IV. Environmental Impact Analysis
F. Geology and Soils

1. Introduction

This section evaluates potential existing geologic and soils hazards of the Project, including the potential for the Project to cause direct or indirect impacts associated with existing environmental conditions that could cause, in whole or in part, fault rupture, ground shaking, liquefaction of soils, expansion of soils, and/or landslide. Impacts regarding these topics are based on the Geotechnical Engineering Evaluation (Geotechnical Investigation),[1] which is provided as Appendix H.1 of this Draft EIR. The Geotechnical Investigation was approved by the Los Angeles Department of Building and Safety (LADBS) in on April 8, 2024.[2] Additionally, the discussion of dewatering is based on the Dewatering Simulation and Analysis for Excavation and Underground Parking Structure Construction (Dewatering Report) which was prepared for the Project by Geosyntec in March 2024 and is provided as Appendix H.2 of this Draft EIR and the analysis of subsidence is based on the Subsidence Evaluation based on Dewatering Simulations Evaluation (Subsidence Evaluation) which was prepared for the Project by Geotechnologies in March 2024 and is provided in Appendix A of the Dewatering Report. This section also evaluates the potential for the Project to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. This component of the analysis is based on the Paleontological Resources Report,[3] which is included as Appendix H.3 of this Draft EIR.

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[1] *Geotechnologies, Inc., Geotechnical Engineering Investigation, Radford Studio Center Project, 4024-4200 Radford Avenue, Los Angeles, California, January 2024. Refer to Appendix H.1 of this Draft EIR.*

[2] *City of Los Angeles, Department of Building and Safety, Soils Report Review Letter, January 18, 2023. Refer to Appendix H.1 of this Draft EIR.*

[3] *Bargas Environmental Consulting, Paleontological Resources Report, Radford Studio Center Project, December 2023. Refer to Appendix H.3 of this Draft EIR.*

2. Environmental Setting

a. Regulatory Framework

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

- Earthquake Hazards Reduction Act
- National Pollutant Discharge Elimination System
- Society for Vertebrate Paleontology Standard Guidelines
- Alquist-Priolo Earthquake Act
- Seismic Hazards Mapping Act
- California Building Code
- California Public Resources Code Section 5097.5
- Los Angeles General Plan Safety Element
- Los Angeles General Plan Conservation Element
- Los Angeles Municipal Code

(1) Federal

(a) Earthquake Hazards Reduction Act

The Earthquake Hazards Reduction Act was enacted in 1977 to "reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards and reduction program." To accomplish this, the Earthquake Hazards Reduction Act established the National Earthquake Hazards Reduction Program (NEHRP). This program was substantially amended by the NEHRP Reauthorization Act of 2004 (Public Law 108-360).

NEHRP's mission includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improvement of building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improvement of mitigation capacity; and accelerated application of research results. The NEHRP designates the Federal Emergency

Management Agency (FEMA) as the lead agency of the program and assigns it several planning, coordinating, and reporting responsibilities. Programs under NEHRP help inform and guide local planning and building code requirements, such as emergency evacuation responsibilities, and seismic code standards, such as those to which a proposed project would be required to adhere.

(b) National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) Program has been responsible for substantial improvements to the water quality in the United States since 1972. The NPDES permit sets erosion control standards and requires implementation of nonpoint source control of surface drainage through the application of a number of Best Management Practices (BMPs). NPDES permits are required by Section 402 of the Clean Water Act.[4]

(c) Society for Vertebrate Paleontology Standard Guidelines

The Society for Vertebrate Paleontology (SVP) has established standard guidelines[5] 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. 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. As defined by the SVP,[6] significant nonrenewable paleontological resources are:

> *Fossils and fossiliferous deposits here are 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.*

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[4] *USEPA, Clean Water Act, Section 402: National Pollutant Discharge Elimination System, www.epa.gov/cwa-404/clean-water-act-section-402-national-pollutant-discharge-elimination-system, accessed January 16, 2025.*

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

[6] *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.*

As defined by the SVP,[7] 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 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,[8] 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.

(2) State

(a) Alquist-Priolo Earthquake Act

The Alquist-Priolo Earthquake Fault Zoning Act (formerly the Alquist-Priolo Special Studies Zone Act) was signed into law on December 22, 1972 (revised in 1994), and codified into State law in the Public Resources Code (PRC) as Division 2, Chapter 7.5 to address hazards from earthquake fault zones. The purpose of this law is to mitigate the hazard of surface fault rupture by regulating development near active faults. As required by the Alquist-Priolo Earthquake Fault Zoning Act, the State has delineated Earthquake Fault Zones (formerly Special Studies Zones) along known active faults in California, which vary in width around the fault trace from about 200 to 500 feet on either side of the fault trace. Cities and counties affected by the zones must regulate certain development projects within the zones. The State Geologist is also required to issue appropriate maps to assist cities and counties in planning,

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[7] *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.*

[8] *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.*

zoning, and building regulation functions. Local agencies enforce the Alquist-Priolo Earthquake Fault Zoning Act in the development permit process, where applicable, and may be more restrictive than State law requires. According to the Alquist-Priolo Earthquake Fault Zoning Act, before a project that is within an Alquist-Priolo Earthquake Fault Zone can be permitted, cities and counties shall require a geologic investigation, prepared by a licensed geologist, to demonstrate that buildings will not be constructed across active faults. If an active fault is found, a structure for human occupancy cannot be placed over the trace of the fault and must be set back a distance to be established by a California Certified Engineering Geologist. Although setback distances may vary, a minimum 50-foot setback is typically required.

