

PALEONTOLOGICAL ASSESSMENT FOR THE 2375 NORTH TUSTIN STREET PROJECT

**CITY OF ORANGE,
ORANGE COUNTY, CALIFORNIA**

APNs 372-642-31 and -32

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April 21, 2025



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Paleontological Database Information

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Report Date:	April 21, 2025
Report Title:	Paleontological Assessment for the 2375 North Tustin Street Project, City of Orange, Orange County, California
Prepared on Behalf of:	RE Consulting 5742 Calle Polvorosa San Clemente, California 92673
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Assessor's Parcel Numbers:	372-642-31 and -32
USGS Quadrangle:	Unsectioned area of Township 4 South, Range 9 West, on the USGS <i>Orange, California</i> (7.5-minute) Quadrangle
Study Area:	5.04 acres
Key Words:	Paleontological assessment; Holocene young alluvial fan deposits; low sensitivity; monitoring not recommended.

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I. INTRODUCTION AND LOCATION

A paleontological resource assessment has been completed for the 2375 North Tustin Street Project to comply with the California Environmental Quality Act (CEQA) and City of Orange environmental requirements. The project is located at 2375 North Tustin Street between North Tustin Street and State Route 55, east of The Village At Orange shopping mall, in the city of Orange, California (Figures 1 and 2). The 5.04-acre project consists of two parcels (Assessor's Parcel Numbers [APNs] 372-642-31 and -32) and is situated within an unsectioned area of Township 4 South, Range 9 West, as shown on the United States Geological Survey *Orange, California* (7.5-minute) topographic quadrangle map (see Figure 2). A new residential development is being considered for the project parcels (Figure 3). The project parcels are completely developed, currently occupied by a 45,000-square-foot one-story retail building (Best Buy) and adjacent parking/drive lane/hardscape/landscape improvements. The current development is planned for demolition as part of the project.

For grading at the project, Hick and LaMont (2024) recommended that the soils be removed beneath the planned building footprints to a depth of at least five feet below existing grades, or three feet below the base of the proposed foundations, whichever is greater. All undocumented fill soils were recommended for removal as part of remedial grading. Hick and LaMont (2024) noted that deeper artificial fills may be present within the site and accordingly would require deeper removals.

As the lead agency, the City of Orange 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 in the area, a review of the underlying geology, and, if necessary, recommendations to mitigate impacts to potential paleontological resources. A paleontological survey of the project was not performed, since the parcels are completely developed.

