

Appendix D

2. Paleontological Assessment

676 MATEO STREET PROJECT, CITY OF LOS ANGELES, CALIFORNIA

Paleontological Resources Assessment Report

October 2018



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Paleontological Resources Assessment Report

October 2018

Prepared by:
ESA

Principal Investigator and Report Author:
Alyssa Bell, Ph.D.

Project Manager:
Sara Dietler, B.A.

Project Location:
Los Angeles (CA) USGS 7.5 minute
Topographic Quad; Township 1 South,
Range 13 West, unsectioned

Acreage: Approx. 1.03 acres

626 Wilshire Boulevard
Suite 1100
Los Angeles, CA 90017
213.599.4300
www.esassoc.com



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EXECUTIVE SUMMARY

676 Mateo Street Project - Paleontological Resources Assessment Report

Environmental Science Associates (ESA) has conducted a Phase I Paleontological Resources Assessment for the 676 Mateo Street Project (Project) as requested by the City of Los Angeles (City). The Applicant proposes to construct one new mixed-use building in the Central City North Community Plan Area in the City. The Project site is currently occupied by a structure and a surface parking lot. The Project would include demolition of the existing building and parking lot, and would construct one mixed-use building in its place. The City is the lead agency pursuant to the California Environmental Quality Act (CEQA).

The 1.03-acre Project site is located within the Los Angeles Arts District at 668-678 S. Mateo Street and 669-679 S. Imperial Street (Project Site). The Project Site is bounded by Mateo Street to the west, Imperial Street to the east, a one-story warehouse building that has been converted into a small grocery/market use, associated surface parking lot and Jesse Street to its north, and single-story industrial and commercial building, associated surface parking lots, and E. 7th Street to their south. Specifically, the Project Site is located in an unsectioned portion of Township 1 South, Range 13 West, of the Los Angeles 7.5-minute USGS topographic quadrangle.

The surficial geology of the Project Site consists of Quaternary Alluvium deposited within Holocene time (Dibblee and Ehrenspeck, 1989).¹ A paleontological records search was conducted for the Project by the Natural History Museum of Los Angeles County (LACM) on July 17, 2017. The results indicate no known fossil localities on the Project Site; however, older Quaternary Alluvium deposited during the Pleistocene epoch² can contain significant fossil vertebrate remains, and this alluvium is present in discontinuous areas throughout Downtown Los Angeles and east Los Angeles, including the subsurface of the Project Site. The three closest fossil localities in these sediments known to the LACM (LACM 1023, 1755, and 2032) have produced fossil specimens of a variety of Ice Age animals such as mammoth and ground sloths at depths from 20 to 43-feet below surface. The surficial geology of the Project Site consists of Holocene-aged Quaternary Alluvium. A review of geologic mapping and the scientific literature indicates that the surficial Quaternary Alluvium is too young to preserve fossil resources in the surface or shallow soils of the Project Site; however, the age of the sediments increases with depth and deeper layers may preserve fossil resources. Therefore, the sediments underlying the Project Site

¹ Defined by the International Commission on Stratigraphy (ICS) as 11,700 years ago to the present (ICS, 2017).

² Defined by the ICS as 2,588,000 years ago to 11,700 years ago to the present (ICS, 2017).

are characterized as having variable paleontological sensitivity³, ranging from low to high, depending on the soil unit. ESA provides recommendations for paleontological impact mitigation in order to ensure that potential impacts remain less than significant. These recommendations are provided in the Conclusions and Recommendations section at the end of this report.

³ The known potential to produce significant fossils.

INTRODUCTION AND PROJECT DESCRIPTION

Introduction

Environmental Science Associates (ESA) has conducted a Phase I Paleontological Resources Assessment for the 676 Mateo Street Project (Project) as requested by the City of Los Angeles (City). The Applicant proposes to construct one new mixed-use building in the Central City North Community Plan Area in the City. The Project site is currently occupied by a structure and a surface parking lot. The Project would include demolition of the existing building and parking lot, and would construct one mixed-use building in its place. The City is the lead agency pursuant to the California Environmental Quality Act (CEQA).

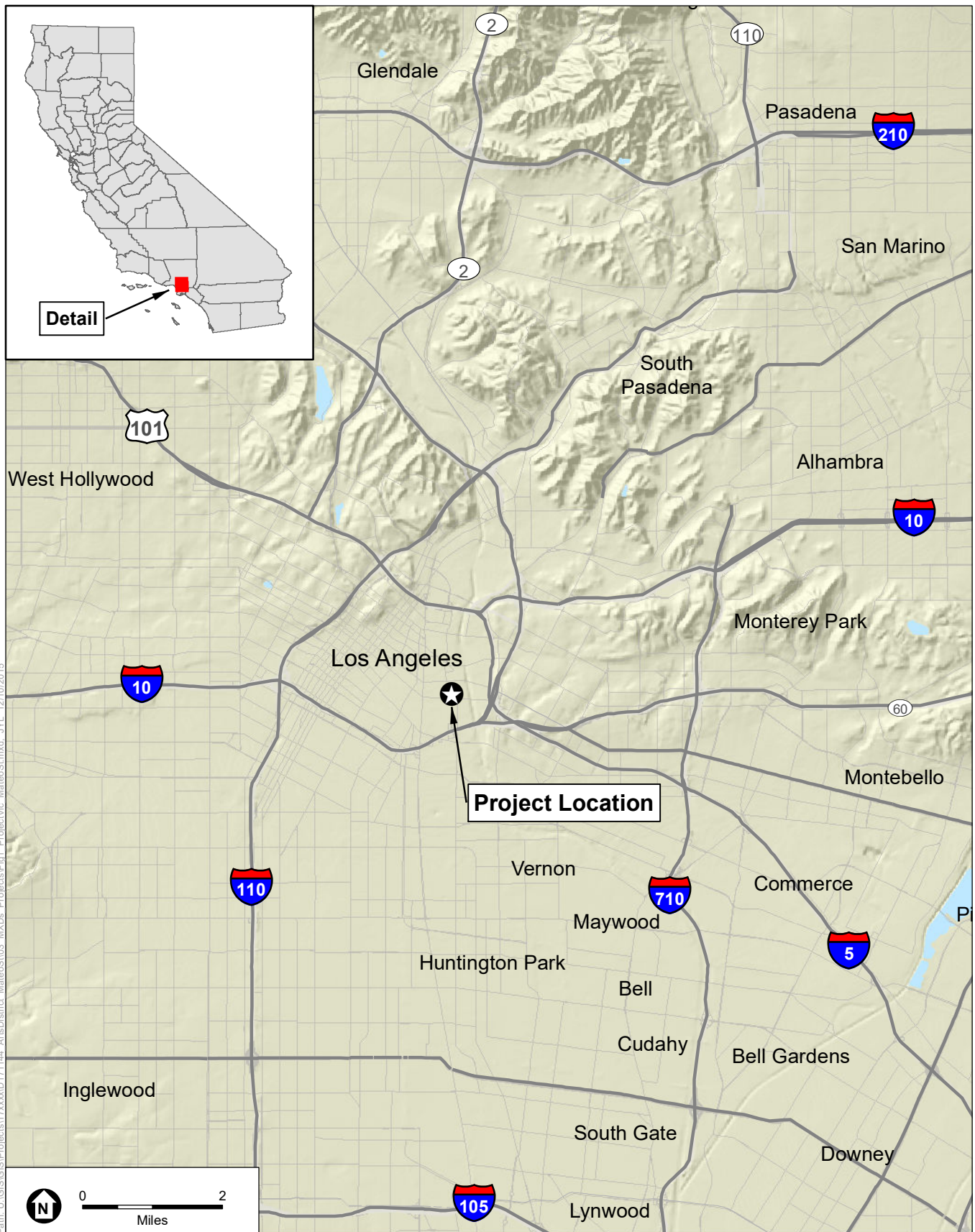
ESA personnel involved in the preparation of this report are as follows: Monica Strauss, M.A., Project Director; Sara Dietler, B.A., Project Manager; Alyssa Bell, Ph.D., report author; and Jessie Lee, GIS specialist. Resumes of key personnel are included in **Appendix A**.

