IV. Environmental Impact Analysis

C. Geology and Soils

1. Introduction

This section describes the existing geological, seismic, and paleontological conditions at and near the Project Site and analyzes the Project's potential impacts in regard to the conditions. Specifically, this section evaluates the Project's potential to directly or indirectly exacerbate existing hazardous conditions related to seismic ground shaking and/or seismic ground failure, unstable geologic units or soil, and/or expansive soil. The Project's potential to directly or indirectly destroy unique paleontological resources or geologic features/landforms is also evaluated. The analysis in this section includes a description of the regulatory framework, thresholds for determining if the Project would result in significant impacts, mitigation measures, and the level of significance after mitigation.

This section is based, in part, on information and findings contained in the *Geotechnical Engineering Investigation, Proposed Mixed-Use Development, 676 Mateo Street, Los Angeles, California* (Geotechnical Report) prepared by Geotechnologies, Inc., (**Appendix D.1** of this Draft EIR) and the *676 Mateo Street Project Phase I Paleontological Resources Assessment Report* (Paleontological Assessment) prepared by ESA (**Appendix D.2** of this Draft EIR).

2. Environmental Setting

a) Regulatory Framework

(1) Geology and Soils

(a) State of California

(i) State of California Building Code

The State of California published the 2019 California Building Standards Code on July 1, 2019. The current California Building Code (California Code of Regulations, Title 24, Part 2, Volumes 1 and 2) became effective on January 1, 2020. These regulations include provisions for site work, demolition, and construction, which include excavation and

grading, as well as provisions for foundations, retaining walls, and expansive and compressible soils with seismic safety standards for new buildings.

(ii) Alquist-Priolo Earthquake Fault Zoning Act and Seismic Safety Act

The California Seismic Safety Commission was established by the Seismic Safety Commission Act in 1975 with the intent of providing oversight, review, and recommendations to the Governor and State Legislature regarding seismic issues. The commission's name was changed to Alfred E. Alquist Seismic Safety Commission in 2006. The Commission has adopted several documents based on recorded earthquakes, such as the 1994 Northridge earthquake, 1933 Long Beach earthquake, the 1971 Sylmar earthquake, etc.

The Alquist-Priolo Geologic Hazards Zone Act (Alquist-Priolo Act) was enacted by the State of California in 1972 to address the hazards and damage caused by surface fault rupture during an earthquake. The Alquist-Priolo Act has been amended 10 times and renamed the Alquist-Priolo Earthquake Fault Zoning Act, effective January 1, 1994. The Alquist-Priolo Act requires the State Geologist to establish "earthquake fault zones" along known active faults in the state. Cities and counties that include earthquake fault zones are required to regulate development projects within these zones.

The Seismic Hazard Mapping Act of 1990 (Seismic Act) was enacted, in part, to address seismic hazards not included in the Alquist-Priolo Act, including strong ground shaking, landslides, and liquefaction. Under the Seismic Act, the State Geologist is assigned the responsibility of identifying and mapping seismic hazards zones.

California Geologic Survey (CGS) adopted seismic design provisions in Special Publication 117 Guidelines for Evaluating and Mitigating Seismic Hazards in California on March 13, 1997, and was revised as Special Publication 117A on September 11, 2008.

(b) City of Los Angeles

(i) Los Angeles General Plan Safety Element

The City's primary seismic regulatory document is the Safety Element of the City's General Plan, adopted November 26, 1996. The City's regulations incorporate the state's requirements. The objective of the Safety Element is to better protect occupants and equipment during various types and degrees of seismic events. In the City's Safety Element, specific guidelines are included for the evaluation of liquefaction, tsunamis, seiches, non-structural elements, fault rupture zones, and engineering investigation reports. The City's Emergency Operations Organization helps to administer certain policies and provisions of the Safety Element, and centralizes the direction and control of the planning, coordination and management of disaster preparedness, mitigation,

response and recovery. The Emergency Operations Organization is part of the City's Emergency Management Department and includes representatives from all City agencies.

(ii) Los Angeles Building Code

The City of Los Angeles Building Code addresses issues related to site grading, cut and fill slope design, soil expansion, geotechnical investigations before and during construction, slope stability, allowable bearing pressures and settlement below footings, effects of adjacent slopes on foundations, retaining walls, basement walls, shoring of adjacent properties, and potential primary and secondary seismic effects.

The Building Code also addresses ground-disturbing activities, such as grading, that are codified in the Los Angeles Municipal Code (LAMC). Specifically, LAMC Section 91.7006 outlines regulations specific to the import and export of materials. Additionally, LAMC Section 91.7010 outlines regulations specific to excavations required for project construction, while LAMC Section 91.7011 outlines regulations specific to the import of fill materials to a project site. Erosion control and drainage guidelines are set forth in LAMC Section 91.7013, and regulations pertaining to flooding and mudflows are set forth in LAMC Section 91.7014. Lastly, LAMC Section 91.7016 outlines regulations specific to soil stability.

The Grading Division of the City of Los Angeles Department of Building and Safety (LADBS) has also adopted Rules of General Application, a series of Grading Standards that supplement the requirements of the Building Code. The Rules of General Application include specific requirements of seismic design, slope stability, grading, foundation design, geologic investigations and reports, soil and rock testing, and groundwater. Building and Safety is responsible for implementing the provisions of the Building Code and the Grading Standards. Additionally, the City requires that firms performing geotechnical investigations, sampling, and testing have their laboratory certified by the Building and Safety Materials Control Section.

(2) Paleontological Resources

(a) Paleontological Resources Defined

Paleontological resources include fossil remains, fossil localities, and formations that have produced fossil material in other nearby areas. Paleontological resources are limited, nonrenewable, sensitive scientific resources, including fossils preserved either as impressions of soft (fleshy) or hard (skeletal) parts, mineralized remains of skeletons, tracks, or burrows, or other trace fossils, coprolites (fossilized excrement), seeds or pollen, and other microfossils from terrestrial, aquatic, or aerial organisms.

(b) State of California

(i) California Environmental Quality Act

CEQA requires the analysis of paleontological resources. The loss of any identifiable fossil that could yield information important to prehistory, or that embodies the distinctive characteristics of a type of organism, environment, period of time, or geographic region, would be a significant environmental impact. Direct impacts to paleontological resources primarily concern the potential destruction of nonrenewable paleontological resources and the loss of information associated with these resources. This includes the unauthorized collection of fossil remains. If potentially fossiliferous bedrock or surficial sediments are disturbed, the disturbance could result in the destruction of paleontological resources and subsequent loss of information (significant impact). At the project-specific level, direct impacts can be mitigated to a less than significant level through the implementation of paleontological mitigation.

The CEQA threshold of significance for a significant impact to paleontological resources is reached when a project is determined to "directly or indirectly destroy a significant paleontological resource or unique geologic feature."[1] In general, for project sites that are underlain by paleontologically sensitive geologic units, the greater the amount of ground disturbance, the higher the potential for significant impacts to paleontological resources. For project sites that are directly underlain by geologic units with no paleontological sensitivity, there is no potential for impacts on paleontological resources unless sensitive geologic units which underlie the non-sensitive unit are also affected.

