APPENDIX E

PALEONTOLOGICAL RESOURCES ASSESSMENT

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July 6, 2020

Jeff Zwack
Project Planner
City of Cypress
5275 Orange Avenue
Cypress, CA 90630

Subject: Paleontological Resources Assessment for the 6400 Katella Warehouse Project, Cypress, Orange County, California

Dear Mr. Zwack:

LSA conducted a Paleontological Resources Assessment for the 6400 Katella Warehouse Project (project) in Cypress, Orange County, California. The purpose of the assessment was to determine whether paleontological resources may be present within the project site, whether they might be impacted by development of the project, and to make recommendations to mitigate any potential impacts to paleontological resources.

PROJECT LOCATION AND DESCRIPTION

The project site is located at 6400-6450 Katella Avenue and is bounded by Katella Avenue to the north, Holder Street to the east, industrial/commercial facilities to the west, and the Stanton Storm Channel to the south. The project site is depicted on the *Los Alamitos, California* 7.5-minute United States Geological Survey (USGS) topographic map in Township 4 South, Range 11 West, Section 27, San Bernardino Baseline and Meridian (USGS, 1981; Figure 1 [Attachment B]).

The project includes the development of two new warehouse buildings for an unnamed operator on the 22.9-acre project site, which is currently occupied by several buildings recently vacated by Mitsubishi Motors of America. The existing buildings would be demolished and replaced with two two-story warehouses: a north building (263,274 square feet [sf]) and a south building (222,814 sf). The project would provide parking for automobiles around the perimeter of the two buildings, parking for trucks between the two buildings, and 27 dock doors per building. Each building also proposes two potential office spaces (7,500 sf for the north building and 5,750 sf for the south building). Some elements of the existing wet and dry utilities on the project site would be used, while some new connections would also be required. In addition, landscaping in the form of a variety of trees, shrubs, and groundcover is proposed throughout the project site surrounding the proposed warehouse buildings and along the perimeter of the project site.

For the two warehouse buildings, within the footprints of those buildings, there would be substantial overexcavation to depths of up to 10 ft (personal communication, Duke Realty, June 2020). For utilities and the storm drain, excavation is expected to involve trenching to depths of approximately 5–10 ft (personal communication, Duke Realty, June 2020). Excavation associated with parking and landscaping is expected to reach depths of 3 feet (ft) or less (personal communication, Duke Realty, June 2020).

REGULATORY ENVIRONMENT

State of California

Under State law, paleontological resources are protected by the California Environmental Quality Act (CEQA) and Public Resources Code Section 5097.5.

California Environmental Quality Act (Public Resources Code 21000 et seq.)

CEQA's purpose is to provide a statewide policy of environmental protection. As part of this protection, State and local agencies are required to analyze, disclose, and, when feasible, mitigate the environmental impacts of, or find alternatives to, proposed projects. The State *CEQA Guidelines* (California Code of Regulations 15000 et seq.) provide regulations for the implementation of CEQA and include more-specific direction on the process of documenting, analyzing, disclosing, and mitigating environmental impacts of a project. To assist in this process, Appendix G of the State *CEQA Guidelines* provides a sample checklist form that may be used to identify and explain the degree of impact a project will have on a variety of environmental aspects, including paleontological resources (Section VII[f]). As stated in Section 15002(b)(1-3) of the State *CEQA Guidelines*, CEQA applies to governmental action, including activities that are undertaken by, financed by, or require approval from a governmental agency.

California Public Resources Code, Section 5097.5

This law protects historic, archaeological, and paleontological resources on public lands within California and establishes criminal and civil penalties for violations. Specifically, Public Resources Code Section 5097.5 states that "No person shall knowingly or willfully excavate upon, remove, destroy, injure, or deface any … paleontological or historical feature, situated on public lands" and that public lands includes lands "… under the jurisdiction of the state, or any city, county, district, authority, or public corporation, or any agency thereof."

