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October 27, 2023

Tracy Zinn
Principal
T&B Planning, Inc.
3200 El Camino Real, Suite 100
Irvine, CA 92602
Transmitted via email to tzinn@tbplanning.com

**RE: Paleontological Resource Assessment for the Cajalco & Seaton Warehouse and Park Project, Riverside County, California**

Dear Tracy Zinn,

At the request of T&B Planning Group, Chronicle Heritage conducted a paleontological resource assessment for the Cajalco & Seaton Warehouse and Park Project (Project) in unincorporated Riverside County, California. The goal of the assessment was to detail the results of a literature review and museum records search, summarize the paleontological sensitivity of the geologic units within and in the vicinity of the Project area, assess potential impacts from Project implementation for adverse effects to scientifically significant paleontological resources under California Environmental Quality Act (CEQA) guidelines, and provide management recommendations for avoiding or reducing adverse effects to paleontological resources from the Project development, as necessary.

This paleontological resource assessment included a fossil locality records search conducted by the Western Science Center in Hemet, California (WSC). The records search was supplemented by a review of existing geologic maps and primary literature regarding fossiliferous geologic units within the proposed Project vicinity and region. This technical memorandum, written in accordance with the guidelines set forth by the Society of Vertebrate Paleontology (SVP) (2010), has been prepared to support environmental review under CEQA.

# Project Location and Description

The proposed Project lies west of the Interstate 215 (I-215) Freeway and south of Cajalco Road (Figure 1). More specifically, it is in Sections 11 and 12 of Township (T) 4 South (S), Range (R) 4 West (W) of the Steele Peak, California, U.S. Geological Survey (USGS) topographic quadrangle map (Figure 2). The elevation of the Project area ranges from 1,520 to 1,600 feet (ft) above mean sea level. The Project area is subdivided into three sections. The offsite impact area is located along the Cajalco Expressway, Cajalco Road, Seaton Avenue, Decker Road, and Rider Street. The onsite project boundary is located between Decker Road to the west, Cajalco Road to the north, Seaton Avenue to the east, and Metropolitan Water District land to the south, and in a separate section at the end of Decker Road. The potential project boundary additional area is also located at the end of Decker Road, bordering the southern section of the onsite project boundary to the west.