(ii) California Public Resource Code Section 5097.5 and Section 30244

Other state requirements for paleontological resource management are included in California Public Resources Code (PRC) Section 5097.5 and Section 30244. These statutes prohibit the removal of any paleontological site or feature from public lands without permission of the jurisdictional agency, define the removal of paleontological sites or features as a misdemeanor, and require reasonable mitigation of adverse impacts to paleontological resources from developments on public (state, county, city, district) lands.

(c) City of Los Angeles

(i) Los Angeles General Plan Conservation Element

The Conservation Element of the City of Los Angeles General Plan recognizes paleontological resources in Section 3: "Archeological and Paleontological" (II-3),

[1] *State of California, Code of Regulations, Title 14, Division 6, Chapter 3, Appendix G.*

specifically the La Brea Tar Pits, and identifies protection of paleontological resources as an objective (II-5). The General Plan identifies site protection as important, stating, "Pursuant 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. If significant paleontological resources are uncovered during project execution, authorities are to be notified and the designated paleontologist may order excavations stopped, within reasonable time limits, to enable assessment, removal or protection of the resources."[2]

(ii) Discovery During Construction

If paleontological resources are discovered during excavation, grading, or construction, the City of Los Angeles Department of Building and Safety shall be notified immediately, and all work shall cease in the area of the find until a qualified paleontologist evaluates the find. Construction activity may continue unimpeded on other portions of the Project Site. The paleontologist shall determine the location, the time frame, and the extent to which any monitoring of earthmoving activities shall be required. The found deposits would be treated in accordance with federal, state, and local guidelines, including those set forth in California Public Resources Code Section 21083.2.

b) Existing Conditions

(1) Geologic Setting

The Project Site is located in the Los Angeles Basin, which is bordered to the east and southeast by the Santa Ana Mountains and San Joaquin Hills, to the northwest by the Santa Monica Mountains, and the west by the Pacific Ocean. Over 22 million years ago, the Los Angeles Basin was a deep marine basin. Over five miles of marine and non-marine sedimentary rock as well as intrusive and extrusive igneous rocks have filled the basin. During the last two million years, defined by the Pleistocene and Holocene epochs, the Los Angeles Basin and surrounding mountain ranges have been uplifted to form the present day landscape. Erosion of the surrounding mountains has resulted in deposition of unconsolidated sediments in low-lying areas by rivers, such as the Los Angeles River.

The Project Site is located in the Arts District of Downtown Los Angeles. The topography of the Project Site and surrounding area is relatively flat with elevations ranging from 250 feet above mean sea level at the northeast corner to 249 feet at the southwest corner. Located approximately 0.2-mile from the Los Angeles River, the Project Site is underlain by a thick accumulation of recent alluvium and old alluvium that extends to a depth of

[2] *City of Los Angeles, General Plan, Conservation Element, p. II-5.*

approximately 220 feet below the ground surface. The alluvium is underlain by siltstone bedrock of the Fernando Formation. The bedrock is relatively impermeable and forms a barrier to vertical migration of groundwater.[3]

(2) Subsurface Geology and at the Project Site

As discussed in greater detail on pages 3 through 5 of the Geotechnical Report provided as **Appendix D.1** of this Draft EIR, exploration of the Project Site was conducted in July 20 and July 21, 2017, by drilling two exploratory borings. The depths of the exploratory borings varied between 52 and 61 feet below the existing grade.

The ground surface was paved with concrete that ranged between four and five inches thick. Fill soil was encountered in all the exploratory borings to a depth of three feet. Fill soil underlying the Project Site consists of silty sand, which is yellowish brown to dark brown, moist, and fine-grained.

Underlying the fill is natural alluvium consisting of poorly to well-graded sand, and silty sand, which is yellowish brown to grayish brown and dark brown in color, moist to very moist, medium dense to very dense. The alluvium appears to coarsen with depth with increasing frequency and size and of gravel below a depth of 20 feet.

Although not identified in the borings, siltstone bedrock of the Fernando Formation underlies the alluvium near a depth of 220 feet below the ground surface.

(3) Groundwater

Groundwater was not encountered in the borings to a maximum depth of 61 feet below ground surface. The historically highest groundwater level is greater than 150 feet below the existing ground surface.[4]

Fluctuations in the level of groundwater may occur due to variations in rainfall, temperature, and other factors not evident at the time of the measurements. Fluctuations also may occur across the Project Site. High groundwater levels can result in changed conditions.

---

[3] *Geotechnologies, Inc., Geotechnical Engineering Investigation, Proposed Mixed-Use Development, 676 Mateo Street, Los Angeles, California, (**Appendix D.1** of this Draft EIR), pages 2-4. Note that the Geotechnical Report states that the Los Angeles River is located 0.4-mile from the Project Site; however, as measured by Google Earth and as described in both the Archaeological Assessment (**Appendix C.2** of this Draft EIR) and the Tribal Cultural Report (**Appendix M** of this Draft EIR) and throughout the rest of this DEIR, the closest edge of the Los Angeles River channel is located approximately 0.2-mile from the closest boundary of the Project Site. Accordingly, this analysis describes the Los Angeles River as 0.2-mile from the Project Site, consistent with the remainder of the Draft EIR.*

[4] *See page 5 of the Geotechnical Report in **Appendix D.1** of this Draft EIR.*

(4) Faulting and Seismicity

Based on criteria established by the CGS, faults may be categorized as active, potentially active, or inactive. Active faults are those that show evidence of surface displacement within the last 11,000 years (Holocene age). Potentially active faults are those that show evidence of most recent surface displacement within the last 1.6 million years (Quaternary age). Faults showing no evidence of surface displacement within the last 1.6 million years are considered inactive for most purposes, with the exception of design of some critical structures.

Buried thrust faults are faults without a surface expression but are a significant source of seismic activity. They are typically broadly defined based on the analysis of seismic wave recordings of hundreds of small and large earthquakes in the Southern California area. Due to the buried nature of these thrust faults, their existence is usually not known until they produce an earthquake. The risk for surface rupture potential of these buries thrust faults is low. However, the seismic risk of these buried thrust faults is not well established. Therefore, the potential for surface rupture from these faults cannot be precluded.

The primary geological hazard at the Project Site is moderate to strong ground motion caused by an earthquake on any of the local or regional faults.[5]

(5) Ground Rupture

Ground rupture is defined as surface displacement that occurs along the surface trace and not in a preliminary fault rupture study area of the causative fault during an earthquake. Based on research of available literature and results of the Project Site reconnaissance, no known active or potentially active faults underlie the Project Site. In addition, the Project Site is not located within an Alquist-Priolo Earthquake Fault Zone. As discussed in the Geotechnical Report, based on these considerations, the potential for surface ground rupture at the Project Site is considered low.

(6) Slope Stability/Landslides

The topography of the Project Site and surrounding area is relatively flat with elevations ranging from 250 feet above mean sea level at the northeast corner to 249 feet at the southwest corner. The gradient on the Project Site is approximately 300 to 1 (horizontal to vertical) descending to the southwest.

