APPENDIX D3

Ground Disturbance Mitigation Plan

DRAFT
GROUND DISTURBANCE MITIGATION PLAN
FOR THE PATH 46 TRANSMISSION LINE CLEARANCE PROJECT

PREPARED BY

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SUMMARY

This Ground Disturbance Mitigation Plan is intended to provide details on the conceptual approach to mitigating the effects of the Path 46 Transmission Line Clearance Project (proposed project) on Bureau of Land Management (BLM) conservation designations (Areas of Critical Environmental Concern [ACECs] and National Conservation Lands [NCLs]) pursuant to MM-BIO-2 of the Draft Environmental Assessment (Case File Number CACA-055592). Ground disturbance mitigation is necessary because the proposed project would impact BLM-administered lands within ACEC and NCL units that are cumulatively over their ground disturbance caps established by the BLM's Desert Renewable Energy Conservation Plan Land Use Plan Amendment (DRECP LUPA). This Ground Disturbance Mitigation Plan specifically addresses the proposed approach to remediating the effects of previous land disturbance effects (i.e., pre-existing ground disturbances) within the ACEC and NCL units. This plan does not address habitat restoration activities that would be implemented to restore areas affected during construction of the proposed project.

As shown in Table 1 (Table 3.5-1 in the EA document) in the Environmental Assessment for the proposed project (copied below), a minimum total of 11.19 acres of total nested mitigation is expected to be required to offset both the impacts to desert tortoise (*Gopherus agassizii*) critical habitat and the ground disturbance impacts in ACEC and NCL units. (The final mitigation amount shall be determined once the status of the unit disturbance cap for all applicable ACECs and NCLs is established by BLM.)

Table 1. Impacts and Mitigation with BLM Land Designations

Land Designation		Area to be Impacted within Designation (acres)	Desert Tortoise Critical Habitat	Overall Mitigation Ratio	Total Nested Mitigation Required (acres)
BLM Area of Critical Environmental Concern (ACEC)	Daggett Ridge Monkey Flower*^	0.42	Yes	5-to-1	2.10
	Ivanpah^	0.38	No	3-to-1	1.14
	Northern Lucerne Wildlife Linkage^	0.07	No	3-to-1	0.21
	Ord-Rodman*^	0.52	Yes	5-to-1	2.60
	Shadow Valley*	0.98	No	3-to-1	2.94
	Superior-Cronese	0.44	Yes	5-to-1	2.20
California Desert National Conservation Lands (NCL)	Kingston-Amargosa*	0.98	No	NA	--
	Mojave and Silurian Valley*	0.41	Yes	NA	--
	Pinto Lucerne Valley and Eastern Slopes	0.52	Yes	NA	--

Notes: Impact acreages based on the ESA Biological Assessment (February 2017). Status of Unit Disturbance Cap based on the BLM Disturbance Cap Tracking data (February 2017). * indicates where ACEC units overlap with NCL units; see Table 3.4-1 of the ESA Biological Assessment for unit overlap details. ^ indicates units that are or are assumed to be cumulatively at or above their

respective ground disturbance caps. Overall required mitigation ratio considers the overlap of units and the co-occurrence of impacts to determine the final required ratio.

The following Ground Disturbance Mitigation Plan provides:

1. A quantitative summary and mapping of the existing non-authorized ground disturbance areas within each ACEC and NCL unit (based on the BLM Disturbed Lands mapping GIS data) in the vicinity the proposed project components that are available to be restored/rehabilitated
2. A description of the approach to restoring/rehabilitating the areas of previous ground disturbance, including a discussion of:
    a. The types of disturbance to be rehabilitated/restored. Based on preliminary review of the BLM Disturbed Lands mapping, the majority of the disturbed lands available to the rehabilitated in the vicinity of the proposed project are infrastructure-related (i.e., disturbances associated with roadways and pipelines).
    b. Mobilization and site preparation, including a discussion of access, equipment, staffing, timing, and approaches to address soil compaction and erosion.
    c. Rehabilitation techniques, including a discussion of appropriate seed mixes and sources (e.g., species composition, certified weed-free, native, locally appropriate), vertical mulching (i.e., creating structure with live vegetation, rocks, dead shrubs, snags, and other woody materials), and other techniques to reclaim and disguise roadways and other ground disturbances.
    d. Success criteria, monitoring, and contingency measures.

The draft outline for the Ground Disturbance Mitigation Plan is provided below.

1 INTRODUCTION AND BACKGROUND

The Path 46 Transmission Line Clearance Project (proposed project) would restore ground-to-conductor clearances that are out of compliance with transmission line safety and reliability standards. The location of the proposed project is along three existing overhead transmission lines located in San Bernardino County near Victorville, Barstow, and Baker, California: the 500-kilovolt (kV) McCullough–Victorville Lines 1 and 2 (MCV1 and MCV2) and the 287 kV Mead–Victorville Line 1 (MVL1).

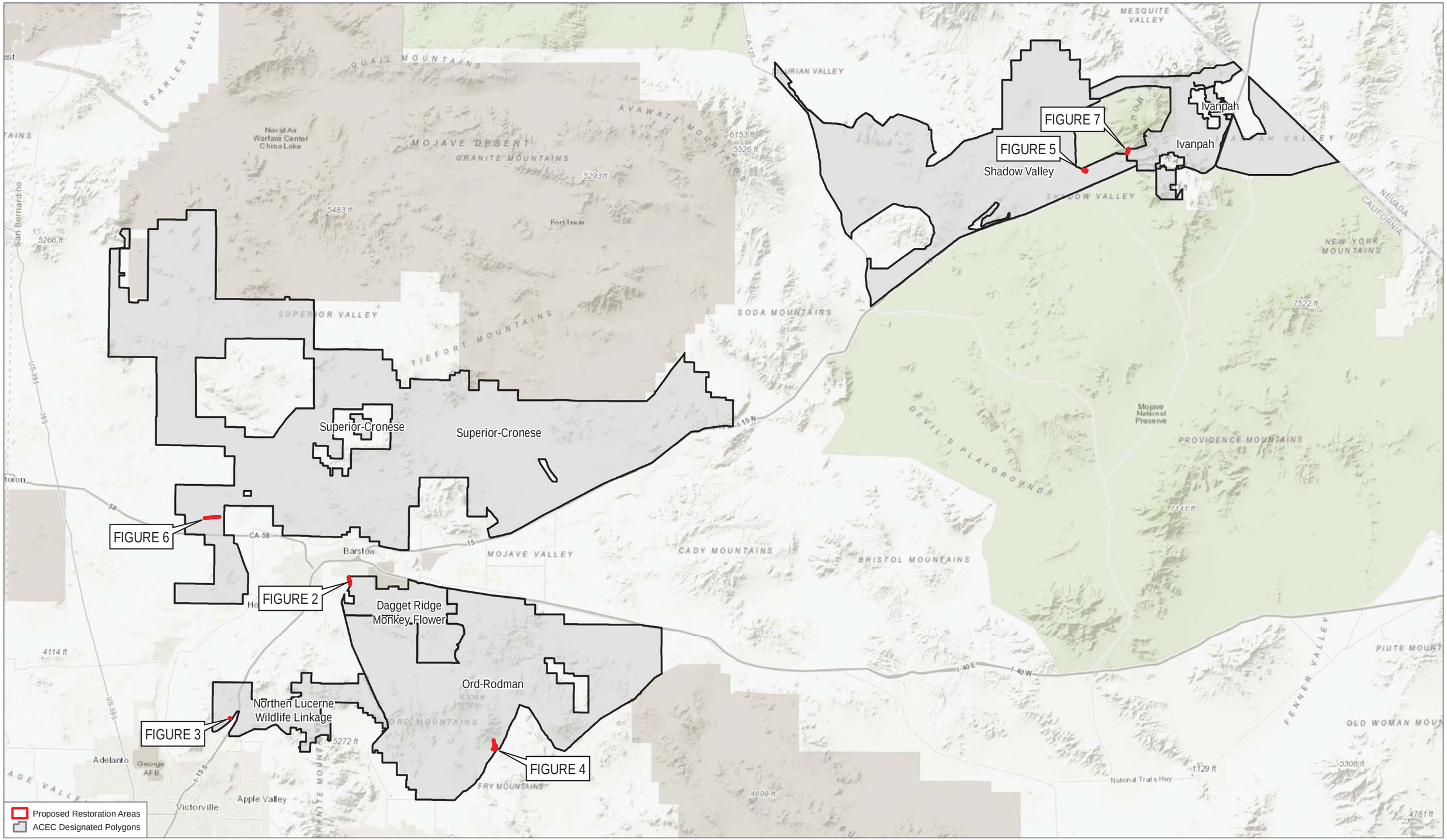
The proposed project involves ensuring that the distance between the transmission line conductors and the ground or road surface below is sufficient to meet code requirements guiding the safe and reliable operation of transmission lines. The Los Angeles Department of Water and Power (LADWP) proposes to comply with the code clearances by grading the ground surface of the area underneath the transmission lines at 68 work areas to achieve height consistency per North American Electric Reliability Corporation (NERC) requirements. Additionally, LADWP has identified two locations where grading is infeasible due to topography. In these locations, LADWP proposes to raise existing transmission line towers to achieve height consistency. Two additional locations will involve the installation of compacted soil barricades or other similar barrier system to eliminate vehicle access to areas underneath a conductor where a clearance issue exists. The project, as proposed, would also involve improvements to portions of existing access roads to be used for site access, equipment staging and storage, and distribution of excavated soils. The project would primarily be located on federal land, but some work sites would be located within LADWP property or on private property.