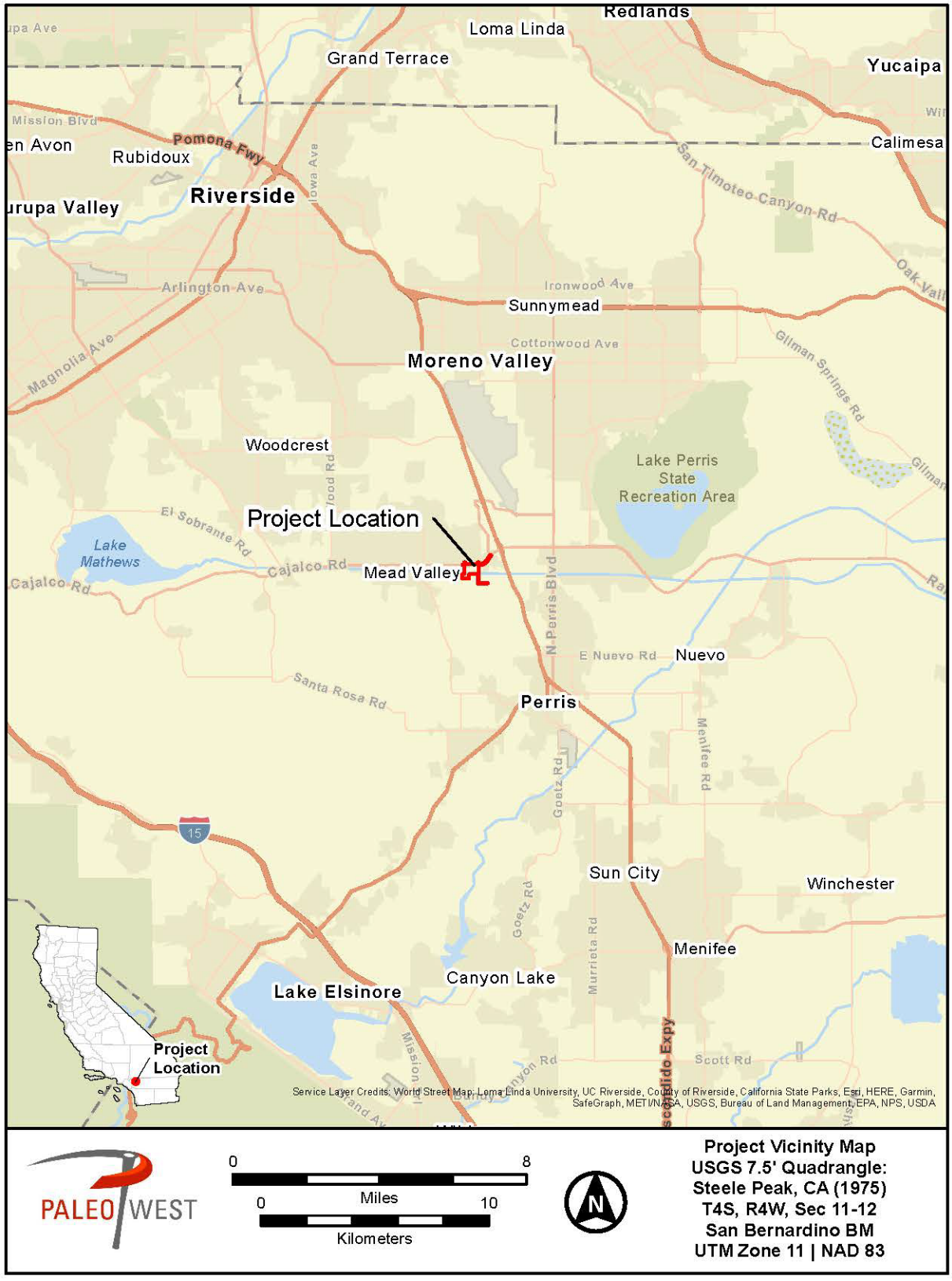


**Figure 1. Project vicinity map.**

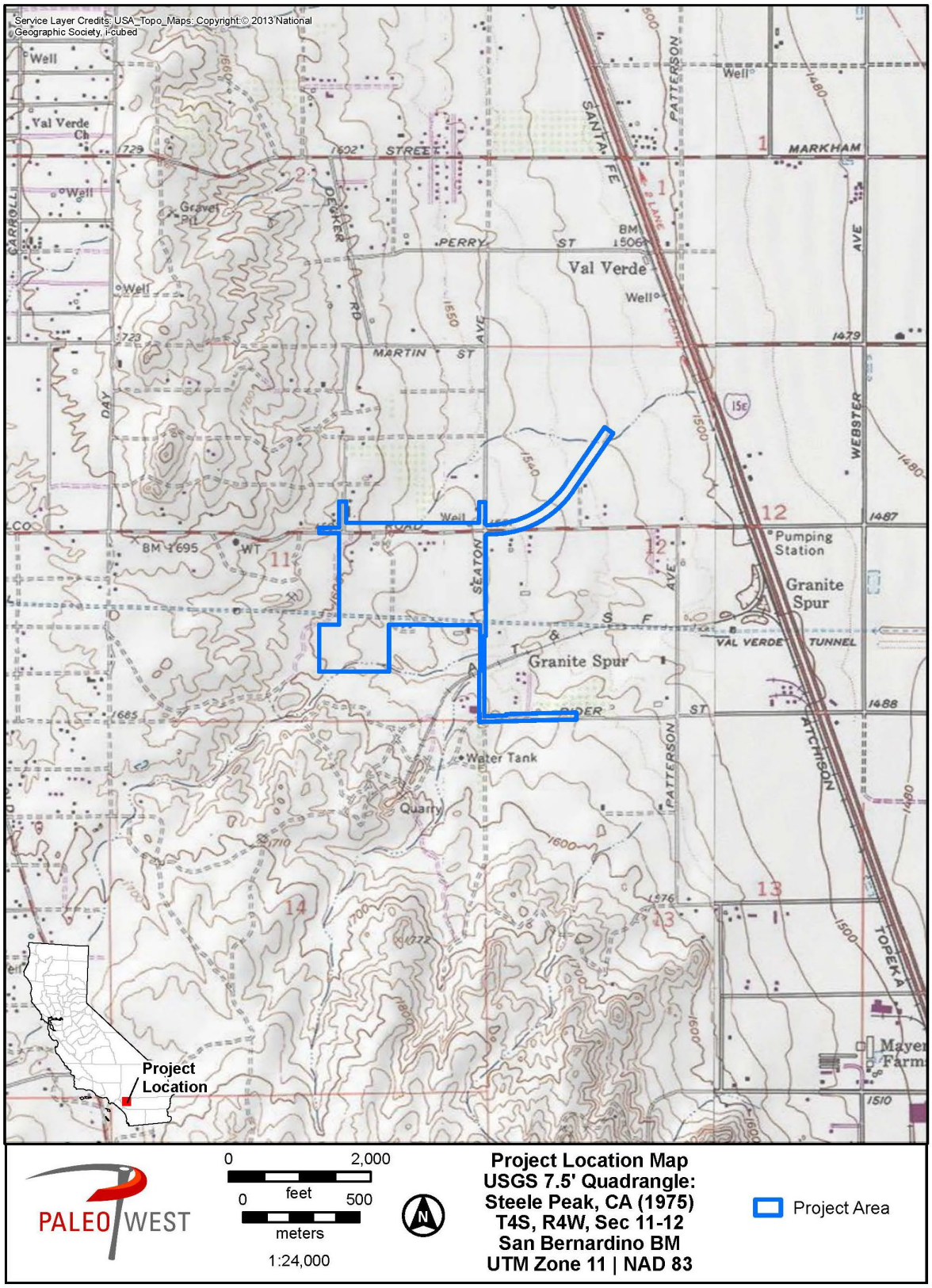


**Figure 2. Project location map.**

The proposed Project involves the construction of one industrial warehouse building and a public park within the Mead Valley community of unincorporated Riverside County. The industrial warehouse building would be located at the southwestern corner of Seaton Avenue and Cajalco Expressway, between Seaton Avenue and Decker Road. The public park would be located south of the industrial warehouse building on Decker Road. The industrial warehouse building is proposed with 1,003,510 $ft^2$ of total building area on approximately 44.74 net acres.