A landslide area, as identified by the State of California, is an area with the potential for earthquake-induced rock falls, slope failure, and debris flow. As discussed in the

[5] *Geotechnologies, Inc., Geotechnical Engineering Investigation, Proposed Mixed-Use Development, 676 Mateo Street, Los Angeles, California, September 15, 2017, p. 6.*

Geotechnical Report, due to the lack of slope across the Project site, the probability of a seismically-induced landslide is considered to be remote.

Moreover, the Project Site is not included in an area of "Landslide Inventory and Hillside Areas" and there are no known landslides at the Project Site, nor is the Project Site in the path of any known or potential landslides.[6]

(7) Liquefaction, Lateral Spreading, and Seismic-Induced Settlement

Liquefaction is the phenomenon in which saturated, silty to cohesionless soils below the groundwater table temporarily lose strength during strong ground shaking as a consequence of increased pore pressure during conditions such as those caused by earthquakes. The vast majority of liquefaction hazards are associated with sandy soils and silty soils of low plasticity. Potentially liquefiable soils must be saturated or nearly saturated to be susceptible to liquefaction. Liquefaction potential decreases with increasing grain size and clay and gravel content, but increases as the ground acceleration and duration of shaking increase. Structures founded on or above potentially liquefiable soils may experience bearing capacity failures due to the temporary loss of foundation support, vertical settlements (both total and differential), and undergo lateral spreading.

According to the California Geological Survey (CGS), the Project Site is not located within a potentially liquefiable area.[7] This determination is based on groundwater depth records, soil type, and distance to a fault capable of producing a substantial earthquake. In addition, the Project Site is not listed within a liquefaction area in ZIMAS.[8]

As shown in **Figure II-16** in **Section II, Project Description**, of this Draft EIR, the lowest finished floor elevation would be approximately 39 feet below the existing grade. Excavation to a depth of up to 47 feet below ground surface would be required. Groundwater was not encountered during exploration, conducted to a maximum depth of 61 feet below the ground surface. As also discussed in the Geotechnical Report, the historic high groundwater level for the Project Site was deeper than 150 feet below the ground surface. Therefore, according to the Geotechnical Report, based on the dense to very dense consistency of the alluvium, depth to groundwater, and the depth to historic

---

[6] *City of Los Angeles Department of City Planning, General Plan, Safety Element, Exhibit C, Landslide Inventory & Hillside Areas in the City of Los Angeles, June 1994.*

[7] *California, Department of Conservation, California Geological Survey, Earthquake Zones of Required Investigation Online Map Viewer, accessed, February, 2019.*

[8] *City of Los Angeles Department of City Planning, Zone Information & Map Access System, accessed: April 3, 2018.*

highest groundwater level, the potential for liquefaction occurring at the Project Site is considered to be remote.[9]

Seismically induced settlement or compaction of dry or moist, cohesionless soils can be an effect related to earthquake ground motion. Such settlements are typically most damaging when the settlements are differential in nature across the length of structures. Due to the dense consistency of the natural alluvium at the Project Site, seismic settlement is not anticipated.

(8) Expansive Soils

Expansion and contraction of volume can occur when expansive soils undergo alternating cycles of wetting (swelling) and drying (shrinking). During these cycles, the volume of the soil changes markedly, and can cause structural damage to buildings and infrastructure. According to the Geotechnical Report, the on-site soils are in the very low expansion range.

(9) Paleontological Resources

As part of the Paleontological Assessment, the Natural History Museum of Los Angeles County (LACM) conducted a records search for paleontological resources within the vicinity of the Project Site. The search included a review of paleontology collection records for previously recorded fossil localities, which concluded that there are no known fossils on the Project Site (see **Appendix D.2** to this Draft EIR). Subsurface deposits throughout the entire Project area consist of surficial younger alluvium on top of older Quaternary Alluvium, which has yielded fossils of numerous Ice Age animals in the Los Angeles area. The closest locality known to the LACM is approximately 1.5-miles west of the Project Site at the intersection of Hill Street and 12th Street, where a fossil horse (*Equus*) was recovered from 43 feet below the surface. Approximately two miles northeast of the Project Site, near the intersection of Mission Road and Daly Street around the Golden State Freeway (I-5), fossil specimens of pond turtle, (*Clemmys mamorata*), ground sloth (*Paramylodon harlani*), mastodon (*Mammut americanum*), mammoth (*Mammuthus imperator*), horse (*Equus*), and camel (*Camelops*) were recovered from a depth of 20-35 feet below the surface. Additionally, 2.2-miles northeast of the Project Site, near the intersection of Workman Street and Alhambra Avenue, excavations for a storm drain recovered fossil specimens of turkey (*Meleagris californicus*), sabre-toothed cat (*Smilodon fatalis*), horse (*Equus*), and deer (*Odocoileus*) at an unstated depth.[10] These

[9] *Geotechnologies, Inc., Geotechnical Engineering Investigation, Proposed Mixed-Use Development, 676 Mateo Street, Los Angeles, California, September 15, 2017, p. 7.*

[10] *ESA, 676 Mateo Street Project Phase I Paleontological Resources Assessment, October 2018.*

results indicate that some geological formations underlying the Project Site have the potential to contain paleontological resources.

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 geology and soils and paleontological resources if it results in any of the following impacts to future residents or users:

a(i) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42;

a(ii) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking;

a(iii) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction; or

a(iv) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides;

b) Result in substantial soil erosion or the loss of topsoil;

c) Be located on a geologic unit that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property;

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water; or

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

For this analysis, the Appendix G Thresholds listed above are 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 questions.

The *L.A. CEQA Thresholds Guide* identifies the following criteria to evaluate geology and soils and paleontological resources impacts:

(1) Geological Hazards

- *Cause or accelerate geologic hazards, which would result in substantial damage to structures or infrastructure, or expose people to substantial risk of injury.*

(2) Sedimentation and Erosion

- *Constitute a geologic hazard to other properties by causing or accelerating instability from erosion; or*
- *Accelerate natural processes of wind and water erosion and sedimentation, resulting in sediment runoff or deposition which would not be contained or controlled on-site.*

(3) Landform Alteration

- *Cause one or more distinct and prominent geologic or topographic features to be destroyed, permanently covered, or materially and adversely modified as a result of the project. Such features may include, but are not limited to, hilltops, ridges, hillslopes, canyons, ravines, rock outcrops, water bodies, streambeds, and wetlands.*

(4) 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.*

The potential for the Project to result in impacts related to geology and soils and paleontological resources is based on the *State CEQA Guidelines* Appendix G thresholds and criteria identified in the *L.A. CEQA Thresholds Guide* that provide supplemental analysis to the Appendix G thresholds, where applicable. The City's threshold criteria above are considerations that were part of this analysis of the Appendix G thresholds for geology and soils.

b) Methodology

(1) Geology and Soils

To evaluate potential hazards relative to geology and soils, a Geotechnical Report was prepared by Geotechnologies, Inc. (included as **Appendix D.1** to this Draft EIR). The investigation included field exploration (i.e., exploratory soil borings) and laboratory testing to determine the characteristics of the subsurface conditions at the Project Site. In addition, relevant literature and materials were reviewed. As noted, the Geotechnical Report was reviewed and approved by LADBS on March 26, 2019.[11]

(2) Paleontological Resources

(a) SVP Survey Guidelines

The Society for Vertebrate Paleontology (SVP) has established standard guidelines 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. Most practicing professional vertebrate paleontologists adhere closely to the SVP's assessment, mitigation, and monitoring requirements as specifically provided in its standard guidelines. Most state regulatory agencies with paleontological resource-specific Laws, Ordinances, Regulations, and Standards (LORS) accept and use the professional standards set forth by the SVP.

