

2.10 Paleontological Resources

This section discusses potential impacts to paleontological resources resulting from implementation of the proposed JVR Energy Park Project (Proposed Project). The analysis is based on a review of existing paleontological resources, technical data, and applicable laws, regulations, and guidelines, and the following:

- Proposed Project Revisions Technical Memorandum (Appendix R)

No comments were received in response to the Notice of Preparation regarding paleontological resources. A copy of the Notice of Preparation and comment letters received in response to it are included in Appendix A of this Environmental Impact Report (EIR).

The Proposed Project area has been revised by increasing the Project's setbacks and realignment of an existing water main, a net reduction of 17 acres (see Section 1.2 Project Description in Chapter 1 of the Finale EIR). As described in the Proposed Project Revisions Technical Memorandum (Appendix R), these changes will slightly reduce potential impacts to paleontological resources but will not change any significance determinations in this Section 2.10 Paleontological Resources. This Section has been revised to account for these Project changes.

2.10.1 Existing Conditions

Paleontological resources are the remains and/or traces of prehistoric life, exclusive of human remains, and include the localities where fossils were collected and the sedimentary rock formations from which they were obtained/derived. The defining character of fossils is their geologic age. Fossils or fossil deposits are generally regarded as older than 10,000 years, the generally accepted temporal boundary marking the end of the last Late Pleistocene glacial event and the beginning of the current period of climatic amelioration of the Holocene (County of San Diego 2007).

A unique paleontological resource is any fossil or assemblage of fossils, or paleontological resource site or formation that meets any one of the following criteria (County of San Diego 2007):

- Is the best example of its kind locally or regionally.
- Illustrates a paleontological or evolutionary principle (e.g., faunal succession; plant or animal relationships).
- Provides a critical piece of paleobiological data (illustrates a portion of geologic history or provides evolutionary, paleoclimatic, paleoecological, paleoenvironmental, or biochronological data).
- Encompasses any part of a "type locality" of a fossil or formation.

- Contains a unique or particularly unusual assemblage of fossils.
- Occupies a unique position stratigraphically within a formation.
- Occupies a unique position, proximally, distally or laterally within a formation's extent or distribution.

Geologic Setting

The Project site is located on the eastern portion of the Peninsular Range Geomorphic Province of Southern California. The Peninsular Range Geomorphic Province is typified by northwest to southeast trending mountain ranges extending approximately 900 miles from the Transverse Ranges and the Los Angeles Basin to the southern tip of Baja California. The province varies in width from approximately 30 to 100 miles. In general, the province consists of rugged mountains underlain by Jurassic metavolcanic and metasedimentary rocks, and Cretaceous igneous rocks of the Southern California batholith. The portion of the province in San Diego County that includes the Project site generally consists of uplifted granitic mountains and alluvial valleys. Portions of the Project site are also underlain by Miocene-age volcanic and sedimentary rocks (Appendix F).

As outlined in the Preliminary Geotechnical Evaluation Report prepared for the Proposed Project (Appendix F), a variety of soil types typical of those found in the surrounding geologic region occur within the Project site. The geologic units encountered within the Proposed Project development footprint during subsurface exploration included primarily fill, alluvium, and terrace deposits. Generalized descriptions of the earth units encountered during the field reconnaissance and subsurface exploration are provided in Appendix F, and Section 2.5, Geology, Soils and Seismicity, of this EIR.

Paleontological Resource Potential

Based on rock type and location of previously recorded fossils, areas within the County have been assigned to the following categories for potential paleontological resources: high sensitivity, moderate sensitivity, low sensitivity, marginal sensitivity, and zero sensitivity. The County's California Environmental Quality Act (CEQA) guidelines for paleontological resources use these categories to guide the significance determinations for projects under discretionary review. Most of the County is underlain by geologic formations with no potential, low sensitivity, or marginal sensitivity for paleontological resources (County of San Diego 2009).