II. REGULATORY SETTING

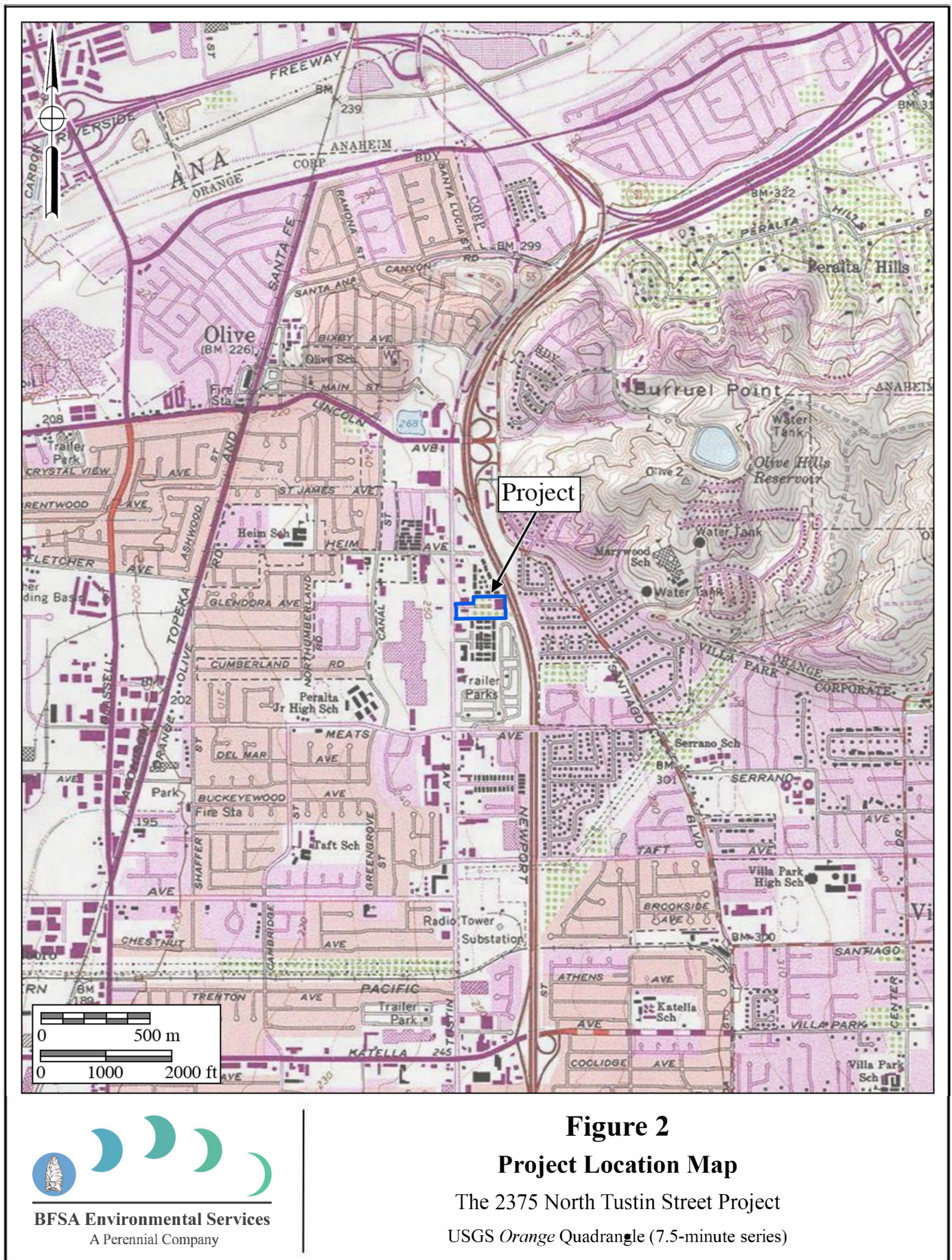
CEQA, which is patterned after the National Environmental Policy Act, is the overriding regulation that sets the requirement for protecting California's cultural and paleontological resources. CEQA does not establish specific rules that must be followed but mandates that governing permitting agencies (lead agencies) set their own guidelines for the protection of nonrenewable paleontological resources under their jurisdiction.

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 on the environment, assess whether the impacts are significant, and if necessary, provide recommendations.



