PALEONTOLOGICAL RESOURCES ASSESSMENT REPORT

ROME HILL COMMERCIAL DEVELOPMENT PROJECT

Assessor's Parcel Numbers 371-150-001 and -002
City of Lake Elsinore, Riverside County, California

For Submittal to:

City of Lake Elsinore
130 South Main Street
Lake Elsinore, CA 92530

Prepared for:

Builder's Max, Inc.
1207 North East Street
Anaheim, CA 92805

Prepared by:

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Bai "Tom" Tang, Principal Investigator
Michael Hogan, Principal Investigator

May 22, 2022

CRM TECH Contract No. 3808P
Approximately 6.75 acres
USGS Lake Elsinore, Calif., 7.5' (1:24,000) quadrangle
La Laguna (Stearns) land grant; T6S R4W, San Bernardino Baseline and Meridian

EXECUTIVE SUMMARY

Between November 2021 and May 2022, at the request of Builder's Max, Inc., CRM TECH performed a paleontological resource assessment for the proposed Rome Hill Commercial Development Project in the City of Lake Elsinore, Riverside County, California. The project area consists of approximately 6.75 acres of vacant land in Assessor's Parcel Numbers 371-150-001 and -002, located on the northeastern side of Grand Avenue and to the west of Rome Hill, on the southern shore of Lake Elsinore. It comprises a portion of the Rancho La Laguna (Stearns) land grant lying within Township 6 South Range 4 West, San Bernardino Baseline and Meridian.

The study is a part of the environmental review process for the project. The City of Lake Elsinore, as the lead agency, 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 project area and to assess the probability for such resources to be encountered during the project, CRM TECH initiated a records search at the Western Science Center (WSC), conducted a literature review, and carried out a systematic field survey.

Geologic sources suggest that the soils in much of the project area are composed of alluvial and fluvial valley and terrace deposits. Soil descriptions of these units vary, with some dating them to the Holocene and others to the early Holocene to Pleistocene. The most recent geologic maps of the area shows the knoll at the northeastern end of the property as a part of the sandstone member of the fossiliferous Pleistocene Pauba formation. The County of Riverside assigned the project area an "Undetermined Potential" in the portion closest to Grand Avenue and a "Low Potential" elsewhere. The WSC assesses the soils at this location as being highly sensitive based on nearby clusters of fossil localities in similar formations and cautions that any excavations associated with the project could encounter scientifically significant paleontological resources.

Based on these findings, CRM TECH concludes that the proposed project's potential to impact significant, nonrenewable paleontological resources appears to be high, especially near higher elevations at and near the knoll at the northeastern end. Therefore, CRM TECH recommends that a paleontological resource impact mitigation program be developed and implemented during the project to prevent such impacts or reduce them to a level less than significant. As the primary component of the mitigation program, all earth-moving operations in the project area should be monitored by a qualified paleontological monitor. Under this condition, the proposed project may be cleared to proceed in compliance with CEQA provisions on paleontological resources.

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INTRODUCTION

Between November 2021 and May 2022, at the request of Builder's Max, Inc., CRM TECH performed a paleontological resource assessment for the proposed Rome Hill Commercial Development Project in the City of Lake Elsinore, Riverside County, California (Figure 1). The project area consists of approximately 6.75 acres of vacant land in Assessor's Parcel Numbers 371-150-001 and -002, located on the northeastern side of Grand Avenue and to the west of Rome Hill, on the southern shore of Lake Elsinore. It comprises a portion of the Rancho La Laguna (Stearns) land grant lying within Township 6 South Range 4 West, San Bernardino Baseline and Meridian (Figures 2, 3).

The study is a part of the environmental review process for the project. The City of Lake Elsinore, as the lead agency, required the study in compliance with the California Environmental Quality Act (CEQA; PRC §21000, et seq.). 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 project area and to assess the probability for such resources to be encountered during the project, CRM TECH initiated a records search at the Western Science Center (WSC), conducted a literature review, and carried out a systematic field survey. The following report is a complete account of the methods, results, and final conclusion of the study. Personnel who participated in the study are named in the appropriate sections below, and their qualifications are provided in Appendix 1.

