of soil characteristics (in terms of nutrients and micro-organisms) and favorable to plant growth for natural regeneration (e.g., seed banks).

- Topsoil will be recovered using appropriate equipment. Depending on compaction and recovery rates, deep ripping may be required to maximize topsoil recovery with care taken not to mix topsoil with subsoil.
- During the stripping process there may be some unexpected changes in the depth and the nature of the soil. Where practical the inclusion of obviously poorer quality material will be avoided such as subsoil clay with mottles, saline material and material dominated with stones.
- Contractors bringing machinery onto the site will be required to present such machinery in a weed-free condition. Noxious weed species management techniques are included in Appendix F-7 – Vegetation Management Plan.
- Disturbance areas will be stripped progressively, as required, in order to reduce erosion and sediment generation, to reduce the extent of topsoil stockpiles and to utilize stripped topsoil as soon as possible for rehabilitation. Rehabilitation of disturbed areas, such as roads and embankments, will be undertaken as soon as practicable after these structures are completed or as areas are no longer required for operational purposes.

Vegetation cover can make the removal of specific topsoil depths difficult. Excessive quantities of vegetative matter in long-term stockpiles may promote chemical and biological degradation of the seed reserves that are a future source of natural regeneration during rehabilitation. Therefore, prior to stripping, vegetation will be removed or reduced by clearing. All cleared vegetative material may be mulched during reclamation activities (see Appendix L-1 Reclamation, Vegetation, and Monitoring Plan), or if suitable, placed as habitat within the proposed areas. In general, the requirement to clear larger vegetation (shrubs and trees) within the disturbance areas is comparatively small due to the relatively sparse vegetation cover in the Project area's arid environment. If feasible, cleared vegetation may be chipped to provide a cost-effective mulch and soil amendment.

6.4.1.3 Topsoil Stockpiling

The following topsoil stockpiling management measures aim to conserve topsoil in a condition as close as possible to its original state. Stockpile locations will be subject to the following management actions.

- Grazing stock, machinery, and vehicles will be excluded.
- Overland water flow onto or across stockpile site will be kept to a practical minimum.
- Where possible, stockpile sites will be selected to maximize protection from the prevailing winds, particularly if the material is friable in nature (e.g., sand or silt). Establishing stockpiles within an area protected from the prevailing winds or in windrows, may be appropriate for these circumstances.
- All long-term topsoil material stockpiles will be located outside the active construction pathways and away from drainage lines.

- Drainage from higher areas will be diverted around stockpile areas to prevent erosion.
- As required, sediment controls will be installed downstream of stockpile areas to collect run-off.
- Topsoil stockpile locations will be strategically located to assist the sequence of future rehabilitation.

Separate stockpiles for topsoil and subsoil will be formed in low mounds of minimum height (10 feet maximum) and maximum flat surface area, consistent with the storage area available. Stockpiling using a greater number of low mounds or windrowing berms rather than stockpiling, is preferable. Topsoil stockpiles will be clearly signposted for easy identification and to avoid any inadvertent losses.

Stockpiling of topsoil should preferably be kept to the shortest possible period. Dispersive clays (Sodosols and Vertosols on sandy alluvial plains) should not be stockpiled over any wet season without erosion or sediment control measures being used.

In general, topsoil stockpiles will be managed so that:

- Storage time is minimized.
- Sodosols will be stockpiled separately (if they are to be used in rehabilitation).
- Locations are accurately surveyed, and data is recorded relating to the soil type and volume.
- Stockpiles are located outside of dry washes and floodplains.
- Stockpiles are located in areas away from drainages or windy areas in order to minimize the risk of soil and wind erosion.
- Appropriate weed control strategies are implemented particularly for any noxious and invasive weeds. Immediate revegetation will provide vegetative competition to assist with the control of undesirable plant species.
- Where practical and applicable, stockpiles will have sediment control measures installed.
- Stockpiles are delineated to avoid vehicle and pedestrian traffic and accidental removal/disturbance.
- Topsoil stockpiles possess a suitable embankment grade to limit the potential for erosion of the outer pile face.

