Appendix D

Paleontological Resources Assessment Report
Assessor's Parcel Nos. 670-110-043, -045,
-048 to -053, -055, and -056

CRM Tech

October 24, 2023

PALEONTOLOGICAL RESOURCES ASSESSMENT REPORT

ASSESSOR'S PARCEL NOS. 670-110-043, -045, -048 to -053, -055, and -056

City of Cathedral City
Riverside County, California

For Submittal to:

City of Cathedral City Planning Department
68700 Avenida Lalo Guerrero
Cathedral City, CA 92234

Prepared for:

Compass Consulting Enterprises, Inc.
PO Box 2627
Avalon, CA 90704

Submitted by:

Ron C. Schmidtling, Paleontologist
Breidy Q. Vilcahuaman, Archaeologist/Report Writer
CRM TECH
1016 E. Cooley Drive, Suite A/B
Colton, CA 92324

Michael Hogan, Principal Investigator
Bai Tang, Principal Investigator

October 24, 2023

CRM TECH Contract No. 4027P
Approximately 20.5 acres (project size: 10.48 acres)
Section 15, T4S R5E, San Bernardino Baseline and Meridian
USGS Cathedral City, Calif., 7.5' Quadrangle

EXECUTIVE SUMMARY

Between June and October, 2023, at the request of Compass Consulting Enterprises, Inc., CRM TECH performed a paleontological resource assessment on approximately 20.5 acres of vacant land in the City of Cathedral City, Riverside County, California. The subject property of the study consists of Assessor's Parcel Nos. (APN) 670-110-043, -045, -048 to -053, -055, and -056, located on the east side of Date Palm Drive and the north side of McCallum Way, in the northwest quarter of Section 15, T4S R5E, San Bernardino Baseline and Meridian, as depicted in the United States Geological Survey Cathedral City, Calif., 7.5' quadrangle..

The study is part of the environmental review process for the proposed construction of a 204-unit apartment complex in the northern portion of the study area, namely APN 670-110-043, which measures 10.48 acres. The City of Cathedral City, 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 proposed project would adversely affect any significant, nonrenewable paleontological resources, as required by CEQA.

In order to identify any paleontological resource localities that may exist in or near the study area and to assess the probability for such resources to be encountered during the project, CRM TECH initiated a paleontological records search, conducted a literature review, and carried out a systematic field survey of the study area, in accordance with the guidelines of the Society of Vertebrate Paleontology. The results of these research procedures indicate that the study area is situated entirely upon deposits of Holocene-age sediments, which have a low potential to contain significant, nonrenewable paleontological resources. No paleontological localities were previously identified in or near the study area, nor was any evidence of fossil remains observed during the current survey.

Based on these findings, the proposed project's potential to impact significant, nonrenewable paleontological resources appears to be low. Therefore, CRM TECH recommends to the City of Cathedral City a conclusion of *No Impact* regarding paleontological resources.

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INTRODUCTION

Between June and October, 2023, at the request of Compass Consulting Enterprises, Inc., CRM TECH performed a paleontological resource assessment on approximately 20.5 acres of vacant land in the City of Cathedral City, Riverside County, California (Fig. 1). The subject property of the study consists of Assessor's Parcel Nos. (APN) 670-110-043, -045, -048 to -053, -055, and -056, located on the east side of Date Palm Drive and the north side of McCallum Way, in the northwest quarter of Section 15, T4S R5E, San Bernardino Baseline and Meridian (Figs. 2, 3).

The study is part of the environmental review process for the proposed construction of a 204-unit apartment complex in the northern portion of the study area, namely APN 670-110-043, which measures 10.48 acres (Figs. 2, 3). The City of Cathedral City, 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 proposed project would adversely affect any significant, nonrenewable paleontological resources, as required by CEQA, and to design a paleontological mitigation program, if necessary.

In order to identify any paleontological resource localities that may exist in or near the study area and to assess the probability for such resources to be encountered during the project, CRM TECH initiated a records search at the appropriate repository, conducted a literature review, and carried out a systematic field survey of the study area. The following report is a complete account of the methods, results, and 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.

