PALEONTOLOGICAL ASSESSMENT FOR THE WAALEW ROAD TRUCK & TRAILER FACILITY PROJECT

TOWN OF APPLE VALLEY, SAN BERNARDINO COUNTY, CALIFORNIA

DP 2024-010; APN 440-014-11

Prepared on Behalf of:

Lilburn Corporation
1905 Business Center Drive
San Bernardino, California 92408
(909) 890-1818 ext.2

Prepared for:

Town of Apple Valley
14955 Dale Evans Parkway
Apple Valley, California 92307
(760) 240-7000

Prepared by:

BFSA Environmental Services,
a Perennial Company
14010 Poway Road, Suite A
Poway, California 92064
(858) 484-0915

November 1, 2024

BFSA Environmental Services
A Perennial Company

Paleontological Database Information

Author:	Todd A. Wirths, M.S., Principal Paleontologist, California Professional Geologist No. 7588
Prepared by:	BFSA Environmental Services, a Perennial Company 14010 Poway Road, Suite A Poway, California 92064 (858) 484-0915
Report Date:	November 1, 2024
Report Title:	Paleontological Assessment for the Waalew Road Truck & Trailer Facility Project, Town of Apple Valley, San Bernardino County, California
Prepared on Behalf of:	Lilburn Corporation 1905 Business Center Drive San Bernardino, California 92408
Prepared for:	Town of Apple Valley 14955 Dale Evans Parkway Apple Valley, California 92307
Agency Number:	DP 2024-010
Assessor's Parcel Number:	440-014-11
USGS Quadrangle:	Section 4, Township 5 North, Range 3 West of the *Apple Valley North, California* (7.5-minute) USGS Quadrangle
Study Area:	14.86 acres
Key Words:	Paleontological assessment; Pleistocene alluvial deposits; high sensitivity; monitoring recommended; Town of Apple Valley.

Table of Contents

Section **Page**

I. INTRODUCTION AND LOCATION....1
II. REGULATORY SETTING....1
State of California....1
Town of Apple Valley....4
III. GEOLOGY....5
IV. PALEONTOLOGICAL RESOURCES....7
Definition....7
Paleontological Resource Record Search....7
Project Survey....7
V. PALEONTOLOGICAL SENSITIVITY....8
Overview....8
Professional Standards....8
Town of Apple Valley Assessment....9
VI. CONCLUSIONS AND RECOMMENDATIONS....11
Suggested PRIMP....11
VII. CERTIFICATION....12
VIII. REFERENCES....13

Appendices

Appendix A – Qualifications of Key Personnel

List of Figures

Figure **Page**

Figure 1 General Location Map....2
Figure 2 Project Location Map....3
Figure 3 Geologic Map....6
Figure 4 Paleontological Sensitivity Map....10

I. INTRODUCTION AND LOCATION

A paleontological resource assessment has been completed for the Waalew Road Truck & Trailer Facility Project to comply with the California Environmental Quality Act (CEQA) and Town of Apple Valley environmental requirements. The project consists of one 14.86-acre parcel (Assessor's Parcel Number [APN] 440-014-11) located along the south side of Waalew Road, west of Navajo Road, in the Town of Apple Valley in San Bernardino County, California (Figures 1 and 2). The project is in the Apple Valley Dry Lake area of Apple Valley and can be found within Section 4, Township 5 North, Range 3 West, as shown on the USGS *Apple Valley North, California* topographic quadrangle map (Figure 2). The project plans include construction of a 429-stall parking lot for commercial trucks and trailers, along with a guard shack, landscaping, and a trash enclosure. An approximately 50-foot wide, 557-foot-long stormwater runoff detention basin will be placed along the east side of the lot. The basin will be 1.5 feet deep, with a cut of about two feet from the current surface. An excavation cut of 16,077 cubic yards is estimated for earth disturbance activities for the project. The parcel is currently vacant.

