

Appendix 5.3-2 Paleontological Report

Appendices

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**San Bernardino County
Museum
Division of Earth Sciences**

Ian Gilbert
Curator of Earth Sciences

email:
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14 September, 2018

Placeworks, Inc.
Attn: Michael Paul
750 B Street, Suite 1620
San Diego, CA 92101

**PALEONTOLOGY LITERATURE / RECORDS REVIEW, Family Resources
Center and District Police Headquarters Project**

Dear Mr. Paul,

The Division of Earth Sciences of the San Bernardino County Museum (SBCM) has completed a literature review and records search for the above-named projects in San Bernardino County, California. The proposed project is located at the northwest corner of North E Street and West 7th Street, Section 4, Township 1 South, Range West, San Bernardino Baseline and Meridian, as shown on the San Bernardino South, California, United States Geological Survey (USGS) 7.5 minute topographic quadrangle map (1967 edition – Photorevised, 1980).

Previous geologic mapping (Morton and Miller, 2006) indicates that the study area is situated upon surface exposures of Holocene and late Pleistocene-aged Young Axial-Channel Deposits, Unit 1 (= **Qya₁**) (fig. 1). Holocene-aged alluvial units have low potential to contain significant nonrenewable paleontological resources, and are therefore assigned low paleontological sensitivity. However, Pleistocene-aged lithologic units elsewhere in inland southern California, particularly Riverside and San Bernardino Counties of the Inland Empire, have been reported to yield significant fossils of plants and extinct Ice Age animals (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991; Springer and Scott, 1994; Scott, 1997; Springer et al., 1998, 1999, 2007, 2009, 2010; Anderson et al., 2002). Fossils recovered from these Pleistocene-aged sediments represent extinct taxa including mammoth, mastodon, ground sloths, dire wolf, short-faced bear, sabre-toothed cat, large and small horses, large and small camels, and bison (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991; Scott, 1997; Springer et al.,

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2009). For this reason, Pleistocene-aged lithologic units in this region have demonstrated high potential to yield significant nonrenewable paleontological resources subject to adverse impact during development related excavation, and are therefore assigned high paleontological sensitivity.

For this review, I conducted a search of the Regional Paleontological Locality Inventory (RPLI) at the SBCM and a literature search through the SBCM Earth Sciences library. The results of this search indicate that no recorded paleontological resource localities are present within the proposed project, nor within one mile of the proposed project in any direction. However, two paleontological resource localities (SBCM 1.102.1 and SBCM 1.102.2) are found within two miles of the proposed project, within sedimentary units mapped (Morton and Miller, 2006) as similar to those found within the proposed project boundaries, **Qya₅** and **Qya₃** (Figure 1). These paleontological resource localities have yielded Pleistocene-aged plant and vertebrate fossils, including an extinct mammoth (cf. *Mammuthus*).

Recommendations

The results of the literature review and the RPLI at the SBCM demonstrate that the proposed project in the City of San Bernardino, CA, has an undetermined paleontological sensitivity. Excavation into previously undisturbed surficial and subsurface exposures of Holocene and late Pleistocene-aged Young Axial-Channel Deposits, Unit 1, **Qya₁**, (fig. 1) within the boundaries of the proposed project site may have high potential to adversely impact significant nonrenewable paleontological resources. Prior to the initiation of excavation activities, a field reconnaissance survey of the proposed projects shall be conducted by a qualified vertebrate paleontologist to assess paleontological sensitivity in more detail to more fully assess fossil-bearing potential of the sediments, and to recover any exposed paleontological remains.

If the field survey results demonstrate a high potential for nonrenewable fossil resources to be impacted during the excavation phase of the proposed projects, a paleontological resource impact mitigations program (PRIMP) must then be developed by a qualified vertebrate paleontologist to mitigate these impacts. This mitigation program must include curation of recovered resources (Scott et al., 2004) and be consistent with the provisions of the California Environmental Quality Act (Scott and Springer, 2003), as well as with regulations currently implemented by the County of Riverside and the proposed guidelines of the Society of Vertebrate Paleontology.

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The county of San Bernardino (Development Code §82.20.030) requires that paleontological mitigation programs include, but not be limited to:

- (a) **Field survey before grading.** In areas of potential but unknown sensitivity, field surveys before grading shall be required to establish the need for paleontologic monitoring
- (b) **Monitoring during grading.** A project that requires grading plans and is located in an area of known fossil occurrence within the overlay, or that has been demonstrated to have fossils present in a field survey, shall have all grading monitored by trained paleontologic crews working under the direction of a qualified professional, so that fossils exposed during grading can be recovered and preserved. Paleontologic monitors shall be equipped to salvage fossils as they are unearthed to avoid construction delays, and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. Monitors shall be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. Monitoring is not necessary if the potentially-fossiliferous units described for the property in question are not present, or if present are determined upon exposure and examination by qualified paleontologic personnel to have low potential to contain fossil resources.
- (c) **Recovered specimens.** Qualified paleontologic personnel shall prepare recovered specimens to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates. Preparation and stabilization of all recovered fossils is essential in order to fully mitigate adverse impacts to the resources.
- (d) **Identification and curation of specimens.** Qualified paleontologic personnel shall identify and curate specimens into an established, accredited museum repository with permanent retrievable paleontologic storage. These procedures are also essential steps in effective paleontologic mitigation and CEQA compliance. The paleontologist must have a written repository agreement in hand prior to the initiation of mitigation activities. Mitigation of adverse impacts to significant paleontologic resources is not considered complete until curation into an established museum repository has been fully completed and documented.
- (e) **Report of findings.** Qualified paleontologic personnel shall prepare a report of findings with an appended itemized list of specimens. A preliminary report shall be submitted and approved before granting of building permits, and a final report shall be submitted and approved before granting of occupancy permits. The report and inventory, when submitted to the appropriate Lead Agency along with confirmation of the curation of recovered

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specimens into the collections of the San Bernardino County Museum, will signify completion of the program to mitigate impacts to paleontologic resources.

