APPENDIX E
PROGRAMMATIC PALEONTOLOGICAL RESOURCES ASSESSMENT

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INTERNATIONAL

Programmatic Paleontological Resources Assessment

Program Environmental Impact Report (PEIR) for the Cabazon Infrastructure Plan (CIP) and Cabazon Community Plan (CCP) Project

Cabazon area of unincorporated Riverside County, California

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MANAGEMENT SUMMARY

This technical report presents the results of a program-level assessment of paleontological resources for the proposed County of Riverside (County) Programmatic Environmental Impact Report (PEIR) Cabazon Infrastructure Plan (CIP) and Cabazon Community Plan (CCP) Project (project). The study was conducted to support compliance with the California Environmental Quality Act (CEQA), the County's CEQA Supplemental Regulations, and where applicable federal and state historic preservation laws. The assessment is programmatic in nature, providing a framework for evaluating and mitigating potential impacts to paleontological resources across a 30-year planning horizon for a diverse suite of infrastructure projects. The study included comprehensive literature and records searches, geologic map evaluation, and regulatory review. No new field survey was conducted. The CCP is part of the Riverside County General Plan and is designed to replace the Cabazon Community Policy Area and Cabazon Town Center Policy Area in the Pass Area Plan.

This technical report was prepared between February and June 2026. Key data collection activities included a San Diego Natural History Museum (SDNHM) fossil specimen records search.

The project encompasses approximately 7,769 acres in northwestern Riverside County. The majority of the existing land uses in the project area are rural mountainous and rural desert land uses and thus may extend into areas of moderate to high paleontological sensitivity, especially near the San Gorgonio River and its tributary creeks.

The paleontological records search did not find any previously known fossil localities within the project area or within 1 mile of the project area. However, the records search identified Late Pleistocene to Holocene alluvial fan deposits, which are old enough to produce fossil material, and the San Diego Natural History Museum (SDNHM) had records of multiple specimens (exact number not provided) collected from similar alluvial deposits within Riverside County, including ground sloth, mammoth, mastodon, camel, bison, dire wolf, saber-toothed cat, American lion, and giant short-faced bear (SDNHM 2026).

Paleontological analysis found the study area's paleontological sensitivity varied depending on the region; however, high paleontological sensitivity geologic units underlie the northeast corner of the study area and moderately sensitive sediments cover much of the central region of the study area. The southern third of the study area is primarily underlain by Low or Very Low sensitivity geologic units. In addition, most urbanized areas have low sensitivity due to prior disturbance but may contain fossil-bearing sediments below the disturbed surface.

Projects in undeveloped areas may encounter significant paleontological resources. Direct impacts could include ground disturbance, destruction, or alteration of fossils. Indirect impacts may include increased erosion or exposure of sensitive areas.

This programmatic assessment did not include new field surveys due to the broad scope and early planning stage of the project. The analysis relied on existing records, sensitivity analyses, and prior studies. Site-specific investigations will be required for individual projects in sensitive areas.

This report recommends a tiered mitigation strategy that aligns with CEQA requirements and established best practices. The preferred approach is to avoid and preserve known significant resources in place whenever possible. In areas identified as having moderate to high paleontological sensitivity, a

Paleontological Resource Impact Mitigation Plan (PRIMP) should be established before ground-disturbing activities begin. This PRIMP should include the retention of a qualified paleontologist, and monitoring should be conducted during any ground-disturbing activities. If avoidance is not feasible and resources are discovered, data recovery excavations should be implemented. For areas assessed as having low or no sensitivity, standard discovery protocols are considered sufficient. Additionally, worker training and public education initiatives are suggested, as appropriate, to support resource protection efforts.

This report and supporting documentation will be filed with the County and other relevant agencies.

