PALEONTOLOGICAL RESOURCES ASSESSMENT REPORT

BLEDSOE CREEK SLOPE AND STORM DRAIN REPAIR PROJECT

Line A Storm Drain Improvements on APN 0288-251-83
City of Highland, San Bernardino County, California

For Submittal to:

City of Highland
27215 Base Line
Highland, CA 92346

Prepared for:

Jericho Systems, Inc.
47 North 1st Street, Suite 1
Redlands, CA 92373-4601

Prepared by:

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

June 4, 2020

CRM TECH Contract No. 3601P
USGS Harrison Mtn., Calif., 7.5' (1:24,000) Quadrangle
Section 35, T1N R3W, San Bernardino Baseline and Meridian
Approximately 1.2 Acres; Assessor's Parcel Number 0288-251-83

EXECUTIVE SUMMARY

Between March and June 2020, at the request of Jericho Systems, Inc., CRM TECH performed a paleontological resource assessment on approximately 1.2 acres of vacant land in the City of Highland, San Bernardino County, California. The subject property of the study comprises a portion of Assessor's Parcel Number 0288-251-83, located on the south side of Highland Avenue between Rockspring Lane and Cloverhill Drive, to the west of the East Highland Reservoir, in the west half of Section 35, Township 1 North, Range 3 West, San Bernardino Baseline and Meridian.

The study is part of the environmental review process for the proposed construction of new underground storm drain improvements at the upstream terminus of Bledsoe Creek, replacement of a concrete apron at the storm drain outlet, and re-grading and stabilization of an existing embankment slope. The City of Highland, 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 project area and to assess the probability for such resources to be encountered during the project, CRM TECH initiated a records search at the San Bernardino County Museum, conducted a literature review, and carried out a systematic field survey of the project area. Based on the results of these research procedures, the proposed project's potential to impact significant, nonrenewable paleontological resources appears to be high in the relatively undisturbed, older Pleistocene alluvium in the subsurface sediments.

Due to the variable thickness of and inconsistent identification of the surface soils in the project area, CRM TECH recommends that a paleontological resource impact mitigation program be developed and implemented during the project to prevent impacts on paleontological resources 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 that reach beyond a depth of two feet below the ground surface should be monitored for potential paleontological resources. 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 March and June 2020, at the request of Jericho Systems, Inc., CRM TECH performed a paleontological resource assessment on approximately 1.2 acres of vacant land in the City of Highland, San Bernardino County, California (Figure 1). The subject property of the study comprises a portion of Assessor's Parcel Number 0288-251-83, located on the south side of Highland Avenue between Rockspring Lane and Cloverhill Drive, to the west of the East Highland Reservoir, in the west half of Section 35, Township 1 North, Range 3 West, San Bernardino Baseline and Meridian (Figures 2, 3).

The study is part of the environmental review process for the proposed construction of new underground storm drain improvements at the upstream terminus of Bledsoe Creek, replacement of a concrete apron at the storm drain outlet, and re-grading and stabilization of an existing embankment slope. The City of Highland, as the lead agency for the project, 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 San Bernardino County Museum, conducted a literature review, and carried out a systematic field survey of the project area. 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.

