

# PALEONTOLOGICAL ASSESSMENT FOR THE ASTER APARTMENTS PROJECT

**HEMET,  
RIVERSIDE COUNTY, CALIFORNIA**

**APNs 464-270-005 and -006**

**Prepared for:**

**Highpoint Hemet I, LLC  
16501 Scientific Way  
Irvine, California 92618**

**Submitted to:**

**City of Hemet  
445 East Florida Avenue  
Hemet, California 92543**

**Prepared by:**

**BFSA Environmental Services,  
a Perennial Company  
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***September 22, 2023***



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**BFSA Environmental Services**  
A Perennial Company

## **Paleontological Database Information**

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**Report Date:** September 22, 2023

**Report Title:** Paleontological Assessment for the Aster Apartments Project,  
Hemet, Riverside County, California

**Prepared for:** Highpoint Hemet I, LLC  
16501 Scientific Way  
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Poway, California 92064

**USGS Quadrangle:** Section 21, Township 5 South, Range 1 West of the *Hemet,*  
*California* (7.5-minute) quadrangle

**Study Area:** 10.07 acres

**Assessor's Parcel Numbers:** 464-270-005 and -006

**Key Words:** Paleontological assessment; Pleistocene alluvial fan deposits;  
mammalian fossil bones; high sensitivity; full-time monitoring  
below five feet.

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## **I. INTRODUCTION AND LOCATION**

A paleontological resource assessment has been completed for the Aster Apartments Project located at the southeast corner of Stetson Avenue and Elk Street in the city of Hemet, Riverside County, California (Figures 1 and 2). On the U.S. Geological Survey (USGS) 1:24,000-scale *Hemet, California* (7.5-minute) topographic quadrangle map, the project is situated in Section 21, Township 5 South, Range 1 West of the San Bernardino Baseline and Meridian (Figure 2) and consists of two parcels (Assessor's Parcel Numbers [APNs] 464-270-005 and -006) totaling 10.07 acres. As designed, the project applicant proposes to develop the property for multi-family apartment buildings, with eight buildings of residential units, a recreation center and pool, a three-foot-deep bioretention basin, and associated parking and connecting streets within the subject property. A cut of approximately 10,600 cubic yards is proposed for the necessary grading and excavation. The parcels have been utilized for agricultural purposes since the 1960s.

