PALEONTOLOGICAL RESOURCES ASSESSMENT REPORT

TENTATIVE TRACT MAP NUMBER 20489

Assessor's Parcel Number 312-161-61, City of Adelanto
San Bernardino County, California

For Submittal to:

City of Adelanto
Development Services Department, Planning Division
11600 Air Expressway
Adelanto, CA 92301

Prepared for:

Joshua Tree 10 Victorville, LLC
410 Patti Ann Woods Drive
Henderson, NV 89002

Prepared by:

Ben Kerridge, Project Paleontologist
Ron Schmidtling, Principal Paleontologist
CRM TECH
1016 East Cooley Drive, Suite A/B
Colton, CA 92324

October 2, 2022

CRM TECH Project No. 3863P
Approximately five acres
Adelanto, Calif., 7.5' quadrangle
Section 17; T5N R5W, San Bernardino Baseline and Meridian

MANAGEMENT SUMMARY

Between March and October 2022, CRM TECH performed a paleontological resource assessment on approximately five acres of vacant land in the City of Adelanto, San Bernardino County, California. The subject property of the study, Assessor's Parcel No. 3132-161-61, is located on the western side of Verbena Road and to the north of Hook Boulevard, in the northwest quarter of Section 17, Township 5 North, Range 5 West, San Bernardino Baseline and Meridian.

The study is part of the environmental review process for a proposed subdivision of the property into 19 single-family residential lots along a cul-de-sac leading to Verbena Road. The City of Adelanto, as the lead agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA). The purpose of the study is to provide the City with the necessary information and analysis to determine whether the project would potentially disrupt or adversely affect any significant, nonrenewable paleontological resources, as mandated by CEQA.

In order to identify any paleontological resource localities in or near the project area and to assess the potential for such resources to be encountered during the project, CRM TECH initiated records searches at the appropriate repository, reviewed pertinent geological literature, and carried out a systematic field survey in accordance with the guidelines of the Society of Vertebrate Paleontology. The results of these research procedures indicate that the project area is situated upon surface deposits of Holocene or Pleistocene alluvium that is underlain by older, more fossiliferous sediments of Pleistocene age.

Based on these findings, the proposed project's potential to impact significant, nonrenewable paleontological resources appears to be low in the surface soils but high in the older native alluvium underneath. Therefore, CRM TECH recommends that a paleontological resource impact mitigation program be developed and implemented during the project to prevent impacts on such resources or reduce them to a level less than significant.

As a part of the mitigation program, periodic monitoring, or "spot-checking," should be carried out upon commencement of any earth-moving operations associated with the project to ensure the timely identification of any undisturbed, potentially fossiliferous sediments when they are encountered. Once such sediments are exposed, all further earth-moving operations will need to be monitored continuously. Under these conditions, CRM TECH further recommends that the proposed project may be cleared to proceed in compliance with CEQA provisions on paleontological resources.

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INTRODUCTION

Between March and October 2022, CRM TECH performed a paleontological resource assessment on approximately five acres of vacant land in the City of Adelanto, San Bernardino County, California (Fig. 1). The subject property of the study, Assessor's Parcel No. 3132-161-61, is located on the western side of Verbena Road and to the north of Hook Boulevard, in the northwest quarter of Section 17, Township 5 North, Range 5 West, San Bernardino Baseline and Meridian (Figs. 2, 3).

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In order to identify any paleontological resource localities in or near the project area and to assess the potential for such resources to be encountered during the project, CRM TECH initiated records searches at the appropriate repository, reviewed pertinent geological literature, and carried out a systematic field survey in accordance with the guidelines of the Society of Vertebrate Paleontology. The following report is a complete account of the methods, results, and final conclusion of this study. Personnel who participated in the study are named in the appropriate sections below, and their qualifications are provided in Appendix 1.