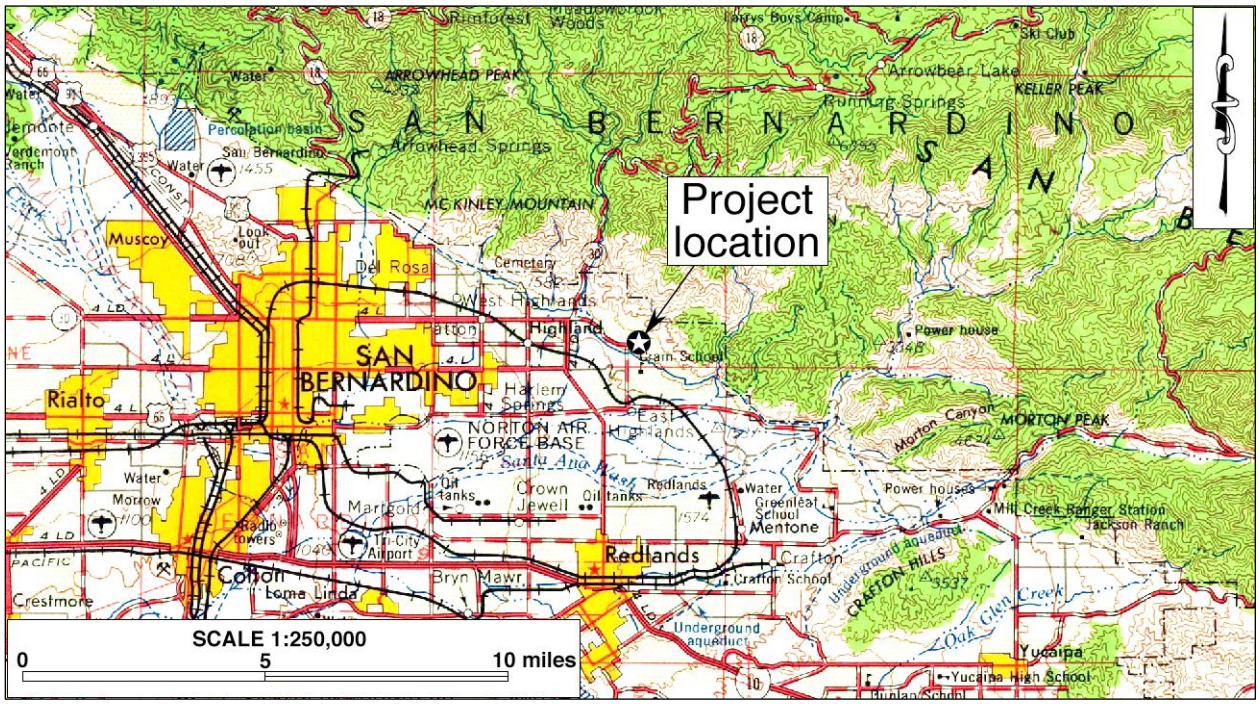

Figure 1. Project vicinity. (Based on USGS Santa Ana, Calif., 120'x60' quadrangle)