Ground disturbance mitigation is necessary because the proposed project would impact BLM-administered lands within Areas of Critical Environmental Concern (ACECs) and National Conservation Lands (NCLs) that are cumulatively over their ground disturbance caps established by the Bureau of Land Management (BLM) Desert Renewable Energy Conservation Plan Land Use Plan Amendment (DRECP LUPA).

A minimum total of 11.19 acres of mitigation is proposed for ground disturbance, as shown in Table 1, and is proposed to be located at the sites shown in Figures 1 through 7. This acreage for ground disturbance mitigation may be "nested" (i.e., combined) with other resource mitigation site, when appropriate. For example, a parcel restored for desert tortoise habitat mitigation may also satisfy the disturbance mitigation requirement under appropriate conditions (BLM 2016).

The proposed mitigation sites shown in Figures 1 through 7 are based on current knowledge of the project areas, but may be modified by the Project Biologist in the field, based on existing specific site conditions. Should modifications to the location or shape of the mitigation sites be necessary, the Project Biologist will record the modified sites with a sub-meter accuracy Global Positioning System (GPS) unit, and the updated mitigation site footprint will be utilized for planning and reporting purposes going forward. In the event that mitigation site locations/ shapes are modified, the Project Biologist shall ensure that the required mitigation acreage shown in Table 1 is met.

The ultimate goal of the ground disturbance mitigation is to ensure that ground disturbance can no longer be seen at a 1:10,000 scale using aerial imagery. This goal is proposed to be accomplished through a combination of soil recontouring, grade modifications, vertical mulching, and appropriate native seed installation.



SOURCE: BLM 2018; Bing Maps 2018

FIGURE 1

Restoration Sites Overview Map

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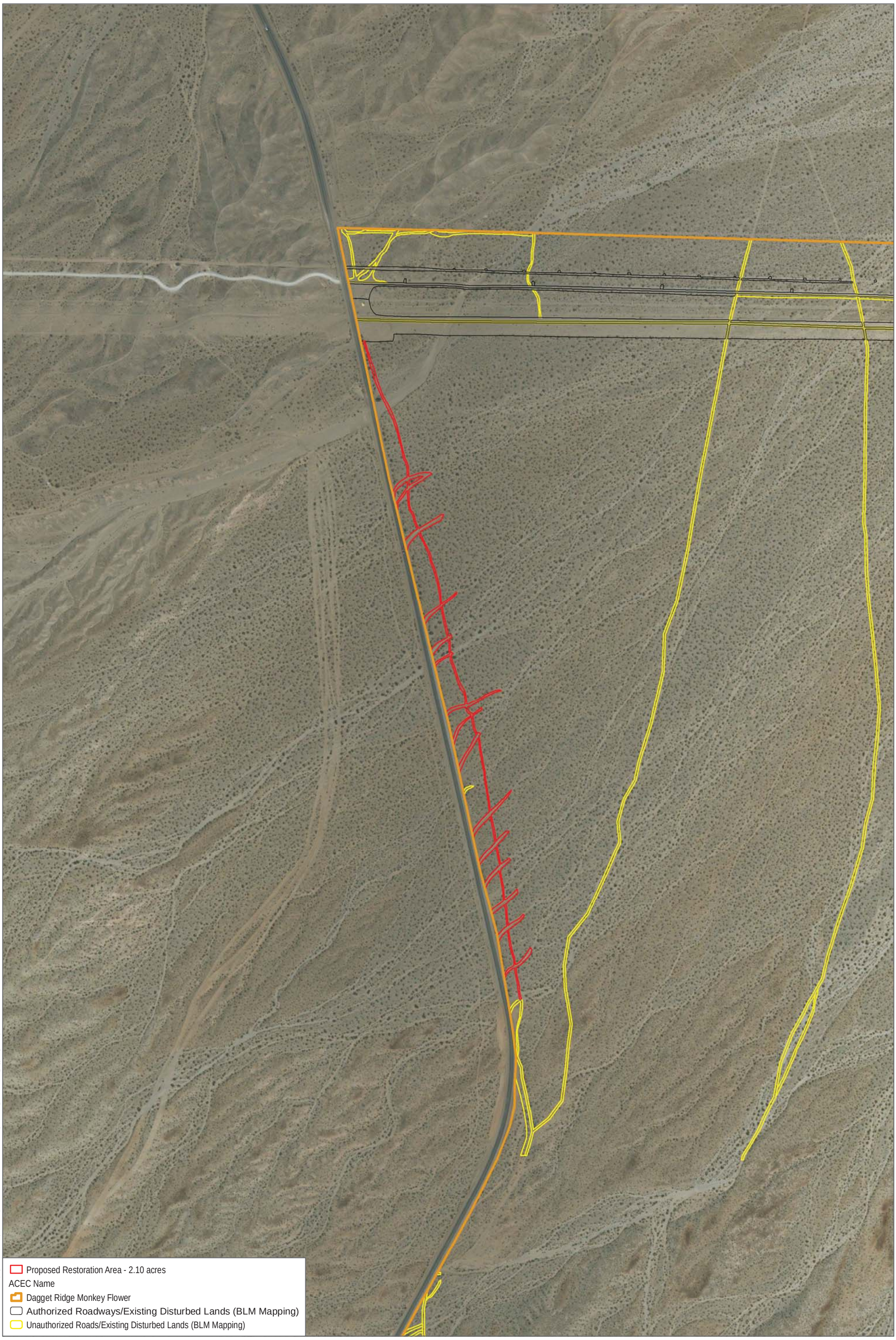

SOURCE: BLM 2018; USDA 2018; County San Bernardino 2018; Bing Maps 2018

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FIGURE 2

Dagger Ridge Monkey Flower ACEC - Proposed Restoration Site

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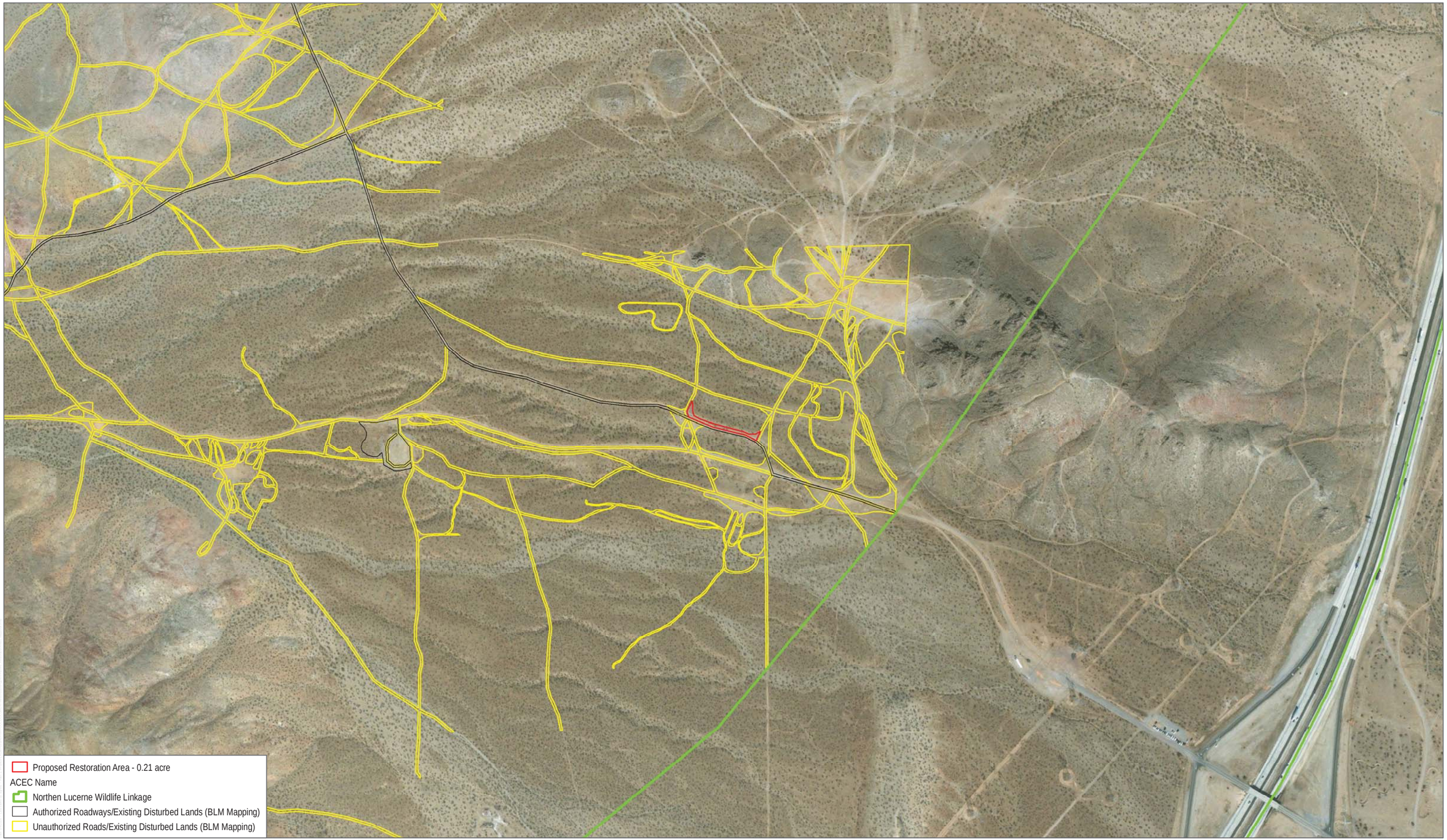