In addition to the above, adherence to the following environmental protection measure would minimize damage to topsoil.

BMP-SOIL-03: (Compliance with CMA-LUPA-BIO-7) - Covers for topsoil stockpiles would be of materials resistant to damage and/or degradation from exposure to ultraviolet light and other elements and would be replaced (as needed) if they deteriorate, become worn, or damaged.

BMP-BIO-15: Reclamation and Restoration (Compliance with CMA-LUPA-BIO-7) – As a part of the Habitat Restoration and Monitoring Plan, the soil horizons would be stored separately for the areas where the success of restoration could be crucial for rare plant species.

6.4.1.4 Topsoil and Subsoil Erosion Control

Erosion takes many forms owing to the effects of climate, topography, land use, groundcover, and the erodibility of the soil type. The main agent of erosion in the Project area is water resulting in rain splash erosion, rill erosion, tunnel erosion, gully erosion, and sheet erosion. Wind is a secondary agent of erosion. Soil characteristics identified in Table G-3-1 suggest that disturbed areas would experience low to high erosion potential either by water and/or wind. Sediment redistribution of the soil resource as a result of wind and water erosion could cause damages to Waters of the United States, prime farmlands, and air quality.

Areas located on steep slopes are inherently susceptible to erosion. The majority of Project reclaimed areas would incorporate a flat to gently sloped surface during regrading and reclamation activities. Potential for erosion would be increased on disturbed areas after soil salvage operations due to removal of the vegetative cover and the loss of surface soil structure. Cutting and removal of vegetation may occur; however, where practicable, downed vegetation and undisturbed low vegetation would be left in place within the disturbance areas to serve as soil protection and erosion control. Vegetation would only be cleared to the extent necessary, minimizing impacts to soil resources.

Soil erosion after redistribution on re-graded sites would also have a greater potential until the soil is stabilized by successful revegetation. Windblown dust would result from the disturbance of fine textured soils during construction and reclamation activities through the completion of the Project.

Progressive rehabilitation will be undertaken to stabilize disturbed areas as quickly as practical and to limit erosion. Erosion and sediment control measures will be employed as part of the SWPPP for this Project.

The design parameters for the construction of erosion control work will be in accordance with established principles for engineering and soil conservation methods. A number of variables must be considered, such as time of concentration, rainfall intensity, erosivity, gradient, scour velocities, and flow estimations. The erosion control options that may be employed are summarized in Table G-2-5.

TABLE G-2-5 POTENTIAL TOPSOIL EROSION CONTROL MEASURES

Area	Control Measure
Erosion control and cleared land	Restrict clearing to areas essential for the work. Windrow vegetation debris along the contour. Minimize length of time soil is exposed. Divert run-off from undisturbed areas away from the work. Direct run-off from cleared areas to sediment control devices.
Exposed subsoils	Minimize length of time subsoil is exposed. Direct run-off from exposed areas to sediment control devices. Use erosion control measures such as those described above and below.

Area	Control Measure
Temporary soil stabilization	Preservation of existing vegetation, hydraulic mulch, hydroseeding, soil binders, straw mulch, geotextiles, erosion control blankets and mats, wood mulching, earth dikes, drainage swales, and ditches, outlet protection/velocity dissipation devices, and slope drains.
Temporary sediment control	Silt fence, desilting basin, sediment trap, check dam, fiber rolls, gravel bag berm, sandbag barrier, straw bale barrier.
Wind erosion control	Water application or other dust palliatives.
Non-stormwater management	Temporary stream crossings, vehicle and equipment cleaning, streambank stabilization, water conservation, and techniques for concrete and other construction activities.

In addition to the above, adherence to the following environmental protection measure would minimize soil erosion.