Project Location

The 1.03-acre Project site is located within the Los Angeles Arts District at 668-678 S. Mateo Street and 669-679 S. Imperial Street (Project Site) (**Figure 1**). The Project Site is bounded by Mateo Street to the west, Imperial Street to the east, a one-story warehouse building that has been converted into a small grocery/market use, associated surface parking lot and Jesse Street to its north, and single-story industrial and commercial buildings, associated surface parking lots, and E. 7th Street to their south. Specifically, the Project Site is located in an unsectioned portion of Township 1 South, Range 13 West, of the Los Angeles 7.5-minute USGS topographic quadrangle (**Figure 2**).

Project Description

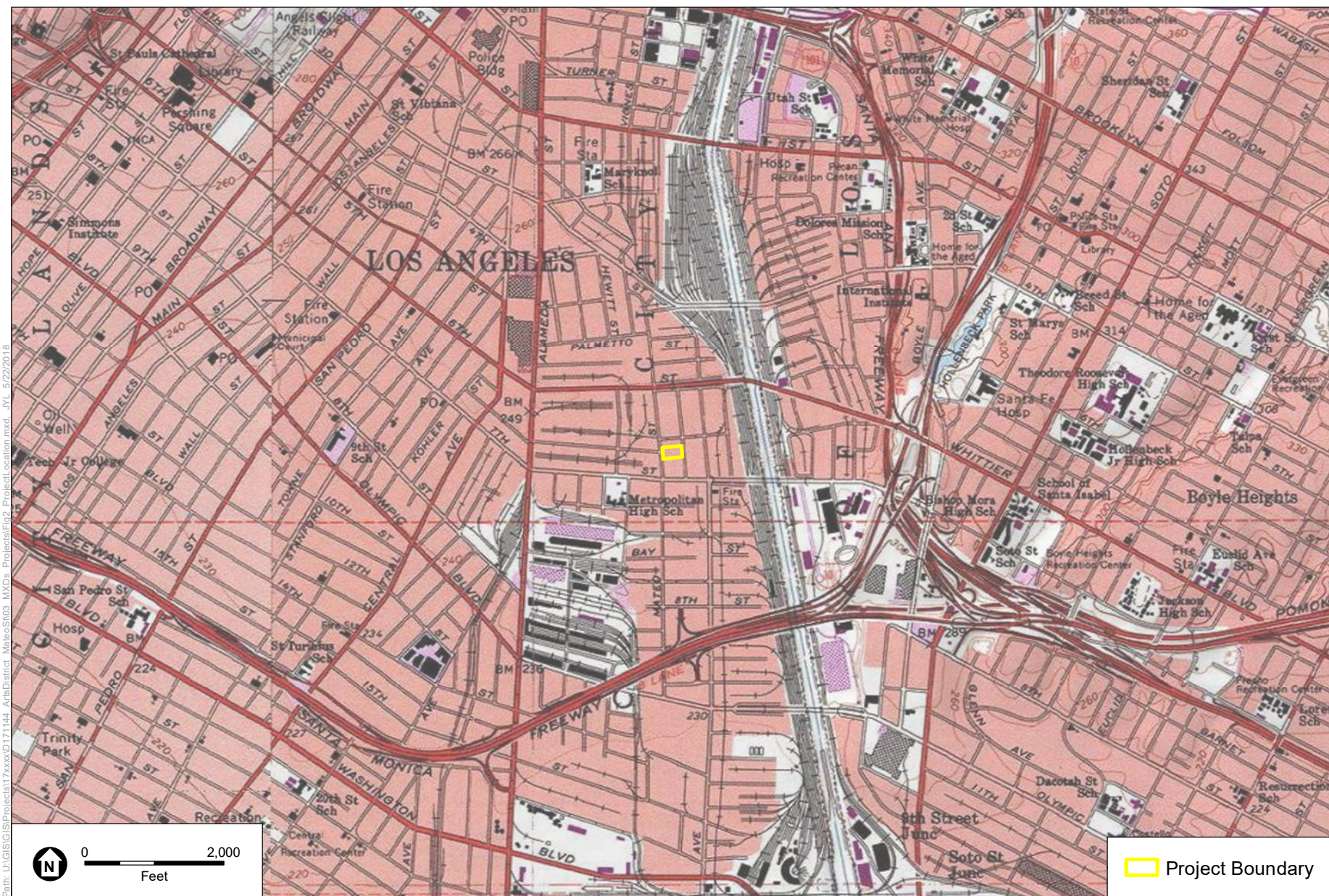
The Project proposes the demolition of the existing warehouse building and surface parking, and the construction of an up to 197,355- square foot (sf) mixed-use building containing up to 185 live/work units and approximately 15,320-sf of open space and recreational amenities for residents, up to 23,380-sf of commercial uses, and associated parking facilities providing approximately 270 parking spaces and approximately 152 bicycle parking spaces at the 44,800-sf Project Site. Eleven percent of the units (approximately 20 live/work units) would be deed-restricted for Very Low Income households. The proposed building would be up to 110 feet (8 levels) tall and would include a three-level subterranean parking structure, which would involve a depth of excavation of approximately 47 feet below ground surface. The project includes a flex option for additional commercial and retail space that would not result in a change to the square footage or any building parameters.