As shown on the County's Paleontological Resources Maps (County of San Diego 2009, 2011), as well as Figure 2.10-1, Paleontological Resource Potential, the Project Site is located within areas rated as "high," "moderate," "low," and "no sensitivity" for paleontological resources. High resource potential and high sensitivity are assigned to geologic formations known to contain paleontological localities with rare, well-preserved, critical fossil materials for stratigraphic or

paleoenvironmental interpretation, and fossils providing important information about the paleoclimatic, paleobiological and/or evolutionary history (phylogeny) of animal and plant groups. Moderate resource potential and moderate sensitivity are assigned to geologic formations known to contain paleontological localities. These geologic formations are judged to have a strong, but often unproven, potential for producing unique fossil remains (County of San Diego 2009). Low resource potential and low sensitivity are assigned to geologic formations that, based on their relatively young age and/or high-energy depositional history, are judged unlikely to produce unique fossil remains. Low resource potential formations rarely produce fossil remains of scientific significance and are considered to have low sensitivity. No resource potential is assigned to geologic formations that are composed entirely of volcanic or plutonic igneous rock, such as basalt or granite, and therefore do not have any potential for producing fossil remains.

2.10.2 Regulatory Setting

Federal Regulations

There are no federal regulations related to paleontological resources applicable to the Proposed Project.

State Regulations

California Environmental Quality Act (CEQA)

CEQA requires lead agencies to carefully consider the potential effects of a project on unique paleontological resources. CEQA requires an assessment of impacts associated with the direct or indirect destruction of unique paleontological resources or sites that are of value to the region or State.

Local Regulations

County of San Diego General Plan — Conservation and Open Space Element

The Conservation and Open Space Element of the County General Plan provides policies for the protection of natural resources. In addition, the Conservation and Open Space Element lists “Unique Geologic Features” for conservation, many of which are fossiliferous formations. The following policies are related to paleontological resources (County of San Diego 2011):

- **Goal COS-9: Education and Scientific Uses.** Paleontological resources and unique geologic features conserved for educational and/or scientific purposes.
 - **Policy COS-9.1: Preservation.** Require the salvage and preservation of unique paleontological resources when exposed to the elements during excavation or grading activities or other development processes.

- **Policy COS-9.2 Impacts of Development.** Require development to minimize impacts to unique geological features from human related destruction, damage, or loss.

County of San Diego Grading Ordinance

The Grading Ordinance requires that projects involving grading, clearing, and/or removal of natural vegetation obtain a grading permit, unless the project meets one or more of the exemptions listed in Section 87.202 of the Grading Ordinance. The grading permit is discretionary and requires compliance with CEQA. Section 87.430 of the Grading Ordinance provides that the County official (e.g., permit compliance coordinator) may require a paleontological monitor during all or selected grading operations, to monitor for the presence of paleontological resources. If fossils greater than 12 inches in any dimension are encountered, then all grading operations in the area of discovery shall be suspended immediately and not resumed until authorized by the County official.

The ordinance also requires immediate notification of the County official regarding the discovery. The County official shall determine the appropriate resource recovery operation, which the permittee shall carry out prior to the County official's authorization to resume normal grading operations (County of San Diego 2012).

2.10.3 Analysis of Project Effects and Determination of Significance

Methodology

Paleontological resource impacts occur through the destruction or alteration of a paleontological resource or site by grading, excavation, trenching, boring, tunneling or other activity that disturbs the subsurface geologic formation. Excavation operations are the most common ways for paleontological resources to be adversely impacted and can result in the permanent loss of resources and valuable information. The most extensive excavation impacts are usually associated with mass grading, where earthmovers are used in combination with bulldozers to rip and transport soil and bedrock. Front-end loaders, track hoes, and trucks can also be used in mass excavation operations. Smaller amounts of earth are moved during, boring, trenching, and tunneling, and typically the impacts are less extensive. Indirect impacts to paleontological resources could include destruction or loss of surface fossils from increased erosion, increased human access to the area, and non-scientific or unauthorized surface collection or subsurface excavation of a fossil or paleontological site.