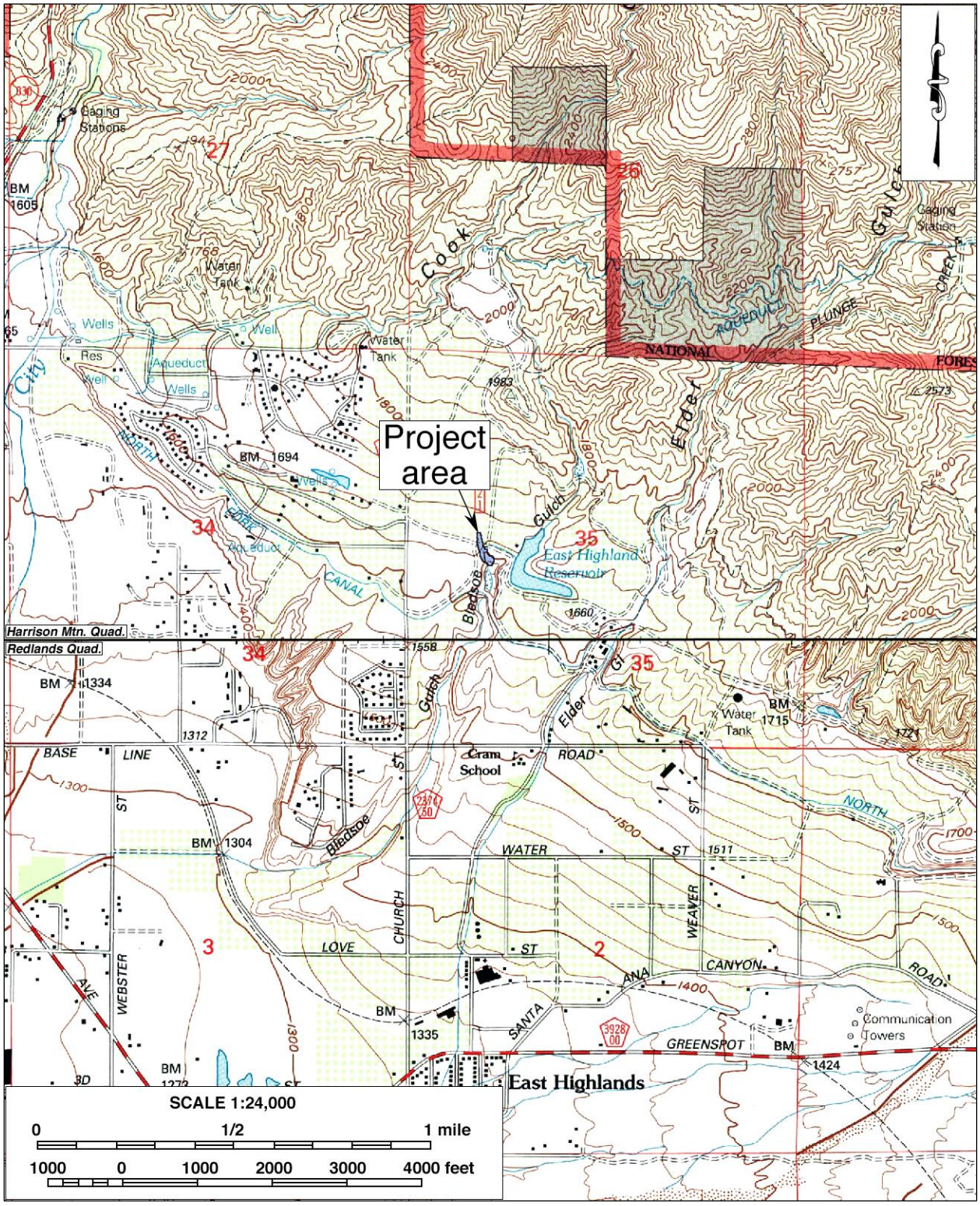

Figure 2. Project location. (Based on USGS Harrison Mtn. and Redlands, Calif., 7.5' quadrangles)

