

## MEMORANDUM

**DATE:** March 6, 2020

**To:** Brandon Roth, Stratham Homes

**FROM:** Sarah Rieboldt, Ph.D., and James Parham, Ph.D.

**SUBJECT:** Paleontological Analysis of the Westbury Project, Rancho Cucamonga, San Bernardino County, California

### INTRODUCTION

This memorandum was prepared to ensure that the Westbury Project (project) in Rancho Cucamonga, San Bernardino County, California, is in compliance with all applicable State and local regulations, requirements, and policies regarding paleontological resources, as well as guidelines of the Society of Vertebrate Paleontology (SVP, 2010). The applicable regulations, requirements, and policies include the California Environmental Quality Act (CEQA), Public Resources Code (PRC) Division 13, Chapter 2.6; the *State CEQA Guidelines*, California Code of Regulations (CCR), Title 14, Chapter 3, Appendix G; and PRC 5097.5. This memorandum addresses the potential for the project to impact paleontological resources and, if needed, includes mitigation measures and other recommendations to minimize these impacts. The City of Rancho Cucamonga (City) is the Lead Agency under CEQA.

### PROJECT LOCATION AND DESCRIPTION

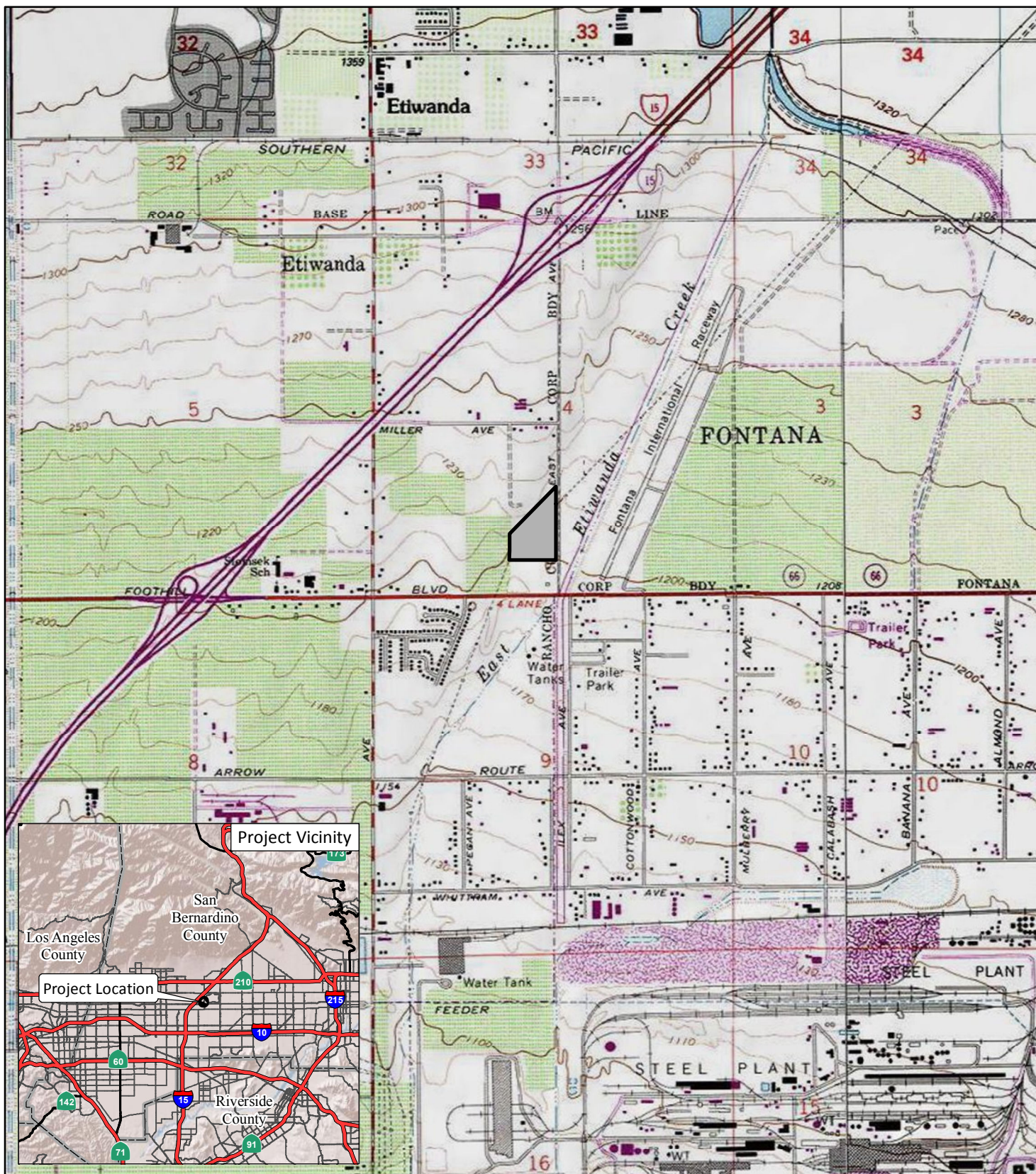
The 11.43-acre project site is bounded by East Avenue to the east, East Foothill Boulevard to the south, and residential neighborhoods to the north and west. The project area is depicted on the United States Geological Survey (USGS) *Guasti, California* 7.5-minute topographic quadrangle map in Township 1 South, Range 6 west, Section 4, San Bernardino Baseline and Meridian (USGS 1981; Figure 1).

