

PALEONTOLOGICAL ASSESSEMENT FOR THE COMMERCIAL CENTER SHELL GAS STATION EXPRESS CAR WASH OFFICE BUILDING PROJECT

MORENO VALLEY, RIVERSIDE COUNTY

**PEN19-0040, PEN19-0041, PEN19-0042,
PEN19-0043, PEN19-0044, and PEN19-0045**

Submitted to:

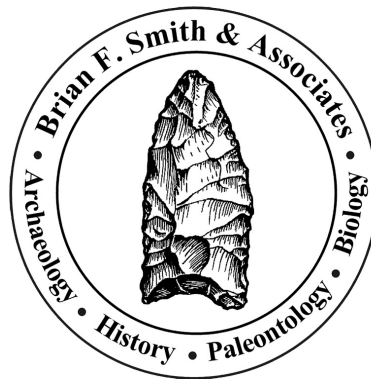
**City of Moreno Valley
Community Development Department
Planning Division
14177 Frederick Street
Moreno Valley, California 92552**

Prepared for:

**Northwest Moreno Properties, LLC
3017 Edinger Avenue
Tustin, California 92780**

Prepared by:

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



June 4, 2020

Paleontological Database Information

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Professional Geologist No. 7588
- Consulting Firm:*** Brian F. Smith and Associates, Inc.
14010 Poway Road, Suite A
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- Report Date:*** June 4, 2020
- Report Title:*** Paleontological Assessment for the Commercial Center Shell
Gas Station Express Car Wash Office Building Project, Moreno
Valley, Riverside County PEN19-0040, PEN19-0041, PEN19-
0042, PEN19-0043, PEN19-0044, and PEN19-0045)
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Moreno Valley, California 92552
- Prepared by:*** Brian F. Smith and Associates, Inc.
14010 Poway Road, Suite A
Poway, California 92064
- USGS Quadrangle:*** *Sunnymead, California (7.5 minute)*
- Study Area:*** 8.37 acres
- Key Words:*** Paleontological assessment; High to Low paleontological
resource sensitivity; Riverside County; city of Moreno Valley.

I. INTRODUCTION AND LOCATION

This paleontological assessment report has been completed for the Commercial Center Shell Gas Station Express Car Wash Office Building Project (referred to as the Commercial Center Project in this document), which is identified as Assessor’s Parcel Number 479-631-010 and is located northwest of the intersection of Alessandro Boulevard and Lasselle Street in the city of Moreno Valley, Riverside County, California (see Figures 1 and 2 in Appendix B). On the U.S. Geological Survey, 7.5-minute, 1:24,000-scale *Sunnymead, California* topographic quadrangle map, the 8.37-acre project is located in the southeast quarter of Section 8, Township 3 South, Range 3 West, San Bernardino Base and Meridian, at an elevation of approximately 1,590 feet. Proposed improvements, which will cover approximately 5.10 acres of the project, include a multi-tenant retail and restaurant building with an gas station canopy (Shell Gas Station), a multi-tenant office building, a multi-tenant retail building, a car wash facility (Express Car Wash), and associated parking and infrastructure. City of Moreno Valley planning designations attached to the project include Plot Plan PEN19-0040, PEN19-0041, PEN19-0042, PEN19-0043, PEN19-0044, and PEN19-0045.

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 March 29, 1999 (Title 1, Chapter 3, California Code of Regulations: 15000 et seq.), procedures define the type of activities, persons, and public agencies required to comply with CEQA. In the Environmental Checklist, one of the questions to answer is, “Will the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?” (Section 15023, Appendix G, Section XIV, Part a). California Public Resources Code (PRC) Section 5097.5 states:

- 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.

City of Moreno Valley

The handling of paleontological resources and applicable mitigation measures are outlined in Section 5.10 of the City of Moreno Valley’s Final Environmental Impact Report (FEIR) (City of Moreno Valley 2006). In the FEIR, “Paleontological Resource Sensitive Areas” are presented as Figure 5.10-3. All areas west of Gilman Springs Road, and therefore most of the city limits including the project property, are shown as having a “low potential” for fossil resources; however, what constitutes an area of “low potential” is not provided. The areas with a “high potential” are limited to the outcrops of the fossiliferous Mt. Eden Formation and San Timoteo Formation, which occur in the San Timoteo Badlands (*i.e.*, east of Gilman Springs Road). Since significant impacts to paleontological resources could potentially occur if the City of Moreno Valley’s General Plan is implemented, the FEIR presents mitigation measures that would reduce impacts to a level below that of significant. These measures are presented in Section VI of this report.

III. GEOLOGY

The geology mapped underlying the project and immediate area indicates that the property is underlain by lower Pleistocene (approximately 1.8 million- to perhaps 200,000- to 300,000-year-old), very old, sandy alluvial fan deposits (areas labeled “Qvof_a” and shown in brown on Figure 3 in Appendix B [after Morton and Matti 2001]). These sedimentary deposits are described as:

... mostly well dissected, well-indurated, reddish-brown sand deposits. Commonly contains duripans and locally silcretes. Forms widespread deposits north and south of Moreno Valley, flanking bedrock areas. Deposits on older erosion surfaces lack diagnostic features, and may or may not be alluvial fan deposits. (Morton and Matti 2001)

Crystalline bedrock of Cretaceous-aged tonalite (“Kt” in pink on Figure 3 in Appendix B) underlie the very old, sandy, alluvial fan deposits at the project, outcrops of which are mapped at the extreme northeast corner of the project and to the east across Lasselle Street.

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, above).

Fossil Records Search

Based upon a paleontological literature review and a collections and records search conducted by the Geological Sciences Division of the San Bernardino County Museum in Redlands, California for the nearby Moreno Valley Logistics Center Project, older Pleistocene alluvial fan deposits (“Qvof_a” on Figure 3 in Appendix B) have a high potential to contain significant nonrenewable paleontological resources (*i.e.*, fossils) and were assigned a “high paleontological resource sensitivity” (see Scott 2015 in Appendix C). Similar older Pleistocene sediments throughout the lowland (valley) areas of western Riverside County and the Inland Empire have been reported to yield significant fossils of extinct terrestrial mammals from the last Ice Age (see references in Scott 2015), such as mammoths, mastodons, giant ground sloths, dire wolves, short-faced bears, saber-toothed cats, large and small horses, camels, and bison.

A collections and records search report solicited from the Vertebrate Paleontology Section of the Natural History Museum of Los Angeles County (LACM) for the Brodiaea Avenue and Heacock Street Warehouse Project also did not identify any known fossil localities within the boundaries of the proposed project, nor within at least one mile in any direction (see McLeod 2017 in Appendix C). The closest recorded fossil locality cited by McLeod (2017) is LACM loc. 4540, which yielded late Pleistocene fossil horse remains (*Equus* sp.) from a location more than eight miles distant to the east of the current project, near or in the San Timoteo Badlands, east of the city of Moreno Valley (Jefferson 2009).