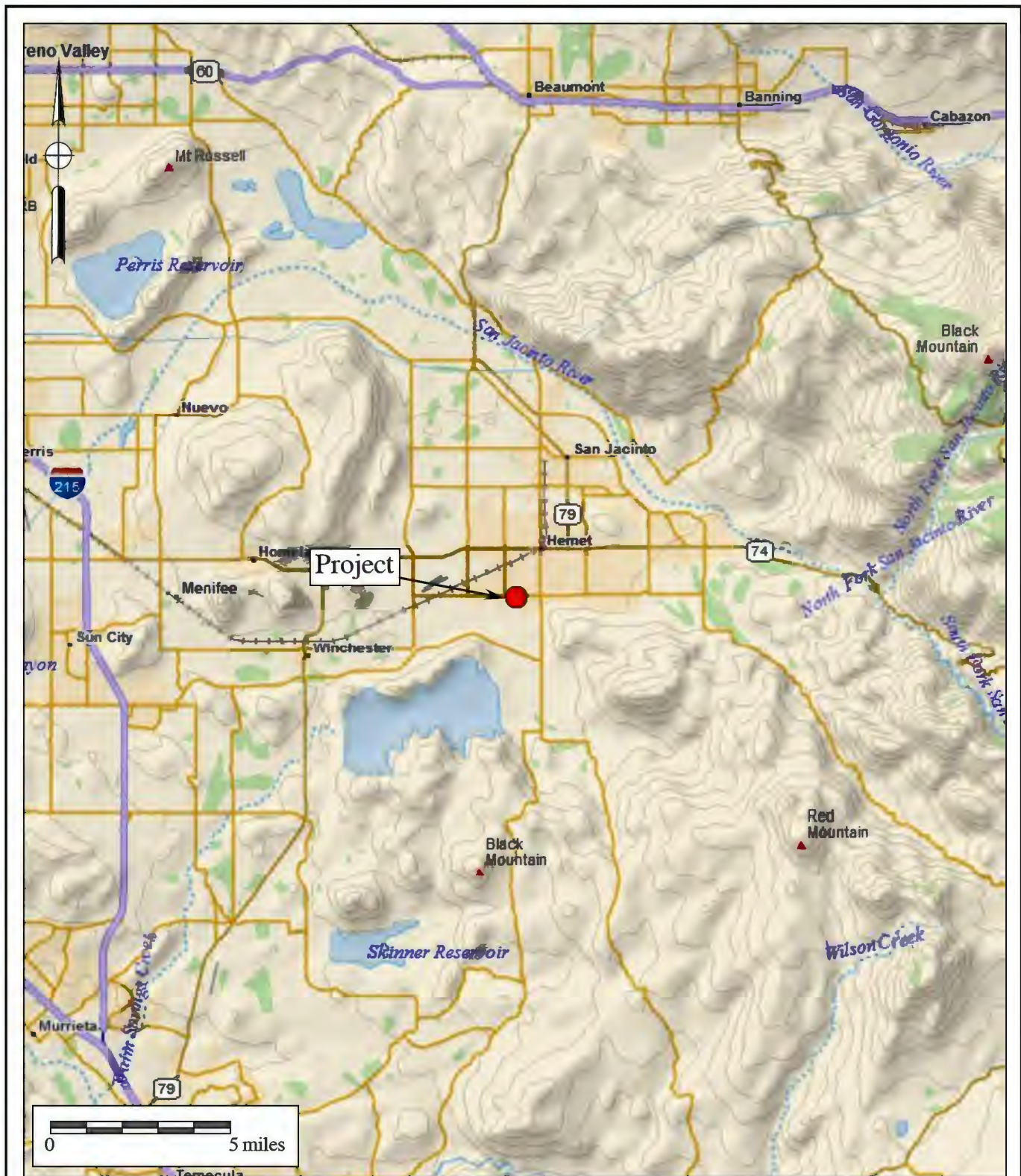
As the lead agency, the City of Hemet has required the preparation of a paleontological assessment to evaluate the project's potential to yield paleontological resources. The paleontological assessment of the project included a review of paleontological literature and fossil locality records in the area;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