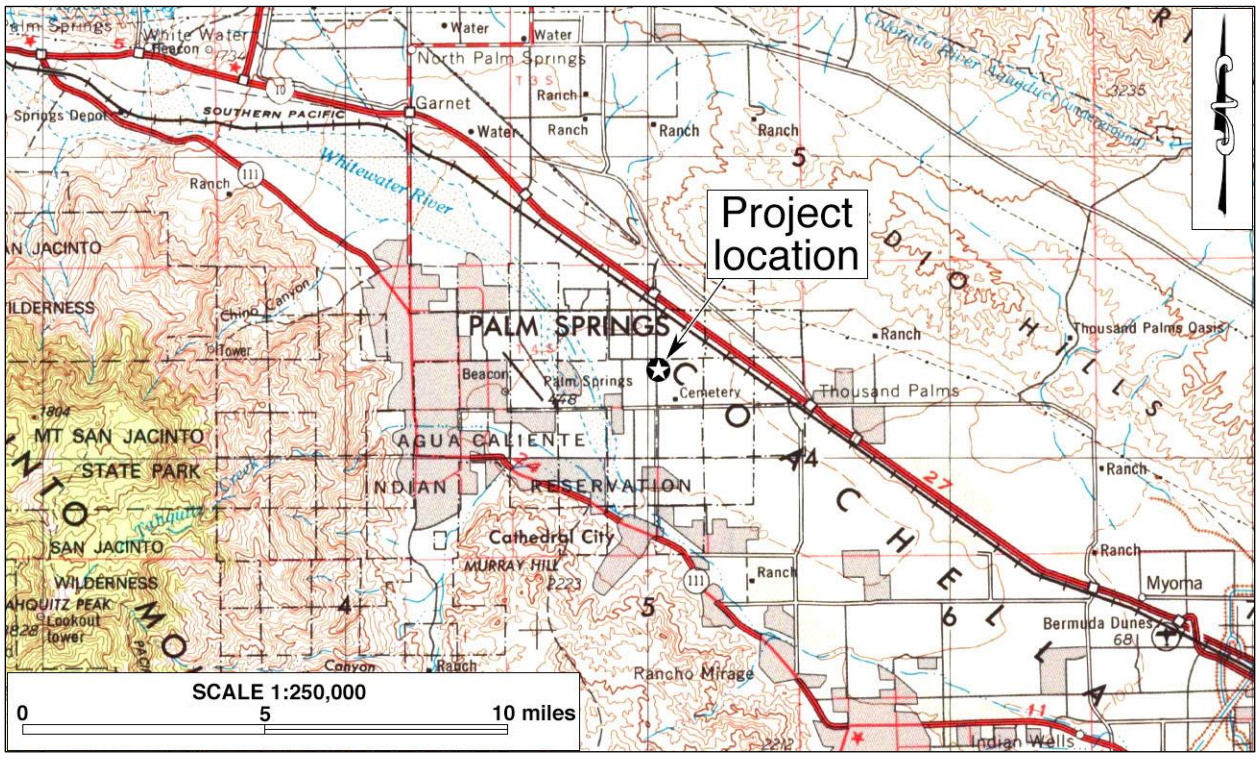

Figure 1. Project vicinity. (Based on USGS Santa Ana, Calif., 120'x60' quadrangle, 1979 edition)