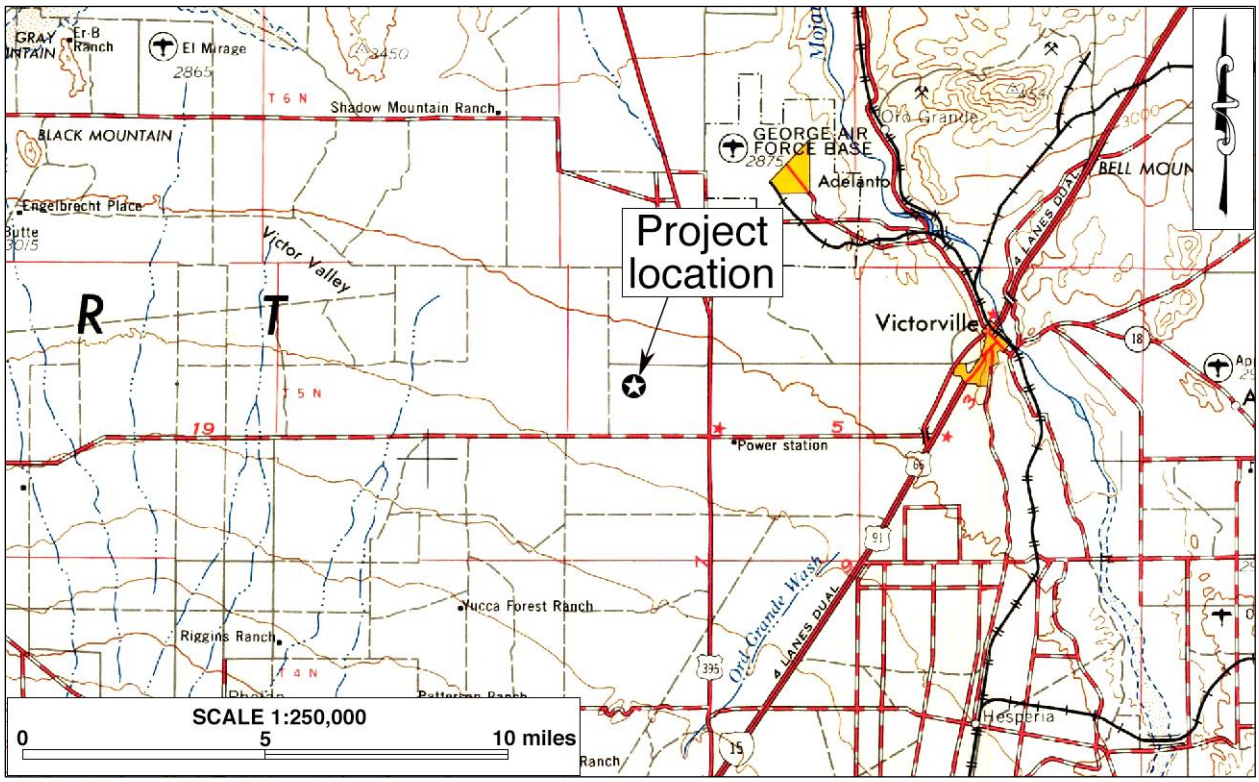

Figure 1. Project vicinity. (Based on USGS San Bernardino, Calif., 120'x60' quadrangle [USGS 1969])