As defined by the SVP, significant nonrenewable paleontological resources are:

> *Fossils and fossiliferous deposits here restricted to vertebrate fossils and their taphonomic and associated environmental indicators. This definition excludes invertebrate or paleobotanical fossils except when present within a given vertebrate assemblage. Certain invertebrate and plant fossils may be defined as significant by a project paleontologist, local paleontologist, specialists, or special interest groups, or by lead agencies or local governments.*

As defined by the SVP, significant fossiliferous deposits are:

> *A rock unit or formation which contains significant nonrenewable paleontologic resources, here defined as comprising one or more identifiable vertebrate fossils, large or small, and any associated invertebrate and plant fossils, traces, and other*

[11] *City of Los Angeles, Board of Building and Safety Commissioners, Department of Building and Safety, Soils Report Approval Letter from Dan Ryan Evangelista, Structural Engineering Associate II, March 26, 2019.*

data that provide taphonomic, taxonomic, phylogenetic, ecologic, and stratigraphic information (ichnites and trace fossils generated by vertebrate animals, e.g., trackways, or nests and middens which provide datable material and climatic information). Paleontologic resources are considered to be older than recorded history and/or older than 5,000 years BP [before present].

Based on the significance definitions of the SVP, 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 sensitivity. 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.

Fossils are contained within surficial sediments or bedrock, and are therefore not observable or detectable unless exposed by erosion or human activity. A geologic unit known to contain significant fossils is considered to be "sensitive" to adverse impacts if there is a high probability that earth-moving or ground-disturbing activities in that rock unit will either directly or indirectly disturb or destroy fossil remains. Paleontological sites indicate that the containing sedimentary rock unit or formation is fossiliferous. The limits of the entire rock formation, both areal and stratigraphic, therefore define the scope of the paleontological potential in each case.

(b) Project Impact Evaluation

To evaluate potential impacts to paleontological resources, ESA conducted a Paleontological Resources Assessment for the Project that included a paleontological records search from the Natural History Museum of Los Angeles County (LACM), as well as geologic map and literature reviews. The review of the scientific literature and geologic mapping, as well as the records search from the LACM, was used to assign paleontological sensitivities following the guidelines of the SVP to the geologic units that are present at the surface or in the subsurface of the Project Site that would be impacted by ground-disturbing activities associated with the Project. The data provided in ESA's report was used to inform the environmental setting at the Project Site for paleontological resources as well as the probability of potential impacts to the paleontological resources from implementation of the Project. ESA's findings, in addition to the thresholds of significance enumerated below, formed the basis of the impact determination. The report is attached as **Appendix D.2** of this Draft EIR.

c) Project Design Features

Construction and operation of the Project would be implemented in accordance with applicable regulatory and code requirements. No specific Project Design Features are proposed with regard to geology and soils or paleontological resources.

d) Analysis of Project Impacts

As compared to the Project, the Increased Commercial Flexibility Option (Flexibility Option) would change the use of the second floor from residential to commercial, and would not otherwise change the Project's land uses or size. The overall commercial square footage provided would be increased by 22,493 square feet to 45,873 square feet and, in turn, there would be a reduction in the number of live/work units from 185 to 159 units. The overall building parameters would remain unchanged and the design, configuration, and operation of the Flexibility Option would be comparable to the Project. Furthermore, with regard to site-specific geologic hazards, such as seismic ground shaking, the Flexibility Option would be located on the same Project Site with the same subsurface materials as the Project, would excavate to the same depth as the Project, and, same as with Project, would be required to comply with all applicable provisions of the Los Angeles Building Code, the recommendations of the Geotechnical Report (see **Appendix D.1** of this Draft EIR), and conditions of approval from LADBS Grading Division. Therefore, the conclusions regarding the impact analysis and impact significance determination presented below for the Project would be the same under the Flexibility Option. Further, as discussed below, for certain thresholds, the impacts of the Project were addressed in the Initial Study (see **Appendix A.2** of this Draft EIR) and were determined to be less than significant, with no further analysis required. However, since the Flexibility Option was not specifically addressed in the Initial Study, the analysis of the Flexibility Option is presented in this section for those thresholds.

Threshold a(i) ***Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42?***

(1) Impact Analysis

(a) Project

As discussed in the Initial Study (**Appendix A.2 of the Draft EIR**), the Project would not directly or indirectly exacerbate existing environmental conditions from ground rupture from known earthquake faults for all the reasons discussed below for the Flexibility Option. **Therefore, the Project would have a less-than-significant impact with respect to risk of loss, injury, or death involving rupture from a known earthquake fault; no mitigation measures would be required.**

(b) Increased Commercial Flexibility Option

The Flexibility Option would change the use of the second floor from residential to commercial, and would not otherwise change the Project's mix of land uses or size. Overall, the design, Project location, construction, and operation of the Flexibility Option would be comparable to the Project.

The Project Site is not located within a designated Alquist-Priolo Earthquake Fault Zone.[12] The nearest active fault is the Puente Hills Blind Thrust, approximately 0.8 mile from the Project Site, and thus, well over the 50-foot range within a fault where rupture generally occurs.[13] Thus, the potential for future surface rupture on site is very low. Moreover, the Project Site is not within a Preliminary Fault Rupture Study Area.[14] Additionally, the City of Los Angeles Building Code, with which the Project would be required to comply, contains construction requirements to ensure habitable structures are built to a level such that they can withstand acceptable seismic risk. Similar to the Project, the Flexibility Option would not directly or indirectly exacerbate existing environmental conditions from ground rupture from known earthquake faults. **Therefore, the Flexibility Option would have a less-than-significant impact with respect to risk of loss, injury, or death involving rupture from a known earthquake fault; no mitigation measures would be required.**

(2) Mitigation Measures

Under both the Project and the Flexibility Option, impacts related to the risk of loss, injury, or death involving rupture of a known earthquake fault would be less than significant; no mitigation measures would be required.

---

[12] *City of Los Angeles Department of City Planning, Zone Information & Map Access System, accessed: April 3, 2018.*

[13] *City of Los Angeles Department of City Planning, Zone Information & Map Access System, accessed: April 3, 2018.*

[14] *City of Los Angeles Department of City Planning, Zone Information & Map Access System, accessed: April 3, 2018.*

(3) Level of Significance after Mitigation

Under both the Project and the Flexibility Option, impacts related to the risk of loss, injury, or death involving rupture of a known earthquake fault would be less than significant without mitigation.

Threshold a(ii) ***Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?***

Because the Flexibility Option would be located on the same Project Site as the Project and would be subject to the same site conditions and regulatory requirements, the conclusions regarding the impact analysis and impact significance determination presented below for the Project would be the same under the Flexibility Option.