A fossil records search for the Canyon Steele Industrial Building Project, which is 4.75 miles south of the subject property in the city of Perris, was performed by the Western Science Center (WSC) in Hemet, California, as part of a paleontological assessment conducted by CRM Tech (Radford 2018). Radford (2018) indicates that the closest WSC fossil localities to the Canyon Steele Industrial Building Project are from the Aldi Distribution Center site, which is located southwest of Highway 60 and Redlands Boulevard in Moreno Valley, approximately three and a half miles east-northeast of the Commercial Center Project. These localities include WSC locs. 192, 193, and 194, all of late Pleistocene age, which consist of the remains of a horse (*Equus* sp.), a giant ground sloth (*Megalonyx jeffersonii*), and a llama (*Hemiauchenia* sp.),

animals that became extinct in North America at or soon after the end of the Pleistocene epoch, about 11,700 years ago (Darla Radford, personal communication 2020). The depths of the fossils ranged from approximately 11 to 13 feet below the surface. On the geologic map of Morton and Matti (2001), these fossil localities are situated in an area mapped as Quaternary (Holocene and late Pleistocene), sandy, gravely, young alluvial fan deposits (“Qyf”) at the surface, which suggests deposits of late Pleistocene age and older (greater than 11,700 years) are present beginning at a depth of less than 11 feet below the surface.

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 the accumulation of organic remains that might have become fossilized over time. Latest Quaternary (Holocene, or “modern”) 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. Older Pleistocene (greater than 11,700-year-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 (Scott 2015). These Pleistocene sediments are therefore accorded a high paleontological resource sensitivity.

Professional Standard

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.

Riverside County Assessment

A “paleontological sensitivity map” generated by the Riverside County Transportation and Land Management Agency in June 2020 (see Figure 4 in Appendix B) ranks the entire project area as having a High Paleontological Potential/Sensitivity (High B), which is:

[E]quivalent 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 2020)

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. Alluvial valley sediments and very old alluvial fan sediments with a High Potential/Sensitivity (High B) to yield nonrenewable paleontological resources (*i.e.*, fossils) are shown in amber tint on Figure 4 (Appendix B). The outcrop of tonalite east of the project is roughly indicated with a green tint and is assigned a “Low” sensitivity. Fossils are not found in plutonic rocks such as tonalite.

City of Moreno Valley Assessment

The City of Moreno Valley General Plan acknowledges that significant impacts to paleontological resources could potentially occur (City of Moreno Valley 2006). As a result, Mitigation Measure C1 (City of Moreno Valley 2006:5.10-15; see Section VI, below) is provided to reduce potential impacts to fossil resources (including historic and prehistoric archeological sites) to a level below significant during earth disturbance activities. However, the FEIR’s statement addressing potential impacts to paleontological resources is not entirely clear as to whether the mitigation measures are stipulated exclusively for the fossiliferous, geologic formations that occur in the badlands areas at the far eastern extent of the city limits (specifically, the Mt. Eden Formation and San Timoteo Formation), or for the greater Moreno Valley area. In addition, the FEIR seems to state that the Mt. Eden Formation and San Timoteo

Formation underlie the alluvium found across much of the city, when it is most likely granitic rocks, such as the outcrop of tonalite adjacent to the project, that comprise the bedrock formation. Furthermore, the FEIR assumes the age of the surficial alluvial deposits is “recent,” which is incorrect (see Section III, above).

VI. RECOMMENDATIONS

The existence of potentially fossiliferous Quaternary very old alluvial fan deposits mapped across the project (Qvof_a on Figure 3 in Appendix B); the known occurrence of terrestrial vertebrate fossils at relatively shallow depths from Quaternary older alluvial fan sediments across the Inland Empire of western Riverside County; and the High Paleontological Potential/Sensitivity (High B) typically assigned to Quaternary older alluvial fan sediments all support the recommendation that paleontological monitoring be required during mass grading, trenching, and excavation activities in undisturbed, Quaternary, older alluvial fan sediments in order to mitigate any adverse impacts (loss or destruction) to potential nonrenewable paleontological resources. Monitoring is recommended on a full-time basis for excavations exceeding five feet in depth in undisturbed deposits at the Commercial Center Project. Mitigation Measure C1 listed in the City of Moreno Valley’s FEIR (City of Moreno Valley 2006:5.10-16) is presented below.

- C1.** Prior to the approval of a project, the City will assess potential impacts to significant historic, prehistoric archaeological, and paleontological [*sic*] resources, including impacts to human remains, pursuant to Section 15064.5 of the California Environmental Quality Act Guidelines. If significant impacts are identified, the City will require the project to be modified to avoid the impacts, or require measures to mitigate the impacts. Mitigation may involve monitoring, resource recovery, documentation or other measures.

Should the City of Moreno Valley Planning Division identify a potential for impacts to paleontological resources at a level above significant at the project, a proposed Mitigation Monitoring and Reporting Program (MMRP) is proposed below. When implemented with the provisions of CEQA, Scott (2015), the City of Moreno Valley (2006), and the Society of Vertebrate Paleontology (2010), this proposed MMRP would mitigate any adverse impacts (loss or destruction) to potential nonrenewable paleontological resources (fossils), if present, to a level below significant. The proposed MMRP is as follows:

- 1) Monitoring of mass grading and excavation activities in areas identified as likely to contain paleontological resources by a qualified paleontologist or paleontological monitor. Full-time monitoring will be conducted in areas of grading or excavation in

- undisturbed, very old alluvial fan sediments (Qvof_a on Figure 3 in Appendix B), starting at a depth of five feet below the surface. 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. Monitoring may be reduced if the potentially fossiliferous units are not present in the subsurface, or if present, are determined upon exposure and examination by qualified paleontological personnel to have a low potential to contain or yield fossil resources.
- 2) 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, and the site is photographed before it is vacated and the fossils are removed to a safe place. On mass grading projects, any discovered fossil site is protected by red flagging to prevent it 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 Global Positioning System units. If the site involves 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, Brian F. Smith and Associates, Inc. (BFSA) will send a fossil recovery crew in to excavate around the find, encase the find within a plaster jacket, and remove it after the plaster is set. For large fossils, use of the contractor's construction equipment is solicited to help remove the jacket to a safe location before it is returned to the BFSA laboratory facility for preparation.
 - 3) 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).
 - 4) Preparation of recovered specimens to a point of identification and permanent

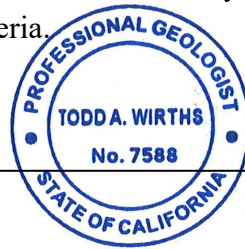
- preservation, including screen washing sediments to recover small invertebrates and vertebrates, if necessary. Preparation of individual vertebrate fossils is often more time-consuming than for accumulations of invertebrate fossils.
- 5) Identification and curation of specimens into a professional, 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.
 - 6) 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. The report, when submitted to the appropriate lead agency (City of Moreno Valley), will signify satisfactory completion of the project program to mitigate impacts to any paleontological resources.
 - 7) Decisions regarding the intensity of the MMRP will be made by the project paleontologist based upon the significance of the paleontological resources and their biostratigraphic, biochronologic, paleoecologic, taphonomic, and taxonomic attributes, not upon the ability of a project proponent to fund the MMRP.

