Eagle Mountain-Blythe 161 Kilovolt Transmission Line Rating Remediation Project

Paleontological Resources Assessment

prepared for

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Executive Summary

Purpose and Scope

Rincon Consultants, Inc. (Rincon) conducted a desktop Paleontological Resources Assessment (PRA) on behalf of Southern California Edison Company (SCE) for the Eagle Mountain-Blythe (EM-B) 161 kiloVolt (kV) Transmission Line Rating Remediation Project (Project) in Riverside County, California. This assessment includes a literature review, paleontological records search, paleontological sensitivity assessment, and reporting consistent with the professional standards of the Society of Vertebrate Paleontology (SVP; 2010). The Project is subject to the California Environmental Quality Act (CEQA), and the California Public Utilities Commission (CPUC) is the lead agency for CEQA. Portions of this Project also occur on land under the jurisdiction of the Bureau of Land Management (BLM). BLM issued a Right-of-Way Notice to Proceed for the Project on May 27, 2022, so assessment under the National Environmental Policy Act (NEPA) was not required for the Project and is not performed in this PRA.

Rincon reviewed geologic maps, online paleontological databases, and primary literature, and requested a paleontological records search of the Western Science Center to assess the potential for Project-related construction activities to significantly impact paleontological resources.

Results of Investigation

Seventeen geologic units are mapped within one mile of the Project, and eight geologic units directly underlie the Project Alignment (Jennings 1967; Stone 2006). One geologic unit (granite) has no paleontological sensitivity per the SVP (2010) paleontological sensitivity scale. Nine geologic units (alluvium of modern washes; eolian sand; Members A, H, I, K, and L of the McCoy Mountain Formation; and volcanic rocks) have low paleontological sensitivity. Three geologic units (alluvium of the modern Colorado River floodplain, alluvial fan and valley deposits (Qa6), and alluvium) have low paleontological sensitivity from 0 to 5 feet below the surface and undetermined paleontological sensitivity greater than 5 feet below the surface. Four geologic units (playa lake deposits, alluvial fan and valley deposits (Qa3), nonmarine deposits, and alluvial deposits of Palo Verde Mesa) have high paleontological sensitivity. Of the geologic units with high or undetermined paleontological sensitivity, alluvial fan and valley deposits (Qa6), alluvium, alluvial fan and valley deposits (Qa3), nonmarine deposits, and alluvial deposits of Palo Verde Mesa, directly underlie portions of the Project Alignment on non-federal lands.

A paleontological records search of the Western Science Center on July 9, 2025, recovered no known paleontological localities within 500 feet of the Project Alignment (Western Science Center 2025); therefore, no fossil locality maps are included in this report. However, the Western Science Center does contain paleontological localities from the same geologic units that underlie the Project Alignment elsewhere in the region.

Impacts and Recommendations

The Project Alignment is underlain by several geologic units with high paleontological sensitivity or undetermined paleontological sensitivity greater than 5 feet below the surface. Ground-disturbing

construction activities that affect previously undisturbed portions of these geologic units could result in significant impacts to paleontological resources under CEQA.

Ground-disturbing construction activities for the Project include removal/replacement of existing distribution or subtransmission structures and excavations/drilling for new subtransmission structures. Installation of new tubular steel pole (TSP) or three-pole TSP structures may significantly impact paleontological resources. Creation of the new Chuckwalla staging area may also significantly impact paleontological resources. Any Project components that do not involve ground disturbance, the removal of existing structures, or replacing structures in the same location, will not impact paleontological resources. Drilling for the installation of lightweight steel H-frame structures will be too narrow to significantly impact paleontological resources. The minor improvements to Project's access roads and creation of the Blythe staging area are not anticipated to impact paleontological resources.

Applicant Proposed Measures (APMs) PAL-1 through PAL-3 are recommended to mitigate the Project's potentially significant impacts to paleontological resources. APM PAL-1 requires preparation of a Paleontological Resources Mitigation and Monitoring Plan (PRMMP) to guide paleontological mitigation efforts. APM PAL-2 requires the training of construction personnel to recognize potential paleontological resources and provide protocols in the event that a paleontological resources is discovered. APM PAL-3 requires paleontological monitoring of ground-disturbing activities according to the methodology explained in the PRMMP. Implementation of APMs PAL-1 through PAL-3 would reduce the Project's potential impacts to paleontological resources to a less-than-significant level.

1 Introduction

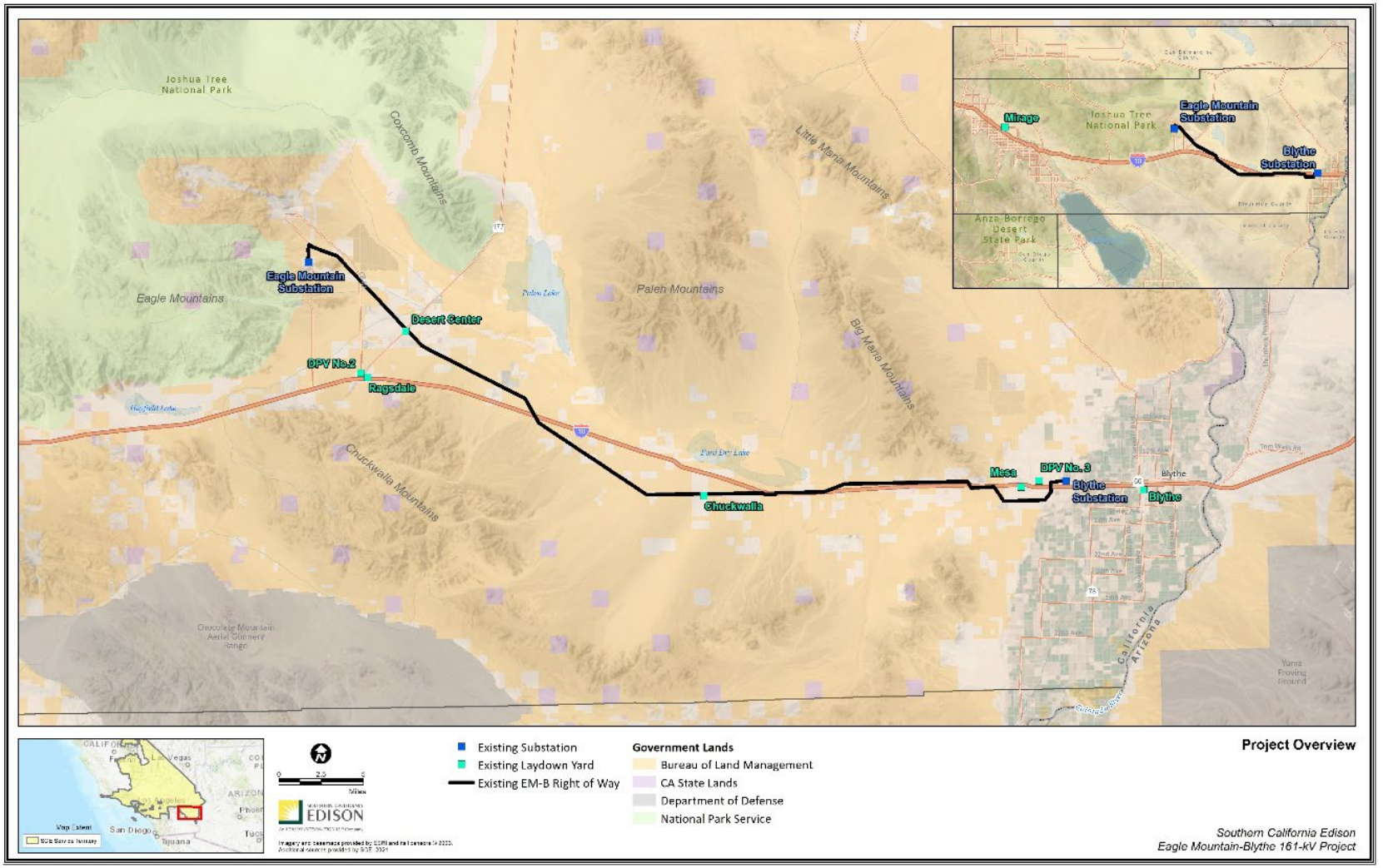
Rincon Consultants, Inc. (Rincon) conducted a desktop Paleontological Resources Assessment (PRA) on behalf of Southern California Edison Company (SCE) for the Eagle Mountain-Blythe (EM-B) 161 kiloVolt (kV) Transmission Line Rating Remediation Project (Project) in Riverside County, California. This assessment includes a literature review, paleontological records search, paleontological sensitivity assessment, and reporting consistent with the professional standards of the Society of Vertebrate Paleontology (SVP; 2010). The Project is subject to the California Environmental Quality Act (CEQA), and the California Public Utilities Commission (CPUC) is the lead agency for CEQA. Portions of this Project also occur on land under the jurisdiction of the Bureau of Land Management (BLM). BLM issued a Right-of-Way Notice to Proceed for the Project on May 27, 2022, so assessment under the National Environmental Policy Act (NEPA) was not required for the Project and is not performed in this PRA.