The building is designed to be up to 50 ft tall with 76 loading dock doors positioned on the building's northern façade and 76 loading dock doors positioned on the building's southern façade. The public park would occur on approximately 13.35 net acres and is conceptually designed to include play fields, hard-surface sport courts, a playground, walking paths, and other amenities. Roadway frontage improvements would occur to Cajalco Expressway, Seaton Avenue, and Decker Road.

# Regulatory Context

Paleontological resources (i.e., fossils) are considered nonrenewable scientific resources because, once destroyed, they cannot be replaced. As such, paleontological resources are afforded protection under various federal, state, and local laws and regulations. Laws pertinent to this Project are discussed below.

## State Laws and Regulations

### California Environmental Quality Act

CEQA requires that public agencies and private interests identify the potential environmental consequences of their projects on any object or site of significance to the scientific annals of California (Division I, California Public Resources Code [PRC] Section 5020.1[j]). Appendix G in Section 15023 provides an Environmental Checklist of questions (Section 15023, Appendix G, Section XIV, Part A) that includes the following: "Would the project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?"

CEQA does not define "a unique paleontological resource or site." However, the SVP has provided guidance designed to support state and federal environmental review. The SVP broadly defines significant paleontological resources as follows:

> Fossils and fossiliferous deposits consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years). (SVP, 2010:11)

Significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, diagnostically important, or common but have the potential to provide valuable scientific information for evaluating evolutionary patterns and processes, or which could improve our understanding of paleochronology, paleoecology, paleophylogeography, or depositional histories. New or unique specimens can provide new insights into evolutionary history; however, additional specimens of even well-represented lineages can be equally important for studying evolutionary patterns and processes, evolutionary rates, and paleophylogeography. Even unidentifiable material can provide useful data for dating geologic

units if radiometric dating is possible. As such, common fossils (especially vertebrates) may be scientifically important and therefore considered significant.

### California Public Resources Code

Section 5097.5 of the Public Resources Code (PRC) states:

> No person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor. As used in this PRC section, 'public lands' means lands owned by, or under the jurisdiction of, the state or any city, county, district, authority, or public corporation, or any agency thereof.

Consequently, public agencies are required to comply with PRC 5097.5 for their activities including construction and maintenance as well as for permit actions (e.g., encroachment permits) undertaken by others.

## Local

Paleontological resources are addressed under the Multipurpose Open Space Element of the Riverside County General Plan (Riverside County, 2015:OS-51) policies OS 19.6 through OS 19.9, which states the following:

> **OS 19.6** Whenever existing information indicates that a site proposed for development has high paleontological sensitivity as shown on Figure OS-8, a paleontological resource impact mitigation program (PRIMP) shall be filed with the County Geologist prior to site grading. The PRIMP shall specify the steps to be taken to mitigate impacts to paleontological resources.
>
> **OS 19.7** Whenever existing information indicates that a site proposed for development has low paleontological sensitivity as shown on Figure OS-8, no direct mitigation is required unless a fossil is encountered during site development. Should a fossil be encountered, the County Geologist shall be notified and a paleontologist shall be retained by the project proponent. The paleontologist shall document the extent and potential significance of the paleontological resources on the site and establish appropriate mitigation measures for further site development.
>
> **OS 19.8** Whenever existing information indicates that a site proposed for development has undetermined paleontological sensitivity as shown on Figure OS-8, a report shall be filed with the County Geologist documenting the extent and potential significance of the paleontological resources on site and identifying mitigation measures for the fossil and for impacts to significant paleontological resources prior to approval of that department.
>
> **OS 19.9** Whenever paleontological resources are found, the County Geologist shall direct them to a facility within Riverside County for their curation, including the Western Science Center in the City of Hemet.

# Paleontological Resource Potential

Absent specific agency guidelines, most professional paleontologists in California adhere to the guidelines set forth by SVP (2010) to determine the course of paleontological mitigation for a given project. These guidelines establish protocols for the assessment of the paleontological resource potential of underlying geologic units and outline measures to mitigate adverse impacts that could result from project development. Using baseline information gathered during a paleontological resource assessment, the paleontological resource potential of geologic units (or members thereof) underlying a project area can be assigned to one of four categories defined by SVP (2010) . Although these standards were written specifically to protect vertebrate paleontological resources, all fields of paleontology have adopted the following guidelines.

## High Potential (Sensitivity)

Rock units from which significant vertebrate or significant invertebrate fossils or significant suites of plant fossils have been recovered have a high potential for containing significant nonrenewable fossiliferous resources. These units include but are not limited to, sedimentary formations and some volcanic formations that contain significant nonrenewable paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils. Sensitivity comprises both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, or botanical and (b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, ecologic, or stratigraphic data. Areas which contain potentially datable organic remains older than recent, including deposits associated with nests or middens, and areas which may contain new vertebrate deposits, traces, or trackways are also classified as significant.