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 4, 2020

Date

VIII. REFERENCES

- City of Moreno Valley. 2006. Final Environmental Impact Report, City of Moreno Valley General Plan, Volume I, July 2006, SCH# 200091075. http://www.moreno-valley.ca.us/city_hall/general-plan/06gpfinal/ieir/eir-tot.pdf.
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- Jefferson, G.T. 2009. [A] Catalogue of late Quaternary vertebrates from California. Unpublished draft manuscript, 1991, revised 11 March 2009; Natural History Museum of Los Angeles County.
- McLeod, S.A. 2017. Paleontological resources records search for the proposed Brodiaea Avenue & Heacock Street Warehouse project, BFS A Project #17-166, in Moreno Valley, Riverside County, project area. Unpublished report prepared for Brian F. Smith and Associates, Inc., Poway, by the Section of Vertebrate Paleontology, Natural History Museum of Los Angeles County, Los Angeles (attached).
- Morton, D.M. and Matti, J.C. 2001. Geologic Map of the Sunnymead 7.5' quadrangle, Riverside County, California: U.S. Geological Survey Open-File Report 01-450, scale 1:24,000.
- Radford, D. 2018. Untitled letter of fossil record search results for the Canyon Steele Industrial Building Project, *in* Appendix 2 of Quinn, H.M., and Richards, M.D., 2018, Paleontological Resources Assessment, Canyon Steele Industrial Building Project, City of Perris, Riverside County, California. Unpublished consulting report prepared for Carter Group Architects, Inc., San Clemente, California, by CRM Tech, Colton, California.
- Scott, E.G. 2015. Paleontology literature and records review, Moreno Valley Logistics Center, City of Moreno Valley, Riverside County, California. Unpublished report prepared for Brian F. Smith and Associates, Poway, by the Division of Geological Sciences, San Bernardino County Museum, Redlands (attached).
- 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

Senior Paleontologist

Brian F. Smith and Associates, Inc.
14010 Poway Road • Suite A •
Phone: (858) 679-8218 • Fax: (858) 679-9896 • E-Mail: twirths@bfsa-ca.com



Education

Master of Science, Geological Sciences, San Diego State University, California	1995
Bachelor of Arts, Earth Sciences, University of California, Santa Cruz	1993
Associate of Arts, Geological Sciences, Santa Barbara City College	1992

Professional Certifications

Professional Geologist, California (#7588), 2003
Riverside County Approved Paleontologist
San Diego County Qualified Paleontologist
Orange County Certified Paleontologist (applied, 2019)
OSHA HAZWOPER 40-hour trained; current 8-hour annual refresher

Professional Memberships

Board member, San Diego Geological Society
San Diego Association of Geologists (President, 2012; Vice President, 2011)
South Coast Geological Society

Publications

Picacho and the Cargo Muchachos: Guns, Gold, and Geology of Eastern Imperial County, California:
San Diego Associations of Geologists/Sunbelt Publications, 2012 (1st ed.), 2014 (2nd ed.).
"Picacho, the Golden Road," *Dezert Magazine*, Winter, 2013.

Experience

Senior Paleontologist

Brian F. Smith and Associates, Inc.

October 2012–Present
Poway, California

Mr. Wirths serves as the director of the paleontology department at BFSa. Mr. Wirths oversees all phases of project-related paleontology, including management of field and junior staff, planning, organizing, and implementing monitoring projects, research, report drafting, regulatory compliance, and laboratory oversight. Mr. Wirths directs or performs resource mitigation monitoring of construction sites, fossil salvage activities, paleontological field surveys and assessments, laboratory fossil preparation and curation. He has drafted dozens of technical reports, including paleontological assessments, site reports, and paleontological resource impact mitigation program (PRIMP) reports. Mr. Wirths created and implemented BFSa-specific fossil-recovery data sheets for field use by monitoring staff. The field

experience of Mr. Wirths includes the use of Trimble GPS data recording, burlap and plaster techniques, collection of microfossils, and wet and dry-screening techniques. Mr. Wirths provides expert identification of fossil marine invertebrates.

**Lead Geological/Paleontological Consultant
Cogstone Resource Management**

**November 2011–February 2009
San Diego and Orange, California**

Mr. Wirths conducted on-site paleontological monitoring, drafted/evaluated RFP responses, work plans, and reports; planned, organized, and implemented projects, and trained and supervised junior staff. Field localities include projects in Calaveras, Merced, Tulare, San Joaquin, Kern, San Bernardino, Los Angeles, and Riverside Counties. At the Highway 99 Caltrans expansion project near Merced, Mr. Wirths recovered dozens of Rancholabrean-age vertebrate fossils using plaster and burlap casting techniques.

**Paleontological/Geological Monitor
San Diego Natural History Museum**

**February 2011–November 2011
San Diego, California**

Oversaw construction and development sites for fossil resources and logged and interpreted geology during drilling and trenching activities/recovery of fossils. Monitoring projects include the SDG&E Sunrise Powerlink, several SDG&E Wood to Steel projects, San Diego City College expansion, The Bishops School, and the Prebys Cardiovascular Institute.

**Project Manager/Geologist
Wirths Consulting**

**March 2010–February 2011
San Diego, California**

Provided environmental consulting services for Apex Companies, H.M. Pitt Labs, Ninyo & Moore, and TRC Solutions, providing project management, reporting, and certified professional field oversight, designing/budgeting an *in situ* chemical oxidation project, and obtaining a City of San Diego business license.

**Senior Project Manager
ETIC Engineering, Inc.**

**April 2007–August 2009
Santa Diego, California**

Operated as senior project manager for 10 ExxonMobil retail sites, designed and implemented assessment and remediation projects (including project forecasting/budgeting, managing subcontractors, and composing work plans), composed work plans, assessment reports, and corrective action plans, and managed/mentored staff-level associates.

**Project Manager
TRC Solution, Inc./TRC Alton Geoscience**

**January 2000–April 2007
San Diego and Imperial Counties, California**

Operated as project manager for various projects throughout San Diego County, including ExxonMobil Oil Corporation and Unocal Corporation remediation activities, BNSF Railway Company groundwater assessment and remediation, and Ultramar/Valero, Inc., which involved supervising/managing on-site personnel, collecting/managing soils, groundwater, and wood samples, writing reports, and conducting remediation feasibility testing and remedial planning.

**Staff Geologist
IT Corp./Pacific Environmental Group**

**May 1997–September 2000
San Diego, Orange, and Los Angeles Counties, California**

Tracked progress of excavation and delineation of impact, sampled/managed soil, and conducted drilling and groundwater monitoring/well installation activities.

Selected Technical Reports

Glover, Amy, Todd **Wirths**, and Sherri Gust

2012 *Paleontological assessment for the Paradise Creek Housing Development, National City, San Diego County, California.* Prepared for The Related Companies of California, Irvine, CA, by Cogstone Resource Mgt., Inc.

Gust, Sherri, Kim Scott, and Todd **Wirths**

2012 *Paleontological resources assessment for the WECC Path 42 Project in Riverside County, California.* Prepared for Southern California Edison, Monrovia, CA, by Cogstone Resource Mgt., Inc.