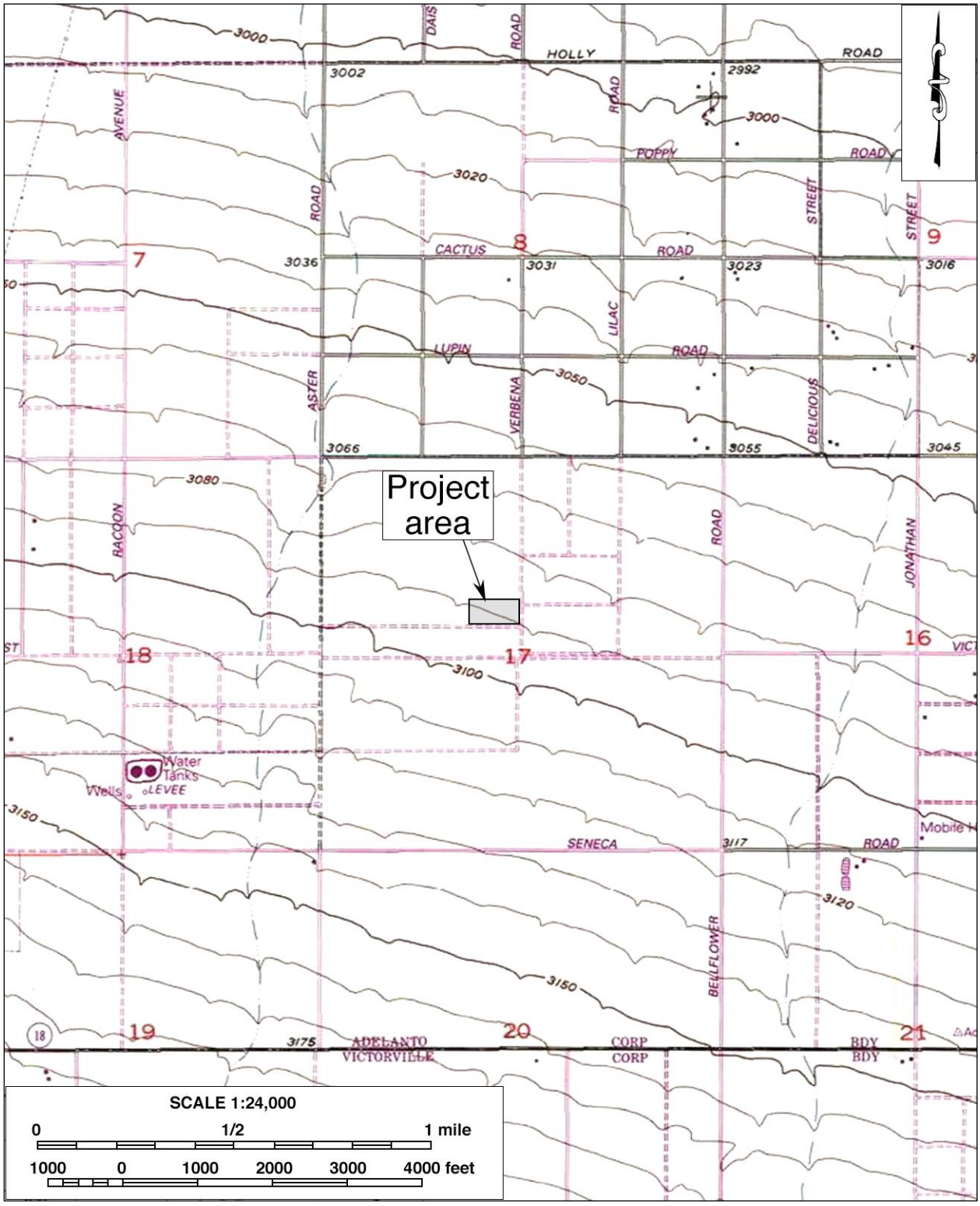

Figure 2. Project area. (Based on USGS Adelanto, Calif., 7.5' quadrangles [USGS 1993])

Figure 3. Recent satellite image of the project area.

PALEONTOLOGICAL RESOURCES

DEFINITION

Paleontological resources represent the remains of prehistoric life, exclusive of any human remains, and include the localities where fossils were collected as well as the sedimentary rock formations in which they were found. The defining character of fossils or fossil deposits is their geologic age, typically older than recorded human history and/or older than the middle Holocene Epoch, which dates to circa 5,000 radiocarbon years (Society of Vertebrate Paleontology 2010:11).

Common fossil remains include marine and freshwater mollusk shells; the bones and teeth of fish, amphibians, reptiles, and mammals; leaf imprint assemblages; and petrified wood. Fossil traces, another type of paleontological resource, include internal and external molds (impressions) and casts created by these organisms. These items can serve as important guides to the age of the rocks and sediments in which they are contained and may prove useful in determining the temporal relationships between rock deposits from one area and those from another as well as the timing of geologic events. They can also provide information regarding evolutionary relationships, development trends, and environmental conditions.

Fossil resources generally occur only in areas of sedimentary rock (e.g., sandstone, siltstone, mudstone, claystone, or shale). Because of the infrequency of fossil preservation, fossils, particularly vertebrate fossils, are considered nonrenewable paleontological resources. Occasionally fossils may be exposed at the surface through the process of natural erosion or because of human disturbances; however, they generally lay buried beneath the surficial soils. Thus, the absence of fossils on the surface does not preclude the possibility of their being present within subsurface deposits, while the presence of fossils at the surface is often a good indication that more remains may be found in the subsurface.

SIGNIFICANCE CRITERIA

According to guidelines proposed by Eric Scott and Kathleen Springer (2003) of the San Bernardino County Museum, paleontological resources can be considered to be of significant scientific interest if they meet one or more of the following criteria:

1. The fossils provide information on the evolutionary relationships and developmental trends exhibited among organisms, living or extinct;
2. The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein;
3. The fossils provide data regarding the development of biological communities or the interactions between paleobotanical and paleozoological biotas;
4. The fossils demonstrate unusual or spectacular circumstances in the history of life; and/or
5. The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations.

PALEONTOLOGICAL SENSITIVITY

The fossil record is unpredictable, and the preservation of organic remains is rare, requiring a particular sequence of events involving physical and biological factors. Skeletal tissue with a high percentage of mineral matter is the most readily preserved within the fossil record; soft tissues not intimately connected with the skeletal parts, however, are the least likely to be preserved (Raup and Stanley 1978). For this reason, the fossil record contains a biased selection not only of the types of organisms preserved but also of certain parts of the organisms themselves. As a consequence, paleontologists are unable to know with certainty, the quantity of fossils or the quality of their preservation that might be present within any given geologic unit.

