

PALEONTOLOGICAL ASSESSMENT FOR THE MANITOU COURT LOGISTICS CENTER PROJECT

**CITY OF JURUPA VALLEY
RIVERSIDE COUNTY, CALIFORNIA**

APN 156-150-069

Prepared for:

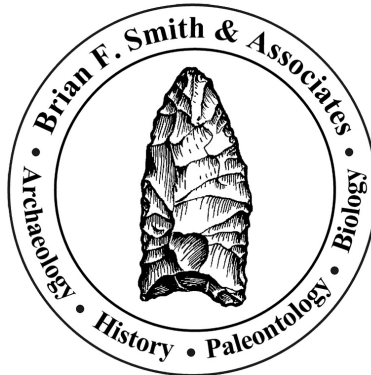
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Submitted to:

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Jurupa Valley, California 92509**

Prepared by:

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March 8, 2021; Revised June 16, 2021

Paleontological Database Information

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Report Date: March 8, 2021; Revised June 16, 2021

Report Title: Paleontological Assessment for the Manitou Court Logistics
Center Project, City of Jurupa Valley, Riverside County,
California (APN 159-150-069)

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USGS Quadrangle: *Guasti, California* (7.5 minute)

Study Area: 105.4 acres

Key Words: Paleontological assessment; Quaternary alluvial deposits; High
sensitivity; Holocene artificial fill; no paleontological sensitivity;
city of Jurupa Valley; Riverside County.

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I. INTRODUCTION AND LOCATION

A paleontological resource assessment has been completed for the Manitou Court Logistics Center Project (Assessor's Parcel Number 156-150-069), located northeast of Mission Boulevard, west of Space Center Court, and south of Venture Drive in the city of Jurupa Valley, Riverside County, California (Figures 1 and 2). On the U.S. Geological Survey, 7.5-minute, 1:24,000-scale *Guasti, California* topographic quadrangle map, the project is located within Section 5, Township 2 South, Range 6 West, San Bernardino Base and Meridian (see Figure 2). An existing industrial complex occupies the project. The 105.4-acre project consists of the construction of a distribution facility that includes an approximately 1.38 million square-foot warehouse and an approximately 0.56 million square-foot warehouse. The existing building in the northeast corner of the project will be preserved, but all other existing buildings will be demolished as part of the project.

II. REGULATORY SETTING

The California Environmental Quality Act (CEQA), which is patterned after the National Environmental Policy Act, is the overriding environmental document that sets the requirement for protecting California's cultural and paleontological resources. The document does not establish specific rules that must be followed, but 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 the Implementation of CEQA, 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. In the Environmental Checklist, 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 V, Part c). California Public Resources Code Section 5097.5 states:

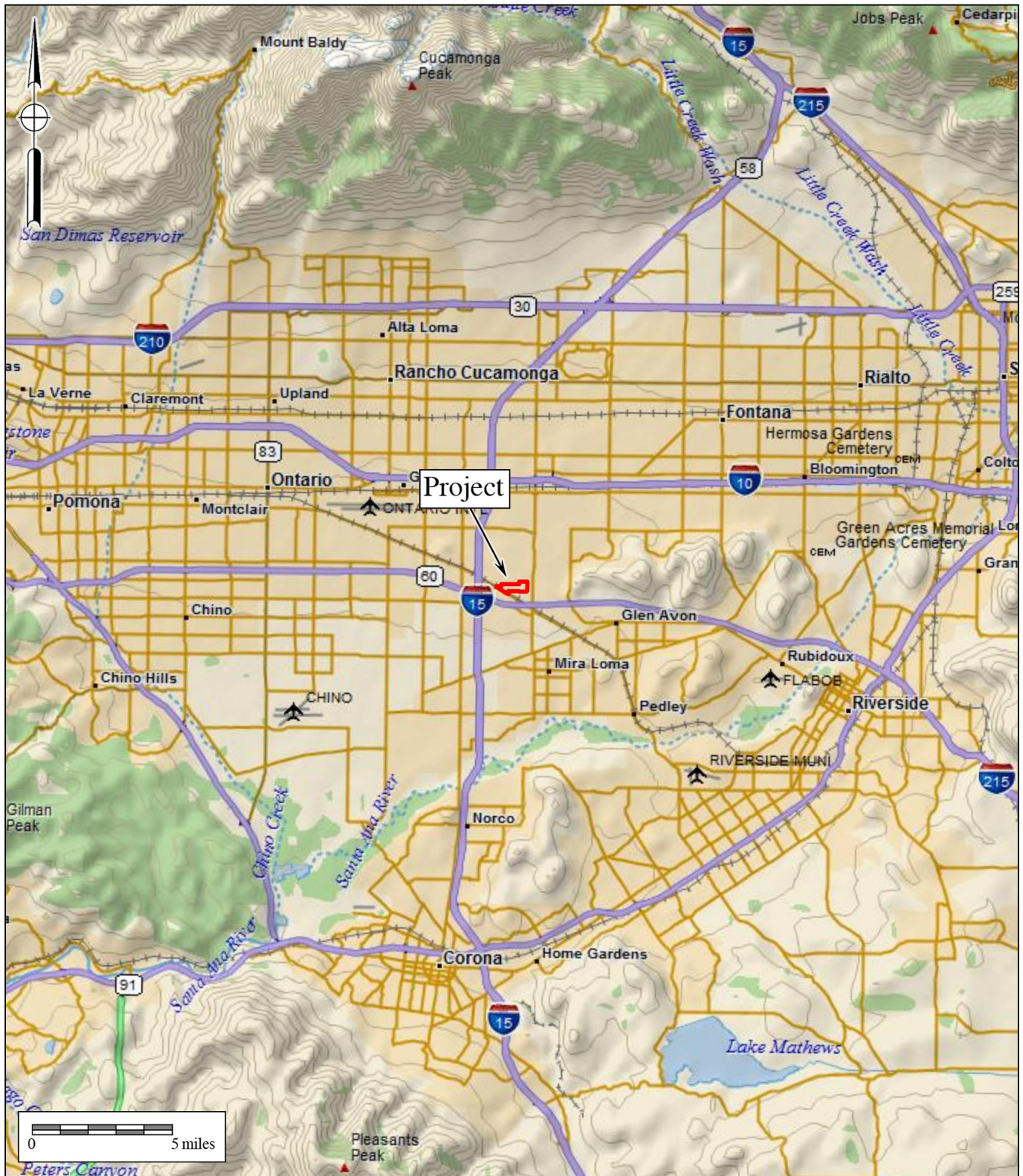


Figure 1
General Location Map
 The Manitou Court Logistics Center Project
 DeLorme (1:250,000)