City of Cypress

The Conservation/Open Space/Recreation Element of the City of Cypress (City) General Plan (City of Cypress, 2000) establishes the City's priorities as they relate to natural, historical, and paleontological resources and outlines the means for their preservation by implementing the following goals and policies to protect these resources:

Goal COSR-5: Preserve Cypress' archaeologic and paleontologic resources.

Implementation Policy COSR-5.1: Update records of resource finds and locations when required.

Implementation Policy COSR-5.2: Prior to development in previously undeveloped areas, require strict adherence to the CEQA guidelines for environmental documentation and mitigation measures where development will affect archaeological or paleontological resources.

METHODS

LSA examined geologic maps of the project site and reviewed relevant geological and paleontological literature to determine which geologic units are present within the project site and whether fossils have been recovered within the project site or from those or similar geologic units elsewhere in the region. A fossil locality search request was submitted to the Natural History Museum of Los Angeles County (LACM) in order to determine the status and extent of previously recorded paleontological resources within and surrounding the project site.

RESULTS

Literature Review

The project site is in the northwestern Peninsular Ranges Geomorphic Province, a 900 mile long northwest-southeast trending structural block that extends from the Transverse Ranges in the north to the tip of Baja California in the south and includes the Los Angeles Basin (California Geological Survey, 2002; Norris and Webb, 1976). The total width of this province is 225 mi, extending from the Colorado Desert in the east, across the continental shelf, to the Southern Channel Islands (Santa Barbara, San Nicolas, Santa Catalina, and San Clemente) in the west (Sharp, 1976). This province is characterized by a series of mountain ranges and valleys that trend in a northwest-southeast direction roughly parallel to the San Andreas Fault Zone (Norris and Webb, 1976; Sharp, 1976). It contains extensive pre-Cenozoic (more than 66 million years ago [Ma]) igneous and metamorphic rocks covered by a veneer of Cenozoic (66 Ma to Present) sedimentary deposits (Norris and Webb, 1976).

Within this larger region, the project is located in the Los Angeles Basin, a broad alluvial lowland bounded to the north and east by the San Gabriel and Santa Ana Mountains, respectively, and by the Pacific Ocean to the southwest (Yerkes et al., 1965). The basin is underlain by a structural depression that has discontinuously accumulated thousands of feet of marine and terrestrial deposits since the late Cretaceous (approximately 100.5 Ma) (Yerkes et al., 1965). Over millions of years, the basin has experienced episodes of subsidence, deposition, uplift, erosion, and faulting, all of which have resulted in very complex geology (Yerkes et al., 1965). The surface of the basin slopes gently southwestward toward the ocean, interrupted in various places by low hills and traversed by several large rivers (Sharp, 1976; Yerkes et al., 1965), including the Los Angeles River, the Rio Hondo, the San Gabriel River, and the Santa Ana River.

Geologic mapping by Saucedo et al. (2016) shows that the entire project site is underlain by Young Alluvium, Unit 2, which is Holocene to late Pleistocene in age (less than 126,000 years ago). Although not mapped by Saucedo et al. (2016), Artificial Fill was also noted at the surface in some parts of the project site in the geotechnical reports prepared for this and another project in this project site (Southern California Geotechnical, Inc., 2019a, 2019b). These geologic units and their paleontological sensitivities are described in more detail below. Dates for the geologic time intervals referenced in this report are derived from the *International Chronostratigraphic Chart* published by the International Commission on Stratigraphy (Cohen et al., 2020).

Artificial Fill

Artificial Fill consists of sediments that have been removed from one location and transported to another location by human activity, rather than by natural means. The transportation distance can vary from a few feet to many miles, and composition is dependent on the source and purpose. Borings conducted for the geotechnical reports prepared for this and another project at this project site noted Artificial Fill from the surface to depths of approximately 1.5–5 ft in some places across the project site (Southern California Geotechnical, Inc., 2019a, 2019b).

Artificial Fill will sometimes contain modern debris such as asphalt, wood, bricks, concrete, metal, glass, plastic, and even plant material. While Artificial Fill may contain fossils, these fossils have been removed from their original location and are thus out of stratigraphic context. Therefore, they are not considered important for scientific study, and Artificial Fill has no paleontological sensitivity.