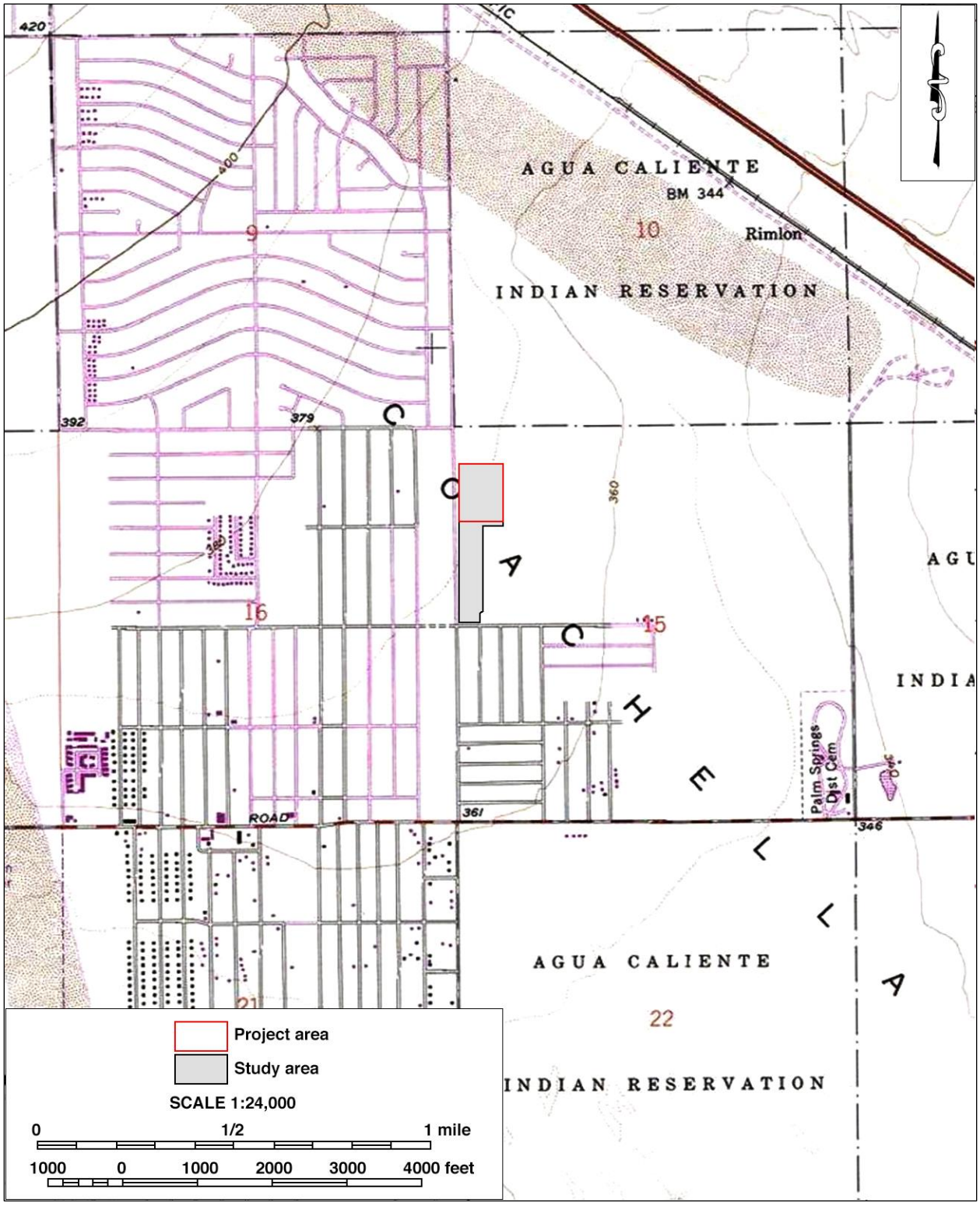

Figure 2. The study area and the project area. (Based on USGS Cathedral City., Calif., 7.5' quadrangle, 1981 edition)

Figure 3. Recent satellite image of the study area. (Based on Google Earth imagery)

PALEONTOLOGICAL RESOURCES

DEFINITIONS

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, which is typically regarded as older than approximately 12,000 years, the generally accepted temporal boundary marking the end of the last late Pleistocene (circa 2.6 million to 12,000 years B.P.) glaciation and the beginning of the current Holocene epoch (circa 12,000 years B.P. to the present).