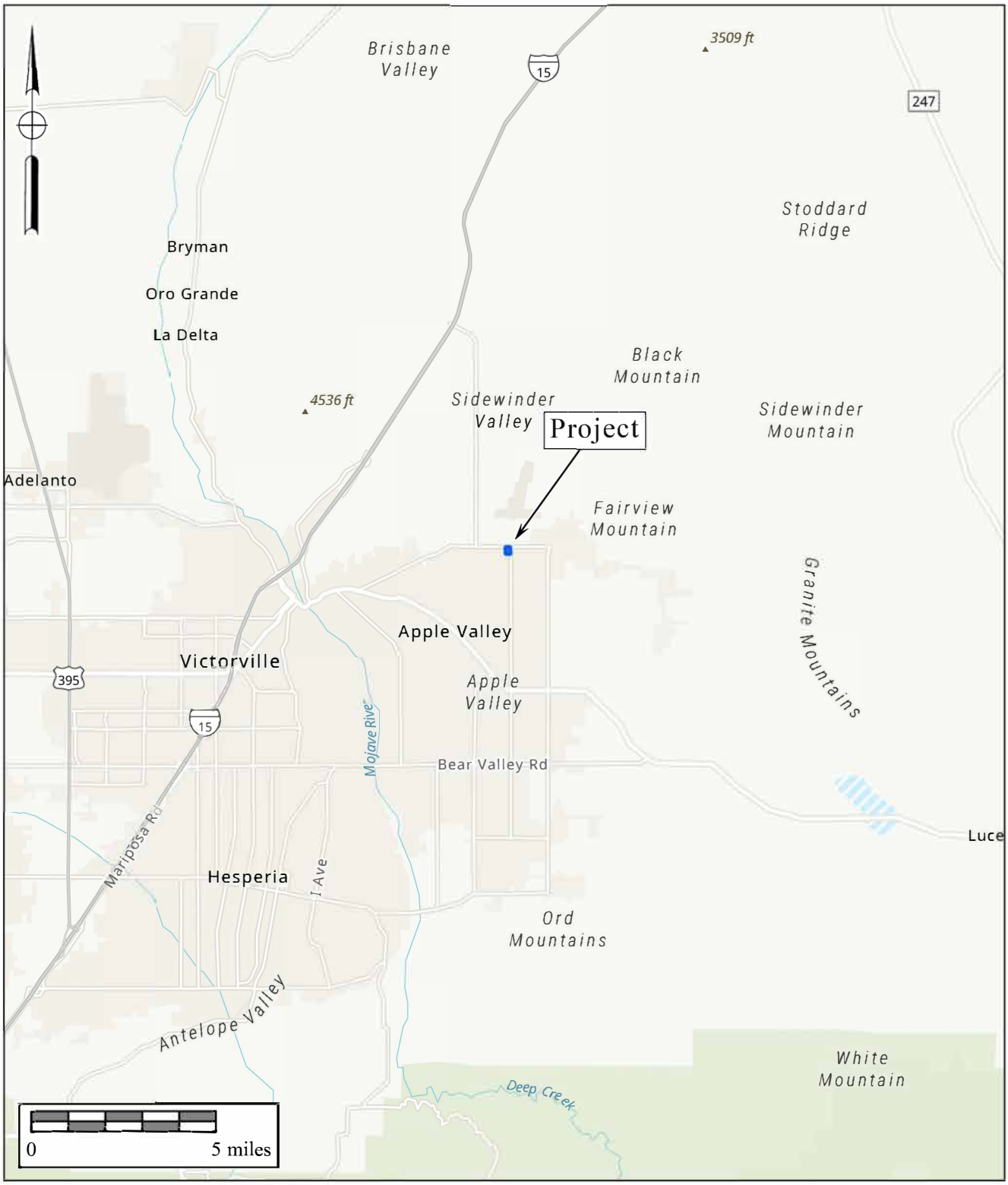
As the lead agency, the Town of Apple Valley has required the preparation of a paleontological assessment to evaluate the project's potential to yield paleontological resources. The paleontological assessment of the project included a review of paleontological literature and fossil locality records in the area, a review of the underlying geology, and recommendations to mitigate impacts to potential paleontological resources, if necessary.

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.