(1) Impact Analysis

In light of the California Supreme Court ruling in *California Building Industry Assn. v. Bay Area Air Quality Management District* (62 Cal.4th 369) (*CBIA v. BAAQMD)*, which held that CEQA generally does not require a lead agency to consider the impacts of the existing environment on the future residents or users of a project, the potential for substantial adverse effects on people or structures from strong seismic ground shaking from earthquakes is not an impact under CEQA. The type of development expected to occur under the Project is typical of urban environments and would not involve mining operations, deep excavation into the earth, or boring of large areas creating unstable seismic conditions or stresses in the earth's crust. Furthermore, there are no active or potentially active faults that traverse the Project Site. Based on the above, development of the Project would not directly or indirectly exacerbate seismic conditions on the Project Site or in the area, therefore, impacts related to strong seismic ground shaking would be less than significant.

Nonetheless, a review of the geologic conditions at the Project Site indicates that the Project Site is within the seismically active Southern California region. Therefore, the Project Site is susceptible to ground shaking during a seismic event, and it is likely the Project would be affected by future earthquakes. Strong seismic ground shaking could damage the proposed buildings, parking areas, and utility infrastructure, potentially exposing people to related risks of injury or death. However, Project construction would be consistent with all applicable provisions of the Los Angeles Building Code, the recommendations of the Geotechnical Report (see **Appendix D.1** of this Draft EIR), and conditions of approval from LADBS Grading Division. Conformance with current Los Angeles Building Code requirements would minimize the potential for structures on the Project Site to sustain substantial damage during an earthquake. Specifically, the Project

would be required to conform to the current seismic design provisions of the City's Building Code, which incorporates the latest seismic design standards for structural loads and materials to accommodate maximum ground accelerations expected from known faults in the vicinity of the Project Site. These building codes require that modern buildings are designed to resist ground shaking through the use of shear panels, moment frames, and reinforcement. The potential seismic hazard to the Project Site would not be higher than in most areas of the City or elsewhere in the region.

Therefore, under the Project and Flexibility Option impacts would be less than significant with respect to risk of loss, injury, or death involving strong seismic ground shaking; no mitigation measures would be required.

(2) Mitigation Measures

Under both the Project and the Flexibility Option, impacts related to the risk of loss, injury, or death involving strong seismic ground shaking would be less than significant; no mitigation measures would be required.

(3) Level of Significance after Mitigation

Under both the Project and the Flexibility Option, impacts related to the risk of loss, injury, or death involving strong seismic ground shaking would be less than significant without mitigation.

Threshold a(iii) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

Because the Flexibility Option would be located on the same Project Site as the Project and would be subject to the same site conditions and regulatory requirements, the conclusions regarding the impact analysis and impact significance determination presented below for the Project would be the same under the Flexibility Option.

(1) Impact Analysis

As previously discussed, seismic hazards maps prepared by the CGS show that the Project Site is not located within a potentially liquefiable area.[15] This determination by CGS is based on groundwater depth records, soil type, and distance to a fault capable of producing a substantial earthquake. Additionally, ZIMAS indicates that the Project Site is not located in an area that has been identified by the state as being potentially

[15] *California, Department of Conservation, California Geological Survey, Earthquake Zones of Required Investigation Online Map Viewer, accessed, February, 2019.*

susceptible to liquefaction.[16] Typically, liquefaction occurs in shallow groundwater areas where there are loose, cohesionless, fine-grained soils. Construction of the Project would require excavation to a depth of approximately 47 feet below ground surface. According to the Geotechnical Report, historical high groundwater at the Project Site is reported to be greater than 150 feet in depth below ground surface and groundwater was not encountered in onsite borings advanced up to a depth of 61 feet below ground surface during the subsurface investigation performed as part of the Geotechnical Report. Furthermore, the subsurface materials were determined to be dense to very dense and no loose, cohesionless soils were encountered.[17] Based on these considerations, the Geotechnical Report concluded that the potential for liquefaction to occur beneath the Project Site is remote.[18]

The Project, nonetheless, would be required to comply with the current Los Angeles Building Code, which incorporates (with local amendments) the latest editions of the International Building Code and California Building Code. Compliance with the Los Angeles Building Code includes incorporation of seismic standards appropriate to the Project Site and its seismic design category, which takes into consideration seismic-related ground failure. Additionally, the Project would be required to comply with the design recommendations enumerated in the Geotechnical Report, which includes seismic design considerations, and the conditions of approval from LADBS Grading Division. Thus, the required compliance with the Los Angeles Building Code and the Geotechnical Report would ensure the proposed development is built to a level such that it can withstand acceptable seismic risk, including seismic-related ground failure.

Therefore, under the Project and Flexibility Option impacts would be less than significant with respect to seismic-related ground failure, including liquefaction; no mitigation measures would be required.

(2) Mitigation Measures

Under both the Project and the Flexibility Option, impacts related to the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction, would be less than significant; no mitigation measures would be required.

---

[16] *City of Los Angeles Department of City Planning, Zone Information & Map Access System, accessed: April 3, 2018.*

[17] *Geotechnologies, Inc., Geotechnical Engineering Investigation, Proposed Mixed-Use Development, 676 Mateo Street, Los Angeles, California, September 15, 2017, p. 4.*

[18] *Geotechnologies, Inc., Geotechnical Engineering Investigation, Proposed Mixed-Use Development, 676 Mateo Street, Los Angeles, California, September 15, 2017, p. 7.*

(3) Level of Significance after Mitigation

Under both the Project and the Flexibility Option, impacts related to the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction, would be less than significant without mitigation.

Threshold a(iv) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

(1) Impact Analysis

(a) Project

As discussed in the Initial Study (**Appendix A.2**), the Project would not directly or indirectly exacerbate existing environmental conditions related to landslides because the Project Site and surrounding area consist of relatively flat topography, and are not in the path of any known or potential landslides. **Therefore, no impact would occur under the Project with respect to risk of loss, injury, or death involving landslides; no mitigation measures would be required.**

(b) Increased Commercial Flexibility Option

The Project Site is not located within an area identified by the City as having a potential for landslides, or of a known landslide.[19,20] The Project Site and surrounding area consist of relatively flat topography. The Project Site is not in the path of any known or potential landslides.

The Flexibility Option would change the land use of the second floor from residential to commercial, and would not otherwise change the Project's land uses or size. Overall, the design, construction, and operation of the Flexibility Option would be comparable to the Project. Similar to the Project, the Flexibility Option would not directly or indirectly exacerbate existing environmental conditions related to landslides. **Therefore, no impact would occur under the Flexibility Option with respect to risk of loss, injury, or death involving landslides; no mitigation measures would be required.**

(2) Mitigation Measures

Under both the Project and the Flexibility Option, no impacts related to the loss, injury, or death involving landslides would occur; no mitigation would be required.

---

[19] *City of Los Angeles Department of City Planning, Zone Information & Map Access System, accessed: April 24, 2017.*

[20] *City of Los Angeles Department of City Planning, Los Angeles City General Plan Safety Element, Exhibit C, Landslide Inventory & Hillside Areas, Adopted November 1996.*

(3) Level of Significance after Mitigation

Under both the Project and the Flexibility Option, no impacts related to the loss, injury, or death involving landslides would occur.

Threshold b) Would the project result in substantial soil erosion or the loss of topsoil?