SOURCE: ESRI; County of Los Angeles

676 Mateo Street

Figure 1
Project Vicinity Map



SOURCE: USGS 7.5' Topo Quad Los Angeles 1978; 1982

REGULATORY FRAMEWORK

State and Local Regulations

Paleontological resources are limited, nonrenewable resources of scientific, cultural, and educational value that are afforded protection under state laws and regulations. The following section summarizes the applicable state laws and local regulations, as well as professional standards provided by the Society of Vertebrate Paleontology (SVP).

State Regulations

California Environmental Quality Act

The CEQA Guidelines (Title 14, Chapter 3 of the California Code of Regulations, Section 15000 *et seq.*), define the procedures, types of activities, individuals, and public agencies required to comply with CEQA. As part of CEQA's Initial Study process, one of the questions that must be answered by the lead agency relates to paleontological resources: "Will the proposed project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?" (CEQA Guidelines Section 15023, Appendix G, Section XIV, Part a).

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." 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.

California Public Resources 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.

Local Regulations

City of Los Angeles – General Plan

The Conservation Element of the City of Los Angeles General Plan recognizes paleontological resources in Section 3: “Archeological and Paleontological” (II-3), 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” (City of Los Angeles, 2001⁴).

City of Los Angeles CEQA Thresholds of Significance

The City of Los Angeles’ CEQA Thresholds of Significance Guide (City of Los Angeles, 2006) Section D:1 specifies that the determination of significance for paleontological resources shall be made on a case-by-case basis, taking into consideration the following factors:

- 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. [City of Los Angeles, 2006]

Society for Vertebrate Paleontology

The SVP has established standard guidelines (SVP, 1995, 2010) 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

⁴ See References for complete citations.

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 (1995:26), 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 (1995:26), 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 (1995), 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.

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 (SVP, 1995).

Fossils are contained within surficial sediments or bedrock, and are therefore not observable or detectable unless exposed by erosion or human activity. In summary, paleontologists cannot know either the quality or quantity of fossils prior to natural erosion or human-caused exposure. As a result, even in the absence of surface fossils, it is necessary to assess the sensitivity of rock

units based on their known potential to produce significant fossils elsewhere within the same geologic unit (both within and outside of the study area), a similar geologic unit, or based on whether the unit in question was deposited in a type of environment that is known to be favorable for fossil preservation. Monitoring by experienced paleontologists greatly increases the probability that fossils will be discovered during ground-disturbing activities and that, if these remains are significant, successful mitigation and salvage efforts may be undertaken in order to prevent adverse impacts to these resources.

Paleontological Sensitivity

Paleontological sensitivity is defined as the potential for a geologic unit to produce scientifically significant fossils. This is determined by rock type, past history of the geologic unit in producing significant fossils, and fossil localities recorded from that unit. Paleontological sensitivity is derived from the known fossil data collected from the entire geologic unit, not just from a specific survey. In its “Standard Guidelines for the Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontologic Resources,” the SVP (2010:1-2) defines four categories of paleontological sensitivity (potential) for rock units: high, low, undetermined, and no potential:

- **High Potential.** Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources. Rocks units classified as having high potential for producing paleontological resources include, but are not limited to, sedimentary formations and some volcanoclastic formations (e. g., ashes or tephra), and some low-grade metamorphic rocks which contain significant paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils (e. g., middle Holocene and older, fine-grained fluvial sandstones, argillaceous and carbonate-rich paleosols, cross-bedded point bar sandstones, fine-grained marine sandstones, etc.).
- **Low Potential.** Reports in the paleontological literature or field surveys by a qualified professional paleontologist may allow determination that some rock units have low potential for yielding significant fossils. Such rock units will be poorly represented by fossil specimens in institutional collections, or based on general scientific consensus only preserve fossils in rare circumstances and the presence of fossils is the exception not the rule, e. g. basalt flows or Recent colluvium. Rock units with low potential typically will not require impact mitigation measures to protect fossils.
- **Undetermined Potential.** Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have undetermined potential. Further study is necessary to determine if these rock units have high or low potential to contain significant paleontological resources. A field survey by a qualified professional paleontologist to specifically determine the paleontological resource potential of these rock units is required before a paleontological resource impact mitigation program can be developed. In cases where no subsurface data are available,

paleontological potential can sometimes be determined by strategically located excavations into subsurface stratigraphy.

- **No Potential.** Some rock units have no potential to contain significant paleontological resources, for instance high-grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites). Rock units with no potential require no protection nor impact mitigation measures relative to paleontological resources.

For geologic units with high potential, full-time monitoring is generally recommended during any project-related ground disturbance. For geologic units with low potential, protection or salvage efforts will not generally be required. For geologic units with undetermined potential, field surveys by a qualified vertebrate paleontologist should be conducted to specifically determine the paleontologic potential of the rock units present within the study area.

Paleontological Resources Significance Criteria

Fossils are considered to be significant if one or more of the following criteria apply:

1. The fossils provide information on the evolutionary relationships and developmental trends among organisms, living or extinct;
2. The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein;
3. The fossils provide data regarding the development of biological communities or interaction between paleobotanical and paleozoological biotas;
4. The fossils demonstrate unusual or spectacular circumstances in the history of life; or
5. The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations.

Significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, uncommon, or diagnostically important. Significant fossils can include remains of large to very small aquatic and terrestrial vertebrates or remains of plants and animals previously not represented in certain portions of the stratigraphy. Assemblages of fossils that might aid stratigraphic correlation, particularly those offering data for the interpretation of tectonic events, geomorphologic evolution, and paleoclimatology are also critically important (Scott and Springer 2003, Scott et al. 2004).

METHODS AND RESULTS

Archival Research

The Project Site was the subject of thorough background research and analysis. The research included a paleontological records search from the Natural History Museum of Los Angeles County (LACM), as well as geologic map and literature reviews. The Project Site has also been the subject of a geotechnical study (Geotechnologies, Inc., 2017).