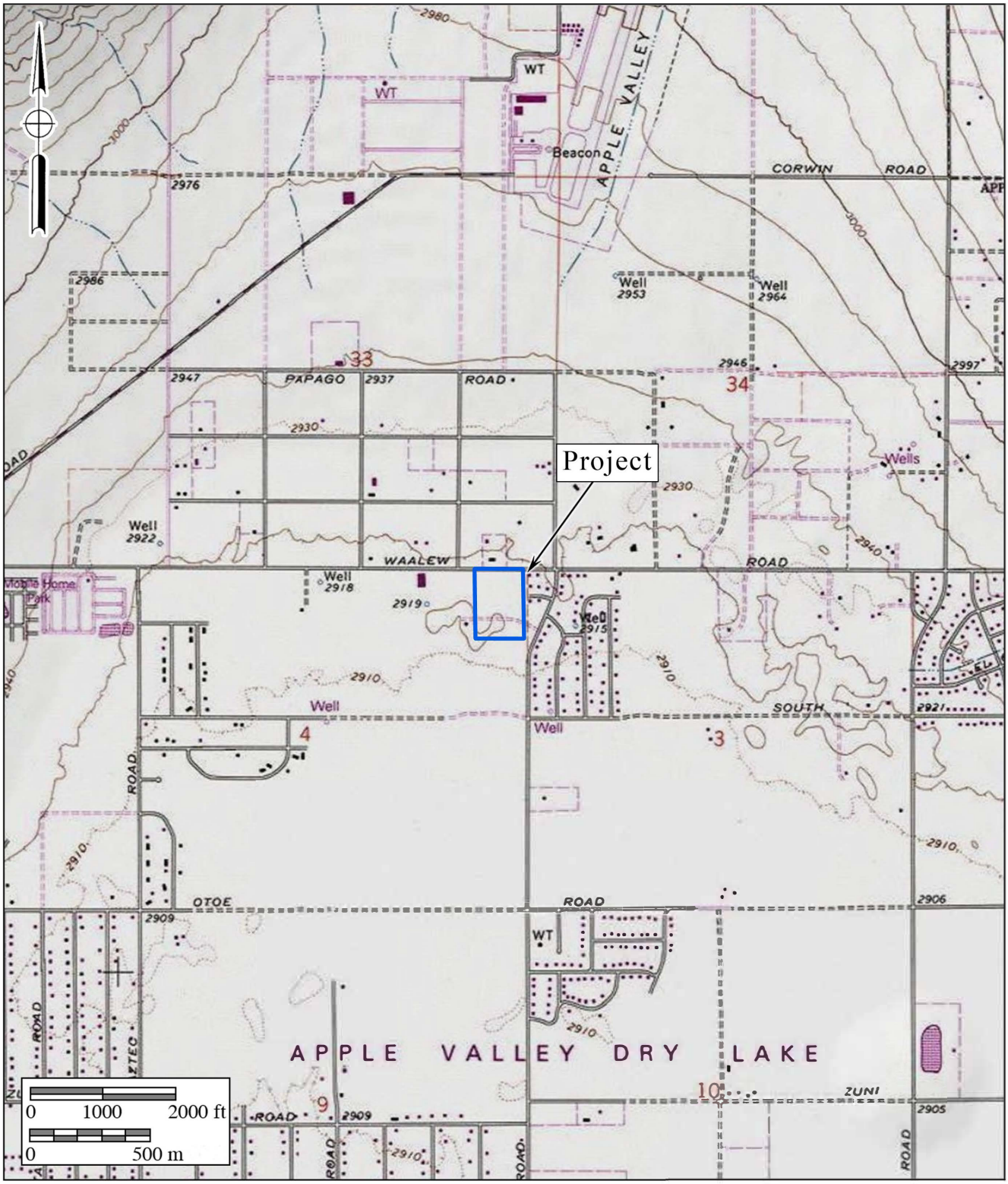
State of California

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



BFSA Environmental Services
A Perennial Company

Figure 1
General Location Map
The Waalew Road Truck and Trailer Facility Project
Esri World Topographic Map



BFSA Environmental Services
A Perennial Company

Figure 2
Project Location Map
The Waalew Road Truck and Trailer Facility Project
USGS *Apple Valley North* Quadrangle (7.5-minute)

In CEQA's Environmental Checklist Form, a question to respond to 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.

Town of Apple Valley

The General Plan of Apple Valley (Town of Apple Valley 2009a) considers sedimentary deposits of Pleistocene age and older as having the potential to yield significant paleontological resources, and as such considers these deposits as having a high paleontological sensitivity. Holocene-aged deposits at the surface are deemed as having a low sensitivity, since these deposits generally do not contain significant paleontological resources. The General Plan indicates that "Shallow grading of younger Quaternary [Holocene] alluvium that occurs throughout most of the area is not likely to reveal significant fossil remains"

As stated in the Environmental Impact Report (EIR) for the Town of Apple Valley's General Plan:

> Future development in the Planning area could also impact paleontological resources, should Pleistocene-age soils be disturbed by grading or excavation activities resulting from build out of the General Plan. Since the depth of Holocene-age soils in the planning area is not known, Pleistocene-age soils may be sufficiently close to the surface to be disturbed by grading activities. Monitoring of grading activities by a suitably qualified expert should occur in areas where there is potential for disturbance to Pleistocene-age soils, in areas identified as potentially sensitive for paleontologic resources in Exhibit III-5 to determine the presence and significance of such resources (Town of Apple Valley 2009b).