(1) Impact Analysis

(a) Project

As discussed in the Initial Study (**Appendix A.2**), due to the temporary nature of the soil exposure during the grading and excavation processes, substantial erosion is unlikely to occur. Furthermore, during this period, the Project would be required to prevent the transport of sediments from the Project Site by stormwater runoff and winds through the use of appropriate Best Management Practices (BMPs). Regional Water Quality Control Board regulations pertaining to surface water runoff and water quality (which would require BMPs) for construction projects would prevent significant impacts related to erosion and other geological impacts.

Operation of the Project would not have any impact with regard to soil erosion or loss of topsoil as the entire Project Site would be developed and there is no native topsoil at this previously disturbed and developed Project Site. **Therefore, impacts under the Project would be less than significant with respect to substantial soil erosion or the loss of topsoil; no mitigation measures would be required.**

(b) Increased Commercial Flexibility Option

Construction and operation of the Flexibility Option would be similar to that of the Project; only the proposed uses for the commercial portion of the Project would change. Similar to the Project, due to the temporary nature of the soil exposure during the grading and excavation processes, substantial erosion is unlikely to occur. Furthermore, during this period, the Flexibility Option would be required to prevent the transport of sediments from the Project Site by stormwater runoff and winds through the use of appropriate BMPs as discussed above. Regional Water Quality Control Board regulations pertaining to surface water runoff and water quality (which would require BMPs) for construction projects would prevent significant impacts related to erosion and other geological impacts.

Operation of the Flexibility Option would not have any impact with regard to soil erosion or loss of topsoil as the entire Project Site would be developed and there is no native topsoil at this previously disturbed and developed Project Site. **Therefore, impacts under the Flexibility Option would be less than significant with respect to**

substantial soil erosion or the loss of topsoil; no mitigation measures would be required.

(2) Mitigation Measures

Under both the Project and the Flexibility Option, impacts related to soil erosion and loss of topsoil would be less than significant; no mitigation would be required.

(3) Level of Significance after Mitigation

Under both the Project and the Flexibility Option, impacts related to soil and loss of topsoil would be less than significant without mitigation.

Threshold c) ***Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landside, lateral spreading, subsidence, liquefaction or collapse?***

Because the Flexibility Option would be located on the same Project Site as the Project and would be subject to the same site conditions and regulatory requirements, the conclusions regarding the impact analysis and impact significance determination presented below for the Project would be the same under the Flexibility Option.

(1) Impact Analysis

(a) Landslides

As discussed above, in the Initial Study (**Appendix A.2**), the Project Site is not located within an area identified as having potential for landslides. The Project Site is in a developed area of the City and there are no known nearby landslides, nor is the Project Site in the path of any known or potential landslides. Therefore, the Project would not exacerbate existing environmental conditions related to landslides.

(b) Lateral Spreading

Lateral spreading or flow are terms referring to landslides that commonly form on gentle slopes and that have rapid fluid-like flow movement like water. Moreover, when liquefiable soils are present near a slope, lateral spreading can occur due to lack of lateral support. Since the Project Site is relatively flat and not located in an area identified as having potential for landslides nor within an area susceptible to liquefaction (see analysis presented above under **Threshold a(iii)**), the likelihood of lateral spreading would be very low. Therefore, the Project would not exacerbate existing environmental conditions related to lateral spreading.

(c) Subsidence

No extraction activities occur at the Project Site, such as extraction of groundwater or petroleum, which would contribute toward a susceptibility for subsidence. No extraction activities are proposed by the Project. Thus, subsidence as a result of such activities would not occur. As such, earth materials underlying the Project Site would not be subject to subsidence. Therefore, the Project would not exacerbate existing environmental conditions related to subsidence.

(d) Liquefaction

As detailed above in the analysis under **Threshold a(iii)**, based on groundwater depth records, soil type, and distance to a fault capable of producing a substantial earthquake, the subsurface materials at the Project Site would not be susceptible to liquefaction. Additionally, the Project would be required to implement the Site- and Project-specific recommendations contained in the Geotechnical Report and to comply with the Los Angeles Building Code includes incorporation of seismic standards appropriate to the Project Site and its seismic design category, which takes into consideration seismic-related ground failure. Therefore, the Project would not exacerbate existing environmental conditions related to liquefaction.

(e) Seismic-Induced Settlement or Collapse

Seismically-induced settlement or compaction of dry or moist, cohesionless soils can result from earthquake ground motion. Such settlements are typically most damaging when the settlements are differential in nature across the length of structures. Some seismically-induced settlement of structures within the Project Site are expected as a result of strong ground shaking. As previously discussed above under **Threshold a(iii)**, seismic settlement is not anticipated due to the dense consistency of the natural alluvium at the Project Site. Therefore, the Project would not exacerbate existing environmental conditions related to seismic-induced settlement or collapse.

(f) Conclusion

All required excavations would be sloped, or properly shored, in accordance with the provisions of the California Building Code and additional Los Angeles Building Code requirements, as applicable, as well as the Site- and Project-Specific recommendation contained in the Geotechnical Report. The Project would also be required to comply with the permitting requirements of LADBS. Pursuant to LAMC Section 91.7006, the Project would be required to provide a final design-level geotechnical report, subject to LADBS review and approval prior to the issuance of grading permits for the Project. The final geotechnical report would include the primary recommendations of the Geotechnical Investigation, included as **Appendix D.1** of this Draft EIR, and the final design-level

recommendations from that report would be incorporated in the Project and enforced by LADBS.

In accordance with the recommendations of the Geotechnical Report and the preparation and approval of a final geotechnical report, the Project would not cause or accelerate geologic hazards related to soils that would become unstable as a result of the Project and potentially result in on- or off-Site landslides, lateral spreading, subsidence, liquefaction, or collapse. **Therefore, impacts under the Project and Flexibility Option would be less than significant with respect to unstable soils; no mitigation measures would be required.**

(2) Mitigation Measures

Under both the Project and the Flexibility Option, impacts related to geologic unit or soil instability resulting in landslide, lateral spreading, subsidence, liquefaction, or collapse would be less than significant; no mitigation measures would be required.

(3) Level of Significance after Mitigation

Under both the Project and the Flexibility Option, impacts related to geologic unit or soil instability resulting in landslide, lateral spreading, subsidence, liquefaction, or collapse would be less than significant without mitigation.

Threshold d) Would the project be located on expansive soil, as defined in the Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Because the Flexibility Option would be located on the same Project Site as the Project and would be subject to the same site conditions and regulatory requirements, the conclusions regarding the impact analysis and impact significance determination presented below for the Project would be the same under the Flexibility Option.

(1) Impact Analysis

Expansion and contraction of volume can occur when expansive soils undergo alternating cycles of wetting (swelling) and drying (shrinking). During these cycles, the volume of the soil changes markedly, and can cause structural damage to buildings and infrastructure. To find the expansiveness of the soil, a swell test was performed during the undertaking of the Geotechnical Report. Based upon the testing, the on-site soils exhibited a very low expansion range.[21] Nonetheless, construction of the Project would comply with the

[21] *Geotechnologies, Inc., Geotechnical Engineering Investigation, Proposed Mixed-Use Development, 676 Mateo Street, Los Angeles, California, September 15, 2017, p. 14.*

California Building Code and Los Angeles Building Code, which include building foundation requirements appropriate to site-specific conditions, the recommendations enumerated in the Geotechnical Report, and the conditions of approval from LADBS Grading Division. As such, the Project would not exacerbate expansive soil conditions at the Site such that direct or indirect risks to life or property would be created. **Therefore, impacts under the Project and Flexibility Option would be less than significant with respect to expansive soils; no mitigation measures would be required.**

(2) Mitigation Measures

Under both the Project and the Flexibility Option, impacts related to expansive soil would be less than significant; no mitigation measures would be required.