Paleontological resources (i.e., fossils) are the remains or traces of prehistoric life. Fossils are typically preserved in layered sedimentary rocks, and the distribution of fossils across the landscape is controlled by the distribution and exposure of the fossiliferous sedimentary rock units at and near the surface. Construction-related impacts that typically affect or have the potential to affect paleontological resources include mass excavation operations, drilling/borehole excavations, trenching/tunneling, and grading. Ground-disturbing construction activities associated with the Project would mainly consist of grading, trenching, and excavation. This PRA provides a list of the formations mapped at the surface within 1 mile of the Project Alignment and formations that underlie those mapped at the surface that may be impacted by Project construction activities.

1.1 Project Location

The Project consists of approximately 53 linear miles in unincorporated Riverside County and the City of Blythe, California (Figure 1). It stretches from the SCE Eagle Mountain substation in the west to the SCE Blythe substation in the east. Approximately 35.6 miles of the Project Alignment consists of BLM lands; approximately 0.05 miles consist of land administered by Riverside County; approximately 1 mile consists of land administered by the Metropolitan Water District of Southern California, and the remaining approximately 16.35 miles consists of privately owned parcels. SCE has existing easement rights, permits, and/or grants for the entire Project Alignment.

Figure 1 Regional Location



1.2 Project Description

The Project is proposed to remediate discrepancies associated with an existing subtransmission line. To remediate these discrepancies, SCE proposes to (1) reconductor an existing subtransmission line, and (2) replace individual existing poles and reuse individual existing subtransmission structures along portions of the existing subtransmission line.

No new substations are proposed to be constructed as part of the Project, and no existing substations would be expanded or upgraded. Work at existing substations as part of the Project would be limited in scope and performed within or adjacent to the existing substation facilities.

The Project consists of the following Project components:

- Replacing approximately 53 circuit miles of the existing 161 kV 336 Merlin and 336 Linnet aluminum conductor, steel reinforced (ACSR) with new 336 Oriole ACSR between the Eagle Mountain and Blythe Substations (this process is referred to as "reconductoring"[1])
- Reconductoring approximately 1 circuit mile each of two existing 66 kV subtransmission circuits (Eagle Mountain-KEM #1 66 kV Subtransmission Line and Eagle Mountain-KEM #2 66 kV Subtransmission Line) between Eagle Mountain Substation and new tubular steel pole (TSP) 7029503
- Reconductoring approximately 1 mile of existing 12 kV distribution circuit between Eagle Mountain Substation and new structure 7029503
- Installing approximately 1 mile of overhead ground wire (OHGW) between Eagle Mountain Substation and new structure 7029503
- Transferring one existing single communication line on the first mile north of Eagle Mountain Substation to the 17 newly installed structures
- Removing 25 steel poles with foundations and one single wood pole and replacing them with 17 TSPs with 17 foundations (9 of the steel poles that would be removed would be not replaced)
- Replacing 16 wood three-pole dead-end structures with 16 three-pole TSPs with 48 foundations
- Replacing 11 wood H-frame structures with 11 lightweight steel (LWS) H-frame structures
- Installing approximately 3.26 circuit miles of fault return conductor (FRC) to support LWS grounding requirements at various points along the alignment

The steel poles to be removed support the EM-B 161 kV circuit, two 66 kV circuits, one 12 kV circuit, and one communication line. These steel poles and their associated OHGW and underbuilds[2] are in the portion of the alignment extending for approximately 1 mile north from the Eagle Mountain Substation to new structure 7029503.

Currently, the EM-B circuit comprises 392 structures. This includes 339 structures that would not be removed or replaced as part of this Project. The Project includes removal of 53 structures and replacement with 44 structures, resulting in a total of 383 structures on the circuit after completion of the Project (i.e., a net reduction of 9 structures). For nine of the structures that are permanently removed, the existing disturbance areas (e.g., stub roads and cleared areas) would be restored and no longer used as disturbance areas upon completion of construction.

1 336 Oriole (30/7) has a higher rated breaking strength than the 336 Merlin (18/1) and 336 Linnet (26/7) with minimal increase in conductor diameter, which results in fewer required structure replacements.
2 An underbuild circuit is one in which the lower voltage circuit is placed beneath the higher voltage circuit.

Ground-disturbing activities would occur within disturbance areas defined as structure replacement work areas, existing structure sites, wire setup sites, and guard structure sites. The network of existing unpaved access roads that would be used for Project activities may require maintenance and/or improvement to ensure safe access. Four laydown yards, which would be used for staging equipment and materials and as a place for personnel to meet, have been identified for the Project. Two of the laydown yards are established; therefore, only minor repairs may be required for their use on the Project. Two of the laydown yards are not yet established and would require minor grading, fencing, and rocking in order to be used for the Project. In addition, access to these work areas would be provided by existing public roads and a network of existing unpaved access roads maintained by SCE along the existing right-of-way (ROW).

Proposed Facilities

Facilities to be Installed or Modified

As part of the Project, new subtransmission structures, new subtransmission conductor, new OHGW, and new FRC would be installed. Existing substations would not be modified. Existing communication cable would be transferred from existing facilities to new facilities.

Subtransmission Structures Description

New subtransmission structures (single TSPs, three-pole TSPs, and LWS H-frames), and new overhead conductor, OHGW, and FRC cable to be supported on those structures, would be installed as part of the Project. No other wholly new facilities would be installed as part of the Project. Replacement structures are generally located at or adjacent to existing structures in the existing alignments.

TSPs are engineered structures constructed from galvanized steel. The design of a given TSP is specific to the location and engineering considerations of each unique TSP. TSPs would be installed on a drilled pier, poured-in-place, reinforced concrete foundation. LWS H-frames are constructed from two LWS poles supporting a horizontal bridge that extends beyond the poles for several feet. LWS poles—which are pre-engineered wood pole-equivalents—are structures constructed from galvanized steel. LWS poles would be direct-buried; in some locations, steel, cardboard, plastic forms, and slurry may be placed to stabilize the excavation walls prior to installation of the pole. An accounting of the numbers and types of facilities proposed to be installed are presented in Table 1.

Table 1 Structures to be Installed

Pole Type	Proposed Approximate Number of Structures (Number of Foundations)	Approximate Height Above Ground (Feet)	Approximate Pole Diameter (Feet)	Approximate Foundation Depth (TSPs) or Burial Depth (LWS H-frame) (Feet)	Approximate Foundation Diameter (TSPs) or Auger Width (LWS H-frame) (Feet)	Approximate Concrete Volume (Cubic Yards)
TSP	17 (17)	77-107	4.5-6	22-32	6-8	23-71
Three-pole TSP	16 (48)	57-72	4-6	18-28	5-6.5	13-34.4
LWS H-frame	11 (22)	55-101.5	1.4-2.3	7 – 14	Not Applicable (N/A)	N/A

Different Facilities

No unique structures such as riser poles (overhead-to-underground configuration poles) would be installed as part of the Project. Dead-end structures or those installed at high-angle inflection points would generally be of a larger diameter than adjoining tangent structures.

Guys are typically used when LWS H-frames are located on angles, corners, and dead-ends to provide support to the poles. Guys may also be used on tangent/suspension poles as field conditions dictate. Guying consists of a guy wire (down guy) that is fastened to a pole and attached to a buried anchor, or when there is not adequate space for the required down guy, a shorter guy pole (stub pole) is typically placed with a down guy and buried anchor in a location that has sufficient room for these facilities. No guys are proposed for the new structures on the Project; however, the need for and location of guy wires and anchors for LWS H-frames would be determined during final construction on a case-by-case basis. Guying across a roadway would be avoided where feasible.