Figure 1 General Location Map

The 2375 North Tustin Street Project
Esri World Topographic Map



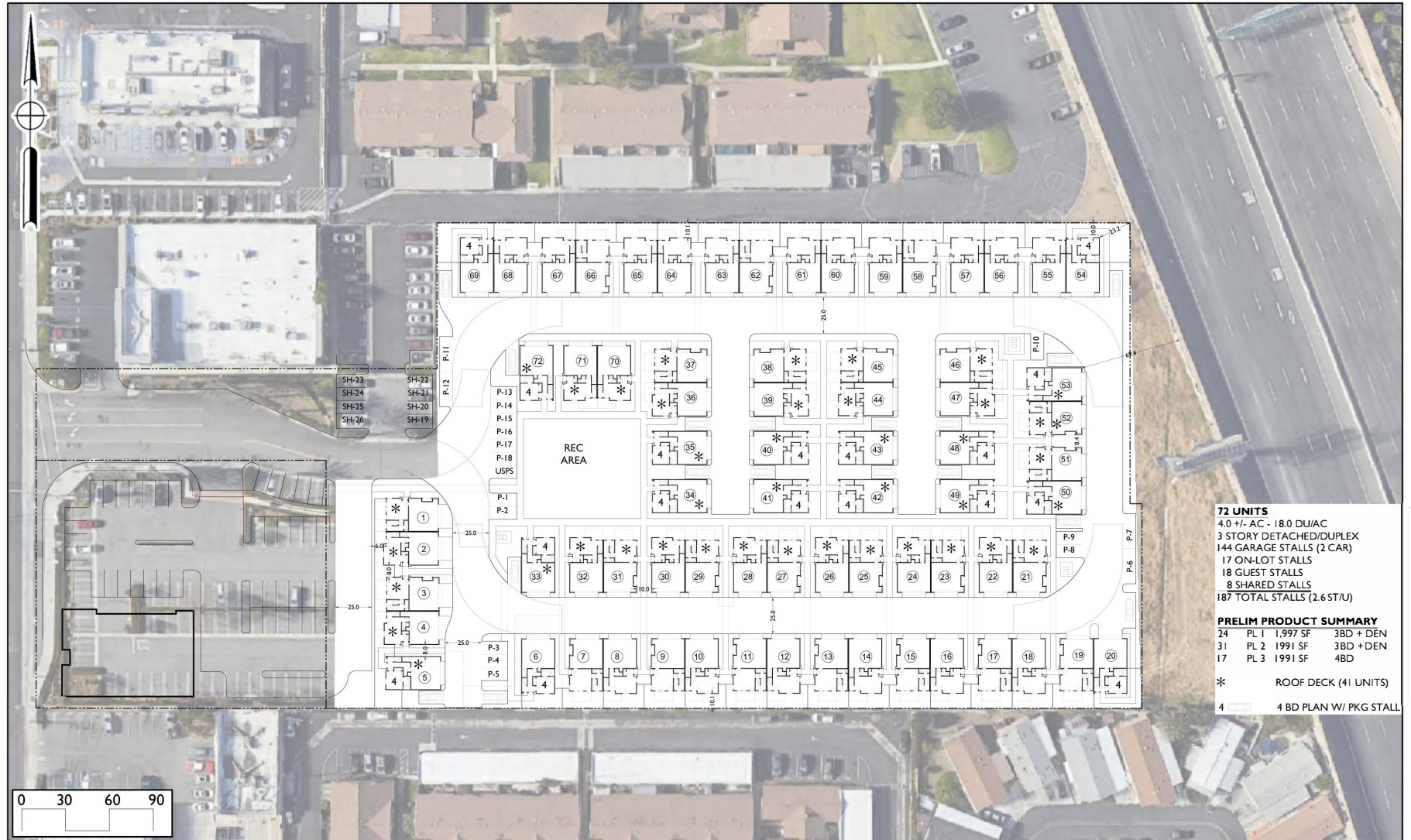


Figure 3
Site Plan

The 2375 North Tustin Street Project

The City of Orange

The Environmental Impact Report (EIR) for the City of Orange recognizes that paleontological resources may be adversely impacted as a result of earth disturbance activities during development projects (City of Orange 2010). The EIR indicates the potential to encounter paleontological resources exists and has proposed a mitigation measure (MM; MM 5.5-10) as a requirement to implement prior to development. The MM, while only indicating cultural and archeological resources, is positioned under a heading with paleontological resources in the EIR, and is stated below:

5.5-10 Require cultural resources inventories of all new development projects in areas identified with medium or high potential for archaeological or cultural resources. Where a preliminary site survey finds medium to high potential for substantial archaeological remains, the City shall require a mitigation plan to protect the resource before issuance of permits. Mitigation may include:

- Ensuring that a qualified archaeologist is present during initial grading or trenching (monitoring);
- Redesigning the project to avoid archaeological resources (this is considered the strongest tool for preserving archaeological resources);
- Capping the site with a layer of fill; and/or
- Excavating and removing the archaeological resources (recovery) and implementing curation in an appropriate facility under the direction of a qualified archaeologist (interpretation).

Alert applicants for permits within early settlement areas to the potential sensitivity. If significant archaeological resources are discovered during construction or grading activities, such activities shall cease in the immediate area of the find until a qualified archaeologist can determine the significance of the resource and recommend alternative mitigation.

III. GEOLOGY

Geologically, the project is mapped as Holocene and late Pleistocene young alluvial fan deposits (yellow areas labeled “Qyf_{sa}” on Figure 4, after Morton and Miller 2006), mostly consisting of unconsolidated, alluvial silty sands. Nearby are late to middle Pleistocene-aged old alluvial fan deposits, characterized as moderately- to well-consolidated silt, sand, and gravel (amber areas labeled “Qof” on Figure 4). According to a project-specific geotechnical report (Hick and LaMont 2024), artificial fill soils cover the project, ranging from three to as much as five and a half feet thick. Below fill soils are alluvium, consisting of interbedded layers of clay, clayey sand, silty sands and fine to coarse gravel.