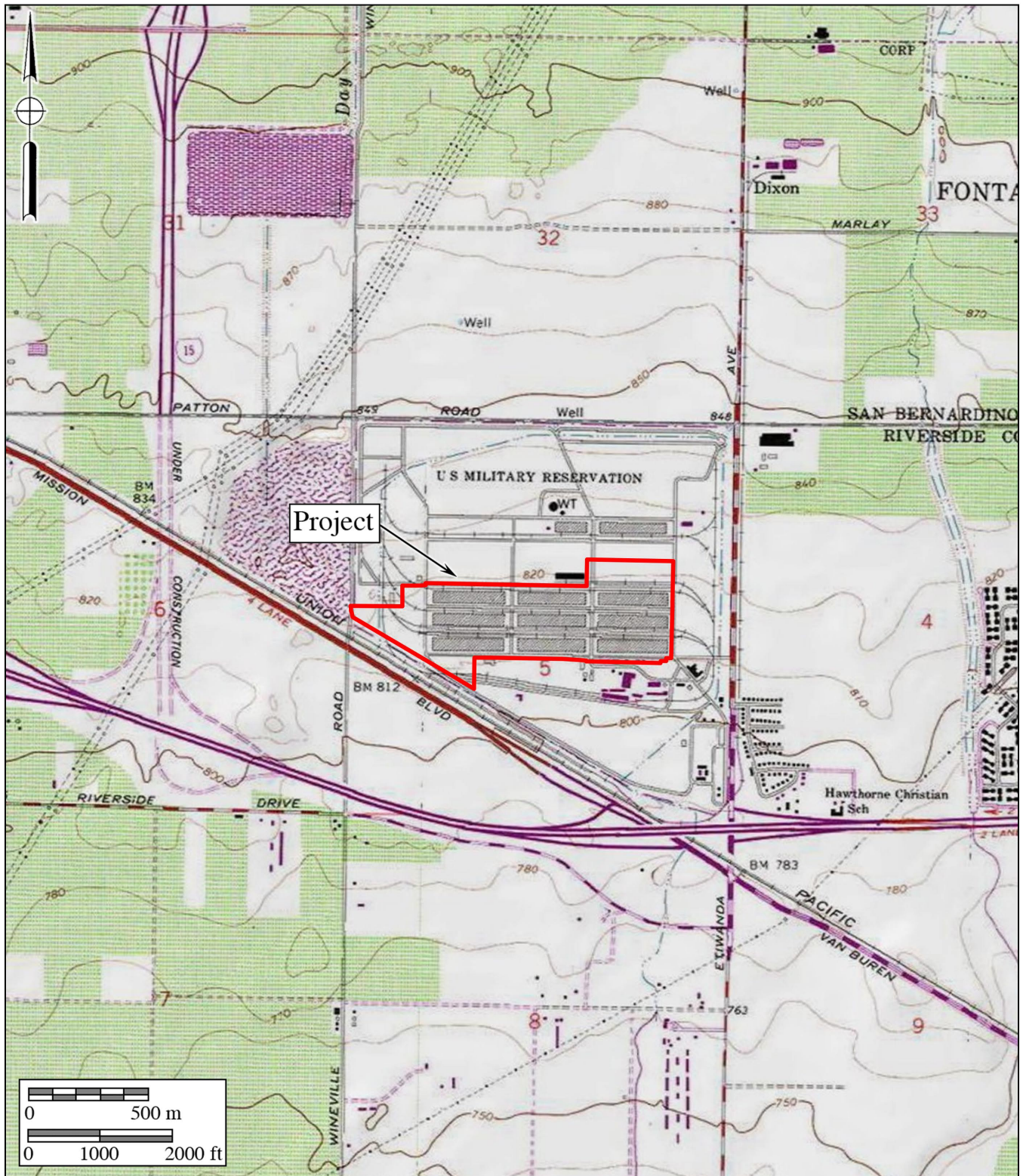


Figure 2

Project Location Map

The Manitou Court Logistics Center Project

USGS *Guasti* Quadrangle (7.5-minute series)



- a) No person shall 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. Violation of this section is a misdemeanor.
- 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.

County of Riverside

An interactive paleontological sensitivity mapping database is available online and maintained by the County of Riverside as a research tool to access the County’s assignment of paleontological sensitivity levels for the various geologic formations within the county (County of Riverside Land Information System 2021). This is specifically addressed in Section V of this report.

Riverside County’s “SABER Policy” (Safeguard Artifacts Being Excavated in Riverside County), enacted in October 2011 by the Riverside County Board of Supervisors, may be applicable to the current project. The “SABER Policy” requires that any paleontological resources found or unearthed in the county of Riverside be curated at a facility within Riverside County, including the Western Science Center located in the city of Hemet (County of Riverside 2015, Policy OS 19.9).

City of Jurupa Valley

The City of Jurupa Valley 2017 General Plan (City of Jurupa Valley 2017a) presents general, non-specific policies for preserving cultural and paleontological resources. The General Plan includes a map that delineates the degrees of paleontological sensitivity assigned to the geologic formations within the city limits, given as Low, High B, or High A (City of Jurupa Valley 2017a:4–36). The General Plan explains that the paleontological sensitivity “map is used in the environmental assessment of development proposals and the determination of required impact mitigation” (City of Jurupa Valley 2017a). It should be noted that the City’s General Plan map is an exact replica of the County of Riverside’s interactive paleontological sensitivity mapping tool discussed above, except the County provides definitions of the sensitivity values, whereas the General Plan does not.