The proposed project involves the construction of a mixed-use development of 131 residential units and 1,592 square feet of commercial space. Development of this project would involve excavation to competent material as determined by the project geologist; construction of the new buildings, pool area, roadways, and parking areas; and installation of new wet and dry utilities, landscaping, and lighting. At this time, excavation associated with this project is expected to extend to a depth of approximately 5–9 feet (ft) for the buildings, 9 ft for the pool, and 5–8 ft for the utilities (personal communication, Stratham Homes, January 2018).

### METHODS

LSA completed a literature review that consisted of examining geologic maps of the project site and reviewing relevant geological and paleontological literature to determine which geologic units are present in the project site and whether fossils have been recovered from those or similar geologic units elsewhere in the region. A fossil locality search for known fossils was also conducted through 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.





LSA

LEGEND

Project Location



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SOURCE: USGS 7.5' Quad - Guasti (1981), CA

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FIGURE 1

Westbury Project  
Project Location



## RESULTS

### Literature Review

The project is located at the northern end of the Peninsular Ranges Geomorphic Province, a 900 mile (mi) 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). This province is characterized by mountains and valleys that trend in a northwest-southeast direction, roughly parallel to the San Andreas Fault. The total width of the province is approximately 225 mi, extending from the Colorado Desert in the east, across the continental shelf, to the Southern Channel Islands (i.e., Santa Barbara, San Nicolas, Santa Catalina, and San Clemente) (Sharp, 1976). It contains extensive pre-Cenozoic (more than 66 million years ago [Ma]) igneous and metamorphic rock covered by limited exposures of Cenozoic (less than 66 Ma) sedimentary deposits (Norris and Webb, 1976). Within this province, the project is located on the Perris Block, a fault-bounded structural block that extends from the southern foot of the San Gabriel and San Bernardino Mountains southeast to the vicinity of Bachelor Mountain and Polly Butte (Morton and Miller, 2006; Kenney, 1999). It is bounded on the northeast by the San Jacinto Fault and on the southwest by the Elsinore Fault Zone (Morton and Miller, 2006).