The analysis of potential impacts to paleontological resources resulting from implementation of the Proposed Project is based on a review of the County's Paleontological Resources Maps (County of San Diego 2007) and the underlying geologic unit at the Project site.

Guidelines for the Determination of Significance

The Proposed Project is a solar energy generation and energy storage facility, which includes a ~~switchyard~~ Switchyard Facilities that would be transferred to San Diego Gas & Electric (SDG&E) after construction. For the purposes of this analysis, the ~~switchyard~~ Switchyard Facilities (as described in Section 1.2.1 of Chapter 1, Project Description, Location, and Environmental Setting, of the Final EIR), is are a component of the Proposed Project and ~~has~~ have been analyzed as part of the whole of the action. However, the EIR highlights the specific analysis of the ~~switchyard~~ Switchyard Facilities under each threshold of significance in the event that responsible agencies have CEQA obligations related to the ~~switchyard~~ Switchyard Facilities.

Direct, indirect, and cumulative impacts pertaining to paleontological resources are evaluated based on specified thresholds identified in the CEQA Guidelines Appendix G, and in the County of San Diego's Guidelines for Determining Significance, including the following:

- County of San Diego Guidelines for Determining Significance, Paleontological Resources

The County's Guidelines for Determining Significance are generally intended to address the questions posed in Appendix G of the CEQA Guidelines. In 2018, the CEQA Guidelines were updated and several of the questions listed in Appendix G were revised, deleted, or modified. The County's Guidelines for Determining Significance have yet to be updated to address these amendments. Accordingly, this EIR analyzes the impacts from the Proposed Project using the County's Guidelines for Determining Significance and the questions posed in Appendix G. Where the questions in Appendix G have not been revised, only the County's Guidelines for Determining Significance are identified and analyzed. Where the questions in Appendix G have been significantly altered or additional questions have been posed, the Proposed Project's impacts are analyzed against the questions in Appendix G and, to the extent they remain consistent with Appendix G, the County's Guidelines for Determining Significance.

For the purposes of this section, the County's guidelines for Determining Significance – Paleontological Resources (County of San Diego 2009) applies to the direct, indirect, and cumulative impact analysis. An affirmative response to or confirmation of the following guideline will generally be considered a significant impact related to paleontological resources, in the absence of scientific evidence to the contrary:

- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. A significant impact to paleontological resources may occur as a result of the project, if project-related grading or excavation will disturb the substratum or parent material below the major soil horizons in any paleontologically sensitive area of the County, as shown on the San Diego County Paleontological Resources Potential and Sensitivity Map.

This guideline is derived from CEQA Guidelines Appendix G. It requires the evaluation of paleontological resources to determine whether or not a proposed action will have a significant effect on paleontological resources (County of San Diego 2009).

Analysis

Development of the solar facility and supporting infrastructure would disturb approximately ~~643~~²⁶ acres during construction-related grading activities. Clearing and grubbing would be required for construction and access to the Project site. Clearing and grubbing activities are unlikely to disturb paleontological resources, if present, because they would affect surface soil horizons only, which are unlikely to contain significant paleontological resources.

Grading would be required throughout the 623-acre Major Use Permit (MUP) boundary. Grading is expected to be balanced on site, with approximately ~~264,000~~ 280,000 cubic yards of cut redistributed across the site. Proposed grading has the potential to disturb paleontological resources onsite. In addition to grading, construction activities that would disturb the subsurface would include demolition of existing structures on a portion of the Project site; pile driving; fence installation; landscaping installation; construction of the substation, ~~switchyard~~ Switchyard Facilities, and meteorological stations; tracker and PV Module installation; undergrounding of electrical facilities; inverter/transformer platform installation; and battery energy storage system installation. The Proposed Project also includes interior access and proposed access driveways.