Common fossil remains include marine shells; the bones and teeth of fish, amphibians, reptiles, and mammals; leaf 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 for yielding vertebrate fossils but also the potential of yielding a few significant fossils that may 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

The City of Cathedral City lies in the Coachella Valley, which occupies the northwestern portion of the Colorado Desert geomorphic province (Jenkins 1980:40-41). The Colorado Desert province is bounded by the Peninsular Ranges province on the southwest, the eastern Transverse Ranges province on the north, and the Mojave Desert province on the northeast *(ibid*.). It widens to the southeast through the Imperial Valley and extends into Mexico.

One of the major features found within the Colorado Desert province is the Salton Trough, a 290-kilometer-long (approximately 180-mile) structural depression containing the present-day Salton Sea and the Holocene-age Lake Cahuilla. It extends from the San Gorgonio Pass area southward into Mexico and, during the late Miocene and early Pliocene, constituted a northward extension of the Gulf of California (Powell 1995). Elevations within the Colorado Desert province tend to be low, while those of the adjacent provinces can be quite high. This configuration has made for rapid filling of the basin, especially along its margins, with coarse clastic sediments.

By late Pleistocene and Holocene times, the northwestern portion of the Salton Trough was filled with more than 4,000 feet of sediments (Proctor 1968). Such coarse sediments afford only local environments for the preservation of vertebrate remains. However, some scattered vertebrate fossils have been found in these fluvial derived clastic sediments. While the term "Salton Trough" refers to the entire structural depression from the San Gorgonio Pass to the Gulf of California, "Salton Basin" is used to describe the portion of the area that drains directly into the Salton Sea (Harms 1996:117). The Salton Sea, therefore, occupies the Salton Basin portion of the Salton Trough (*ibid*.).

Holocene Lake Cahuilla occupied a much larger portion of the Salton Basin than the present-day Salton Sea (Rogers 1965). The shoreline of the last ancient lake can be seen today as a line along the base of the Santa Rosa Mountains at an elevation of approximately 42 feet above mean sea level (Wilke 1978; Waters 1983). However, there were a number of earlier in-fillings of the Salton Trough, each leaving behind lacustrine sediment deposits. When the lake was dry or drying, fluvial sediments were deposited in the same area.

A major feature in the northwestern portion of the Coachella Valley is the San Andreas Fault system. This fault system has brought to the surface rocks as old as the Lower Pliocene Epoch in some areas (Proctor 1968:Plate 1). The area south of the Banning and Garnet Hill fault zones is known to have a thick sedimentary sequence above an igneous/metamorphic basement complex (*ibid*.). Smith (1964) indicates that the valley fill at the project site is less than 8,000 feet thick.

The study area is situated in a suburban setting in the northern portion of Cathedral City, near the Interstate Highway 10 corridor. It is surrounded mostly by residential neighborhoods of relatively recent vintages to the east and the south, a community church to the north, and vacant land across Date Palm Drive to the west (Fig. 3). The terrain is generally level (Fig. 4), with elevations ranging around 370 feet above mean sea level. The surface soil is composed of a light olive gray very fine sand.

The ground surface in the southern portion of the study area has been disturbed by the construction of two commercial buildings at the southern end, one of them currently occupied by a Dollar Tree store, and a paved road that runs east-west across the study area some 400 feet to the north of the

Figure 4. Current condition of the study area. (Photograph taken on July 21, 2023; view to the southwest)

buildings. The central portion of the property retains more of the natural character of the land, while the northern portion has been cleared in the past and is now devoid of any native vegetation (Fig. 3). Vegetation in the central portion consists mainly of creosote bushes, brittlebush, salt cedars, and other small desert shrubs and grasses, with introduced landscaping plants found around the commercial buildings in the southern portion.

METHODS AND PROCEDURES

RECORDS SEARCH

The paleontological records search service for this study was provided by the Western Science Center (WSC) in Hemet, California, which maintains files of regional paleontological localities as well as supporting maps and documents. The records search results were used to identify known previously performed paleontological resource assessments as well as known paleontological localities within a one-mile radius of the study area. A copy of the records search results is attached to this report in Appendix 2.