APM-WQ-01: SWPPP Development and Implementation – Following Project approval, DCRT or their contractor would prepare and implement a SWPPP or an amendment to an existing SWPPP to minimize construction impacts on surface water and groundwater quality. Implementation of the SWPPP would help stabilize graded areas and reduce erosion and sedimentation. The Plan would designate BMPs that would be adhered to during construction activities. Erosion and sediment control measures, such as straw wattles, covers, and silt fences, would be installed prior to ground disturbance, based on the anticipated volume and intensity of precipitation, the nature of stormwater runoff in the Project Area, and the soil types within the Project Area. Suitable stabilization measures would be used to protect exposed areas during construction activities, as necessary and final stabilization would be completed when construction materials, waste, and temporary erosion and sediment control measure have been removed. During construction activities, measures would be implemented to prevent contaminant discharge from vehicles and equipment, including complying with the Spill Prevention, Control, and Countermeasures requirements in 40 CFR Part 112. The Project SWPPP would include erosion control and sediment transport BMPs to be used during construction. BMPs, where applicable, would be designed by using specific criteria from recognized BMP design guidance manuals. Erosion-minimizing efforts may include measures such as the following:

- Defining ingress and egress within the Project site.
- Implementing a dust control program during construction.
- Properly containing stockpiled soils.

Erosion control measures identified would be installed in an area before construction begins and would be properly maintained until construction is complete and final stabilization begins. Temporary measures such as silt fences or wattles, intended to minimize sediment transport from temporarily disturbed areas, would remain in place until disturbed areas have stabilized (see SWPPP, Section 3). The Plan would include the following components, in accordance with ADEQ requirements for coverage under the General Permit:

- Stormwater team qualifications and contact information.
- Identification of operators.

- Nature of construction activities.
- Sequence and estimated dates of construction activities.
- Site description.
- Site map(s).
- Receiving waters.
- Control measures to be used during construction activity.
- Summary of potential pollutant sources.
- Use of treatment chemicals.
- Pollution prevention procedures, including spill prevention and response and waste management procedures.

APM-GEO-01: Erosion and Sedimentation (Compliance with CMA/LUPA-BIO-9 and CMA/LUPA-SW-8) – DCRT would implement a SWPPP for the Project. A monitoring program would be established to ensure that the prescribed BMPs are followed throughout transmission line construction. Examples of these BMPs include:

- Preparation, training, and maintenance for clear work-site practices, tracking controls, and materials management to minimize the direct work impacts on soil and erosion.
- Installation of temporary silt fences and other containment features (including gravel bags and fiber rolls) surrounding work areas to prevent the loss of soil during rain events and other disturbances.
- Utilization of storm drain inlet protection, including sediment filters and ponding barriers, to retain sediments on site and prevent excess discharge into storm drains.
- Implementation of soil erosion controls, including preservation of existing vegetation, temporary soil stabilization through hydroseeding, mulching, and other techniques.
- Stockpiling soils at least 100 feet from drainages to the extent possible. If soil stockpiles are within 100 feet from a drainage proper measures would be implemented such as soil tackifiers, straw wattles around the pile, and/or covering the stockpile.

APM-BIO-14: Minimizing Vegetation Clearing – In areas with suitable topography, minimal or no vegetation clearing and soil disturbance would be conducted for site access and construction (i.e., overland driving/overland access). Overland driving/overland access would be used in areas that support the necessary construction equipment. Upgrading of existing access roads and construction of new access roads would be implemented as necessary for the safe construction activities.

BMP-BIO-42: Dead and Downed Wood (Compliance with CMA/LUPA-BIO-VEG-2) – Promote appropriate levels of dead and downed wood on the ground, outside of campground areas, to provide wildlife habitat, seed beds for vegetation establishment, and reduce soil erosion, as determined appropriate on an activity-specific basis.

Only BLM specified non-toxic substances approved by state and federal regulations shall be used for dust control. The use of any chemical dust control measures on or near any area that may wash into or blow onto Metropolitan Water District of Southern California fee property or agricultural lands participating in the Fallowing Program will be conditioned on the approval of Metropolitan or its designated representative.