## Low Potential (Sensitivity)

Sedimentary rock units that are potentially fossiliferous but have not yielded fossils in the past or contain common and widespread invertebrate fossils of well-documented and understood taphonomic, phylogenetic species, and habitat ecology are considered to have a low potential for containing significant nonrenewable fossiliferous resources. Reports in the paleontological literature or field surveys by a qualified vertebrate paleontologist may allow a determination that some areas or units have a low potential for yielding significant fossils before the start of construction. Generally, these units will be poorly represented by specimens in institutional collections and will not require protection or salvage operations. However, as excavation for construction is underway, it is possible that significant and unanticipated paleontological resources might be encountered and require a change of classification from low to high potential and thus require monitoring and mitigation if the resources are found to be significant.

## Undetermined Potential (Sensitivity)

Specific areas underlain by sedimentary rock units for which little information is available have undetermined fossiliferous potentials. Field surveys by a qualified vertebrate paleontologist to determine the rock units' potential are required before programs of impact mitigation for such areas can be developed.

### No Potential

Rock units of metamorphic or igneous origin are commonly classified as having no potential for containing significant paleontological resources.

# Methods

To assess whether a particular area has the potential to contain significant fossil resources in the subsurface, it is necessary to review published geologic mapping to determine the geology and stratigraphy of the area. Geologic units are considered sensitive for paleontological resources if they are known to contain significant fossils anywhere in their extent. Therefore, a search of pertinent local and regional museum repositories for paleontological localities within and nearby the Project area is necessary to determine whether fossil localities have been previously discovered within a particular rock unit. For this Project, a records search was requested of the WSC collections. Records searches were also conducted of the online University of California Museum of Paleontology Collections, Paleobiology Database, FAUNMAP, and other published and unpublished geological and paleontological literature of the area.

# Resource Context

## Geologic Setting

The Project area is in the north-central portion of the Peninsular Ranges geomorphic province. A geomorphic province is a region of unique topography and geology distinguished from other regions based on its landforms and tectonic history. The Peninsular Ranges are a northwest–southeast oriented complex of blocks that extend 125 miles (mi) from the Transverse Ranges and Los Angeles Basin to the tip of Baja California. The Peninsular Ranges are bounded to the east by the Colorado Desert and range in width from 30 to 100 mi (Woodford et al., 1971). Locally, the valley areas are underlain by alluvial sediments from the Pleistocene Epoch (2.6 million years ago [Ma] to 11,700 years ago) and the Holocene Epoch (11,700 years ago to present), reaching at least 1,000 ft deep (Woodford et al., 1971). The alluvial sediments are sourced from the surrounding elevated basement rock composed of igneous and metamorphic rocks, sourced in the Project area predominantly from the Val Verde Pluton to the southwest (Morton, 1991).

## Site Specific Geology and Paleontology

The geology of the Project area is mapped by Morton and Miller (2006) at a scale of 1:100,000 (see Figure 3 for Regional Geology of the Project). The Project area is underlain by three geologic units: young alluvial fan deposits (Qyf) of the late Pleistocene and Holocene, very old alluvial fan deposits (Qvof) of the Pleistocene, and Gabbro of the Cretaceous Period (145–66 Ma). The geologic units in the Project area are described in the following section.

### Val Verde Pluton (Kvt) (Cretaceous)

The Val Verde Pluton is a gray-weathering, massive to well-foliated, medium- to coarse-grained, granular biotite hornblende tonalite (Morton and Miller, 2006). This unit is exposed in the western portions of the Project area. Due to the high heat and pressure of formation, plutonic igneous rock has no sensitivity for paleontological resources.