Sedimentary units that are paleontologically sensitive are those geologic units (mappable rock formations) with a high potential to contain significant nonrenewable paleontological resources. More specifically, these are geologic units within which vertebrate fossils or significant invertebrate fossils have been determined by previous studies to be present or are likely to be present. These units include, but are not limited to, sedimentary formations that contain significant paleontological resources anywhere within their geographical extent as well as sedimentary rock units temporally or lithologically amenable to the preservation of fossils.

A geologic formation is defined as a stratigraphic unit identified by its lithic characteristics (e.g., grain size, texture, color, and mineral content) and stratigraphic position. There is a direct relationship between fossils and the geologic formations within which they are enclosed and, with sufficient knowledge of the geology and stratigraphy of a particular area, it is possible for paleontologists to reasonably determine the formation's potential to contain significant nonrenewable vertebrate, invertebrate, marine, or plant fossil remains.

The paleontological sensitivity for a geologic formation is determined by the potential for that formation to produce significant nonrenewable fossils. This determination is based on what fossil resources the particular geologic formation has produced in the past at other nearby locations. Determinations of paleontologic sensitivity must consider not only the potential to yield a large collection of fossil remains but also the potential to yield a few fossils that can provide new and significant taxonomic, phylogenetic, and/or stratigraphic data.

The Society of Vertebrate Paleontology issued a set of standard guidelines intended to assist paleontologists to assess and mitigate any adverse effects/impacts to nonrenewable paleontological resources. The guidelines defined four categories of paleontological sensitivity for geologic units that might be impacted by a proposed project, as listed below (Society of Vertebrate Paleontology 2010:1-2):

- **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.
- **Low Potential**: Rock units that are poorly represented by fossil specimens in institutional collections, or based on general scientific consensus 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.

SETTING

REGIONAL GEOLOGY

The City of Adelanto is located within the Mojave Desert geomorphic province of southeastern California (Jenkins 1980:40-41; Harms 1996). Dibblee (1967) and Coombs et al. (1979:7) place the area in what they refer to as the Western Mojave Desert, characterized by a high-elevation desert landscape marked by scattered, isolated mountains and numerous broad, shallow basins, some with dry lakebeds at the low points. Many of these basins have pediment surfaces developed along the margins, separating the mountains from the basins (Coombs et al. 1979:9). These pediment surfaces are commonly covered by desert pavement that protects them from sheetwash and channeling (*ibid*.). The mountains and intermountain valleys of the Western Mojave Desert tend to have a northwest-southeast trend that is controlled mainly by faulting (*ibid*.:7).

The basin areas are filled with sediments ranging in geologic age from Miocene to Recent (Dibblee 1967:49-82; Meisling and Weldon 1989:110). According to Dibblee (1967:109), older alluvium, presumably of Pleistocene age, underlies much of the Mojave Desert. Pleistocene sediments in the region were laid down by two separate depositional regimes, namely the ancestral Mojave River and the Victorville Fan (Scott 2007). The Adelanto area is located on the Victorville Fan, which was generally considered to have a high potential for containing nonrenewable vertebrate fossil remains (Meisling and Weldon 1989:108; Reynolds and Reynolds 1994). However, recent studies suggest that these sediments, while potentially fossiliferous, are not as fossiliferous as the ancestral Pleistocene-age Mojave River sediments (Scott 2007).

CURRENT NATURAL SETTING

The City of Adelanto is situated in the northwestern portion of the Victor Valley, which lies on the southern rim of the Mojave Desert and immediately to the north of the San Bernardino-San Gabriel Mountain ranges. The climate and environment of the area is typical of southern California "high desert" country, so called because of its higher elevation than the Colorado Desert to the southeast. The climate is marked by extremes in temperature and aridity, with summer highs reaching well over 110ºF and winter lows dipping below freezing. Average annual precipitation is less than five inches, most of which occurs during the winter months and occasional monsoon storms in summer.

The project area consists of a rectangular-shaped parcel of vacant land surrounded by existing suburban residential neighborhoods on the north, west, and south and bounded by Verbena Road, a local thoroughfare, on the east (Fig. 3). Further to the east, another residential development lies uncompleted across Verbena Road (Fig. 3). Elevations in the project area range around 3,090 feet above mean sea level, with the terrain slopes slightly downward to the north. An intermittent drainage runs roughly north-south across the central portion of the property. The ground surface in the project area has been disturbed to some extent by road intrusions and the excavation of a ditch on the north end, and much of it is littered with construction debris and domestic refuse (Fig. 4).