6.4.1.5 Topsoil Application

The application procedure is essentially the reverse of the stripping procedure. First, the overburden materials will be profiled to the design slopes, then if suitable, subsoil should be placed in position, followed by the topsoil. All soils will be spread uniformly and evenly across the site to the extent practicable. The following measures may be used to minimize the loss of topsoil material that is re-spread on reclaimed areas and to promote successful vegetation establishment:

- Minimize the length of time that topsoil material is to be stockpiled.
- During removal of soils from the stockpiles, take care to minimize structural degradation of the soils.
- Re-spread topsoil material in even and uniform layers at a thickness appropriate for the landform and land capability of the area to be reclaimed to the extent practicable.
- Contour and leave in a soil roughened state to encourage rainfall infiltration and minimize run-off.
- Soon after re-spreading, seed with appropriate species to establish revegetation cover as early as possible.
- Construct collection drains and sedimentation dams to collect run-off and remove suspended sediment.
- Regularly inspect and maintain reclaimed areas to facilitate sediment and erosion control and revegetation success.
- Reclaimed areas of returned topsoil will be ripped, with care taken not to bring subsurface materials to the surface (e.g., large rocks). Ripping should only be sufficient to allow equipment to work efficiently. Ripping along slopes should be along contour.
- Regularly inspect rehabilitated areas for noxious and invasive weeds and control significant infestations by procedures outlined in the Vegetation Management Plan (Appendix F-7).

6.4.1.6 Biological Crusts

One of the primary impacts of concern for construction is disturbance to soil biological crusts. It is expected that soils within the ROW have the ability to support soil biotic crust; therefore, it is expected that disturbance caused by excavation and compaction during construction may directly affect biological soil crusts. Disturbance to fragile biological crusts could increase wind and water erosion and delay reestablishment of plant communities post construction. Clearing and grading of the ancillary facilities, structure work areas, and access roads could also adversely affect any soil biological crusts in the immediate vicinity. Large portions of the Project have been routed to parallel existing linear infrastructure, thus reducing impacts to previously undisturbed soils.

BMP-SOIL-07: (California only) (Compliance with CMA/LUPA-SW-10) - To the extent possible, avoid disturbance of desert biologically intact soil crusts, and soils highly susceptible to wind and water erosion.

6.4.1.7 Desert Pavement

Desert pavement is a natural mosaic of closely-packed pebbles, cobblestones, and boulders commonly found in a desert where the wind has swept away all smaller particles. The removal of small particles by wind does not continue indefinitely, because once the pavement forms, it acts as a barrier to resist further erosion.

To the extent feasible, construction activities will avoid disturbance of desert pavements. Disturbance areas throughout the Project will be minimized during construction to reduce impacts to desert pavement. All vehicular traffic and foot traffic will be restricted to the designated limits of the project except in the case of physical or safety constraints. Prior to construction, appropriate flagging or fencing will delineate work area boundaries. Damage to desert pavements will be avoided by selecting and using construction equipment that is appropriately sized for each portion of the work. Use of larger and heavier equipment than needed would result in larger areas of damage and greater compaction and shearing disturbance of soils. It would produce greater trauma to plants and other habitat components.

In addition to the above, adherence to the following environmental protection measures would minimize impacts to desert pavement.

BMP-SOIL-05: (California only) (Compliance with CMA/LUPA-SW-9) - Desert pavement and desert varnish in activity areas in California shall be assessed by qualified geological or biological monitors prior to construction. If disturbance from an activity is likely to exceed 10 percent of the desert pavement and/or desert varnish identified within the activity boundary, the BLM would determine whether the erosional and ecologic impacts of exceeding the 10 percent cap by the proposed amount would be insignificant and/or whether the activity should be redesigned to minimize desert pavement and/or desert varnish disturbance.

6.4.1.8 Soil Productivity

Direct impacts to soil resources as a result of construction activities include the loss of soil productivity due to the removal of soils during new surface disturbance. There would be long-term loss of soil productivity on acres not reclaimed during the life of the Project. Other soils disturbed but reclaimed would likely have long-term loss of soil productivity

that would improve over time because of reclamation efforts. Following topsoil management techniques described in Section 6.4.1.1 – Topsoil will retain and/or improve soil productivity. Soils will be reclaimed as described in Appendix L-1 – Reclamation, Vegetation, and Monitoring Plan.

In addition to the above, adherence to the following environmental protection measure would minimize the loss of soil productivity or retain soil productivity.