The appendices to the City of Jurupa Valley 2017 General Plan provide mitigation and monitoring guidelines for paleontological resources. Mitigation Measure 4.5.5.3A states:

Prior to issuance of a grading permit, a project applicant must demonstrate if the proposed project grading will impact underlying soil units or geologic formations that have a moderate to high potential to yield fossiliferous materials. If the potential for fossil discovery is low, no pre-grading monitoring needs to be established. If the potential for fossil discovery is moderate to high, the applicant must provide a paleontological monitor during rough grading of the project. If a paleontologist is not onsite and possible fossil materials are found, work shall be halted in that area until the material can be assessed by a qualified professional. If materials are found onsite during grading, a qualified professional shall evaluate the find and determine if it represents a significant paleontological resource. If the resource is determined to be significant, the paleontologist shall supervise removal of the material and determine the most appropriate archival storage of the material. This measure shall be implemented to the satisfaction of the City Planning Department. (City of Jurupa Valley 2017b:115)

III. GEOLOGY

According to geologic mapping by Morton and Miller (2006), the Manitou Court Logistics Center Project overlies a large area of artificial fill, likely associated with the existing industrial warehouse complex (areas colored brown and labeled “Qaf” on Figure 3). However, geology in the surrounding area of the project suggests sediments of Holocene and late Pleistocene young eolian and dune deposits (“Qye” on Figure 3), Holocene young alluvial fan deposits (colored yellow and labeled “Qyf₅”), and Holocene and late Pleistocene young alluvium (“Qya”), occupy the subsurface beneath the artificial fill. Nearby to the south are deposits of late Pleistocene and middle Pleistocene old alluvial fan deposits (amber elongated shape labeled “Qof”), which likely underlie the Holocene deposits at an unknown depth. The thickness of the artificial fill deposits at the project is not known.

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 non-renewable resource under state, county, and local guidelines (see Section II of this report).