The project's paleontological sensitivity is evaluated in Section V of this report.

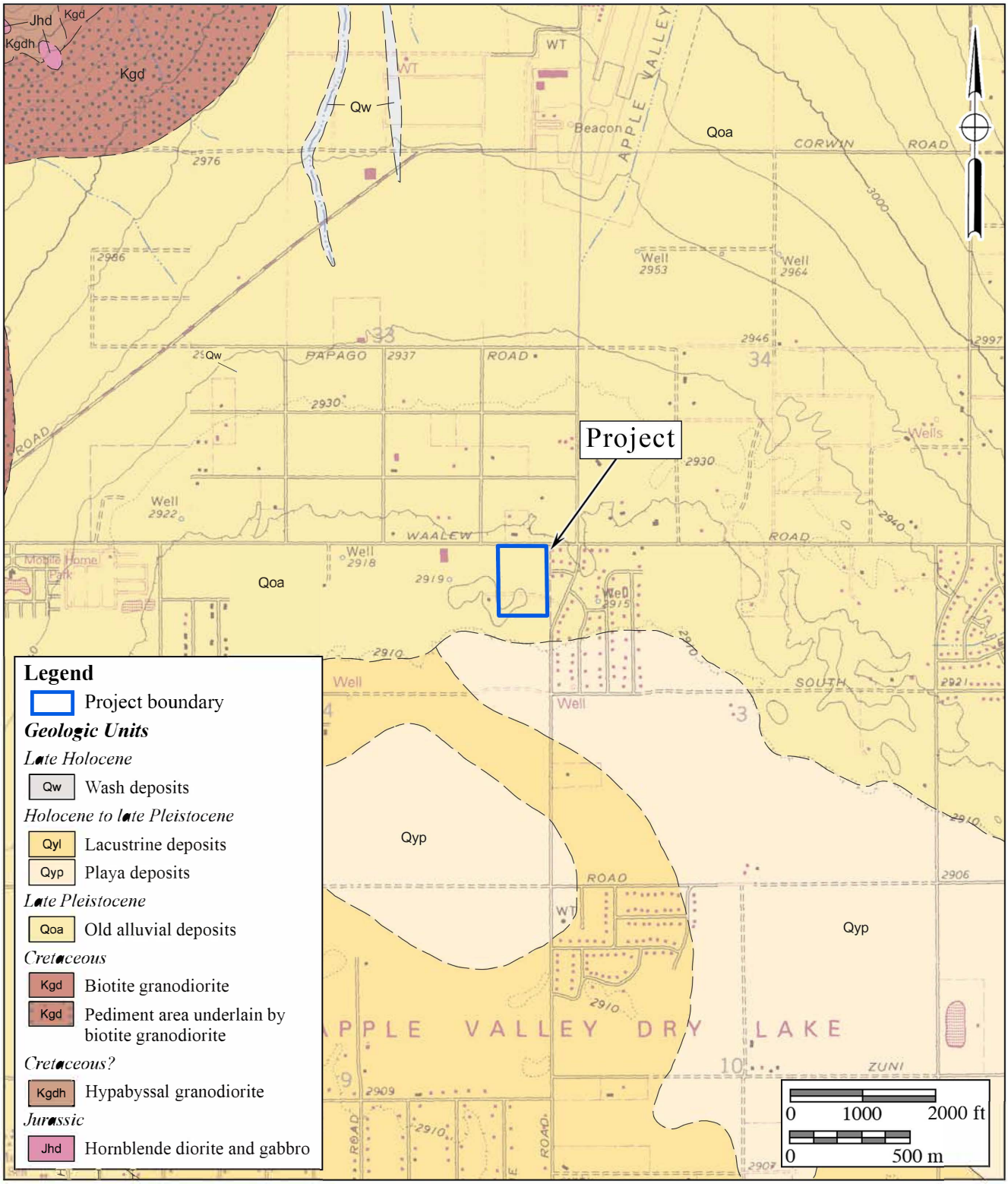
III. GEOLOGY

The project is within or very near Apple Valley Dry Lake, which occupies the lowest part of a closed desert basin that is about nine miles wide and 18 miles long. Storm runoff originates in the mountains surrounding the valley of Apple Valley Dry Lake, but generally little reaches the playa basin (Busby 1975).