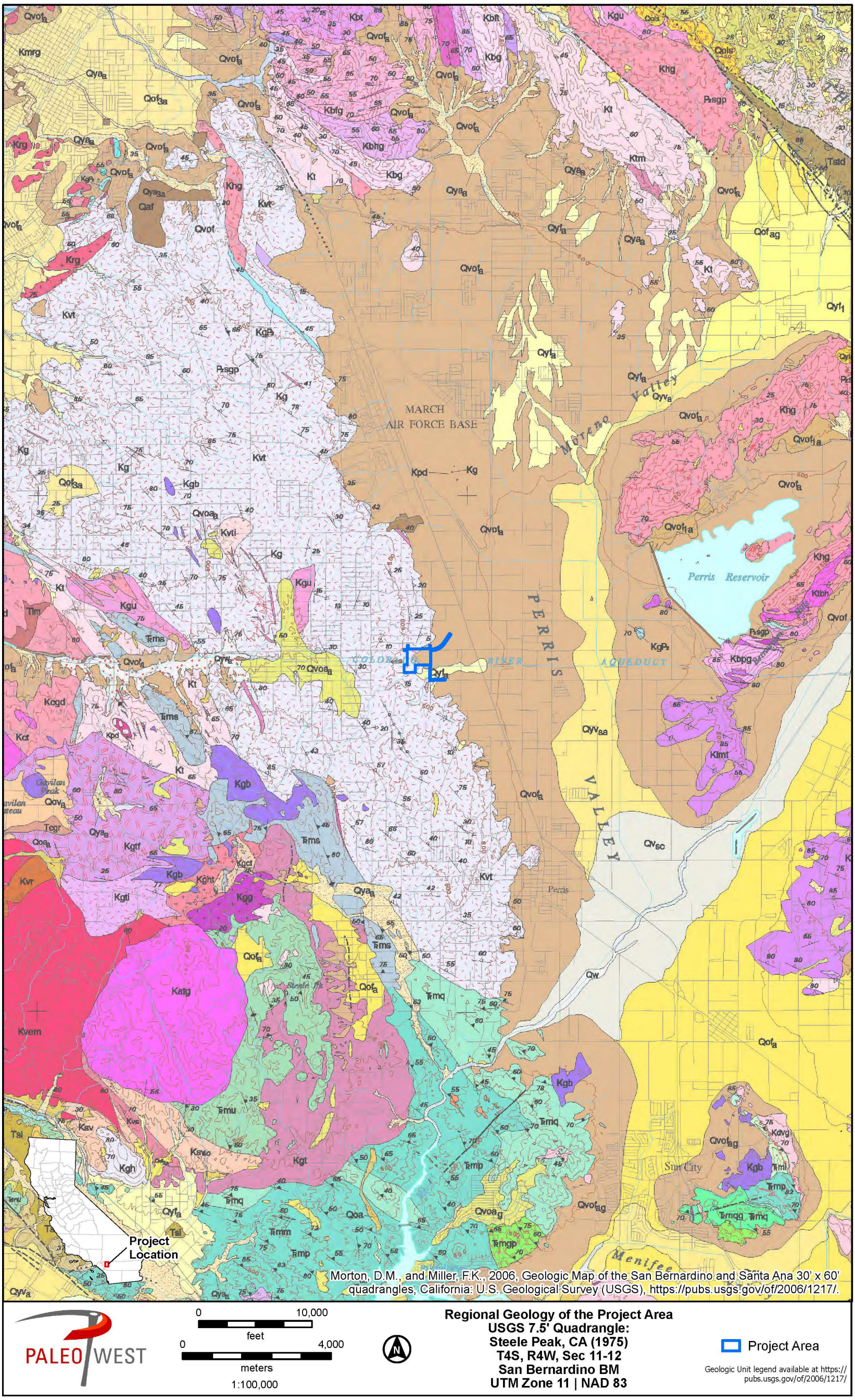


**Figure 3. Regional Geology. Geologic units in the Project area include: Cretaceous Val Verde Pluton (Kvt), Quaternary Very Old Alluvial Fan Deposits (Qvof), and Quaternary Young Alluvial Fan Deposits (Qyf); for the full geologic unit legend please see Morton and Miller (2006) at https://pubs.usgs.gov/of/2006/1217/**

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### Very Old Alluvial Fan Deposits (Qvof) (Middle–Early Pleistocene)

Very old alluvial fan deposits are composed of moderately to well-consolidated silt, sand, gravel, and conglomerate (Morton and Miller, 2006) also sourced from the Val Verde Pluton to the south (Morton, 1991). This unit is the most common unit in the Project area, occurring in the eastern portions of the offsite Project area and northern onsite Project area (Figure 3). Elsewhere in Riverside County, Pleistocene deposits are highly fossiliferous, having produced fossils from deer, mammoth, camel, horse, bison, badger, mole, rabbit, gray fox, and coyote (Jefferson, 1991a, 1991b; Miller, 1971). Qvof is assigned a high paleontological sensitivity.

### Young Alluvial Fan Deposits (Qyf) (Late Pleistocene–Holocene)

Young alluvial fan deposits (Qyf) are composed of unconsolidated to moderately consolidated silt, sand, pebbly cobbly sand, and bouldery alluvial-fan deposits having slightly to moderately dissected surfaces (Morton and Miller, 2006). Locally, these fans are sourced from the Val Verde Pluton to the southwest (Morton, 1991) and are typically fine-grained (silt and sand) (Morton and Miller, 2006). The unit may be present in the far southeastern corner of the southern onsite Project area. Holocene deposits are too young to have accumulated or preserved significant biological material and are assigned low paleontological sensitivity as a result.