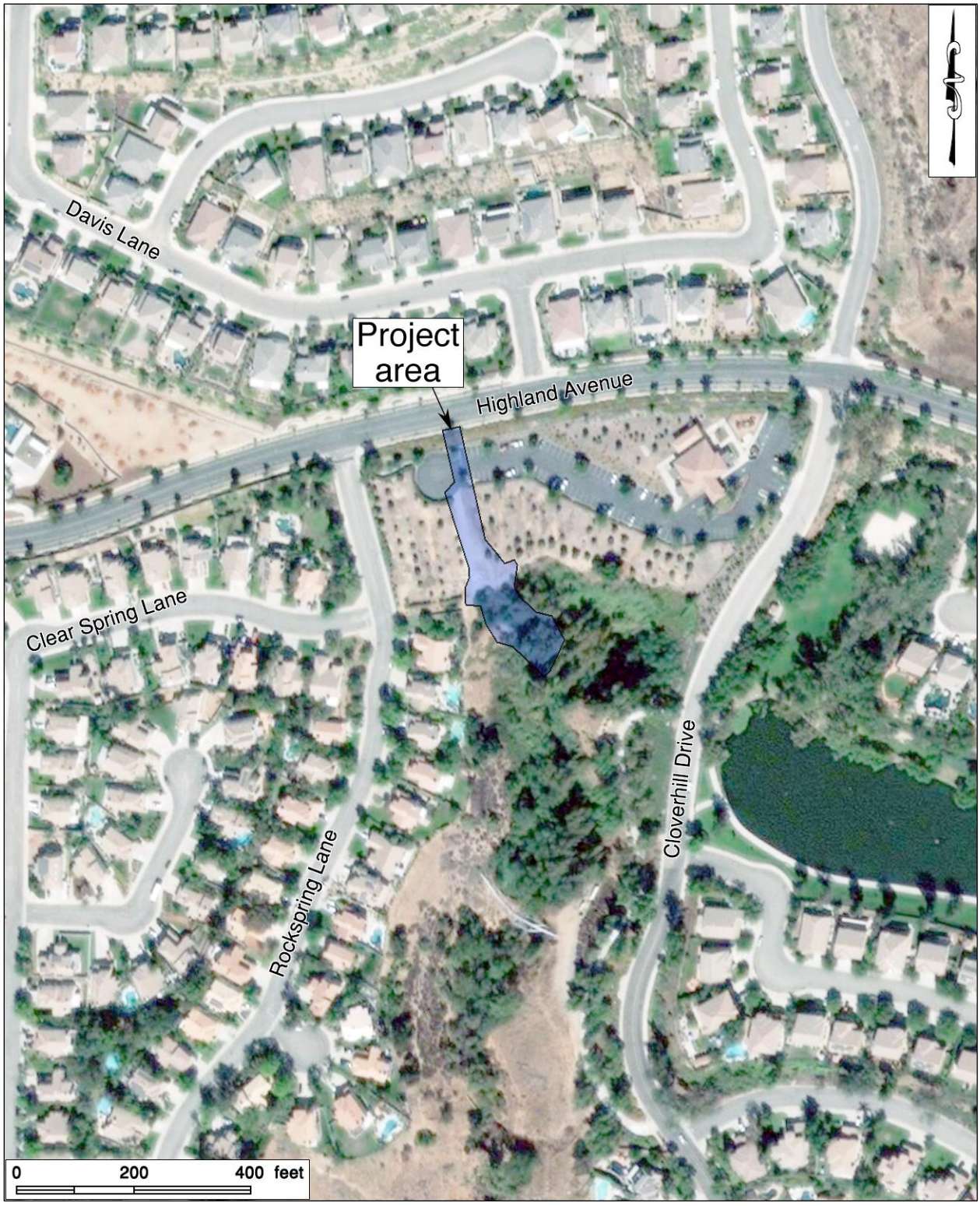

Figure 3. Aerial image of the project area.

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 project area is situated on the northeastern edge of the San Bernardino Valley, in the northernmost 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 natural landscape in the Peninsular Ranges Province features a series of northwest-southeast trending structural blocks consisting of uplifted mountains separated by valley basins that have developed along the intervening fault zones. The mountains are made up mainly of intrusive igneous 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 a short distance south of the main branch of the San Andreas Fault and near the base of the San Bernardino Mountains. The San Andreas Fault, a right-lateral strike-slip fault, runs roughly east-west in this region and generally divides the metamorphic and igneous rocks of the San Bernardino Mountains to the north from the alluvial soils of the valley to the south (Harden 2004:451). It is also regarded as the boundary between the Peninsular Ranges and Transverse Ranges Geomorphic Provinces.

The project area is surrounded by an expansive suburban residential development known as East Highlands Ranch and occupies a part of the grounds of the East Highlands Ranch Master Homeowners Association Community Center (Figure 3). Elevations in the project area range approximately from 1,585 feet to 1,655 feet above mean sea level. The surface soil features brown fine- to coarse-grained sands with rocks of various sizes and small boulders.

The northern portion of the project area is relatively level in terrain and extends across the parking lot for the community center, a paved service road, and landscaped areas, and the southern portion drops sharply in elevation into the Bledsoe Gulch and contains a number of existing storm drain facilities, including a concrete-lined retention basin (Figure 4). Vegetation in the northern portion of the project area consists primarily of landscaping plants while the southern portion hosts a dense growth of sycamore and cottonwood trees, palms, and various bushes and weeds.

METHODS AND PROCEDURES

RECORDS SEARCHES

The records search service for this study was provided by the Division of Earth Sciences of the San Bernardino County Museum (SBCM) in Redlands, which maintains the Regional Paleontological Locality Inventory as well as supporting maps and documents. The records search results are used to

Figure 4. Current natural setting of the project area. *Left*: northern portion, view to the north; *right*: southern portion, view to the south. (Photographs taken on April 15, 2020)

identify known previously performed paleontological resource assessments and known paleontological localities in or near the project location.

LITERATURE REVIEW

In conjunction with the records searches, CRM TECH report writer Ben Kerridge pursued a literature review on the project vicinity under the direction of Harry M. Quinn, California Professional Geologist #3477. Sources consulted during the review include primarily topographic, geologic, and soil maps of the Highland area, 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 April 15, 2020, CRM TECH paleontological surveyor Daniel Ballester carried out the pedestrian field survey of the project area. The northern portion of the property was surveyed at an intensive level by walking a series of parallel north-south transects spaced five meters (approximately 15 feet) apart, but the southern portion, containing the retention basin and steep slopes to the gulch, could not be surveyed effectively due to the dense vegetation growth. In the area that was surveyed intensively, visibility of the native ground surface was good (approximately 70-90%) except where clusters of landscaping plants or pavement are present.

RESULTS AND FINDINGS

RECORDS SEARCHES

The records search by SBCM indicates that the Regional Paleontological Locality Inventory at the museum contains no known localities within the project area (Cortez 2020). However, the records

search reveals the presence of two known fossil localities approximately three miles northwest of the project location, each consisting of a single leaf mold found in older alluvium (*ibid.*).