The county of San Bernardino (Development Code §82.20.040) defines a qualified vertebrate paleontologist as meeting the following criteria:

- A. **Education**: An advanced degree (Masters or higher) in geology, paleontology, biology or related disciplines (exclusive of archaeology).

- B. **Professional experience**: At least five years professional experience with paleontologic (not including cultural) resources, including the collection, identification and curation of the resources.

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References

- Anderson, R.S., M.J. Power, S.J. Smith, K.B. Springer and E. Scott, 2002. Paleoeology of a Middle Wisconsin deposit from southern California. *Quaternary Research* 58(3): 310-317.
- Jefferson, G.T., 1991. A catalogue of late Quaternary vertebrates from California: Part Two, mammals. Natural History Museum of Los Angeles County Technical Reports, No. 7.
- Morton, D.M., and Miller, F.K., (2006). Geologic map of the San Bernardino and Santa Ana 30' x 60' quadrangles, California, with digital preparation by Cossette, P.M., and Bovard, K.R.: U.S. Geological Survey Open-File Report 2006-1217, scale 1:100,000, 199 p., <http://pubs.usgs.gov/of/2006/1217>.
- Reynolds, R.E. and R.L. Reynolds, 1991. The Pleistocene beneath our feet: near-surface Pleistocene fossils in inland southern California basins, in *Inland Southern California: the last 70 million years*, M.O. Woodburne, S.F.B. Reynolds, and D.P. Whistler, eds. Redlands, San Bernardino County Museum Special Publication 38(3&4), p. 41-43.
- Scott, E., 1997. A review of *Equus conversidens* in southern California, with a report on a second, previously-unrecognized species of Pleistocene small horse from the Mojave Desert. *Journal of Vertebrate Paleontology* 17(3): 75-A.
- Scott, E. and K. Springer, 2003. CEQA and fossil preservation in southern California. *The Environmental Monitor*, Fall 2003, p. 4-10, 17.
- Scott, E., K. Springer and J.C. Sagebiel, 2004. Vertebrate paleontology in the Mojave Desert: the continuing importance of "follow-through" in preserving paleontologic resources. In M.W. Allen and J. Reed (eds.) *The human journey and ancient life in California's deserts: Proceedings from the 2001 Millennium Conference*. Ridgecrest: Maturango Museum Publication No. 15, p. 65-70.
- Springer, K.B. and E. Scott, 1994. First record of late Pleistocene vertebrates from the Domenigoni Valley, Riverside County, California. *Journal of Vertebrate Paleontology* 14 (3): 47A.
- Springer, K., E. Scott, J.C. Sagebiel, and L.K. Murray, 2007. The Diamond Valley Lake Local Fauna: late Pleistocene vertebrates from inland southern California. *Journal of Vertebrate Paleontology* 27(3): 151A.
- Springer, K., E. Scott, J.C. Sagebiel, and L.K. Murray, 2009. The Diamond Valley Lake local fauna: late Pleistocene vertebrates from inland southern California. In L.B. Albright III (ed.), *Papers on geology, vertebrate paleontology, and biostratigraphy in honor of Michael O. Woodburne*. Museum of Northern Arizona Bulletin 65:217-235.
- Springer, K., E. Scott, J.C. Sagebiel, and L.K. Murray, 2010. Late Pleistocene large mammal faunal dynamics from inland southern California: the Diamond Valley Lake local fauna. In E. Scott

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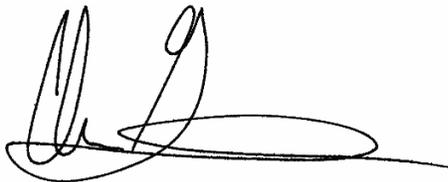
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- and G. McDonald (eds.), Faunal dynamics and extinction in the Quaternary: Papers honoring Ernest L. Lundelius, Jr. *Quaternary International* 217: 256-265.
- Springer, K.B., E. Scott, L.K. Murray and W.G. Spaulding, 1998. Partial skeleton of a large individual of *Mammut americanum* from the Domenigoni Valley, Riverside County, California. *Journal of Vertebrate Paleontology* 18(3): 78-A.
- Springer, K.B., E. Scott, J.C. Sagebiel and K.M. Scott, 1999. A late Pleistocene lake edge vertebrate assemblage from the Diamond Valley, Riverside County, California. *Journal of Vertebrate Paleontology* 19(3): 77-A.
- Woodburne, M.O., 1991. The Cajon Valley, in Inland Southern California: the last 70 million years, M.O. Woodburne, S.F.B. Reynolds, and D.P. Whistler, eds. Redlands, San Bernardino County Museum Special Publication 38(3&4), p. 41-43.

Please do not hesitate to contact us with any further questions that you may have.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ian Gilbert', with a long horizontal flourish extending to the right.

Ian Gilbert, Curator of Earth Sciences
Division of Earth Sciences
San Bernardino County Museum