## **II. REGULATORY SETTING**

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

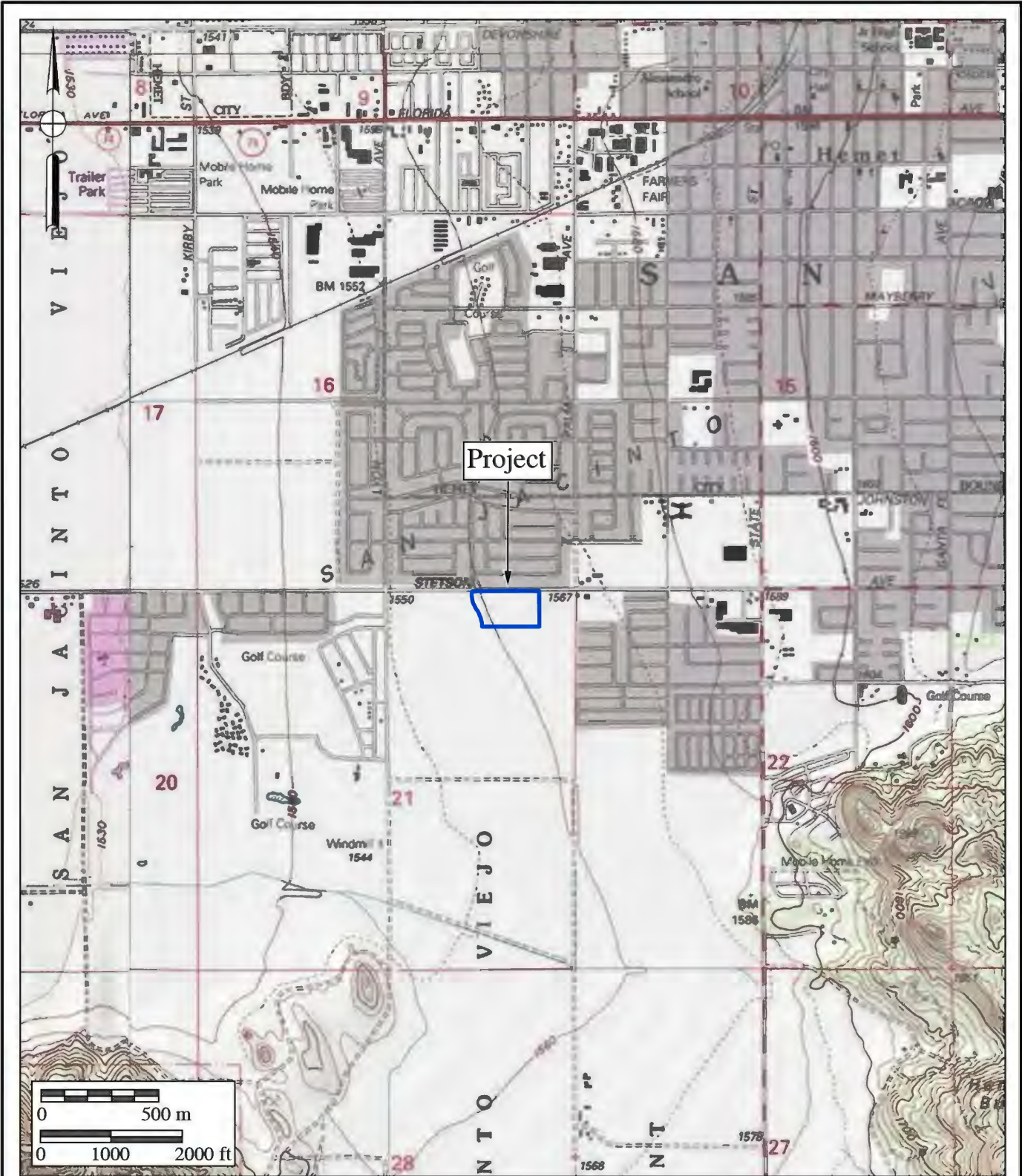
### **State of California**

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



**Figure 1**  
**General Location Map**  
The Aster Apartments Project  
DeLorme (1:250,000 series)





**Figure 2**  
**Project Location Map**  
 The Aster Apartments Project  
 USGS Hemet Quadrangle (7.5-minute series)

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 by which protects nonrenewable resources including fossils, which is paraphrased below:

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

**City of Hemet**

The City of Hemet’s Final Environmental Impact Report (EIR) identifies an existing potential for earth disturbance activities to adversely impact significant paleontological resources (City of Hemet 2012a: Impact 4.6-9). According to the EIR, older Pleistocene deposits, either exposed at the surface or below younger deposits, have “a high potential to contain significant paleontological resources, and so are considered to have high paleontological sensitivity” (City of Hemet 2012a: 4.6-18). To reduce potential impacts on paleontological resources to a level below significant, the EIR requires implementing policies and programs from the City of Hemet General Plan 2030 that involve an evaluation of any paleontological “resources found prior to or during site development” by a “qualified paleontologist” (Policy HR-2.3), while the City would implement the “development review process to require appropriate surveys” (Program HR-P-10; City of Hemet 2012a).

In Chapter 9 (Historic Resources) of the City of Hemet General Plan 2030, Goal HR-2 aims to “Preserve significant archaeological and paleontological resources in areas under the City’s jurisdiction, to the greatest extent possible” (City of Hemet 2012b: 9-22). The following policies under Goal HR-2 applicable to paleontological resources are given below:

- HR-2.2** Monitoring. Require monitoring of new developments where resources or potential resources have been identified in the review process.
- HR-2.3** Evaluation. Resources found prior to or during site development shall be evaluated by a qualified archaeologist or paleontologist, and

appropriate mitigation measures shall be applied before resumption of development activities. Development project proponents shall bear all costs associated with the monitoring and disposition of cultural resources management within the project site.

