

## APPENDIX D: PALEONTOLOGICAL ASSESSMENT

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# PALEONTOLOGICAL ASSESSMENT FOR THE 22-114 HEMLOCK AVENUE PROJECT

CITY OF FONTANA,  
SAN BERNARDINO COUNTY, CALIFORNIA

APNs 0237-131-25 to -27

Prepared for:

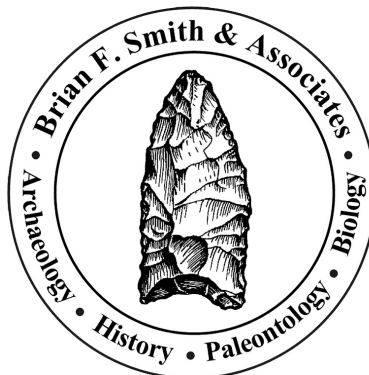
EPD Solutions  
2355 Main Street, Suite 100  
Irvine, California 92614

Submitted to:

City of Fontana  
Community Development Department  
8353 Sierra Avenue  
Fontana, California 92335

Prepared by:

Brian F. Smith and Associates, Inc.  
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Poway, California 92064



October 20, 2022

## **Paleontological Database Information**

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Professional Geologist No. 7588

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***Report Date:*** October 20, 2022

***Report Title:*** Paleontological Assessment for the 22-114 Hemlock Avenue  
Project, City of Fontana, San Bernardino County, California

***Prepared for:*** EPD Solutions  
2355 Main Street, Suite 100  
Irvine, California 92614

***Submitted to:*** City of Fontana  
Community Development Department  
8353 Sierra Avenue  
Fontana, California 92335

***Prepared by:*** Brian F. Smith and Associates, Inc.  
14010 Poway Road, Suite A  
Poway, California 92064

***USGS Quadrangle:*** USGS *Fontana, California* (7.5-minute), Section 26, Township 1  
South, Range 6 West

***Assessor's Parcel Numbers:*** 0237-131-25 to -27

***Study Area:*** 40.01 acres

***Key Words:*** Paleontological assessment; Pleistocene alluvial fan deposits;  
High sensitivity; City of Fontana.

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## **I. INTRODUCTION AND LOCATION**

This paleontological resource assessment has been completed for the paleontological assessment for the 22-114 Hemlock Avenue Project located north of Jurupa Avenue and south of Santa Ana Avenue between Beech and Hemlock avenues in the city of Fontana, San Bernardino County, California (Figures 1 and 2). The project consists of three parcels (Assessor’s Parcel Numbers [APNs] 0237-131-25 to -27) totaling 40.01 acres. On the U.S. Geological Survey 7.5-minute, 1:24,000-scale *Fontana, California* topographic quadrangle map, the project is situated within Section 26, Township 1 South, Range 6 West, of the San Bernardino Baseline and Meridian (see Figure 2). The parcels, currently existing mostly as a paved and gravel storage lot, are being considered for development as a commercial warehouse.

