

IV. Environmental Impact Analysis

D. Geology and Soils—Paleontological Resources

1. Introduction

This section of the Draft EIR provides an analysis of the Project's potential impacts to paleontological resources. The analysis of paleontological resources is based on the *Paleontological Resources Inventory Report for 5350 Wilshire Boulevard Project, City of Los Angeles, California* (Paleontology Report),¹ which is included as Appendix E of this Draft EIR.

The Project's potential impacts related to the balance of geology and soil issues (e.g., faulting, seismicity, landslides, soil erosion, etc.) were fully evaluated in the Initial Study prepared for the Project included in Appendix A of this Draft EIR and were found to be less than significant.

2. Environmental Setting

a. Regulatory Framework

There are several plans, regulations, and programs that include policies, requirements, and guidelines regarding Paleontological Resources at the federal, state, regional, local, and professional levels. As described below, these plans, guidelines, and laws include the following:

- Federal Paleontological Resources Preservation Act
- California Penal Code Section 622.5
- California Public Resources Code Section 5097.5
- City of Los Angeles General Plan Conservation Element

¹ Dudek, *Paleontological Resources Inventory Report for 5350 Wilshire Boulevard Project, City of Los Angeles, California, February 2024*.

(1) Federal

(a) Paleontological Resources Preservation Act

The Paleontological Resources Preservation Act (PRPA) of 2009 calls for uniform policies and standards that apply to fossils on all federal public lands. All federal land management agencies are required to develop regulations that satisfy the stipulations of the PRPA. The Society for Vertebrate Paleontology (SVP) has established standard guidelines² that outline professional protocols and practices for conducting paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, and specimen preparation, identification, analysis, and curation. As defined by the SVP,³ significant nonrenewable paleontological resources are:

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. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years).

Based on the significance definitions of the SVP,⁴ all identifiable vertebrate fossils are considered to have significant scientific value. This position is adhered to because vertebrate fossils are relatively uncommon, and only rarely will a fossil locality yield a statistically significant number of specimens of the same genus. Therefore, every vertebrate fossil found has the potential to provide significant new information on the taxon it represents, its paleoenvironment, and/or its distribution. Furthermore, all geologic units in which vertebrate fossils have previously been found are considered to have high potential for containing significant paleontological resources. This is because paleontological sites indicate that the containing rock unit or formation is fossiliferous. Therefore, the limits of the entire rock unit, both areal and stratigraphic, define the extent of paleontological potential. Identifiable plant and invertebrate fossils are considered significant if found in association with vertebrate fossils or if defined as significant by project paleontologists, specialists, or local government agencies.

² Society of Vertebrate Paleontology, *Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources: Standard Guidelines*, Society of Vertebrate Paleontology News Bulletin 163:22-27, 1995.

³ Society of Vertebrate Paleontology, *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*, 2010.

⁴ Society of Vertebrate Paleontology, *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*, 2010.

(2) State

(a) California Penal Code Section 622.5

California Penal Code Section 622.5 provides the following: “Every person, not the owner thereof, who willfully injures, disfigures, defaces, or destroys any object or thing of archeological or historical interest or value, whether situated on private lands or within any public park or place, is guilty of a misdemeanor.”

(b) California PRC Section 5097.5

California PRC Section 5097.5 provides protection for paleontological resources on public lands, where PRC Section 5097.5(a) states, in part, that:

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, rock art, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over the lands.

(3) Local

(a) City of Los Angeles General Plan Conservation Element

The City’s General Plan Conservation Element, adopted in September 2001, recognizes paleontological resources in Section 3: “Archeological and Paleontological” and identifies site protection as important, stating, “[p]ursuant to CEQA, if a land development project is within a potentially significant paleontological area, the developer is required to contact a bona fide paleontologist to arrange for assessment of the potential impact and mitigation of potential disruption of or damage to the site. Section 3 of the Conservation Element, includes policies for the protection of paleontological resources. As stated therein, it is the City’s objective that paleontological resources be protected for historical, cultural research, and/or educational purposes. Section 3 sets as a policy to continue the identification and protection of significant paleontological sites and/or resources known to exist or that are identified during “land development, demolition, or property modification activities.”

b. Existing Conditions

(1) Paleontological Records Search

On April 17, 2023, a Project-specific paleontological records search was conducted through the Natural History Museum of Los Angeles (NHMLA), also referred to herein as the

Los Angeles County Museum of Natural History (LACM), as part of the Paleontology Report, which is included in Appendix E of this Draft EIR. The results of the paleontological records search indicate there are no previously encountered vertebrate fossil localities located within the Project Site. However, as detailed below, multiple LACM localities have been identified in the vicinity of and from the same sedimentary deposits that occur at the Project Site..