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. Fossils are considered a nonrenewable resource under state and local guidelines (see Section II of this report).

Paleontological Resource Records Search

A prior paleontological resource (fossil) records search was performed for a nearby project by the Natural History Museum of Los Angeles County (LACM) (Bell 2025), located one mile west of the current project. The closest fossil locality is located just over two miles northwest of the 2375 North Tustin Street Project, south of Lincoln Avenue along Rio Vista Avenue, consisting of wild sheep remains in Pleistocene deposits (LACM locality [loc.] 1652). Between two and three miles to the northeast, proboscidean bones were found in Pleistocene terrace deposits (LACM loc. 3292). A third locality, with Pleistocene rodent remains, is several miles away at the former El Toro marine base (LACM loc. 7867).

A review of published and unpublished literature was conducted for potential paleontological resources that are known in the vicinity of the project. Data reported in Miller (1971) indicate there are no nearby fossil localities; however, Jefferson (1991) lists a late Pleistocene-aged specimen of horse located at “Glasell [Street] and Fletcher [Avenue]” in Orange (LACM locality 4943), which would place this locality one mile west of the project. Dr. Alyssa Bell (personal communication 2025) of the LACM indicated this specimen “has been assessed as a modern specimen since Jefferson’s publication and so is no longer included in records searches.” The geology at this intersection is mapped as young alluvial fan deposits (see Figure 4).

V. PALEONTOLOGICAL SENSITIVITY

Overview

The degree of paleontological sensitivity of any particular area is based upon 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 an accumulation of organic remains that may 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 therefore typically assigned a low paleontological sensitivity. Pleistocene (greater than 11,700 years old) alluvial and terrace

deposits in the Orange County region, 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.

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 paraphrased 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 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.

Based upon these criteria, the Holocene to late Pleistocene-aged young alluvial fan deposits have a low potential at/near the surface.

VI. CONCLUSIONS AND RECOMMENDATIONS

In conclusion, the recommended grading depths at the proposed project will only impact artificial fill soils and Holocene alluvial fan deposits. These deposits have a low paleontological sensitivity. Therefore, paleontological monitoring is not recommended at the project.

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.



April 21, 2025

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Principal Paleontologist
California Professional Geologist No. 7588

Date

VIII. REFERENCES

- Bell, A. 2025. Paleontological resources records search for the 2411 North Glassell Street Project. Unpublished letter for BFSa Environmental Services, Poway, California, by the Natural History Museum of Los Angeles County, Los Angeles, California.
- City of Orange. 2010. Program Environmental Impact Report, City of Orange General Plan, State Clearinghouse # 2006031117. Prepared for the city of Orange, California, by EDAW, Inc., San Diego, California.
<https://www.cityoforange.org/home/showpublisheddocument/240/637698173340500000>.
- Hick, B.A., and LaMont, E.H. 2024. Updated Geotechnical and Infiltration Evaluation, Proposed Townhome Residential Development, 2375 North Tustin Street, Orange, Orange County, California. Prepared for Melia Homes, Irvine, California, by GeoTek, Inc., Corona, California.
- 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: i-v + 1-129.
- Miller, W.E. 1971. Pleistocene vertebrates of the Los Angeles Basin and vicinity (exclusive of Rancho La Brea). Bulletin of the Los Angeles County Museum of Natural History; Science, Number 10, 124 pp.
- Morton, D.M. and Miller, F.K. 2006. Geologic map of the San Bernardino and Santa Ana 30' x 60' quadrangles, California: U.S. Geological Survey Open-File Report 06-1217, scale 1:100,000.

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: https://vertpaleo.org/wp-content/uploads/2021/01/SVP_Impact_Mitigation_Guidelines.pdf.

APPENDIX A

Qualifications of Key Personnel

Todd A. Wirths, MS, PG No. 7588

Principal Paleontologist

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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 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.