

2.5 Paleontology

The assessment of the Project's potential to have an adverse effect on paleontological resources is based on a review of the sensitivity map in the County's Guidelines for Determining Significance – Paleontological Resources (2009b, 2009c), and the Soil and Geologic Reconnaissance prepared for the Project by Geocon, Inc. (2020). This study is summarized in the following analysis, with the Soil and Geologic Reconnaissance report included as Appendix G of this EIR.

2.5.1 Existing Conditions

Paleontology is the science dealing with prehistoric plant and non-human animal life. Paleontological resources (or fossils) typically encompass the remains or traces of hard and resistant materials such as bones, teeth, or shells, although plant materials and occasionally less resistant remains (e.g., tissue or feathers) can also be preserved. The formation of fossils typically involves the rapid burial of plant or animal remains and the formation of casts, molds, or impressions in the associated sediment (which subsequently becomes sedimentary rock). Because of this, the potential for fossil remains in a given geologic formation can be predicted based on known fossil occurrences from similar (or correlated) geologic formations in other locations. Accordingly, while there are no recorded fossil occurrences or collection efforts known from the Project site, paleontological resource potential can be inferred from on-site geology and off-site fossil occurrences in similar materials.

Based on the referenced Soil and Geologic Reconnaissance, geologic formations and surficial deposits observed within the Project site and vicinity are described below. This discussion is followed by assessments of paleontological resource sensitivity and potential Project impacts, with additional description of site geology provided in Appendix G. Human-derived deposits such as fill are not included in the following analysis, due to their recent age and the associated lack of potential to contain fossil resources.

2.5.1.1 *Stratigraphy*

Surficial materials and geologic formations observed or expected to occur within the Project site and vicinity include granitic rocks and Quaternary-age (between approximately 11,000 and 2 million years old) alluvial channel and flood plain deposits.

Quaternary Alluvium Channel Deposits (Qualc)

Quaternary age alluvial channel deposits occur throughout the central portion of the Project site, and generally consist of loose, fine- to coarse-grained sand with varying amounts of silt and gravel.

Quaternary Alluvium Flood Plain Deposits (Qalf)

Quaternary age alluvial flood plain deposits generally occur on the north and south sides of the channel deposits. The flood plain deposits generally consist of soft to firm, micaceous, sandy clay, sandy silt, and silty sand.

Granitic Rocks (Kgr)

Granitic rocks underlie most of the site. Granitic rock encountered during drilling on the site was weathered and generally consisted of silty, fine to coarse sand.

2.5.1.2 Paleontological Resource Sensitivity

Each of the above units has been evaluated for paleontological resource potential and assigned a sensitivity rating, based on the following criteria derived from sources including the County's Guidelines for Determining Significance – Paleontological Resources (2009c).

- High Sensitivity – High resource sensitivity is 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 of animal and plant groups.
- Moderate Sensitivity – Moderate resource sensitivity is assigned to geologic formations known to contain paleontological localities and judged to have a strong but often unproven potential for producing unique fossil remains.
- Low Sensitivity – Low resource sensitivity is 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 (although important paleontological resources have occurred infrequently in local low sensitivity deposits). When fossils are found in these formations, however, they are often very significant additions to the geologic understanding of the area.
- Marginal Resource Sensitivity – Marginal resource sensitivity is assigned to geologic formations that are composed either of volcanoclastic or metamorphosed sedimentary (metasedimentary) rocks, but that nevertheless have a limited probability for producing fossils from certain formations at localized outcrops.
- No Sensitivity – This designation is assigned to geologic formations that are composed entirely of volcanic or plutonic igneous rocks formed from molten material, such as basalt or granite, and therefore do not have any potential for producing fossil remains.

Based on these descriptions, the following paleontological resource sensitivity ratings are assigned to surficial and geologic units with the Project site: (1) Quaternary alluvial deposits are assigned a “low” resource sensitivity rating due to their relatively young age and high-energy depositional history; (2) granitic rocks are assigned a “no” sensitivity rating due to their molten origin.

2.5.1.3 *Regulatory Setting*

State

California Environmental Quality Act

CEQA requires lead agencies to 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

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

The following goals and policies identified in the County General Plan Conservation and Open Space Element are applicable to the Proposed Project (County 2011b):

- **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 County 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 must be suspended immediately and not resumed until authorized by the County official. The Grading Ordinance also requires immediate notification of the County official regarding the discovery. The County official must determine the appropriate resource recovery operation, which the permittee must carry out prior to the County official's authorization to resume normal grading operations (County 2012b).