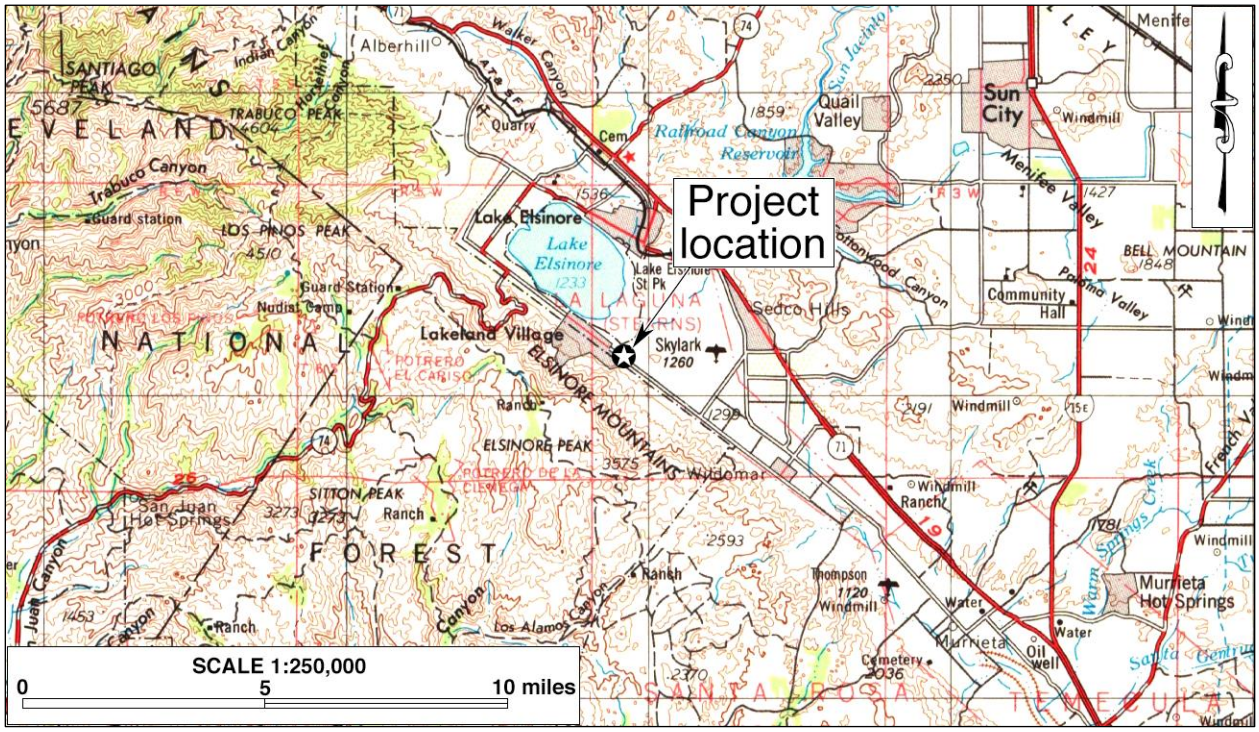


Figure 1. Project vicinity. (Based on USGS Santa Ana, Calif., 120'x60' quadrangle, 1979 edition)