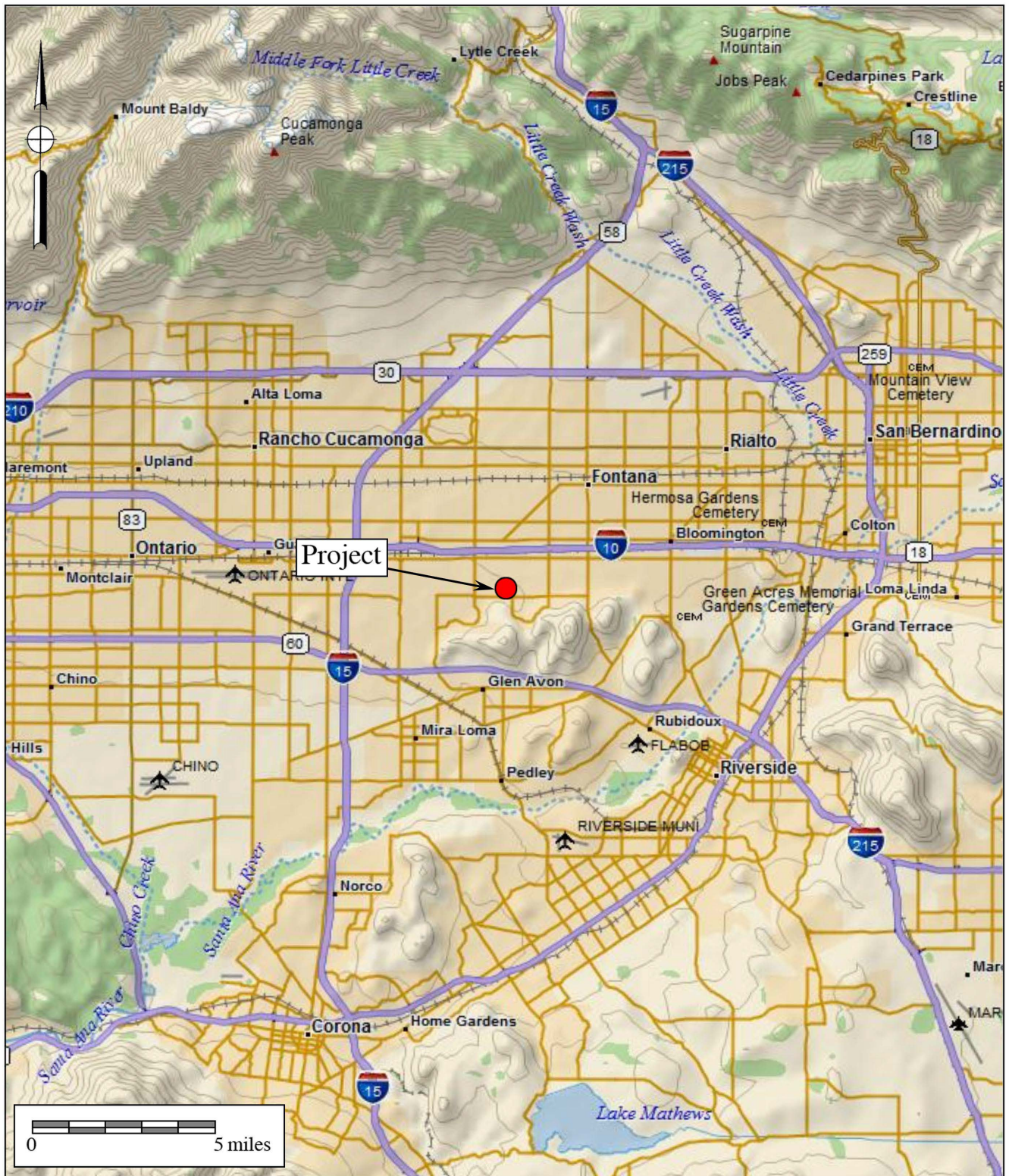
As the lead agency, the City of Fontana has required the preparation of a paleontological assessment to evaluate the project’s potential to yield paleontological resources. The paleontological assessment of the project included a review of paleontological literature and fossil locality records for a previous project in the area; a review of the underlying geology; and recommendations to mitigate impacts to potential paleontological resources.

## **II. REGULATORY SETTING**

The California Environmental Quality Act (CEQA), which is patterned after the National Environmental Policy Act, is the overriding environmental regulation that sets the requirement for protecting California’s paleontological resources. CEQA mandates that governing permitting agencies (lead agencies) set their own guidelines for the protection of nonrenewable paleontological resources under their jurisdiction.

### **State of California**

Under “Guidelines for Implementation of the California Environmental Quality Act,” as amended in December 2018 (California Code of Regulations [CCR] Title 14, Division 6, Chapter 3, Sections 15000 et seq.), procedures define the types of activities, persons, and public agencies required to comply with CEQA. Section 15063 of the CCR provides a process by which a lead agency may review a project’s potential impact to the environment, whether the impacts are significant, and provide recommendations, if necessary.