Young Alluvium, Unit 2

Young Alluvium, Unit 2, is Holocene to late Pleistocene in age (less than 126,000 years ago) and consists predominantly of poorly consolidated, poorly sorted, permeable deposits of sand, silt, and clay (Saucedo et al, 2016). These sediments accumulated adjacent to stream and river channels and represent deposition by streams and rivers during flood events (Saucedo et al., 2016). Geotechnical reports prepared for this and another project at this project site noted native deposits of this geologic unit at the surface in some parts of the project site and beneath approximately 1.5–5 ft of Artificial Fill in other parts of the project site (Southern California Geotechnical, Inc., 2019a, 2019b).

Although Holocene (less than 11,700 years ago) deposits can contain remains of plants and animals, only those from the middle to early Holocene (4,200 to 11,700 years ago) are considered scientifically important (Society of Vertebrate Paleontology [SVP], 2010), and fossils from this time interval are not very common. However, the older, Pleistocene deposits in this geologic unit have produced scientifically important fossils in the region (Jefferson, 1991a, 1991b; Miller, 1971; Reynolds and Reynolds, 1991; Springer et al., 2009). These older, Pleistocene deposits span the end of the Rancholabrean North American Land Mammal Age (NALMA), which dates from 11,000 to 240,000 years ago (Sanders et al., 2009) and was named for the Rancho La Brea fossil site in central Los Angeles. The presence of *Bison* defines the beginning of the Rancholabrean NALMA (Bell et al., 2004), but fossils from this time also include other large and small mammals, reptiles, fish, invertebrates, and plants (Jefferson, 1991a, 1991b; Miller, 1971; Reynolds and Reynolds, 1991; Springer et al., 2009). There is a potential to find these types of fossils in older sediments of this geologic unit, which may be encountered below a depth of approximately 10 ft. Therefore, these deposits are assigned a low paleontological sensitivity above a depth of 10 ft and a high sensitivity below that mark.

Fossil Locality Search

According to the locality search LACM conducted, there are no known fossil localities within the boundaries of the project. The LACM reports that the project site is underlain by deposits of younger Quaternary alluvium with older Quaternary deposits at depth (i.e., Young Alluvium, Unit 2, as mapped by Saucedo et al. [2016]). The closest vertebrate locality from these deposits is LACM 3757, located southwest of the project site south of 7th Street and east of the Pacific Coast Highway. This

locality produced specimens of eagle ray (*Myliobatis*), guitar fish (Rhinobatoidea), white shark (*Carcharodon*), blue shark (*Prionace*), surfperches (*Damalichthys* and *Rhacochilus*), croaker (*Genyonemus*), pond turtle (*Emys*), sea duck (*Chendytes*), loon (*Gavia*), dog (*Canis*), sea otter (*Enhydra*), horse (*Equus*), camel (*Hemiauchenia*), and pocket gopher (*Thomomys*). Located southwest of the project site, further west along 7th Street and west of Pacific Coast Highway, a mammoth (*Mammuthus*) was recovered from locality LACM 6746. West-southwest of the project site near the intersection of the Pacific Coast Highway and Grand Avenue, locality LACM 7493 produced a specimen of camel (Camelidae). A copy of the letter describing the locality search results from the LACM is provided in Attachment C.

RECOMMENDATIONS

The project site contains Artificial Fill, which has no paleontological sensitivity, and Young Alluvium, Unit 2, which has low paleontological sensitivity from the surface to a depth of 10 ft and high paleontological sensitivity below 10 ft. With a maximum depth of 10 ft, excavation for this project is expected to remain in deposits with no or low paleontological sensitivity. Therefore, in order to mitigate potential impacts to scientifically significant nonrenewable paleontological resources, LSA recommends the following mitigation measure.