Vegetation within the project area consists mostly of creosote and other small shrubs and grasses. In its native state, the project area is a part of the Creosote Scrub Plant Community, dominated by the namesake creosote bushes but also featuring burroweed, ocotillo, indigo bush, desert thorn, cheesebush, brittlebush, and beavertail, teddybear, and cholla cacti (Charters n.d.). Animals

Figure 4. Current natural setting of the project area. (Photograph taken on April 8, 2022; view to the north)

common to the area include small mammals (e.g., jackrabbits, desert cottontails, squirrels, rats, and mice), reptiles (e.g., lizards, snakes, and desert tortoise), native birds (e.g., doves, vultures, raptors, and quails), and arthropods (e.g., beetles, desert tarantulas, and scorpions).

METHODS AND PROCEDURES

RECORDS SEARCH

The records search service for this study was provided by the Natural History Museum of Los Angeles County (NHMLAC) in Los Angeles, which maintains files of regional paleontological localities as well as supporting maps and documents. The records search results were used to identify previously performed paleontological resource assessments as well as known paleontological localities near the project area. A copy of the records search results is attached to this report in Appendix 2.

LITERATURE REVIEW

In conjunction with the records searches, project paleontologist Ben Kerridge reviewed geological literature pertaining to the project vicinity under the direction of principal paleontologist Ron Schmidtling. Sources consulted during the review include primarily topographic, geologic, and soil maps of the Victor Valley area, published geological literature on regional geology, and other materials in the CRM TECH library, including unpublished reports produced during similar surveys in the vicinity.

FIELD SURVEY

On April 8, 2022, CRM TECH paleontological surveyors Hunter O'Donnell and Ashley Conner-Ayala carried out the field survey of the project area under Ron Schmidtling's direction. The survey was completed on foot by walking a series of parallel east-west transects spaced 15 meters (approximately 50 feet) apart. In this way, the ground surface in the entire project area was systematically and carefully examined to determine the soil types, to verify the geologic formations, and to look for any indications of paleontological remains. Ground visibility was excellent (95 percent) in most of the project area, with only sparse vegetation obscuring the soil, although scattered refuse and debris along the project boundaries hindered visibility somewhat in those areas.

RESULTS AND FINDINGS

RECORDS SEARCHES

According to NHMLAC records, no fossil localities have been recorded within the project area, but several known localities were previously discovered nearby from the same sedimentary deposits that occur within project boundaries (Bell 2022; see App. 2). Many of these fossil remains were recovered from unknown depths and all but one from Pleistocene formations (*ibid*.). Based on these results, the NHMLAC concludes that potentially fossil-bearing sediments are likely to be present at ground surface or subsurface in the project area (*ibid*.).

LITERATURE REVIEW

The surface geology in the project area has been mapped by Rogers (1967) as *Qal-Qc*. *Qal* represents Holocene alluvium, and *Qc* represents Pleistocene nonmarine sediments. Bortugno and Spittler (1986) show the surface sediments in the project area as *Q*, which is described as undifferentiated Holocene alluvium. Dibblee (2008) maps the surface geology in the project area entirely as *Qa* and described it as Holocene-age "alluvial silt, sand, and gravel of valley areas derived from adjacent higher ground" (Fig. 5).

FIELD SURVEY

Throughout the course of the field survey, no surface manifestation of any paleontological remains was observed within the project area. Surface soils in the project area are composed of a brownish-tan sandy loam that becomes sandier toward the center of the property.

CONCLUSION

CEQA guidelines (Title 14 CCR App. G, Sec. V(c)) require that public agencies in the State of California determine whether a proposed project would "directly or indirectly destroy a unique paleontological resource" during the environmental review process. The present study, conducted in compliance with this provision, is designed to identify any significant, non-renewable paleontological resources that may exist within or adjacent to the project area, and to assess the possibility for such resources to be encountered in future excavation and construction activities.