SOURCE: BLM 2018; USDA 2018; County San Bernardino 2018; Bing Maps 2018

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FIGURE 3

Northern Lucerne Wildlife Linkage ACEC - Proposed Restoration Site

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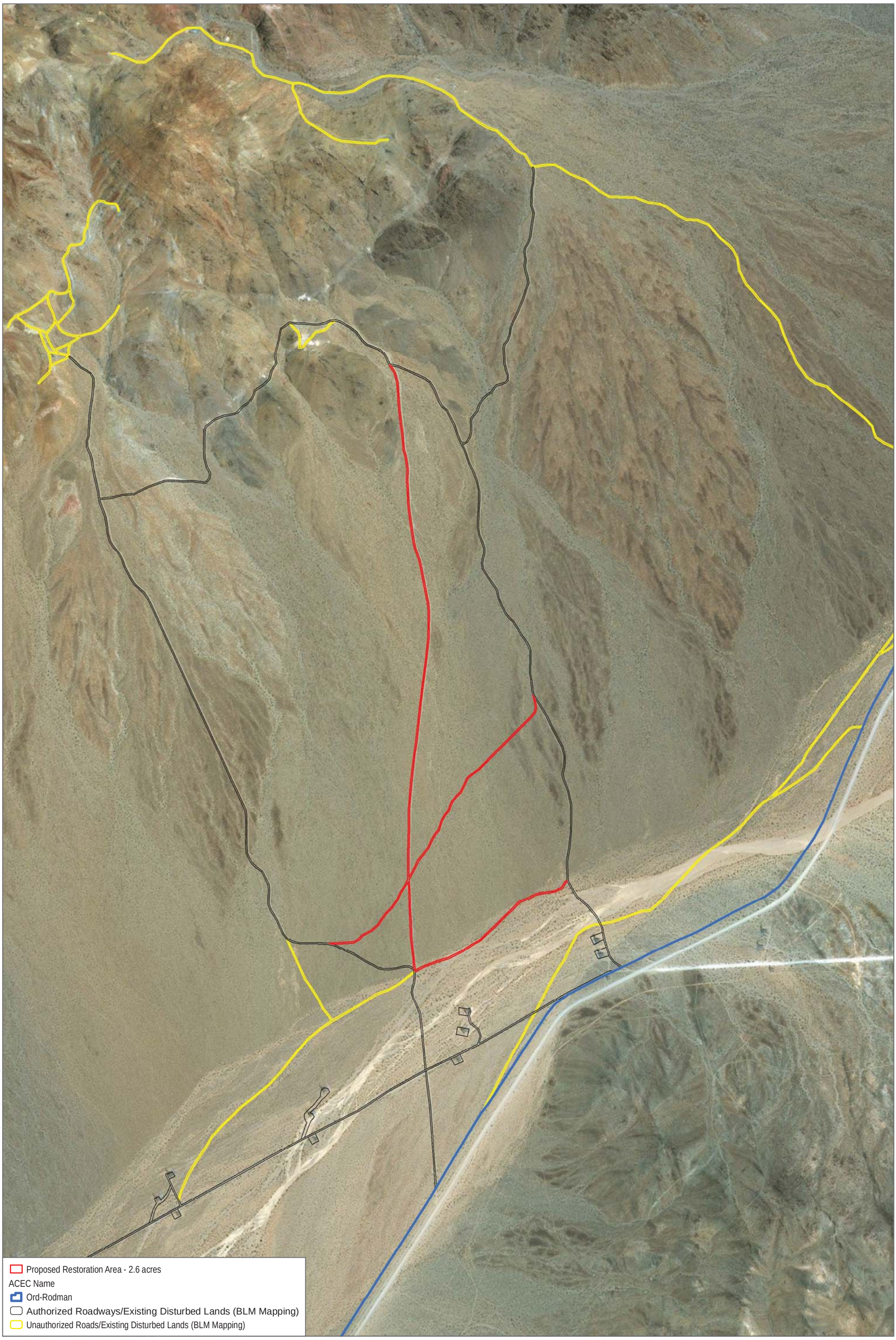

SOURCE: BLM 2018; USDA 2018; County San Bernardino 2018; Bing Maps 2018

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FIGURE 44

Ord-Rodman ACEC - Proposed Restoration Site

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SOURCE: BLM 2018; USDA 2018; County San Bernardino 2018; Bing Maps 2018

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FIGURE 5

Shadow Valley ACEC - Proposed Restoration Site

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SOURCE: BLM 2018; USDA 2018; County San Bernardino 2018; Bing Maps 2018

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FIGURE 6

Superior-Cronese ACEC - Proposed Restoration Site

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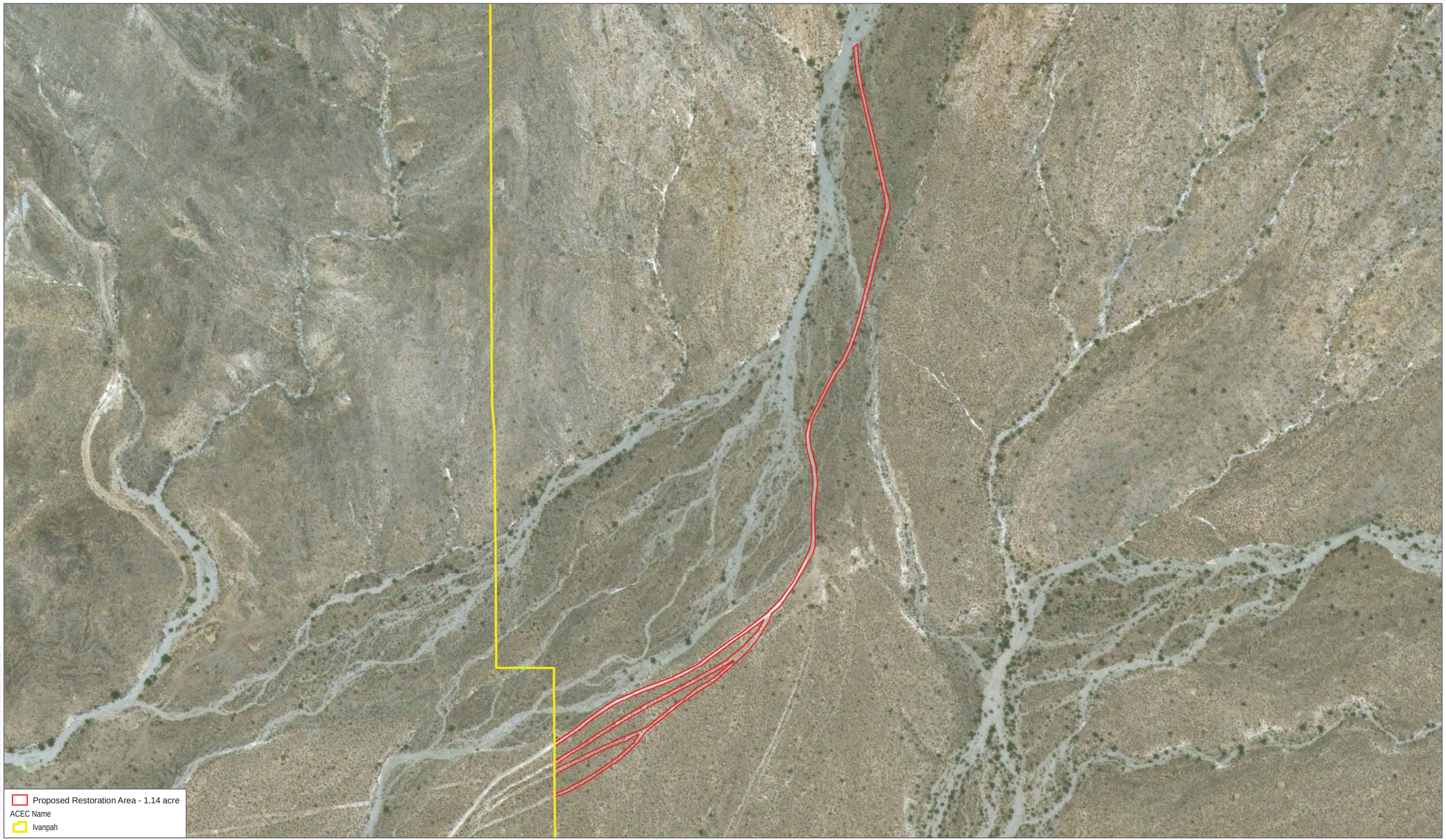

SOURCE: BLM 2018; USDA 2018; County San Bernardino 2018; Bing Maps 2018

DUDEK

0 150 300 Feet

FIGURE 7

Ivanpah ACEC - Proposed Restoration Site

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2 MITIGATION AREA EXISTING SETTING

The ground disturbance mitigation sites are located in the Mojave Desert, throughout an area extending from Victorville northeast to the California–Nevada border, as shown in Figure 1. Each mitigation site is located within the land designation unit where the impacts occur. All sites are within a BLM ACEC.