**Figure 1**

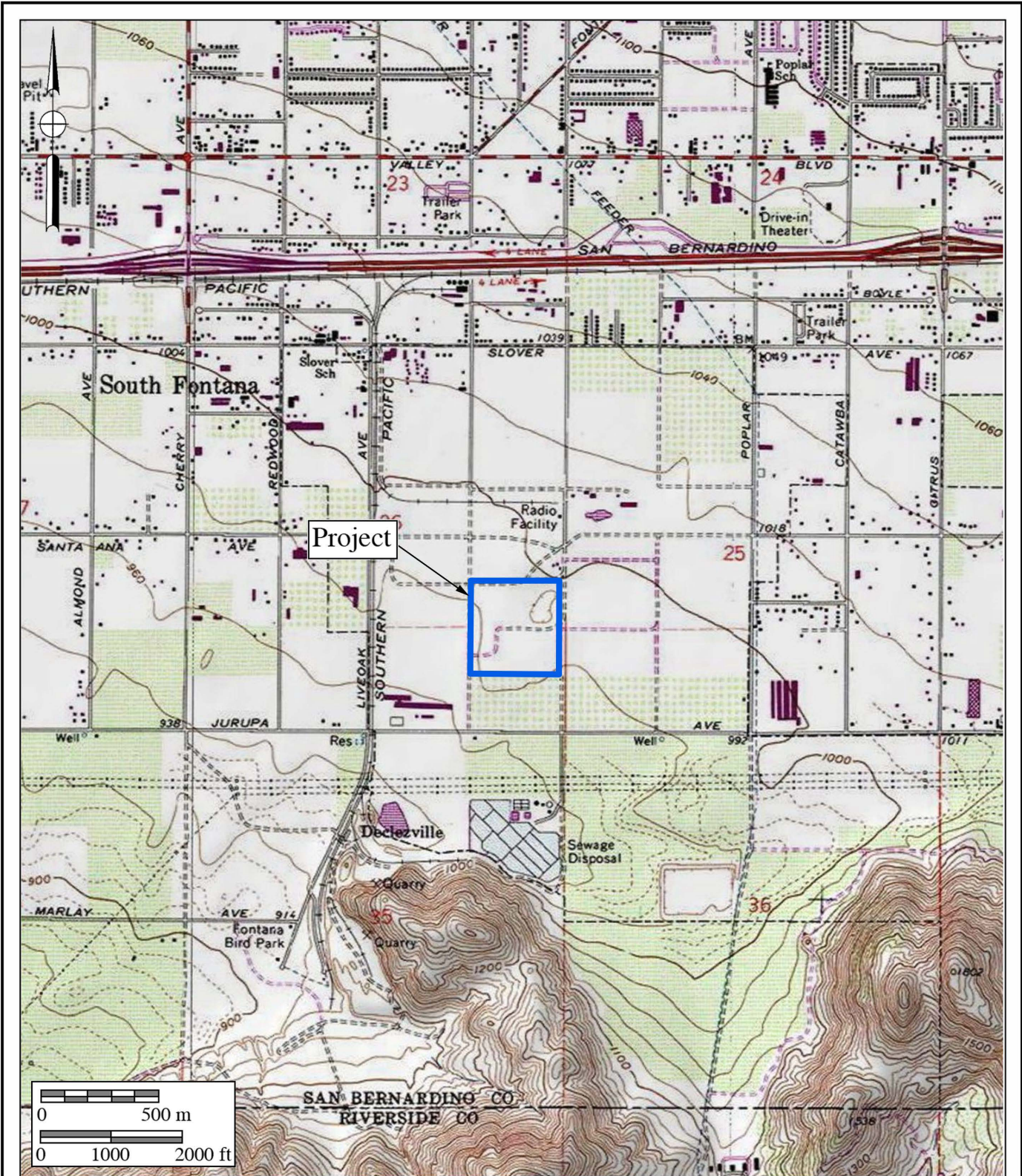
**General Location Map**

The 22-114 Hemlock Avenue Project

DeLorme World Base Map Service (1:250,000 series)







**Figure 2**  
**Project Location Map**  
 The 22-114 Hemlock Avenue Project  
 USGS Fontana Quadrangle (7.5-minute series)





In CEQA’s Environmental Checklist Form, one of the questions to answer is, “Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?” (Appendix G, Section VII, Part f). This is to ensure compliance with California Public Resources Code Section 5097.5, the law that protects nonrenewable resources, including fossils, which is paraphrased below:

- a) A person shall not knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, rock art, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands.
- b) As used in this section, “public lands” means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.
- c) A violation of this section is a misdemeanor.

City of Fontana

In the Final Environmental Impact Report (FEIR) of the City of Fontana General Plan Update 2015-2035, two paleontological resource mitigation measures are specified, MM-CUL-4 and MM-CUL-5. The FEIR stipulates that MM-CUL-4 must be implemented before construction starts, while MM-CUL-5 must be implemented before, during, and after construction (City of Fontana 2018a). The same measures were previously established in Fontana’s Southwest Industrial Park (SWIP) Specific Plan (2011). The measures are as follows:

**MM-CUL-4** A qualified paleontologist shall conduct a pre-construction field survey of any project site within the Specific Plan Update area that is underlain by older alluvium. The paleontologist shall submit a report of findings that provide specific recommendations regarding further mitigation measures (*i.e.*, paleontological monitoring) that may be appropriate.

**MM-CUL-5** Should mitigation monitoring of paleontological resources be recommended for a specific project within the project site, the program shall include, but not be limited to, the following measures:

- Assign a paleontological monitor, trained and equipped to allow the rapid removal of fossils with minimal construction delay, to the site full-time during the interval of earth-disturbing activities.
- Should fossils be found within an area being cleared or graded, earth-