(b) Seismic Hazards Mapping Act

In order to address the effects of strong ground shaking, liquefaction, landslides, and other ground failures due to seismic events, the State of California passed the Seismic Hazards Mapping Act of 1990 (PRC Sections 2690–2699.6). Under the Seismic Hazards Mapping Act, the State Geologist is required to delineate "seismic hazard zones." Cities and counties must regulate certain development projects within these zones until the geologic and soil conditions of their project sites have been investigated and appropriate mitigation measures, if any, have been incorporated into development plans. The State Mining and Geology Board provides additional regulations and policies to assist municipalities in preparing the Safety Element of their General Plans and to encourage the adaptation of land use management policies and regulations to reduce and mitigate seismic hazards to protect public health and safety. Under PRC Section 2697, cities and counties must require, prior to the approval of a project located in a seismic hazard zone, submission of a geotechnical report defining and delineating any seismic hazard.

(c) California Building Code

The California Building Code (CBC), which is codified in Title 24 of the California Code of Regulations (CCR), Part 2, was promulgated to safeguard the public health, safety, and general welfare by establishing minimum standards related to structural strength, means of egress facilities, and general stability of buildings. The purpose of the CBC is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all buildings and structures within its jurisdiction. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under State law, all building standards must be centralized in Title 24 or those standards are not enforceable. The provisions of the CBC apply to the construction, alteration, movement, replacement, location, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The 2022 edition of the CBC is based on the 2021 International Building Code (IBC) published by the International Code Council. The code is updated triennially, and the 2022 edition of the CBC was published by the California Building Standards Commission on July 1,

2022, and became effective January 1, 2023. Every three years, the State adopts new codes (known collectively as the California Building Standards Code) to establish uniform standards for the construction and maintenance of buildings, electrical systems, plumbing systems, mechanical systems, and fire and life safety systems. Sections 17922, 17958, and 18941.5 of the California Health and Safety Code require that the latest edition of the California Building Standards Code apply to local construction 180 days after publication. The significant changes to Title 24 in the 2022 edition can be found at California Department of General Services website.[9]

(d) 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

(i) Safety Element

The City's General Plan Safety Element, which was adopted in 1996 and updated in 2021, addresses public safety risks due to natural disasters, including seismic events and geologic conditions, and sets forth guidance for emergency response during such disasters. The Safety Element also provides maps of designated areas within Los Angeles that are considered susceptible to earthquake-induced hazards, such as fault rupture and liquefaction.

(ii) 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, "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

[9] *California Department of General Services, California Building Standards Code, www.dgs.ca.gov/BSC/Codes#@ViewBag.JumpTo/, accessed January 15, 2025.*

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) Los Angeles Municipal Code

Chapter IX of the LAMC contains the City's Building Code, which incorporates by reference the CBC, with City amendments for additional requirements. LADBS is responsible for implementing the provisions of the LAMC. To that end, LADBS issues building and grading permits for construction projects. Building permits are required for any building or structure that is erected, constructed, enlarged, altered, repaired, moved, improved, removed, converted, or demolished. Grading permits are required for all grading projects other than those specifically exempted by the LAMC. LADBS has the authority to withhold building permit issuance if a project cannot mitigate potential hazards to the project or which are associated with the project. Throughout the permitting, design, and construction phases of a building project, LADBS engineers and inspectors confirm that the requirements of the LAMC pertaining specifically to geoseismic and soils conditions are being implemented by project architects, engineers, and contractors.

The function of the City's Building Code is to protect life safety and ensure compliance with the LAMC. Chapter IX addresses numerous topics, including earthwork and grading activities, import and export of soils, erosion and drainage control, and general construction requirements that address flood and mudflow protection, landslides, and unstable soils. Additionally, the LAMC includes specific requirements addressing seismic design, grading, foundation design, geologic investigations and reports, soil and rock testing, and groundwater.

Specifically, LAMC Section 91.1803 requires a Final Geotechnical Report with final design recommendations prepared by a California-registered geotechnical engineer and submitted to the LADBS for review prior to issuance of a grading permit. Final foundation design recommendations must be developed during final project design, and other deep foundation systems that may be suitable would be addressed in the Final Geotechnical Report. All earthwork (e.g., excavation, site preparation, any fill backfill placement, etc.) must be conducted with engineering control under observation and testing by a Geotechnical Engineer and in accordance with LADBS.

b. Existing Conditions

(1) Regional Geology

Regionally, the Project Site is located within the Transverse Ranges Geomorphic Province (Transverse Ranges). The Transverse Ranges are characterized by roughly east-west trending mountains and the northern and southern boundaries are formed by reverse fault scarps. The convergent deformational features of the Transverse Ranges are a result of north-south shortening due to plate tectonics. This has resulted in local folding and uplift of the mountains along with the propagation of thrust faults (including blind thrusts). The intervening valleys have been filled with sediments derived from the bordering mountains.

(2) Regional Faulting and Seismicity

Based on criteria established by the California Geologic Survey (CGS), faults may be categorized as Holocene-active, Pre-Holocene faults, or Age-undetermined faults. Holocene-active faults are those which show evidence of surface displacement within the last 11,700 years; Pre-Holocene faults are those that have not moved in the past 11,700 years, although they have demonstrated surface displacement during Quaternary time (approximately the last 1.6 million years); and Age-undetermined faults are faults where the recency of fault movement has not been determined.

The Project Site is not located within a State-designated Alquist-Priolo Earthquake Fault Zone or City-designated Preliminary Fault Rupture Study Area for surface fault rupture hazards.[10] Based on research of available literature and results of Project Site reconnaissance, no Holocene-active or Pre-Holocene faults with the potential for surface fault rupture are known to pass directly beneath the Project Site. The three Holocene-active faults located nearest to the Project Site are discussed below.

(a) Active Faults

(i) Hollywood Fault

The Hollywood Fault, located approximately 3.3 miles south of the Project Site, is part of the Transverse Ranges Southern Boundary fault system. This fault trends east-west along the base of the Santa Monica Mountains from the West Beverly Hills Lineament in the West Hollywood–Beverly Hills area to the Los Feliz area of Los Angeles. The Hollywood Fault is the eastern segment of the reverse oblique Santa Monica–Hollywood fault. Based on geomorphic

[10] *City of Los Angeles Department of City Planning, ZIMAS, Parcel Profile Report for APNs 2368-001-028, 2368-001-029, 2368-001-030, and 2368-005-011 available at http://zimas.lacity.org, accessed March 9, 2023.*

evidence, stratigraphic correlation between exploratory borings, and fault trenching studies, this fault is classified as active.