2.1 Site Descriptions/Conditions

All proposed mitigation sites consist of disturbed habitats where vegetation, topsoil, and organic detritus have been disturbed through unauthorized vehicle and other anthropogenic use, and are visible on aerial imagery based on BLM mapping of ground disturbance in each ACEC unit. Areas proposed for mitigation are largely non-vegetated, but may contain isolated native plant individuals.

2.2 Topography and Soils

The topography and landforms vary throughout the mitigation sites, and are described in this section below. Elevations throughout the mitigation sites range from 1,925 to 5,025 feet above mean sea level (AMSL), as shown in Table 2.

Table 2. Elevation Ranges Among Mitigation Sites by Land Designation

Land Designation (ACEC Unit)	Feet Above Mean Sea Level
Daggett Ridge Monkey Flower	2,575–2,675
Ivanpah	4,750–5,025
Northern Lucerne Wildlife Linkage	3,250–3,300
Ord-Rodman	3,500–3,925
Shadow Valley	3,625–3,725
Superior-Cronese	2,175–2,225

Soil types found within the mitigation sites are shown in Table 3.

Table 3. Soil Types

Land Designation	Soil Type	Acres
Daggett Ridge Monkey Flower	Cajon gravelly sand, 2% to 15% slopes	2.10
	Typic Haplargids-Yermo complex, 8% to 30% slopes	0.01
Ivanpah	Unmapped area	1.13
Northern Lucerne Wildlife Linkage	Helendale-Bryman loamy sands, 2% to 5% slopes	0.21
Ord-Rodman	Unmapped Area	2.66
Shadow Valley	Unmapped area	3.11

Table 3. Soil Types

Land Designation	Soil Type	Acres
Superior-Cronese	Cajon loamy sand, loamy substratum, 0% to 2% slopes	0.08
	Norob-Halloran complex, 0% to 5% slopes	2.14
	Grand Total	**11.44**

Soil types found within the mitigation areas are described below.

Cajon Series

The Cajon series consists of very deep, somewhat excessively drained soils that formed in sandy alluvium from dominantly granitic rocks throughout southeastern California, southern Nevada, and Arizona. The Cajon soils typically have gradients of 0% to 15% and are located on recent fans, fan skirts, fan aprons, inset fans, and river terraces at elevations between 200 to 4,300 feet above mean sea level. The lower elevations commonly occur in the San Joaquin Valley. They formed in sandy alluvium, mostly granitic rock sources, but a variety of sources are included. The climate is arid with hot dry summers and somewhat moist winters. Frost-free season is 150 to 340 days. The average annual precipitation is about 6 inches, and the mean annual temperature is about 65°F. The soil is usually dry from mid-March to mid-December and is not continuously moist for as long as 90 days in the winter (NRCS 2018).

Common textures include coarse sand, loamy coarse sand, sand, loamy sand, fine sand, or loamy fine sand or their gravelly or cobbly equivalents. Some pedons have a sandy loam horizon at a depth of more than 40 inches. The soils are somewhat excessively drained with negligible to low runoff and rapid permeability. Cajon soils with sandy loam surface textures have moderately rapid over rapid permeability. Flooding is none to rare (NRCS 2018).

Common land uses for this soil series include rangeland, watershed, and recreation. A few areas are irrigated and are used for growing alfalfa and other crops. Vegetation is mostly desert shrubs, including creosote bush (*Larrea tridentata*), saltbush (*Atriplex* spp.), Mormon tea (*Ephedra viridis*), Joshua tree (*Yucca brevifolia*), Indian rice grass (*Stipa hymenoides*), annual grasses, and forbs (NRCS 2018).

Yermo Series

The Yermo series consists of deep, well-drained soils that formed in mixed, moderately coarse textured, calcareous, gravelly or cobbly alluvium found throughout the uplands and alluvial fans of Mojave Desert. Yermo soils are located on broad, alluvial fans and on older, faulted or uplifted uplands or valley floors at elevations of about 2,300 to 4,200 feet, with slopes ranging from 0% to 50%. The soils formed in mixed, moderately coarse textured gravelly or cobbly alluvium. The soil is well drained, with medium to rapid runoff and moderately rapid permeability (NRCS 2018).

The climate is arid, with hot, dry summers and cool, somewhat moist winters. The mean annual precipitation is 4 to 6 inches, most of which occurs as rain in the winter. Some moisture falls occasionally as snow. The mean annual soil

temperature is 59°F–63°F, and the soil temperature usually is not below 47°F at any time. The soil between the depths of about 8 and 24 inches is consistently dry from mid-spring to early winter and is not continuously moist for as long as 60 days. The frost-free season is 210 to 255 days (NRCS 2018).

Common land use for this soil series include wildlife habitat and home sites. Vegetation is typically creosote bush, white bursage (*Ambrosia dumosa*), scattered yucca (*Yucca schidigera*) and Joshua tree, and annual grasses and forbs (NRCS 2018).

For the proposed mitigation sites located within the Yermo series, the subgroup is Typic Haplargids. The Typic subgroup is centered on soils that are moderately deep or deeper and have a soil moisture regime that borders on neither ustic nor xeric. These soils do not have a high shrink-swell potential. Typical saturation occurs within 100 centimeters of the soil surface for 1 month or more in normal years. Typical horizons have a sandy or sandy-skeletal particlesize class from the soil surface to a depth of approximately 50 centimeters; or horizons with significant accumulations of durinodes, concretions, nodules, volcanic glass, pumice, cinders, or pumicelike fragments (NRCS 2018).

Helendale Series

The Helendale series consists of deep, well-drained soils that formed in alluvium from granitoid rocks. Helendale soils are located on fan piedmonts, fan remnants, alluvial fans, and terraces within the Mojave Desert of southeastern California. Helendale soils are on fan piedmonts, fan remnants, alluvial fans and terraces, with coarse-loamy, mixed, superactive, thermic Typic Haplargids textures. Slopes range from 0% to 15%. Elevations are 610 to 1,200 meters (2,000 to 3,935 feet). These soils formed in alluvium from granitoid rock. The climate is arid with hot, dry summers and cool, moist winters. The mean annual precipitation is 75 to 200 millimeters (3 to 8 inches). The mean annual temperature is 17°C to 20°C (62.5°F to 68°F). The frost-free season is 270 to 320 days (NRCS 2018).

Soil moisture control section: usually dry, moist in some part for short periods during winter and early spring and for 10 to 20 days cumulative between July and September following summer convection storms. The soils have a Typic-Aridic soil moisture regime (NRCS 2018).

The soils tend to be well drained, with negligible to low runoff and moderately high and high saturated hydraulic conductivity (NRCS 2018).

Common land uses for this soil series include irrigated agriculture and pasture, home sites, military operations, recreation, and wildlife habitat. Vegetation is mainly creosote bush, white bursage, Nevada joint fir (*Ephedra nevadensis*), Joshua trees, and annual forbs and grasses (NRCS 2018).

Bryman Series

The Bryman series consists of deep, well-drained soils that formed in alluvium from dominantly granitic sources found on terraces and older alluvial fans of the Mojave Desert. Bryman soils are on terraces and older alluvial fans and have gradients of 0% to 15%. They formed in mixed alluvium derived mainly from granitic sources. Elevations are

2,800 to 3,800 feet. The climate is arid with hot, dry summers and cool, somewhat moist winters. The mean annual precipitation is 4 to 6 inches with most of the moisture occurring as rain in late autumn and winter. Some moisture falls occasionally as snow. The mean annual temperature is 61°F to 65°F.; the average July temperature is about 44°F; and the average July temperature is about 83°F. The frost-free season is 190 to 255 days (NRCS 2018).

The soils are well drained with slow runoff and moderately slow permeability. Some areas are subject to flooding for 1 to 2 weeks from December to early February (NRCS 2018).

Common land uses for this soil series include irrigated crops such as alfalfa, small grains, and pasture. Other land uses include home sites and recreation. Vegetation is mostly creosote bush, white bursage, Mormon tea, Joshua tree, and annual forbs and grasses (NRCS 2018).

Norob Series

The Norob series consists of deep, moderately well drained soils that formed from mixed alluvium, with many areas having aeolian deposits on the soil surface, located at the eastern edge of Kern County near the town of Boron in the high desert area of the Mojave Desert. Norob soils are on alluvial plains and alluvial flats. Slopes are 0% to 5% and are formed in mixed alluvium. Elevations are 2,300 to 3,200 feet. The climate is characterized by hot, dry summers and cool, slightly moist winters. The mean annual precipitation is 4 to 6 inches. The average January temperature is 44°F.; the average July temperature is 87°F; and the mean annual temperature is 62°F to 65°F. The frost-free season is 200 to 250 days (NRCS 2018).

The soils are moderately well drained with negligible to medium runoff and some ponding during occasional heavy rainstorms, as well as slow permeability (NRCS 2018).

Common land uses for this soil include livestock grazing, military operations, and recreation. Vegetation is typically saltbush, creosote bush, and scattered annual grasses and forbs (NRCS 2018).