Access Roads

No new permanent roads are included as part of the Project. Access will be provided by a network of approximately 56.3 miles of existing roads that are expected to require rehabilitation for Project construction. Road rehabilitation will consist of vegetation clearing, re-grading to remove potholes or ruts, and re-compaction.

Staging Areas

Four staging areas are under consideration by SCE for use during Project construction. Two of the staging areas/laydown yards (Desert Center and Mirage) are established and accessible via existing public roads; therefore, no site preparation would be required for their use for the Project. Two of the staging areas/laydown yards (Blythe and Chuckwalla) are not yet established and would require grading, fencing, and rocking in order to be used for the Project. The Project would use established laydown yards prior to construction.

Work Areas

Minor grading (i.e., vegetation clearing and grading to fill in potholes and ruts) may be required in wire pull sites and structure work areas.

2 Regulations

2.1 Federal Regulations

National Environmental Policy Act (42 United States Code, Section 4321 et seq.; 40 Code of Federal Regulations Section 1502.25)

The National Environmental Policy Act, as amended, directs federal agencies to "preserve important historic, cultural, and natural aspects of our national heritage (Section 101[b][4])." The current interpretation of this language includes scientifically important paleontological resources among those resources potentially requiring preservation.

National Historic Preservation Act of 1966 (6 United States Code 470)

The National Historic Preservation Act (NHPA) applies to paleontological resources that are found in culturally related contexts; these related materials qualify as cultural resources. Consequently, recovery and treatment protocols included in a project-specific Cultural Resources Management Plan should be followed for discoveries of paleontological resources in culturally related contexts.

Paleontological Resources Preservation Act

The Paleontological Resources Preservation Act (PRPA) is part of the Omnibus Public Land Management Act of 2009 (Public Law 111-011 Subtitle D). The PRPA directs the Secretary of the Interior or the Secretary of Agriculture to manage and protect paleontological resources on federal land and to develop plans for inventorying, monitoring, and deriving the scientific and educational use of such resources. The PRPA prohibits the removal of paleontological resources from federal land without a permit, establishes penalties for violations, and establishes a program to increase public awareness about such resources. While specific to activities occurring on federal lands, some federal agencies may require adherence to the directives outlined in the PRPA for projects on non-federal lands if federal funding is involved or if the project includes federal oversight.

2.2 State Regulations

California Environmental Quality Act

Paleontological resources are protected under CEQA, which states a project would "normally" have a significant effect on the environment if project effects exceed an identified threshold of significance (CEQA Guidelines Section 15064.7[a]). Appendix G of the CEQA Guidelines (the Environmental Checklist Form) provides suggested thresholds of significance for evaluating a project's environmental impacts, including impacts to paleontological resources. In Section VII(f), the question is posed thus: "Will the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?" To determine the uniqueness of a given paleontological resource, it must first be identified or recovered (i.e., salvaged). Therefore, CEQA mandates mitigation of adverse impacts, to the extent practicable, to paleontological resources.

CEQA does not define "a unique paleontological resource or site." However, the SVP (2010) has defined a "significant paleontological resource" in the context of environmental review as follows:

> Fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information.

California Public Resources Code

California Public Resources Code Section 5097.5 states:

> No person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

Here "public lands" means those owned by, or under the jurisdiction of, the State or any city, county, district, authority, or public corporation, or any agency thereof. Consequently, public agencies are required to comply with Public Resources Code Section 5097.5 for their own activities, including construction and maintenance, and for permit actions (e.g., encroachment permits) undertaken by others.

2.3 Regional and Local Regulations

The CPUC has sole and exclusive state jurisdiction over the siting and design of the Project. Pursuant to CPUC General Order (G.O.) 131-D, Section XIV.B:

> Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters.

Consequently, public utilities are directed to consider local regulations and consult with local agencies, but county and city regulations are not applicable as these entities do not have jurisdiction over the Project. Accordingly, the following discussion of local land use regulations is provided for informational purposes only.

County of Riverside

Paleontological resources are addressed under the Multipurpose Open Space Element of the Riverside County General Plan (County of Riverside 2015), policies OS 19.6 through OS 19.9, which state the following:

> **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 (PRMMP) shall be filed with the County Geologist prior to site grading. The PRMMP 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. (This requirement was originally referred to as the SABER Policy – Safeguard Artifacts Being Excavated in Riverside County).

3 Paleontological Resources Assessment Guidelines

Paleontological resources are limited, nonrenewable resources of scientific, cultural, and educational value and are afforded protection under state and local laws and regulations. This PRA satisfies Public Resources Code Section 5097.5 requirements, addresses requirements under CEQA guidelines for identifying impacts to paleontological resources, and follows guidelines and significance criteria specified by the SVP (2010).

3.1 Paleontological Sensitivity

Paleontological sensitivity refers to the potential for a geologic unit to produce scientifically significant fossils. Direct impacts to paleontological resources occur when earthwork activities, such as grading or trenching, cut into the geologic deposits within which fossils are buried and physically destroy the fossils. Because fossils are the remains of prehistoric animal and plant life, they are considered to be nonrenewable. These activities may constitute significant impacts under CEQA or adverse effects under federal environmental protection laws and may require mitigation. Sensitivity is determined by rock type, history of the geologic unit in producing significant fossils, and fossil localities recorded from that unit. Paleontological sensitivity is derived from the known fossil data collected from the entire geologic unit, not just from a specific survey.

In general, vertebrate fossil localities are considered more scientifically significant than those containing exclusively invertebrate fossils, because vertebrate fossils are rarer than invertebrate or plant fossils. The recognition of new vertebrate fossil localities can offer new information on prehistoric species' geographic range, geologic age, morphology, evolutionary relationships, depositional environment, and other important scientific questions. Thus, geologic units having the potential to contain vertebrate fossils are considered the most sensitive. However, invertebrate and plant fossil localities may be considered scientifically significant depending on the quality of preservation, geologic context, geographic location, depositional environment, number of individuals or fossil taxa preserved, or the ability of the locality to inform other scientific questions. Furthermore, if a geologic unit is known to contain non-significant paleontological resources, then it is also likely capable of preserving significant paleontological resources. Thus, geologic units heretofore only known to produce invertebrate or plant fossils may still be considered paleontologically sensitive.

3.2 Resource Assessment Criteria

The SVP *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources* (SVP 2010) describes rock units as having high, low, no, or undetermined potential for containing significant nonrenewable paleontological resources. This criterion is based on rock units within which vertebrate or significant invertebrate fossils have been determined by previous studies to be present or likely to be present. Significant paleontological resources are fossils or assemblages of fossils, which are unique, unusual, rare, diagnostically, or stratigraphically important, and those which add to an existing body of knowledge in specific areas, stratigraphically,

taxonomically, or regionally. While these standards were specifically written to protect vertebrate paleontological resources, all fields of paleontology have adopted these guidelines.

- **High Potential.** Rock units from which significant vertebrate or significant invertebrate fossils or significant suites of plant fossils have been recovered are considered to have a high potential for containing significant non-renewable fossiliferous resources. These units include, but are not limited to, sedimentary formations and some volcanic formations that contain significant nonrenewable paleontological resources anywhere within their geographical extent and sedimentary rock units temporally or lithologically suitable for the preservation of fossils. Sensitivity comprises both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, or botanical and (b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, ecologic, or stratigraphic data. Areas that contain potentially datable organic remains older than recent (i.e., beyond when most organic material has degraded), including deposits associated with nests or middens, and areas that may contain new vertebrate deposits, traces, or trackways are also classified as significant. Full-time monitoring is typically recommended during any Project-related ground disturbance in geologic units with high sensitivity.
- **Low Potential.** Reports in paleontological literature or field surveys by a qualified professional paleontologist may allow determination that some rock units have low potential for yielding significant fossils. Such rock units will be poorly represented by fossil specimens in institutional collections or based on general scientific consensus only preserve fossils in rare circumstances and the presence of fossils is the exception not the rule, e.g., basalt flows or Recent colluvium. Rock units with low potential typically will not require impact mitigation measures to protect fossils.
- **No Potential.** Some rock units have no potential to contain significant paleontological resources, for instance high-grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites). Rock units with no potential require no protection nor impact mitigation measures relative to paleontological resources.
- **Undetermined Potential.** Specific areas underlain by sedimentary rock units for which little information is available are considered to have undetermined fossiliferous potential. Field surveys by a qualified paleontologist to specifically determine the potential of the rock units can be conducted to guide the creation of programs for impact mitigation, otherwise the geologic unit shall be treated as having high paleontological sensitivity.