LITERATURE REVIEW

Dibblee and Minch (2004) identify the surface geology in the project area as *Qoa* in the northern portion and *Qa* in the southern portion. *Qoa* is described as older surficial sediments consisting of sand and gravel derived from alluvial fans dating to the late Pleistocene, while *Qa* is described as alluvial sands and clays of valley areas, including pebbly sands at the bases of mountains (*ibid.*).

The surface geology n the project area is mapped by Morton and Miller (2006) as $Qvof_2$ in the northern portion and $Qvof_3$ in the southern portion (Figure 5). They describe these sediments as very old alluvial fan channel deposits, with the $Qvof_3$ dating to the early and middle Pleistocene and the $Qvof_2$ dating to the early Pleistocene (*ibid.*). The older of the two units, $Qvof_2$, represents sequences of sand and gravel up to 30 meters in thickness, composed of well consolidated and stratified sands of medium to very coarse grains of angular potassium feldspars granules and pebbles (*ibid.*). The younger unit, $Qvof_3$, is crudely stratified and well consolidated, and it consists of poorly sorted fine- to very coarse-grained sand. It is limited to localized deposits that overlie $Qvof_2$ at the depth of "a few meters" (*ibid.*). The upper surfaces of $Qvof_3$ are strewn with angular and subrounded boulders (*ibid.*).

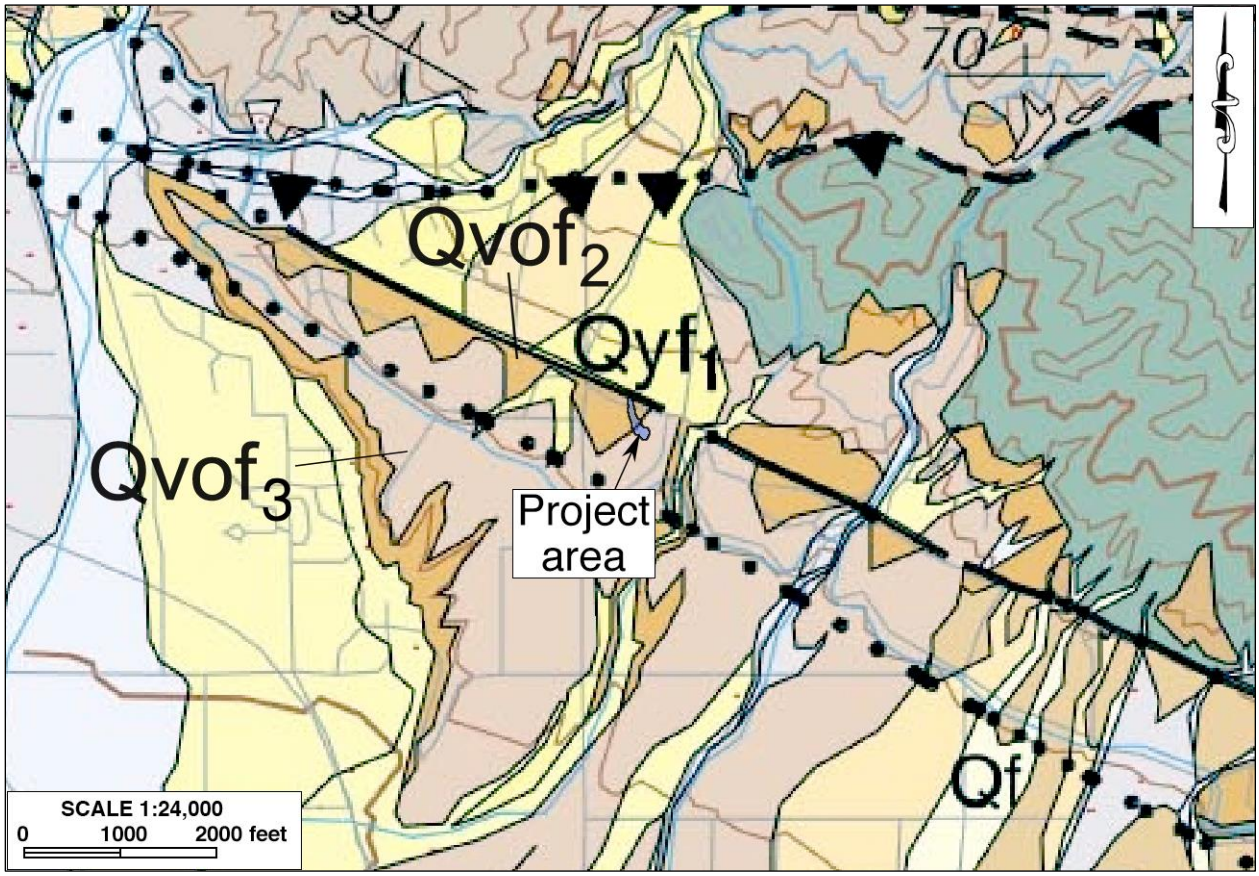

Figure 5. Geologic map of the project vicinity. (Source: Morton and Miller 2006)