As shown on Figure 3 (after Hernandez and Tan 2007), the parcel is mapped as late Pleistocene-aged old alluvial deposits, characterized as fine- to medium-grained sand and fine- to medium-sized gravel of inactive alluvial fans. Surfaces are described as smooth, slightly varnished pavements composed of sand and angular gravel clasts (amber areas labeled "Qoa" in Figure 3). Holocene to late Pleistocene lacustrine ("Qyl") and playa ("Qyp") deposits of Apple Valley Dry Lake are mapped adjacent to the southern boundary of the project, where the ancestral Mojave River once passed through during late Pleistocene times (Cox et al. 2003).

West of the project in Victorville are deposits mapped as the Pleistocene and Pliocene-aged "alluvium of the ancestral Mojave River" (Hernandez et al. 2008). The configuration of the Mojave River has developed gradually over a span of at least one million years. About 60 to 70 thousand years ago, the ancestral Mojave River began incising its modern canyon between Victorville and Barstow. The upper stratigraphic unit of the ancient Mojave River depositional sequence is approximately middle Pleistocene in age, based on terrestrial vertebrate fossils (Cox et al. 2003).

Three percolation tests and a 15-foot-deep exploratory boring were recently performed along the east edge of the property, offering a description of project-specific, near-surface geologic conditions (Gupta and Flippin 2024). Generally, the upper five feet consisted of silty sands and clayey sands with occasional pebbles. Pebble and rock fragment content increased below five feet. The report did not speculate on the geologic age of the stratigraphy encountered at the property.



BFSA Environmental Services
A Perennial Company

Figure 3
Geologic Map

The Waalew Road Truck and Trailer Facility Project

Geology after Hernandez and Tan 2007

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 [SVP] 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).

Paleontological Resource Record Search

A paleontological resource (fossil) record search was performed for a prior, nearby project by the Division of Earth Sciences at the San Bernardino County Museum (SBCM) (Kottkamp 2024). The record search report indicated that there are no fossil localities near the prior or current project. The closest localities are located approximately two to three miles west of the current project, derived from Holocene alluvial fan deposits and recent alluvial deposits of the Mojave River (Hernandez et al. 2008). The report indicates that surface collection during monitoring work "yielded a mix of unaltered Holocene bones and older permineralized bone fragments, suggesting the fossilized bone was reworked from older units" (SBCM localities 1.114.51-54). Kottkamp (2024) indicated that sedimentary deposits similar to those mapped at the prior (and current) project "have been found to be highly fossiliferous throughout San Bernardino County, yielding the remains of mastodons, mammoths, camels, horses, bison, and ground sloths, as well as microfossils including rodents."

A review of published and unpublished literature was conducted for potential paleontological resources that are known in the vicinity of the project. The sources reviewed did not indicate the presence of any known fossil localities near the project. However, in the greater Victorville area, there are many recorded Pleistocene vertebrate fossil localities (Jefferson 1986, 1991, 2009; Cox et al. 2003; Romero and Hillburn 2006; Reynolds and Reynolds 1994; and several sources by R.E. Reynolds not available for review). Most of the specimens and records recovered from these localities are held by the SBCM. All the localities from these sources are derived from the alluvium of the ancestral Mojave River as mapped by Hernandez et al. (2008) and Cox et al. (2003) and are several miles west of the project.

Project Survey

BFSA Environmental Services, a Perennial Company (BFSA) staff, under supervision of BFSA paleontological principal investigator Todd A. Wirths, conducted a site visit on October 17, 2024. The field methodology employed for the project included walking evenly spaced survey transects set approximately 15 meters apart while visually inspecting the ground surface. Ground visibility throughout the property was considered very good. The sparse vegetation found within

the property is primarily comprised of native desert sage scrub vegetation. Noted impacts to the property consisted of dirt access roads. No paleontological resources, or evidence of paleontological resources, were identified as a result of 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 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 alluvial fan deposits in the Inland Empire and Mojave Desert, 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 SVP 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.

Using these criteria, an undetermined to high potential may be applied to the project parcels. This can be justified in that, while the nearest-known fossil localities are several miles away, sedimentary deposits similar to those at the project in the southeast region of Antelope Valley have produced multiple fossils localities.