2.5.2 Analysis of Project Effects and Determination as to Significance

Guideline for the Determination of Significance

Impacts to paleontological resources would be significant if the Project (1) directly or indirectly destroys a unique paleontological resource or site or unique geologic feature, or (2) includes activities, such as project-related grading or excavation, that disturbs 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.

Guideline Source

This guideline is based on the County's Guidelines for Determining Significance—Paleontological Resources (County 2009c). Per County Guidelines, 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:

- 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; or
- Occupies a unique position, proximally, distally, or laterally within a formation's extent or distribution.

Analysis

Project activities would be anticipated to encounter all of the described on-site surficial and geologic units. Approximately 4.3 million cy of aggregate material are proposed to be extracted at an average depth of approximately 20 feet bgs across the site. Some areas would be excavated to a maximum depth of 40 feet bgs (refer to Figure 1-6a and 1-6b). Based on the described “low” sensitivity rating for Quaternary alluvial deposits, **implementation of the Project could potentially result in significant impacts to paleontological resources from excavation and grading in previously undisturbed deposits (Impact PAL-1).**

2.5.3 Cumulative Impact Analysis

The geologic units that occur under the Project site also are present in many other areas of the San Diego region. Development of the San Diego region has resulted in disturbance to these geologic units and the fossils that they contain. Development has also, however, led to the discovery of many fossil sites that have been documented and which have added to the natural history record of the region. Development of the San Diego area will continue and will have the potential to continue to disturb these geologic units. Because of the geographic extent of the potential impacts, development of a cumulative project list for this topic is not practical.

As described in Section 2.5.2, paleontological impacts associated with the Project are potentially significant, but would be fully mitigated through conformance with applicable regulatory requirements. Specifically, such conformance would entail implementing mitigation measures to monitor applicable Project grading and excavation operations and, if appropriate, evaluate, recover, document and curate paleontological resources. Accordingly, implementation of the described mitigation measures would ensure that important scientific information associated with on-site paleontological resources is protected and preserved. This could yield additional information or reinforce existing knowledge of local natural history. Projects throughout the San Diego region would be subject to similar requirements for paleontological resources, pursuant to CEQA and County requirements. If additional development projects result in potential impacts to paleontological resources, they also would be subject to associated regulatory requirements. The described requirements for regulatory conformance would ensure that paleontological resources and associated scientific data from cumulative project sites (including the Project) would be appropriately protected and preserved. Accordingly, the Project would not result in a significant contribution to cumulative impacts for the issue of paleontological resources and impacts would be **less than significant**.

2.5.4 Significance of Impacts Prior to Mitigation

Impact PAL-1 The Proposed Project could result in significant impacts to paleontological resources from the excavation of previously undisturbed deposits exhibiting low resource potential (i.e., Quaternary alluvial deposits).

2.5.5 Mitigation

M-PAL-1 The Project site has low resource potential for paleontological resources. All excavation activities are subject to the *County of San Diego Grading Ordinance Section 87.430*, if any significant resources (fossils) are encountered during excavation activities.

- a. The grading contractor is responsible to monitor for paleontological resources during all grading activities. If any fossils are found greater than 12 inches in any dimension, stop all grading activities and contact PDS before continuing grading operations.
- b. If any paleontological resources are discovered and salvaged, the monitoring, recovery, and subsequent work determined necessary shall be completed by or under the supervision of a Qualified Paleontologist pursuant to the *San Diego*

County Guidelines for Determining Significance for Paleontological Resources.

- M-PAL-2** One of the following letters shall be prepared upon completion of the excavation/mining activities that require monitoring:
- a. If no paleontological resources were discovered, submit a “No Fossils Found” letter from the grading contractor to PDS stating that the monitoring has been completed and that no fossils were discovered, and including the names and signatures from the fossil monitors. The letter shall be in the format of Attachment E of the *San Diego County Guidelines for Determining Significance for Paleontological Resources*.
 - b. If paleontological resources were encountered during grading, a letter shall be prepared stating that the field grading monitoring activities have been completed, and that resources have been encountered. The letter shall detail the anticipated time schedule for completion of the curation phase of the monitoring.

2.4.6 Conclusion

Implementation of the Project would potentially result in significant impacts to paleontological resources in association with proposed grading and excavation in previously undisturbed areas exhibiting low sensitivity. With implementation of the above mitigation, the described impacts to sensitive paleontological resources would be **less than significant** because the fossils would be removed from the site and research and curation completed as necessary and appropriate.