The Hollywood Fault has not produced any damaging earthquakes during the historical period since the arrival of the Spanish into the Los Angeles basin and has had relatively minor micro-seismic activity. The Hollywood Fault is believed to have last ruptured approximately 7,000 to 9,500 years ago.[11] It is estimated that the Hollywood Fault is capable of producing a maximum 6.7 magnitude earthquake. In 2014, the CGS established an Earthquake Fault Zone for the Hollywood Fault.

(ii) Santa Monica Fault

The Santa Monica Fault, located approximately 4.6 miles southwest of the Project Site, is a part of the Transverse Ranges Southern Boundary fault system. The Santa Monica Fault extends east from the coastline in Pacific Palisades through Santa Monica and West Los Angeles, and merges with the Hollywood fault at the West Beverly Hills Lineament in Beverly Hills where its strike is northeast. The Santa Monica Fault System has an average earthquake recurrence interval of 7,000 to 8,000 years and it is thought that it may produce earthquakes with a maximum magnitude of 7.4. In 2018, the CGS established an Earthquake Fault Zone for the Santa Monica Fault.

(iii) Newport-Inglewood Fault System

The Newport-Inglewood Fault System, located approximately 7.0 miles southwest of the Project Site, is a broad zone of discontinuous north to northwestern echelon faults and northwest to west trending folds. The fault zone extends southeastward from West Los Angeles, across the Los Angeles Basin, to Newport Beach and possibly offshore beyond San Diego.

The onshore segment of the Newport-Inglewood Fault Zone extends for about 37 miles from the Santa Ana River to the Santa Monica Mountains. Here it is overridden by, or merges with, the east-west trending Santa Monica zone of reverse faults.

The most significant earthquake associated with the Newport-Inglewood Fault Zone was the Long Beach earthquake of 1933 with a magnitude of 6.3 on the Richter scale. It is believed that the Newport-Inglewood Fault Zone is capable of producing a 7.5 magnitude earthquake.

[11] *Dolan, J.F., Stevens, D., and Rockwell, T.K., 2000, Paleoseismologic Evidence for an Early to Mid-Holocene Age of the Most Recent Surface Rupture on the Hollywood Fault, Los Angeles, California: Bulletin of the Seismological Society of America, Vol. 90, No. 2, pp. 334–344.*

(b) Surface Fault Rupture

Ground rupture is defined as surface displacement which occurs along the surface trace of the causative fault during an earthquake. As stated above, no known Holocene-active or Pre-Holocene faults underlie the Project Site. In addition, the Project Site is not located within an Earthquake Fault Zone. The nearest Fault Zone is located approximately three miles south of the Project Site and corresponds to the Hollywood Fault.

(3) Local Geology

(a) Soil Conditions

As described in Section II, Project Description, of this Draft EIR, the Project Site includes two addressed parcels located at 4200 North Radford Avenue (referred to herein as the North Lot) and 4024 and 4064 North Radford Avenue (referred to herein as the South Lot) and two unaddressed parcels located within and around the Los Angeles River and the Tujunga Wash. The North Lot and the South Lot are separated by the Los Angeles River. Descriptions of the soil conditions underlying the North Lot and the South Lot are provided below.

(i) North Lot

The North Lot is underlain by fill materials and native alluvial soils. Within the North Lot, the fill was observed to be deep in the vicinity of the Los Angeles River and a portion of the Tujunga Wash, and relatively shallow throughout the rest of the lot. In the vicinity of the Los Angeles River and a portion of the Tujunga Wash, the fill was observed at depths ranging between approximately 12.5 and 34 feet below grade. Throughout the rest of the North Lot, the fill depth ranged between approximately one and 8.5 feet below grade. Because the natural watercourse of the Los Angeles River has historically been wider than the existing channel, it is concluded that the deep fill observed in the vicinity of the Los Angeles River consists of backfill placed during the construction of the channel.

Native alluvial soils, consisting of interlayered mixtures of sand, clay, and silt that are moist to wet, generally brown to grayish brown in color, medium dense to very dense, or stiff to very stiff, and fine to coarse grained, with occasional layers containing gravel and cobbles, were observed underlying the fill in all exploratory borings. The observed native alluvial soils are considered suitable for the support of new foundations, slabs, or additional fill. .

(ii) South Lot

The South Lot is underlain by fill materials, native alluvial soils, and bedrock. The fill observed throughout the South Lot is relatively thin within the level portion of the South Lot, getting deeper in the vicinity of the Los Angeles River channel. Within the level areas of the South Lot, the fill depths generally range between approximately three and eight feet below

grade. In the vicinity of the Los Angeles River channel, the fill was observed to depths ranging between approximately 10 and 25.5 feet below grade. Because the natural watercourse of the Los Angeles River has historically been wider than the existing channel, it is the opinion of Geotechnologies that the deep fill observed in the vicinity of the Los Angeles River consists of backfill placed during the construction of the channel.

Native alluvial soils, consisting of interlayered mixtures of sand, clay, and silt that are moist to wet, generally brown to grayish brown in color, medium dense to very dense, or stiff to very stiff, and fine to coarse grained, with occasional layers containing gravel and cobbles, were observed underlying the fill in all exploratory borings. The observed native alluvial soils are considered suitable for the support of new foundations, slabs, or additional fill. Bedrock, consisting of siltstone of the Miocene Monterey formation that is light gray to dark gray in color, moist, and moderately hard to hard, was encountered in six of the borings taken within the southern portion of the South Lot, at depths ranging from approximately 45 to 75 feet below grade.