4 Methods

Rincon reviewed the geologic maps of Jennings (1967) and Stone (2006) to identify the geologic units present at and below the surface within a 1-mile radius of the Project Alignment, referred to herein as the Study Area. Rincon reviewed the online paleontological collections database of the University of California Museum of Paleontology (UCMP; 2025) and Paleobiology Database (2025) and consulted primary literature to identify known fossil localities in Riverside County and surrounding regions from similar geologic units to those underlying the Project. Rincon requested a records search of the Western Science Center on July 9, 2025, to identify any previously recorded fossil localities within 500 feet of the Project Alignment or nearby fossil localities known from the same geologic units as those underlying the Project Alignment.

Paleontological sensitivity ratings of the geological formations were assigned based on the findings of the records search and literature review and based on the potential effects to nonrenewable paleontological resources from Project construction following SVP (2010) guidelines.

5 Description of Resources

5.1 Geologic Setting

The Project Alignment crosses two of the eleven geomorphic provinces of California, Transverse Ranges and Mojave Desert (California Geological Survey 2002). The western end of the Project Alignment crosses the eastern edge of the Transverse Ranges. The Transverse Ranges extend approximately 275 miles west-east from Point Arguello in Santa Barbara County, east to the San Bernardino and Eagle Mountains, and south to the Anacapa-Santa Monica-Hollywood-Raymond-Cucamonga fault zone (Yerkes and Campbell 2005). The Transverse Ranges are composed of Proterozoic to Mesozoic intrusive crystalline igneous and metamorphic rocks overlain by Cenozoic marine and terrestrial sedimentary deposits and volcanic rock (Norris and Webb 1976). The majority of the Project Alignment lies within the Mojave Desert province, which is a largely flat plain with several isolated mountain ranges that is effectively wedged to the west between the Sierra Nevada Range (by the Garlock fault) and the Transverse Ranges (by the San Andreas Fault). By the middle Cenozoic, an erosional surface rising eastward from the Garlock-San Andreas convergence (at the western end of the Mojave Desert) had developed, and depression of the region began. Depression resulted in the Mojave Desert province becoming an internal drainage area, accumulating sediments from surrounding mountains (Norris and Webb 1976). Igneous rocks, such as basalt, tuff (ashfall), and volcanic mudflows, from the Miocene to Pleistocene are also found in the Mojave Desert. In the Pleistocene, large pluvial lakes covered large areas of the Mojave Desert, of which modern, intermittently flooded playa lakes are the only remnants.

The Project Alignment crosses numerous geologic and topographic features (Figure 1). The western end of the Project Alignment borders the eastern end of the Eagle Mountains. Most of the Project Alignment runs through the Chuckwalla Valley before crossing the southern foothills of the McCoy Mountains. The east end of the Project Alignment crosses Palo Verde Mesa before descending into the Palo Verde Valley near the Colorado River.

5.2 Geology of the Project

The geology of the region around the Project was mapped by Jennings (1967) and Stone (2006), who identified 17 geologic units within the Study Area (i.e., within 1 mile of the Project) and eight directly underlying the Project Alignment. The geologic map of Dibblee and Minch (2008) was also reviewed to aid in the paleontological sensitivity analysis. These geologic units, along with their ages, paleontological sensitivities, and position within or near the Project, are provided in Table 2. Maps showing the geology and paleontological sensitivity of the Study Area are provided in Figure 2 through Figure 5.

Table 2 Geologic Units of Study Area

Geologic Unit	Age	Paleontological Sensitivity	Directly Underlying Project Alignment?	Directly Underlying Project Alignment on Non-Federal Lands?
Qw - Alluvium of modern washes	Holocene	Low	Yes	Yes
Qr - Alluvium of the modern Colorado River floodplain	Holocene	Low/ Undetermined[1]	Yes	Yes
Qs - Eolian sand	Holocene	Low	No	No
Qa6 - Alluvial fan and valley deposits	Holocene	Low/ Undetermined[1]	Yes	Yes
Qal – Alluvium	Holocene	Low/ Undetermined[1]	Yes	Yes
Qp or Ql - Playa lake deposits	Holocene and Pleistocene	High	No	No
Qa3 - Alluvial fan and valley deposits	Pleistocene	High	Yes	Yes
Qc - Nonmarine deposits	Pleistocene	High	Yes	Yes
Qpv - Alluvial deposits of Palo Verde Mesa	Pleistocene	High	Yes	Yes
Kml - McCoy Mountain Formation Member L	Cretaceous	Low	No	No
Kmk - McCoy Mountain Formation Member K	Cretaceous	Low	No	No
Kmi - McCoy Mountain Formation Member I	Cretaceous	Low	No	No
Kmh - McCoy Mountain Formation Member H	Cretaceous	Low	No	No
KJma - McCoy Mountain Formation Member A	Cretaceous or Jurassic	Low	No	No
KJa - Andesite	Cretaceous or Jurassic	Low	No	No
Jv - Volcanic Rocks	Jurassic	Low	No	No
gr - granite	Mesozoic	None	Yes	No

[1]These Holocene units have been assigned a low paleontological resources potential from 0 to 5 feet below ground surface, but at depths of 5 feet or greater are assigned an undetermined paleontological resources potential.

Figure 2 Geologic Map and Paleontological Sensitivity of Study Area (Western Extent)