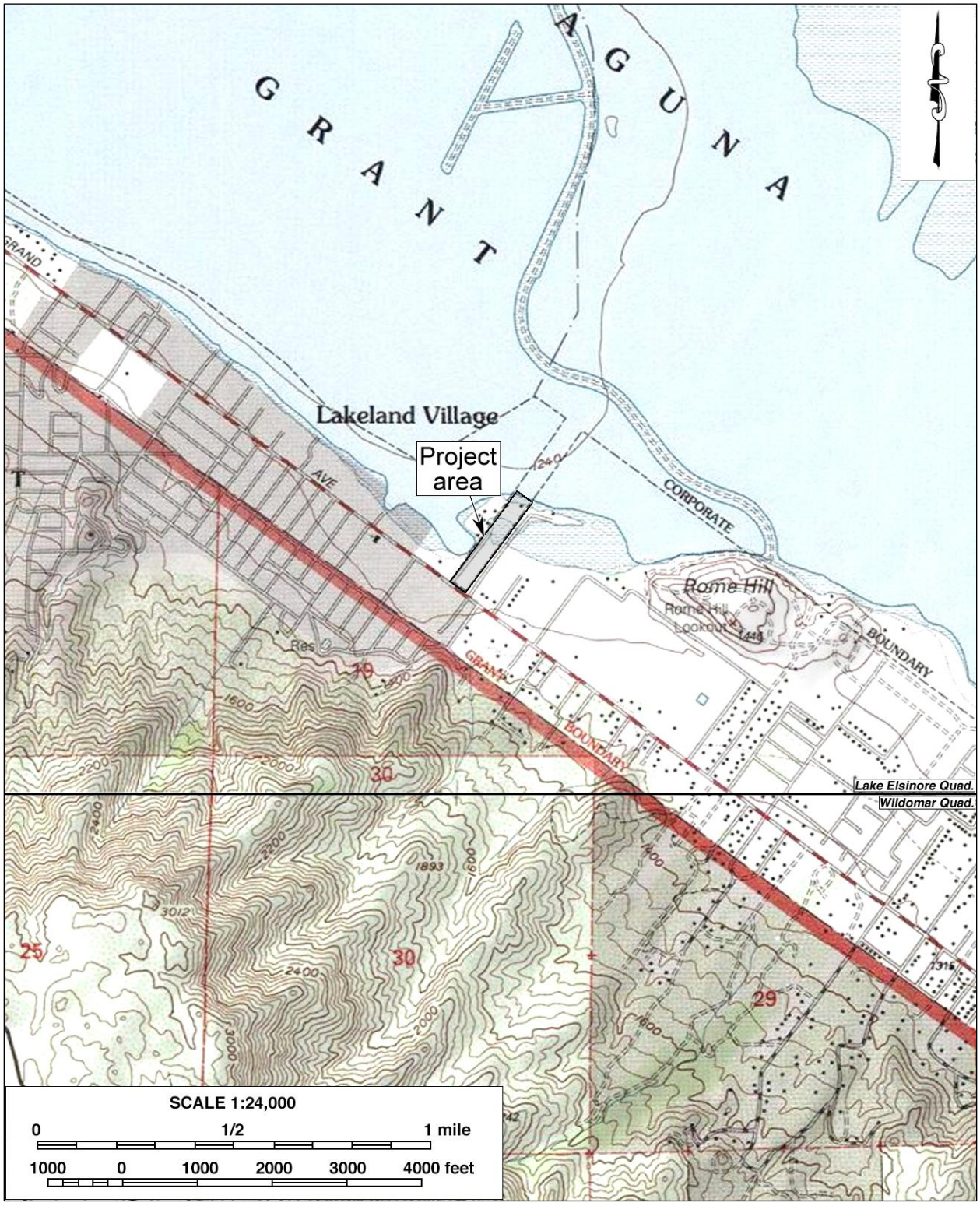


Figure 2. Project location. (Based on USGS Lake Elsinore and Wildomar, Calif., 7.5' quadrangles, 1988 edition)