FIELD SURVEY

As a part of the field survey effort, the visible native ground surface in the project area was closely inspected for any indications of paleontological remains, but none was found. Field observations provided clear evidence that the ground surface in the entire project area had been extensively disturbed by past construction activities, in the northern portion in association with the community center and in the southern portion in association with the storm drain facilities. As a result, further survey effort in the heavily vegetated southern portion of the project was deemed unproductive and unnecessary.

DISCUSSION

The results of the records search and the review of pertinent literature suggest that the project area is situated upon exposures of Pleistocene- to Holocene-age alluvium. Sources vary in their characterization of the surface soils but generally agree on the presence, at varying depths throughout the project area, of Pleistocene (including early Pleistocene) sediments, which have a high potential to contain significant, nonrenewable fossil remains, especially in the older deposits. These soils are known to have produced paleontological remains elsewhere in the surrounding area. While no fossil localities were previously identified within or adjacent to the project area and none was found on the ground surface during this survey, the subsurface sediments at this location remain sensitive for paleontological resources. Any earth-moving activities within the project area, therefore, may potentially disrupt or adversely affect such resources.

CONCLUSION AND RECOMMENDATIONS

CEQA guidelines (Title 14 CCR App. G, Sec. VII(f)) 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.

Based on the research results presented above, the proposed project's potential to impact significant, nonrenewable paleontological resources appears to be high in the relatively undisturbed, older Pleistocene alluvium in the subsurface sediments. Due to the variable thickness of and inconsistent identification of the surface soils in the project area, CRM TECH recommends that a paleontological resource impact mitigation program be developed and implemented during the project to prevent impacts on paleontological 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:

- All earth-moving operations in the project area that reach beyond a depth of two feet below the ground surface should be monitored for potential paleontological resources. The monitor should

be prepared to quickly salvage fossils as they are unearthed to avoid construction delays and should collect samples of sediments that are likely to contain fossil remains of small vertebrates or in vertebrates. However, the monitor must have the power to temporarily halt or divert grading equipment 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 submittal of the report and the inventory to the City of Highland would signify completion of the program to mitigate potential impacts on paleontological resources.

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

REFERENCES

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2020 Paleontological Records Review for Proposed Bledsoe Creek Slope and Strom Drain Repair Project, San Bernardino County, California. Division of Earth Sciences, San Bernardino County Museum, Redlands.

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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.

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2006 Geologic Map of the San Bernardino and Santa Ana 30'x60' Quadrangles, California. United States Geological Survey Open-File Report 2006-1217. Washington, D.C.

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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

PROJECT GEOLOGIST/PALEONTOLOGIST
Harry M. Quinn, M.S., California Professional Geologist #3477

Education

1968 M.S., Geology, University of Southern California, Los Angeles, California.
1964 B.S, Geology, Long Beach State College, Long Beach.
1962 A.A., Los Angeles Harbor College, Wilmington, California.

- Graduate work oriented toward invertebrate paleontology; M.S. thesis completed as a stratigraphic paleontology project on the Precambrian and Lower Cambrian rocks of Eastern California.

Professional Experience

2000- Project Paleontologist, CRM TECH, Riverside/Colton, California.
1998- Project Archaeologist, CRM TECH, Riverside/Colton, California.
1992-1998 Independent Geological/Geoarchaeological/Environmental Consultant, Pinyon Pines, California.
1994-1996 Environmental Geologist, E.C E.S., Inc, Redlands, California.
1988-1992 Project Geologist/Director of Environmental Services, STE, San Bernardino, California.
1987-1988 Senior Geologist, Jirsa Environmental Services, Norco, California.
1986 Consulting Petroleum Geologist, LOCO Exploration, Inc. Aurora, Colorado.
1978-1986 Senior Exploration Geologist, Tenneco Oil E & P, Englewood, Colorado.
1965-1978 Exploration and Development Geologist, Texaco, Inc., Los Angeles, California.