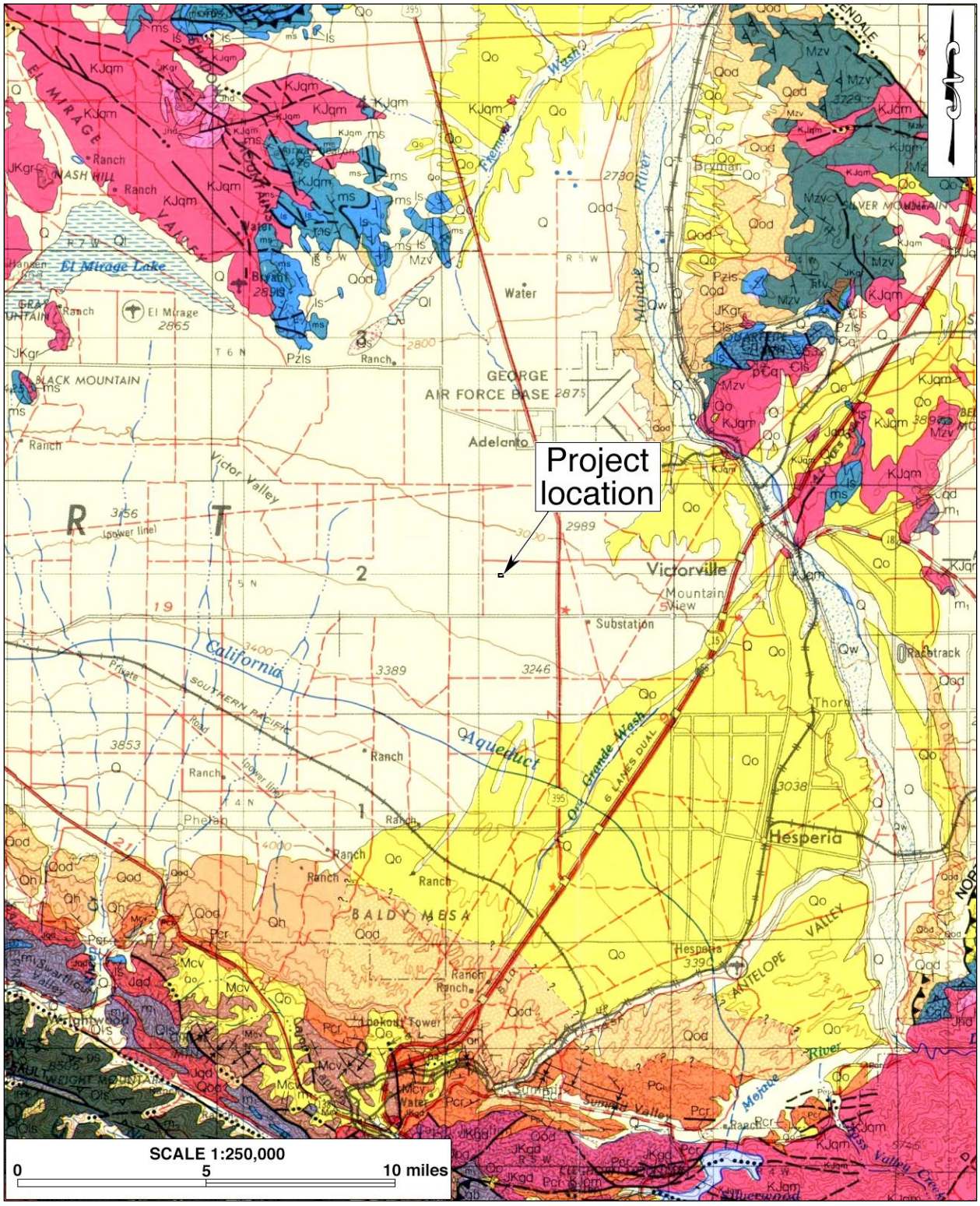

Figure 5. Geological map of the project area. (Source: Bortugno and Spittler 1986)

In summary of the research results presented above, no paleontological localities were previously reported within the project area, and no indications of any fossil remains was found in the surface sediments during this study. Geologic maps of the area identify the soils in the project area as both Holocene and Pleistocene in age, and the records search results report nearby fossil localities recovered from unknown depths in lithologies the NHMLAC finds to be present in the project area as well.

The surface soils in the project represent the latest manifestation of continuous alluvial deposition in the region since the Miocene. It is, therefore, very likely that even if the surface soils themselves are of Holocene origin, potentially fossiliferous Pleistocene alluvium almost certainly underlies the project area at some unknown depth. These older geologic units have the potential to contain significant, nonrenewable paleontological resources.

Based on these findings, the proposed project's potential to impact significant, nonrenewable paleontological resources appears to be low in the surface soils but high in the older native alluvium underneath. Therefore, CRM TECH recommends that a paleontological resource impact mitigation program be developed and implemented during the project to prevent impacts on such resources or reduce them to a level less than significant. The mitigation program should be developed in accordance with the provisions of CEQA (Scott and Springer 2003) as well as the proposed guidelines of the Society of Vertebrate Paleontology (2010), and should include but not be limited to the following components:

- Due to the unknown thickness of the Holocene-aged soils on the surface, periodic monitoring, or "spot-checking," will be required upon commencement of any earth-moving operations associated with the project to ensure the timely identification of undisturbed, potentially fossiliferous sediments when they are encountered.
- Once the potentially fossiliferous sediments are exposed, all further earth-moving operations will need to be monitored continuously. The monitor should be prepared to quickly salvage fossil remains as they are unearthed to avoid construction delays and should collect samples of sediments that are likely to contain small fossils. However, the monitor must have the power to temporarily halt or divert ground disturbances to allow for the removal of abundant or large specimens.
- Collected samples of sediment should be processed to recover small fossils, and all recovered specimens should be identified and curated at a repository with permanent retrievable storage.
- A report of findings, including an itemized inventory of recovered specimens, should be prepared upon completion of the procedures outlined above. The report should include a discussion of the significance of the paleontological findings, if any. The approval of the report by the City of Adelanto would signify completion of the program to mitigate potential impacts on paleontological resources.