The proposed undergrounding of the collection system would require trenching for installation of the AC medium voltage underground electrical collection system and telecommunication lines. Trenches would be approximately 3 to 4 feet deep and 2 to 3 feet wide. In addition, realignment of the existing water main would require trenching of an 18-inch trench at a depth of 3.8 feet along the outside of the MUP boundary as shown on Figure 2-10-1. The trenches would be filled with base materials above and below the conductors and communication lines to ensure adequate thermal conductivity and electrical installation characteristics. The topsoil from trench excavation would be set aside the trench before the trench is backfilled and would ultimately comprise the uppermost layer of the trench. Excess material from the foundation and trench excavations would be used for site leveling. Where possible, trenching for the undergrounding of the collection system would be located beneath interior access and driveways to minimize disturbance.

As described above, most of the County is underlain by geologic formations with no potential, low sensitivity, or marginal sensitivity for paleontological resources (County of San Diego 2009). However, as shown on the County's Paleontological Resources Maps (County of San Diego 2009, 2011), as well as Figure 2.10-1. Within the development footprint (shown as MUP Boundary on Figure 2.10-1), the potential for paleontological resources is rated as "high," "moderate," "low," and "no sensitivity." Further, grading would exceed 2,500 cubic yards which the County considers

an increase in the potential loss of paleontological resources and may disturb the substratum or parent material below the major soil horizons on the Project site. Although the majority of the development footprint is mapped as having “low” paleontological resource potential, since some areas along the eastern and western Proposed Project boundary are mapped as “high” and “moderate” potential, impacts to paleontological resources during construction of the Proposed Project would be **potentially significant (Impact PR-1)**.

During the operational phase, the Proposed Project would not have any full-time personnel on site, but may include up to five people on site during operations inspections, maintenance, and repair activities. Operational activities are unlikely to disturb paleontological resources because they would affect surface soil horizons only, which do not contain significant paleontological resources. Therefore, it is determined that operation and maintenance related impacts would be **less than significant**.

Decommissioning activities would be performed within the Proposed Project development footprint. No ground-disturbing activities would occur outside the development footprint. All Proposed Project components would be decommissioned except the ~~switchyard~~ Switchyard Facilities as described in Section 1.2.1, which would be owned and operated by SDG&E. The activities associated with decommissioning would not include grading. Implementation of a final decommissioning plan(s) would be required, and would be provided within one year of issuance of the building permits for the Proposed Project to ensure compliance with Section 6954.b.3(d) of the County of San Diego Zoning Ordinance for removal surety as described in Chapter 1, Project Description, of this EIR. Implementation of the final decommissioning plan impacts to paleontological resources during decommissioning of the Proposed Project would be **less than significant**.

Switchyard Facilities

The Proposed Project would include ~~switchyard~~ Switchyard Facilities located adjacent to the proposed collector substation (see ~~Figure 1-5~~ Section 1.2.1 in Chapter 1 of the Final EIR). The size of the switchyard pad would be approximately 140,000 square feet. Within this area would be 8-foot- high security fence (445 feet by 300 feet) surrounded by a 5-foot shoulder for grounding protection inside the fence. As shown on Figure 2.10-1, the area within the ~~switchyard~~ Switchyard Facilities site is mapped as having “low” paleontological resource potential. However, as the ~~switchyard~~ Switchyard Facilities would be located within close proximity to areas mapped as “high” and “moderate” paleontological resource potential, there would be the potential to impact unknown paleontological resources during construction. Therefore, impacts would be **potentially significant (Impact PR-1)**.

After completion of construction of the ~~switchyard~~ Switchyard Facilities, operation of the ~~switchyard-facility~~ Switchyard Facilities would be transferred to SDG&E. The ~~switchyard~~ Switchyard Facilities would be un-staffed during operation. Monitoring and control functions

would be performed remotely from SDG&E's central operations facilities. Accordingly, no new personnel would be required for operation and maintenance. Routine operations would require a single pickup truck visiting the ~~switchyard~~ Switchyard Facilities several times a week for switching, as well as several larger substation construction and maintenance trucks visiting the ~~switchyard~~ Switchyard Facilities several times a year for equipment maintenance. Maintenance activities would include equipment testing, equipment monitoring and repair, and emergency and routine procedures for service continuity and preventive maintenance. Operational activities are unlikely to disturb paleontological resources because they would affect surface soil horizons only, which do not contain significant paleontological resources. Therefore, it is determined that operation and maintenance related impacts would be **less than significant**. The ~~switchyard~~ Switchyard Facilities that would be owned and operated by SDG&E would not be decommissioned at the life span of the solar facility.