Horne, Melinda, Todd **Wirths**, and Amy Glover

2012 *Paleontological and cultural resources assessment for the town of Yucca Valley General Plan update, San Bernardino County, California.* Prepared for The Planning Center – DC&E, Santa Ana, CA, by Cogstone Resource Mgt., Inc.

Wirths, Todd A., and Sherri Gust

2012 *Paleontological resources assessment for the Truckhaven geothermal expansion project, Imperial County, California.* Prepared for NGP Truckhaven, LLC, Reno, NV, by Cogstone Resource Mgt., Inc.

Kennedy, George L., and Todd A. **Wirths**

2013 *Paleontological Monitoring Report, Aztec Court Apartments, 6237 Montezuma Road, San Diego, San Diego County, California.* Prepared for Warmington Residential California, Inc., Southern California Division. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2013 *Paleontological Monitoring Report, Citywide Sewer Pump Station Upgrades, Group II, Pump Station 60A, Scripps Ranch neighborhood, City of San Diego, San Diego County, California (PTS No. 31233 and WBS No. S-00304).* Prepared for Ortiz Corporation General Engineering Contractors. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2013 *Paleontological Resource Impact Mitigation Program (PRIMP), Rancho Paseo de Valencia, City of Corona and unincorporated Riverside County, California (Tentative Tract Map 34760; APNs 114-040-019, 114-040-020, 275-100-003, and 275-100-004).* Prepared for Rancho Paseo de Valencia. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2013 *Paleontological monitoring report, Casa Aldea Phase II, University City Village Apartments, 6112, 6122, and 6132 Gullstrand Street, University City, San Diego, San Diego County (LDR No. 98-0408, PTS No. 303550).* Prepared for Wise River Builders, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2013 *Paleontological Resource Assessment, Ballpark Village Development, East Village, San Diego, San Diego County, California.* Prepared for Ballpark Village, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2013 *An Updated Phase I Paleontological Resources Assessment for Tentative Tract Maps 36484 and 36485, Audie Murphy Ranch, City of Menifee, County of Riverside, California.* Prepared for Brookfield Residential. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2013 *Paleontological Resource Impact Mitigation Program (PRIMP), Ridge Park project, city of Temecula, Riverside County, California (APNs 922-210-049; 940-310-013, 940-310-015, and 940-310-016; 940-310-044 through 940-310-048; and 940-320-001 through 940-320-007).* Prepared for Ambient Communities. Report on file at Brian F. Smith and Associates, Inc., Poway, CA.

Kennedy, George L., and Todd A. **Wirths**

2014 *Paleontological Monitoring Report, Chino Desalter Phase III Expansion Project, 11301 Harrel Street, City of Jurupa Valley, Riverside County, California.* Prepared for W.M. Lyles Co. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2014 *Paleontological resource and monitoring assessment, proposed Avanti North housing development, Lancaster, Los Angeles County, California (Tentative Tract Map No. 53229).* Prepared for Avanti North, LP. Report on file at Brian F. Smith and Associates, Inc., Poway, CA.

Kennedy, George L., and Todd A. **Wirths**

2014 *Paleontological monitoring report for the Montezuma Trunk Sewer project, College and Mid-Cities Community Plan Areas, San Diego, San Diego County, California (Project No. 240104).* Prepared for Ortiz Corporation General Engineering Contractors. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2014 *Paleontological resource impact assessment for the Lake Ranch project site, unincorporated Riverside County, California (APNs 270-060-010, 270-160-001, 270-170-010, 270-170-011, and 270-180-010; TR 36730).* Prepared for Christopher Development Group. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2014 *Paleontological Resource Impact Mitigation Program (PRIMP) for the Menifee Heights Development, City of Menifee, Riverside County, California (Tract No. 32277).* Prepared for CV Communities, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2014 *Paleontological Resource Assessment, Shoshone Valley Road solar array project, Twentynine Palms, San Bernardino County, California (APNs 613-233-01, -02, -03, -04, -27, -28, -29, and -30).* Prepared for Ecos Energy, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, CA.

Kennedy, George L., and Todd A. **Wirths**

2014 *Paleontological Resource Assessment, Utah Trail solar array project, Twentynine Palms, San Bernardino County, California (APNs 621-281-22 through 621-281-25).* Prepared for Ecos Energy, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2014 *Paleontological Monitoring Report, San Diego Community College District, César Chávez Campus, Barrio Logan, San Diego, California.* Prepared for San Diego Community College District. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2014 *Paleontological Monitoring Report, Sewer and Water Group 761, Uptown Community Plan Area, San Diego, San Diego County, California.* Prepared for Burtech Pipeline. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2014 *Paleontological Resource Impact Mitigation Program (PRIMP) for the Blessed Teresa of Calcutta Catholic Parish project site, French Valley, unincorporated Riverside County, California (APN 480-040-044; Project No. PP24903).* Prepared for Blessed Teresa of Calcutta Catholic Parish, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2014 *Paleontological Resource Impact Mitigation Program (PRIMP), Salton City Landfill Expansion Project, unincorporated Imperial County, California (SCH No. 2010071072).* Prepared for Burrtec Waste Industries, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2014 *Paleontological Resource Impact Mitigation Program (PRIMP) for the Yates Road housing development site, Tract Map TR 36437, northeast of Murrieta, unincorporated Riverside County, California (APNs 467-390-001 through 467-390-016).* Prepared for CV Communities, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2014 *Paleontological Monitoring Report, Construction of the Park and G Project, East Village, Downtown San Diego, San Diego County, California.* Prepared for Oliver McMillan. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2014 *Paleontological Monitoring Report, Construction of Pinnacle 15th & Island Project, East Village, Downtown San Diego, San Diego County, California.* Prepared for Pinnacle International Development, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., N. Scott Rugh, and Todd A. **Wirths**

2012 *Paleontological Monitoring Report, Construction of 13th & Market Project, East Village, Downtown San Diego, San Diego County, California.* Prepared for The Hanover Company. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., N. Scott Rugh, and Todd A. **Wirths**

2013 *Paleontological Monitoring Report, Ariel Suites, Little Italy, City of San Diego, San Diego County, California.* Prepared for Ariel Suites, LP. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., N. Scott Rugh, and Todd A. **Wirths**

2013 *Paleontological Monitoring Report, Village Lindo Paseo Dormitories, SDSU College Area, City of San Diego, San Diego County, California.* Prepared for Village Lindo Paseo, L.P. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., N. Scott Rugh, and Todd A. **Wirths**

2013 *Paleontological Monitoring Report, Grit Processing Improvements Project, Point Loma Wastewater Treatment Plant, San Diego, San Diego County, California (Sewer WO No. 176001; WBS No. S-00315)*. Prepared for Archer Western Contractors. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., N. Scott Rugh, and Todd A. **Wirths**

2013 *Paleontological Monitoring Report, Harbor Drive Trunk Sewer, City of San Diego, San Diego County, California (Project No. 38789)*. Prepared for Burtech Pipeline. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., Todd A. **Wirths**, and Brian F. Smith