**HR-2.4** Preferred Repository. To the extent practicable and appropriate, newly uncovered non-Native American archaeological and paleontological resources shall be transferred to the Western Science Center of Diamond Valley for cataloguing, study and, if appropriate, display. (City of Hemet 2012b: 9-22)

Implementation Program HR-P-10, in Chapter 12 of the City’s General Plan, is as follows:

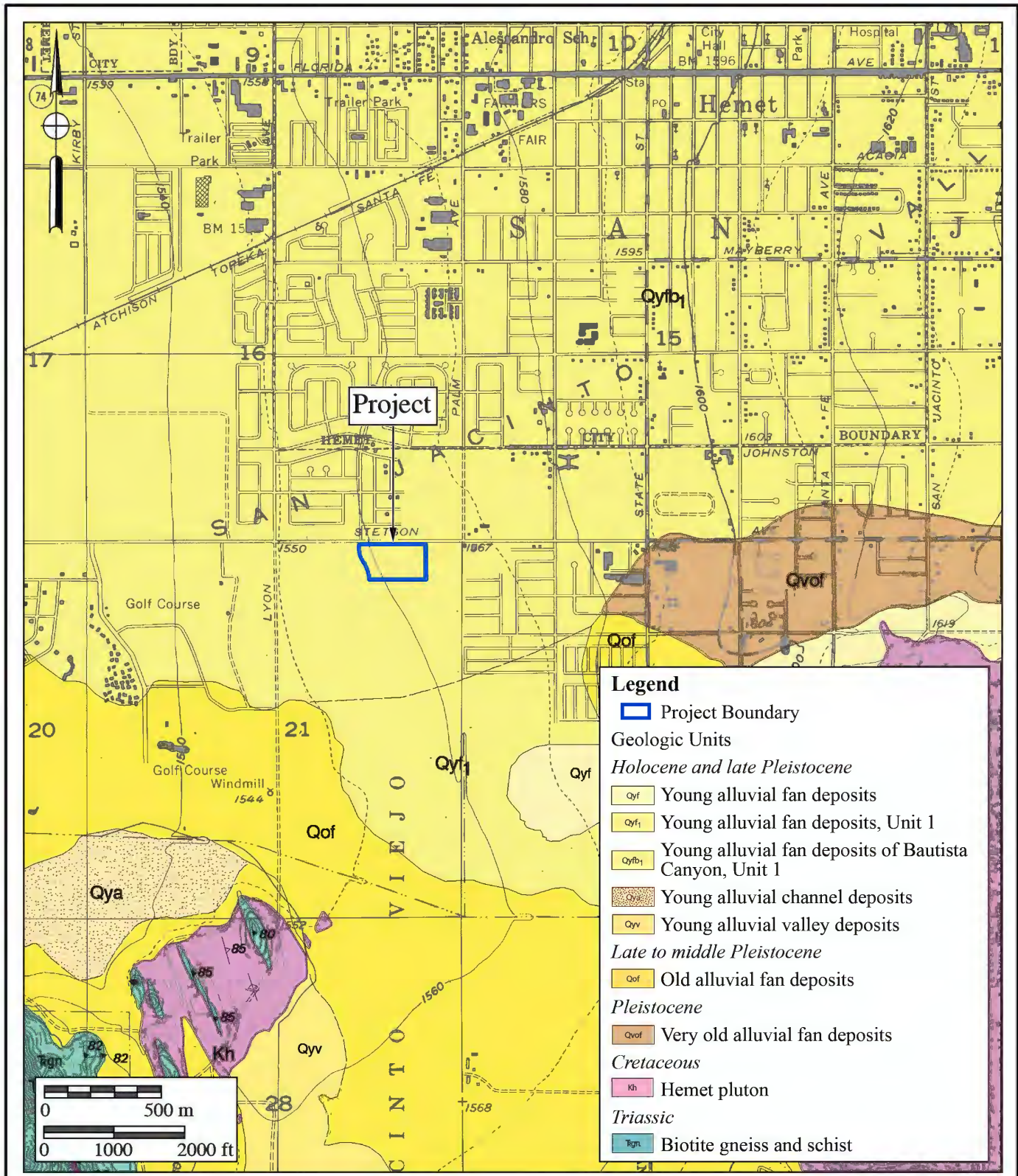
**HR-P-10** Studies and Surveys. Use the development and environmental review processes for private sector, public facilities, and public infrastructure projects to require effective mitigation where development may affect archaeological or paleontological resources. Require appropriate archaeological and paleontological surveys and documentation of findings prior to project approval. (City of Hemet 2012b: 12-45)