2.10.4 Cumulative Impact Analysis

Cumulative projects (Table 1-4, Cumulative Scenario – Reasonably Foreseeable Approved and Pending Projects, in Chapter 1 of this EIR) located within the cumulative project area would have the potential to result in a cumulative impact associated with paleontological resources from extensive grading, excavation, or other ground-disturbing activities that are located in an area of high or moderate sensitivity. Cumulative projects on state or public lands would be required to comply with Public Resources Code Sections 5097–5097.6 pertaining to impacts to paleontological resources. Other cumulative projects would be regulated by state and local regulations, including CEQA and the County Grading Ordinance.

As discussed in Section 2.10.2, Regulatory Setting, the Proposed Project is subject to the County Grading Ordinance, which requires a paleontological monitor to be present during grading or excavation activities at the discretion of the County, mandates the suspension of grading operations upon the discovery of fossils greater than 12 inches in any dimension, and gives the appropriate County official the authority to determine the appropriate resource recovery operations, which shall be carried out prior to the County official's authorization to resume normal grading operations. Therefore, due to the Grading Ordinance and discretionary review process required, the Proposed Project **would not contribute to a cumulatively considerable impact** to paleontological resources.

2.10.5 Significance of Impacts Prior to Mitigation

County guidelines state that for projects within areas of high or moderate paleontological resources potential that propose excavation equal to or greater than 2,500 cubic yards, the services of a Project Paleontologist and a Paleontological Resources Monitor are required. Because construction of the Proposed Project would require ~~264,000~~ 280,000 cubic yards of excavation,

and areas of “high” and “moderate” paleontological resource potential occur within the Proposed Project development footprint, construction of the Proposed Project has the potential to impact unidentified paleontological resources. Therefore, construction related impacts would be **potentially significant** prior to mitigation (**Impact PR-1**).