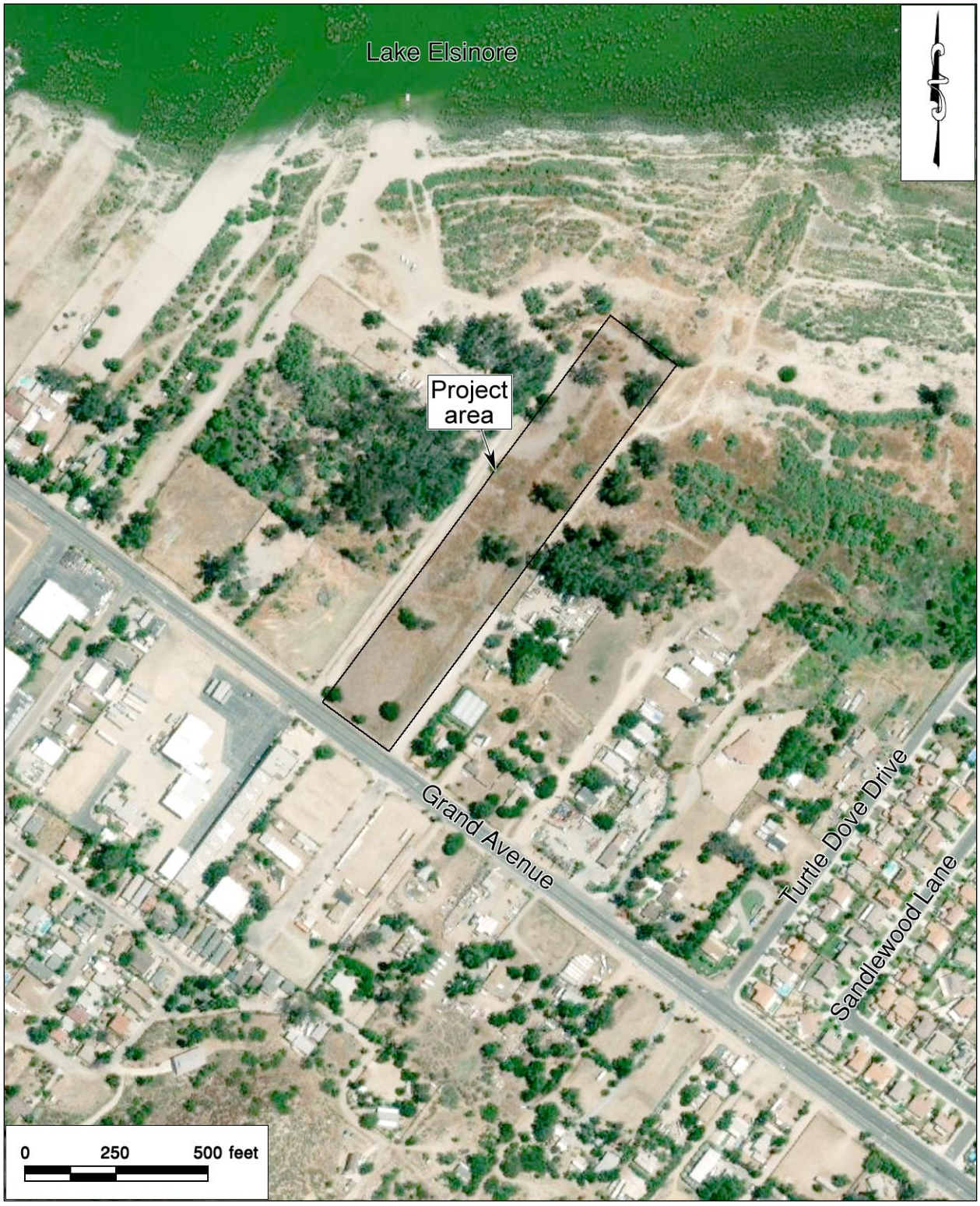


Figure 3. Recent satellite image of the project area.

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, 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 biota;
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 Lake Elsinore area is situated in the northern portion of the Peninsular Ranges Province, near where it adjoins the Transverse Ranges Province (Jenkins 1980:40-41; Harms 1996:131). The Peninsular Ranges Province is bounded on the north by the Transverse Ranges Province, on the northeast by the Colorado Desert Province, and on the west by the Pacific Ocean (*ibid.*). It extends southward to the southern tip of Baja California (Jahns 1954:Plate 3; Harden 2004:465).

The Peninsular Ranges Province is made up of a series of northwest-southeast trending structural blocks consisting of uplifted mountains that are separated by valley basins that have developed along the intervening fault zones. The mountains are made up mainly of igneous intrusive rocks, metasedimentary rocks, and some metavolcanic rocks (Harden 2004:466-468). The non-crystalline rocks in the western portion of the mountains consist of both metavolcanic and metasedimentary rocks that are mainly of Mesozoic age, while the eastern portion contains mainly metasedimentary rocks of Paleozoic and older age (*ibid.*:471-472). The crystalline basement rocks are present in both the western and the eastern portions and consist mainly of Mesozoic-age granitic rocks with some scattered gabbroic intrusions (*ibid.*:466-468).

The project area lies on the southeast shore of Lake Elsinore, the largest natural lake in southern California. Geologically, the area is a part of the Elsinore Fault Zone, being to the north of Elsinore Peak and approximately a half-mile from the foothills of the Santa Ana Mountains, which define the southeastern boundary bound the fault zone. This location is at the southern end of the Perris Block, which is situated between the San Jacinto and Elsinore-Chino fault zones (English 1926). The Perris Block is bounded on the north by the Cucamonga (San Gabriel) Fault and on the south by a vaguely delineated boundary near the southern end of the Temecula Valley (*ibid.*). This structural block is considered to have been active since Pliocene time (Woodford et al. 1971:3421). Colluvial/alluvial sediments of varying thickness derived from the erosion of the elevated portions of the region fill the low-lying areas of the Perris Block. These structurally depressed troughs are filled with nonmarine sediments of upper Pliocene through Recent ages (Mann 1955:Plate 1; Kennedy 1977:5), and the ridges are composed of plutonic igneous rocks, metasedimentary rocks, and late-stage intrusive dikes.

The terrain in the project area is relatively level except for a small knoll in the northeastern portion, and the elevations on the property range roughly from 1,260 feet to 1,280 feet above mean sea level. The boundaries of the project area are defined by a rural residential property on the northwest, Grand Avenue on the southwest, Kathryn Way on the southeast, and a portion of the exposed lakebed of Lake Elsinore on the northeast (Figure 3). Much of the surface soils of the project area appear to be disturbed, and the vegetation consists of non-native trees as well as low-lying grasses (Figure 4).

METHODS AND PROCEDURES

RECORDS SEARCHES

The records search service for this study was provided by the Western Science Center (WSC) in Hemet. The WSC maintains files of regional paleontological localities as well as supporting maps

Figure 4. Overview of the current natural setting of the project area. (Photograph taken on January 26, 2022; view to the southwest)

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 project location. A copy of the records search results are attached to this report in Appendix 2.

LITERATURE REVIEW

In conjunction with the records searches, CRM TECH paleontologist Ben Kerridge pursued a literature review on the project area and vicinity under the direction of principal paleontologist Ron Schmidtling. Sources consulted include primarily topographic, geologic, and soil maps of the Lake Elsinore area, published geologic literature pertaining to the project location, the Riverside County General Plan and Geographic Information System, 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 January 26, 2022, CRM TECH paleontological surveyor Daniel Ballester carried out the intensive-level field survey of the project area under Ron Schmidtling's direction. During the survey, Ballester walked a series of parallel northeast-southwest transects spaced 15 meters (approximately 50 feet) apart. In this way, the ground surface of the project area was systematically examined to determine soil types, verify the geological formations, and search for indications of

paleontological remains. Ground visibility was good to excellent (90 percent) as the area had been largely cleared of vegetation (Figure 4).