Halloran Series

The Halloran series consists of deep, moderately well drained soils that formed in mixed alluvium dominantly from granitic sources located on older, higher, alluvial river terraces of the Mojave Desert. Halloran soils occupy level and minor depressional areas on old, high alluvial river terraces and have gradients of 0% to 2%. They formed in old alluvium of mixed origin, although granitic material makes up a considerable part. They have been overblown with irregularly spaced hummocks and small dunes, which occupy 15% to 35% of the area and are mapped in some areas as a complex with dune land. Elevations are 1,800 to 1,850 feet. The climate is arid with hot, dry summers and cool, somewhat moist winters. The mean annual precipitation is about 4 inches occurring as rain in late autumn and winter. Some moisture falls occasionally as snow. The mean annual temperature is 61°F to 63°F.; the mean January temperature is about 44°F; and the mean July temperature is about 83°F. The frost-free season is 190 to 255 days (NRCS 2018).

The soils are moderately well drained, with slow runoff with some ponding during flooding after heavy rainstorms and moderately slow permeability (NRCS 2018).

Land use for these soils mainly includes wildlife habitat and recreation. Small areas are used for irrigated alfalfa, small grains, and pasture. Vegetation is mainly creosote bush, saltbush, and alkali-tolerant vegetation. Where wind-blown hummocks and small dunes occur, mesquite trees (*Prosopis glandulosa*) grow (NRCS 2018).

2.3 Vegetation Communities

Surrounding the proposed mitigation sites (Figures 1 through 7) there are six vegetation community alliances per California Native Plant Society (CNPS) classification, occurring within in the land designations shown in Table 4. Land cover types within the mitigation sites themselves are disturbed land, which is why they are proposed for restoration.

Table 4. Vegetation Community Distribution Among Mitigation Sites

Land Designation	Vegetation Community	Acreage of Mitigation Site within Vegetation Community Context
Daggett Ridge Monkey Flower	*Larrea tridentata–Ambrosia dumosa*	2.10
Ivanpah	*Yucca brevifolia* woodland	1.13
Northen Lucerne Wildlife Linkage	*Larrea tridentata*	0.21
Ord-Rodman	*Larrea tridentata–Ambrosia dumosa*	2.11
	Yucca schidigera	0.55
Shadow Valley	*Yucca brevifolia* woodland	3.11
Superior-Cronese	*Atriplex polycarpa*	0.21
	Atriplex spinifera	1.71
	Larrea tridentata–Ambrosia dumosa	0.30
	Total Mitigation Acreage	**11.44**

Vegetation community alliances surrounding the mitigation sites are described below.

***Atriplex polycarpa* Shrubland Alliance (Allscale Scrub)**

Atriplex polycarpa is dominant in the shrub canopy with *Ambrosia dumosa*, *Ambrosia salsola, Atriplex canescens, Bromus rubens, Chamaesyce polycarpa, Cleome isomeris, Isocoma acradenia*, and *Larrea tridentata*. Emergent trees may be present in lesser numbers, including *Prosopis glandulosa* (CNPS 2018).

The vegetation community form tends to be shrubs less than 3 meters in height with a canopy that is open to continuous, with a variable herbaceous layer, including seasonal annuals (CNPS 2018). This alliance is typically found in washes, playa lakebeds and shores, dissected alluvial fans, rolling hills, terraces, and edges of large, low gradient washes. Associated soils may be carbonate rich, alkaline, sandy, or sandy clay loams.

***Yucca brevifolia* Woodland Alliance (Joshua Tree Woodland)**

Yucca brevifolia is an emergent small tree over a shrub or grass layer with *Ambrosia dumosa, Ambrosia salsola, Artemisia tridentata, Chrysothamnus viscidiflorus, Coleogyne ramosissima, Cylindropuntia acanthocarpa, Ephedra nevadensis, Eriogonum fasciculatum, Gutierrezia microcephala, Krascheninnikovia lanata, Larrea tridentata, Lycium andersonii, Yucca baccata*, and *Yucca schidigera*. Other trees may be present at low cover, including *Juniperus californica, Juniperus osteosperma*, or *Pinus monophylla* (CNPS 2018).

The vegetation community form tends to be trees less than 14 meters, with a canopy that is open to intermittent. Shrub layer tends to be open to intermittent, with an open to intermittent herbaceous layer that includes perennial grasses and seasonal annuals (CNPS 2018). This alliance is typically found in gentle alluvial fans, ridges, and on gentle to moderate slopes. Associated soils are coarse sands, very fine silts, gravel, or sandy loams. Many sites have bimodal soils with both coarse sands and fine silts (CNPS 2018).

***Larrea tridentata* Shrubland Alliance (Creosote Bush Scrub)**

Larrea tridentata is dominant or co-dominant in the shrub canopy with *Acamptopappus shockleyi, Acamptopappus sphaerocephalus, Ambrosia dumosa, Ambrosia salsola, Atriplex confertifolia, Atriplex hymenelytra, Atriplex polycarpa, Brickellia incana, Encelia farinosa, Ephedra californica, Ephedra nevadensis*, and *Lycium andersonii*. Emergent trees may be present at low cover, including *Prosopis glandulosa* or *Yucca brevifolia* (CNPS 2018).

The vegetation community form tends to be shrubs less than 3 meters in height with a canopy that is intermittent to open. The herbaceous layer is open to intermittent with seasonal annuals or perennial grasses (CNPS 2018). This alliance is typically found in alluvial fans, bajadas, upland slopes, and minor intermittent washes. Associated soils are well drained, sometimes with desert pavement (CNPS 2018).

***Larrea tridentata–Ambrosia dumosa* Shrubland Alliance (Creosote Bush–White Bursage Scrub)**

Ambrosia dumosa and *Larrea tridentata* are co-dominant in the shrub canopy with *Ambrosia salsola, Amphipappus fremontii, Atriplex confertifolia, Atriplex hymenelytra, Atriplex polycarpa, Bebbia juncea, Croton californicus, Cylindropuntia acanthocarpa, Cylindropuntia ramosissima, Dalea mollissima, Echinocactus polycephalus, Encelia farinosa, Encelia virginensis, Ephedra* spp., *Eriogonum fasciculatum, Krameria* spp., *Lepidium fremontii, Lycium andersonii, Psorothamnus* spp., *Salazaria mexicana, Senna armata, Viguiera parishii*, and *Yucca schidigera*. Emergent trees or tall shrubs may be present at low cover, including *Fouquieria splendens* or *Yucca brevifolia* (CNPS 2018).

The vegetation community form tends to be shrubs less than 3 meters, with a canopy that is open to intermittent and two tiered. The herbaceous layer is absent to intermittent with seasonal annuals (CNPS 2018). This alliance is typically found in washes and rills, alluvial fans, bajadas, valleys, basins, upland slopes, mesas, and erosional highlands. Associated soils are well-drained, alluvial, colluvial, sandy, sometimes underlain by a hardpan that may be calcareous, igneous, and/or covered with desert pavement (CNPS 2018).

***Atriplex spinifera* Shrubland Alliance (Spinescale Scrub)**

Atriplex spinifera is dominant or co-dominant in the shrub canopy with *Ambrosia salsola, Atriplex polycarpa, Ephedra californica, Frankenia salina, Gutierrezia californica, Isocoma acradenia,* and *Picrothamnus desertorum* (CNPS 2018).

The vegetation community form tends to shrubs less than 2 meters, with a canopy that is open. The herbaceous layer is variable, with seasonal annuals reaching high cover (CNPS 2018). This alliance is typically found on alluvial fans, old lake beds perched above current drainages. Associated soils are moderately sandy clay loams to fine, silty clays that may be carbonate rich. Occurrences in the Coast Ranges may be located on moderate to steep slopes on sedimentary substrate.

***Yucca schidigera* Shrubland Alliance (Mojave yucca scrub)**

Yucca schidigera is dominant or characteristically present in the shrub or small tree canopy with *Ambrosia dumosa, Coleogyne ramosissima, Cylindropuntia acanthocarpa, Encelia farinosa, Ephedra nevadensis, Eriogonum fasciculatum, Larrea tridentata, Pleuraphis rigida, Salazaria mexicana, Simmondsia chinensis,* and *Viguiera parishii* (CNPS 2018).

The vegetation community form tends to shrubs less than 5 meters, with shrub and grass layers that are open to intermittent (CNPS 2018). This alliance is typically found on alluvial fans, rocky slopes, and upper bajadas. Soils are well-drained, sandy loams (CNPS 2018).

2.4 Special-Status Plant and Wildlife

No special-status plant or wildlife species were mapped within the proposed mitigation sites during the biological surveys associated with the proposed project. If special-status plants or wildlife are encountered during site review, project implementation, maintenance, or monitoring activities, the Project Biologist will review the specific situation and put in place measures to avoid impact to the observed resource. If special-status plant individuals are encountered on site, they shall be left undisturbed and incorporated into the overall site restoration effort.

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3 GROUND DISTURBANCE MITIGATION GOALS

The goal of the mitigation effort outlined herein includes physical restoration of a minimum of 11.19 acres of previously disturbed BLM lands within the boundary of the specific California Desert NCLs and/or ACEC unit(s) being impacted as shown in Table 1. This goal will be considered achieved once success criteria in Section 6.1 is achieved, as determined by BLM. It should be noted that there is no requirement for percent native vegetation cover associated with this effort, but rather visual and topographical restoration to blend in with the surrounding, typical landscape. This overall goal may be obtained in part by establishment of some native vegetation, but establishment of a certain level of native vegetation cover is not the ultimate intent.