(b) Groundwater

(i) North Lot

The historic high groundwater level beneath the entire North Lot is 0 feet below ground surface (bgs) (i.e., the historic high groundwater is immediately below the ground surface because of the Project Site's close proximity to the Los Angeles River). However, groundwater was encountered in three of the 39 borings previously drilled between 1993 and 2003 at depths of 58 feet bgs, 65.5 feet bgs, and 73 feet bgs. Refer to Exhibit 5 of the Geotechnical Investigation for the contours of the historic high groundwater levels on-site. In addition, it is not uncommon for groundwater levels to vary seasonally or for groundwater seepage conditions to develop where none previously existed due to variations in rainfall, temperature, and other factors evident at the time of the measurement.

(ii) South Lot

The historic high groundwater levels range from a depth of 0 feet bgs at the northern portion of the South Lot to a depth of approximately 20 feet bgs within the southern portion of the South Lot. However, groundwater was first encountered between approximately 30 and 42 feet bgs in the six supplemental borings completed for the Geotechnical Investigation from 2016 to 2022. Refer to Exhibit 5 of the Geotechnical Investigation for the contours of the historic high groundwater levels on-site.

(c) Liquefaction

Liquefaction is a phenomenon in which saturated silty to cohesionless soils below the groundwater table are subject to a temporary loss of strength due to the buildup of excess pore

pressure during cyclic loading conditions such as those induced by an earthquake. Liquefaction-related effects include loss of bearing strength, amplified ground oscillations, lateral spreading, and flow failures.

The Earthquake Zones of Required Investigation Map of the Van Nuys Quadrangle classifies the Project Site as part of a liquefiable area.[12] This determination is based on groundwater depth records, soil type, and distance to a fault capable of producing a substantial earthquake. A copy of the Earthquake Zones of Required Investigation Map is enclosed as Exhibit 6 of the Geotechnical Investigation.

Two site-specific liquefaction analyses were performed following CGS-recommended procedures. Based on CGS guidance, a factor of safety against the occurrence of liquefaction greater than about 1.3 can be considered an acceptable level of risk where high-quality, site-specific penetration resistance and geotechnical laboratory data is collected.[13] The site-specific liquefaction analyses included in Exhibit 11 of the Geotechnical Investigation demonstrate that the Project Site soils analyzed would have a factor of safety between 1.9 and 2.3, which is greater than 1.3. Therefore, the analyzed soils would not be prone to liquefaction during the ground motion expected during the design basis earthquake. Furthermore, the Project Site soils analyzed are not expected to be affected by potential impacts related to liquefaction, such as lateral spreading and surface manifestation which are triggered by liquefaction.

(d) Settlement

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. Some seismically induced settlement of the proposed structures should be expected as a result of strong ground-shaking. However, due to the uniform nature of the underlying geologic materials, the differential settlement is expected to be negligible.

(e) Subsidence

Subsidence occurs when a large portion of land is displaces vertically, usually due to the withdrawal of groundwater, oil, or natural gas. Soils that are particularly subject to subsidence include those with high silt or clay content. As noted above, native alluvial soils consisting of interlayered mixtures of sand, clay, and silt are present on the Project Site. However, this area of Los Angeles is not known to be subject to subsidence and based on this

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[12] *California Geological Survey, Seismic Hazard Zones, Van Nuys Quadrangle, 1998.*

[13] *California Geological Survey, Special Publication 117A, Guidelines for Evaluating and Mitigating Seismic Hazards, 2008.*

consideration and the density of the underlying native soils and bedrock, the potential for ground subsidence is low.

(f) Expansive Soils

Expansive soils are soils that experience significant change in volume associated with changes in water content.[14] The upper geologic materials found in the Project Site typically range between the very low and moderate expansion range, thus the potential for expansive soils to exist on-site is low.

(4) Paleontological Resources

Paleontology is the study of fossils, which are the remains of ancient life forms. A records search of the Project Site and an approximately one-mile buffer was completed by Los Angeles County Natural History Museum (NHMLA) staff on April 16, 2023. These findings are included as Appendix A of the Paleontological Resources Report included in Appendix H.3 of this Draft EIR. The search found no previously recorded vertebrate fossil localities directly underlying the Project Site. However, the records search results indicate that there are seven nearby paleontological localities from similar geologic units to those underlying and surrounding the Project Site Four of these localities (LACM VP 3263, 6386, 6970, and 6208) occurred in Holocene- to Pleistocene-age alluvial deposits and produced specimens of fossil horse (*Equidae*), bison (*Bison*), ground sloth (*Glossotherium*), camel (*Camelops*), and rodents (*Rodentia*). Two localities were identified from the Modelo Formation (LACM IP 4888 and 5094), which produced specimens of marine invertebrates. Finally, a seventh locality was noted from the Miocene-age Topanga Formation (LACM VP 6969) that contained multiple fossil fish taxa. Nonetheless, the nearest exposure of the Topanga Formation to the Project Site is approximately 0.8 miles to the southeast. However, it is unlikely that the Topanga Formation would be encountered at expected construction depths of up to 50 feet because the unit is not mapped within or near the Project Site and the Geotechnical Investigation did not recover evidence of the Topanga Formation underlying the Project Site at such depths.

The Project Site is underlain by artificial fill and alluvial fan deposits, and the Modelo Formation is mapped less than 500 feet from the southern boundary of the South Lot and was identified in borings conducted as part of the Geotechnical Investigation. As discussed in the Paleontological Resources Report, any fossil materials found in artificial fill would be removed from their original geologic and stratigraphic contexts and, thus, would not be of paleontological interest or significance. As such, artificial fill materials are assigned as having no paleontological resource sensitivity. However, as further discussed in the Paleontological Resources Report, both Pleistocene-age alluvial fan deposits and the Modelo Formation have

[14] *Jones, Lee D., and Ian Jefferson, Institution of Civil Engineers Manuals series, Chapter C5—Expansive Soils, p. 1.*

produced significant fossil specimens and are, therefore, assigned a high paleontological potential. Based on this evidence, the Project Site has a high potential for paleontological resources at depths of 20 feet or greater below ground surface.