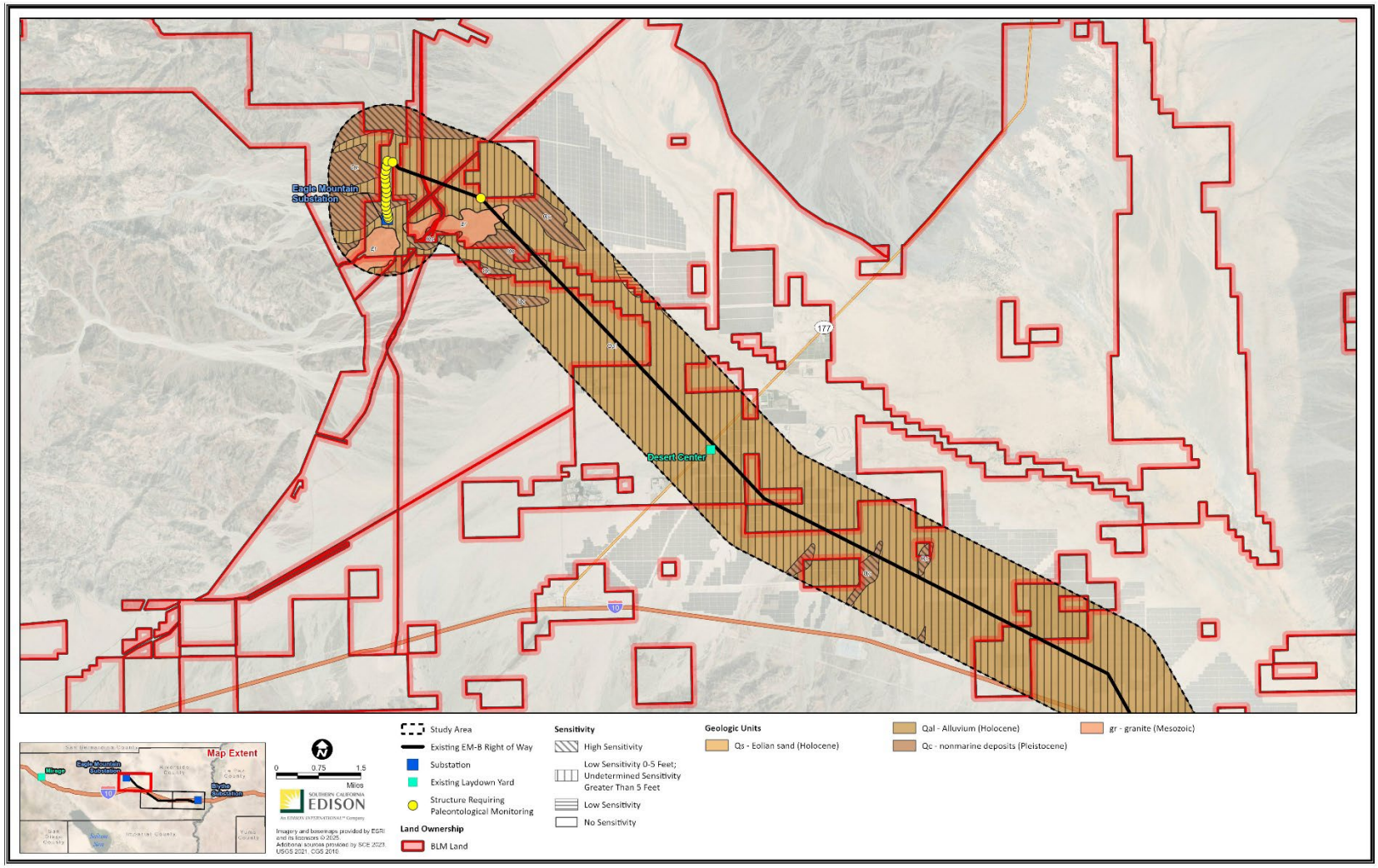


Figure 3 Geologic Map and Paleontological Sensitivity of Study Area (Central Extent)

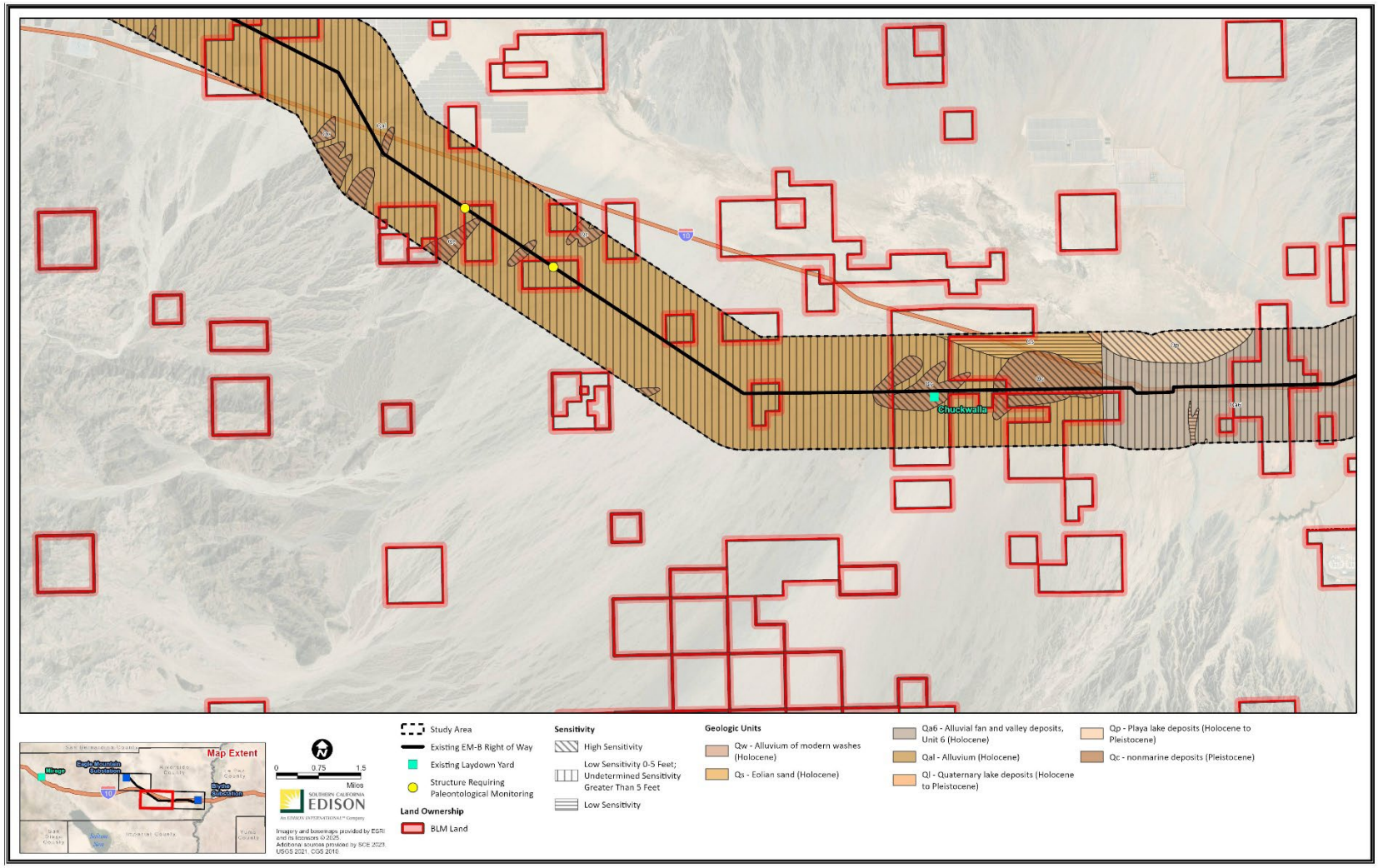


Figure 4 Geologic Map and Paleontological Sensitivity of Study Area (Eastern Extent)