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4 IMPLEMENTATION PLAN

LADWP will oversee mitigation implementation and is responsible for the successful implementation of this mitigation and monitoring program. Project management will be provided by LADWP, who will be financially responsible for implementation and management of this mitigation program.

4.1 Project Biologist

LADWP shall designate a qualified biologist (Project Biologist) to provide biological monitoring during implementation of the mitigation program. The Project Biologist will review all aspects of pertinent project documents prior to project implementation.

The Project Biologist will oversee and coordinate implementation of this mitigation plan, conduct field monitoring of project installation, and perform biological monitoring throughout the maintenance and monitoring period. The Project Biologist shall possess specific project knowledge and demonstrate experience with mitigation projects.

The Project Biologist will inform all project personnel prior to implementation of this mitigation plan of all on-site construction restrictions and conditions. The Project Biologist will inform all project personnel of the presence or potential presence of sensitive species and vegetation communities within or adjacent to the project areas, as well as any potential dangers on site. Information about federal, state, and local laws relating to these biological resources will be discussed as part of personnel education. Access and staging areas outside of environmentally and culturally sensitive areas will be established.

Biological monitoring will occur throughout the mitigation installation period. Monitoring time may increase or decrease as required by field conditions and installation activities. During installation, the Project Biologist, via the LADWP point of contact, will have authority to stop work in situations where biological resources not authorized to be impacted are in imminent danger of impacts from adjacent construction activities. Each site visit will be documented in a site observation report that will note restoration installation activities relating to this mitigation plan.

The Project Biologist shall conduct on-site monitoring visits throughout the maintenance and monitoring period to assess progress and growth trends, document project deficiencies, and provide recommendations for remedial measures, if necessary, to achieve compliance with success criteria outlined in Section 6.1. Each monitoring visit will include a qualitative assessment of maintenance work and will include remedial recommendations as necessary to help ensure successful project completion.

4.2 Installation and Maintenance Contractor

LADWP will select a qualified installation contractor to implement the mitigation installation and maintenance program. The contractor must be able to identify California native plants and common weed species and demonstrate knowledge of desert habitat restoration techniques.

The installation contractor will be responsible for conformance to (1) this mitigation plan, and (2) environmental regulatory agency requirements. The contractor's responsibility for installation will continue until successful completion and final acceptance by LADWP and the Project Biologist.

After initial mitigation project installation, LADWP will designate a maintenance contractor. Maintenance work shall be performed as indicated herein and per the Project Biologist's recommendations. LADWP may choose to designate a maintenance entity that is separate from the installation entity.

4.3 Preliminary Schedule

The schedule presented in Table 5 is a preliminary schedule of implementation and may be modified based on site conditions, accessibility, and personal availability. It is recommended that the majority of the work be conducted during the cooler season of the year, but this may be modified based on the overall project timeline. Initiation of the restoration effort will begin within 12 months following initiation of the construction activities associated with this mitigation.

Table 5. Ground Disturbance Mitigation Program Schedule

Work Tasks	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Site delineation									X			
Seed collection/plant salvage										X		
Soil contouring											X	X
Vertical mulch and landscaping	X											X
Seed installation	X											X
Erosion control		X	X									

4.4 Site Access

The mitigation sites will be accessed via existing authorized roads to the extent feasible. Staging will occur outside of sensitive habitat, preferably in existing disturbed areas, and avoid unauthorized additional impacts to the surrounding area.

Prior to implementation, the Project Biologist will coordinate with the installation contractor to determine appropriate routes for accessing each mitigation site, accounting for the type(s) of equipment needed.

4.5 Sensitive Species Protection Measures

Prior to mitigation implementation, the Project Biologist will review pertinent project-specific literature and biological survey data results. The Project Biologist shall evaluate each mitigation site in the field to determine if suitable habitat is present that warrants additional focused survey efforts in order to identify special-status plant or wildlife species with a potential to occur within the mitigation site footprints, and with potential to be adversely affected during implementation of the mitigation project.

If special-status plant species are observed within a mitigation site prior to project implementation, the Project Biologist will flag and delineate the plant locations, and make the installation contractor aware of their presence prior to implementation. Impacts to special-status plant species will avoided, and the presence of such plants will be incorporated into the overall design of the project.

If special-status wildlife are observed, or evidence of their territories and utilization of the site are observed prior to project implementation, the Project Biologist will work with the installation contractor to avoid "take" of individuals or their functional habitats.

If the contractor observes special-status plants or wildlife during mitigation installation implementation or subsequent maintenance activities, he/she shall stop work in that area and notify the Project Biologist. The Project Biologist will then work with the crews to avoid impacts appropriately based on the site condition.

4.6 Site Preparation

The sites will be delineated by the Project Biologist prior to project implementation. The flagging will be temporary in nature and will be removed following implementation to avoid attracting unwanted attention and possible vandalism to the site. No fencing shall be used to delineate the site that could cause additional impacts and barrier to wildlife movement. In the event that flagging in the field is not feasible or desirable, the Project Biologist will provide the installation contractor a georeferenced PDF file of the site footprint overlaid onto a high-resolution aerial map. The georeferenced map may be accessed in the field via mobile electronic device and used for spatial navigation while on site.

A variety of restoration methods may be employed, based on their suitability to a given location and site context, as determined by the Project Biologist. Not all methods will be uniformly suitable throughout the entirety of the mitigation sites, and they will be utilized as appropriate. Methods outlined in Sections 4.6.1 through 4.8 may be used independently, or in combination with each other to achieve the overall goals of the project, based on site conditions.

4.6.1 Native Plant Salvage and Seed Collection

For areas where seeding is utilized, seeds should be gathered as close to the specific mitigation site as possible. Seeds can be collected from the ground at the base of existing, mature native plants (such as a creosote bush). The

surrounding debris may also be collected with the seed for efficiency and to provide organic matter with the seeds. No more than approximately 10% of observed seeds should be removed from any individual plant to ensure that seeding occurs from a diverse group of individuals. This approach will also help to ensure that there is no disruption of habitat development due to over collection of seeds from a given area (SCA 2013). Collected seed shall be stored in a cool, dry location until it is installed on the mitigation site.

If feasible, existing native vegetation within the mitigation sites shall be left in place and incorporated into the overall restoration design of the site. If the overall restoration approach requires grading, recontouring, or other soil work that necessitates the removal of existing native vegetation, then native plant individuals shall be salvaged to the greatest extent feasible. Salvaged plants shall be stored in a stockpile area adjacent the site, and then replanted as part of the restoration effort following completion of soil work. The Project Biologist shall work directly with the installation contractor to identify vegetation for salvage within the mitigation sites.

Vegetation salvage shall occur during the cooler months, preferably between October and February. Vegetation collection of stem succulent segments includes individual and multiple stem sections. Each salvaged segment shall include at a minimum complete segments. Segments shall be manually separated from host plants with hand tools (i.e., bladed tools) and transferred directly to a transport vehicle or temporary on-site stockpile areas approved by the Project Biologist.

For both succulent and non-succulent plants, individual stems or stem clusters containing established roots shall be carefully lifted from the soil with intact root ball and soil attached. These specimens shall be separated from the non-rooted segments.

All salvaged plants with developed root balls shall be salvaged and transplanted in the designated stockpile area adjacent the site. Rooted specimens shall be carefully excavated from the soil with a minimum of an 8-inch x 8-inch root ball and soil attached. The root ball and soil shall be kept intact for transport to the stockpile area. Salvage will include the collection of segments and rooted plants as directed in the field by the Project Biologist. Rooted segments shall be planted immediately upon arrival at the stockpile area.

In addition to preserving the rootball, all existing attached pads or plant parts shall be preserved intact to provide the maximum vertical and horizontal structure for transplantation.

Salvaged plant individuals shall be stockpiled adjacent the site in a location designated by the Project Biologist while grading and re-contouring is occurring. The salvage can be transferred to prepared 3-foot-wide, 18-inch-deep stockpiling trenches of any desired length. If using multiple, parallel trenches, they should be far enough apart to allow any applicable equipment access to each trench. Trenches will be watered thoroughly prior to transplanting material. Salvaged individuals should be placed in the trench and planted with native soil. Care should be taken to properly tamp down and compact all soil around roots of plants to remove all air pockets. A depression around each plant should be formed to hold water. After individuals are transplanted, they will be watered thoroughly one time. A one-time watering approximately 15 days after planting will occur to remove or minimize any air pockets and assure

proper soil compaction. Yucca will be placed in the trenches and the soil tamped by hand around the base of the plant so that there are no air pockets. To reduce watering, DriWater can be applied to each individual. DriWater is a gelatinous polymer that slowly breaks down to water over time. DriWater comes in biodegradable cartons and is applied by cutting the top of the carton and placing it upsidedown around the plant to be watered. The area around the plant must be thoroughly wet to activate the DriWater. The DriWater is applied around the base of the plant at a rate of 1 quart for every foot in plant height. DriWater cartons are to be buried completely. At the surface, a watering well will be formed around the plant. Afterward, the plant will be watered thoroughly again (Ironwood 2014).