3. Project Impacts

a. Thresholds of Significance

(1) State CEQA Guidelines Appendix G

In accordance with Appendix G of the CEQA Guidelines, a project would have a significant impact related to geology and soils if it would result in any of the following impacts:

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

- ***i. 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.***
- ***ii. Strong seismic ground shaking***
- ***iii. Seismic-related ground failure, including liquefaction***
- ***iv. Landslides***

Threshold (b): Result in substantial soil erosion or the loss of topsoil.

Threshold (c): 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 landslide, lateral spreading, subsidence, liquefaction or collapse.

Threshold (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.

Threshold (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 wastewater.

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

(2) 2006 L.A. CEQA Thresholds Guide

The *2006 L.A. CEQA Thresholds Guide* identifies the following factors to evaluate geology and soils:

(a) Geologic Hazards

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

(b) 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.

(c) 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.

In assessing impacts related to geology and soils in this section, the City uses Appendix G as the thresholds of significance. The criteria identified above from the *2006 L.A. CEQA Thresholds Guide* are used where applicable and relevant to assist in analyzing the Appendix G thresholds.

b. Methodology

To evaluate potential Project impacts relative to geology and soils, the Geotechnical Investigation included the excavation of fiveexploratory borings, collection of representative samples, laboratory testing, engineering analysis, review of published geologic data, and review of available geotechnical engineering information, including 22 previous geotechnical investigations.

To address potential impacts to paleontological resources, a formal records search was conducted by the Natural History Museum of Los Angeles County, and a paleontological assessment was performed as part of the Paleontological Resources Report to assess the paleontological sensitivity of the Project Site and vicinity. 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 considered to determine the potential for uncovering paleontological resources.

c. Project Design Features

The following project design feature is proposed with regard to geology and soils:

Project Design Feature GEO-PDF-1: All development activities conducted on the Project Site will incorporate the professional recommendations contained in the Geotechnical Engineering Evaluation and all associated Addenda and/or alternative recommendations set forth in a site-specific, design-level geologic and geotechnical investigation(s) approved by the City Engineer, provided that such recommendations meet and/or surpass relevant State and City laws, ordinances, and code requirements, including California Geological Survey's Special Publication 117A and the City's Building Code. Such professional recommendations will include, but not limited to, the following and may be revised or superseded in accordance with an approved final geotechnical investigation(s):

- Excavated fill materials will be removed and exported or properly removed and recompacted as controlled fill for foundation and/or slab support of lightly loaded structures.
- Imported soil materials will have an Expansion Index of less than 50.
- At-grade structures with column loads less than 500 kips will be supported on conventional foundations bearing in an engineered fill pad.
- Foundation piles will be used for high-load office buildings and parking structures.
- Temporary dewatering will be utilized during construction.
- Permanent structures will be designed for hydrostatic pressure such that the temporary construction dewatering system will be terminated at the completion of construction.
- Temporary shoring, such as steel soldier piles, will be installed for excavation of the subterranean levels.

d. Analysis of Project Impacts

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

i. 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

Ground rupture is the visible breaking and displacement of the earth's surface along the trace of a fault during an earthquake. As previously discussed, based on a review of available literature and the findings of the Geotechnical Investigation, no known active or potentially active faults underlie the Project Site. In addition, the Project Site is not located within a State-designated Alquist-Priolo Earthquake Fault Zone or a City-designated Preliminary Fault Rupture Study Area for surface rupture hazards.[15] The closest active fault and fault rupture zone is the Hollywood Fault located approximately three miles south of the Project Site. Based on the absence of faults mapped near the Project Site, the potential for surface ground rupture due to faulting occurring beneath the Project Site is considered low.

Therefore, the Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death related to fault rupture. Impacts associated with surface rupture from a known earthquake fault would be less than significant.

(2) Mitigation Measures

Project-level impacts related to fault rupture would be less than significant. Therefore, no mitigation measures are required.

(3) Level of Significance After Mitigation

Project-level impacts related to fault rupture 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.

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

ii. Strong seismic ground shaking?

[15] *City of Los Angeles Department of City Planning, ZIMAS, Parcel Profile Report for APNs 2368-001-028, 2368-001-029, 2368-001-030, and 2368-005-011 available at http://zimas.lacity.org, accessed March 9, 2023.*

(1) Impact Analysis

As described above, the Project Site is located within the seismically active region of Southern California and could potentially be subject to strong seismic ground shaking if a moderate to strong earthquake occurs on a local or regional fault. However, as discussed in the Regulatory Framework section above, State and local code requirements ensure that buildings are designed and constructed in a manner that would reduce the risk of building collapse although buildings may still sustain damage during a major earthquake. The State and City both mandate compliance with numerous regulations related to seismic safety, including the Alquist-Priolo Earthquake Fault Zoning Act, Seismic Safety Act, Seismic Hazards Mapping Act, the California Building Code, the City's General Plan Safety Element, and the Los Angeles Building Code. The Project would be required to demonstrate compliance with the applicable provisions of these safety requirements before permits can be issued for construction. Accordingly, the Project's design and construction would comply with all applicable regulatory requirements, including applicable provisions of the Los Angeles Building Code relating to seismic safety, and accepted and proven construction engineering practices would be implemented, including the Project-specific geotechnical design recommendations set forth in the Geotechnical Investigation and in Project Design Feature GEO-PDF-1. Any potentially significant impacts related to seismic ground shaking at the Project Site would not be directly or indirectly caused by the Project given that no mining operations, exceptionally deep excavations, or boring of large areas creating unstable seismic conditions would occur. Furthermore, as discussed above, no active faults with the potential for surface fault rupture are known to pass directly beneath the Project Site. As such, the Project would not cause geologic hazards related to strong seismic ground shaking.