### **III. GEOLOGY**

Regionally, the project lies near the eastern edge of the Perris block of the Peninsular Ranges batholith (Morton and Matti 2005). The active San Jacinto fault zone lies approximately three miles northeast of the project. According to the geologic map of the Hemet quadrangle by Morton and Matti (2005), the surficial geology at the project consists of Holocene and late Pleistocene-aged young alluvial fan deposits of Bautista Canyon, Unit 1, predominately characterized as gravel, sand, and silt (areas colored mustard and labeled “Qyfb<sub>1</sub>” on the southeast quarter of Figure 3). Outcrops of late to early Pleistocene alluvial deposits occur approximately one and a half to two miles south and southeast of the project (Morton and Matti 2005) and are considered potentially fossiliferous by the City (City of Hemet 2012a). The Holocene to late Pleistocene alluvial deposits overlie the potentially fossiliferous, older Pleistocene-aged deposits (City of Hemet 2012a). The thickness of the Holocene to late Pleistocene alluvial deposits at the project is not known.

The deposits composing the Holocene to late Pleistocene Bautista fan originate from Bautista Canyon, the mouth of which is located about six miles east of the project. Bautista Canyon drains much of the Santa Rosa Hills. The sediments are mostly composed of the detritus of metamorphic rocks (Morton and Matti 2005).





**Figure 3**  
**Geologic Map**

The Aster Apartments Project  
Geology after Morton and Matti (2005)



#### 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 (Section II of this report).

##### **Fossil Locality Search**

A paleontological literature review and collections and locality records search was conducted for the project by the Western Science Center (WSC; Stoneburg 2023; Appendix B). The closest fossil localities held by the WSC are located approximately one and a half miles south of the project, consisting of the remains of Pleistocene-aged mammals.

The Diamond Valley Lake Reservoir is approximately two miles south of the proposed project. Construction associated with the Diamond Valley Lake Reservoir yielded vast numbers of terrestrial Ice Age vertebrate fossils (Anderson et al. 2002; Springer et al. 1999, 2009) that are now housed at the WSC. Remains included bones from horses, camels, mammoths, mastodons, two species of bison, three species of giant ground sloths, peccaries, llamas, saber-toothed cats, two species of pronghorn, and two species of bears, among others. According to Stoneburg (2023):

Any fossils recovered from the Aster Apartments Project area would be scientifically significant. Excavation activity associated with development of the area has the potential to impact the paleontologically sensitive Pleistocene sediments and it is the recommendation of the Western Science Center that a paleontological resource mitigation plan be put in place to monitor, salvage, and curate any recovered fossils associated with the current study area.

##### **Project Survey**

BFSA Environmental Services, a Perennial Company (BFSA) staff, under the supervision of Principal Investigator Todd A. Wirths, M.S., Senior Paleontologist, conducted a project survey on August 25, 2023. The field methodology employed for the project included walking evenly spaced survey transects set approximately 10 meters apart while visually inspecting the ground surface. All potentially sensitive areas where paleontological resources might be located were closely inspected. The entire property was accessible with good ground visibility (approximately 75 percent) that was hindered by some grasses and recently harvested grain, some of which had recently been burned. No bedrock outcrops were exposed that might indicate

the presence of fossils. No paleontological resources, or evidence indicating the presence 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 the 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 thus is typically assigned a low paleontological sensitivity. Pleistocene (older than 11,700 years old) alluvial and alluvial fan deposits in the Inland Empire and western Riverside County, however, are known to yield important 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). These Pleistocene sediments are thus accorded a high paleontological resource sensitivity.