BMP-SOIL-01: (California only) - During reclamation and revegetation efforts, a BLM soil scientist and/or botanist review plans and approve, as appropriate, to determine type and location of any scarification.

6.4.1.9 Compaction

Direct physical impacts to soil resources include compaction and crushing of the topsoil by equipment during salvage, stockpiling, construction, and reclamation activities. Potential physical effects of soil compaction may include reduced permeability and porosity, damage to microbotic crusts, increased bulk density, decreased available water holding capacity, and increased erosion potential. With adherence to the APMs and BMPs listed below, physical effects of soil compaction would be reduced.

BMP-BIO-38: Use of State-of-the-Art and Commercially-Available Technology (Compliance with CMA - LUPA-BIO-9 and 15) – Use state-of-the-art, commercially-available construction and installation techniques, as approved by BLM, appropriate for the specific activity/project and site, that minimize new site disturbance, soil erosion and deposition, soil compaction, disturbance to topography, and removal of vegetation.

BMP-SOIL-02: (California only) – During reclamation and revegetation efforts, the BLM would review plans and approve, as appropriate, to determine where soil compaction would be appropriate, to avoid potential adverse conditions created by compaction.

6.4.1.10 Active Sand Dune Habitat

Impacts to areas of wind-blown sand would range from no impacts, if avoided, to long-term negligible to minor impacts to dune habitat because of the intermittent nature of the structure foundations, and the spacing between structures.

6.4.1.11 Soil Hazards

Project-related construction (and, to a far lesser extent, operation) fugitive-dust emissions could include emissions of spores from a soil dwelling fungus (*Coccidioides immitis* and *C. posadasii*), which occurs across arid areas in the southwestern United States and may occur in the Project area. When soil is disturbed by activities such as grading, digging, vehicle operation on dirt roads, or high winds, the fungal spores can become airborne and potentially inhaled, which can result in what is known as “Valley Fever.” There is a risk of Valley Fever and exacerbation of spore emissions. Project construction conducted in a way that minimizes fugitive-dust emissions would minimize emissions of the fungal spores. The following environmental protection measures would minimize the risk of soil hazards.

APM-AQ-01: Fugitive Dust (Compliance with CMA/LUPA-AIR-01, 02, 03, and 05; CMA/LUPA-BIO-13) – The following control measures would be implemented, as

applicable, to reduce PM10 and PM2.5 emissions during construction, in conjunction with an Fugitive Dust Control Plan and Construction Emissions Mitigation Plan for the Project (Appendix H-1).

Basic Control Measures

The following measures would be implemented as applicable at all construction sites:

- Water active construction areas sufficiently to minimize fugitive dust.
- The use of one or more water trucks that would water access roads daily as needed to control dust throughout the construction period.
- Cover trucks hauling soil, sand, and other loose materials and require all trucks to maintain at least six inches of freeboard.
- Pave, apply water, or apply nontoxic soil stabilizers as applicable on for all unpaved access roads, parking areas, and staging areas at construction sites to minimize fugitive dust.

Enhanced Control Measures

In addition to the “basic control measures” listed above, the following control measures may be implemented at all construction sites greater than four acres:

- Water, hydroseed, or apply nontoxic soil stabilizers to inactive construction areas to minimize fugitive dust.
- Enclose, cover, water, or apply nontoxic soil binders to exposed stockpiles.
- Limit traffic speeds on unpaved roads.
- Replant vegetation in disturbed areas as quickly as possible, consistent with seasonal survival considerations.

Optional Control Measures

Depending on the extent of dust generation, implementation of the following optional control measures may occur at larger construction sites, near sensitive receptors (residences or other occupied buildings, parks, or trails within 1,000 feet of earthmoving operations that are substantial; for example, more than excavation for tower foundations), or in situations which for any other reason may warrant additional emissions reductions:

- Install wheel washers for all existing trucks or wash off the tires or tracks of all trucks and equipment leaving the site.
- Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 miles per hour.

Limit the area subject to excavation, grading, and other construction activity at any one time.