2013 *Paleontological and Archaeological Monitoring and Mitigation Report, Lake Forest Sports Park, City of Lake Forest, Orange County, California*. Prepared for Road Builders, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2013 *Negative Paleontological Monitoring and Mitigation Report, San Clemente Senior Housing Project, 2350 South El Camino Real, City of San Clemente, Orange County, California (CUP No. 06-065; APN 060-032-04)*. Prepared for Primus Building Solutions. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Wirths, Todd A., and George L. Kennedy

2014 *Paleontological Monitoring Report, Sewer Main Replacement Group Job 685 (Part of Sewer and Water Group Job 685 (Part of Sewer and Water Group 3014), City Heights Neighborhood of the City of San Diego, San Diego County, California (Project No. 131446; Sewer WBS No. B-00333)*. Prepared for Ortiz Corporation General Engineering Contractors. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Wirths, Todd A., and George L. Kennedy

2015 *Paleontological Monitoring Report, 951 South Beach Boulevard Project, La Habra, Orange County, California (MND No. 14-01)*. Prepared for Fairfield 951 Beach, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2015 *Paleontological Monitoring Report, Casa Aldea Lots 4 & 6, Fairbanks Ranch-Santaluz Area, Northern San Diego, California*. Prepared for Wise River Builders, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2015 *Paleontological Monitoring Report, Pendry Hotel San Diego, Gaslamp Quarter, Downtown San Diego, California*. Prepared for The Robert Green Company. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Wirths, Todd A., and George L. Kennedy

2016 *Paleontological Monitoring Report, The Rey Project, 840 B Street, Downtown San Diego, San Diego County, California*. Prepared for Blue/WP San Diego, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2016 *Paleontological Monitoring Report, Atmosphere Affordable Housing Project, 1453 Fourth Avenue, Downtown San Diego, San Diego County, California.* Prepared for Wakeland Housing & Development Corp. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Wirths, Todd A., and George L. Kennedy

2017 *Paleontological Monitoring Report, Ballpark Village, Lower East Village, Downtown San Diego, California.* Prepared for Ballpark Village, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Wirths, Todd A., and George L. Kennedy

2017 *Paleontological Monitoring Report, 460 16th Street, East Village, Downtown San Diego, San Diego County, California.* Prepared for Lennar Multifamily Communities, LLC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Wirths, Todd A., and George L. Kennedy

2017 *Paleontological Resource Impact Mitigation Program (PRIMP) for the La Habra North Project, La Habra, Orange County, California (Tract Map 17809).* Prepared for City Ventures. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2017 *Paleontological Monitoring Report, Imagine Coachella project at the Jordan Christian Academy, West of Coachella in Unincorporated Riverside County, California.* Prepared for M-13 Construction, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., and Todd A. **Wirths**

2017 *Paleontological Monitoring Report, Kettner and Ash Condominiums Project, Columbia District of Downtown San Diego, San Diego County, California.* Prepared for Bosa Development California, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., Todd A. **Wirths**, and N. Scott Rugh

2018 *Paleontological Monitoring Report, Manning Canyon Sewer and Water Replacement Project, Linda Vista, City of San Diego, San Diego County, California.* Prepared for Red Tail Monitoring & Research, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., Todd A. **Wirths**, and N. Scott Rugh

2018 *Paleontological Monitoring Report, Westfield University Towne Center Expansion Project, Phase 2A, La Jolla Village Drive, San Diego, San Diego County, California.* Prepared for Westfield UTC. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Wirths, Todd A., and George L. Kennedy

2018 *Negative Paleontological Monitoring Report, Verizon Capistrano Depot Project, 32400 Paseo Adelanto, San Juan Capistrano, Orange County, California (CUP No. 16-003; APN 668-10-023).* Prepared for Trileaf Environmental and Property Consultants. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

Kennedy, George L., Todd A. **Wirths**, and N. Scott Rugh

2019 *Paleontological Monitoring Report, Saint Demiana Coptic Orthodox Church, Santaluz-Torrey Highlands Neighborhood, San Diego, San Diego County, California.* Prepared for Barnhart-Reese Construction, Inc. Report on file at Brian F. Smith and Associates, Inc., Poway, California.

APPENDIX B

Project Maps

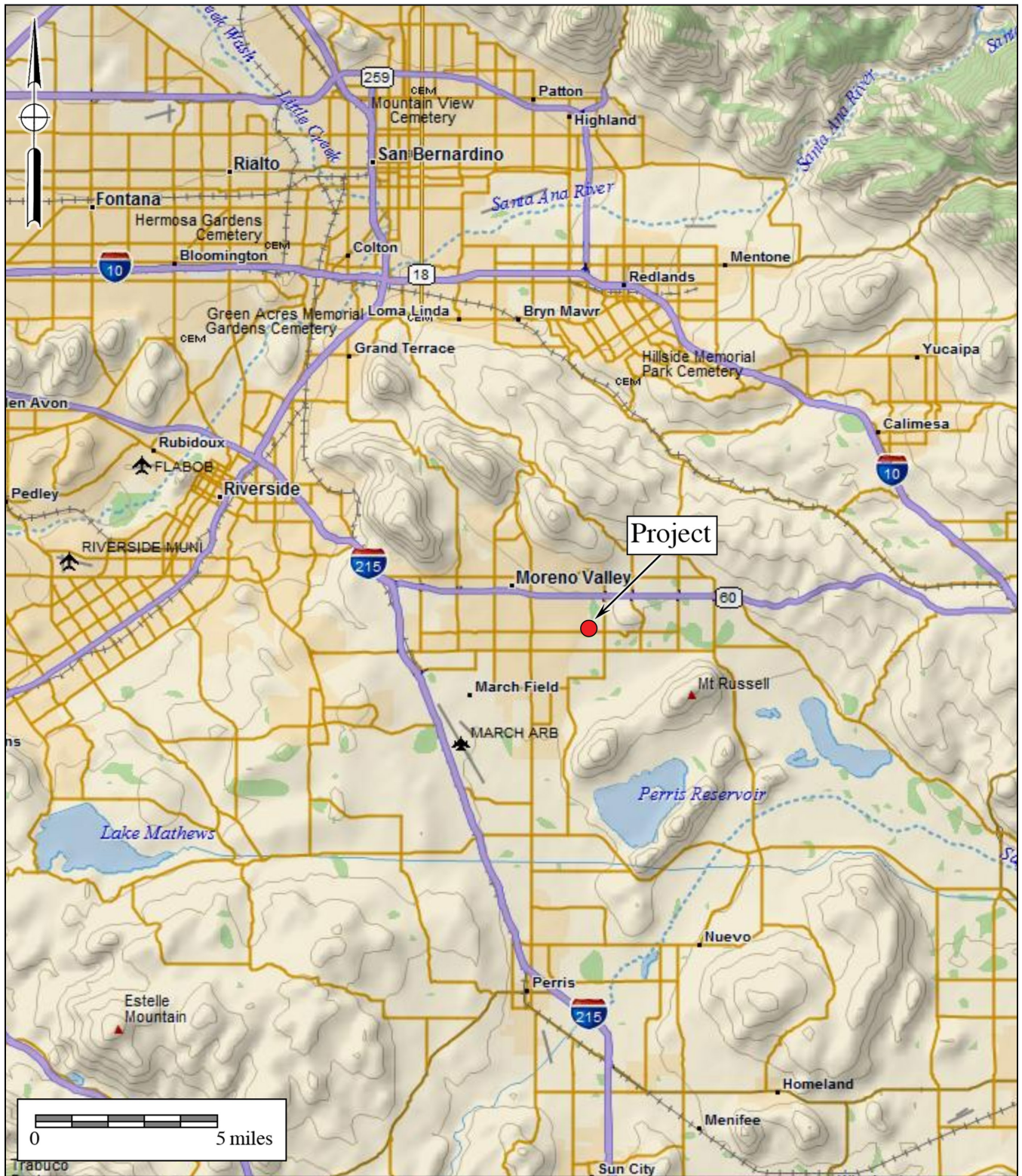


Figure 1

General Location Map

The Commercial Center Shell Gas Station Express Car Wash Office Building Project

DeLorme (1:250,000)