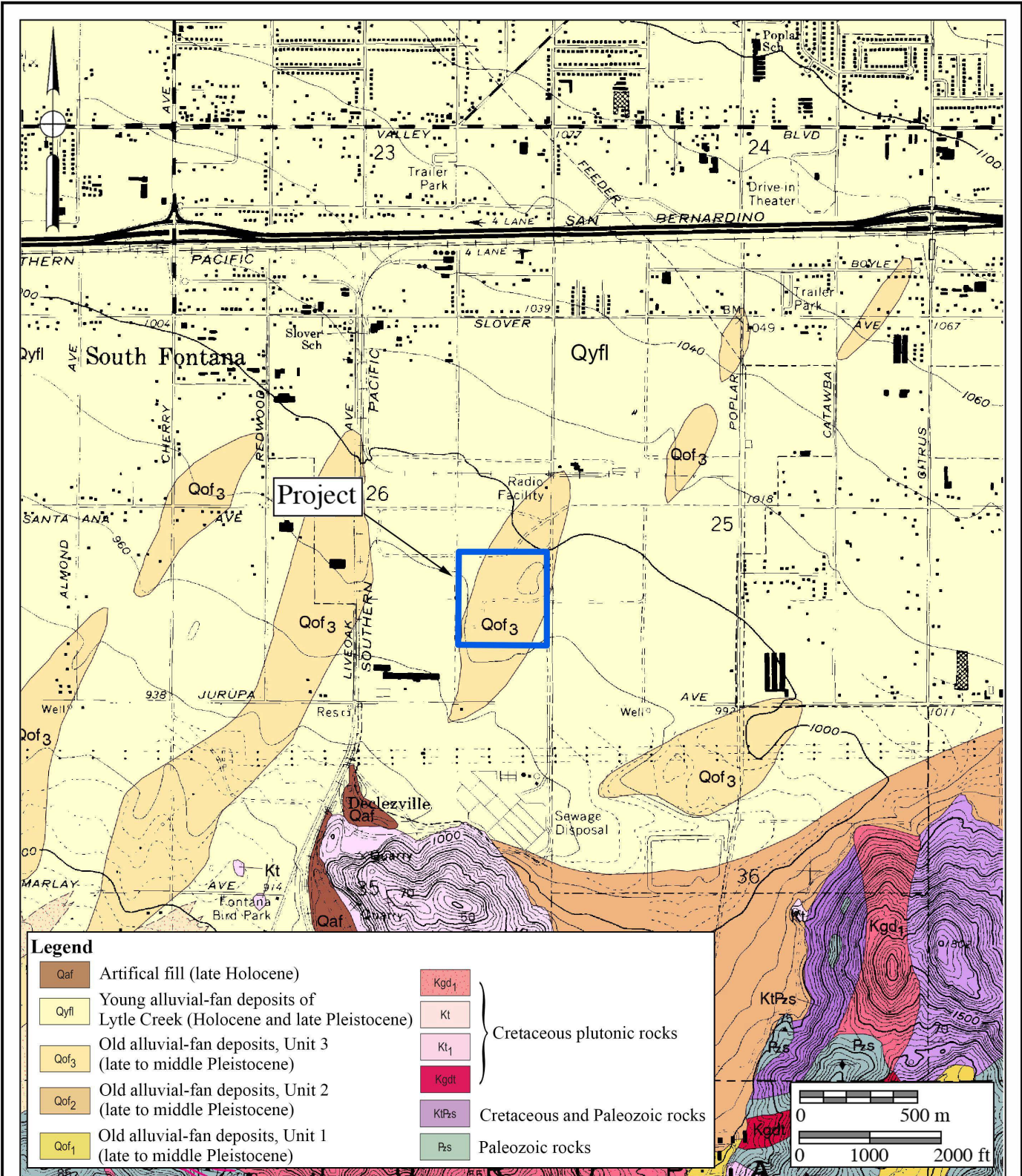
disturbing activities shall be diverted elsewhere until the monitor has completed salvage. If construction personnel make the discovery, the grading contractor shall immediately divert construction and notify the monitor of the find.

- All recovered fossils shall be prepared, identified, and curated for documentation in the summary report and transferred to an appropriate depository (*i.e.*, San Bernardino County Museum).

A summary report shall be submitted to City of Fontana. Collected specimens shall be transferred with [a] copy of [the] report to [the] San Bernardino County Museum (City of Fontana 2018a).

### **III. GEOLOGY**

The project is located at the western margin and distal southern end of the broad Lytle Creek alluvial fan that emanates from the San Gabriel Mountains approximately nine to 10 miles to the north as a result of uplift and dissection of the eastern San Gabriel Mountains. The main source of these sediments is from the Lytle Creek drainage, near where the northwest-southeast-trending San Andreas fault zone cuts across and separates the San Gabriel and San Bernardino mountain ranges (Morton and Miller 2006). Geomorphically, the project is relatively flat-lying, with a gentle slope to the southwest (see Figures 2 and 3). The project is underlain by late to middle Pleistocene (approximately 11,700 to 780,000 years ago [Cohen and Gibbard 2011]) old alluvial fan deposits (pale amber areas labeled “Qof<sub>3</sub>” on Figure 3, after Morton 2003) that occur as slightly raised areas protruding through the surrounding young alluvial fan sediments. At the western and eastern edges of the project, the old alluvial fan deposits are buried by Holocene and late Pleistocene (present day to approximately 120,000 years ago [Cohen and Gibbard 2011]) young alluvial fan sediments (light yellow areas labeled “Qyfl” on Figure 3) of the Lytle Creek fan.