LITERATURE REVIEW

In conjunction with the records search, CRM TECH report writer Breidy Q. Vilcahuaman reviewed geological literature pertaining to the project vicinity under the direction of principal paleontologist

Ron C. Schmidtling. Sources consulted during the review included primarily topographic, geologic, and soil maps of the Coachella Valley region, published geologic literature pertaining to the project location, satellite and aerial images available at the Nationwide Environmental Title Research (NETR) Online website and through the Google Earth software, and other materials in the CRM TECH library, including unpublished reports produced during similar surveys in the vicinity.

FIELD SURVEY

On July 21, 2023, CRM TECH paleontological surveyor Daniel Ballester carried out the field survey of the study area under the direction of Ron C. Schmidtling. The survey was completed at an intensive level by walking a series of parallel north-south transects spaced 15 meters (approximately 50 feet) apart. In this way, the ground surface in the entire study area was systematically and carefully examined to determine soil types, verify the geological formations, and search for indications of paleontological remains. Ground visibility was good to excellent (85-90%) despite the scattered vegetation growth.

RESULTS AND FINDINGS

RECORDS SEARCH

The records search by the WSC identified no known paleontological localities within the study area, nor within a one-mile radius (Stoneburn 2023; see App. 2). The WSC identifies the geological formation in the study area as Holocene-aged deposits of alluvial sand and gravel (*ibid.*). These younger Quaternary deposits typically do not contain fossilized materials due to their relatively recent age. However, the WSC further points out that excavations reach "any substantial depth" may extend into Pleistocene alluvial sediments, which may contain significant fossil remains (*ibid.*).

LITERATURE REVIEW

The surface geology in the study area has been mapped by several past studies. Rogers (1965) maps it as *Qal-Qs*, which represents recent alluvium and sand dune deposits. Dibblee (2008) maps it as *Qs*, or recent loose fine sand deposits over alluvial sand and gravel or older alluvial gravel and sand (Fig. 5). Lancaster et al. (2012) map it as *Qe*, or Eolian and Dune Deposits, which contain unconsolidated, generally well-sorted wind-blown sand. None of these studies shows any older sediments on the surface in the immediate vicinity of the study area.

The original surface soils in the study area are mapped as *ChC* and *CdC* (Knecht 1980:Map Sheet 6). Both of these soil types belong to the Carsitas Series (*ibid.*:11, 12). The CdC-type soils are described as Carsitas gravelly sand, 0-9% slopes, and the ChC-type soils are described as Carsitas cobbly sand, 2-9% slopes (*ibid.*). Both are gently sloping to moderately sloping soils on alluvial fans, valley fill, and remnants of dissected alluvial fans along the east, north, and west edges of the Coachella Valley. The California Soil Resource Laboratory (n.d.) identifies the surface soil type in the study area as *MaB*, which belongs to the Myoma Series, specifically the Myoma fine sand, 0-5% slopes. These soils form in nearly level to gently sloping areas on alluvial fans where they merge with finer textured flood plain and basin deposits (*ibid*.).