Geologic mapping by Morton and Miller (2006) shows that the project site contains late Holocene (less than 4,200 years ago) (Walker et al., 2012) Very Young Alluvial Fan Deposits and early Holocene to late Pleistocene (4,200–126,000 years ago) (International Commission on Stratigraphy, 2017; Walker et al., 2012) Young Alluvial Fan Deposits, Unit 1. Although they accumulated at different times, both of these geologic units consist of unconsolidated silt, sand, and gravel (Morton and Miller, 2006). Cobble- and boulder-size clasts are also present and become more abundant closer to the hills and mountains (Morton and Miller, 2006). These sediments were eroded from higher elevations, carried by flooding streams and debris flows, and deposited in a fan or lobe shape across the valley. They show slight to moderate dissection by erosional gullies (Morton and Miller, 2006). The geology of the project site is shown on Figure 2.

Although Holocene deposits may contain the remains of plants and animals, only those from the middle to early Holocene (4,200 to 11,700 years ago; Walker et al., 2012) are considered scientifically important (SVP, 2010), and no records of fossils from the middle to early Holocene in this area are known at this time. However, these Holocene deposits overlie older Pleistocene deposits, which have produced scientifically important fossils elsewhere in the region (Jefferson, 1991a, 1991b; Miller, 1971; Reynolds and Reynolds, 1991; Springer et al., 2009). These older deposits span the end of the Rancholabrean North American Land Mammal Age, 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 North American Land Mammal Age (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 the older sediments below the Very Young Alluvial Fan Deposits and within the Young Alluvial Fan Deposits, Unit 1 at depths of approximately 15 ft or more. Therefore, the deposits in the project area are assigned low paleontological sensitivity from the surface to a depth of 15 ft and high sensitivity below that mark.