# Records Search Results

The WSC records search did not produce any fossil localities from within the Project or within a 1-mi radius (Stoneburg, 2023) (Attachment A). Searches of online databases and other literature did not produce any additional fossil localities within 3 mi of the Project (Graham and Lundelius, 2010; iDigBio, 2023; Jefferson, 1991a, 1991b; Miller, 1971; Paleobiology Database, 2023; San Diego Natural History Museum, 2023; University of California Museum of Paleontology [UCMP], 2023). Pleistocene-age alluvial, fluvial, and lacustrine deposits have produced scientifically significant paleontological resources throughout southern California. East of the Project area, in the vicinity of Lakeview, a diverse assemblage of fossil resources included mammoth (*Mammuthus* sp.), sabre-toothed cat (*Smilodon* sp.), extinct horse (*Equus* sp.), bison (*Bison antiquus*), and numerous small mammals, reptiles, invertebrates, and plant remains (Springer et al., 2009). Southeast of the Project area, the largest known open-environment, nonasphaltic, late Pleistocene fossil assemblage has been documented in the Diamond and Domenigoni valleys, producing nearly 100,000 identifiable fossils representing over 105 vertebrate, invertebrate, and plant taxa. The vertebrate taxa recovered include reptiles such as frogs, turtles, and lizards; birds such as robins, swallows, jays, ravens, hawks, and ducks; small mammals such as rabbits, squirrels, mice, and weasel; and large mammals such as fox, bear, coyote, deer, bison, mammoths, mastodons, and ground sloths (Springer et al., 2009). The invertebrate taxa recovered include ostracods, snails, termites, slugs, beetles, and bivalves and plant taxa include diatoms, pollen, and wood debris (Anderson et al., 2002). West of the Project area near Lake Mathews, remains of *Ustatochoerus* cf. *californicus* (ground dwelling herbivore) and camel have been recovered (Woodford et al., 1971).

# Findings

This memorandum uses the SVP system (2010) to assess paleontological sensitivity and the level of effort required to manage potential impacts to significant fossil resources. Using this system, the

sensitivity of geologic units was determined by the relative abundance and risk of adverse impacts to vertebrate fossils and significant invertebrates and plants.

Based on the literature review and museum records search results, and in accordance with the SVP (2010) sensitivity scale, the Quaternary very old alluvial fan deposits (Qvof) in the Project area have high paleontological sensitivity because similar deposits have yielded significant fossils in the vicinity. The young alluvial fan deposits (Qyf) have a low paleontological sensitivity and the Val Verde Pluton (Kvt) has no paleontological sensitivity. These sensitivity rankings are consistent with the paleontological sensitivity of the Project area as mapped by the County of Riverside (2015), which shows high sensitivity in the areas mapped as Qvof and low sensitivity elsewhere. Because of the presence of fossil localities in the vicinity, Project-related ground disturbance has the potential to impact paleontological resources throughout the Project area.

Refer to Figure 4 for the geologic units in the Project area and their paleontological sensitivity ratings, in accordance with SVP (2010) standard guidelines. Figure 5 presents the paleontological sensitivity of the Project area as shown on the County of Riverside's (2015) official paleontological sensitivity map.

# Recommendations

In general, the potential for a given project to result in negative impacts to paleontological resources is directly proportional to the amount of ground disturbance associated with the project; thus, the higher the amount of ground disturbances within geological deposits with a known paleontological sensitivity, the greater the potential for negative impacts to paleontological resources. Since this Project entails excavation and grading for an industrial warehouse building and public park, significant ground disturbances are anticipated. The presence of Pleistocene-age sediment at the surface suggests that ground disturbance may result in significant impacts under CEQA to paleontological resources including destruction, damage, or loss of scientifically important paleontological resources. A qualified paleontologist should be retained to develop and implement the measures recommended below. These measures have been developed in accordance with SVP guidelines; if implemented, these measures will satisfy the requirements of CEQA.

## Worker's Environmental Awareness Program (WEAP)

Prior to the start of the proposed Project activities, all field personnel will receive a worker's environmental awareness training on paleontological resources. The training will provide a description of the laws and ordinances protecting fossil resources, the types of fossil resources that may be encountered in the Project area, the role of the paleontological monitor, outline steps to follow if a fossil discovery is made, and contact information for the project paleontologist. The training will be developed by the project paleontologist and can be delivered concurrently with other training, including cultural, biological, safety, and others.

## Paleontological Mitigation Monitoring

Prior to the commencement of ground-disturbing activities, a professional paleontologist will be retained to prepare and implement a paleontological mitigation plan for the Project. The plan will describe the monitoring required during ground-disturbing activities. Monitoring will entail the visual