Geologic Setting

The Project Site is located in the Los Angeles Basin, a structural depression approximately 50 miles long and 20 miles wide in the northernmost Peninsular Ranges Geomorphic Province (Ingersoll and Rumelhart, 1999). The Los Angeles basin developed as a result of tectonic forces and the San Andreas fault zone, with subsidence occurring 18 – 3 million years ago (Mya) (Critelli et al., 1995). While sediments dating back to the Cretaceous (66 million years ago) are preserved in the basin, continuous sedimentation began in the middle Miocene (around 13 million years ago) (Yerkes et al., 1965). Since that time, sediments have been eroded into the basin from the surrounding highlands, resulting in thousands of feet of accumulation (Yerkes et al., 1965). Most of these sediments are marine, until sea level dropped in the Pleistocene and deposition of the alluvial sediments that compose the uppermost units in the Los Angeles Basin began.

The Los Angeles Basin is subdivided into four structural blocks, with the Project Site occurring in the Central Block, where sediments range from 32,000 to 35,000 feet thick (Yerkes et al., 1965). The Central Block is wedge-shaped, extending from the Santa Monica Mountains in the northwest, where it is about 10 miles wide, to the San Joaquin Hills to the southeast, where it widens to around 20 miles across (Yerkes et al., 1965).

Geologic Map & Literature Review

Geologic mapping by Dibblee and Ehrenspeck (1989) indicates that⁵ Quaternary Alluvium deposited during Holocene time covers the surface of the Project Site (mapped as Qa in **Figure 3. Geology**). The alluvial sediments were deposited on the ancient floodplain of the Los Angeles River and consist of well-sorted silts and sands, interbedded with stream channel deposits of sands and gravels (Dibblee and Ehrenspeck, 1989).

Geotechnical analysis of the Project Site indicates that artificial fill is anticipated to be shallow, with depths of 3 feet below ground surface (bgs) recorded in borings at the site (Geotechnologies, Inc., 2017). Below the artificial fill is the Holocene-aged younger Quaternary Alluvium, as

⁵ Defined by the International Commission on Stratigraphy (ICS) as 11,700 years to the present (ICS, 2017).

mapped by Dibblee and Ehrenspeck (1989). At greater depths, Pleistocene-aged older Quaternary Alluvium (mapped as Qoa in **Figure 3**) and the Pliocene-aged Fernando Formation (mapped as Tfr **Figure 3**). The nearest outcrops of older alluvium to the Project Site are just east of the US-101 (Hollywood) Freeway, roughly 0.6-miles away (Dibblee and Ehrenspeck, 1989). The Fernando Formation is a marine and nonmarine semi-friable, massively bedded sandstone that crops out near the intersection of Broadway Avenue and 1st Street, roughly 1.5-miles from the Project Site (Dibblee and Ehrenspeck, 1989). The Fernando Formation occurs between 100-150 feet bgs in the Project Site (Yerkes et al., 1977).

The Holocene-aged Quaternary Alluvium is relatively recent in age in the upper layers and, as such, is not old enough to contain fossil remains, which the SVP defines as over 5,000 years old (SVP, 2010). However, these sediments increase in age with depth, such that while the surficial sediments are too young to preserve fossils, the underlying older Quaternary Alluvium dates to the late Holocene or Pleistocene and therefore may preserve fossil resources. These sediments have a rich fossil history in Los Angeles (Brattstrom and Sturn, 1959; Steadman, 1980) and throughout southern California (Jefferson 1991a and b, Miller 1971, Scott and Cox 2008). The most common fossils include the bones of mammoth, bison, horse, lion, cheetah, wolf, camel, antelope, peccary, mastodon, capybara, and giant ground sloth, as well as small animals such as rodents and lizards (Graham and Lundelius, 1994). In addition to illuminating the striking differences between Southern California in the Pleistocene and today, this abundant fossil record has been vital in studies of extinction (e.g. Sandom, et al., 2014; Scott, 2010), ecology (e.g. Connin et al., 1998), and climate change (e.g. Roy et al., 1996).

Natural History Museum of Los Angeles County Records Search

On July 3, 2017, Ecoterra requested a database search from the LACM for records of fossil localities in and around the Project Site. The purpose of the museum records search was to: (1) determine whether any previously recorded fossil localities occur in the Project Site, (2) assess the potential for disturbance of these localities during construction, and (3) evaluate the paleontological sensitivity in the Project Site. The records search returned no known localities within the Project Site, however a number of vertebrate fossils are known from similar sedimentary deposits in downtown Los Angeles (McLeod, 2017). These are summarized here.

Late Holocene and Pleistocene-aged older alluvium (Qoa) underlies the surficial younger alluvium in the Project Site and vicinity. These sediments have yielded fossils of numerous Ice Age animals in the Los Angeles area. The closest locality known to the LACM is approximately west of the Project Site, where a fossil horse (*Equus*) was recovered from 43 feet bgs (McLeod, 2017). Located northeast of the Project Site 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 (McLeod, 2017). Just north of this locality, northeast of the Project Site, 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 (McLeod, 2017).

The results of the database search are included as **Appendix B**.