BMP-AQ-01: Dust Palliatives (Compliance with CMA-LUPA-BIO-6 and 13) – Dust palliatives would be applied, in lieu of water, to inactive construction areas (disturbed lands or soil stockpiles that are unused for 14 consecutive days). Dust palliatives would be chosen by the Dust Control Site Coordinator and or construction contractor. Dust palliatives would be environmentally safe; comply with federal, state, and local regulations; and would not produce a noxious odor or contaminate surface water or groundwater and, therefore, would not pose runoff concerns during rain events. Application rates for dust palliatives would follow the manufacturer's recommendations. Material Safety Data Sheets for any palliatives would be available on site and provided to the BLM 14 days prior to use.

APM-AQ-04: Minimize Potential Emission of Naturally Occurring *Coccidioides immitis* Fungal Spores – In addition to the AQ-01 measures to control general fugitive dust emissions, the following measures would be implemented prior to and during construction to create awareness of the risks and inhalation prevention procedures with respect to *Coccidioides immitis* fungal spores, which are naturally present in soils in the desert southwest, and inhalation of which can cause valley fever:

- Prior to construction, and for each phase of construction, implement an Environmental Awareness Program for workers to ensure they are informed of the risks of contracting valley fever and the protective measures needed to minimize personal exposure to fugitive dust, as well as to minimize possible dust exposure of nearby residents and the public.
- Inform workers of the possible symptoms of valley fever and encourage them to seek medical treatment if these symptoms manifest.

APM-HAZ-01: Hazardous Substance Control and Emergency Response (Compliance with CMA/LUPA-SW-6 and SW-7) – DCRT would implement its hazardous substance control and emergency response procedures as needed in conjunction with a Hazardous Substance Control and Containment Plan and Emergency Response Plan for the Project. The procedures identify methods and techniques to minimize the exposure of the public and site workers to potentially hazardous materials during all phases of Project construction through operation. They address worker training appropriate to the site worker's role in hazardous substance control and emergency response. The procedures also require implementing appropriate control methods and approved containment and spill-control practices for construction and materials stored on site. If it were necessary to store chemicals on site, they would be managed in accordance with all applicable regulations.

Material safety data sheets would be maintained and kept available on site, as applicable. Project construction would involve soil surface blading/leveling and excavation. In the event that soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are removed during site grading activities or excavation activities, the excavated soil would be tested and, if contaminated above hazardous waste levels, would be contained and disposed of at a licensed waste facility. The presence of known or suspected contaminated soil would require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations. All hazardous materials and hazardous wastes would be handled, stored, and disposed of in accordance with all applicable regulations by personnel qualified to handle hazardous materials. The hazardous substance control and emergency response procedures include, but are not limited to:

- Proper disposal of potentially contaminated soils.
- Establishing site-specific buffers for construction vehicles and equipment near sensitive resources.
- Emergency response and reporting procedures to address hazardous material spills.
- Stopping work at that location and contacting the County Fire Department Hazardous Materials Unit immediately if visual contamination or chemical odors are detected; work would be resumed at this location after any necessary consultation and approval by the Hazardous Materials Unit.

6.4.2 Hydrology

6.4.2.1 Sediment Loading and Movement

Sediment loading is the movement of organic and inorganic particles by water. In general, the greater the flow, the more sediment that will be conveyed. Water flow can be strong enough to suspend particles in the water column as they move downstream, or simply push them along the bottom of a waterway. Transported sediment may include mineral matter, chemicals and pollutants, and organic material. Soil disturbance activities could increase sediment loading and movement in Project waterways, which could subsequently reduce both floodplain capacity and energy dissipation during a flood event. Soil erosion near waterways may also increase due to soil disturbance activities. Soil erosion is described in Section 6.4.1.4. Adherence to the following environmental protection measures will eliminate and/or reduce sediment loading and movement in Project waterways.

APM-WQ-03: Vehicles and Equipment Fueling and Maintenance – Vehicle and equipment fueling and maintenance operations would be conducted in designated areas only; these areas would be equipped with appropriate spill control materials and containment.

BMP-WQ-04: (California only): Non-petroleum Dust Palliatives – Palliatives used for dust control would be non-petroleum products in addition to nontoxic, as specified in AQ-01.