**Figure 3**

**Geologic Map**

The 22-114 Hemlock Avenue Project

Geology after Morton (2003)



## IV. PALEONTOLOGICAL RESOURCES

### Definition

Paleontological resources are the remains of prehistoric life that have been preserved in geologic strata. These remains are called fossils and include bones, shells, teeth, and plant remains (including their impressions, casts, and molds) in the sedimentary matrix, as well as trace fossils such as footprints and burrows. Fossils are considered older than 5,000 years of age (Society of Vertebrate Paleontology 2010) but may include younger remains (subfossils) when viewed in the context of local extinction of the organism or habitat, for example. Fossils are considered a nonrenewable resource under state and local guidelines (see Section II of this report).

### Fossil Locality Search

A prior paleontological collections and locality records search was conducted for the nearby 14801 Slover Avenue Project by the Division of Geological Sciences at the San Bernardino County Museum (SBCM) in Redlands (Cortez 2021 [see Appendix B]). The 14801 Slover Avenue Project is located less than a mile northwest of the current project. The report identified seven localities (SBCM localities [locs.] 5.1.14 to 5.1.17 and 5.1.19 to 5.1.21) situated within two miles of the 22-114 Hemlock Avenue Project. The bones of large and small Pleistocene-age mammals and terrestrial snails and freshwater clams were recovered from these localities, mostly from clayey, silty sands from depths ranging from five to 21 feet below the surface, when recorded. Mammals from these localities include three species of rodent, cottontail rabbit, bison, western camel, horse, Pacific mastodon, and other unidentified large mammal remains. Based on another source, the saber-toothed cat (*Smilodon*) specimen (SBCM loc. 5.1.11) mentioned by Cortez (2021) was reportedly discovered in the Declezville neighborhood, just across Jurupa Avenue south of the subject project (Reynolds, *in* Aron et al. 2018)

Cortez (2021) indicates that the late Pleistocene alluvial fan deposits are considered to have a High paleontological sensitivity based on numerous fossil localities in the region. Fossils include the bones from extinct species such as mammoths, mastodons, giant ground sloths, dire wolves, saber-toothed cats, large and small horses, large and small camels, and bison (Cortez 2021).

### Project Survey

On October 17, 2022, BFSa staff, under the supervision of Principal Investigator Todd A. Wirths, conducted an intuitive review of the property to determine if any paleontological resources were visible. The field methodology employed for the project included walking evenly spaced survey transects set approximately 15 to 20 meters apart while visually inspecting the ground surface, when possible. Buildings, hardscape, gravel, and commercial landscaping cover the entirety of the project. Due the existing development, the natural ground surface was not visible. All accessible potentially sensitive areas where paleontological resources might be located were closely inspected. No bedrock outcrops were exposed that might indicate the presence of fossils.



No paleontological resources, or evidence of paleontological resources, were observed during the survey.

## V. PALEONTOLOGICAL SENSITIVITY

### Overview

The degree of paleontological sensitivity of any particular area is based on a number of factors, including the documented presence of fossiliferous resources on a site or in nearby areas, the presence of documented fossils within a particular geologic formation or lithostratigraphic unit, and whether or not the original depositional environment of the sediments is one that might have been conducive to the accumulation of organic remains that might have become fossilized over time. Holocene alluvium is generally considered to be geologically too young to contain significant nonrenewable paleontological resources (*i.e.*, fossils) and is thus typically assigned a low paleontological sensitivity. Pleistocene (over 11,700 years old) alluvial and alluvial fan deposits in the Inland Empire, such as those at the project, often yield important terrestrial vertebrate fossils, such as extinct mammoths, mastodons, giant ground sloths, extinct species of horse, bison, camel, saber-toothed cats, and others (Cortez 2021 [see Appendix B]). These Pleistocene sediments are thus accorded a High paleontological resource sensitivity.

### Professional Standards

The Society of Vertebrate Paleontology (2010) has drafted guidelines that include four categories of paleontological sensitivity for geologic units (formations) that might be impacted by a proposed project, as listed below:

- High Potential: Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered.
- Undetermined Potential: Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment, and further study is needed to determine the potential of the rock unit.
- Low Potential: Rock units that are poorly represented by fossil specimens in institutional collections or based on a general scientific consensus that only preserve fossils in rare circumstances.
- No Potential: Rock units that have no potential to contain significant paleontological resources, such as high-grade metamorphic rocks and plutonic igneous rocks.

Using these criteria, based upon the presence of nearby significant fossil localities (SBCM locs. 5.1.11, 5.1.14 to 5.1.17, and 5.1.19 to 5.1.21) and the strong likelihood that the nearby fossil localities originated from the same geologic formation as that which underlies the project at depth, the Pleistocene old alluvial fan deposits can be considered to have a High potential to yield

significant paleontological resources.