Previous Work Experience in Paleontology

1969-1973 Attended Texaco company-wide seminars designed to acquaint all paleontological laboratories with the capability of one another and the procedures of mutual assistance in solving correlation and paleo-environmental reconstruction problems.
1967-1968 Attended Texaco seminars on Carboniferous coral zonation techniques and Carboniferous smaller foraminifera zonation techniques for Alaska and Nevada.
1966-1972, 1974, 1975 Conducted stratigraphic section measuring and field paleontological identification in Alaska for stratigraphic controls. Pursued more detailed fossil identification in the paleontological laboratory to establish closer stratigraphic controls, mainly with Paleozoic and Mesozoic rocks and some Tertiary rocks, including both megafossil and microfossil identification, as well as fossil plant identification.
1965 Conducted stratigraphic section measuring and field paleontological identification in Nevada for stratigraphic controls. Pursued more detailed fossil identification in the paleontological laboratory to establish closer stratigraphic controls, mainly with Paleozoic rocks and some Mesozoic and Tertiary rocks. The Tertiary work included identification of ostracods from the Humboldt and Sheep Pass Formations and vertebrate and plant remains from Miocene alluvial sediments.

Memberships

Society of Vertebrate Paleontology; American Association of Petroleum Geologists; Association of Environmental Professionals; Rocky Mountain Association of Geologists, Pacific Section; Society of Economic Paleontologists and Mineralogists; San Bernardino County Museum.

Publications in Geology

Five publications in Geology concerning an oil field study, a ground water and earthquake study, a report on the geology of the Santa Rosa Mountain area, and papers on vertebrate and invertebrate Holocene Lake Cahuilla faunas.

REPORT WRITER
Ben Kerridge, M.A.

Education

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 Archaeologist/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.

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.
2007	Certificate in Geographic Information Systems (GIS), California State University, San Bernardino.

- 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.
1999-2002	Project 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

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www.SBCounty.gov

SAN BERNARDINO COUNTY

San Bernardino County Museum
Division of Earth Sciences

Crystal Cortez
Curator of Earth Sciences

email: Crystal.cortez@sbcm.sbcounty.org

17 March, 2020

CRM Tech
Attn: Nina Gallardo
1016 E. Cooley Drive, Suite B
Colton, CA 92324

PALEONTOLOGY RECORDS REVIEW for proposed Bledsoe Creek Slope and Storm Drain Repair Project, San Bernardino County, California (3601P)

Dear Nina,

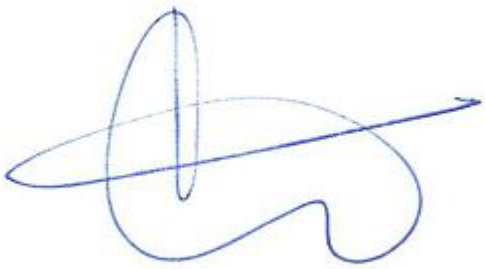
The Division of Earth Sciences of the San Bernardino County Museum (SBCM) has completed a records search for the above-named project in San Bernardino County, California. The proposed Bledsoe Creek Slope and Storm Drain Repair project is located in Section 35, Township 1N, Range 3W, as shown on the United States Geological Survey (USGS) 7.5 minute Harrison Mountain, California quadrangle (Photo revised 1980).

Previous geologic mapping (Dibble, T.W. and Minch, J.A., 2004) indicates the proposed area is situated upon surface exposures of younger Holocene alluvium and Pleistocene aged, older alluvium. For this review, I conducted a search of the Regional Paleontological Locality Inventory at SBCM. The results of this record search indicated that no previously recorded paleontological resources localities are known within the boundaries of the proposed project site. However, there is two fossil sites located three miles North-West of the project. SBCM localities, 1.96.14 and 1.96.15 both sites uncovered single leaf molds at each site from older alluvium.

This records search covers only the paleontological records of the San Bernardino County Museum. It is not intended to be a thorough paleontological survey of the proposed project area covering other institutional records, a literature survey, or any potential on-site survey.

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

Sincerely,



Crystal Cortez, Curator of Earth Sciences
Division of Earth Sciences
San Bernardino County Museum