RESULTS AND FINDINGS

RECORDS SEARCHES

The WSC did not identify any known paleontological localities within the project area or within a mile radius but reported a cluster of localities just beyond one mile (see Appendix 2). The WSC described the surface soils in the project area as entirely alluvial valley deposits of Pleistocene to Holocene age. According to the WSC, the Pleistocene-aged soils match those at the nearby fossil localities that have produced fossil specimens such as mammoth, camel, and bison. Therefore, the WSC considers these soils high sensitivity for scientifically significant paleontological resources (see Appendix 2).

LITERATURE REVIEW

Engel (1947) maps the surface geology of the project area as *Qal* and *Qf*, with *Qf* corresponding to the small knoll in the northeastern portion of the property. He describes *Qal* as Holocene alluvium and *Qf* as Pleistocene fanglomerate or terrace deposits (*ibid.*). Rogers (1965) maps the project area as uniformly *Qal.* Jennings (1977) shows the soils in the project area as *Q*, defined as alluvium, lake, playa, and terrace deposits of late Holocene age.

Morton and Weber (2003) identify the project area geology as *Qyva* for the level areas and *Qpfs* for the knoll. They describe *Qyva* as Holocene to late Pleistocene fluvial valley deposits of unconsolidated sand, silt, and clay and *Qpfs* as the sandstone member of the Pleistocene age Pauba formation (*ibid.*). Morton and Miller (2006; Figure 5) show the surface geology at the project location as *Qvya* in the level area in the southwest and *Qps* in the elevated portion in the northeast. Their definition and description of *Qvya* and *Qps* are essentially identical to those of *Qyva* and *Qpfs*, respectively, by Morton and Weber (2003).

Riverside County paleontological sensitivity maps classify the project location as "Undetermined Potential" in the area near Grand Avenue and as "Low Potential" in the northeastern portion (RCIT n.d.). According to definitions outlined in the County's General Plan, "Undetermined Potential" means:

> Areas underlain by sedimentary rocks for which literature or unpublished studies are not available have undetermined potential for containing significant paleontological resources. These areas need to be inspected by a qualified vertebrate paleontologist before a specific determination of high potential or low potential can be assigned. (County of Riverside 2015:4.9-11)

"Low Potential" is described as follows:

> Lands for which previous field surveys and documentation demonstrate as having a low potential for containing significant paleontological resources subject to adverse impacts. The mapping of low potential was determined based on actual documentation and was not generalized to cover all areas