BMP-WQ-07: Structures in Floodplains – No permanent structures would be placed in floodplains that are narrower at the ROW crossing than the typical span width of 1,200 feet (i.e., it is assumed that such floodplains could be spanned and avoided).

BMP-BIO-19: Colorado River (Compliance with CMA/LUPA-SW-13 and 16) – In the vicinity of the Colorado River, existing structure spacing and conductor heights would be matched to the greatest extent practical to reduce the potential for bird collisions with the power line. The transmission line would span the Colorado River and the minimum number of structures possible would be located within the undeveloped floodplain. The term “vicinity of the Colorado River” is defined to mean the river crossing, floodplain, and associated agricultural lands. In these areas, conductor bundles would be in a horizontal, parallel configuration, and match existing structure spacing and conductor heights to the greatest extent practical to reduce the potential for bird collisions with the power line. No guyed structures would be used at these locations.

CMA-LUPA-SW-1: (California only): Soil and Water General – Stipulations or conditions of approval for any activity will be imposed that provide appropriate protective measures to protect the quantity and quality of all water resources (including ephemeral, intermittent, and perennial water bodies) and any associated riparian habitat (see biological CMAs for specific riparian habitat CMAs). The water resources to which this CMA applies will be identified through the activity-specific National Environmental Policy Act analysis.

CMA-LUPA-SW-2: (California only): Soil and Water General – Buffer zones, setbacks, and activity limitations specifically for soil and water (ground and surface) resources will be determined on an activity/site-specific basis through the environmental review process, and will be consistent with the soil and water resource goals and objectives to protect these resources. Specific requirements, such as buffer zones and setbacks, may be based, in part, on the results of the Water Supply Assessment defined below. In general, placement of long-term facilities within buffers or protected zones for soil and water resources is discouraged, but may be permitted if soil and water resource management objectives can be maintained.

CMA-LUPA-SW-14: (California only): Surface Water – All relevant requirements of Executive Orders 11988 (Floodplain Management) and 11990 (Protection of Wetlands) will be complied with.

6.4.2.2 Alterations

Crossing of ephemeral washes by construction equipment may alter surface or subsurface water movement. Restoring disturbed areas to their pre-construction conditions (contours, hydrology, segregation, and restoration of topsoil), would eliminate or reduce potential negative impacts during revegetation efforts (see Appendix L-1 of the POD – Reclamation, Vegetation, and Monitoring Plan). Jurisdictional (Waters of the United States) washes will be identified by field surveys and Project activities will result in no fill at these locations and channel banks will be retained or returned to pre-construction conditions.

BMP-WQ-06: Avoidance of Hydrologic Alterations (Compliance with CMA/LUPA-SW-21 and 22) – Considerations shall be given to design alternatives that maintain the existing hydrology of the site or redirect excess flows created by hardscapes and reduced permeability from surface waters to areas where they would dissipate by percolation into the landscape. All hydrologic alterations shall be avoided that could reduce water quality or quantity for all applicable beneficial uses associated with the hydrologic unit in the Project area, or specific mitigation measures shall be implemented that would minimize unavoidable water quality or quantity impacts, as determined by BLM in coordination with USFWS and other agencies, as appropriate.

6.5 Other Environmental Protection Measures

Other specific stipulations and methods presented in Appendix L-1 of the POD – Reclamation, Vegetation, and Monitoring Plan, Appendix F-7 – Vegetation Management Plan, I-2 – Spill Prevention, Control, and Countermeasures Plan, and F-2 – Plant and Wildlife Species Conservation Measures Plan contain environmental protection measures that will result in the protection and minimization of impacts to soils and hydrologic resources. The following environmental protection measures will also minimize the potential impacts to soils and hydrology.

APM-WQ-02: WEAP Development and Implementation – The Project's worker environmental awareness program would communicate environmental issues and appropriate work practices specific to this Project. This awareness would include spill prevention and response measures and proper BMP implementation. The training would emphasize site-specific physical conditions to improve hazard prevention (such as identification of flow paths to nearest water bodies) and would include a review of all site-specific water quality requirements, including applicable portions of erosion control and sediment transport BMPs, Health and Safety Plan, and Hazardous Substance Control and Emergency Response Plan.