Under these conditions, the proposed project may be cleared to proceed in compliance with CEQA provisions on paleontological resources.

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1994 The Victorville Fan and an Occurrence of *Sigmodon*. In S.F.B. Reynolds and R.L. Reynolds (eds.): *Off Limits in the Mojave Desert*; pp. 31-33. San Bernardino County Museum Association Special Publication 94-1. Redlands, California.

Rogers, Thomas H.
1967 Geological Map of California, San Bernardino Sheet (1:250,000). California Division of Mines and Geology, Sacramento.

Scott, Eric
2007 Paleontology Literature and Records Review, Victorville General Plan Update, Victorville, San Bernardino County, California. Prepared by the San Bernardino County Museum, Section of Geological Sciences, Redlands.

Scott, Eric, and Kathleen B. Springer
2003 CEQA and Fossil Preservation in California. *Environmental Monitor* Fall:4-10. Association of Environmental Professionals, Sacramento, California.

Society of Vertebrate Paleontology
2010 Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. http//:vertpaleo.org/Membership/Member-Resources/SVP_Impact_Mitigation_Guidelines.aspx.

APPENDIX 1

PERSONNEL QUALIFICATIONS

PRINCIPAL PALEONTOLOGIST
Ron Schmidtling, M.S.

Education

1995	M.S., Geology, University of California, Los Angeles.
1991	Pasadena City College, Pasadena, California.
1985	B.A., Archaeology, Paleontology, Ancient Folklore, and Art History, University of Southern Mississippi, Hattiesburg.

Professional Experience:

2020-	Principal Paleontologist, CRM TECH, Colton, California.
2014-	Instructor of Earth Science, History of Life, Ecology, and Evolutionary Biology, Columbia College Hollywood, Reseda, California.
2013, 2015	Volunteer, excavation of a camarasaur and a diplodocid in southern Utah, Natural History Museum of Los Angeles County, California.
1993-2014	Consultant, Getty Conservation Institute, Brentwood, California.

- Geological Consultant on the Renaissance Bronze Project, characterizing constituents of bronze core material;
- Paleontological Consultant for Antiquities/Conservation, identifying the foraminifera and mineral constituents of a limestone torso of Aphrodite;
- Scientific Consultant on the Brentwood Site Building Project, testing building materials for their suitability in the museum galleries.

1999-2001	Archaeological and Paleontological Monitor, Michael Brandman Associates, Irvine, California.
1997	Department of Archaeology, University of California, Los Angeles.
1994	Scientific Illustrator and Teaching Assistant, Department of Earth and Space Sciences and Department of Biological Sciences, University of California, Los Angeles.

Memberships

AAPS (Association of Applied Paleontological Sciences), USA; CSEOL (Center for the Study of Evolution and the Origin of Life), Department of Earth Sciences, University of California, Los Angeles.

Publications and Reports

Author, co-author, and contributor on numerous paleontological publications and paleontological resource management reports.

PROJECT PALEONTOLOGIST
Ben Kerridge, M.A.

Education

2019-2022	Physical Geology, California Geology, and Historical Geology Coursework, Fullerton College.
2014	Geoarchaeological Field School, Institute for Field Research, Kephallenia, Greece.
2010	M.A., Anthropology, California State University, Fullerton.
2009	Project Management Training, Project Management Institute/CH2M HILL, Santa Ana, California.
2004	B.A., Anthropology, California State University, Fullerton.

Professional Experience

2015-	Project Geoarchaeologist/Paleontologist, CRM TECH, Colton, California.
2015	Teaching Assistant, Institute for Field Research, Kephallenia, Greece.
2009-2014	Publications Delivery Manager, CH2M HILL, Santa Ana, California.
2010-	Naturalist, Newport Bay Conservancy, Newport Beach, California.
2006-2009	Technical Publishing Specialist, CH2M HILL, Santa Ana, California.
2002-2006	English Composition/College Preparation Tutor, various locations, California.

Papers Presented

- Geomorphological Survey of Tracts T126–T151 to Support Archaeological Shoreline Research Project. Institute for Field Research, Kephallenia, Greece, 2014.
- The Uncanny Valley of the Shadow of Modernity: A Re-examination of Anthropological Approaches to Christianity. Graduate Thesis, California State University, Fullerton, 2010.
- Ethnographic Endeavors into the World of Counterstrike. 74th Annual Conference of the Southwestern Anthropological Association, 2003.