Numerous localities are located in Hancock Park within the Rancho La Brea asphalt deposits (tar pits), which is a National Natural Landmark that has resulted in millions of Pleistocene fossil plant, insect, and animal specimens. The vertebrate paleofauna includes over 200 species, including extinct forms of bison, camel, horse, mammoth, mastodon, ground sloths, dire wolf, lion, condor, eagle, turkey, and others. Many holotypes, or specimens for which a new species is named, are known from the Rancho La Brea deposits, including the holotype of *Smilodon californicus* (now known as *Smilodon fatalis*) a saber-tooth cat that has become the California State fossil. Human remains have also been recovered from the site. The Project Site is located just east of Hancock Park.

The closest vertebrate fossil locality LACM VP 1724 was discovered less than approximately 0.5 miles west of the Project Site near the Wilshire Boulevard and Hauser Boulevard intersection at a depth of 8 feet below ground surface (bgs). This locality produced fossil specimens of a pond turtle (*Clemmys marmorata*), bird (*Aves*), racoon (*Procyonidae*), sabretooth cat (*Smilodon fatalis*), dire wolf (*Canis dirus*), coyote (*Canis latrans*), pronghorn antelope (*Capromeryx minor*), and bison (*Bison*). LACM VP 5481 was discovered further west near Courtyard Place south of Wilshire Boulevard. LACM VP 5481 yielded fossil specimens of a mammoth (*Mammuthus*), tapir (*Tapirus*), horse (*Equus*), camelid (*cf. Hemiauchenia*), and bison (*Bison*) 28 feet bgs. LACM VP 1198, located east of the Project Site along Tremaine Street, produced fossil specimens of a mastodon (*Mammut*) 17 feet bgs. LACM VP 1814, located near the intersection of Sycamore Avenue 100 feet north of junction with La Brea Boulevard, produced fossil specimens of a bovid (*Preptoceras sinclairi*) 6 feet bgs. LACM VP 5599, discovered southeast of the Project Site on West Olympic Boulevard, yielded fossil specimens of a camel (*Camelops*) 12 feet bgs. Lastly, LACM VP 7515-7518, located west of the Project Site along the south side of 3rd Street and east of Ogden Drive, produced fossil specimens of a ground sloth (*Glossotherium*) and horse (*Equus occidentalis*) during earthmoving activities for the Park La Brea development at an unstated depth.

(2) Local and Regional Geology

The Project Site lies within the northernmost Peninsular Ranges Geomorphic Province and is underlain by Cenozoic sedimentary deposits. The Peninsular Ranges were formed by uplift of plutonic igneous rock resulting from the subduction of the Farallon Plate underneath the North American Plate during the Mesozoic Era (approximately 125 to 90 million years old). The Project Site is underlain by late Pleistocene (approximately 11,700 to 129,000 years old) alluvial deposits overlying early Pleistocene and Pliocene Fernando Formation (approximately

3.6 to 1.8 million years ago) bedrock. The geotechnical investigation previously prepared for the Project by GeoPentech, dated October 17, 2022 (see Appendix IS-2 of Appendix A of this Draft EIR) consisted of three borings to depths ranging from 91 to 131.5 feet bgs.⁵ As noted therein, a thin layer of artificial fill soils overlays Quaternary alluvium, which was encountered to depths of about 90 to 95 feet bgs, and underlain by Fernando Formation bedrock, which extends to the observed depth of 131.5 feet bgs.

The following section provides a general overview of the types of geologic deposits located within the Project area in geochronological order.

(a) Artificial Fill

A thin layer of artificial fill soils extending to a depth of less than one foot was encountered on the Project Site, which is generally associated with the existing pavement.