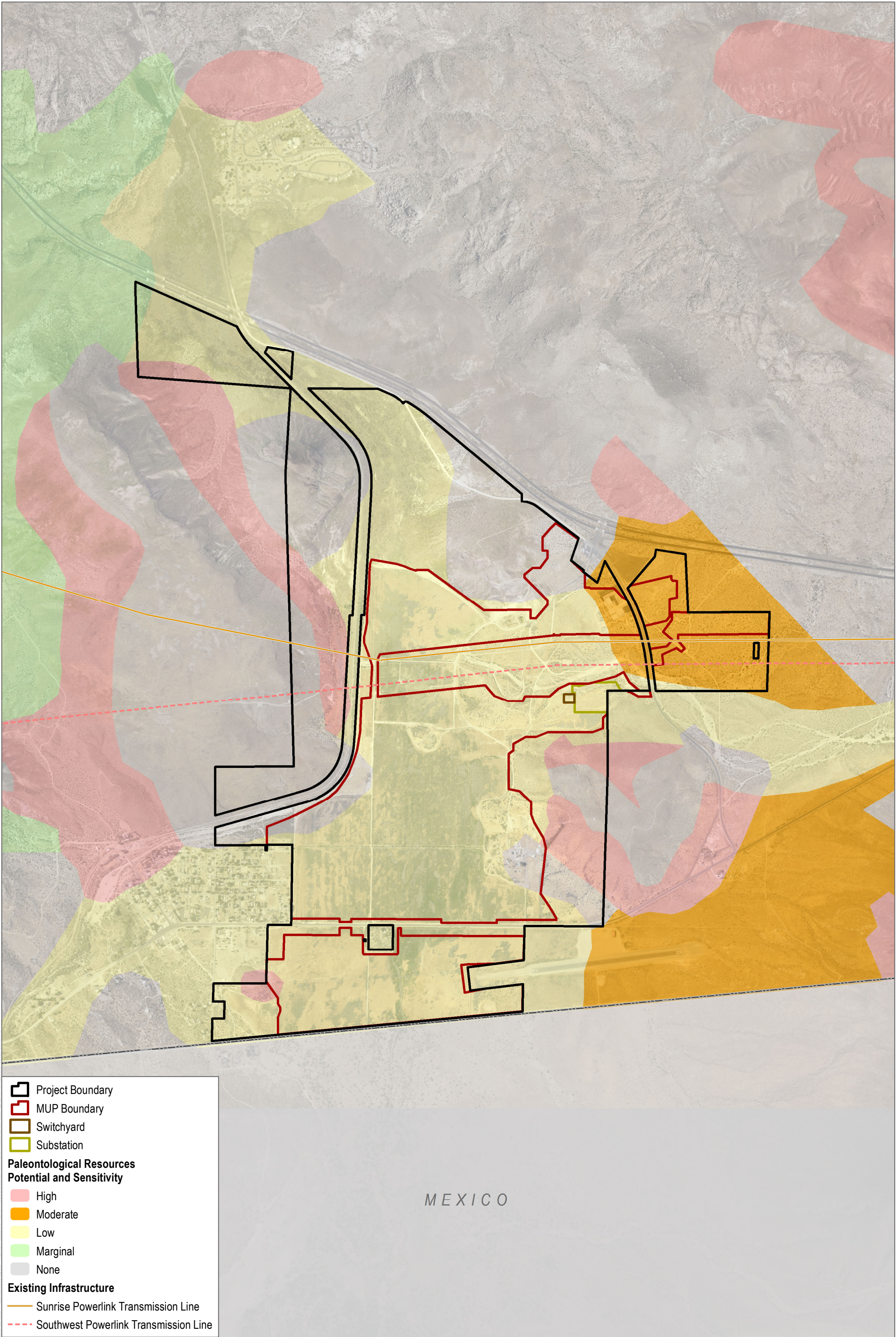
2.10.6 Mitigation Measures and Design Considerations

M-PR-1 Prior to commencement of any grading activity on site, the applicant shall retain a qualified paleontologist, subject to the review and approval of the County. The paleontologist shall prepare a Paleontological Resources Monitoring Program (PRMP) for the Project. The PRMP shall be consistent with the guidelines of the Society of Vertebrate Paleontology (2010). The qualified paleontologist shall attend the preconstruction meeting and the paleontological monitor shall be on-site during rough grading and other significant ground-disturbing activities in previously undisturbed geological units with moderate to high paleontological resource sensitivity. In the event that paleontological resources (e.g., fossils) are unearthed during grading, the paleontological monitor shall temporarily halt and/or divert grading activity to allow recovery of paleontological resources. The area of discovery shall be contained with temporary orange construction fencing and shall include a 50-foot radius buffer. Once documentation and collection of the find is completed, the paleontological monitor shall remove the temporary orange construction fencing and grading will be allowed to recommence in the area of the find. Upon completion of the paleontological monitoring program, the qualified paleontologist shall prepare a final monitoring report documenting the results of the monitoring program. This report shall include a description of the methods used, stratigraphic section(s) exposed, fossils collected, and significance of recovered fossils.

2.10.7 Conclusion

With implementation of **M-PR-1**, Paleontological Resources Monitoring, the potential for impacts to paleontological resources would be reduced to a level of **less than significant**. Implementation of the mitigation measure would ensure that fossils, if present, would be identified and recovered as appropriate.

INTENTIONALLY LEFT BLANK



Project Boundary

MUP Boundary

Switchyard

Substation

**Paleontological Resources
Potential and Sensitivity**

High

Moderate

Low

Marginal

None

Existing Infrastructure

Sunrise Powerlink Transmission Line

Southwest Powerlink Transmission Line

SOURCE: Kimley-Horn 2021; SANGIS 2017, 2021

FIGURE 2.10-1

Paleontological Resource Potential

JVR Energy Park Project

INTENTIONALLY LEFT BLANK