The Project would also comply with the Los Angeles Building Code, which incorporates the current seismic design provisions of the 2022 California Building Code, with City amendments, to minimize seismic impacts. The 2022 California Building Code incorporates the latest seismic design standards for structural loads and materials, as well as provisions from the National Earthquake Hazards Reduction Program to mitigate losses from an earthquake and maximize earthquake safety. LADBS is responsible for implementing the provisions of the Los Angeles Building Code, and the Project would be required to comply with the plan review and permitting requirements of LADBS, including the recommendations provided in a final, site-specific geotechnical report subject to review and approval by LADBS. In accordance with these regulatory requirements, the Project would implement the recommendations prepared by the Geotechnical Investigation and approved by LADBS, which are included in Appendix H.1 of this Draft EIR, and its final recommendations would be enforced by the LADBS for the construction of the Project.

Through compliance with applicable regulatory requirements and site-specific geotechnical recommendations contained in a final design-level geotechnical engineering report, the Project would not directly or indirectly cause potential

substantial adverse effects, including the risk of loss, injury, or death related to strong seismic ground shaking. Therefore, impacts related to strong seismic ground shaking would be less than significant.

(2) Mitigation Measures

With implementation of regulatory requirements, Project-level impacts related to strong seismic ground shaking would be less than significant. Therefore, no mitigation measures are required.

(3) Level of Significance After Mitigation

Project-level impacts related to strong seismic ground shaking 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.

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

iii. Seismic-related ground failure, including liquefaction?

(1) Impact Analysis

As discussed above, although the Project Site is located within an area prone to liquefaction, the results of the liquefaction analysis performed as part of the Geotechnical Investigation included in Appendix H.1 of this Draft EIR demonstrate that the potential for liquefaction at the Project Site is considered low. Additionally, the Project would be designed in accordance with the Los Angeles Building Code, which requires implementation of engineering techniques to minimize hazards related to ground failure, including liquefaction, to acceptable levels. As such, the Project would not cause geologic hazards related to liquefaction. Furthermore, while some seismically induced settlement of the proposed structures on the Project Site could result from strong ground shaking associated with an earthquake, due to the uniform nature of the underlying geologic materials, excessive differential settlements are not expected to occur. In addition, settlement estimates would be finalized and included in a design-level geotechnical investigation report, as discussed above in Project Design Feature GEO-PDF-1. As such, the potential for seismic settlement is considered low.

Therefore, the Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death related to seismic-related ground failure, including liquefaction. Impacts associated with seismic-related ground failure, including liquefaction, would be less than significant.

(2) Mitigation Measures

Project-level impacts related to liquefaction would be less than significant. Therefore, no mitigation measures are required.

(3) Level of Significance After Mitigation

Project-level impacts related to liquefaction 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.

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

iv. Landslides?

As discussed in Section VI, Other CEQA Considerations, of this Draft EIR, and as evaluated in the Initial Study prepared for the Project, included in Appendix A of this Draft EIR, the Project Site and surrounding area are fully developed, and the Project Site is generally characterized by relatively level topography. According to the CGS, the Project Site is not located within a landslide zone or in an area identified as having a potential for seismic slope instability.[16] Additionally, the Project Site is not located in a landslide area mapped by the State or the City.[17] Given the largely impervious (developed/paved) nature of the Project Site, large areas of exposed soil or rocks that could slide or become loose are not present across the Project Site.

Therefore, as determined in the Initial Study, the Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death related to landslides. As such, Project impacts with respect to Threshold (a)iv would be less than significant. No further analysis is required.

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

As discussed in Section VI, Other CEQA Considerations, of this Draft EIR, and as evaluated in the Initial Study prepared for the Project included in Appendix A of this Draft EIR, given the largely impervious (developed/paved) nature of the Project Site, there are limited landscaped areas with exposed topsoil. However, development of the Project would require grading, excavation, and other construction activities that have the potential to disturb existing

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[16] *California Geological Survey, Van Nuys Quadrangle, Seismic Hazard Zones, February 1, 1998.*

[17] *City of Los Angeles Department of City Planning, ZIMAS, Parcel Profile Report for APNs 2368-001-028, 2368-001-029, 2368-001-030, and 2368-005-011 March 9, 2023.*

soils within the Project Site, and expose these soils to rainfall and wind during construction, thereby potentially resulting in soil erosion. This potential would be reduced by the implementation of standard erosion controls imposed during site preparation and grading activities during Project construction. Specifically, all grading activities would require grading permits from LADBS, which would include requirements and standards designed to limit potential effects associated with erosion to acceptable levels. In addition, on-site grading and site preparation would comply with all applicable provisions of LAMC Chapter IX, Article 1, which addresses grading, excavations, and fills. Furthermore, the Project would be required to comply with the City's Low Impact Development (LID) Ordinance and implement standard erosion controls to limit stormwater runoff, which can contribute to erosion.

Therefore, as determined in the Initial Study, with compliance with applicable regulatory requirements, the Project would not result in substantial soil erosion or the loss of topsoil. As such, impacts with respect to Threshold (b) would be less than significant. No further analysis is required.

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 landslide, lateral spreading, subsidence, liquefaction, or collapse?

(1) Impact Analysis

As discussed above and in Section VI, Other CEQA Considerations, of this Draft EIR, the Project Site is not located in a landslide area as mapped by the State or the City. Furthermore, as concluded in the Geotechnical Investigation included in Appendix H.1 of this Draft EIR, the probability of seismically induced landslides occurring on the Project Site is considered low due to the general lack of elevation difference across or adjacent to the Project Site. Therefore, no impacts related to landslides would occur.

As previously noted, liquefaction-related effects include lateral spreading. As discussed above, the Geotechnical Investigation concluded that the Project Site soils would not be prone to liquefaction during ground motion, and therefore the potential for lateral spreading also would be low. Furthermore, there are no open slopes nearby which may present a seismic hazard due to lateral spreading. Therefore, impacts related to lateral spreading would be less than significant.