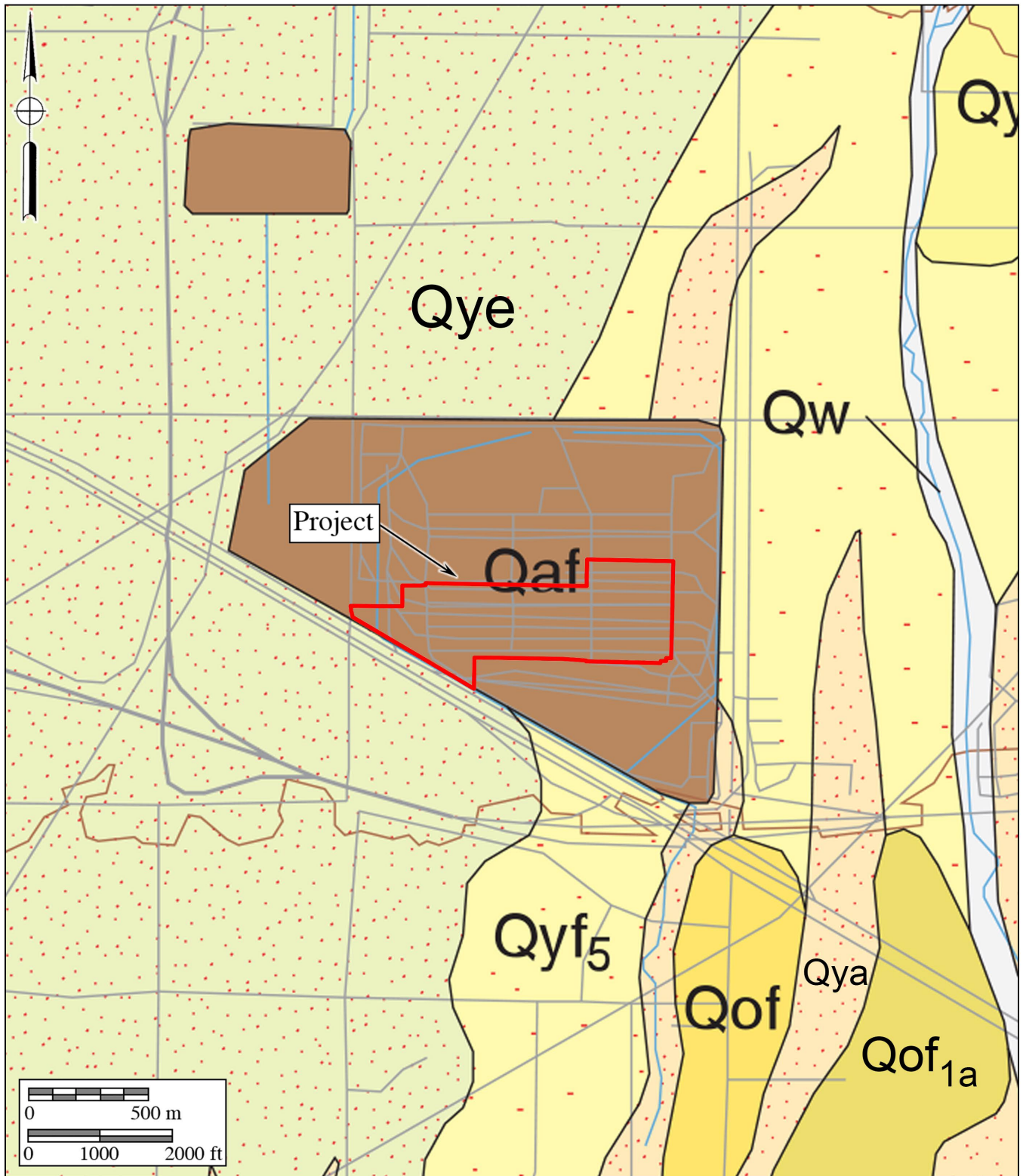


Figure 3
Geologic Map

The Manitou Court Logistics Center Project

Geology after Morton and Miller (2006)



Fossil Records Search

An in-house records search was performed for paleontological resources that may be present in the vicinity of the project. Sources for records include those held by the Los Angeles County Natural History Museum (LACM), the San Bernardino County Museum (SBCM), the University of California Museum of Paleontology in Berkeley, and primary literature. No fossil localities are known from within the project boundaries. The closest known fossil locality is less than a mile north of the current project, and include the remains of a mammoth at a depth of about 20 feet below the surface (SBCM locality no. 5.1.8). The next closest known fossil localities consist of mastodon, bison, and camel remains from depths as shallow as five feet below the surface, and are located approximately two miles northeast of the project in Fontana (SBCM locality nos. 5.1.14 to 5.1.21). Approximately three miles south of the Manitou Court Logistics Center Project in Eastvale, the remains of a whipsnake (*Masticophis* sp.) were found at a depth of nine to 11 feet (LACM locality no. 7811). About one-half mile west of LACM loc. 7811, Pleistocene vertebrate fossils were discovered during trenching activities along the nearby County Line Channel Project by paleontological monitors from Brian F. Smith and Associates, Inc. (Kennedy et al. 2005). Fossils occurred at depths ranging from 11 to 17 feet deep, and consisted of fragmentary bones from a camel, *Camelops* sp. cf. *C. hesternus*, a fragmentary jaw of a bighorn sheep, *Ovis canadensis*, and several unidentifiable bone fragments of more large mammals.

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, therefore, is typically assigned a low paleontological sensitivity. Pleistocene (more than 11,700 years old), alluvial and alluvial fan deposits in the Inland Empire, however, often yield important Ice Age terrestrial vertebrate fossils, such as extinct mammoths, mastodons, giant ground sloths, extinct species of horse, bison, and camel, saber-toothed cats, and others (Jefferson 1991). Therefore, these Pleistocene sediments are accorded a High paleontological resource sensitivity. Deposits of artificial fill are typically assigned a low paleontological resource sensitivity.

Professional Standards

The Society of Vertebrate Paleontology (2010) drafted guidelines outlining procedures that include:

[E]valuating the potential for impacts of a proposed action on paleontological resources and for mitigating those impacts. Impact mitigation includes pre-project survey and salvage, monitoring and screen washing during excavation to salvage fossils, conservation and inventory, and final reports and specimen curation. The objective of these procedures is to offer standard methods for assessing potential impacts to fossils and mitigating these impacts.

The guidelines 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 that 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 upon 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.

Paleontological Sensitivity Assessment

The regulatory agency reviewing this document is the City of Jurupa Valley; however, the City's paleontological sensitivity criteria (City of Jurupa Valley 2017a) is based on the County of Riverside's interactive online database (County of Riverside Land Information System 2021). Figure 4 shows the project area on the City of Jurupa Valley map, which delineates the degrees of paleontological sensitivity assigned to the geologic formations within the city limits (Low, High B, or High A) (City of Jurupa Valley 2017a: 4–36), but this discussion will reference the sensitivity value definitions provided by the County of Riverside (County of Riverside Land Information System 2021).