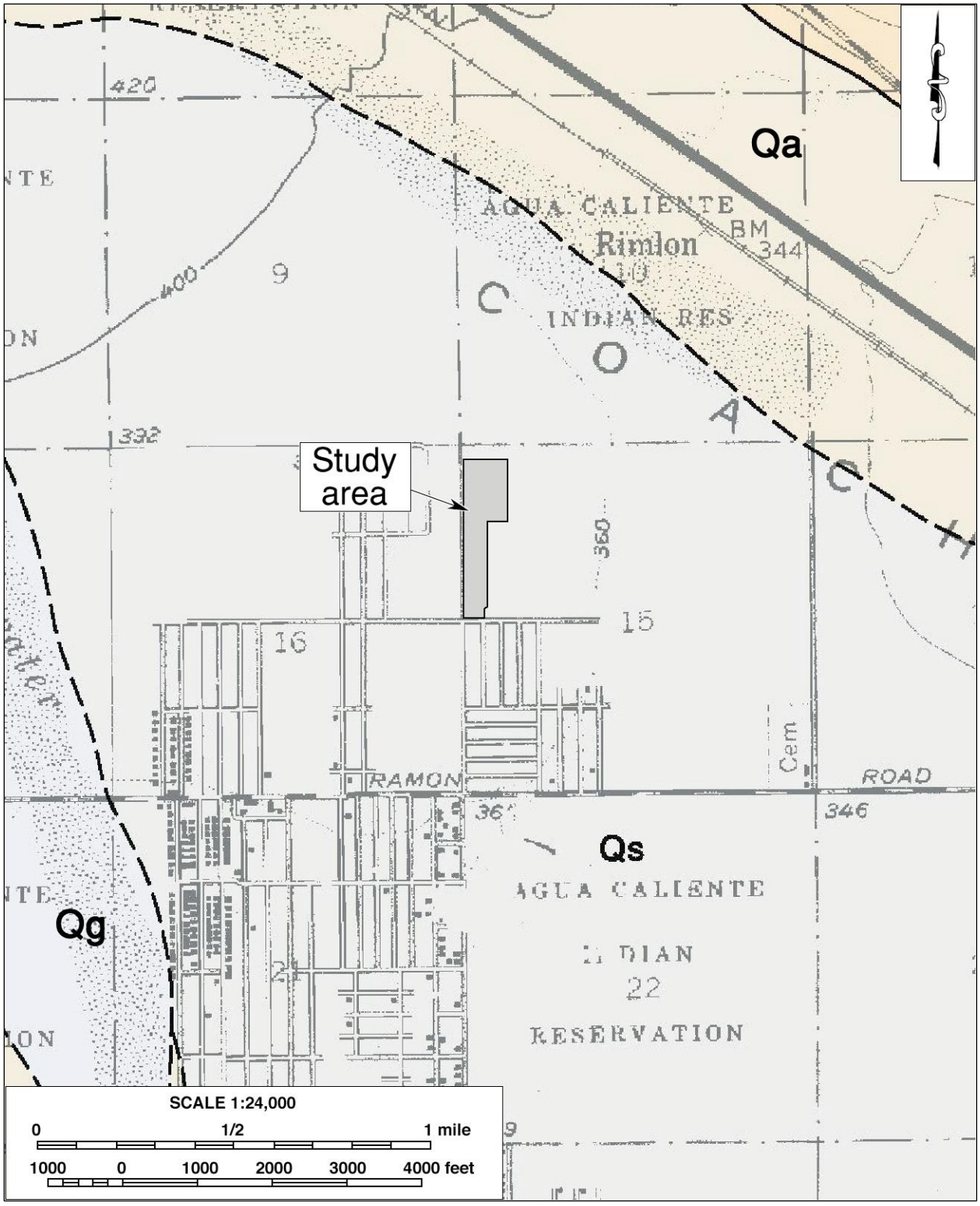

Figure 5. Geologic map of the project vicinity. (Based on Dibblee 2008)

FIELD SURVEY

The field survey yielded negative findings for potential paleontological resources, and no surficial indications of any fossil remains were observed within or adjacent to the study area.

CONCLUSION AND RECOMMENDATIONS

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 study area, and to assess the possibility for such resources to be encountered in future excavation and construction activities.

The results of the records search and the literature research indicate that the study area is situated entirely upon deposits of Holocene-age sediments, which have a low potential to contain significant, nonrenewable paleontological resources. No paleontological localities were previously identified in or near the study area, nor was any evidence of fossil remains observed during the current survey. Based on these findings, the proposed project's potential to impact significant, nonrenewable paleontological resources appears to be low. Therefore, CRM TECH recommends to the City of Cathedral City a conclusion of *No Impact* regarding paleontological resources.

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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.

REPORT WRITER
Breidy Q. Vilcahuaman, M.A., RPA (Registered Professional Archaeologist)

Education

2018	M.A., Anthropology, Georgia State University, Atlanta, Georgia.
2005	B.A., Anthropology, University Nacional del Centro del Peru.