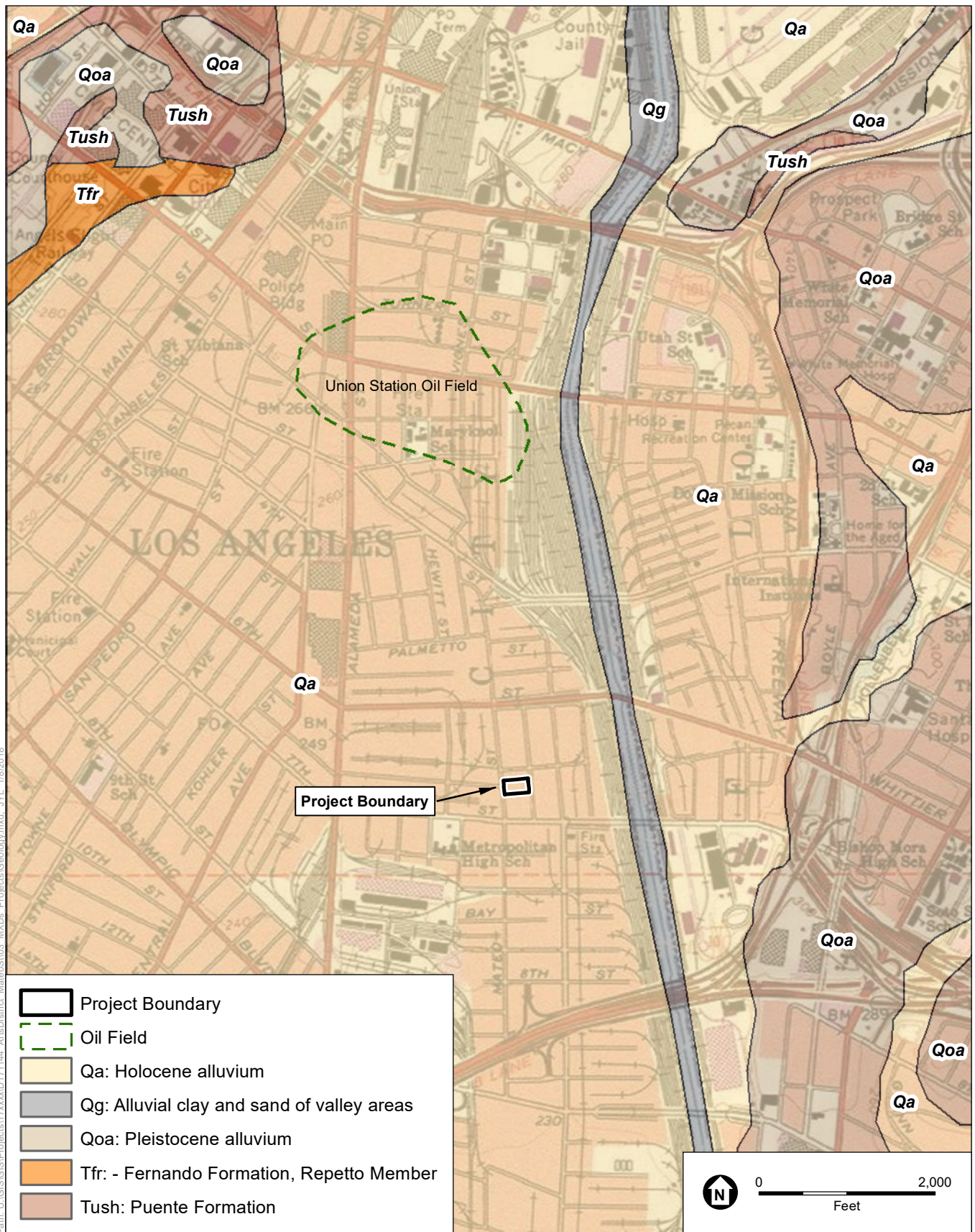
Paleontological Sensitivity Analysis

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 (1995, 2010) to the geologic units that are present at the surface or in the subsurface of the Project Site and will be impacted by ground-disturbing activities associated with the Project:

- **Quaternary younger Alluvium (Qa)** – Surficial sediments; **low-to-high sensitivity**, increasing with depth. While the shallow layers of this unit are too young to preserve fossil resources (i.e., <5,000 years old), these sediments increase in age with depth and may preserve fossils in deeper layers. These potential fossils include a wide variety of Ice Age animals, as reviewed above.
- **Quaternary older Alluvium (Qoa)** – Subsurface, **high sensitivity**. A wide variety of Ice Age fossils are known from these sediments across the Los Angeles Basin, as reviewed above, including multiple specimens belonging to ten taxa known from within 2.5-miles of the Project Site (McLeod, 2017).

As previously stated, the exact depth at which the alluvium becomes old enough to preserve fossils (i.e., >5,000 years old) is unknown at the Project Site. The closest study to identify the depth of this transition correlated well and boring logs from northwest and north of the Project Site, along U.S. Highways 110 and 101 in Downtown Los Angeles (Yerkes et al., 1977). This study found that the depth to older alluvial sediments was highly variable, ranging from 10 to 200 feet bgs (Yerkes et al., 1977). The LACM records search indicated fossils have been recovered at depths of as little as 20 feet in the area (McLeod, 2017). Given the lack of definitive information on the depth of the transition to high sensitivity sediments at the Project Site, an estimated depth of 15 feet bgs is determined using the depths from Yerkes et al. (1977) and the LACM fossil localities (McLeod, 2017).

It should be noted that while the Fernando Formation is present in the subsurface of the Project Site, it occurs between 100-150 feet bgs in the area (Yerkes et al., 1977), and therefore will not be impacted by construction activities associated with the Project, which are expected to only extend 47 feet bgs.



SOURCE: Dibblee Geological Foundation

676 Mateo Street

CONCLUSIONS AND RECOMMENDATIONS

This study 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, and occur to an undetermined depth in the Project Site. However, the Late Holocene-Pleistocene older Alluvium, present at an undetermined depth in the subsurface of the Project Site, has high paleontological sensitivity. Based upon the depth to the older Alluvium to the north and northwest of the Project Site (as little as 10 feet bgs; Yerkes et al., 1977) and the depth at which fossils have been found within 1.5-2.2-miles of the Project Site (as little as 20 feet bgs; McLeod, 2017), it is estimated that the transition from low to high sensitivity sediments could occur at around 15 feet bgs in the vicinity of the Project Site and on the Project Site itself. The Project proposes deep excavation and excavation shoring during the construction of subterranean parking structures, building foundations, and infrastructure and utility improvements (e.g., sewer, electrical, water, and drainage systems) at depths that could impact older Alluvium with a high sensitivity for fossils.

The following recommendations are made and would serve to reduce impacts to unique paleontological resources or unique geological feature to a less than significant level:

1. A qualified paleontologist meeting the Society of Vertebrate Paleontology (SVP) Standards (SVP, 2010) (Qualified Paleontologist) shall be retained 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.
2. 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.
3. Paleontological resources monitoring shall be performed by a qualified paleontological monitor (meeting the standards of the SVP, 2010) 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.

4. 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. 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.

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APPENDIX A

Personnel Qualifications



Monica Strauss, RPA

Director, Southern California
Cultural Resources Group

EDUCATION

M.A., Archaeology,
California State
University, Northridge

B.A., Anthropology,
California State
University, Northridge

AA, Humanities, Los
Angeles Pierce College

20 YEARS EXPERIENCE

SPECIALIZED EXPERIENCE

Treatment of Historic
and Prehistoric Human
Remains

Archaeological
Monitoring

Complex Shell Midden
Sites

Groundstone Analysis

PROFESSIONAL AFFILIATIONS

Register of Professional
Archaeologists (RPA),
#12805

Society for California
Archaeology (SCA)

Society for American
Archaeology (SAA)

QUALIFICATIONS

Exceeds Secretary of
Interior Standards

CA State BLM
Permitted

Monica has successfully completed dozens of cultural resources projects throughout California and the greater southwest, where she assists clients in navigating cultural resources compliance issues in the context of CEQA, NEPA, and Section 106. Monica has extensive experience with archaeological resources, historic buildings and infrastructure, landscapes, and Tribal resources, including Traditional Cultural Properties. Monica manages a staff of cultural resources specialists throughout the region who conduct Phase 1 archaeological/paleontological and historic architectural surveys, construction monitoring, Native American consultation, archaeological testing and treatment, historic resource significance evaluations, and large-scale data recovery programs. She maintains excellent relationships with agency staff and Tribal representatives. Additionally, Monica manages a general compliance monitoring team who support clients and agencies in ensuring the daily in-field compliance of overall project mitigation measures.