Town of Apple Valley Assessment

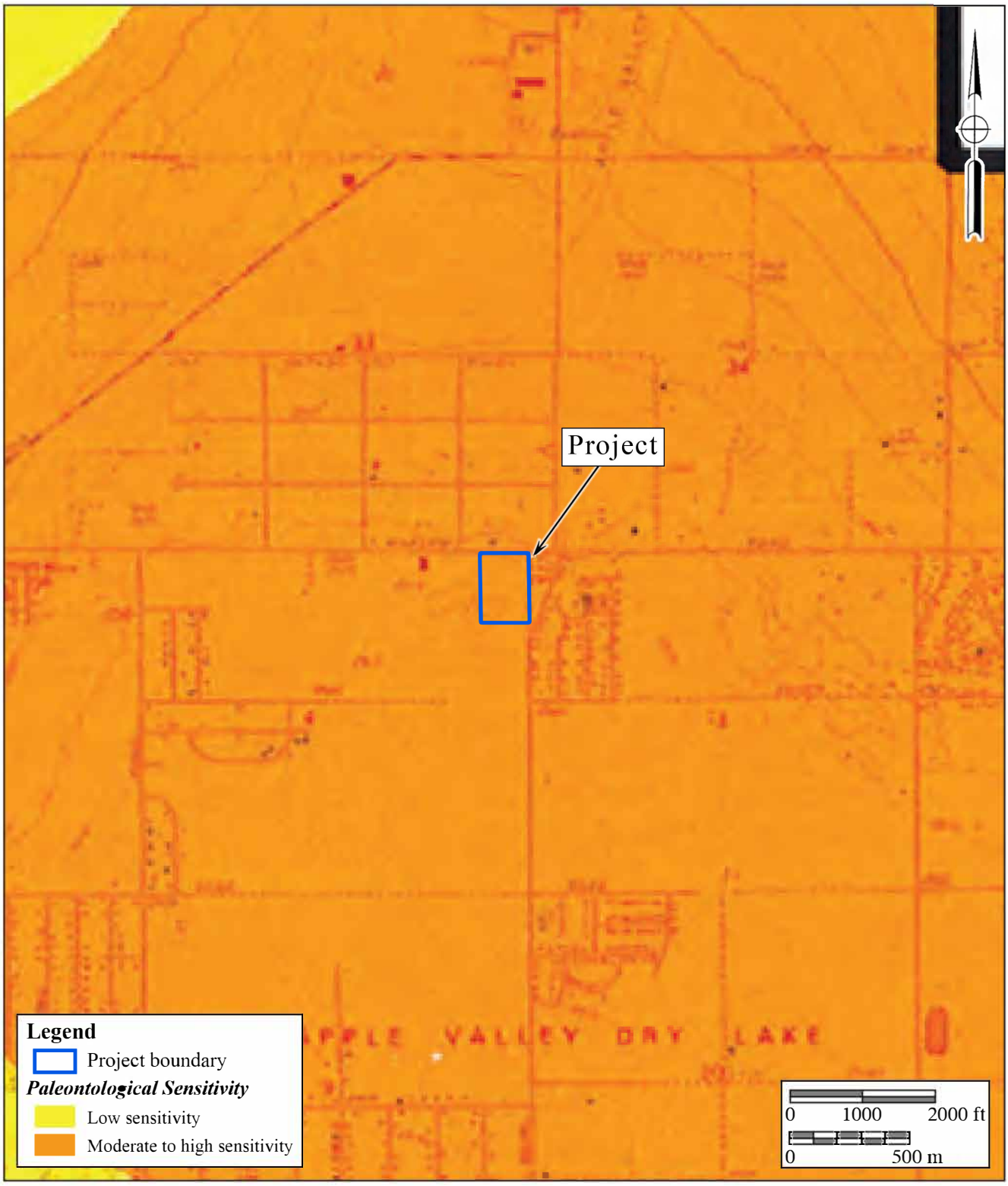
Section III of the Town of Apple Valley's EIR for the General Plan (Town of Apple Valley 2009b) describes the paleontological resources within the city. As summarized in the EIR, "the likelihood of encountering paleontological resources during future development projects within the boundaries of the planning area ranges from low to high, depending on the location and sediments encountered." Figure 4 shows the project property with the Town's delineation of paleontologically sensitive areas (Town of Apple Valley 2009b: Exhibit III-5). Areas colored yellow represent a low paleontological sensitivity, orange a moderate to high sensitivity, and red a high sensitivity (red areas are out of view in Figure 4). The areas tinted red generally correlate to surface exposures of Pleistocene deposits of the ancient Mojave River, while yellow correlates to formations with a variety of lithologies with a low to no paleontological potential, from Holocene surficial deposits to outcrops of crystalline bedrock. Orange areas appear to represent the extent of lacustrine deposits of Apple Valley Dry Lake when it was filled. As shown in Figure 4, the project property is situated within an area rated with a moderate to high paleontological sensitivity.