Professional Experience

2022-	Project Archaeologist, CRM TECH, Colton, California.
2021-2022	Archaeological Technician, Applied Earthwork, Inc., Hemet, California.
2021	Archaeologist/Crew Chief, Historical Research Associates, Inc., Portland, Oregon.
2020-2021	Archaeological/Paleontological Technician, Cogstone Resource Management, Orange, California.
2020	Archaeological Technician, McKenna et al., Whittier, California.

FIELD DIRECTOR/PALENTOLOGICAL SURVEYOR
Daniel Ballester, M.S.

Education

2013	M.S., Geographic Information System (GIS), University of Redlands, California.
1998	B.A., Anthropology, California State University, San Bernardino.
1997	Archaeological Field School, University of Las Vegas and University of California, Riverside.
1994	University of Puerto Rico, Rio Piedras, Puerto Rico.

- Cross-trained in paleontological field procedures and identifications by CRM TECH Geologist/Paleontologist Harry M. Quinn.

Professional Experience

2002-	Field Director/GIS Specialist, CRM TECH, Riverside/Colton, California.
2011-2012	GIS Specialist for Caltrans District 8 Project, Garcia and Associates, San Anselmo, California.
2009-2010	Field Crew Chief, Garcia and Associates, San Anselmo, California.
2009-2010	Field Crew, ECorp, Redlands.
1999-2002	Project Paleontologist/Archaeologist, CRM TECH, Riverside, California.
1998-1999	Field Crew, K.E.A. Environmental, San Diego, California.
1998	Field Crew, A.S.M. Affiliates, Encinitas, California.
1998	Field Crew, Archaeological Research Unit, University of California, Riverside.

APPENDIX 2

RECORDS SEARCH RESULTS

WESTERN SCIENCE CENTER

August 9th, 2023

CRM Tech
Nina Gallardo
1016 E. Cooley Drive, Suite A/B
Colton, CA 92324

Dear Ms. Gallardo,

This letter presents the results of a record search conducted for the Proposed 200 Unit Apartment Project in the city of Cathedral City, Riverside County, CA. The project area is located north of Mccallum Way, south of 30th Ave, and east of Date Palm Drive on Township 4 South, Range 5 East, Section 15 on the *Thousand Palms, CA* USGS 7.5 minute quadrangle.

The geologic units underlying this project are mapped primarily as Holocene aged deposits of alluvial sand and gravel (Dibblee and Minch 2008). Holocene alluvial units are considered to be of high preservation value, but material found is unlikely to be fossil material due to the relatively modern associated dates of the deposits. However, if development requires any substantial depth of disturbance, the likelihood of reaching Pleistocene alluvial sediments would increase. The Western Science Center does not have any localities within the project area or within a 1 mile radius.

While the presence of any fossil material is unlikely, if excavation activity disturbs deeper sediment dating to the earliest parts of the Holocene or Late Pleistocene periods, the material would be scientifically significant. Excavation activity associated with the development of the project area is unlikely to be paleontologically sensitive, but caution during development should be observed.

If you have any questions, or would like further information, please feel free to contact me at bstoneburg@westerncentermuseum.org.

Sincerely,

Brittney Elizabeth Stoneburg, MSc
Collections Manager

Proposed 200 Unit Apartment Project

project area + 1 mile radius

Legend

- 1 Mile Radius
- Proposed 200 Unit Apartment Project
- Q: Quaternary alluvium and marine deposits (Pliocene to Holocene)
- Qs: Quaternary sand deposits, unit 2 (inland) (Quaternary)

Vista Chino
DoubleTree by Hilton Hotel Golf...
Dairy Queen Grill & Chill
Escena Golf Club
Landau Blvd
Date Palm Dr
30th Ave
Varner Rd
Cardenas Markets
Ramon Rd
Walmart Supercenter
Dinah Shore Dr
Ocotillo Park
Da Vall Dr
Agua Caliente Reso
10
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Survey
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