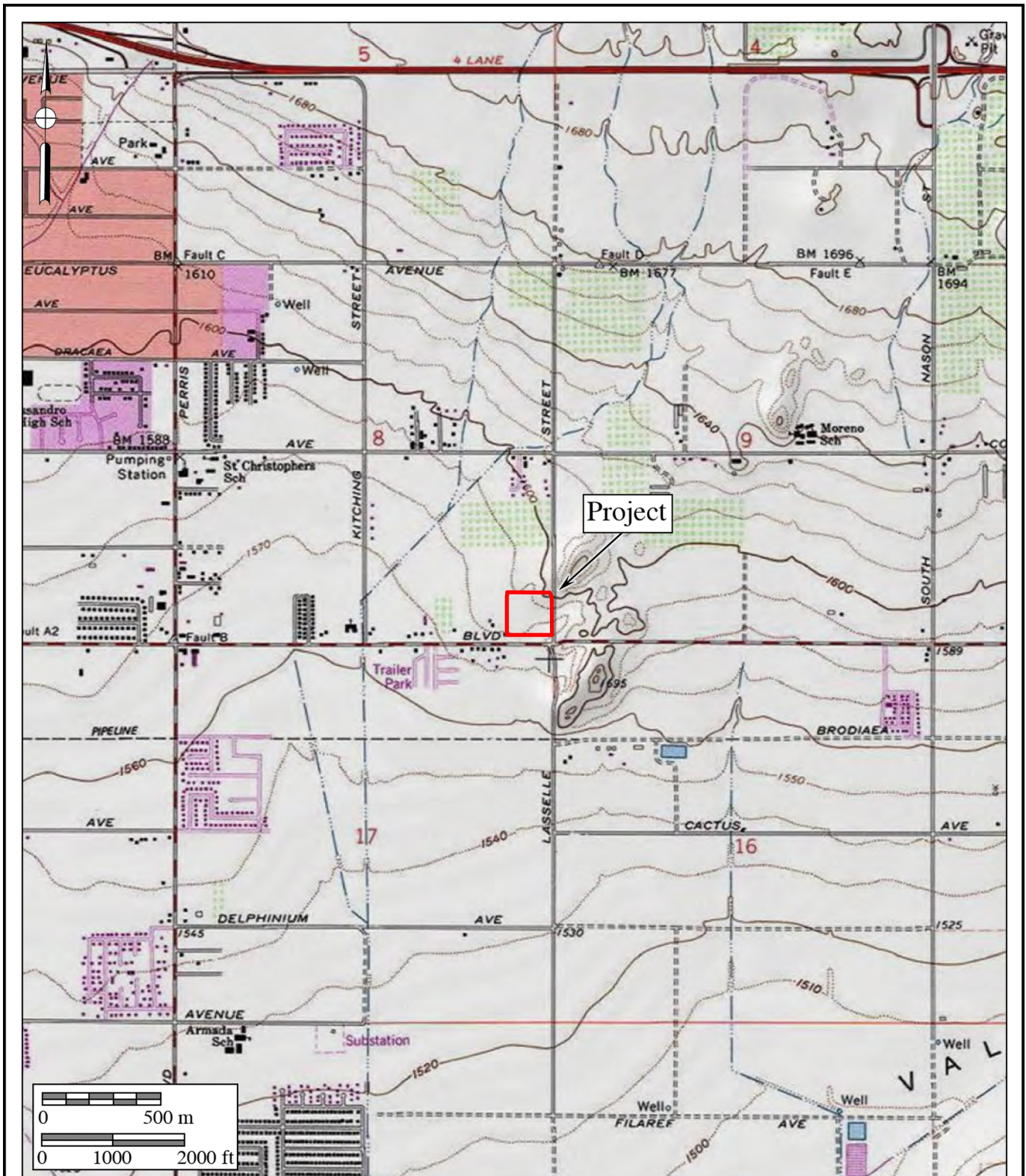


Figure 2
Project Location Map

The Commercial Center Shell Gas Station Express Car Wash Office Building Project

USGS Sunnymead Quadrangle (7.5-minute series)