(b) Quaternary Alluvial Deposits

According to the Geotechnical Report, the Project Site is underlain by sedimentary deposits consisting of stiff to very stiff clays and dense to very dense sand associated with fluvial and alluvial fan depositional environments. These late Pleistocene deposits were encountered in three borings (GP-1, GP-2, and GP-3) from immediately below the thin veneer of artificial fill to depths of about 90 to 95 feet bgs. Late Pleistocene alluvial deposits have high paleontological sensitivity or potential.

(c) Fernando Formation

The alluvium at the Project Site is underlain by Fernando Formation bedrock, consisting of hard interbedded claystone, to a depth of 132 feet bgs.⁶ The Pliocene and Pleistocene, marine Fernando Formation includes two different formations: the lower Repetto Sandstone and the upper Pico Sandstone. More recent publications have replaced what is referred to as the Fernando Formation by the Pico Formation. The Pico Formation overlies the Repetto Formation at depth.

The Fernando Formation has high paleontological sensitivity or potential; however, with Project Site excavation extending to a depth of approximately 80 feet below existing grade, it is not anticipated that the Fernando Formation will be encountered during construction.

⁵ GeoPentech, *Geotechnical Investigation Report Proposed Mixed-Use Development 708 S Cloverdale Avenue (Geotechnical Report)*, October 17, 2022. See Appendix IS-2 of Appendix A of this Draft EIR.

⁶ GeoPentech, *Geotechnical Investigation Report Proposed Mixed-Use Development 708 S Cloverdale Avenue (Geotechnical Report)*, October 17, 2022. See Appendix IS-2 of Appendix A of this Draft EIR.

3. Project Impacts

a. Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the Project would have a significant impact related to paleontological resources if it would:

Threshold (f): Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

As previously noted above in the Introduction subsection, this section of the Draft EIR provides an analysis of the Project's potential impacts to paleontological resources. The Project's potential impacts related to the balance of the geology and soils issues identified in the Initial Study (e.g., faulting, seismicity, landslides, soil erosion, etc. in Thresholds a through e) were fully evaluated in the Initial Study included as Appendix A of this Draft EIR and were found to be less than significant.

For this analysis, the Appendix G Threshold listed above is relied upon. The analysis utilizes factors and considerations identified in the City's 2006 L.A. CEQA Thresholds Guide, as appropriate, to assist in answering the Appendix G Threshold question.

The 2006 L.A. CEQA Thresholds Guide identifies the following criteria to evaluate impacts to paleontological resources:

- Whether, or the degree to which, the project might result in the permanent loss of, or loss of access to, a paleontological resource; and
- Whether the paleontological resource is of regional or statewide significance.

b. Methodology

To address potential impacts associated with paleontological resources, a formal records search was conducted to assess the paleontological sensitivity of the Project Site and vicinity. The records search is included in Appendix E of this Draft EIR. In addition, an evaluation of existing conditions and previous disturbances within the Project Site, the geology of the Project Site, and the anticipated depths of grading were evaluated to determine the potential for uncovering paleontological resources.

In Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources⁷, the SVP defines four categories of paleontological sensitivity for rock units, high, low, undetermined, and no potential, each of which is discussed below:

(1) High Potential

Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources. Rock units classified as having high potential for producing paleontological resources include, but are not limited to, sedimentary formations and some volcanoclastic formations (e.g., ash or tephra), and some low-grade metamorphic rocks which contain significant paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils (e.g., middle Holocene and older, fine-grained fluvial sandstone, argillaceous and carbonate-rich paleosols, cross-bedded point bar sandstone, fine-grained marine sandstone, etc.). Rock units which contain potentially datable organic remains older than late Holocene, including deposits associated with animal nests or middens, and rock units which may contain new vertebrate deposits, traces, or trackways are also classified as having high potential.

(2) 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.

(3) Undetermined Potential

Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have undetermined potential. Further study is necessary to determine if these rock units have high or low potential to contain significant paleontological resources. A field survey by a qualified professional paleontologist to specifically determine the paleontological resource potential of these rock units is required before a paleontological resource impact mitigation program can be

⁷ SVP, *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*, 2010.

developed. In cases where no subsurface data are available, paleontological potential can sometimes be determined by strategically located excavations into subsurface stratigraphy.