(3) Level of Significance after Mitigation

Under both the Project and the Flexibility Option, impacts related to expansive soil would be less than significant without mitigation.

Threshold e) ***Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?***

(1) Impact Analysis

(a) Project

As discussed in the Initial Study (**Appendix A.2**), no septic tanks or alternative disposal systems are necessary, nor are they proposed. **Therefore, no impact would occur under the Project with respect to the use of septic tanks or alternative waste water disposal systems; no mitigation measures would be required**.

(b) Increased Commercial Flexibility Option

This threshold would apply to a project only if it was located in an area not served by an existing sewer system. The Project Site is located in a developed area of the City, which is served by a wastewater collection, conveyance, and treatment system operated by the City. The Flexibility Option would connect to the existing wastewater system. Similar to the Project, no septic tanks or alternative disposal systems are necessary, nor are they proposed. **Therefore, no impact would occur under the Flexibility Option with respect to the use of septic tanks or alternative waste water disposal systems; no mitigation measures would be required**.

(2) Mitigation Measures

Under both the Project and the Flexibility Option, no impacts related to septic tanks or alternative waste water disposal systems would occur; no mitigation would be required.

(3) Level of Significance after Mitigation

Under both the Project and the Flexibility Option, no impacts related to septic tanks or alternative waste water disposal systems would occur.

Threshold f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?

Because the Flexibility Option would be located on the same Project Site as the Project and would be subject to the same site conditions and regulatory requirements, the conclusions regarding the impact analysis and impact significance determination presented below for the Project would be the same under the Flexibility Option.

(1) Impact Analysis

(a) Paleontological Resources

As detailed above, surface deposits throughout the Project Site and vicinity consist of surficial younger alluvium on top of older Quaternary Alluvium, which has yielded fossils of numerous Ice Age animals in the Los Angeles area. Findings of the paleontological resource records search (from the Natural History Museum of Los Angeles County) revealed that there are no known fossil records associated with the Project Site; however, nearby vertebrate fossil localities were collected from depths as shallow as 20-35 feet (Mission Road/Daly Street) to a deep of 43 feet (Hill Street/12th Street), as previously discussed. These locations are approximately two miles to the northeast to 1.5 miles to the west of the Project Site. Vertebrate fossils were also discovered 2.2-miles northeast of the Project Site during excavation for a storm drain at an unknown depth.

The Paleontological Assessment concluded that the surficial sediments underlying the Project Site, identified as younger Quaternary Alluvium, have low paleontological sensitivity as they are too young to preserve fossils. However, the Late Holocene-Pleistocene older Alluvium has high paleontological sensitivity. Based upon the depth to this older Alluvium to the north and northwest of the Project Site (as little as 10 feet below the surface)[22] and the depth at which fossils have been found within 1.5-2.2-miles of the Project Site (as little as 20 feet below the surface), the Paleontological Assessment

[22] *ESA, 676 Mateo Street Project Paleontological Resources Assessment, October 2018, page 15.* ***Appendix D.2*** *of this Draft EIR.*

estimated that the transition from low to high sensitivity sediments could occur at around 15 feet below the surface on the Project Site itself. The Project would require excavation to a maximum depth of approximately 47 feet below the surface to construct the three-level subterranean parking structures, building foundations, and infrastructure and utility improvements (e.g., sewer, electrical, water, and drainage systems). Thus, the possibility exists that Project excavation into high sensitivity sediments could significantly impact paleontological resources that were not encountered during prior construction or other human activity.

Accordingly, mitigation measure MM GEO-1, outlined below under Mitigation Measures, would require the retention and involvement of a Qualified Paleontologist to provide technical and compliance oversight of all work as it relates to paleontological resources and a paleontological monitor to monitor all ground disturbing activities in previously undisturbed sediments that exceed 15 feet in depth in previously undisturbed older Alluvial sediments which have high sensitivity for encountering paleontological resources or as determined necessary by the Qualified Paleontologist. In the event paleontological materials are encountered, the Paleontologist shall be allowed to temporarily divert or redirect grading and excavation activities in the area of the exposed material to facilitate evaluation and, if necessary, salvage. Therefore, implementation of Mitigation Measure MM GEO-1 would ensure that any potential impacts related to paleontological resources would be less than significant.

Therefore, following implementation of mitigation measure MM GEO-1, the impacts of the Project and Flexibility Option on paleontological resources would be less than significant with mitigation.

(b) Unique Geological Features

The Project Site is a flat parcel currently developed with one single-story industrial warehouse and an associated surface parking lot. Nearly the entire Project Site is paved with concrete and asphalt. No distinct and/or prominent geologic or topographic features, such as hilltops, ridges, slopes, canyons, ravines, rock outcrops, water bodies, streambeds, or wetlands, currently exist on the Project Site.

Therefore, no impact would occur under the Project or Flexibility Option with respect to destruction of distinct and prominent geologic or topographic features; no mitigation measures would be required.

(2) Mitigation Measures

Under both the Project and the Flexibility Option, impacts to paleontological resources would require the following mitigation measure:

MM GEO-1 A Qualified Paleontologist meeting the Society of Vertebrate Paleontology (SVP) Standards shall be retained by the Applicant or its Successor prior to the approval of demolition or grading permits. The Qualified Paleontologist shall provide technical and compliance oversight of all work as it relates to paleontological resources, shall attend the Project kick-off meeting and Project progress meetings on a regular basis, and shall report to the Project Site in the event potential paleontological resources are encountered.

The Qualified Paleontologist shall conduct construction worker paleontological resources sensitivity training prior to the start of ground disturbing activities (including vegetation removal, pavement removal, etc.). In the event construction crews are phased, additional trainings shall be conducted for new construction personnel. The training session shall focus on the recognition of the types of paleontological resources that could be encountered within the Project Site and the procedures to be followed if they are found. Documentation shall be retained by the Qualified Paleontologist demonstrating that the appropriate construction personnel attended the training.

Paleontological resources monitoring shall be performed by a qualified paleontological monitor (meeting SVP standards) under the direction of the Qualified Paleontologist. Paleontological resources monitoring shall be conducted for all ground disturbing activities in previously undisturbed sediments that exceed 15 feet in depth in previously undisturbed older Alluvial sediments which have high sensitivity for encountering paleontological resources. However, depending on the conditions encountered, full-time monitoring within these sediments can be reduced to part-time inspections or ceased entirely if determined adequate by the Qualified Paleontologist. The surficial Alluvium has low paleontological sensitivity and so work in the upper 15 feet of the Project Site does not require monitoring. The Qualified Paleontologist shall spot check the excavation on an intermittent basis and recommend whether the depth of required monitoring should be revised based on his/her observations. Monitors shall have the authority to temporarily halt or divert work away from exposed fossils or potential fossils. Monitors shall prepare daily logs detailing the types of activities and soils observed, and any discoveries.