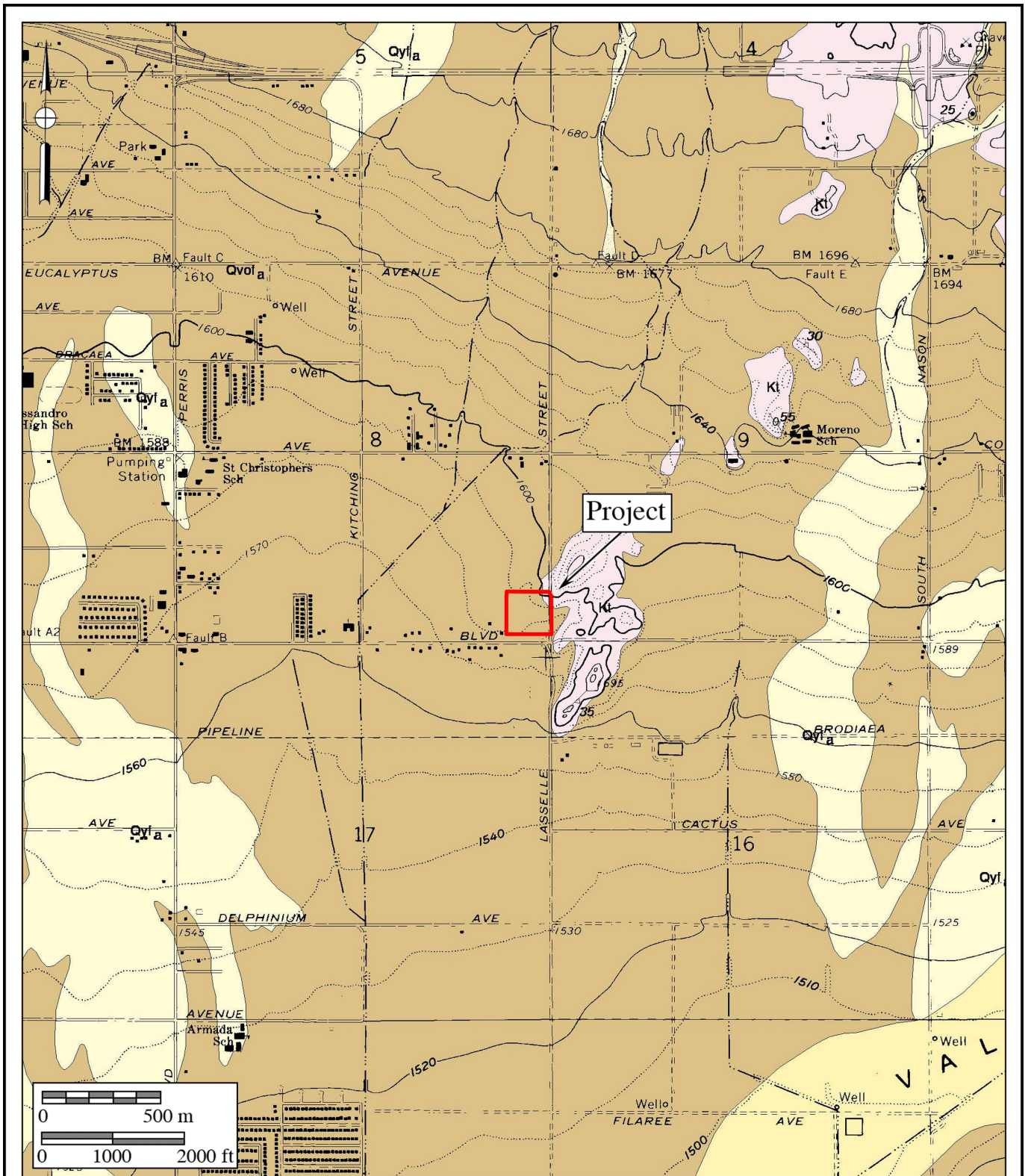


Figure 3
Geologic Map

The Commercial Center Shell Gas Station Express Car Wash Office Building Project

Geology after Morton and Matti (2001)



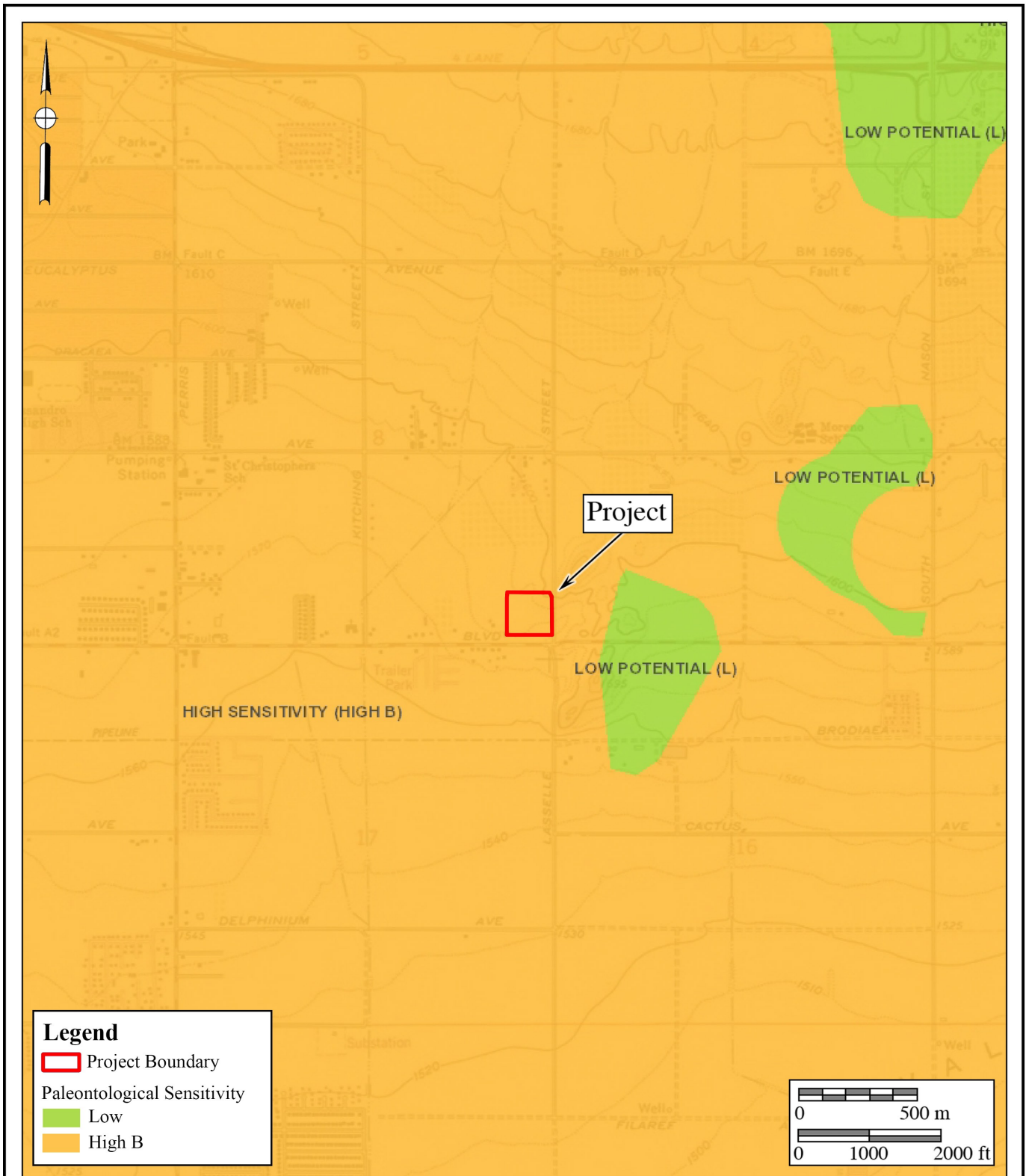


Figure 4

Paleontological Sensitivity Map

The Commercial Center Shell Gas Station Express Car Wash Office Building Project

After Riverside County Land Information System



APPENDIX C

Paleontological Records Search Results



Museum

Leonard X. Hernandez
Interim Museum Director

12 March 2015

Brian F. Smith and Associates
attn: George L. Kennedy, Ph.D., Senior Paleontologist
14010 Poway Road, Suite A
Poway, CA 92064

re: **PALEONTOLOGY LITERATURE AND RECORDS REVIEW, MORENO VALLEY LOGISTICS CENTER, CITY OF MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA**

Dear Dr. Kennedy,

The Division of Geological Sciences of the San Bernardino County Museum (SBCM) has completed a literature review and records search for the above-named project in the City of Moreno Valley, Riverside County, California. Specifically, the proposed study area is located in the southwestern quadrant of section 30, Township 3 South, Range 3 West, San Bernardino Base and Meridian, as seen on the Perris, California and the Sunnymead, California 7.5' United States Geological Survey topographic quadrangle maps (1967 editions, photorevised 1973 and 1980, respectively).