### Professional Standards

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

- High Potential: Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered.
- Undetermined Potential: Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment, and 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.

Using these criteria, based on the distribution of nearby fossil localities, surficial deposits at the project may be considered to have a low potential to yield significant paleontological resources. The underlying Pleistocene old alluvial deposits may be considered to have a high potential to yield significant paleontological resources.

### **City of Hemet Sensitivity Assessment**

The older Pleistocene alluvial deposits that underlie the Holocene surficial alluvial deposits at the project are regarded by the City of Hemet as having a high potential to contain paleontological resources and, as such, are considered to have high paleontological sensitivity based on the record for fossils of Pleistocene vertebrates recovered in the region (City of Hemet 2012a). The EIR indicates that outcrops of the older Pleistocene alluvial sediments “are also present in the surface in the southern (generally south of Johnston Avenue) and also in the western (generally west of Warren Road) portion of the planning area” (City of Hemet 2012a: 4.6-18). The EIR does not assign a paleontological sensitivity rating to the surficial Holocene alluvial deposits.

## **VI. CONCLUSIONS AND RECOMMENDATIONS**

Research has confirmed the existence of the potentially fossiliferous Pleistocene old alluvial deposits that underlie the Holocene deposits at the project at an unknown depth. The occurrence of terrestrial vertebrate fossils from Pleistocene old alluvial deposits in western Riverside County is well documented. The high paleontological sensitivity rating assigned to this formation for yielding paleontological resources supports the recommendation that paleontological monitoring be implemented during mass grading and excavation activities in these deposits to mitigate any adverse impacts (loss or destruction) to potential nonrenewable paleontological resources. Full-time monitoring at the project is warranted starting at a depth of five feet below the surface in areas mapped as young alluvial valley deposits. A suggested monitoring program for the project is outlined below.

The following guidelines are based on the findings stated above. Paleontological monitoring may be reduced upon the observations and recommendations of the professional-level project paleontologist. The following paleontological monitoring program, when implemented, would reduce potential impacts of paleontological resources to a level below significant:

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

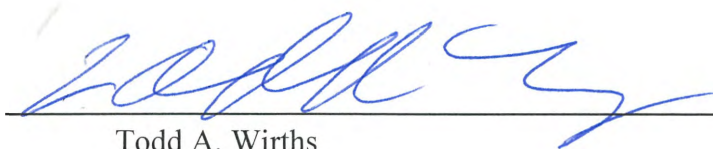
- fossil resources. The monitor shall notify the project paleontologist, who will then notify the concerned parties of the discovery.
3. Paleontological salvage during trenching and boring activities is typically from the generated spoils and does not delay the trenching or drilling activities. Fossils will be collected and placed in cardboard flats or plastic buckets and identified by field number, collector, and date collected. Notes will be taken on the map location and stratigraphy of the site, which is photographed before it is vacated and the fossils are moved to a safe place. On mass grading projects, discovered fossil sites are protected by flagging to prevent them from being overrun by earthmovers (scrapers) before salvage begins. Fossils will be 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 remains from a large terrestrial vertebrate, such as large bone(s) or a mammoth tusk, that is/are too large to be easily removed by a single monitor, a fossil recovery crew shall excavate around the find, encase the find within a plaster and burlap jacket, and remove it after the plaster is set. For large fossils, use of the contractor's construction equipment may be solicited to help move the jacket to a safe location.
  4. Isolated fossils will be collected by hand, wrapped in paper, and placed in temporary collecting flats or five-gallon buckets. Notes are taken on the map location and stratigraphy of the site, which is photographed before it is vacated and the fossils are moved to a safe place.
  5. Particularly small invertebrate fossils typically represent multiple specimens of a limited number of organisms, and a scientifically suitable sample can be obtained from one to several five-gallon buckets of fossiliferous sediment. If it is possible to dry-screen the sediment in the field, a concentrated sample may consist of one or two buckets of material. For vertebrate fossils, the test is usually the observed presence of small pieces of bones within the sediments. If present, multiple five-gallon buckets of sediment can be collected and returned to a separate facility to wet-screen the sediment.
  6. 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.
  7. In the laboratory, individual fossils will be cleaned of extraneous matrix, any breaks will be repaired, and the specimen, if needed, will be stabilized by soaking in an archivally approved acrylic hardener (*e.g.*, a solution of acetone and Paraloid B-72).
  8. Recovered specimens will be prepared to a point of identification and permanent preservation (not display), including screen-washing sediments to recover small