PALEO-1 In the event that paleontological resources are encountered, work in the immediate area of the discovery shall be halted and the project applicant shall retain a professional Paleontologist who meets the qualifications established by the Society of Vertebrate Paleontology to assess the discovery. The qualified, professional Paleontologist shall make recommendations regarding the treatment and disposition of the discovered resources, as well as the need for subsequent paleontological mitigation, which may include, but not be limited to, paleontological monitoring, collection of observed resources, preservation, stabilization and identification of collected resources, curation of resources into a museum repository, and preparation of a monitoring report of findings). The City of Cypress shall ensure that the recommendations from the qualified, professional Paleontologist shall be followed by the project applicant.

Implementation of this mitigation measure will ensure that project impacts to scientifically significant paleontological resources will be mitigated to a level that is less than significant.

Sincerely,

LSA Associates, Inc.

Sarah Rieboldt, Ph.D.
Associate/Senior Paleontologist

Attachments: A – References
B – Figure 1: Project Location

C – Results of the Fossil Locality Search at the Natural History Museum of Los Angeles County

ATTACHMENT A

REFERENCES

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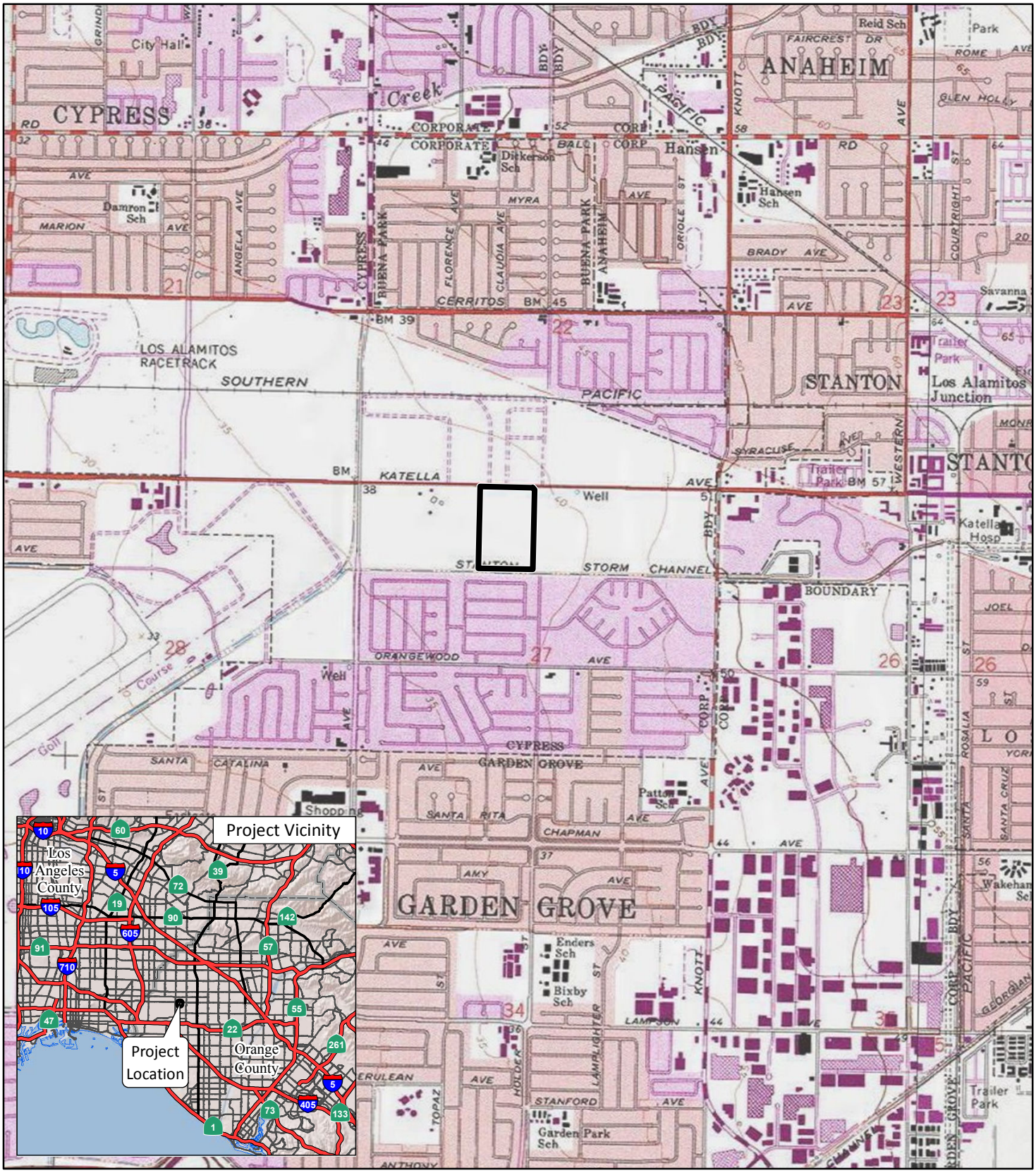
ATTACHMENT B