Following grading, re-contouring and soil surface preparation, salvaged plant material may be replanted back onto the mitigation site. Any soil disturbance associated with stockpiling salvage plants adjacent the site shall also be restored as part of the project.

4.6.2 Equipment and Materials

Equipment utilized for grading, re-contouring, decompacting, ripping, planting salvaged native plants, and vertical mulch may include hand tools such as rakes, buckets, shovels, pick mattocks, McLeods, brooms rock bars, and wheelbarrows.

Mechanized equipment such as skid-steer loaders and mini-excavators may also be used in combination for various tasks such as native plant salvage, moving rocks, soil ripping (for decompaction), grading, re-contouring, and materials relocation. Larger machinery is not recommended because additional soil compaction is not desirable.

A water truck is also recommended to be on site for the purposes of emergency fire control, dust control, and watering in salvaged plant materials.

4.6.3 Soil Preparation and Grading

Soil work within the mitigation sites will consist of decompacting, raking, recontouring, berms, and sweeping. It may also involve movement or placement of native rock material in a way that provides a determent to unauthorized use, or creates a break in the line-of-site, helping to blend the mitigation site visually back into the surrounding landscape context. Methods of soil preparation and grading are discussed below. Each site will be different, and the contractor, in coordination with the Project Biologist, will develop a work plan utilizing a combination of methods outlined herein.

4.6.3.1 Decompacting/Soil Ripping

Unauthorized vehicle use in the desert causes soils to compact, as may be the case with some of the mitigation sites. In order to promote suitable soil habitat for new plant growth and to improve water infiltration and runoff, it may be necessary to decompact the soil. This may be accomplished using hand tools such as rakes, McLeods, or pick mattocks, depending on the extent that the soil is compacted. If significant compaction over a large area is present, a

skid steer, mini-excavator, or small tractor may be fitted with a ripper. Heavy decompaction may require more extensive finishing efforts to lend the decompacted area visually with the surrounding soils, as the churning of the soils changes not only the color of the soil but also the look of it. Decompaction should be done in a way that creates irregular, organically shaped edges to avoid creating straight lines or geometric forms. Once soil has been decompacted, it should be smoothed via raking or sweeping and assessed to determine how much finish contouring and texturizing is necessary (SCA 2013).

4.6.3.2 Raking

Raking may be used to erase small ruts and redistribute sand and small rocks to match the surrounding area. This may be used as a finish technique following other grading methods, or on its own for areas of minor impact. Raking should seek to distribute materials evenly and avoid forming lines or clumps of rock, especially when raking a long, narrow incursion. Irregular, organically shaped edges should be created to blend in with the surrounding landscape context.

Once raking is complete, the area should be assessed to determine if the soil is discolored. Sanding and or rocking with native topsoil materials can be used to mask discolored soil and to help redistribute the texture more evenly. With any soil disturbance, some soil discoloration is probable, but the color of the soil tends to fade with sun and dry air over time (SCA 2013).

4.6.3.3 Recontouring

In some cases, changing the contour of the landscape is sometimes desirable—either to restore an area to what it was pre-disturbance, or to modify it in a way that will discourage future disturbance. Unauthorized vehicle routes in softer desert soils may become deeply compacted, resulting in a general trough shape that remains even after decompaction. Disrupting the shape of the trough feature assists in eliminating visual evidence of the disturbance. Recontouring the shape to include other forms can assist in breaking up the linear trough feature. Recontouring should always seek to form shapes that are in context with the surrounding landforms and features of the site (SCA 2013).

4.6.3.4 Berms

Berms can occur along the edge of unauthorized desert roads in areas of sand or loose soils. These berms may be interrupted, or new berms created that blend into their surroundings and disrupt the linear visual features of the unauthorized road (SCA 2013).

4.6.3.5 Large Rock Placement

If larger rocks are present within a mitigation site, they may be moved to appear in formations that can serve as natural barricades for discouraging unauthorized vehicle use. Rocks may be utilized to block and camouflage existing

routes, or to create new, similar formations that blend with the surroundings. Only rocks within the mitigation site in areas of disturbance should be considered for this application (SCA 2013).

4.6.3.6 Small Rocks/Desert Pavement

In mitigation sites where desert pavement or small exposed rocks are prominent on the soil surface, rocks may be gathered and scattered to blend the mitigation area with its surroundings. Only rocks within the mitigation site in areas of disturbance should be considered for this application. Care must be taken to avoid creating patches devoid of any rocks or other obvious evidence of disruption. A variety of rock sizes should be collected to avoid a uniform appearance. Rock dispersal should cover an organically shaped, irregular area to blend in with the surrounding landscape (SCA 2013).

4.6.3.7 Sanding

For areas where decompaction or raking has discolored the soil surface, scattering a layer of sand or fine gravel can mask the discoloration as well as can help visually blend the site with its surroundings. Collection of sand for this purpose should be from within the mitigation site in a disturbed area (SCA 2013).

4.6.3.8 Sweeping

For finishing the soil surface, sweeping may be used to remove vehicle tracks in sandy washes, remove footprints, or other signs of human usage (SCA 2013).

4.6.4 Vertical Mulching Techniques

Vertical mulch collection involves gathering dead branches from surrounding plants, or gathering small dead bushes no longer rooted into the ground. When collecting from live plants, remove only dead branches from plants, and do not remove more than 10% of the dead branches from a single individual plant. Branches used should break away using only a minimum amount of force. Branches that do not break easily should be left in place (SCA 2013).

To install vertical mulch, a hole of sufficient depth is dug to "plant" it. Rocks may be used in the bottom of the hole to help support and anchor the vertical mulch. Once branches are secured and able to stand upright on their own, the remainder of the hole may be filled with more rocks and then soil. A mound may be constructed around the base of the installation for additional support if necessary (SCA 2013).

Placement of branches should appear natural, and asymmetrical within the installation clump. Clumps should be spaced consistently with the natural surrounding vegetation density.

4.7 Seeding and Planting Techniques

All salvaged plant material stockpiled next to the mitigation sites will be replanted in a natural pattern, consistent with the landscape context. Plant individuals will be carefully removed from the stockpiling area, taking care to not damage stems, roots, or the base of the plant. A hole at least two times the size of the rootball/succulent base will be prepared for each plant. The hole will be filled with water and allowed to drain once; then the hole will be filled with water again and then back-filled with soil to form a muddy matrix. The plant will then be planted, and the soil around the plant will be tamped so that there are no air pockets. DriWater may be applied around the plant at a rate of one quart for every foot in height. DriWater cartons are to be buried completely, with no visual trace from the surface. At the surface, a watering well will be formed around the plant (Ironwood 2014).

Collected seed may be installed using two applications: seed pits and broadcast seeding.

4.7.1 Seed Pits

Following installation of vertical mulch, a shallow pit may be dug at the base. Pits should be 2 to 6 inches deep and sized to hold approximately a hand full of seeds. Placing seeds in these pits protects them from windy conditions. Seed pits may also be prepared where no vertical mulch has been installed (SCA 2013). Small organic matter should also be placed in the seed pits to help hold moisture.

4.7.2 Broadcast Seeding

Seed may also be disbursed throughout the site through hand broadcasting. This should only be done in areas that have been decompacted, and where the soil surface has enough texture through raking for the seeds to incorporate into the topsoil layer, as opposed to staying on top of the soil and being prone to relocation by the wind (SCA 2013).

For areas and applications where collection of native seed from the area surrounding the site is not feasible, a native seed mix may be utilized. The seed mix may be modified by the Project Biologist based on site conditions. An example seed mix is shown in Table 6.

Table 6. Example Native Seed Mix

Species and Common name	Pounds Per Acre	Percent Purity
Ambrosia dumosa (white bursage)	3.5	29
Atriplex canescens (four-winged saltbush)	1.5	12
Ephedra nevadensis (Nevada ephedra)	1.5	12
Larrea tridentata (creosote bush)	2.5	3

All purchased seeds will be clearly labeled, showing type of seed, test date, the name of the supplier, and percentage of the following: pure seed, crop seed, inert matter, weed seed, noxious weeds, and total germination content. All material will be delivered to the site in original, unopened containers bearing the manufacturer's guaranteed analysis. All seed mixes will be stored in a dark, cool place and not be allowed to become damp. All seed from seed mixes should be sourced from as close to the mitigation sites as possible. Labels for each seed delivered to the site will be inspected and approved by the Project Biologist prior to mixing and application.

Installation between the months of October to January is ideal for allowing establishment during the cooler and wetter time of the year.

Additional seed may be hand broadcast at a later date if the seed of selected species is not available at the time of initial seed installation. The contractor should consult the Project Biologist for modifications to the seed palette.

4.8 Erosion and Sedimentation Control Measures

If a rainfall event is forecasted by the National Weather Service while bare mineral soil is exposed from vegetation clearing work, the contractor shall deploy erosion control devices such as silt fencing, straw wattles, bonded fiber matrix, or spreading of crushed mulch as directed by the Project Biologist. All materials, with the exception of silt fencing, shall be made of 100% biodegradable materials. No erosion control materials shall contain plastic that may entrap or endanger wildlife.

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5 SITE MAINTENANCE PLAN

5.1 Maintenance Activities and Schedule

Following successful mitigation project installation, as approved by the Project Biologist and LADWP, the mitigation program will begin its maintenance and monitoring phase, which shall extend until performance criteria in Section 6.1 are achieved for all areas of all mitigation sites.