City of Fontana Assessment of Paleontological Sensitivity

Section 5.4.1.5 of the City of Fontana’s Draft EIR for the General Plan (City of Fontana 2018b) describes the paleontological sensitivity of the strata underlying the city. Based on Pleistocene vertebrate fossils recovered from the city’s southwestern area (SBCM locs. 5.1.11, 5.1.14 to 5.1.17, and 5.1.19 to 5.1.21), the City of Fontana considers subsurface “older fan” Pleistocene deposits to have a high potential for yielding fossils. The City of Fontana considers the overlying “younger fan” deposits at the surface as having no potential to yield significant paleontological resources.

**VI. CONCLUSIONS AND RECOMMENDATIONS**

Research has confirmed the existence of potentially fossiliferous late to middle Pleistocene alluvial fan deposits (“Qof<sub>3</sub>” on Figure 3) at the surface of the project. The occurrence of terrestrial vertebrate fossils at shallow depths from Pleistocene alluvial fan sediments across the Inland Empire is well documented. The presence of the saber-toothed cat (*Smilodon*) fossil just south of the project is particularly noteworthy. The “High” paleontological sensitivity rating typically assigned to Pleistocene alluvial fan sediments for yielding paleontological resources supports the recommendation that paleontological monitoring be implemented during mass grading and excavation activities in undisturbed Pleistocene alluvial fan sediments to mitigate any adverse impacts (loss or destruction) to potential nonrenewable paleontological resources. Full-time monitoring of undisturbed alluvial fan deposits at the project is warranted starting at the surface.

Based on the conclusions and recommendations outlined above, a Paleontological Resources Impact Mitigation Program (PRIMP) is recommended prior to approval of the grading permit. A suggested PRIMP is outlined below. When implemented with the provisions of CEQA, the City of Fontana (2018a), and the guidelines of the Society of Vertebrate Paleontology (2010), this PRIMP would mitigate any adverse impacts (loss or destruction) to potential nonrenewable paleontological resources (fossils), if present, to a level below significant:

1. Monitoring of mass grading and excavation activities in areas identified as likely to contain paleontological resources shall be performed by a qualified paleontologist or paleontological monitor. Starting at the surface, monitoring should be conducted full-time in areas of grading or excavation in undisturbed sediments of alluvial fan deposits.
2. Paleontological monitors will be equipped to salvage fossils as they are unearthed to avoid construction delays. The monitor must be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens in a timely manner. Monitoring may be reduced if the potentially fossiliferous units are not present in the subsurface, or, if present, are determined on exposure and examination by qualified

- paleontological personnel to have low potential to contain fossil resources. The monitor shall notify the project paleontologist, who will then notify the concerned parties of the discovery.
3. Paleontological salvage during trenching and boring activities is typically from the generated spoils and does not delay the trenching or drilling activities. Fossils are collected and placed in cardboard flats or plastic buckets and identified by field number, collector, and date collected. Notes are taken on the map location and stratigraphy of the site, which is photographed before it is vacated, and the fossils are removed to a safe place. On mass grading projects, discovered fossil sites are protected by flagging to prevent them from being overrun by earthmovers (scrapers) before salvage begins. Fossils are collected in a similar manner, with notes and photographs being taken before removing the fossils. Precise location of the site is determined with the use of handheld GPS units. If the site involves remains from a large terrestrial vertebrate, such as large bone(s) or a mammoth tusk, that is/are too large to be easily removed by a single monitor, a fossil recovery crew shall excavate around the find, encase the find within a plaster and burlap jacket, and remove it after the plaster is set. For large fossils, use of the contractor's construction equipment may be solicited to help remove the jacket to a safe location.
  4. Isolated fossils are collected by hand, wrapped in paper, and placed in temporary collecting flats or five-gallon buckets. Notes are taken on the map location and stratigraphy of the site, which is photographed before it is vacated, and the fossils are removed to a safe place.
  5. In accordance with the "Microfossil Salvage" section of the Society of Vertebrate Paleontology guidelines (2010:7), bulk sampling and screening of fine-grained sedimentary deposits (including carbonate-rich paleosols) must be performed if the deposits are identified to possess indications of producing fossil "microvertebrates" to test the feasibility of the deposit to yield fossil bones and teeth.
  6. In the laboratory, individual fossils are cleaned of extraneous matrix, any breaks are repaired, and the specimen, if needed, is stabilized by soaking in an archivally approved acrylic hardener (*e.g.*, a solution of acetone and Paraloid B-72).
  7. Recovered specimens are prepared to a point of identification and permanent preservation (not display), including screen-washing sediments to recover small invertebrates and vertebrates. Preparation of individual vertebrate fossils is often more time-consuming than for accumulations of invertebrate fossils.
  8. Identification and curation of specimens into a professional, accredited public museum repository with a commitment to archival conservation and permanent retrievable storage (*e.g.*, SBCM) shall be conducted. The paleontological program should include a written repository agreement prior to the initiation of mitigation activities. Prior to curation, the lead agency (*e.g.*, the City of Fontana) will be consulted on the

- repository/museum to receive the fossil material.
9. A final report of findings and significance will be prepared, including lists of all fossils recovered and necessary maps and graphics to accurately record their original location(s). The report, when submitted to and accepted by the appropriate lead agency, will signify satisfactory completion of the project program to mitigate impacts to any potential nonrenewable paleontological resources (*i.e.*, fossils) that might have been lost or otherwise adversely affected without such a program in place.