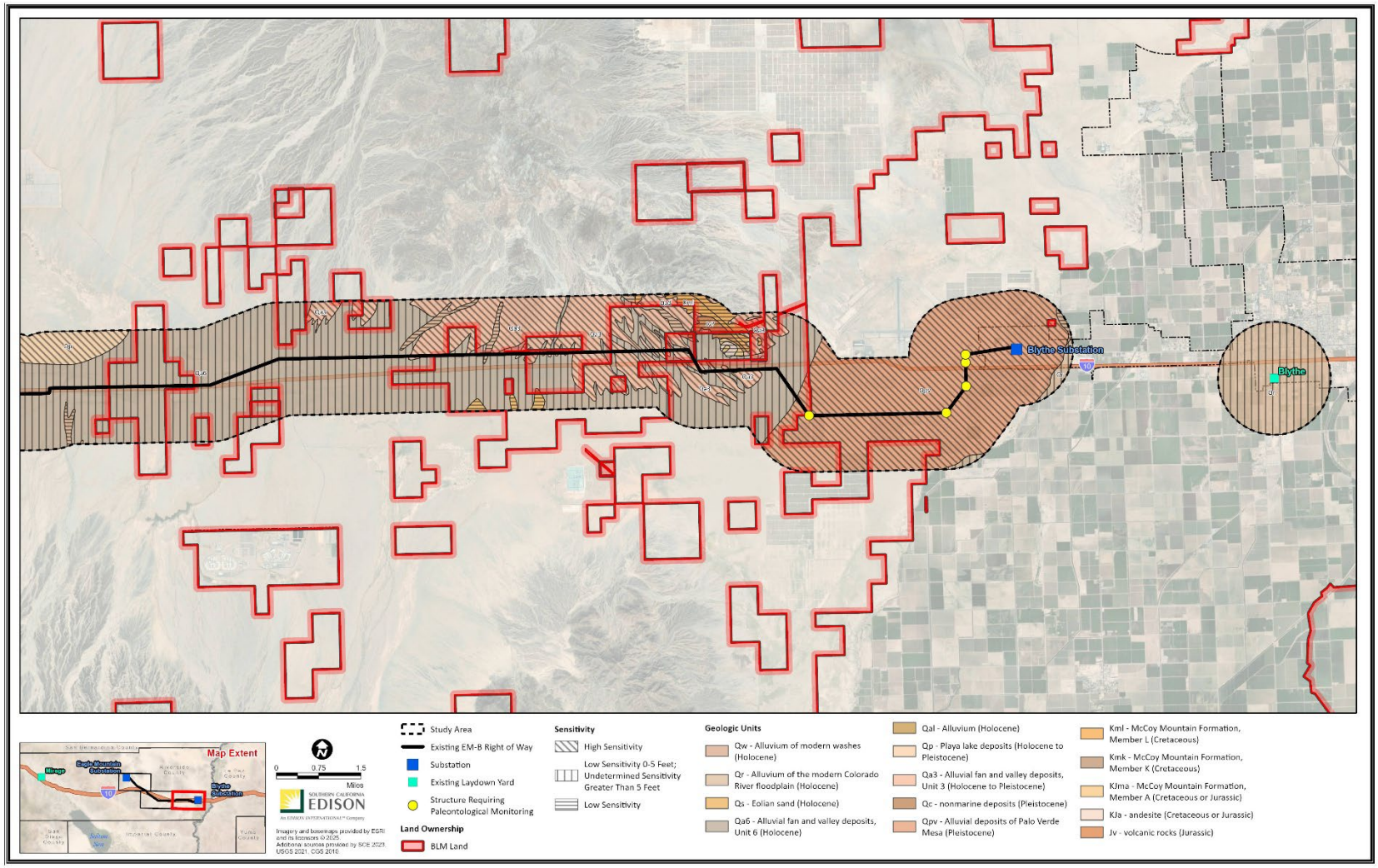
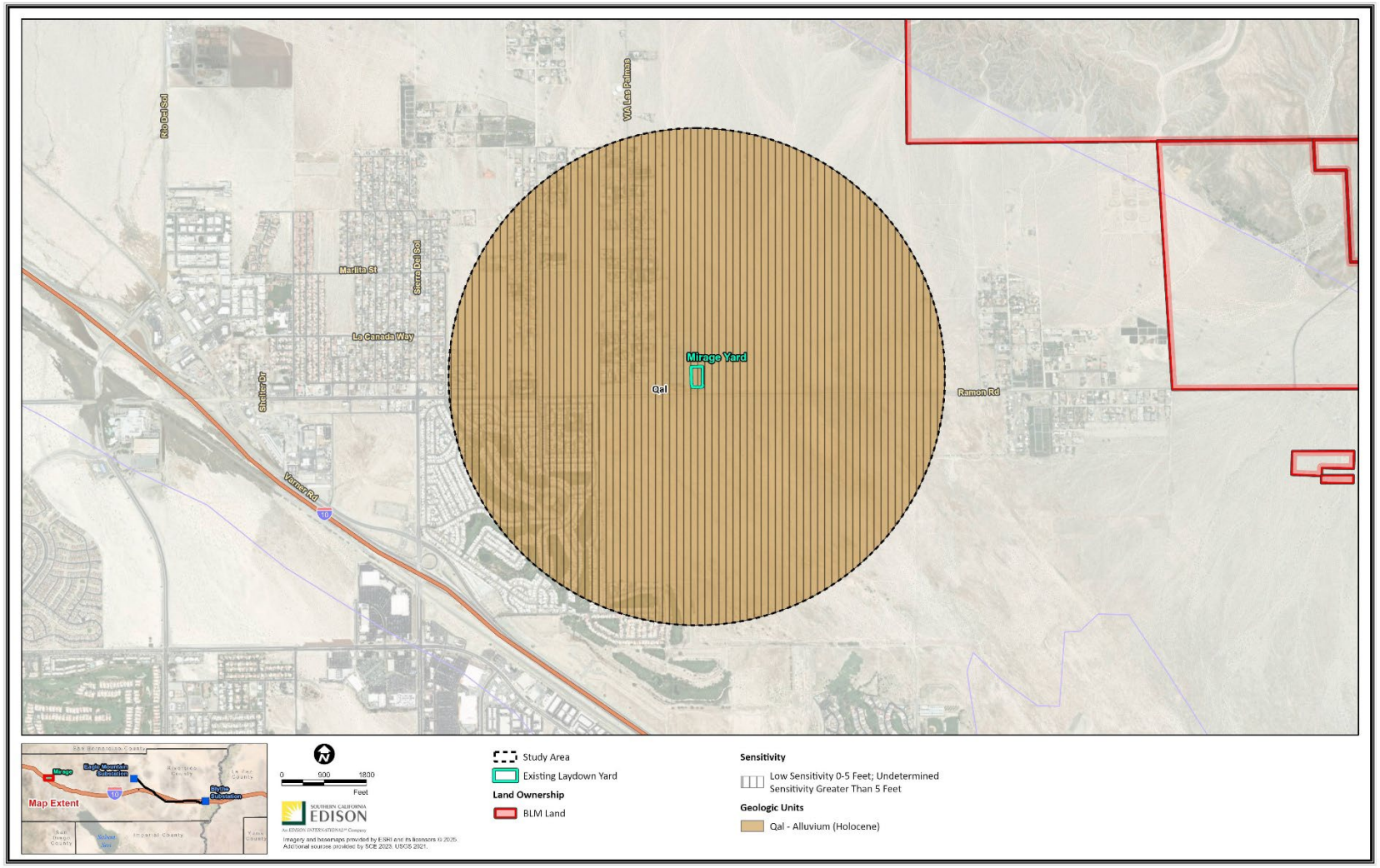


Figure 5 Geologic Map and Paleontological Sensitivity of Study Area (Mirage Yard)



Alluvium of Modern Washes (Qw)

A small portion of the Project Alignment in the southern foothills of the McCoy Mountains is underlain by alluvium of modern washes (Figure 4). These sediments consist of unconsolidated, angular to subangular gravel and sand that may contain cobble- or boulder-sized clasts and represent sediments deposited by modern ephemeral washes (Stone 2006). Numerous washes exist throughout the Project area, but the area mapped in Figure 4 represents the only wash large enough to be shown at map scale per Stone (2006). Alluvium of modern washes is too young (i.e., less than 5,000 years old; SVP 2010) to preserve paleontological resources, and its coarse-grained nature is not conducive to fossil preservation. Therefore, alluvium of modern washes is assigned low paleontological sensitivity.

Alluvium of the Modern Colorado River Floodplain (Qr)

The Blythe laydown yard is underlain by Alluvium of the Modern Colorado River Floodplain (Figure 4). These sediments consist of unconsolidated clay, silt, and sand, and were deposited during modern (i.e., late Holocene) Colorado River flooding events (Stone 2006). Alluvium of the Modern Colorado River Floodplain is too young (i.e., less than 5,000 years old; SVP 2010) to preserve paleontological resources at the surface. However, Holocene alluvial sediments increase in age with depth, meaning, at some depth in the subsurface, they will become old enough to preserve paleontological resources, perhaps as shallow as 5 feet below the surface. This transition depth is an estimate, so Alluvium of the Modern Colorado River Floodplain is considered to have low paleontological sensitivity from 0 to 5 feet below the surface and undetermined paleontological sensitivity greater than 5 feet below the surface.

Eolian Sand (Qs)

Eolian sand does not directly underlie the Project Alignment, but it is mapped in several areas near the Project throughout the Chuckwalla Valley (Figure 2; Figure 3; Figure 4). These sediments consist of unconsolidated, well-sorted sand that is being actively deposited by wind-action as dunes or sheets (Jennings 1967; Stone 2006). Eolian sand is too young (i.e., less than 5,000 years old; SVP 2010) to preserve paleontological resources. Additionally, eolian sand deposits are generally not conducive to fossil preservation in California unless associated with very large Pleistocene lakes such as Lake Manix or Lake Thompson (Reynolds and Reynolds 1991; Jefferson 2010), which is not the case for eolian sand near the project site. Therefore, eolian sand has low paleontological sensitivity.

Alluvial Fan and Valley Deposits (Qa6) and Alluvium (Qal)

Alluvial Fan and Valley Deposits (Qa6) and Alluvium are assessed together in this section because they are equivalent geologic units representing the youngest alluvial sediments deposited in relatively low-lying and flat areas within the Chuckwalla Valley as mapped by Stone (2006) and Jennings (1967), respectively. Together, these geologic units underlie the majority of the Project Alignment (Figure 2; Figure 3; Figure 4; Figure 5). Alluvial Fan and Valley Deposits (Qa6) and Alluvium are Holocene in age and consist of pebbly sand and sandy gravel that lack the deep dissection and desert varnish of older alluvial deposits (Jennings 1967; Stone 2006). Areas mapped as Alluvial Fan and Valley Deposits (Qa6) and Alluvium also contain small areas of eolian sand and washes that are too small to be shown on map scale. Alluvial Fan and Valley Deposits (Qa6) and Alluvium are too young (i.e., less than 5,000 years old; SVP 2010) to preserve paleontological resources at the surface. However, Holocene alluvial sediments increase in age with depth,

meaning, at some depth in the subsurface, they will become old enough to preserve paleontological resources, perhaps as shallow as 5 feet below the surface. This transition depth is an estimate, so Alluvial Fan and Valley Deposits (Qa6) and Alluvium are considered to have low paleontological sensitivity from 0 to 5 feet below the surface and undetermined paleontological sensitivity greater than 5 feet below the surface.