Previous mapping of the proposed property (Rogers, 1965; Morton and Matti, 2001; Morton, 2003) indicates that the study area is situated entirely upon surface exposures of early Pleistocene alluvial fan deposits (= unit **Qvof_a**). These Pleistocene fan deposits may have high paleontologic sensitivity, depending upon their lithology. Pleistocene alluvium elsewhere throughout Riverside County and the Inland Empire has repeatedly been reported to yield significant fossils of extinct animals from the Ice Age (Jefferson, 1991; Reynolds, 1991; Anderson and others, 2002; Scott and Cox, 2008; Springer and others, 2009, 2010; Scott, 2010). Fossils recovered from these Pleistocene sediments represent extinct taxa including mammoths, mastodons, ground sloths, dire wolves, sabre-toothed cats, large and small horses, large and small camels, and bison (Jefferson, 1991; Reynolds, 1991; Scott and Cox, 2008; Springer and others, 2009, 2010; Scott, 2010), as well as plant macro- and microfossils (Anderson and others, 2002). If not previously disturbed by development, and depending upon the lithology exhibited, these sediments have high potential to contain significant nonrenewable paleontologic resources.

For this review, I conducted a search of the Regional Paleontologic Locality Inventory (RPLI) at the SBCM. The results of this search indicate that no previously-recorded fossil resource

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localities from Pleistocene older alluvium are present within the boundaries of the proposed development property, nor from at least within one mile in any direction.

Recommendations

The results of the literature review and the search of the RPLI at the SBCM demonstrate that the proposed study area is situated upon Pleistocene older alluvial deposits that, if not previously disturbed by development and depending upon their lithology, have high potential to contain paleontologic resources. Excavation in this older alluvium therefore has high potential to impact paleontologic resources. A qualified vertebrate paleontologist must develop a program to mitigate impacts to nonrenewable paleontologic resources. This mitigation program must be consistent with the provisions of the California Environmental Quality Act (Scott and Springer, 2003), as well as with regulations currently implemented by the County of Riverside. This program should include, but not be limited to:

1. Monitoring of excavation in areas identified as likely to contain paleontologic resources by a qualified paleontologic monitor. Areas requiring monitoring include all previously-undisturbed Pleistocene older alluvial sediments present, at the surface or at depth, within the boundaries of the property. Paleontologic monitors should be equipped to salvage fossils as they are unearthed, to avoid construction delays, and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. Monitors must be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. Monitoring may be reduced or eliminated if the potentially-fossiliferous units described herein are determined upon exposure and examination by qualified paleontologic personnel to have low potential to contain fossil resources.
2. Preparation of recovered specimens to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates. Preparation and stabilization of all recovered fossils are essential in order to fully mitigate adverse impacts to the resources (Scott and others, 2004).
3. Identification and curation of specimens into an established, accredited museum repository with permanent retrievable paleontologic storage. These procedures are also essential steps in effective paleontologic mitigation (Scott and others, 2004) and CEQA compliance (Scott and Springer, 2003). The paleontologist must have a written repository agreement in hand prior to the initiation of mitigation activities. Mitigation of adverse impacts to significant paleontologic resources is not complete until such curation into an established, accredited museum repository has been fully completed and documented.
4. Preparation of a report of findings with an appended itemized inventory of specimens. The report and inventory, when submitted to the appropriate Lead Agency along with confirmation of the curation of recovered specimens into an established, accredited museum

repository, would signify completion of the program to mitigate impacts to paleontologic resources.

References

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- Scott, E. and S.M. Cox, 2008. Late Pleistocene distribution of *Bison* (Mammalia; Artiodactyla) in the Mojave Desert of southern California and Nevada. *In* X Wang and L.G. Barnes (eds.), *Geology and Vertebrate Paleontology of Western and Southern North America, Contributions in Honor of David P. Whistler*. Natural History Museum of Los Angeles County Science Series No. 41, p. 359 - 382.
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- Springer, K., E. Scott, J.C. Sagebiel, and L.K. Murray, 2009. The Diamond Valley Lake local fauna: late Pleistocene vertebrates from inland southern California. *In* L.B. Albright III (ed.), *Papers on geology, vertebrate paleontology, and biostratigraphy in honor of Michael O. Woodburne*. *Museum of Northern Arizona Bulletin* 65:217-235.
- Springer, K., E. Scott, J.C. Sagebiel, and L.K. Murray, 2010. Late Pleistocene large mammal faunal dynamics from inland southern California: the Diamond Valley Lake local fauna. *In* E. Scott and G. McDonald (eds.), *Faunal dynamics and extinction in the Quaternary: papers honoring Ernest L. Lundelius, Jr.* *Quaternary International* 217: 256-265.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Eric Scott". The signature is written in a cursive style with a large, sweeping loop at the top.

Eric Scott, Curator of Paleontology
Division of Geological Sciences
San Bernardino County Museum

Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213-763-3466
nhm.org

Vertebrate Paleontology Section
Telephone: (213) 763-3325

e-mail: smcleod@nhm.org



14 September 2017

Brian F. Smith & Associates, Inc.
14010 Poway Road, Suite A
Poway, CA 92064

Attn: George L. Kennedy, Ph.D., Senior Paleontologist

re: Paleontological Resources Records Search for the proposed Brodiaea Avenue & Heacock Street Warehouse Project, BFSA Project # 17-166, in Moreno Valley, Riverside County, project area

Dear Dr. Kennedy:

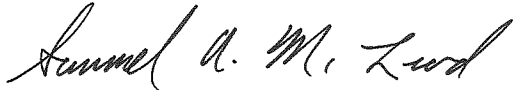
I have thoroughly searched our paleontology collection records for the locality and specimen data for the proposed Brodiaea Avenue & Heacock Street Warehouse Project, BFSA Project # 17-166, in Moreno Valley, Riverside County, project area as outlined on the portion of the Sunnymead USGS topographic quadrangle map that you sent to me via e-mail on 31 August 2017. We do not have any vertebrate fossil localities that lie directly within the proposed project area boundaries, but we do have localities farther afield from sedimentary deposits similar to those that may occur subsurface in the proposed project area.

Surface deposits in the entire proposed project area consist of younger Quaternary Alluvium, derived as alluvial fan deposits from the more elevated terrain to the north. These sedimentary deposits typically do not contain significant vertebrate fossils, at least in the uppermost layers, but they may be underlain by finer-grained older Quaternary deposits that do contain significant vertebrate fossils. Our closest vertebrate fossil locality from somewhat similar deposits is LACM 4540, from the gravel pits just west of Jack Rabbit Trail east-southeast of the proposed project area on the eastern side of the San Jacinto Valley, that produced a specimen of fossil horse, *Equus*.

Shallow excavations in younger Quaternary Alluvium in the proposed project area are unlikely to uncover significant vertebrate fossil remains. Deeper excavations in the proposed project area that extend down into older Quaternary deposits, however, may well encounter significant vertebrate fossils. Any substantial excavations in the proposed project area, therefore, should be monitored closely to quickly and professionally recover any fossil remains discovered while not impeding development. Also, sediment samples should be collected and processed to determine the small fossil potential in the proposed project area. Any fossils recovered during mitigation should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

This records search covers only the vertebrate paleontology records of the Natural History Museum of Los Angeles County. 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.

Sincerely,

A handwritten signature in cursive script that reads "Samuel A. McLeod". The signature is written in dark ink and is positioned below the word "Sincerely,".

Samuel A. McLeod, Ph.D.
Vertebrate Paleontology

enclosure: invoice