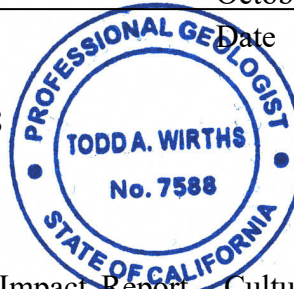
## VII. CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this paleontological report, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief, and have been compiled in accordance with CEQA criteria.



October 20, 2022

Todd A. Wirths  
Senior Paleontologist  
California Professional Geologist No. 7588



## VIII. REFERENCES

- City of Fontana. 2018a. Final Environmental Impact Report. Cultural Resources, Fontana Forward General Plan Update 2015-2035. State Clearinghouse #2016021099. Electronic document, <https://www.fontana.org/DocumentCenter/View/29525/Final-Environmental-Impact-Report-for-the-General-Plan-Update>, accessed June 6, 2022.
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- Society of Vertebrate Paleontology. 2010. Standard procedures for the assessment and mitigation of adverse impacts to paleontological resources; by the SVP Impact Mitigation Guidelines Revision Committee. Electronic document, [https://vertpaleo.org/wp-content/uploads/2021/01/SVP\\_Impact\\_Mitigation\\_Guidelines-1.pdf](https://vertpaleo.org/wp-content/uploads/2021/01/SVP_Impact_Mitigation_Guidelines-1.pdf).
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**APPENDIX A**

**Qualifications of Key Personnel**

# Todd A. Wirths, MS, PG No. 7588

## Senior Paleontologist

Brian F. Smith and Associates, Inc.

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## Education

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**Master of Science, Geological Sciences, San Diego State University, California** 1995

**Bachelor of Arts, Earth Sciences, University of California, Santa Cruz** 1992

## Professional Certifications

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California Professional Geologist #7588, 2003

Riverside County Approved Paleontologist

San Diego County Qualified Paleontologist

Orange County Certified Paleontologist

OSHA HAZWOPER 40-hour trained; current 8-hour annual refresher

## Professional Memberships

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Board member, San Diego Geological Society

San Diego Association of Geologists; past President (2012) and Vice President (2011)

South Coast Geological Society

Southern California Paleontological Society

## Experience

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Mr. Wirths has more than a dozen years of professional experience as a senior-level paleontologist throughout southern California. He is also a certified California Professional Geologist. At BFSa, Mr. Wirths conducts on-site paleontological monitoring, trains and supervises junior staff, and performs all research and reporting duties for locations throughout Los Angeles, Ventura, San Bernardino, Riverside, Orange, San Diego, and Imperial Counties. Mr. Wirths was formerly a senior project manager conducting environmental investigations and remediation projects for petroleum hydrocarbon-impacted sites across southern California.

## Selected Recent Reports

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2019 *Paleontological Assessment for the 10575 Foothill Boulevard Project, City of Rancho Cucamonga, San Bernardino County, California.* Prepared for T&B Planning, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2019 *Paleontological Assessment for the MorningStar Marguerite Project, Mission Viejo, Orange County, California.* Prepared for T&B Planning. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

- 2019 *Paleontological Monitoring Report for the Nimitz Crossing Project, City of San Diego.* Prepared for Voltaire 24, LP. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2019 *Paleontological Resource Impact Mitigation Program (PRIMP) for the Jack Rabbit Trail Logistics Center Project, City of Beaumont, Riverside County, California.* Prepared for JRT BP 1, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2020 *Paleontological Monitoring Report for the Oceanside Beachfront Resort Project, Oceanside, San California.* Prepared for S.D. Malkin Properties. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2020 *Paleontological Resource Impact Mitigation Program for the Nakase Project, Lake Forest, Orange County, San California.* Prepared for Glenn Lukos Associates, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2020 *Paleontological Resource Impact Mitigation Program for the Sunset Crossroads Project, Banning, Riverside County.* Prepared for NP Banning Industrial, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2020 *Paleontological Assessment for the Ortega Plaza Project, Lake Elsinore, Riverside County.* Prepared for Empire Design Group. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2020 *Paleontological Resource Record Search Update for the Green River Ranch III Project, Green River Ranch Specific Plan SP00-001, City of Corona, California.* Prepared for Western Realco. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2020 *Paleontological Assessment for the Cypress/Slover Industrial Center Project, City of Fontana, San Bernardino County, California.* Prepared for T&B Planning, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2020 *Paleontological Monitoring Report for the Imperial Landfill Expansion Project (Phase VI, Segment C-2), Imperial County, California.* Prepared for Republic Services, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2021 *Paleontological Assessment for the Manitou Court Logistics Center Project, City of Jurupa Valley, Riverside County, California.* Prepared for Link Industrial. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2021 *Paleontological Resource Impact Mitigation Program for the Del Oro (Tract 36852) Project, Menifee, Riverside County.* Prepared for D.R. Horton. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2021 *Paleontological Assessment for the Alessandro Corporate Center Project (Planning Case PR-2020-000519), City of Riverside, Riverside County, California.* Prepared for OZI Alessandro, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2021 *Paleontological Monitoring Report for the Boardwalk Project, La Jolla, City of San Diego.* Prepared for Project Management Advisors, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.