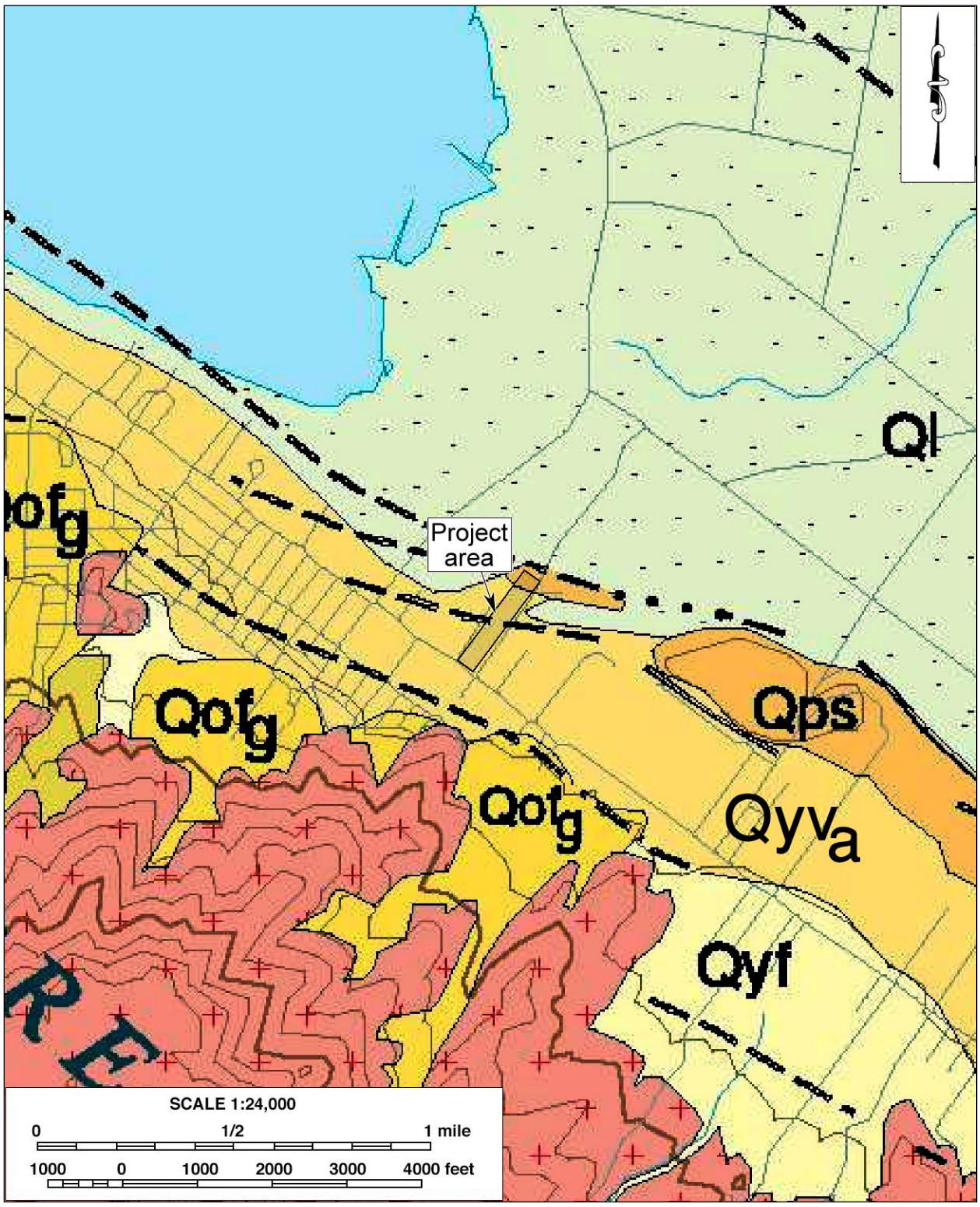


Figure 5. Geologic map of the project vicinity. (Based on Morton and Miller 2006)

> of a particular rock unit on a geologic map. It must be noted that surface geology, such as soils, are not always indicative of subsurface geology or the potential for paleontological resources. For instance, an area mapped as soil type "Qal" may actually be a thin surficial layer of non-fossiliferous sediments which covers fossil-rich Pleistocene sediments. Also, an area mapped as granite may be covered by a Pleistocene soil horizon that contains fossils. Thus, actual sensitivity must be ultimately determined by both a records search and a field inspection by a paleontologist. (County of Riverside 2015:4.9-11).

FIELD SURVEY

Throughout the course of the field survey, no surface manifestation of any paleontological remains was observed within the project area. It was observed during the survey that native soils in the project area range from sandy loams to loamy sands.

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

In summary of the research results presented above, no paleontological localities were previously found in the project area, and no surface manifestation of any fossil remains were observed during the field survey. Geologic sources suggest that the soils in much of the project area are composed of alluvial and fluvial valley and terrace deposits. Soil descriptions of these units vary, with some dating them to the Holocene and others to the early Holocene to Pleistocene. The most recent geologic maps of the area shows the knoll at the northeastern end of the property as a part of the sandstone member of the fossiliferous Pleistocene Pauba formation. The County of Riverside assigned the project area an "Undetermined Potential" in the portion closest to Grand Avenue and a "Low Potential" elsewhere. The WSC assesses the soils at this location as being highly sensitive based on nearby clusters of fossil localities in similar formations and cautions that any excavations associated with the project could encounter scientifically significant paleontological resources.

Based on these findings, CRM TECH concludes that the proposed project's potential to impact significant, nonrenewable paleontological resources appears to be high, especially near higher elevations at and near the knoll at the northeastern end. Therefore, CRM TECH recommends that a paleontological resource impact mitigation program be developed and implemented during the project to prevent such impacts 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:

- All Earth-moving operations in the project area should be monitored for potential paleontological remains by a qualified paleontological monitor. The monitor should be prepared to quickly

salvage fossils, if they are unearthed, to avoid construction delays, but must have the power to temporarily halt or divert construction equipment to allow for 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 report and the inventory, when approved by the City of Lake Elsinore, 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.

REFERENCES

County of Riverside
2015 County of Riverside General Plan. https://planning.rctlma.org/Portals/14/genplan/general_plan_2015/DEIR%20521/04-09_CulturalAndPaleoResrcs.pdf.

Engel, Rene
1947 Geologic Map of the Lake Elsinore Quadrangle (1:62,500). California Division of Mines. https://thesis.library.caltech.edu/7910/7/Engel_r_1959_plate_1.PDF.

English, W.A.
1926 *Geology and Oil Resources of the Puente Hills Region, Southern California*. United States Geological Survey Bulletin 146. Washington, D.C.