As previously discussed, subsidence occurs when a large portion of land is displaced vertically, usually due to the withdrawal of groundwater, oil, or natural gas. No permanent large-scale extraction of groundwater, gas, oil, or geothermal energy currently occurs or is planned to occur at the Project Site. However, based on the depth to groundwater and excavation proposed (i.e., up to 50 feet bgs), temporary dewatering is anticipated during

construction. As such, a detailed dewatering analysis was performed and is provided in the Dewatering Report included as Appendix H.2 of this Draft EIR. As discussed therein, under the scenario where Excavation Areas 1, 2, and 3 are dewatered simultaneously with 15 months of construction dewatering, the total estimated dewatering volume would be approximately 35.7 million gallons. This scenario results in a drawdown of approximately 10 feet extending from approximately 200 to 250 feet from the perimeter of the Excavation Area to four feet at a distance of approximately 500 to 600 feet from the perimeter of the Excavation, as indicated in Figure 7G of the Dewatering Report. As discussed in the Subsidence Evaluation included as Appendix A of the Dewatering Report, this small amount of drawdown would result in less than 0.33 inches of settlement for areas located in the immediate vicinity of the excavation, with the degree of settlement decreasing further away from the Excavation Area. This impact was determined to be less than significant because it is less than the threshold which is 0.5 inches of settlement. Further, as discussed in the Dewatering Report, the methods for dewatering would be evaluated by LADBS and the Los Angeles Regional Water Quality Control Board and conform with applicable regulatory requirements. All shoring design, infiltration cut-off methods, and dewatering methods would be designed and submitted to the appropriate jurisdiction for review and approval and would be performed, inspected, and monitored to comply with the applicable regulatory requirements. As such, impacts related to subsidence would be less than significant.

As also discussed above, the site-specific liquefaction analyses included in Exhibit 11 of the Geotechnical Investigation demonstrate that the Project Site soils analyzed would have a factor of safety between 1.9 and 2.3, which is greater than 1.3, the acceptable level of risk where high-quality, site-specific penetration resistance and geotechnical laboratory data is collected. As such, the potential for liquefaction at the Project Site is considered low, and impacts associated with liquefaction would be less than significant.

In regard to collapsible soils, as discussed in the Geotechnical Investigation, the North and South Lots of the Project Site are underlain by native alluvial soils that consist of interlayered mixtures of sand, clay, and silt, which are moist to wet, medium dense to very dense, or stiff to very stiff, and fine to coarse grained, with occasional layers containing gravel and cobbles. The bedrock that underlies the South Lot consists of siltstone of the Miocene Monterey formation and is moist and moderately hard to hard. Bedrock was not encountered in any of the borings in the North Lot. These soils are not considered prone to sudden collapse or hydroconsolidation. In addition, the Project would be required to provide a final, site-specific geotechnical report that would include the preliminary recommendations from the Geotechnical Investigation, as well as final recommendations that would be enforced by LADBS. Therefore, impacts associated with collapsible soils would be less than significant.

Through compliance with regulatory requirements, including the implementation of the site-specific geotechnical recommendations contained in the Geotechnical Investigation and the Dewatering Report, the Project would not be located on a geologic

units or soil that is unstable, or that would become unstable as a result of the Project and could potentially result in on- or off- site landslide, lateral spreading, subsidence, liquefaction, or collapse. Thus, such impacts would be less than significant.

(2) Mitigation Measures

Project-level impacts related to a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, would be less than significant. Therefore, no mitigation measures are required.

(3) Level of Significance After Mitigation

Project-level impacts related to a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, 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.

Threshold (d): Would the project 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?

(1) Impact Analysis

As discussed above, the upper geologic materials found in the Project Site typically range between the very low and moderate expansion range. A moderate expansion range is not considered a risk to the Project. Furthermore, the proposed structures and improvements would be designed for a moderate expansion range in accordance with the applicable building codes. Additionally, as part of the Project and the associated grading and excavation that would occur, any potential impacts related to moderately expansive soils would be addressed through the removal and replacement of existing soils to an approximate depth of up to 50 feet and proper design and construction in accordance with the State and City Building Codes. **Therefore, potential impacts with regard to expansive soil would be less than significant.**

(2) Mitigation Measures

Project-level impacts related to expansive soil would be less than significant. Therefore, no mitigation measures are required.

(3) Level of Significance After Mitigation

Project-level impacts related to expansive soil 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.

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

As discussed in Section VI, Other CEQA Considerations, of this Draft EIR, and evaluated in the Initial Study prepared for the Project, included in Appendix A of this Draft EIR, the Project Site is served by existing sewage infrastructure. The Project's wastewater demand would be accommodated via connections to the existing wastewater infrastructure system. As such, the Project would not require the use of septic tanks or alternative wastewater disposal systems. **Therefore, as determined in the Initial Study, the Project would not result in impacts related to the ability of soils to support septic tanks or alternative wastewater disposal systems, and no impacts with respect to Threshold (e) would occur. No further analysis is required.**

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

(1) Impact Analysis

As discussed above, a records search at NHMLA did not identify any known paleontological resources within the Project Site. However, seven paleontological localities were noted from similar geologic units to those surrounding and underlying the Project Site at a greater distance. Nonetheless, as evaluated in the Paleontological Resources Report, both Pleistocene-age alluvial fan deposits underlying the Project Site and the nearby Modelo Formation have produced significant fossil specimens and are, therefore, assigned a high paleontological potential. Therefore, the collected data indicate that there is a potential to encounter significant paleontological resources should proposed excavations extend to native Pleistocene- or Miocene-age deposits, which are expected to be encountered at depths of 20 feet or greater below the surface. Proposed excavations for the Project are expected to extend up to approximately 50 feet below grade in certain areas of the Project Site and, thus, are likely to encounter sediments with a high paleontological sensitivity. **Therefore, as concluded in the Paleontological Resources Report, potential impacts to paleontological resources would be potentially significant.**