CMA-LUPA-SW-3: (California only): Soil and Water General – Where a seeming conflict between CMAs within or between resources arises, the CMA(s) resulting in the most resource protection apply.

CMA-LUPA-SW-4: (California only): Soil and Water General – Nothing in the "Exceptions" below applies to or takes precedence over any of the CMAs for biological resources.

CMA-LUPA-SW-12: (California only): Surface Water – Except in Development Focus Areas, exclude long-term structures in, playas (dry lake beds), and Wild and Scenic River corridors, except as allowed with minor incursions (see definition in the Glossary of Terms).

BMP-SOIL-06: (California only) (Compliance with CMA/LUPA-SW-11) - Side-casting of soil during road construction shall be avoided.

APM-BIO-15: Reclamation and Restoration (Compliance with CMA/LUPA-BIO-7 and CMA/LUPA-BIO-8) – A Habitat Restoration and Monitoring Plan would be developed, approved by BLM, and implemented for construction and operation of the Project. Revegetate all sites disturbed during construction that would not be required for operation of the transmission line, and restore disturbed areas to the extent practicable, given the arid desert environment. The Plan would describe in detail methods for surveying and characterizing vegetation in disturbed areas before construction; topsoil salvage and management, erosion control, post-construction recontouring and site preparation, seeding and planting, and post-construction watering, monitoring, and remediation. It would be designed to reduce impacts on special status species to the extent practicable.

BMP-BIO-38: Use of State-of-the-Art and Commercially-Available Technology (Compliance with CMA/LUPA-BIO-15) – Use state-of-the-art, commercially-available construction and installation techniques, as approved by BLM, appropriate for the specific activity/project and site, that minimize new site disturbance, soil erosion and deposition, soil compaction, disturbance to topography, and removal of vegetation.

BMP-AES-09: Site Linear Facilities along Natural Lines within the Landscape – Siting of facilities, especially linear facilities (e.g., transmission lines, pipelines, roads), should take advantage of natural lines within the landscape (e.g., natural breaks in the landscape topography, the edges of clearings, or transitions in vegetation). Siting of facilities on steep slopes should be avoided. Siting linear facilities along naturally occurring lines in the landscape can reduce apparent contrast through repetition of the line element or through combination of multiple line elements into a single line element. Facilities sited on steep slopes are often more visible (particularly if either the Project or viewer is elevated); they may also be more susceptible to soil erosion, which could also contribute to negative visual impacts.

6.6 Monitoring

Monitoring of soil erosion control measures will continue until reclamation efforts are considered complete as outlined in Appendix L-1 – Reclamation, Vegetation and Monitoring Plan, and accelerated erosion has been controlled. The following provides guidance for monitoring and environmental protection measures.

APM-WQ-01: SWPPP Development and Implementation (Portions) – Erosion control measures identified would be installed in an area before construction begins and would be properly maintained until construction is complete and final stabilization begins. Temporary measures such as silt fences or wattles, intended to minimize sediment transport from temporarily disturbed areas, would remain in place until disturbed areas have stabilized.

6.7 Operation and Maintenance

After construction and reclamation, monitoring the soil erosion control measures will continue on an annual basis during the operation and maintenance phase until affected soils and hydrology have been stabilized. Monitoring should continue until reclamation efforts are considered complete.

7 References

- Bureau of Land Management (BLM). 2001. Handbook H-4810-1 Rangeland Health Standards. Available at https://www.blm.gov/sites/blm.gov/files/uploads/Media_Library_BLM_Policy_h4180-1.pdf. Accessed December 2018.
- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1. US Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. 100 p., plus appendices.
- United States Army Corps of Engineers (USACE). 2008a. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0. U.S. Army Engineer Research and Development Center. Vicksburg, MS.
- _____. 2008b. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. U.S. Army Engineer Research and Development Center. Hanover, NH.
- United States Environmental Protection Agency (USEPA). 1972. Clean Water Act (CWA) 33 United States Code [U.S.C.] §1251 et seq., formerly the Federal Water Pollution Control Act of 1972.

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