Harden, Deborah R.
2004 *California Geology*. Prentice Hall, Upper Saddle River, New Jersey.

Harms, Nancy S.
1996 *A Precollegiate Teachers Guide to California Geomorphic/Physiographic Provinces*. National Association of Geoscience Teachers, Far West Section, Concord, California.

Jahns, R.H.
1954 Geology of the Peninsular Range Province, Southern California and Baja California. In R.H. Jahns (ed.): *Geology of Southern California*; Chapter II. California Division of Mines Bulletin 170, Part 3. San Francisco.

Jenkins, Olaf P.
1980 Geomorphic Provinces Map of California. *California Geology* 32(2):40-41.

Kennedy, Michael P.
1977 *Recency and Character of Faulting along the Elsinore Fault Zone in Southern Riverside County, California*. California Division of Mines and Geology Special Report 131. Sacramento.

Mann, John F., Jr.
1955 *Geology of a Portion of the Elsinore Fault Zone, California*. California Division of Mines Special Report 43. San Francisco.

Morton, Douglas M. and Fred K. Miller
2006 Geologic Map of the San Bernardino and Santa Ana 30'x60' Quadrangles, California. United States Geological Survey Open-file Report 06-1217. Washington, D.C.

Morton, Douglas M. and F. Harold Weber, Jr.
2003 Preliminary Geologic Map of the Elsinore 7.5' Quadrangle, Riverside County, California; Version 1.0. United States Geological Survey Open-file Report 03-281. Washington, D.C.
Raup, David M., and Steven M. Stanley
1978 *Principle of Paleontology*. W.H. Freeman and Company, San Francisco.
RCIT (Riverside County Information Technology)
n.d. Map My County. https://gis.countyofriverside.us/Html5Viewer/?viewer=MMC_Public.
Rogers, Thomas H.
1965 Geological Map of California, Santa Ana Sheet (1:250,000). California Division of Mines and Geology, Sacramento.
Scott, Eric
2004 Personal communication with CRM TECH geologist/paleontologist Harry M. Quinn.
Scott, Eric, and Kathleen 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.
Woodford, Alfred O., John S. Shelton, Donald O. Doehring, and Richard K. Morton
1971 Pliocene-Pleistocene History of the Perris Block, Southern California. *Geological Society of America Bulletin* 82(12):3421-3448.

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/REPORT WRITER
Ben Kerridge, M.A.

Education

2019-2020	Physical Geology, California Geology, and Historical Geology Coursework, Fullerton College, Fullerton, California.
2014	Geoarchaeological Field School, Institute for Field Research, Kephallenia, Greece.
2010	M.A., Anthropology, California State University, Fullerton.
2004	B.A., Anthropology, California State University, Fullerton.

Professional Experience

2015-	Project Archaeologist/Paleontologist/Report Writer, 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.

PALEONTOLOGICAL SURVEYOR/FIELD DIRECTOR
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

(Confidential)

WESTERN SCIENCE CENTER

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

November 30, 2021

Dear Ms. Gallardo,

This letter presents the results of a record search conducted for the Proposed Rome Hill Commercial Development Project (CRM TECH No. 3808P) in the city of Lake Elsinore, Riverside County, California. The project site is located at the northeast intersection of Grand Avenue and Kathryn Way in the La Laguna (Stearns) Land Grant in Township 6 South, and Range 4 West, on the *Lake Elsinore* and *Wildomar* USGS 7.5-minute quadrangle.