- invertebrates and vertebrates. Preparation of individual vertebrate fossils is often more time consuming than for accumulations of invertebrate fossils.
9. 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 WSC) shall be conducted. The paleontological program should include a written repository agreement prior to the initiation of mitigation activities. Prior to curation, the lead agency (the City of Hemet) will be consulted on the repository/museum to receive the fossil material.
  10. A final report of findings and significance will be prepared, including lists of all fossils recovered and necessary maps and graphics to accurately record their original location(s). The report, when submitted to and accepted by the appropriate lead agency, will signify satisfactory completion of the project program to mitigate impacts to any potential nonrenewable paleontological resources (*i.e.*, fossils) that might have been lost or otherwise adversely affected without such a program in place.

## **VII. CERTIFICATION**

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



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

September 22, 2023  
Date

## **VIII. REFERENCES**

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**APPENDIX A**

**Qualifications of Key Personnel**

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

## Senior Paleontologist

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## Education

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

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

## Professional Certifications

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California Professional Geologist #7588, 2003

Riverside County Approved Paleontologist

San Diego County Qualified Paleontologist

Orange County Certified Paleontologist

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

## Professional Memberships

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Board member, San Diego Geological Society

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

South Coast Geological Society

Southern California Paleontological Society

## Experience

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

## Selected Recent Reports

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

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

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



**APPENDIX B**

**Fossil Locality Records Search Results**



September 21, 2023

BFSA Environmental Services  
Todd Wirths  
14010 Poway Road, Suite A  
Poway, California 92064

Dear Mr. Wirths,

This letter presents the results of a record search conducted for the Aster Apartments Project located in the City of Hemet, Riverside County, California. The project site is located south of Westson Avenue, east of 5 Elk Street, and west of 5 Palm Avenue on Township 5 South, Range 1 West, Section 21 on the Hemet, CA USGS 7.5 minute quadrangle.

The geologic units underlying this project are mapped primarily as alluvial gravel, sand, and silt from the Holocene and late Pleistocene (Morton and Matti, 2005). Holocene alluvial units are considered to be of high preservation value, but material found is often unlikely to be fossil material due to the relatively modern associated dates of the deposits. However, Pleistocene alluvial sediments are considered paleontological sensitive. While the Western Science Center does not have localities within the project area or within a 1 mile radius, the northern edge of the East Dam Rec locality lies approximately a mile and a half south of the project area.

Any fossils recovered from the Aster Apartments Project area would be scientifically significant. Excavation activity associated with development of the area has the potential to impact the paleontologically sensitive Pleistocene sediments and it is the recommendation of the Western Science Center that a paleontological resource mitigation plan be put in place to monitor, salvage, and curate any recovered fossils associated with the current study area.

If you have any questions, or would like further information, please feel free to contact me at [bstoneburg@westerncentermuseum.org](mailto:bstoneburg@westerncentermuseum.org).

Sincerely,

A handwritten signature in black ink, appearing to read "Brittny Stoneburg".

Brittny Elizabeth Stoneburg, MSC  
Collections Manager