Maintenance activities will be directed by the Project Biologist and shall consist of correcting any deficiencies in the original project design, or making adjustments to the site to maintain its compliance with the original design. Maintenance activities may include removal of anthropogenic trash, repair and soil recontouring following unauthorized vehicle impact, and addressing soil erosion. Methods outlined in Sections 4.6.3 through 4.8 may be utilized for maintenance purposes and corrective actions. Maintenance visits are twice a year, and may be increased or decreased as recommended by the Project Biologist based on the trajectory of the project. An estimated maintenance schedule is shown in Table 5. Not all maintenance activities listed in Table 7 may be necessary at every visit, but they will be evaluated by the Project Biologist.

Table 7. Mitigation Maintenance Program Schedule

Work Tasks	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Anthropogenic trash removal				X						X		
Erosion control				X						X		
Maintenance of vertical mulch				X						X		
Repair of unauthorized vehicle use				X						X		

5.2 Maintenance Guidelines

Specific maintenance activities shall be directed by the Project Biologist, and shall be consistent with the intent of achieving the success criteria outlined in Section 6.1.

While eradication of non-native plant species is not a specific goal of the project, the site shall be maintained such that presence of non-native plant species within the site does not exceed that of the ambient, surrounding landscape context, as directed by the Project Biologist. Non-native plant control measures will include the following: (1) hand removal, (2) cutting with mechanical devices, and (3) herbicide application. Hand removal of non-natives is the most desirable method of control and will be used around existing individual native plants where feasible. Weeds should be pulled when plants are 6–12 inches tall or when they can be positively identified, and prior to the formation of seed

heads. If seed heads have formed, they shall be hand cut and bagged for removal from the site. Care should be taken to avoid spreading weed seeds throughout the site.

The maintenance contractor should coordinate with the Project Biologist to identify weeds for removal as needed. Chemical herbicide control will be used for perennial species that are low growing and difficult to control by hand pulling. Any herbicide treatment must be applied by a licensed pest control applicator.

Pruning or clearing of native vegetation will generally not be allowed within the mitigation areas, except as directed by the Project Biologist. Dead biomass and plant litter will not be removed and will be left in place, or utilized for additional vertical mulch applications as directed by the Project Biologist. Organic biomass and leaf litter provide valuable microhabitats for benthic and terrestrial invertebrates, reptiles, small mammals, and birds. In addition, the decomposition of plant material is essential for the replenishment of soil nutrients and minerals.

Anthropogenic trash will be removed from the mitigation areas by hand on a regular basis. Trash consists of all anthropogenic materials, equipment, or debris dumped, thrown, washed, blown, and left within the mitigation areas.

Contractor maintenance shall include maintenance and repair of specific grading/recontouring features that are intended to obscure unauthorized roads, or deter unauthorized human use. The contractor shall confer with the Project Biologist if it appears that maintenance needs of the site indicate that changes in the specified location, materials, or methods need to be altered to meet their intent for this project.

Remedial seeding may also be recommended by the Project Biologist to help increase cover and structure to the site.

6 MONITORING PLAN

6.1 Success Criteria

Per BLM requirements (BLM 2016), mitigation areas will be considered successful and the effort complete when they meet one of the two following criteria, as determined by BLM:

1. Field verification that disturbed areas are dominated by the establishment of native shrubs, as appropriate for the site, and demonstrated function of ecological processes (e.g., water flow, soil stability).
2. Ground disturbance can no longer be seen at the 1:10,000 scale using the best available aerial imagery.

Portions of the mitigation sites may be determined recovered by BLM at any time, once one of the two success criteria are met, prior to the entirety of the mitigation polygon being determined recovered. Once a given area is determined to have met one of the two success criteria, it will be removed from the acreage of the active, ongoing mitigation program footprint. Maintenance and monitoring will continue for the remaining areas until all required mitigation areas have been determined to have met final success criteria by BLM.

While establishment of native shrubs is listed as a component of site restoration, there is no specific native vegetation cover requirement for these sites, nor is there criteria for control of non-native plant species.

6.2 Monitoring Methods

To evaluate the success criteria outlined in Section 6.1, monitoring of the mitigation effort shall consist of qualitative approaches, including desktop analysis of existing commercially available aerial imagery, utilizing an unmanned drone to obtain aerial imagery of the mitigation sites and on-site qualitative visual assessment.

6.2.1 Field Evaluations

Qualitative monitoring field visits will be conducted twice a year by the Project Biologist to determine if the site is meeting interim and final success criteria as described in success criteria option number 1. If mitigation efforts are observed to be failing to meet the intent of the success criteria, the Project Biologist may recommend remedial actions to bring the site into compliance. This will involve an assessment of native species composition and vegetation density present throughout site compared with an undisturbed control area adjacent the site.

Monitoring activities will include regular evaluation of weed species establishment. No plant species listed as problematic and/or invasive by the CNPS, the California Invasive Plant Council, or the State of California shall be allowed to naturalize or persist in the mitigation site. No plant species listed as a "noxious weed" by the State of California or the U.S. federal government shall be planted or allowed to naturalize or persist within the mitigation site.

Following each site visit, the Project Biologist shall generate a brief Site Observation Report detailing the condition of the mitigation sites and any maintenance and/or remedial actions recommended to support the project in meeting its success criteria. Copies of the Site Observation Report shall be provided to LADWP and the maintenance contractor.

6.2.2 Aerial Survey and Map Evaluation

To determine if the mitigation sites are meeting success criteria option number 2, commercially available high-resolution aerial imagery (such as Google Earth or equivalent) may be used for evaluation if the date of the imagery is current and relevant to capturing recent site development. Obscuring the site in plan view at a 1:10,000 scale requires distribution of vegetation and land features in addition to presence and density of native vegetation. It is for this reason that evaluation of the site from an aerial plan view is necessary in addition to field evaluation of vegetation.

If commercially available aerial imagery is not current or insufficient, aerial surveys of the mitigation sites may be conducted to provide high-resolution aerial basemap (RGB color value/true color) to document current conditions of the project site and allow for evaluation of site progress and success criteria. Data may be collected by flying a small unmanned aerial system (sUAS/drone) over the mitigation sites (this activity may be combined with site monitoring, conditions permitting). Collected photographic mapping data will be post-processed and converted into a georeferenced composite aerial map compatible for use with ESRI mapping software and CAD software. The final mapping product will have a minimum resolution of 1-inch per pixel. Mapping will then be scaled to 1:10,000, and assessed for attainment of success criteria. All flight operations shall comply with the following:

- All flight operations will be conducted in compliance with the requirements of the Federal Aviation Administration Part 107 Federal Aviation Regulations (14 CFR Part 107)
- The sUAS/drone carries current FAA registration.

6.3 Monitoring Schedule

Monitoring shall be conducted twice a year, and be coordinated with the contractor's maintenance efforts, as shown in Table 5. Monitoring may occur prior to the contractor's maintenance visits, or may be conducted in conjunction with the contractor's maintenance visit to provide direct coordination.

6.4 Annual Reports

An annual biological monitoring report outlining the results of the progress of the mitigation effort will be submitted to LADWP, permitting regulatory agencies and BLM at the end of each year on the anniversary date of completion of project installation, or at the end of the calendar year (December). The annual monitoring reports will include the following: describe the existing conditions of the mitigation sites derived from qualitative and aerial imagery data, provide a comparison of pre-project field conditions with current conditions, identify any shortcomings of the mitigation program, and recommend remedial measures necessary for the successful

completion of the mitigation project. The reports will also identify any portions of the mitigation sites that are currently meeting success criteria and are ready to be requested for final completion by BLM.

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7 CONTINGENCY MEASURES

As the project progresses, if portions of the mitigation sites are struggling to meet success criteria, the Project Biologist in consultation with LADWP will prepare an analysis of the cause(s) of failure(s) and, if determined to be necessary, propose remedial actions to correct the mitigation effort deficiencies. If the mitigation sites have not met the performance criterion, LADWP maintenance and monitoring obligations will continue until final project approval/ confirmation is obtained.

As owner and permittee of the project, LADWP is financially responsible for implementation and management of the mitigation program. LADWP will oversee mitigation installation and will be responsible for the successful implementation of the mitigation program. Funding will be made available by LADPW for adaptive management of the mitigation effort, should it become necessary.

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8 MITIGATION COMPLETION

When monitoring results indicate the project has met the final performance criteria for the mitigation sites, LADWP will notify BLM and submit a monitoring report outlining compliance with final performance criteria and request final sign-off of the mitigation as being complete.

Areas within California Desert NCLs and/or ACECs may be determined recovered by BLM at any time, once one of the two success criteria in Section 6.1 are met, prior to the entire unit (of calculation and mitigation) being determined recovered. Areas determined recovered by BLM would be removed from the subsequent ground disturbance calculation for that unit (BLM 2016). The mitigation program would continue until all of the required 11.19 acres meet final performance criteria.

Ground disturbance is assessed during the decadal ground disturbance threshold ecoregion trend monitoring assessments that are conducted. Between the decadal assessments, BLM will assume the mitigation sites are not restored until data is presented otherwise and BLM agrees with the conclusion (see Section 6.4 for reporting).

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9 REFERENCES

14 CCR Part 107. Small Unmanned Aircraft Systems.

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