

## **4.13 Paleontological Resources**

### **4.13.1 Thresholds of Significance**

A significant paleontological resource would occur if the Proposed Project would:

1. Propose activities that directly or indirectly damage a unique paleontological resource or site.

Guideline No. 1 is derived directly from CEQA Guidelines and the County Guidelines for Determining Significance, Paleontological Resources (dated January 15, 2009). Treatment of paleontological resources under CEQA generally is similar to treatment of cultural resources, requiring evaluation of resources in a project's area of potential affect, assessment of potential impacts on significant or unique resources, and development of mitigation measures for potentially significant impacts.

### **4.13.2 Proposed Project**

#### ***4.13.2.1 Analysis of Project Effects and Determination as to Significance***

As described in Section 3.13.2, potentially sensitive paleontological resources or sites within the Project area would be associated with the high sensitivity Tertiary Otay Formation (Oligocene Non-Marine) and the marginal sensitivity Jurassic Santiago Peak Volcanics (Upper Jurassic and Lower Cretaceous). The Otay Formation occurs in the northernmost portion of the Project impact footprint and in a small area within the MUP footprint along the southwestern boundary (Figure 3.1-1). The Santiago Peak Volcanics occur within most of the Project site, including approximately the southern three-quarters of the impact footprint. All other on-site geologic units and surficial materials exhibit low or no potential for the occurrence of significant paleontological resources (Deméré and Walsh 1994). Based on the occurrence and the Project's proposed excavation of the Tertiary Otay Formation and Jurassic Santiago Peak Volcanics, implementation of the Proposed Project would result in potentially significant impacts to paleontological resources. (Impact PR-1)

#### ***4.13.2.2 Significance of Impacts Prior to Mitigation***

##### **Paleontological Resources**

Impact PR-1 The proposed excavation of the Tertiary Otay Formation and Jurassic Santiago Peak Volcanics, which have high and marginal paleontological resource sensitivities, respectively, would result in potentially significant impacts to paleontological resources.

#### ***4.13.2.3 Mitigation Measures***

The following mitigation measures shall be implemented to ensure that potential adverse impacts to paleontological resources from implementation of the Proposed Project would be reduced to less than significant levels:

M-PR-1a A qualified paleontologist shall be at the pre-construction meeting(s) to consult with the grading and excavation contractors concerning excavation schedules, paleontological field techniques and safety issues. A qualified paleontologist is defined as an individual having an M.S. or Ph.D. degree in paleontology or geology who is familiar with paleontological procedures and techniques, is knowledgeable in the geology and paleontology of San Diego County, and who has worked as a paleontological mitigation project supervisor in the County for at least one year.

M-PR-1b A qualified paleontological monitor shall be on site on a full-time basis during the original cutting of previously undisturbed deposits of the Tertiary Otay Formation to inspect exposures for contained fossils. A qualified paleontological monitor is defined as an individual having experience in the collection and salvage of fossil materials. The paleontological monitor shall work under the direction of a qualified paleontologist. If the qualified paleontologist or paleontological monitor ascertains that observed exposures of the Otay Formation are not fossil-bearing, the qualified paleontologist shall have the authority to terminate the monitoring program.

A Standard Monitor shall be on site during all original cutting of previously undisturbed deposits of the Jurassic Santiago Peak Volcanics to inspect exposures for contained fossils. A Standard Monitor is defined as any one person designated by the Applicant and given the responsibility of watching for fossils so that the project is in conformance with Section 87.430 of the Grading Ordinance.

M-PR-1c If fossils are discovered during monitoring of the Otay Formation, they shall be recovered by the qualified paleontologist or paleontological monitor. In most cases, fossil salvage can be completed in a short period of time, although some fossil specimens (such as a complete large mammal skeleton) may require an extended salvage period. In these instances, the paleontologist (or paleontological monitor) shall be allowed to temporarily direct, divert, or halt grading to allow recovery of fossil remains in a timely manner. Because of the potential for recovering small fossil remains, such as isolated mammal teeth, it may be necessary to set up a screen-washing operation on the recovery site.

If a fossil of greater than 12 inches in any dimension, including circumference, is encountered during excavation or grading of the Santiago Peak Volcanics, all excavation operations in the area where the fossil was found shall be suspended immediately, the PDS Permit Compliance Coordinator shall be notified, the Project Paleontologist shall assess the significance of the find and, if the fossil is significant, the Project Paleontologist shall oversee the salvage program, including salvaging, cleaning, and curating the fossil(s), and documenting the find (as outlined below).

M-PR-1d If any sub-surface bones or other potential fossils are found anywhere within the Project impact footprint by construction personnel in the absence of a qualified paleontologist or paleontological monitor, the qualified paleontologist shall be notified immediately to assess their significance and make further recommendations.

- M-PR-1e Fossil remains collected during monitoring and salvage shall be cleaned, repaired, sorted, and cataloged as part of the mitigation program.
- M-PR-1f Prepared fossils, along with copies of all pertinent field notes, photos, and maps, shall be deposited (as a donation) in a scientific institution with permanent paleontological collections such as the San Diego Natural History Museum. Donation of the fossils shall be accompanied by financial support from the applicant for initial specimen storage.
- M-PR-1g A final summary report outlining the results of the mitigation program shall be prepared by a qualified paleontologist and submitted to the County of San Diego for concurrence. This report shall include discussions of the methods used, stratigraphic section(s) exposed, fossils collected, and significance of recovered fossils.