The Town of Apple Valley requires implementation of mitigation measures to lessen potential adverse impacts to paleontological resources that may be present at future developments, if necessary. The implementation of the mitigation measures is based on a project's position in the EIR's paleontological sensitivity map (Town of Apple Valley 2009b: III-80), and is stated below:

> Paleontological resource studies shall be required prior to development for all lands identified as having high potential for paleontological resources, as identified in Exhibit III-5. The studies shall be reviewed and approved by the Town Planning Division prior to the issuance of any ground disturbing permit. The recommendations of the studies shall be made conditions of approval of the ground disturbing permits.

Under the heading "Mitigation Monitoring/Reporting Program," it states:

> Site specific historic, pre-historic and paleontological surveys shall be prepared for new development projects in sensitive areas, and their results compiled in an inventory available only to qualified professionals. Responsible Party: Planning Division; Developer; Consulting Archaeologist/Paleontologist.



BFSA Environmental Services
A Perennial Company

Figure 4
Paleontological Sensitivity Map
The Waalew Road Truck and Trailer Facility Project

Apple Valley General Plan (2009)

VI. CONCLUSIONS AND RECOMMENDATIONS

Research has confirmed the existence of potentially fossiliferous Pleistocene-aged alluvial deposits that are present at the project. These alluvial deposits are known to produce significant terrestrial vertebrate fossils at shallow depths in the region. These conclusions support the recommendation that paleontological monitoring be implemented during mass grading and excavation activities in undisturbed alluvial deposits in order to mitigate any adverse impacts (loss or destruction) to potential nonrenewable paleontological resources. Full-time monitoring of undisturbed alluvial deposits is warranted starting at the surface at the project.

According to the Town's mitigation measures concerning paleontological resources, "The recommendations of the studies shall be made [as] conditions of approval of the ground disturbing permits." Accordingly, a Paleontological Resource Impact Mitigation Program (PRIMP) with the recommended mitigation monitoring procedures at the project is outlined below. Should the Town of Apple Valley approve this report's recommendation to monitor for paleontological resources at the project, the following PRIMP is suggested:

Suggested PRIMP

1. All mitigation programs should be performed by a qualified professional (project) paleontologist, defined as an individual with an M.S. or Ph.D. in paleontology or geology who has proven experience in San Bernardino County paleontology and who is knowledgeable in professional paleontological procedures and techniques. Fieldwork may be conducted by a qualified paleontological monitor, defined as an individual who has experience in the collection and salvage of fossil materials. The paleontological monitor shall always work under the direction of a qualified paleontologist.
2. Monitoring of mass grading and excavation activities shall be performed by a qualified paleontologist or paleontological monitor. Full-time monitoring for paleontological resources from the surface will be conducted in areas where grading, excavation, or drilling activities occur in undisturbed alluvium to mitigate any adverse impacts (loss or destruction) to potential nonrenewable paleontological resources.
3. Paleontological monitors will be equipped to salvage fossils as they are unearthed to avoid construction delays and to remove samples of sediment 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. The monitor shall notify the project paleontologist, who will then notify the concerned parties of the discovery. Monitoring may be reduced if the potentially fossiliferous units are not present in the subsurface or, if they are present, are determined upon exposure and examination by qualified paleontological personnel to have low potential to contain fossil resources.
4. 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.

5. Preparation of recovered specimens to a point of identification and permanent preservation will be conducted, including screen washing sediments to recover small vertebrates and invertebrates if indicated by the results of test sampling. Preparation of any individual vertebrate fossils is often more time consuming than preparation for accumulations of invertebrate fossils.
5. All fossils must be deposited in an accredited institution (university or museum) that maintains collections of paleontological materials. The San Bernardino County Museum in Redlands, California, is the preferred institution for fossils recovered within the County of San Bernardino. All costs of the paleontological monitoring and mitigation program, including any one-time charges by the receiving institution, are the responsibility of the developer.
6. Preparation of a final monitoring and mitigation report of findings and significance will be completed, including lists of all fossils recovered and necessary maps and graphics to accurately record their original location(s). A letter documenting receipt and acceptance of all fossil collections by the receiving institution must be included in the final report. The report, when submitted to and accepted by the appropriate lead agency (*e.g.*, the Town of Apple Valley), will signify satisfactory completion of the project program to mitigate impacts to any nonrenewable 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.