**APPENDIX B**

**Fossil Locality Search Report**



## San Bernardino County Museum

### Division of Earth Sciences

[www.SBCounty.gov](http://www.SBCounty.gov)

**Crystal Cortez**

Curator of Earth Sciences

**email:** [Crystal.cortez@sbcm.sbcounty.org](mailto:Crystal.cortez@sbcm.sbcounty.org)

29 June, 2021

Brian F. Smith and Associates, Inc.

Attn: Todd Wirths

14010 Poway Rd.,

Poway CA 92064

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### PALEONTOLOGY RECORDS REVIEW for proposed 14801 Slover Avenue Project in San Bernardino County, California

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Dear Mr. Wirths,

The Division of Earth Sciences of the San Bernardino County Museum (SBCM) has completed a records search for the above-named project in San Bernardino County, California. The proposed Slover Avenue project is located near in the City of Fontana, California as shown on the United States Geological Survey (USGS) 7.5-minute Fontana, California quadrangles.

Previous geologic mapping (Morton, 2003) indicates that the study area is located entirely upon alluvial fan deposits of late Holocene age (= Qyf). These recent sediments have low potential to contain significant nonrenewable paleontologic resources. However, these Holocene sediments form a thin veneer overlying subsurface Pleistocene alluvial fan deposits (= Qof3). These older fan sediments have high potential to contain fossil resources. Pleistocene alluvium elsewhere in San Bernardino County and the Inland Empire has been repeatedly demonstrated to have high paleontologic sensitivity (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991; Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999; Anderson and others, 2002). Fossils recovered from these Pleistocene sediments represent extinct taxa including mammoths, mastodons, ground sloths, dire wolves, sabretoothed cats, large and small horses, large and small camels, and bison (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991; Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999).

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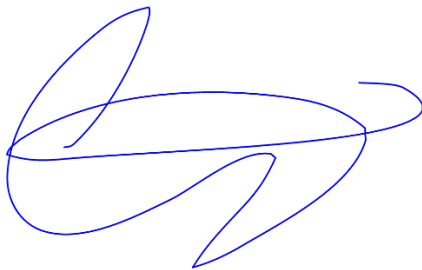
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For this review, I conducted a search of the Regional Paleontological Locality Inventory (RPLI) at the SBCM. The results of this search indicate that no paleontological resources have been discovered within the proposed project site; however, there are several sites within a 2 mile buffer. Located approximately 1.5 miles southwest of the proposed site are eight (8) SBCM localities from Pleistocene aged deposits; SBCM 5.1.11, 5.1.14, 5.1.15, 5.1.16, 5.1.17, 5.1.19, 5.1.20, and 5.1.21. Locality SBCM 5.1.11 uncovered a partial *Smilodon* skull at around a five (5) foot depth as estimated by trenching machine installing a pipeline. At SBCM 5.1.14 remains belonging to *Gyraulus* sp, *Stagnicola* sp, Gastropoda, Bivalvia, *Sylvilagus* sp, *Thomomys* sp, *Neotoma* sp, *Microtus californicus*, *Mammut pacificus* were discovered in very fine silty clayey sand with occasional pebbles. A single *Bison* sp. tooth was recovered from cemented clayey silty moderately sorted sand with small caliche rootlets at SBCM 5.1.15. Clayey silty fine sand with occasional larger subangular grains at locality SBCM 5.1.16 yielded bone fragments of *Camelops hesternus*. In the same type of sediment SBCM 5.1.17 and SBCM 5.1.19 unearthed remains of a large mammal along with fragmentary material of *Mammut pacificus*. SBCM 5.1.20 had a dry light olive gray subangular sand that yielded fragments from *Camelops hesternus*, Artiodactyla, and a large mammal. SBCM locality 5.1.21 found fragmentary material from *Equus* sp. at an approximate 21 foot depth.

This records search covers only the paleontological records of the San Bernardino County Museum. 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.

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

Sincerely,

A handwritten signature in blue ink, consisting of several overlapping loops and a long horizontal stroke, likely representing the name Crystal Cortez.

Crystal Cortez, Curator of Earth Sciences  
Division of Earth Sciences  
San Bernardino County Museum