FIGURE 1: PROJECT LOCATION



LSA

LEGEND

Project Location

FIGURE 1

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6400 Katella Warehouse Project

Project Location

SOURCE: USGS 7.5' Quad - *Los Alamitos* (1981)

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ATTACHMENT C

RESULTS OF THE FOSSIL LOCALITY SEARCH AT THE NATURAL HISTORY MUSEUM OF LOS ANGELES COUNTY

Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.DINO
www.nhm.org

NATURAL HISTORY MUSEUM
LOS ANGELES COUNTY

Vertebrate Paleontology Section
Telephone: (213) 763-3325

e-mail: smcleod@nhm.org

21 May 2020

LSA Associates, Inc.
20 Executive Park, Suite 200
Irvine, California 92614

Attn: Sarah Rieboldt, Ph.D., Associate / Senior Paleontologist

re: Paleontological Resources Records Check for the proposed Amazon Distribution Center and 6400 Katella Avenue Warehouse Projects LSA Project # CCP1603.05A, in the City of Cypress, Orange County, project area

Dear Sarah:

I have thoroughly searched our paleontology collection records for the locality and specimen data for the proposed Amazon Distribution Center and 6400 Katella Avenue Warehouse Projects LSA Project # CCP1603.05A, in the City of Cypress, Orange County, project area as outlined on the portion of the Los Alamitos USGS topographic quadrangle map that you sent to me via e-mail on 7 May 2020. 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 in the proposed project area, either at the surface or at depth.

Surficial sediments at the proposed project area and in the surrounding vicinity consist of younger Quaternary Alluvium, with older Quaternary sediments occurring at various depths, as part of the floodplain deposits from Carbon Creek that currently flows just to the north and from Coyote Creek and the San Gabriel River that currently flow just to the west. The younger Quaternary deposits typically do not contain significant vertebrate fossils, at least in the uppermost layers, but older Quaternary deposits at modest depth may well contain significant fossil vertebrate remains.

Our closest fossil vertebrate locality from older Quaternary deposits is locality LACM 3757, southwest of the proposed project area south of 7th Street and east of the Pacific Coast Highway, that produced fossil specimens of eagle ray, *Myliobatis,* guitar fish, Rhinobatoidea, white shark, *Carcharodon*, blue shark, *Prionace*, surfperches, *Damalichthys* and *Rhacochilus*, croaker, *Genyonemus*, pond turtle, *Clemmys*, sea duck, *Chendytes*, loon, *Gavia*, dog *Canis*, sea otter, *Enhydra*, horse, *Equus*, camel, *Hemiauchenia*, and pocket gopher, *Thomomys*. Further to the west along 7th Street, west of the Pacific Coast Highway, we have locality LACM 6746 that produced fossil mammoth, *Mammuthus*. North of locality LACM 6746 and west-southwest of the proposed project area we have the locality LACM 7493, near the intersection of the Pacific Coast Highway (Highway 1) and Grand Avenue, that produced a fossil specimen of camel, Camelidae, at a depth of 8.5 feet below the surface.

Shallow excavations in the uppermost few feet of the younger Quaternary sediments exposed in the proposed project area are unlikely to uncover significant fossil vertebrate remains. Deeper excavations in the proposed project area that extend down into 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 collect any specimens 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,

Samuel A. McLeod

Samuel A. McLeod, Ph.D.
Vertebrate Paleontology

enclosure: invoice