Relevant Experience

Orange County, Saddle Crest Homes Project EIR, Orange County, CA. Cultural Resources Project Director. The Saddle Crest project includes the development of 65 residential homes on an approximately 113.7-acre site. Monica managed the preparation of a Cultural Resources EIR section as well as a Phase 1 archaeological resources assessment. As part of the Phase 1 archaeological resources assessment, a literature review, a pedestrian survey, and Native American outreach were undertaken to meet CEQA compliance requirements.

Irvine Ranch Water District, Baker Treatment Plant, Orange County, CA. Cultural Resources Principal Investigator. ESA was retained by the Irvine Ranch Water District to provide environmental compliance services. In support of an EIR for the upgrade of the IRWD's Baker Treatment Plant near Lake Forest, ESA cultural resources staff conducted a Phase I Cultural Resources Assessment. Monica directed the archival research, a series of pedestrian surveys, and oversaw the preparation of Phase I Cultural resources Technical reports and the cultural resources section of the EIR.

Topock Compressor Station Remediation CEQA Services. Mohave County, AZ and San Bernardino County, CA. Cultural Resources Project Director. Monica is overseeing the preparation of cultural resources EIR sections and is providing project support to the California Department of Toxic Substances Control (DTSC), including facilitating Native American involvement. DTSC provides oversight of the site investigation and cleanup activities for the Pacific Gas and Electric Company (PG&E) Topock Gas Compressor Station, located in San Bernardino County, 15 miles southeast of Needles, California. Groundwater samples taken under and near the Station were found to be contaminated with hexavalent chromium and other chemicals as result of past disposal activities. Soils contamination is also present at the site, requiring investigation and cleanup. These activities are highly scrutinized by the regional Native American Tribes because the area has important cultural and religious significance. ESA is currently preparing an EIR for soil investigations and will be conducting CEQA

evaluations that tier off of the Program EIR for the Groundwater Remedy. Additional project-specific EIRs may be required for the final remedy, which is currently undergoing engineering design. ESA will provide these services as well as lead the Native American and public participation efforts.

Los Angeles Department of Water and Power, Path 46 Clearance Surveys, San Bernardino, CA. *Project Director.* ESA has been tasked by Los Angeles Department of Water and Power (LADWP) to conduct required surveys for the Path 46 Transmission Line Clearances Project. The project's objective is to restore required code clearances to the transmission conductors, which will be accomplished by grading the ground surface underneath the transmission lines to achieve required height consistency. The work is being conducted in compliance with BLM guidelines and federal laws and statutes. Biological, archaeological, and paleontological resource surveys are currently being conducted for the 77 proposed grading areas, staging areas, and roads. Reports will be written documenting the results of the surveys and providing recommendations on the areas for access, staging areas, and soil distribution that would have the least amount of impacts on natural resources. Monica is providing support to LADWP in their coordination with the BLM, including providing oversight of map preparation, field surveys, and preparation of pre-field research designs and post-field technical reports.

Ballona Wetlands Restoration EIR, Los Angeles County, CA. *Cultural Resources Project Director.* As part of the development of the restoration plan for the Ballona Wetlands, the ESA project team characterized existing conditions that included water and sediment sampling and analysis. The water and sediment quality sampling was performed to develop and evaluate potential restoration alternatives, and to develop a conceptual plan. The ESA project team compiled existing data on and conducted additional sampling for water and sediment to assess potential effects on the proposed wetland restoration habitat from the use of urban runoff and tidal in-flow from Ballona Creek. These data were used to complete a baseline report and restoration alternatives assessment. Monica is assisting the CSCC in fulfilling Army Corps of Engineers requirements under Section 106 of the National Historic Preservation Act. In addition, she is coordinating with Tribal members and is overseeing a team of resource specialists who are compiling cultural resources technical in preparation of the EIR's Cultural Resources section.

Los Angeles Department of Water and Power La Kretz Innovation Campus, Los Angeles County, CA. *Project Director.* The project involved the rehabilitation of the 61,000-square-foot building located at 518-524 Colyton Street, demolition of the building located at 537-551 Hewitt Street, and construction of an open space public plaza and surface parking lot, and involved compliance with Section 106 of the National Historic Preservation Act and consultation with the California State Historic Preservation Officer. ESA is providing archaeological monitoring and data recovery services and is assisting LADWP with meeting their requirements for Section 106 of the National Historic Preservation Act. Monica is providing oversight to archaeological monitors and crew conducting resource data recovery and laboratory analysis, and is providing guidance to LADWP on meeting Section 106 requirements.

Los Angeles Department of Water and Power Lone Pine Landfill Paleontological Resources Recovery, Inyo County, CA. *Cultural Resources Project Director.* At the request of LADWP, ESA responded to a discovery of large mammal bone at the Lone Pine Landfill in an area where borrow materials were being excavated.

ESA conducted geologic map research and recovered what was identified as a mammoth tusk. The tusk was stabilized, prepared for curation, and transported to a storage facility. Monica provided senior oversight of the paleontological resources recovery team and conducted paleontological resources sensitivity training and guidance to landfill staff in the event additional material are encountered.

City of Los Angeles Recreation and Parks, Hansen Dam Skate Park Project, Los Angeles County, CA. *Cultural Resources Principal Investigator.* ESA prepared a joint EA and IS/MND for the Los Angeles Department of Recreation and Parks in coordination with the U.S. Army Corps of Engineers (Corps) for a proposed skate park facility within the Hansen Dam Recreation Area. Monica managed a Phase I Cultural resources Study, coordinated with the Army Corps of Engineers and provided senior review for the EA/IS/MND cultural resources section.

Los Angeles Unified School District, Central Los Angeles High School #9. Los Angeles, CA. *Project Director.* ESA contributed to Data Recovery Report sections for Los Angeles Unified School District's Central High School #9, constructed in downtown Los Angeles. Between 2004 and 2009, Monica led a team of archaeological staff of ten who conducted archaeological monitoring and data recovery of archaeological materials in connection with the 19th century Los Angeles City Cemetery. She coordinated with the Los Angeles County Coroner and office of Vital Statistics to obtain disinterment permits and developed a mitigation plan incorporating components related to the future disposition of remains, artifact curation, and commemoration. She directed an extensive historical research effort to identify the human remains, and at the request of the client, participated in public outreach and coordination with media.