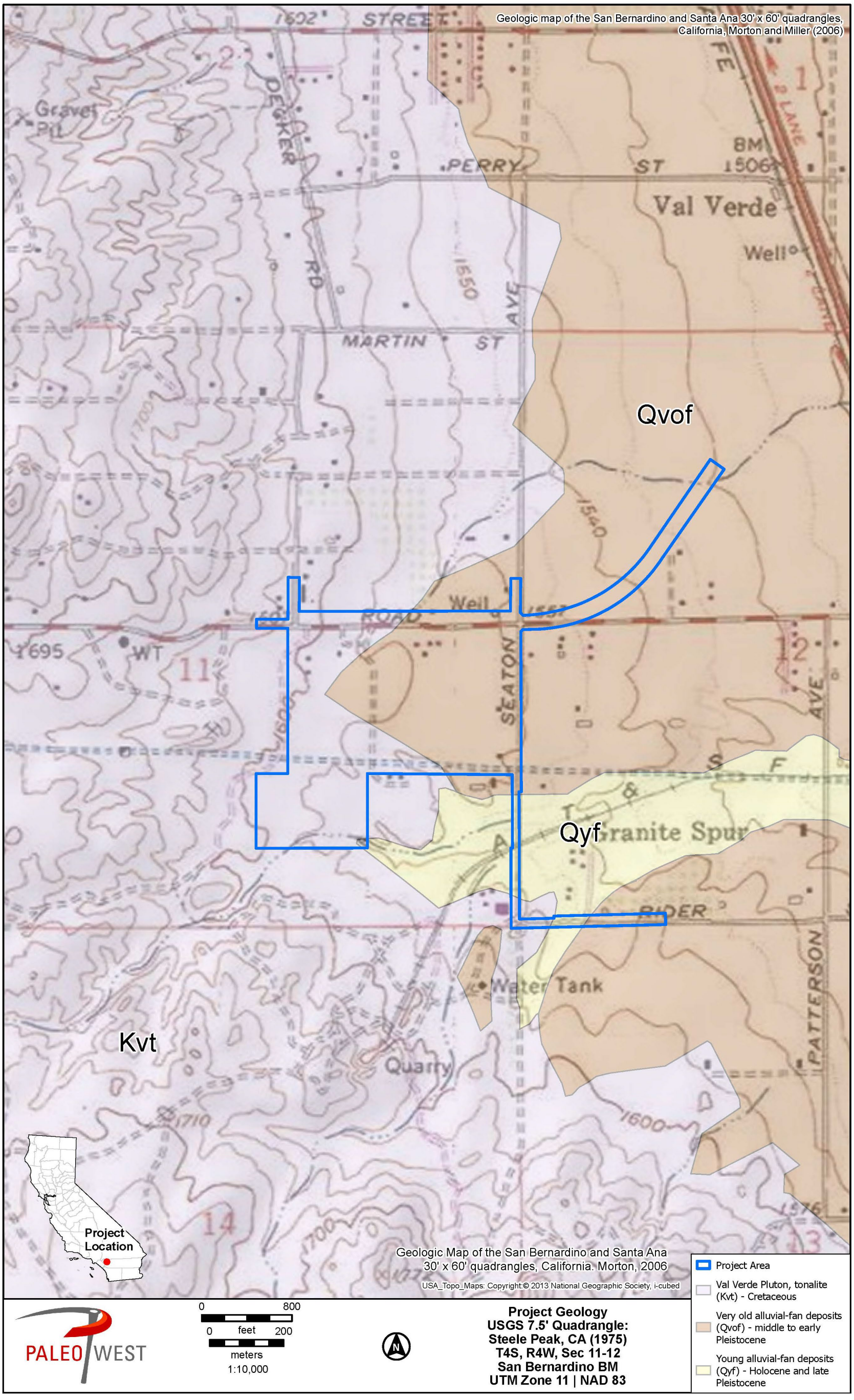


**Figure 4. Geologic Units in the Project area and their Paleontological Sensitivity, per SVP (2010).**

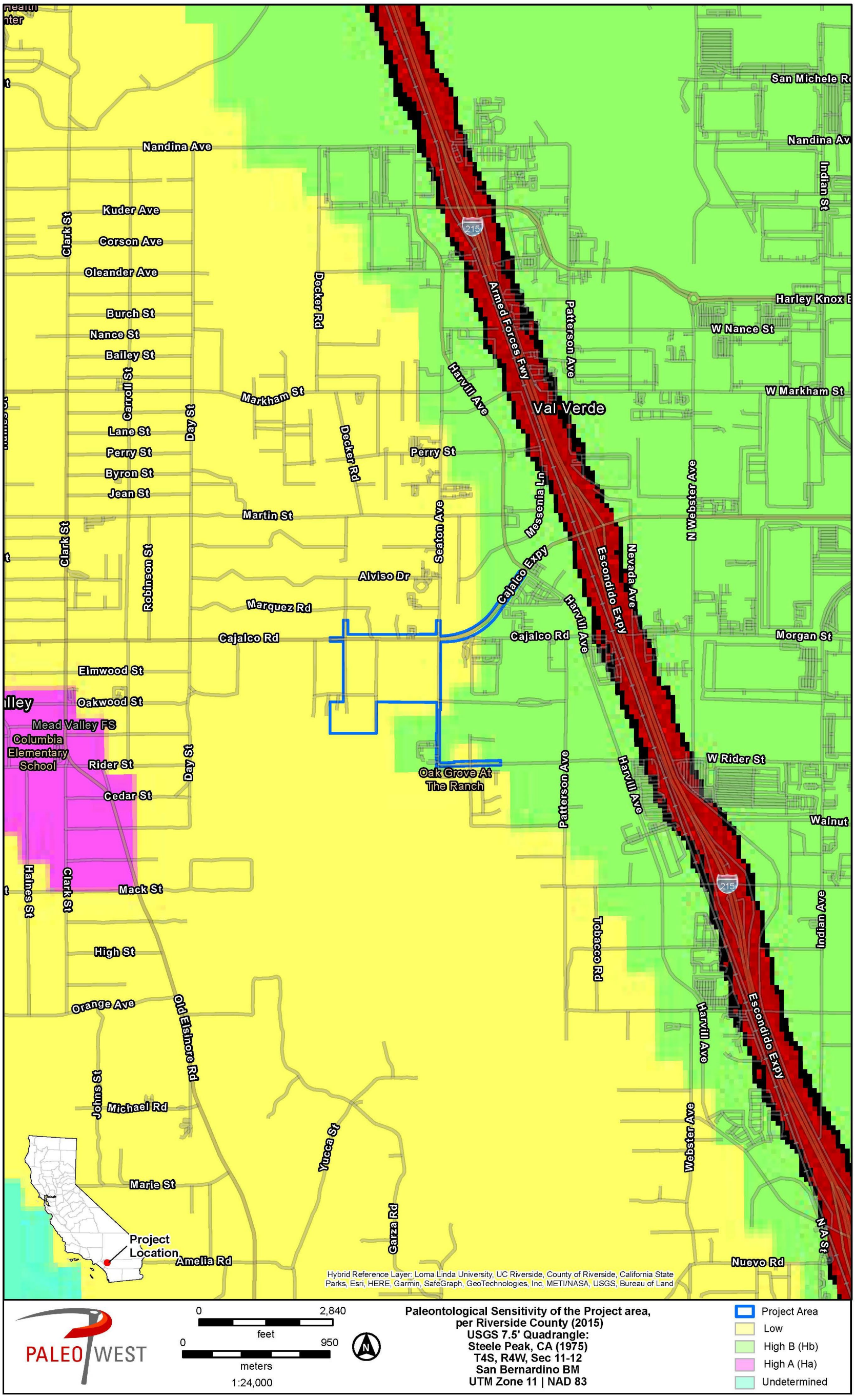


**Figure 5. Paleontological Sensitivity of the Project Area, per Riverside County (2015).**

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inspection of excavated or graded areas and trench sidewalls. If the project paleontologist determines full-time monitoring is no longer warranted based on the geologic conditions at depth, they may recommend that monitoring be reduced or cease entirely.

## Fossil Discoveries

If a paleontological resource is discovered, the monitor will have the authority to temporarily divert the construction equipment around the find until it is assessed for scientific significance and, if appropriate, collected. If the resource is determined to be of scientific significance, the project paleontologist shall complete the following steps:

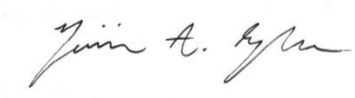
1. **Salvage of Fossils.** If fossils are discovered, all work in the immediate vicinity should be halted to allow the paleontological monitor and project paleontologist to evaluate the discovery and determine if the fossil may be considered significant. If the fossils are determined to be potentially significant, the project paleontologist or paleontological monitor should recover them following standard field procedures for collecting paleontological resources as outlined in the paleontological mitigation plan for the Project. Typically, fossils can be safely salvaged quickly by a single paleontologist and not disrupt construction activity. In some cases, larger fossils (such as complete skeletons or large mammal fossils) require more extensive excavation and longer salvage periods. In this case, the paleontologist should have the authority to temporarily direct, divert, or halt construction activity to ensure that the fossils can be removed in a safe and timely manner.