If construction or other Project personnel discover any potential fossils during construction, regardless of the depth of work or location, work at the discovery location shall cease in a 50-foot radius of the discovery until the Qualified Paleontologist has assessed the discovery, conferred with the City, and made recommendations as to the appropriate treatment. Any

significant fossils collected during Project-related excavations shall be prepared to the point of identification and curated into an accredited repository with retrievable storage, such as the LACM. The Qualified Paleontologist shall prepare a final monitoring and mitigation report for submittal to the City in order to document the results of the monitoring effort and any discoveries. If there are significant discoveries, fossil locality information and final disposition will be included with the final report which will be submitted to the appropriate repository and the City.

(3) Level of Significance After Mitigation

Mitigation measure MM GEO-1 would require the retention and involvement of a Qualified Paleontologist to provide technical and compliance oversight of all work as it relates to paleontological resources and a paleontological monitor to monitor all ground disturbing activities in previously undisturbed sediments that exceed 15 feet in depth in previously undisturbed older Alluvial sediments which have high sensitivity for encountering paleontological resources or as determined necessary by the Qualified Paleontologist. In accordance with MM GEO-1, in the event paleontological materials are encountered, all grading and excavation activities would be temporarily diverted or redirected in the area of the exposed material to facilitate evaluation and, if necessary, salvage of the material. Therefore, implementation of Mitigation Measure MM GEO-1 would ensure that any potential impacts related to paleontological resources would be reduced to a less than significant level. As such, under both the Project and the Flexibility Option, impacts related to paleontological resources would be less than significant with mitigation.

4. Cumulative Impacts

Because the Flexibility Option would be located on the same Project Site as the Project and would be subject to the same site conditions and regulatory requirements, the conclusions regarding the cumulative impact analysis and impact significance determination presented below for the Project would be the same under the Flexibility Option.

a) Impact Analysis

(1) Geology and Soils

Geologic, soils, and seismicity impacts are typically confined to contiguous properties or a localized area (generally within a 500-foot radius) in which concurrent construction projects in close proximity could be subject to the same fault rupture system or other geologic hazards or exacerbate erosion impacts. The Project Site is not located within an Alquist-Priolo Earthquake Fault Zone, landslide, liquefaction, or preliminary fault

rupture study area (ZIMAS). In addition, City regulations and building codes require the consideration of seismic loads in structural design. For these reasons, Project implementation is not expected to result in a considerable contribution to cumulatively significant impacts related to substantial damage from fault rupture or seismic ground shaking to structures, infrastructure, or human safety, when considered together with the Related Projects defined in **Section III, Environmental Setting,** of this Draft EIR. **Accordingly, the Project's and the Flexibility Option's contribution to any cumulative impact related to the exposure of people or structures to potential substantial adverse effects involving fault rupture, ground shaking, or ground failure, as well as unstable geologic units or expansive soil, would not be cumulatively considerable and the cumulative impact would be less than significant.**

As listed in **Table III-1, List of Related Projects**, and shown in **Figure III-2, Location of Related Projects**, the Related Project nearest to the Project that could possibly combine to contribute to cumulative soil erosion if its construction were concurrent with the Project, is Related Project No. 15. While Related Project No. 1, located at 2051 E. 7th Street and 695 S. Santa Fe Avenue is approximately 45 feet east across Imperial Street from the Project Site, that project is was recently completed and therefore, earthwork activities were completed before construction would commence on this Project. Related Project No. 15 is located at 641 Imperial Street, which is approximately 200 feet north of the Project Site. For purposes of a conservative analysis, it is assumed that the construction of Related Project No. 15 would be concurrent with the Project. Similar to the Project, the construction activities associated with Related Project No. 15 would temporarily expose soils. However, Related Project No. 15 is separated from the Project Site by Jesse Street, which could prevent impacts related to shoring and other soil and foundation issues. Furthermore, similar to the Project, LAMC standards for shoring, SCAQMD's requirements for dust control, and Regional Water Quality Control Board regulations pertaining to surface water runoff and water quality (which would require BMPs) for construction projects would prevent significant cumulative impacts related to erosion and other geological impacts. **Therefore, the Project's and the Flexibility Option's contribution to any cumulative impact related to soil erosion would not be cumulatively considerable and the cumulative impact would be less than significant.**

With regard to septic tanks, as with the Project, the Related Projects are located in developed areas of the City, which are served by a wastewater collection, conveyance, and treatment system operated by the City. It is assumed that, as with the Project, the Related Projects would connect to the existing wastewater system. Similar to the Project, no septic tanks or alternative disposal systems would be necessary. **Therefore, the Project's and the Flexibility Option's contribution to any cumulative impact related**

to septic tanks would not be cumulatively considerable and the cumulative impact would be less than significant.

(2) Paleontological Resources

The study area for the paleontological resources cumulative impacts analysis is the greater City of Los Angeles area, specifically, the extent of the Related Project sites, as listed in **Section III, Environmental Setting**, and shown in **Figure III-2** of this Draft EIR. The potential for an individual project to affect significant paleontological resources is unknown, but given the number of Related Projects, development of these projects could expose or damage paleontological resources (i.e., PRC Section 5097.5), resulting in their progressive loss. The paleontological resource records search for the Project Site and area concluded that very shallow excavations in the older Quaternary Alluvium would be unlikely to uncover significant vertebrate fossils. However, deeper excavations into older deposits may encounter paleontological resources, potentially including significant vertebrate fossils. It is expected that many of the Related Projects would be located on similar geologic deposits; therefore, development of the Related Projects could have impacts if paleontological resources were found during construction activities. However, it is unknown whether or not significant resources will be found. Additionally, similar to the Project, it is anticipated that these Related Projects would comply with the existing regulatory requirements related to the discovery of previously unknown paleontological resources. Furthermore, as part of the environmental review process for Related Projects, like the Project, it is expected that regulatory compliance measures and, if necessary, mitigation measures would be implemented to address the potential for uncovering paleontological resources. This includes monitoring, recovery, treatment, and deposit of fossil remains in a recognized repository should a previously unknown paleontological resource be discovered at the sites during construction activities. Therefore, the cumulative effects from Related Projects would not be significant.

The Project would be required to implement mitigation measure MM GEO-1, thus ensuring proper identification, treatment, and preservation of any inadvertently encountered resources, which would reduce any potentially significant impacts on paleontological resources to less than significant levels. **Therefore, to the extent impacts on paleontological resources from construction of the Related Projects may occur, the Project's and the Flexibility Option's contribution to cumulative impacts to paleontological resources would not be cumulatively considerable and the cumulative impact would be less than significant.**

b) Mitigation Measures

Under both the Project and the Flexibility Option, cumulative impacts related to geology and soils and paleontological resources would be less than significant; no additional mitigation measures would be required.

c) Level of Significance After Mitigation

Under both the Project and the Flexibility Option, Project-level and cumulative impacts related to geology and soils and paleontological resources would be less than significant with mitigation.

This page intentionally left blank