Bureau of Land Management, On-Call Cultural Resources Services, Riverside County, CA. *Project Manager.* ESA has been retained by the Bureau of Land Management under an on-call contract to provide cultural resource services including compliance monitoring for projects under Bureau of Land Management (BLM) jurisdiction. Monica managed a number of projects for the BLM (Palm Springs South Coast Field Office) providing a wide range of cultural resources services for solar projects and other projects taking place on BLM lands in compliance with Section 106 and specified BLM protocols. Services that she and her staff provide under this contract include compliance monitoring and peer review, Phase I archaeological resources surveys, resource evaluations, the preparation of reports, and Native American consultation. Projects completed under this contract include Dos Palmas Phase I Survey and Archaeological Monitoring, National Monument Phase I Survey, Windy Pointe Archaeological Monitoring, and Fast and the Furious Phase I Survey.



Sara Dietler

Archaeologist

EDUCATION

B.A., Anthropology,
San Diego State
University

19 YEARS EXPERIENCE

CERTIFICATIONS/ REGISTRATION

California BLM Permit,
Principal Investigator,
Statewide

Nevada BLM Permit,
Paleontology, Field
Agent, Statewide

PROFESSIONAL AFFILIATIONS

Society for American
Archaeology (SAA)

Society for California
Archaeology (SCA)

Sara is a senior archaeology and paleontology lead with 20 years of experience in cultural resources management in Southern California. As a senior project manager, she manages technical studies including archaeological and paleontological assessments and surveys, as well as monitoring and fossil salvage for many clients, including public agencies and private developers. She is a cross-trained paleontological monitor and supervisor, familiar with regulations and guidelines implementing the National Historic Preservation Act (NHPA), National Environmental Policy Act (NEPA), California Environmental Quality Act (CEQA), and the Society of Vertebrate Paleontology guidelines. She has extensive experience providing oversight for long-term monitoring projects throughout the Los Angeles Basin for archaeological, Native American, and paleontological monitoring compliance projects and provides streamlined management for these disciplines.

Relevant Experience

Los Angeles Unified School District (LAUSD) Central Los Angeles High School #9; Los Angeles, CA.

Senior Project Archaeologist & Project Manager. Sara conducted on-site monitoring and investigation of archaeological sites exposed as a result of construction activities. During the data recovery phase in connection with a 19th century cemetery located on-site, she participated in locating of features, feature excavation, mapping, and client coordination. She organized background research on the cemetery, including genealogical, local libraries, city and county archives, other local cemetery records, internet, and local fraternal organizations. Sara advised on the lab methodology and setup and served as project manager. Sara was a contributing author and editor for the published monograph, which was published as part of a technical series, "Not Dead but Gone Before: The Archaeology of Los Angeles City Cemetery."

Downtown Cesar Chavez Median Project, City of Los Angeles, CA. *Project Manager.* Sara assisted the City of Los Angeles Department of Public Works Bureau of Engineering with a Local Assistance Project requiring consultations with Caltrans cultural resources. Responsible for Caltrans coordination, serving as contributing author and report manager for required ASR, HPSR, and HRER prepared for the project.

Elysian/USC Water Recycling Project Initial Study/Environmental Assessment, Los Angeles, CA. *Project Manager.* Sara worked on the Initial Study/Mitigated Negative Declaration and an Environmental Assessment/Finding of No Significant Impact to construct recycled water pipelines for irrigation and other industrial uses serving Los Angeles Department of Water and Power customers in downtown Los Angeles, including Elysian Park. The U.S. Environmental Protection Agency is the federal lead agency.



Alyssa Bell, PhD

Paleontologist

EDUCATION

Ph.D., Vertebrate
Paleontology;
University of Southern
California

M.S., Environmental
Microbiology; University
of Tennessee

B.A. with honors,
Ecology and
Systematics; William
Jewell College &
Homerton College,
Cambridge University

10 YEARS EXPERIENCE

Dr. Alyssa Bell has supervised and performed field work, authored project reports, and provided scientific and compliance direction and quality control for paleontological projects throughout Southern California. Dr. Bell has accumulated a wealth of field experience, working with crews from a variety of institutions on field sites in California, Arizona, New Mexico, South Dakota, and Utah, and has led her own expeditions in Montana. She has performed all manner of investigations from surveys and assessments to monitoring and fossil identification over the last 15 years as a part of her academic pursuits and professional consultation, with the last three years being exclusively professional endeavors.

In addition to consulting, Dr. Bell serves as a postdoctoral fellow at the Dinosaur Institute of the Natural History Museum of Los Angeles County (LACM). There she is involved in pursuing her own research into fossil birds as well as working with the Institute's field projects and museum-wide education and outreach initiatives. She has also published peer-reviewed articles and book chapters and given numerous presentations at scientific conferences on both her paleontological and microbiological research.

Relevant Experience

ICHA Area 10 (PA 10-2 & 10-4) Archaeological and Paleontological Monitoring, Irvine, CA. *Principal Investigator & Project Paleontologist.* Dr. Bell managed the curatorial process for fossils collected during monitoring of pre-construction activities at the University of California, Irvine, and authored the final report.

Suncrest Reactive Power Support Project, San Diego County, CA. *Principal Investigator.* Dr. Bell authored the paleontological assessment for the Proponent's Environmental Assessment (PEA) in support for a dynamic reactive power support facility and associated 230-kilovolt (kV) transmission line near Alpine, California. The application for Certificate of Public Convenience and Necessity was filed in summer 2015 and the PEA was deemed complete in December 2015.

Washington National Archaeological and Paleontological Monitoring (Access Culver City), Culver City, CA. *Principal Investigator & Project Paleontologist.* Dr. Bell managed the curatorial process for fossils collected during monitoring of pre-construction activities at the Washington national site in Culver City, CA and authored the final report.

OTO Hotels Santa Monica Archaeological and Paleontological Service, Santa Monica, CA. *Principal Investigator.* Dr. Bell supervised paleontological monitoring and mitigation services during construction excavations and grading. Services included implementation of a paleontological mitigation monitoring program and reporting.

Sacred Heart Specific Plan Environmental Impact Report (EIR), La Canada Flintridge, CA. *Principal Investigator.* Dr. Bell prepared paleontological studies and

developed monitoring & mitigation recommendations for the Sacred Heart development project.

Sixth & Bixel Paleontological Monitoring Services Project, Los Angeles, CA.