(4) 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 or impact mitigation measures relative to paleontological resources.

c. Project Design Features

No specific project design features are proposed with regard to paleontological resources.

d. Analysis of Project Impacts

Threshold (f): Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

(a) Paleontological Resources

As discussed in Subsection 2.b.(2), according to the records search conducted for the Project Site, there are no previously encountered fossil vertebrate localities located within the Project Site. However, the records search documented significant fossil finds in close proximity to the Project Site from the same sedimentary deposits that occur within the Project Site, either at the surface or at depth. The closest identified locality (LACM VP 1724) was discovered less than 0.5 miles west of the Project Site, near the intersection of Hauser Boulevard and Wilshire Boulevard, at a depth of 8 feet bgs.

As previously discussed, the Project Site is currently developed and has been previously graded. The Paleontology Report indicates that intact paleontological resources may be present below the surficial layers of fill as indicated by the nearby fossil localities listed in the paleontological search summarized above. The Project would require maximum excavation depths of approximately 80 feet bgs. Thus, the possibility exists that paleontological resources that were not discovered during prior construction or other human activity may be present. Given the high sensitivity or potential for the Pleistocene-age and, if encountered, older Pliocene-age sedimentary deposits to yield scientifically significant paleontological resources, and due to the proximity of previously discovered paleontological resources in same aged deposits, the Project could potentially disturb undiscovered paleontological resources. **Therefore, impacts to unique paleontological resources would be potentially significant.**

(b) Unique Geologic Features

The Project Site is flat and has been previously developed. As such, there are no unique geologic or topographic features (i.e., hilltops, ridges, hillslopes, canons, ravines, rock outcrops) located on the Project Site or vicinity. Furthermore, there are no water bodies, streambeds, or wetlands located within the vicinity of the Project Site. **Therefore, the Project would not destroy any unique geologic or topographic features. No impact with respect to the destruction of a unique geologic feature would occur, and no further analysis is required.**

(1) Mitigation Measures

The following mitigation measures are proposed to reduce potential impacts to paleontological resources:

GEO-MM-1: Prior to the start of any ground-disturbing activities, a Qualified Professional Paleontologist and Qualified Paleontological Resource Monitor who meets the 2010 Society of Vertebrate Paleontology (2010) standards shall attend a preconstruction meeting and provide all construction personnel with paleontological sensitivity training via a Worker Environmental Awareness Program (WEAP). This training program will provide information regarding the potential to encounter paleontological resources during rough grading and other significant ground-disturbing activities in Pleistocene age alluvial deposits and the Fernando Formation as well as the need to protect such resources. The training will inform construction personnel of the location(s) and boundaries of any areas with a high paleontological resource potential. Instruction will be provided as to the appropriate procedures and notifications to be undergone should paleontological resources be discovered during paleontological monitoring of Project construction. The training will also emphasize that unauthorized collections or disturbances of protected fossils on or off the Project area are prohibited and may result in criminal penalties and fines. The Qualified Professional Paleontologist or Qualified Paleontological Resource Monitor may attend tailgate meetings to brief the construction crew on paleontological monitoring protocols.

- As defined by SVP (2010), a Qualified Professional Paleontologist (also Principal Investigator, Project Paleontologist) is described as a practicing scientist who is recognized in the paleontological community as a professional and can demonstrate familiarity and proficiency with paleontology in a stratigraphic context. A paleontological Principal Investigator shall have the equivalent of the following qualifications:
 - A graduate degree in paleontology or geology, and/or a publication record in peer reviewed journals; and demonstrated competence in

field techniques, preparation, identification, curation, and reporting in the state or geologic province in which the project occurs. An advanced degree is less important than demonstrated competence and regional experience.

- At least two full years professional experience as an assistant to a Project Paleontologist with administration and project management experience; supported by a list of projects and referral contacts.
- Proficiency in recognizing fossils in the field and determining their significance.
- Expertise in local geology, stratigraphy, and biostratigraphy.
- Experience collecting vertebrate fossils in the field.

GEO-MM-2: Prior to ground disturbance, the Qualified Professional Paleontologist shall develop a site-specific Paleontological Resource Mitigation and Treatment Plan. The Paleontological Resource Mitigation and Treatment Plan shall specify the levels and types of monitoring efforts based on the types and depths of ground disturbance activities and the geologic and paleontological sensitivity of the Project Site. The Paleontological Resource Mitigation and Treatment Plan shall also include a description of the professional qualifications required of key staff, communication protocols during construction, fossil recovery protocols, sampling protocols for microfossils, laboratory procedures, reporting requirements, and curation provisions for any collected fossil specimens.