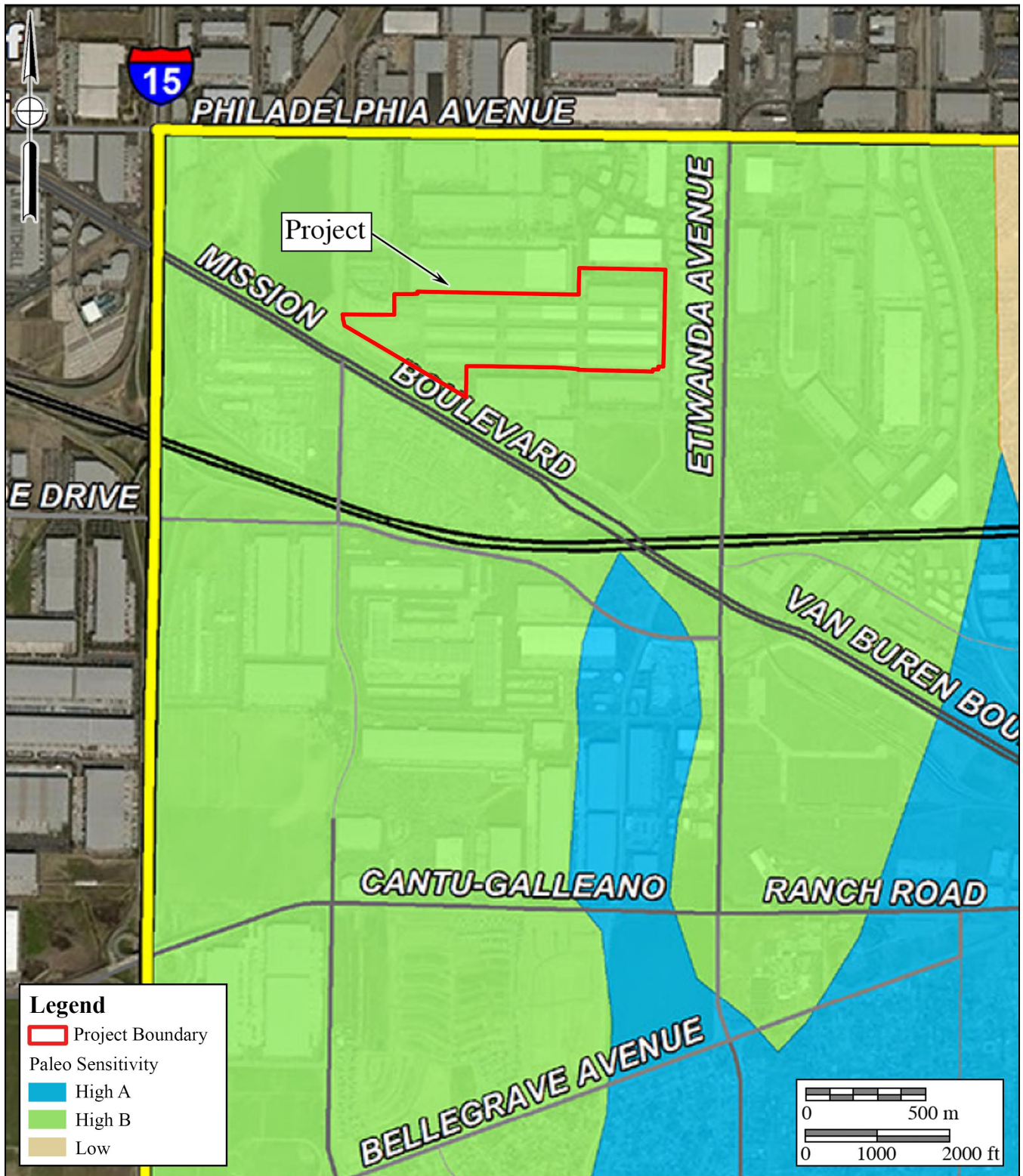


Figure 4

Paleontological Sensitivity Map

The Manitou Court Logistics Center Project

After City of Jurupa Valley General Plan (2017)



As shown on Figure 4, the project property is tinted in green, indicating a “High B” paleontological sensitivity (City of Jurupa Valley 2017a). The County of Riverside identifies a “High B” ranking using the following definition: “equivalent to High A, but is based on the occurrence of fossils at a specified depth below the surface. The category High B indicates that fossils are likely to be encountered at or below four feet of depth, and may be impacted during excavation by construction activities” (County of Riverside Land Information System 2021). South of the project, the Pleistocene old alluvial fan deposits are assigned a “High A” paleontological sensitivity and are approximately shown in blue on Figure 4, although the tinted areas are not accurate and only estimate the geology shown on Figure 3. The County of Riverside has defined areas assigned a “High A potential” for yielding paleontological resources as “based on [the presence of] geologic formations or mappable rock units that are rocks that contain fossilized body elements, and trace fossils such as tracks, nests and eggs. These fossils occur on or below the surface” (County of Riverside Land Information System 2021).