2. **Fossil Preparation and Curation.** The paleontological mitigation plan for the Project will identify the museum that has agreed to accept fossils that may be discovered during Project-related excavations. Upon completion of fieldwork, all significant fossils collected will be prepared in a properly equipped laboratory to a point ready for curation. Preparation may include the removal of excess matrix from fossil materials and stabilizing or repairing specimens. During preparation and inventory, the fossils specimens will be identified to the lowest taxonomic level practical prior to curation at an accredited museum. The fossil specimens must be delivered to the accredited museum or repository no later than 30 days after all laboratory work is completed. The cost of curation will be assessed by the repository and will be the responsibility of the client.

## Final Paleontological Mitigation Report

Upon completion of ground-disturbing activity and curation of fossils, if necessary, the project paleontologist should prepare a final mitigation and monitoring report outlining the results of the mitigation and monitoring program. The report should include a discussion of the location, duration, and methods of the monitoring; the stratigraphic sections; any recovered fossils; and the scientific significance of those fossils and where fossils were curated.

Thank you for contacting Chronicle Heritage (dba PaleoWest) for this Project. If you have any questions, please do not hesitate to contact us.

Sincerely,



**Benjamin Scherzer, M.S.**
Senior Paleontologist

**Jessica DeBusk, MBA**
Regional Principal

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# Attachment A.
# WSC Record Search Results

# WESTERN SCIENCE CENTER

February 10th, 2022

PaleoWest
Benjamin Scherzer
517 S. Ivy Avenue
Monrovia, CA 91016

Dear Mr. Scherzer,

This letter presents the results of a record search conducted for Cajalco & Seaton Warehouse and Park Project in unicorporated Riverside County, CA. This Project is located along Cajalco Road/Expressway and west of Seaton Avenue on Township 4 South, Range 4 West, Sections 11 and 2 of the *Steele Peak, California* U.S. Geological Survey 7.5' quadrangle.

The geologic units underlying this project are mapped entirely as alluvial sand and clay from the Holocene epoch, with some Cretaceous quartz diorite near the west side (Dibblee and Minch, 2003). 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 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