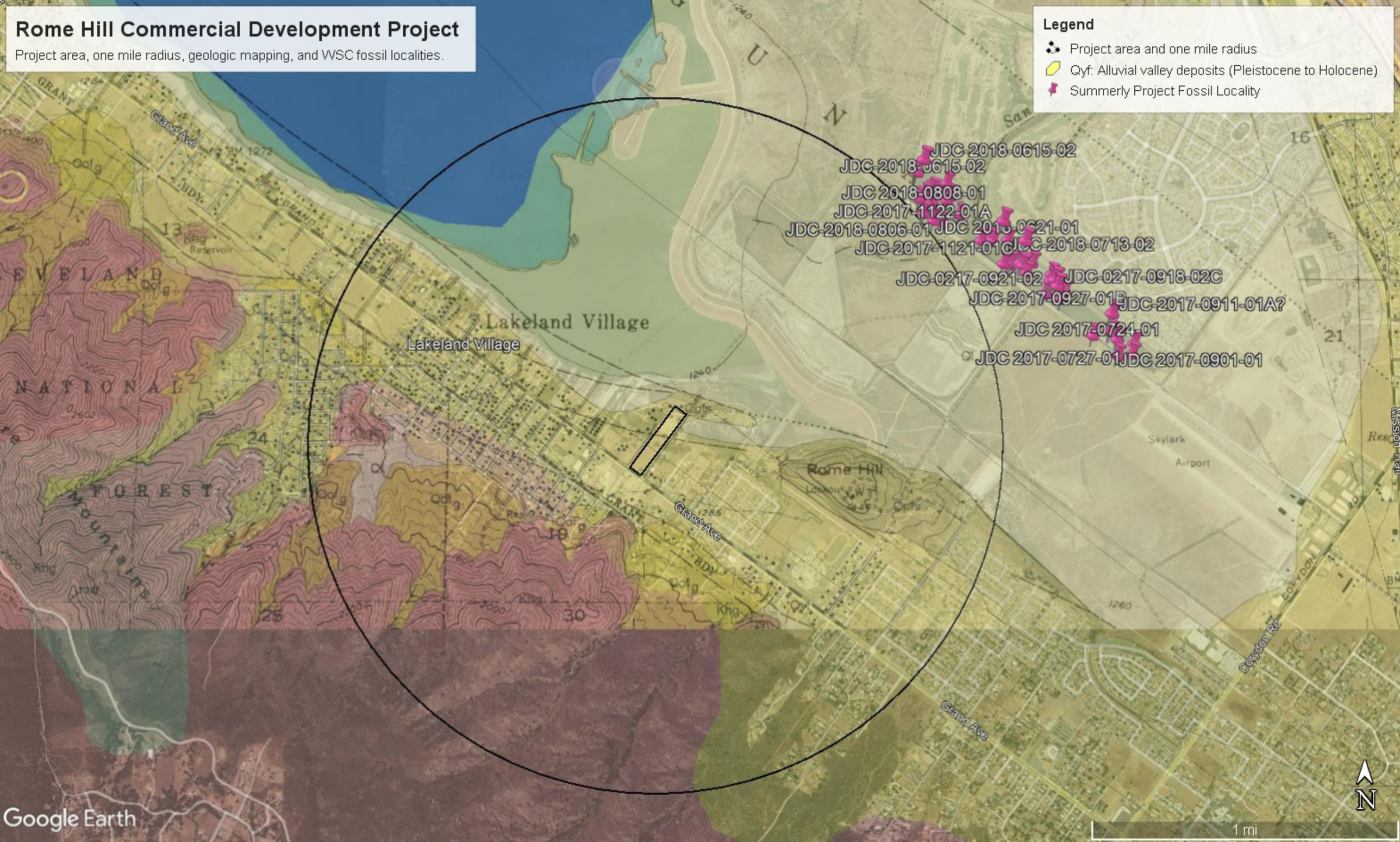
The geologic units underlying the project area are mapped entirely as alluvial valley deposits dating from the Pleistocene to Holocene epoch (Morton & Webber, 2003). Pleistocene alluvial units are considered to be of high paleontological sensitivity, and while the Western Science Center does not have localities within the project area or a one-mile radius, we do have multiple localities associated with the Summerly Project just outside of the one-mile radius. Carbon-14 dating conducted on wood samples at the site indicated a depositional age of 14,830 BP +/- 50 years and squarely placed the site in the Pleistocene epoch. The Summerly Project consisted of over fifty fossil localities and included fossil specimens associated with mammoth (*Mammuthus columbi*), camel (*Camelops hesternus*), bison (*Bison sp.*) and many more.

Any fossil specimens recovered from the Proposed Rome Hill Commercial Development Project would be scientifically significant. Excavation activity associated with the development of the project area would impact the paleontologically sensitive Pleistocene alluvial units, and it is the recommendation of the Western Science Center that a paleontological resource mitigation program be put in place to monitor, salvage, and curate any recovered fossils from the study area.

If you have any questions, or would like further information about the Summerly Project, please feel free to contact me at dradford@westerncentermuseum.org

Sincerely,

Darla Radford
Collections Manager


Rome Hill Commercial Development Project
Project area, one mile radius, geologic mapping, and WSC fossil localities.
Legend
Project area and one mile radius
Qyf: Alluvial valley deposits (Pleistocene to Holocene)
Summerly Project Fossil Locality
JDC-2018-0615-02
JDC-2018-0615-02
JDC 2018-0808-01
JDC-2017-1122-01A
JDC-2018-0806-01
JDC 2018-0621-01
JDC-2017-1121-01C
JDC-2018-0713-02
JDC-0217-0921-02
JDC-0217-0918-02C
JDC-2017-0927-01B
JDC-2017-0911-01A?
JDC 2017-0724-01
JDC 2017-0727-01
JDC 2017-0901-01
Lakeland Village
Lakeland Village
Rome Hill
Skylark
Airport
Grand Ave
Grand Ave
Grand Ave
Corydon Rd
Google Earth
1 mi
N