The Riverside County paleontological sensitivity rating system (and therefore the Jurupa Valley system) is based on the potential of a geologic formation to yield fossils. Typically, fossils are present in many, but not all, geologic formations of sedimentary origin. Factors determining the potential presence of fossils in sedimentary strata include age, depositional environment, and subsequent preservation of hard parts after the death of the organism. Generally, most Holocene sedimentary deposits, including artificial fill (disturbed) deposits, such as those mapped underlying the project, are too young to contain fossils. However, outcrops of Pleistocene deposits are nearby, which are also present below the Holocene and artificial fill deposits at an unknown depth. As specified in Section IV, all the known nearby fossil localities were recovered from Pleistocene sediments at various depths that are indicated as being overlain by Holocene deposits (Morton and Miller 2006).

VI. RECOMMENDATIONS

According to geologic mapping, the Manitou Court Logistics Center Project is underlain by a large area of artificial fill, likely associated with the former military installation development constructed in the 1940s. Artificial fill deposits have zero possibility for producing fossils or fossil deposits. However, research has indicated that various Holocene and late Pleistocene alluvial sediments (Qye, Qyf, and Qya on Figure 3) and late and middle Pleistocene alluvial sediments (Qof on Figure 3) likely underlie the project beneath the artificial fill. These sediments are accorded a “High B” and “High A” paleontological resource sensitivity, respectively (City of Jurupa Valley 2017a). The High paleontological sensitivity locally assigned to these sediments, plus the recorded existence of nearby large mammal fossil localities, supports the recommendation that full-time paleontological monitoring be required during grading, excavation, or utility trenching activities in these geologic formations at the Manitou Court Logistics Center Project. However, the thickness of the overlying artificial fill deposits, which do not require paleontological

monitoring, is not known. Therefore, part-time paleontological monitoring, starting at the surface, is recommended at the project, unless the thickness of artificial fill material is determined. Should the depth of excavation encroach into the alluvial sediments, full time monitoring is warranted. A proposed Mitigation Monitoring and Reporting Program (MMRP), consistent with the provisions of CEQA and the City of Jurupa Valley (2017a, 2017b), as well as the guidelines of the Society of Vertebrate Paleontology (2010), is presented below. When implemented, the MMRP would mitigate any adverse impacts (loss or destruction) to potential nonrenewable paleontological resources (fossils), if present, to a level below significant. Paleontological monitoring may be reduced if, based on the observations and recommendations of the professional-level project paleontologist, the excavations are only occurring in, for example, coarse-grained sediments that are unlikely to yield paleontological resources.

Mitigation Monitoring and Reporting Program (MMRP)

- 1) If paleontological resources are discovered during earth disturbance activities, the discovery shall be cordoned off with a 50-foot radius buffer to protect the discovery from further potential damage, and a Riverside County-qualified paleontologist shall be consulted to assess the discovery. If the discovery is determined to be significant by the paleontologist, an MMRP shall be initiated, which will include appropriate monitoring of earth disturbance activities.
- 2) Monitoring may be reduced if the potentially fossiliferous units are not present in the subsurface or, if present, are determined by qualified paleontological personnel upon exposure and examination to have a low potential to contain or yield fossil resources.
- 3) Paleontological monitors will 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. The monitor must be empowered to temporarily halt or divert equipment to allow for the removal of abundant or large specimens in a timely manner.
- 4) Paleontological salvage during trenching and boring activities is typically from the generated spoils and does not delay the trenching or drilling activities. Fossils will be collected and placed in cardboard flats or plastic buckets and identified by field number, collector, and date collected. Notes will be taken on the map location and stratigraphy of the discovery site, and the discovery site will be photographed before it is vacated and the fossils are removed to a safe place.
- 5) Particularly small invertebrate fossils typically represent multiple specimens of a limited number of organisms, and a scientifically suitable sample can be obtained from one to several five-gallon buckets of fossiliferous sediment. If it is possible to dry screen the sediment in the field, a concentrated sample may consist of one or two buckets of material. For vertebrate fossils, the test is usually the observed presence of small pieces of bones within the sediments. If present, as many as 20 to 40 five-gallon

buckets of sediment can be collected and returned to a separate facility to wet-screen the sediment. 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).