November 1, 2024

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

VIII. REFERENCES

Busby, M.W. 1975. Flood-Hazard Study--100-Year Flood Stage for Apple Valley Dry Lake, San Bernardino County, California. U.S. Geological Survey Water-Resources Investigations 11-75.

Cox, B.F., Hillhouse, J.W., and Owen, L.A. 2003. Pliocene and Pleistocene evolution of the Mojave River, and associated tectonic development of the Transverse Ranges and Mojave Desert, based on borehole stratigraphy studies and mapping of landforms and sediments near Victorville, California, *in* Enzel, Y., Wells, S.G., and Lancaster, N., eds., Paleoenvironments and Paleohydrology of the Mojave and Southern Great Basin Deserts: Boulder, Colorado, Geological Society of America Special Paper 368, p. 1–42.

Gupta, M., and Flippin, J. 2024. Report of Soil Infiltration Tests, Planned WQMP-BMP Storm Water Infiltration Retention Basins, Planned Truck and Trailer Facility, Waalew Road, Apple Valley, California, APN: 0440-014-11. Consulting report for Weka, Inc., San Bernardino, California, by Soils Southwest, Inc., Colton, California.

Hernandez, J.L., Brown, H.J., and Cox, B.F. 2008. Geologic map of the Victorville 7.5' Quadrangle, San Bernardino County, California: A Digital Database. California Department of Conservation, California Geological Survey.

Hernandez, J.L., and Tan, S.S. 2007. Geologic Map of the Apple Valley North 7.5' Quadrangle, San Bernardino County, California: A Digital Database, v. 1.0, California Department of Conservation, California Geological Survey.

Jefferson, G.T. 1986. Fossil vertebrates from the late Pleistocene sedimentary deposits in the San Bernardino and Little San Bernardino Mountains region, *in*, Kooser, M.A., and Reynolds, R.E., eds., Geology around the margins of the eastern San Bernardino Mountains. Publications of the Inland Geological Society, v. 1, Redlands, 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.

Jefferson, G.T. 2009. A catalogue of Blancan and Irvingtonian vertebrates and floras from Arizona, southern California, Nevada, Utah, and northwestern Mexico. Unpublished manuscript, Colorado Desert District Stout Research Center, Anza-Borrego Desert State Park, Borrego Springs, California. Dated March 11, 2009.

Kottkamp, S. 2024. Paleontology Records Review for proposed site of Watson Apple Valley, Apple Valley, San Bernardino County, California. Unpublished letter for BFSA Environmental Services, Poway, California, by the San Bernardino County Museum.

Reynolds, R.E., and Reynolds, R.L. 1994. The Victorville Fan and an Occurrence of *Sigmodon*. *In*, Reynolds, R.E., ed., Off Limits in the Mojave Desert: Field trip guidebook and volume for the 1994 Mojave Desert Quaternary Research Center Field Trip to Fort Irwin and surrounding areas. San Bernardino County Museum Association Special Publication 94-1, p. 31-33; Redlands, California.

Romero, D., and Hillburn, R. 2006. Come Look: Mojave River Mammoths. *In*, Reynolds, R.E., ed., Making Tracks Across the Southwest; abstract, page 78. The 2006 Desert Symposium, California State University, Desert Studies Consortium and LSA Associates, Inc.

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.

Town of Apple Valley. 2009a. 2009 General Plan. Section III: Environmental Resources.

Town of Apple Valley. 2009b. Environmental Impact Report, (SCH# 2008091077), Apple Valley General Plan and Annexations, 2008-001 & 2008-002. Prepared for the Town of Apple Valley, California, by Terra Nova Planning & Research, Inc., Palm Springs, California.

APPENDIX A

Qualifications of Key Personnel

Todd A. Wirths, MS, PG No. 7588

Senior Paleontologist

BFSA Environmental Services, A Perennial Company
14010 Poway Road • Suite A •
Phone: (858) 679-8218 • Fax: (858) 679-9896 • E-Mail: twirths@bfsa.perennialenv.com

BFSA Environmental Services
A Perennial Company

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.