With regard to unique geologic features, given that the Project Site is located in a highly developed urban area, there are no unique geologic features on the Project Site. **Therefore, as determined in the Initial Study, the Project would not directly or indirectly destroy a unique geologic feature. No impact with respect to the destruction of a unique geologic feature would occur, and no further analysis is required.**

(2) Mitigation Measures

The following mitigation measures is proposed to reduce impacts to paleontological resources:

Mitigation Measure GEO-MM-1: The services of a Qualified Professional Paleontologist, who meets Society of Vertebrate Paleontology (SVP) standards, shall be retained prior to ground disturbance activities associated with Project construction in order to develop a site-specific Paleontological Resource Mitigation and Treatment Plan. As defined by the SVP, a Qualified Professional Paleontologist, also Principal Investigator, or 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:

1. 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.
2. At least two full years professional experience as assistant to a Project Paleontologist with administration and project management experience; supported by a list of projects and referral contacts.
3. Proficiency in recognizing fossils in the field and determining their significance.
4. Expertise in local geology, stratigraphy, and biostratigraphy.
5. Experience collecting vertebrate fossils in the field."

The Paleontological Resource Mitigation and Treatment Plan shall specify the levels and types of mitigation 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. The Paleontological Resource Mitigation and Treatment Plan shall be reviewed by the curatorial staff of the Vertebrate Paleontology Section of the Natural History Museum of Los Angeles County. The Draft Paleontological Resource Mitigation and Treatment Plan shall be provided to the curatorial staff no later than four weeks before the start of excavation. A Worker Environmental Awareness

Program (WEAP) shall be conducted at the preconstruction meeting for the Project.

The Qualified Professional Paleontologist shall supervise a Qualified Paleontological Resource Monitor, who shall monitor all ground disturbance activities within high sensitivity deposits (e.g., Pleistocene age alluvial deposits or the Modelo Formation), to identify potential paleontological resources. As defined by the SVP, a Qualified Paleontological Resource Monitor has the following qualifications (or their equivalent):

1. 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
2. AS or AA in geology, paleontology, or biology and demonstrated two years of experience collecting and salvaging fossil materials in the state or geologic province of the specific project, or
3. 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.
4. Monitors must demonstrate proficiency in recognizing various types of fossils, in collection methods, and in other paleontological field techniques.

In the event of the discovery a paleontological resource, the monitor has the authority to divert and/or re-direct ground-disturbing activities in the area of the find and rope off a protective barrier of at least 50 feet to evaluate the unanticipated find.

If significantly disturbed deposits or younger deposits too recent to contain paleontological resources are encountered during construction, the Qualified Professional Paleontologist may reduce or curtail monitoring in those affected areas, after consultation with the Applicant and the Los Angeles Department of City Planning's Office of Historic Resources.

Post-construction, a report shall be prepared detailing paleontological resources discovered during construction. The paleontological resources shall 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.

(3) Level of Significance After Mitigation

With implementation of Mitigation Measure GEO-MM-1, Project-level impacts to unique paleontological resources would be reduced to a less-than-significant level.

e. Project Impacts with Long-Term Buildout

Project buildout may occur in one phase, with a total construction period of approximately 39 months. Construction could begin in 2025 and end as early as 2028.[18] However, the Applicant is seeking a Development Agreement with a term of 20 years, which could extend the full buildout year to approximately 2045. The Development Agreement would confer a vested right to develop the Project in accordance with the Specific Plan and a Mitigation Monitoring Program (MMP) throughout the term of the Development Agreement. The Specific Plan and MMP would continue to regulate development of the Project Site and provide for the implementation of all applicable Project Design Features and mitigation measures associated with any development activities during and beyond the term of the Development Agreement. Additionally, given that geological and paleontological conditions are site-specific and do not typically vary over the course of relatively short timeframes, a later buildout date would not affect the impacts or significance conclusions presented above.

f. Cumulative Impacts

(1) Impact Analysis

As discussed in Section III, Environmental Setting, of this Draft EIR, there are 13 related development projects that have been identified in the vicinity of the Project Site through 2028, the Project's anticipated buildout year.[19] Due to the site-specific nature of geological conditions (i.e., soils, geological features, subsurface features, seismic features, etc.), geological impacts are typically assessed on a project-by-project basis, rather than on a cumulative basis. Nonetheless, cumulative growth in the surrounding area (inclusive of the 13 related projects identified in Section III, Environmental Setting, of this Draft EIR) through 2028, the Project's earliest anticipated buildout year, would expose a greater number of people to seismic hazards. However, as with the Project, related projects and other future development projects would be subject to established guidelines and regulations pertaining to building design and seismic safety, including those set forth in the California Building Code and Los Angeles Building Code, as well as site-specific geotechnical evaluations that would identify

[18] *Construction of the proposed Radford Bridge, extending from the northern terminus of Radford Avenue north across the Tujunga Wash to Moorpark Street, may be completed after 2028.*

[19] *While Project buildout is anticipated in 2028, the Applicant is seeking a Development Agreement with a term of 20 years, which could extend the full buildout year to approximately 2045. A later buildout date would not affect the cumulative impact analysis related to geology and soils.*

potential effects related to the underlying geologic and soil conditions for a particular related project site. **With adherence to applicable regulations and any site-specific recommendations set forth in a site-specific geotechnical evaluation, the Project and related projects would result in less-than-significant cumulative impacts related to geological and soil conditions.**

With regard to potential cumulative impacts related to paleontological resources, the Project Site is located within an urbanized area that has been disturbed and developed over time. Accordingly, many subsurface paleontological resources in the area have likely been disturbed by present development. As with the Project, as part of the environmental review processes for the related projects, it is expected that mitigation measures would be established as necessary to address potential impacts to paleontological resources. **Therefore, the Project and related projects would result in less-than-significant cumulative impacts to paleontological resources.**

(2) Mitigation Measures

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

(3) Level of Significance After Mitigation

Cumulative impacts related to geology and soils, including 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.