- 6) Preparation of recovered specimens to a point of identification and permanent preservation, including screen washing sediments to recover small invertebrates and vertebrates, if necessary. Preparation of individual vertebrate fossils is often more time-consuming than for accumulations of invertebrate fossils.
- 7) Identification and curation of specimens into a professional, accredited public museum repository with a commitment to archival conservation and permanent retrievable storage (*e.g.*, the Western Science Center, 2345 Searl Parkway, Hemet, California 92543). The paleontological program should include a written repository agreement prior to the initiation of mitigation activities.
- 8) Preparation of a final monitoring and mitigation report of findings and significance, including lists of all fossils recovered and necessary maps and graphics to accurately record their original location(s). The report, when submitted to the appropriate lead agency (City of Jurupa Valley), will signify satisfactory completion of the project program to mitigate impacts to any paleontological resources.

VII. CERTIFICATION

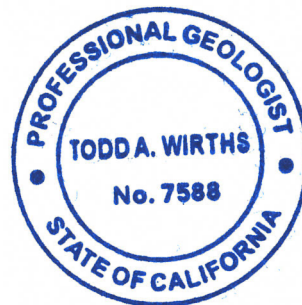
I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this paleontological report, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief, and have been compiled in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



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

June 16, 2021

Date



VIII. REFERENCES

- City of Jurupa Valley. 2017a. City of Jurupa Valley 2017 General Plan. Planning Department, City of Jurupa Valley. <https://www.jurupavalley.org/DocumentCenter/View/217/2017-Master-General-Plan-PDF>.
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- Kennedy, G.L., Shiller, G.I., and Stewart, J.D. 2005. Paleontological monitoring report, County Line Channel, Riverside County Flood Control and Water Conservation District Project No. 2-0-0300, Riverside and San Bernardino Counties, California. Unpublished letter report dated May 16, 2005, to Riverside Construction Company, Riverside, California, by Brian F. Smith and Associates, Inc., Poway, California.
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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: http://vertpaleo.org/Membership/Member-Ethics/SVP_Impact_Mitigation_Guidelines.aspx.

APPENDIX A

Resumes of Key Personnel

Todd A. Wirths, MS, PG No. 7588

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Education

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

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

Professional Certifications

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

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

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

2019 *Paleontological Assessment for the Eastvale Self Storage Project, City of Eastvale, Riverside County, California.* Prepared for Gossett Development, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

2019 *Paleontological Resource Impact Mitigation Monitoring Program for the IPT Perris DC III Western/Nandina Project, Perris, Riverside County, California.* Prepared for IPT/Black Creek Group. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

- 2019 *Paleontological Assessment for the 10407 Elm Avenue Project, City of Fontana, San Bernardino County, California.* Prepared for Advantage Environmental Consultants, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 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 Resource Impact Mitigation Program (PRIMP) for the Speedway TPM 37676 Project, Temescal Valley, Riverside County, California.* Prepared for Speedway Development. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2019 *Paleontological Assessment for the Natwar Project, Perris, Riverside County, California.* Prepared for Advantage Environmental Consultants, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2019 *Paleontological Resource and Mitigation Monitoring Assessment, Beyond Food Mart, City of Perris, Riverside 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 West Markham Project (TR 33587), City of Perris, Riverside County, California.* Prepared for Markham JP/ARA, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2019 *Paleontological Monitoring and Mitigation Report for the Artesa at Menifee Town Center Project Site, Sherman Road and La Piedra Road, Menifee, Riverside County, California.* Prepared for MBK Real Estate. Report on file at Brian F. Smith and Associates, Inc., Poway, California.
- 2019 *Paleontological Monitoring Report, Diarq Residence, La Jolla, City of San Diego, San Diego County, California.* Prepared for West Way Drive, LLC. 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.