Principal Investigator & Project Paleontologist. Dr. Bell supervised paleontological monitoring of preconstruction activities in support of a development project encompassing two parcels in downtown Los Angeles. During these activities, monitors identified and recovered numerous significant vertebrate fossils. Dr. Bell supervised the excavation of fossilized whale remains discovered on-site, and oversaw the collection and curation of all fossil specimens.

Natural and Cultural Support for the Gordon Mull Subdivision EIR, Glendora, CA.

Principal Investigator. Dr. Bell collected the necessary data to prepare the technical sections and mitigation recommendations to support an EIR prepared by another firm to address the Gordon Mull Subdivision in the city of Glendora. The project is proposes to redevelop a 71-acre, 19-lot located in the San Gabriel Foothills.

Lake Elsinore Lakeshore Town Center Permitting, Riverside County, CA.

Principal Investigator. Dr. Bell provided paleontological studies and developed monitoring and mitigation recommendations for the Lake Elsinore Town Center project in Riverside County.

San Pedro Plaza Park - Phase III Archaeological Monitor, Los Angeles, CA.

Principal Investigator. Dr. Bell identified fossils during the mitigation measurement-required archaeological monitoring of earthmoving activities in San Pedro Park Plaza. She is also responsible for curation of the fossil material and authorship of the paleontological section of the final report.

City of Hope Specific Plan and EIR, Duarte, CA. *Principal Investigator.* Dr. Bell provided paleontological resource studies for the City of Hope Specific Plan Project.

Blythe Solar Power Project, Units 1 & 2, Riverside County, CA. *Project Paleontologist.* Dr. Bell supervised paleontological monitoring of preconstruction activities for a solar photo-voltaic cell power-generating facility outside the city of Blythe. As a part of her role, she provided oversight and management of paleontological monitors and development of the final monitoring report.

Industrial Project Environmental Impact Report, Colton, CA. *Principal Investigator.* Dr. Bell provided a paleontological resources study for a six-acre industrial project site at the southwest corner of Agua Mansa Road and Rancho Avenue in the city of Colton.

Mojave Solar Project Paleontological Reporting, San Bernardino County, CA.

Principal Investigator. Dr. Bell managed curation of fossil materials and authored the final report of paleontological monitoring services provided for construction activities in support of a solar field development project in San Bernardino County.

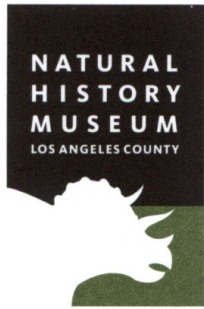
El Camino Real Bridge Replacement Environmental Services, Atascadero, CA.

Principal Investigator. Dr. Bell provided environmental services, including preparation of all California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA) documentation, technical studies, and permitting, for the replacement of the El Camino Real Bridge over Santa Margarita Creek in Atascadero.

APPENDIX B

Record Search Results

Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007
tel 213.763.DINO
www.nhm.org



Vertebrate Paleontology Section
Telephone: (213) 763-3325

e-mail: smcleod@nhm.org

17 July 2017

EcoTierra Consulting
633 West 5th Street, 26th Floor
Los Angeles, CA 90071

Attn: Jennifer Johnson, Project Manager

re: Vertebrate Paleontology Records Check for paleontological resources for the proposed property located at 676 Mateo Street Project, in the City of Los Angeles, Los Angeles County, project area

Dear Jennifer:

I have conducted a thorough search of our paleontology collection records for the locality and specimen data for the proposed property located at 676 Mateo Street Project, in the City of Los Angeles, Los Angeles County, project area as outlined on the portion of the Los Angeles USGS topographic quadrangle map that you sent to me via e-mail on 3 July 2017. We do not have any vertebrate fossil localities that lie directly within the proposed project area boundaries, but we do have localities nearby from the same sedimentary deposits that occur subsurface in the proposed project area.

The entire proposed project site area has surficial deposits of younger Quaternary Alluvium, derived as fluvial deposits from the flood plain of the Los Angeles River that currently flows in a concrete channel just to the east. These younger Quaternary deposits usually do not contain significant fossil vertebrates, at least in the uppermost layers, but the underlying older Quaternary deposits found at varying depths may well contain significant vertebrate fossils.

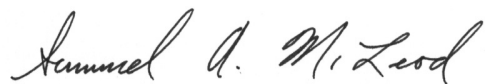
Our closest vertebrate fossil locality from the older Quaternary deposits is LACM 1755, west-northwest of the proposed project area near the intersection of Hill Street and 12th Street, that produced a fossil specimen of horse, *Equus*, at a depth of 43 feet below the street. Our next

closest vertebrate fossil locality from older Quaternary deposits beneath the younger Quaternary Alluvium is LACM 2032, east-northeast of the proposed project area near the intersection of Mission Road and Daly Street around the Golden State Freeway (I-5), that produced fossil specimens of pond turtle, *Clemmys mamorata*, ground sloth, *Paramylodon harlani*, mastodon, *Mammut americanum*, mammoth, *Mammuthus imperator*, horse, *Equus*, and camel, *Camelops*, at a depth of 20-35 feet below the surface. The pond turtle specimens from locality LACM 2032 were figured in the scientific literature by B.H. Brattstrom and A. Sturn (1959. A new species of fossil turtle from the Pliocene of Oregon, with notes on other fossil *Clemmys* from western North America. Bulletin of the Southern California Academy of Sciences, 58(2):65-71). At our locality LACM 1023, just north of locality LACM 2032 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 unstated depth. A specimen of the turkey, *Meleagris*, from this locality was published in the scientific literatus by D. W. Steadman (1980. A Review of the Osteology and Paleontology of Turkeys (Aves: Meleagridinae). Contributions in Science, Natural History Museum of Los Angeles County, 330:131-207).

Shallow excavations in the younger Quaternary Alluvium exposed throughout the proposed project area are unlikely to uncover significant fossil vertebrate remains. Deeper excavations in the proposed project area that extend down into the older Quaternary sediments, however, may well encounter significant vertebrate fossils. Any substantial excavations in the proposed project area, therefore, should be closely monitored to quickly and professionally recover any potential vertebrate fossils without impeding development. Also, sediment samples should be collected and processed to determine the small fossil potential in the proposed project area. Any fossils recovered during mitigation should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

This records search covers only the vertebrate paleontology records of the Natural History Museum of Los Angeles County. It is not intended to be a thorough paleontological survey of the proposed project area covering other institutional records, a literature survey, or any potential on-site survey.

Sincerely,

A handwritten signature in black ink, reading "Samuel A. McLeod". The signature is written in a cursive, flowing style.

Samuel A. McLeod, Ph.D.
Vertebrate Paleontology

enclosure: invoice