#### **4.13.2.4 Conclusion**

Grading and excavation activities associated with development of the Proposed Project could potentially result in significant impacts related to disturbance/destruction of sensitive fossil resources preserved within the Tertiary Otay Formation and/or the Jurassic Santiago Peak Volcanics. The mitigation measures identified above for such potential impacts would be implemented as described and would reduce associated impacts to paleontological resources to less than significant levels.

### **4.13.3 Extraction to Natural Grade Alternative**

#### **4.13.3.1 Analysis of Project Effects and Determination as to Significance**

Potentially sensitive paleontological resources or sites within the Extraction to Natural Grade Alternative area would be associated with the high sensitivity Tertiary Otay Formation, and the marginal sensitivity Jurassic Santiago Peak Volcanics. The Otay Formation occurs in the northernmost portion of and along the western edge of the impact footprint site, while the Santiago Peak Volcanics are present in much of the site (including approximately the southern three-quarters of the impact footprint), as described above for the Proposed Project (refer to Figure 3.1-1). Based on the occurrence and proposed excavation of the Tertiary Otay Formation and Jurassic Santiago Peak Volcanics, implementation of the Extraction to Natural Grade Alternative would result in potentially significant impacts to paleontological resources similar to those impacts associated with the Proposed Project. (Impact PR-1)

#### **4.13.3.2 Significance of Impacts Prior to Mitigation**

Significant impacts associated with the Extraction to Natural Grade Alternative would be similar to those described for the Proposed Project in Subsection 4.13.3.3.

#### **4.13.3.3 Mitigation Measures**

Potentially impacted paleontological resources would be subject to the same mitigation measures as those described in Subsection 4.13.3.4.

#### **4.13.3.4 Conclusion**

Grading and excavation activities associated with development of the Extraction to Natural Grade Alternative could potentially result in significant impacts related to disturbance/destruction of sensitive fossil resources preserved within the Tertiary Otay Formation and the Jurassic Santiago Peak Volcanics. The mitigation measures identified above for such potential impacts would be implemented as described and would reduce associated impacts to paleontological resources below a level of significance.

#### **4.13.4 Extraction to Varying Depth Alternative**

##### **4.13.4.1 Analysis of Project Effects and Determination as to Significance**

Potentially sensitive paleontological resources or sites within the Extraction to Varying Depth Alternative area would be associated with the high sensitivity Tertiary Otay Formation and the marginal sensitivity Jurassic Santiago Peak Volcanics. The Otay Formation occurs in the northernmost portion of and along the southwestern edge of the impact footprint site, while the Santiago Peak Volcanics are present in much of the site (including approximately the southern three-quarters of the impact footprint), as described above for the Proposed Project (refer to Figure 3.1-1). Based on the occurrence and proposed excavation of the Tertiary Otay Formation and Jurassic Santiago Peak Volcanics, implementation of the Extraction to Varying Depth Alternative would result in potentially significant impacts to paleontological resources similar to those impacts associated with the Proposed Project. (Impact PR-1)

##### **4.13.4.2 Significance of Impacts Prior to Mitigation**

Significant impacts associated with the Extraction to Varying Depth Alternative would be similar to those described for the Proposed Project in Subsection 4.13.3.3.

##### **4.13.4.3 Mitigation Measures**

Potentially impacted paleontological resource sites would be subject to the same mitigation measures as those described in Subsection 4.13.3.4.

##### **4.13.4.4 Conclusion**

Grading and excavation activities associated with development of the Extraction to Varying Depth Alternative could potentially result in significant impacts related to disturbance/ destruction of sensitive fossil resources preserved within the Tertiary Otay Formation and the Jurassic Santiago Peak Volcanics. The mitigation measures identified above for such potential impacts would be implemented as described and would reduce associated impacts to paleontological resources below a level of significance.

#### **4.13.5 No Project/Existing Plan Alternative**

##### **4.13.5.1 Analysis of Project Effects and Determination as to Significance**

Potentially sensitive paleontological resources or sites for this alternative would be associated with the Tertiary Otay Formation and Jurassic Santiago Peak Volcanics, as described for the Proposed Project. Based on the occurrence of, and proposed grading/excavation within these formations, implementation of the No Project/Existing Plan Alternative would result in potentially significant impacts to paleontological resources. (Impact PR-1)

##### **4.13.5.2 Significance of Impacts Prior to Mitigation**

Depending of the specifics of developments associated with the No Project/Existing Plan Alternative, there is potential for significant impacts to paleontological resources, similar to those described for the Proposed Project in Subsection 4.13.2.3.

##### **4.13.5.3 Mitigation Measures**

Required mitigation measures for paleontological resource impacts from this alternative would be the same as those described for the Proposed Project (refer to Subsection 4.13.2.4).

##### **4.13.5.4 Conclusion**

Grading and excavation activities associated with development of the No Project/Existing Plan Alternative could potentially result in significant impacts related to disturbance/destruction of sensitive fossil resources preserved within the Tertiary Otay Formation and the Jurassic Santiago Peak Volcanics. The mitigation measures identified above for such potential impacts would be implemented as described, and would reduce associated impacts to paleontological resources below a level of significance.

#### **4.13.6 No Project Alternative**

##### **4.13.6.1 Analysis of Project Effects and Determination as to Significance**

The No Project Alternative assumes that the project area would not be mined and would remain undeveloped. If this scenario were chosen, **no impacts to paleontological resources would occur.**

##### **4.13.6.2 Significance of Impacts Prior to Mitigation**

No paleontological resource impacts would occur.

##### **4.13.6.3 Mitigation Measures**

No mitigation measures are required.

##### **4.13.6.4 Conclusion**

Under this alternative, there would be no project-related impacts to paleontological resources and as such there would be no need for mitigation measures.

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