Playa Lake Deposits (Qp, Ql)

Playa Lake Deposits, referred to as Qp and Ql by Stone (2006) and Jennings (1967), respectively, do not directly underlie the Project Alignment but are mapped north of the Project Alignment southwest of the McCoy Mountains (Figure 3; Figure 4). These sediments consist of unconsolidated clay, silt, and sand deposited by modern ephemeral lakes, in this case Ford Dry Lake (Jennings 1967; Stone 2006). Holocene sediments, such as Playa Lake Deposits, are generally considered too young (i.e., less than 5,000 years old; SVP 2010) to preserve paleontological resources at the surface. However, similar playa sediments are known to contain significant paleontological resources at relatively shallow depths throughout the Mojave Desert (Scott and Cox 2008; Jefferson 2010; Paleobiology Database 2025; UCMP 2025). Therefore, Playa Lake Deposits are assigned high paleontological sensitivity.

Alluvial Fan and Valley Deposits (Qa3)

Alluvial Fan and Valley Deposits (Qa3) underlie portions of the Project Alignment on the southern flank of the McCoy Mountains (Figure 4). These sediments are early Holocene to Pleistocene in age and consist of gravel and sand that are distinguished from younger alluvial sediments (e.g., Alluvial Fan and Valley Deposits [Qa6]) by a greater degree of dissection by small washes and gulleys and a greater degree of desert varnish (Stone 2006). Pleistocene-aged alluvial sediments are known to preserve paleontological resources in the Mojave Desert (Jefferson 2010; Paleobiology Database 2025; UCMP 2025; Western Science Center 2025). Therefore, Alluvial Fan and Valley Deposits (Qa3) are assigned high paleontological sensitivity.

Alluvial Deposits of Palo Verde Mesa (Qpv)

Alluvial Deposits of Palo Verde Mesa underlie the eastern end of the Project Alignment (Figure 4). These sediments represent a Pleistocene-aged terrace of the Colorado River and consist of unconsolidated or weakly consolidated pebbly sand, sand, silt, and clay that may be tan, light gray, or reddish-brown in color (Stone 2006). Alluvial Deposits of Palo Verde Mesa are known to preserve paleontological resources (UCMP 2025; Western Science Center 2025). Therefore, Alluvial Deposits of Palo Verde Mesa are assigned high paleontological sensitivity.

Nonmarine Deposits (Qc)

Nonmarine Deposits underlie several parts of the western and central parts of the Project Alignment (Figure 2; Figure 3). These sediments, which are mapped by Jennings (1967), are roughly equivalent to Alluvial Fan and Valley Deposits (Qa3) as mapped by Stone (2006). Nonmarine Deposits are Pleistocene in age and consist of gravel and sand that are distinguished from younger alluvial sediments (e.g., Alluvium) by a greater degree of dissection by small washes and gulleys and a greater degree of desert varnish (Jennings 1967; Stone 2006). Pleistocene-aged alluvial sediments are known to preserve paleontological resources in the Mojave Desert (Jefferson 2010; Paleobiology Database 2025; UCMP 2025). Therefore, Nonmarine Deposits are assigned high paleontological sensitivity.

McCoy Mountains Formation (KJma, Kmh, Kmi, Kmk, Kml)

The McCoy Mountains Formation is mapped within one mile of the Project Alignment but does not directly underlie the Project area (Figure 4). Stone (2006) divided the McCoy Mountains Formation into 12 distinct members (labeled A through K), though paleontologically, these differences are not important. The McCoy Mountains Formation consists of Cretaceous to Jurassic conglomerate, sandstone, and siltstone, with the specific members occurring closest to the Project consisting of sandstone (KJma) and siltstone (Kml). Fossil wood and freshwater brachiopods (invertebrates) are known from the McCoy Mountains Formation, but these occurrences are rare (Harding and Coney 1985; Spencer et al. 2011). Therefore, as a whole, the McCoy Mountains Formation is assigned low paleontological sensitivity.

Andesite (KJa) and Volcanic Rocks (Jv)

Andesite and Volcanic Rocks of Jurassic or Cretaceous age are mapped within one mile of the Project Alignment but not directly underlying the Project Alignment in the southeastern edge of the McCoy Mountains (Figure 4). Areas mapped as andesite generally consist of dark green to black, fine-grained andesite, and areas mapped as Volcanic Rocks generally consist of light gray to light greenish-gray rhyodacitic rocks that may be metamorphosed (Stone 2006). These are igneous geologic units which form by the cooling of molten rock, which is generally not conducive to fossil preservation. Therefore, Andesite and Volcanic Rocks are considered to have low paleontological sensitivity.

Granite (gr)

Granite underlies a small portion of the western end of the Project Alignment and is also found just south of Eagle Mountain Substation (Figure 2). Much of the Eagle Mountains are formed of Cretaceous-aged granitic rocks, and portion crossed by the Project consists of quartz diorite (Jennings 1967; Dibblee and Minch 2008). Granitic rocks are intrusive igneous rocks, meaning they formed by the cooling of molten rock below Earth's surface. Therefore, granitic rocks cannot preserve paleontological resources (SVP 2010), and they have no paleontological sensitivity.

5.3 Paleontology of the Project

A paleontological records search of the Western Science Center recovered no known paleontological localities within 500 feet of the Project Alignment (Western Science Center 2025). Therefore, no fossil locality map is included as a confidential appendix of this report. However, the Western Science Center does include many significant paleontological localities from Quaternary (i.e., Holocene and Pleistocene) alluvial sediments in the Chuckwalla Valley and Palo Verde Mesa that underlie much of the Project Alignment.

6 Evaluation, Impacts, and Recommendations

6.1 Paleontological Sensitivity Evaluation

The Project Alignment is directly underlain by eight geologic units, seven of which underlie the Project Alignment on non-federal lands (Table 2; Figure 2; Figure 3; Figure 4; Figure 5). Of these seven geologic units, three have high paleontological sensitivity (Alluvial Fan and Valley Deposits (Qa3), Alluvial Deposits of Palo Verde Mesa, and Nonmarine Deposits); three have low paleontological sensitivity from 0 to 5 feet below the surface and undetermined paleontological sensitivity greater than 5 feet below the surface (Alluvium of the Modern Colorado River Floodplain, Alluvial Fan and Valley Deposits (Qa6), and alluvium); and one has low paleontological sensitivity (Alluvium of Modern Washes).

6.2 Impacts

Significant impacts to paleontological resources include the destruction, damage, or loss of scientifically important paleontological resources or associated stratigraphic data. Ground-disturbing activities (i.e., grading, excavating, trenching) in undisturbed sediments or geologic units with high or undetermined paleontological sensitivity (Table 2) have the potential to significantly impact paleontological resources under CEQA.

Ground-disturbing construction activities for the Project include removal/replacement of existing distribution or subtransmission structures and excavations/drilling for new subtransmission structures. Many Project components as described in Project Description, such as reconductoring existing circuits and installing OHGW and FRC on existing/newly installed structures, do not involve ground disturbance, and thus, pose no risk to impact paleontological resources. The removal of existing structures or replacement of structures within the same location would solely impact previously disturbed sediments, which lack paleontological sensitivity, meaning these activities do not pose a risk to paleontological resources. Installation of new LWS H-frame structures will require drilling with an auger with a diameter of 2.5 feet or smaller (Table 1). Drilling of this narrow diameter does not produce spoils in which significant paleontological impacts can be observed, meaning this activity is not anticipated to significantly impact paleontological resources. Installation of new TSP or three-pole TSP structures will involve excavations or drilling with an augur up to 6 feet in diameter (Table 1). Therefore, excavations or drilling for TSP or three-pole TSP structures may significantly impact paleontological resources. In total, 21 new TSPs on non-federal lands have the potential to impact paleontological resources, because they occur in areas mapped as high paleontological sensitivity (i.e., nonmarine deposits or alluvial deposits of Palo Verde Mesa) or they will reach greater than 5 feet below the surface in areas mapped as low paleontological sensitivity at the surface and undetermined paleontological sensitivity below the surface (i.e., alluvium).