Environmental Regulatory Reports

Co-author and contributor to numerous cultural and paleontological resources management reports since 2013.

PALEONTOLOGICAL SURVEYOR
Hunter C. O'Donnell, B.A.

Education

2016-	M.A. Program, Applied Archaeology, California State University, San Bernardino.
2015	B.A. (*cum laude*), Anthropology, California State University, San Bernardino.
2012	A.A., Social and Behavioral Sciences, Mt. San Antonio College, Walnut, California.
2011	A.A., Natural Sciences and Mathematics, Mt. San Antonio College, Walnut, California.

Professional Experience

2017-	Project Archaeologist/Paleontological Surveyor, CRM TECH, Colton, California.
2016-2018	Graduate Research Assistant, Applied Archaeology, California State University, San Bernardino.
2016-2017	Cultural Intern, Cultural Department, Pechanga Band of Luiseño Indians, Temecula, California.
2015	Archaeological Intern, U.S. Bureau of Land Management, Barstow, California.
2015	Peer Research Consultant: African Archaeology, California State University, San Bernardino.

PALEONTOLOGICAL SURVEYOR
Ashley Conner-Ayala, B.S.

Education

2021	GIS Certification, Pasadena City College, Pasadena.
2020	B.S., Anthropology, University of California, Riverside.
2019	Paleoanthropology Field School, Dmanisi, Republic of Georgia.
2019	M.A.R.I. CRM Field School, Milford, Utah.

Professional Experience

2021-	Project Archaeologist, CRM TECH, Colton, California.
2021	Field Technician, Bruce Love Consulting, Littlerock, California.
2020	Archaeological Monitor and Field Technician, McKenna et al., Whittier, California.

APPENDIX 2

RECORDS SEARCH RESULTS

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

tel 213.763.DINO
www.nhm.org

Research & Collections

e-mail: paleorecords@nhm.org

April 2, 2022

CRM TECH
Attn: Nina Gallardo

re: Paleontological resources for the Tentative Tract Map 20489 Project (CRM TECH No. 3863P)

Dear Nina:

I have conducted a thorough search of our paleontology collection records for the locality and specimen data for proposed development at the Tentative Tract Map 20489 Project area as outlined on the portion of the Adelanto USGS topographic quadrangle map that you sent to me via e-mail on March 22, 2022. We do not have any fossil localities that lie directly within the proposed project area, but we do have fossil localities nearby from the same sedimentary deposits that occur in the proposed project area, either at the surface or at depth.

The following table shows the closest known localities in the collection of the Natural History Museum of Los Angeles County (NHMLA).

Locality Number	Location	Formation	Taxa	Depth
LACM VP 7786	Southern California Logistics Airport	Alluvium (Pleistocene, moderately indurated fine to medium grained silty sandstone)	Vole (*Microtus mexicanus*)	10-11 feet bgs
LACM VP 3498, 3352, 3353	Bluffs on west side of Mojave River in Victorville, midway between I-15 and Air Expressway Rd.	Shoemaker Gravel Formation	Horse (*Equus*); deer (Cervidae); antelope (Antilocapridae)	Unknown
LACM VP CIT209	10 mi N, 1 mi W of Victorville, Calif., bluffs on W side Mojave River	Shoemaker Gravel Formation	Mammoth (*Mammuthus*); Horse (*Equus*)	Unknown
LACM VP 5949, 5950	NE of the intersection of E Avenue S and 250th St E; west of Adelanto	Unknown Formation (Holocene)	Rabbit (Lagomorpha); Rodent (Rodentia); Snake (*Pituophis*)	0-9 feet bgs
LACM IP 6125	East end of Rabbit	Unknown formation	Invertebrates (unspecified)	Unknown

	Lake; San Bernardino Co. Sand Pit between forks of road	(Pleistocene)		
	Lake Rogers; Edwards Air Force	Unknown formation (upper Pleistocene		
LACM IP 445	Base	lacustrine deposits)	Invertebrates (unspecified)	Unknown

VP, Vertebrate Paleontology; IP, Invertebrate Paleontology; bgs, below ground surface

This records search covers only the records of the NHMLA. It is not intended as a paleontological assessment of the project area for the purposes of CEQA or NEPA. Potentially fossil-bearing units are present in the project area, either at the surface or in the subsurface. As such, NHMLA recommends that a full paleontological assessment of the project area be conducted by a paleontologist meeting Bureau of Land Management or Society of Vertebrate Paleontology standards.

Sincerely,

Alyssa Bell, Ph.D.
Natural History Museum of Los Angeles County

enclosure: invoice