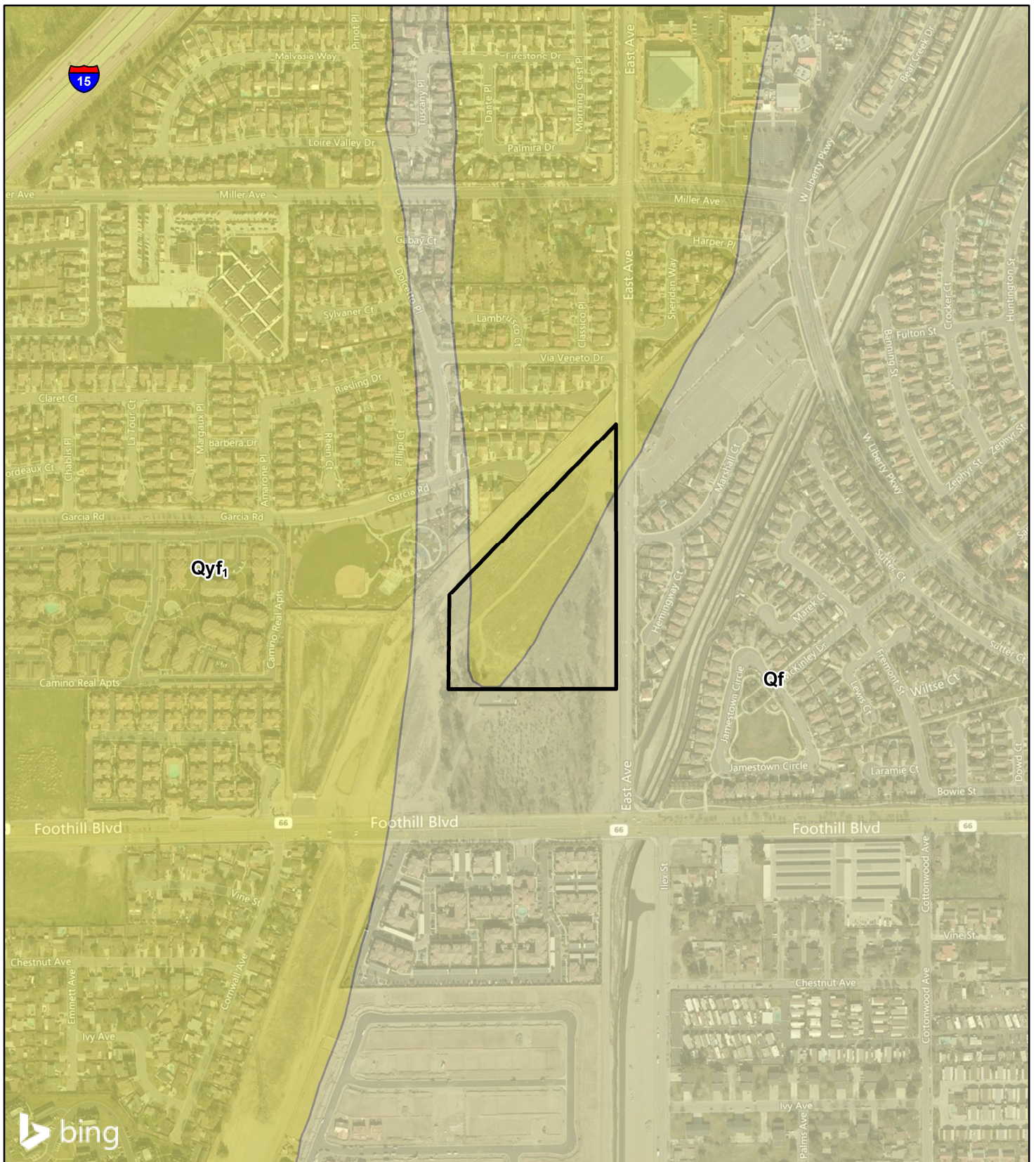


FIGURE 2

LSA

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Project Location

Geology

Qf - Very Young Alluvial Fan Deposits

Qyf<sub>1</sub> - Young Alluvial Fan Deposits, Unit 1



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SOURCE: Bing (2015); Morton and Miller (2006)

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Westbury Project  
Geologic Map



### Fossil Locality Search

According to the locality search conducted by the LACM, 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 (i.e., Very Young Alluvial Fan Deposits and Young Alluvial Fan Deposits, Unit 1 as mapped by Morton and Miller [2006]). The museum notes that these geologic units typically do not contain scientifically significant fossils in the uppermost layers but, at depth, older Quaternary (i.e., early to middle Holocene and Pleistocene) deposits may produce important fossils.

The closest vertebrate locality in these older Quaternary deposits is LACM 7811, southwest of the project site along Sumner Avenue north of Cloverdale Road. This locality produced a specimen of whipsnake (*Masticophis*) at a depth of 9–11 ft below the surface. The next closest locality is LACM 1207, further south of the project site between Corona and Norco. That locality yielded a specimen of deer (*Odocoileus*).

The LACM believes that shallow excavations in the Very Young Alluvial Fan Deposits and Young Alluvial Fan Deposits, Unit 1 in the project site are unlikely to encounter any scientifically important vertebrate fossils. However, the museum notes that deeper excavations into these deposits may encounter scientifically significant vertebrate remains and should be monitored to recover those remains. A copy of the letter describing the locality search results from the LACM is provided in Attachment B.

### CONCLUSIONS AND RECOMMENDATIONS

Considering the distance of the closest fossil locality to the project site, the proximity to the mountains of the project site relative to that locality, and the depth at which the fossils were encountered at that locality, it is inferred that similar Pleistocene deposits may be encountered beginning at a depth of approximately 15 ft within the project site. Therefore, the deposits within the project site are considered to have low paleontological sensitivity from the surface to a depth of 15 ft and high sensitivity below that mark. Because current project plans indicate a maximum excavation depth of 9 ft, development of this project is expected to remain in deposits with low paleontological sensitivity. Therefore, LSA recommends the following mitigation measure:

#### PALEO-1

In the event that paleontological resources are encountered during project excavation activities, work in the immediate area of the find shall be redirected and a qualified paleontologist shall be contacted to assess the find for significance and make recommendations regarding further paleontological mitigation as needed. If project plans change to include excavation below a depth of 15 feet (ft), a qualified paleontologist shall be hired to develop a Paleontological Resources Impact Mitigation Program (PRIMP) for this project. The PRIMP shall include the methods that will be used to protect paleontological resources that may exist within the project site, as well as procedures for monitoring, fossil preparation and identification, curation into a repository, and preparation of a final report at the conclusion of grading. Excavation and grading activities in deposits with high paleontological sensitivity (Very Young Alluvial Fan Deposits and Young Alluvial Fan Deposits, Unit 1 below a depth of 15 ft) shall be monitored by a qualified paleontological monitor following a PRIMP. No monitoring is required for

excavation in deposits with low paleontological sensitivity (Very Young Alluvial Fan Deposits and Young Alluvial Fan Deposits, Unit 1 from the surface to a depth of 15 ft).

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.

Attachments: A – References

B – Fossil Locality Search Results from the Natural History Museum of Los Angeles County

## ATTACHMENT A

### REFERENCES

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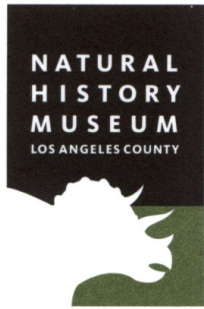


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## **ATTACHMENT B**

### **FOSSIL LOCALITY SEARCH RESULTS FROM 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



Vertebrate Paleontology Section  
Telephone: (213) 763-3325

e-mail: [smcleod@nhm.org](mailto:smcleod@nhm.org)

27 November 2017

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

Attn: Sarah Rieboldt, Ph.D., Senior Paleontological Resources Manager

re: Paleontological Resources Records Check for the proposed Westbury Project, LSA project # STR1701, in the City of Rancho Cucamonga, San Bernardino County, project area

Dear Sarah:

I have thoroughly searched our paleontology collection records for the locality and specimen data for the proposed Westbury Project, LSA project # STR1701, in the City of Rancho Cucamonga, San Bernardino County, project area as outlined on the portion of the Guasti USGS topographic quadrangle map that you sent to me via e-mail on 13 November 2017. We do not have any vertebrate fossil localities that lie directly within the proposed project area boundaries, but we do have localities farther afield from sedimentary deposits similar to those that may occur subsurface in the proposed project area.

The entire proposed project area has surface sediments composed of younger Quaternary Alluvium, derived as alluvial fan deposits from the San Gabriel Mountains to the north, partly via East Etiwanda Creek that currently flows adjacent to the southeast. These deposits typically do not contain significant vertebrate fossils in the uppermost layers, but they may be underlain at relatively shallow depth by older sedimentary deposits that do contain significant fossil vertebrate remains. Our closest fossil vertebrate locality from similar older Quaternary deposits is LACM 7811, just west of south of the proposed project area west of Mira Loma along Sumner Avenue north of Cloverdale Road, that produced a fossil specimen of whipsnake, *Masticophis*, at a depth of 9 to 11 feet below the surface. Further to the south between Corona and Norco our vertebrate fossil locality LACM 1207 produced a fossil specimen of deer, *Odocoileus*.

Shallow excavations in the younger Quaternary Alluvium exposed in the proposed project area are unlikely to encounter significant vertebrate fossils. Deeper excavations that extend down into older Quaternary deposits, however, may well encounter significant remains of fossil vertebrates. Any substantial and deep excavations in the proposed project area, therefore, should be monitored closely to quickly and professionally recover any fossil remains while not impeding development. Also, sediment samples should be collected and processed to determine the small fossil potential in the proposed project area. Any fossils collected should be placed in an accredited 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 cursive script that reads "Samuel A. McLeod". The signature is written in black ink and is positioned above the printed name.

Samuel A. McLeod, Ph.D.  
Vertebrate Paleontology

enclosure: invoice