All access roads that will be used for the Project and the Desert Center and Mirage staging areas are pre-existing, so these components will only require vegetation removal and minor grading (e.g., filling of ruts and re-compaction) to prepare them for use during Project construction. These activities will only impact surficial sediments that have been previously disturbed by the original construction of these components, so they do not pose a risk to paleontological resources. The

Blythe and Chuckwalla staging areas would be newly created for this Project, meaning that the grading required to prepare these staging areas would likely impact previously undisturbed sediment. The Blythe staging area is underlain by Alluvium of the Modern Colorado River Floodplain (Figure 4), which has low paleontological sensitivity to a depth of 5 feet and undetermined paleontological sensitivity deeper than 5 feet (Table 2). The area is relatively flat, so grading to create the Blythe staging area will not reach 5 feet below the surface, so only low-sensitivity sediments will be impacted. Therefore, preparation of the Blythe staging area is not anticipated to impact paleontological resources. The Chuckwalla staging area is mapped as high-sensitivity Nonmarine Deposits (Figure 3; Table 2). Therefore, grading to create the Chuckwalla staging area has the potential to significantly impact paleontological resources. Grading for other work areas (e.g., wire-pulling sites and structure work areas) will consist of vegetation removal and minor grading (e.g., filling of ruts and re-compaction), which is only anticipated to impact surficial, previously disturbed sediments, so this activity is not anticipated to impact paleontological resources.

6.3 Recommendations

The following mitigation measure would address potentially significant impacts under CEQA if paleontological resources are encountered during Project-related ground-disturbing activities. This measure would only apply to ground-disturbing activities in previously undisturbed sediments associated with the Project. Implementation of the following Applicant Proposed Measures would effectively mitigate the Project's potentially significant impacts to these resources under CEQA through the recovery, identification, and curation of previously unrecovered fossils.

PAL-1: Develop Paleontological Resource Mitigation and Monitoring Plan

SCE shall prepare a Paleontological Resources Mitigation and Monitoring Plan (PRMMP) to guide all paleontological management activities during Project construction. The PRMMP shall be submitted to the CPUC for review and approval prior to the start of construction. The PRMMP shall be prepared by a qualified paleontologist, based on SVP (2010) guidelines, and meet all regulatory requirements. The qualified paleontologist shall have a Master's Degree or Ph.D. in paleontology, have local paleontology knowledge, and shall be familiar with paleontological procedures and techniques. The PRMMP will include, but not be limited to, the following sections:

- Paleontological Resource Monitoring and Reporting: Detail monitoring procedures and methodologies, which shall require a qualified paleontological monitor for all construction-related ground disturbance that reach approximate depths for significant paleontological resources in sediments with a high or undetermined paleontological sensitivity. Ground-disturbing activities exclusively affecting geologic units with low or no paleontological sensitivity will not require monitoring. Paleontological monitors shall meet standard qualifications per the SVP (2010).
- Unanticipated Discovery Protocol: Detail procedures for temporarily halting construction, defining work stoppage zones, notifying stakeholders, and assessing the paleontological find for scientific significance. If indicators of potential microvertebrate fossils are found, screening of a test sample shall be carried out as outlined in SVP (2010).
- Data Analysis and Reporting: Detail methods for data recovery, analysis in a regional context, reporting of results within one year of completion of field studies, curation of all fossil

specimens in an accredited museum repository approved by the CPUC and dissemination of reports to appropriate repositories.

PAL-2: Train Construction Personnel

Prior to the initiation of construction, all construction personnel shall be trained, regarding the recognition of possible buried paleontological resources (i.e., fossils) and protection of all paleontological resources during construction. Training shall inform all construction personnel of the procedures to be followed upon the discovery of paleontological materials. All personnel shall be instructed that unauthorized removal or collection of fossils is a violation of federal and State laws. Any excavation contract (or contracts for other activities that may have subsurface soil impacts) shall include clauses that require construction personnel to attend a Worker's Environmental Awareness Program (WEAP) training. The WEAP will include the Project's potential for inadvertently exposing buried paleontological resources, how to operate adjacent to and avoid any potential Environmentally Sensitive Area, and procedures to treat unanticipated discoveries.

PAL-3: Conduct Paleontology Resources Construction Monitoring

Paleontological monitoring shall be conducted by a qualified paleontological monitor familiar with the types of resources that could occur within the Project Area. Paleontological monitoring would be limited to areas of high or undetermined paleontological sensitivity, as determined by the qualified paleontologist. Monitoring reports shall be submitted to the CPUC on a monthly basis.

7 References

California Geological Survey. 2002. California Geomorphic Provinces. *California Geological Survey Note 36*. https://www.coastal.ca.gov/coastalvoices/resources/California_Geomorphic_Provinces.pdf (accessed June 2025).

Dibblee, T.W. and J.A. Minch. 2008. Geologic map of the Coxcomb Mountains 15-minute quadrangle, Riverside County, California. [map.] Dibblee Geological Foundation, Dibblee Foundation Map DF-389, scale 1:24,000.

Harding, L.E. and P.J. Coney. 1985. The geology of the McCoy Mountains Formation, southeastern California and southwestern Arizona. *GSA Bulletin.* Volume 96 (6), pp. 755-769. https://doi.org/10.1130/0016-7606(1985)96<755:TGOTMM>2.0.CO;2

Jefferson, G.T. 2010. A catalogue of late Quaternary vertebrates from California. *Natural History Museum of Los Angeles County Technical Report*. Volume 7, pp. 5-172.

Jennings, C.W. 1967. Geologic map of California: Salton Sea sheet. [map.] *California Division of Mines and Geology*. Geologic Atlas of California GAM-13, scale 1:250,000.

Norris, R.M., and R.W. Webb. 1976. Geology of California. John Wiley and Sons, Inc. New York.

Paleobiology Database. 2025. The Paleobiology Database. http://paleobiodb.org/ (accessed June 2025).

Reynolds, R.E. and R.L. Reynolds. 1991. Structural implications of late Pleistocene faunas from the Mojave River Valley, California. *San Bernardino County Museum Association Quarterly* Volume 38 (3), pp. 100-105.

Riverside, County of. 2015. Riverside County General Plan: Multipurpose Open Space Element. December 8, 2015. https://planning.rctlma.org/General-Plan-Zoning/General-Plan.

Society of Vertebrate Paleontology (SVP). 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. *Society of Vertebrate Paleontology*, 1–11. https://vertpaleo.org/wp-content/uploads/2021/01/SVP_Impact_Mitigation_Guidelines.pdf

Spencer, J.E., S.M. Richard, G.E. Gehrels, J.D. Gleason, and W.R. Dickinson. 2011. Age and tectonic setting of the Mesozoic McCoy Mountains Formation in western Arizona, USA. *GSA Bulletin.* Volume 123 (7-8), pp. 1258-1274. https://doi.org/10.1130/B30206.1

Stone, P. 2006. Geologic map of the west half of the Blythe 30’ x 60’ quadrangle, Riverside County, California and La Paz County, Arizona. [map.] *United States Geological Survey*. Scientific Investigations Map SIM-2922, scale 1:100,000.

University of California Museum of Paleontology (UCMP). 2025. UCMP online database specimen search portal, http://ucmpdb.berkeley.edu/ (accessed June 2025).

Western Science Center. 2025. Collections search of the Western Science Center for the Eagle Mountain-Blythe 161kV Transmission Line Rating and Remediation Project (22-13849), dated July 9, 2025.

Yerkes, R.F. and R.H. Campbell. 2005. Preliminary geologic map of the Los Angeles 30' x 60' quadrangle, southern California. United States Geological Survey. [map]. Open-File Report 2005-1019, scale 1:100,000.

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