- As defined by SVP (2010), a Qualified Paleontological Resource Monitor has the following qualifications (or their equivalent):
 - BS or BA degree in geology or paleontology and one year experience monitoring in the state or geologic province of the specific project. An associate degree and/or demonstrated experience showing ability to recognize fossils in a biostratigraphic context and recover vertebrate fossils in the field may be substituted for a degree. An undergraduate degree in geology or paleontology is preferable, but is less important than documented experience performing paleontological monitoring; or
 - AS or AA in geology, paleontology, or biology and demonstrated two years experience collecting and salvaging fossil materials in the state or geologic province of the specific project; or
 - Enrollment in upper division classes pursuing a degree in the fields of geology or paleontology and two years of monitoring experience in the state or geologic province of the specific project.
- Monitors must demonstrate proficiency in recognizing various types of fossils, in collection methods, and in other paleontological field techniques.

GEO-MM-3: A post-construction Paleontological Monitoring Report shall be prepared within 90 days post-construction detailing all aspects of the paleontological monitoring conducted for the Project and include the biostratigraphy, paleoecologic, and taphonomic significance of any paleontological resources discovered during construction. The report shall also include field notes, geological maps, stratigraphic sections(s), and a list of identified specimens. The paleontological resources must be prepared, identified, curated, and donated to a repository, such as the Natural History Museum of Los Angeles County or the La Brea Tar Pits and Museum.

(2) Level of Significance After Mitigation

Due to the high paleontological sensitivity of the underlying late Pleistocene age alluvial deposits and the Pleistocene to Pliocene age Fernando Formation, coupled with the number of known nearby fossil localities and the depths at which they were discovered, there is a reasonable likelihood of encountering fossils at the depth of excavation. Paleontological monitoring is recommended during ground disturbing activities below the level of fill and previously disturbed sediments. By incorporating paleontological monitoring and the implementation of Mitigation Measures GEO-MM-1 through GEO-MM-3, the impact to paleontological resources would be reduced to a less-than-significant level. During Project operation, the Project would have no impacts to paleontological resources as there would be no continuous groundbreaking and excavation activities during Project operation.

e. Cumulative Impacts

(1) Impact Analysis

Impacts to paleontological resources are generally site-specific because the potential for discovery of such resources relate to the particular underlying conditions of a specific site. As previously described, the Project Site is located within an urbanized area that has been previously disturbed and developed over time. Notwithstanding, the paleontological records search indicates that multiple vertebrate fossil localities (LACM VP 1724, 5481, 1198, 1814, 5599, and 7515-7518) were found in close proximity to the Project Site. The closest comparable vertebrate fossil locality (LACM VP 1724) was discovered west of the Project Site near the intersection of Wilshire Boulevard and Hauser Boulevard at a depth of 8 feet bgs. While this suggests that one or more of the related projects could impact paleontological resources, the Project would not contribute to any such impacts. This is because the Project would not include excavation/grading activities on adjacent properties (i.e., no combined impacts would occur), and would not result in significant Project-level impacts related to paleontological resources with implementation of the proposed mitigation. Furthermore, as part of the environmental review processes for the related projects, record searches with the LACM and NHMLA and/or other site-specific technical analyses would be conducted that would

identify the potential for discovery of paleontological resources. If there would be a potential for the discovery of paleontological resources within a related project site, that related project would be subject to site-specific mitigation measures that would be established to address the potential for uncovering of paleontological resources at that specific related project site. Similarly, mitigation measures would be identified to address any potential impacts to unique geologic features. **Therefore, the Project and related projects would not result in significant cumulative impacts to paleontological resources. As such, the Project's contribution would not be cumulatively considerable, and cumulative impacts would be less than significant.**

(2) Mitigation Measures

Cumulative impacts related to paleontological resources would be less than significant. Therefore, no mitigation measures are required.

(3) Level of Significance After Mitigation

Cumulative impacts related to paleontological resources were determined to be less than significant without mitigation. Therefore, no mitigation measures were required or included, and the impact level remains less than significant.