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Acronyms and Abbreviations

CEQA	California Environmental Quality Act
CIP	Cabazon Infrastructure Plan
CCP	Cabazon Community Plan
CRA	Colorado River Aqueduct
ESRP	Eastside Reservoir
GPA	General Plan Amendment
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
No.	Number
PEIR	Programmatic Environmental Impact Report
PRC	Public Resources Code
PRIMP	Paleontological Resource Impact Mitigation Plan
SVP	Society of Vertebrate Paleontology
U.S.	United States
USDA	United States Department of Agriculture
U.S.C.	United States Code
USGS	United States Geological Survey

1.0 INTRODUCTION

The County of Riverside (County) is undertaking a comprehensive Programmatic Environmental Impact Report (PEIR) to evaluate the potential environmental effects associated with implementation of its Cabazon Community Plan (CCP) and Cabazon Infrastructure Plan (CIP) Project (project). The goal of the CCP is to address the Community of Cabazon's land use and infrastructure needs to prepare the Cabazon area for significant anticipated growth and development, particularly as the region plans for the possibility of accommodating up to 22,888 new housing units and an additional 49,420,323 square feet of non-residential uses over the next 30 years. The CIP would support buildout of the Community Plan by identifying needs and suggesting alternatives for the availability and expansion of infrastructure in the Cabazon Community Plan area. The purpose of this technical report is to provide a program-level overview of paleontological resources that could be affected by implementation of the proposed project. This technical report also identifies steps to avoid, minimize, and reduce potential impacts to sensitive resources.

1.1 Background and Purpose

The purpose of this programmatic paleontological resources assessment is to support the PEIR by summarizing the existing conditions of paleontological resources within the community of Cabazon, with a focus on significant resources, as defined by California Environmental Quality Act (CEQA). The report synthesizes existing data, literature, and the results of desktop analyses to identify paleontological constraints and inform the development of mitigation strategies in the PEIR. These strategies are intended to streamline future environmental review and permitting for individual CCP and CIP projects, ensuring compliance with CEQA and other applicable regulations, while protecting the community of Cabazon's significant paleontological resources.

1.2 Scope of Analysis and Methods

1.2.1 Project Location

The project area is located within the northwestern portion of the County, immediately east of the City of Banning; refer to **Figure 1, Regional Vicinity Map**. On a regional basis, the project area is accessible by Interstate 10 (I-10), which bisects the project area in an east-west direction and provides interchanges to the project area at Malki Road, Morongo Trail, at Main Street. The project area is also bisected by the Union Pacific rail line which runs parallel to I-10 in the project area. The project area is approximately 7,769 acres and is bounded by the Morongo Indian Reservation to the north, unincorporated areas of Riverside County to the north and south, the Cities of Desert Hot Springs and Palm Springs to the east, and the City of Banning to the west; refer to **Figure 2, Project Vicinity Map**.

The project area is entirely within the County of Riverside General Plan Pass Area Plan. Specifically, the project area is located within the Cabazon Policy Area of the Pass Area Plan.

1.2.2 Project Setting

The project area is located along the eastern portion of the San Gorgonio Pass, a distinctive geographical area between the Coachella, San Jacinto, and Moreno Valleys. The San Gorgonio Pass is a valley bounded

by the San Bernardino Mountains to the north and the San Jacinto Mountains to the south. Terrain in the project area ranges in elevation from 1,275 feet at the southeast corner within the San Gorgonio River to a maximum of 4,000 feet above sea level at the southern edge of the boundary bordering the Cleveland National Forest. The San Gorgonio River and its tributary creeks through Millard Canyon, Deep Canyon, and Lion Canyon provide seasonal water flows. Due to the surrounding steep terrain and low-lying position, much of Cabazon is prone to hazardous flooding.

Commercial and tourist uses are generally located north of I-10 and include popular destinations such as the Desert Hills Premium Outlets and the Cabazon Dinosaurs monuments. Residential uses are concentrated south of I-10. Higher density housing and commercial uses are located in a small core area north of Main Street. Robertson's Ready Mix, a significant aggregate quarry and processing plant, is located in the northwest portion of the project area at 13990 Apache Trail.

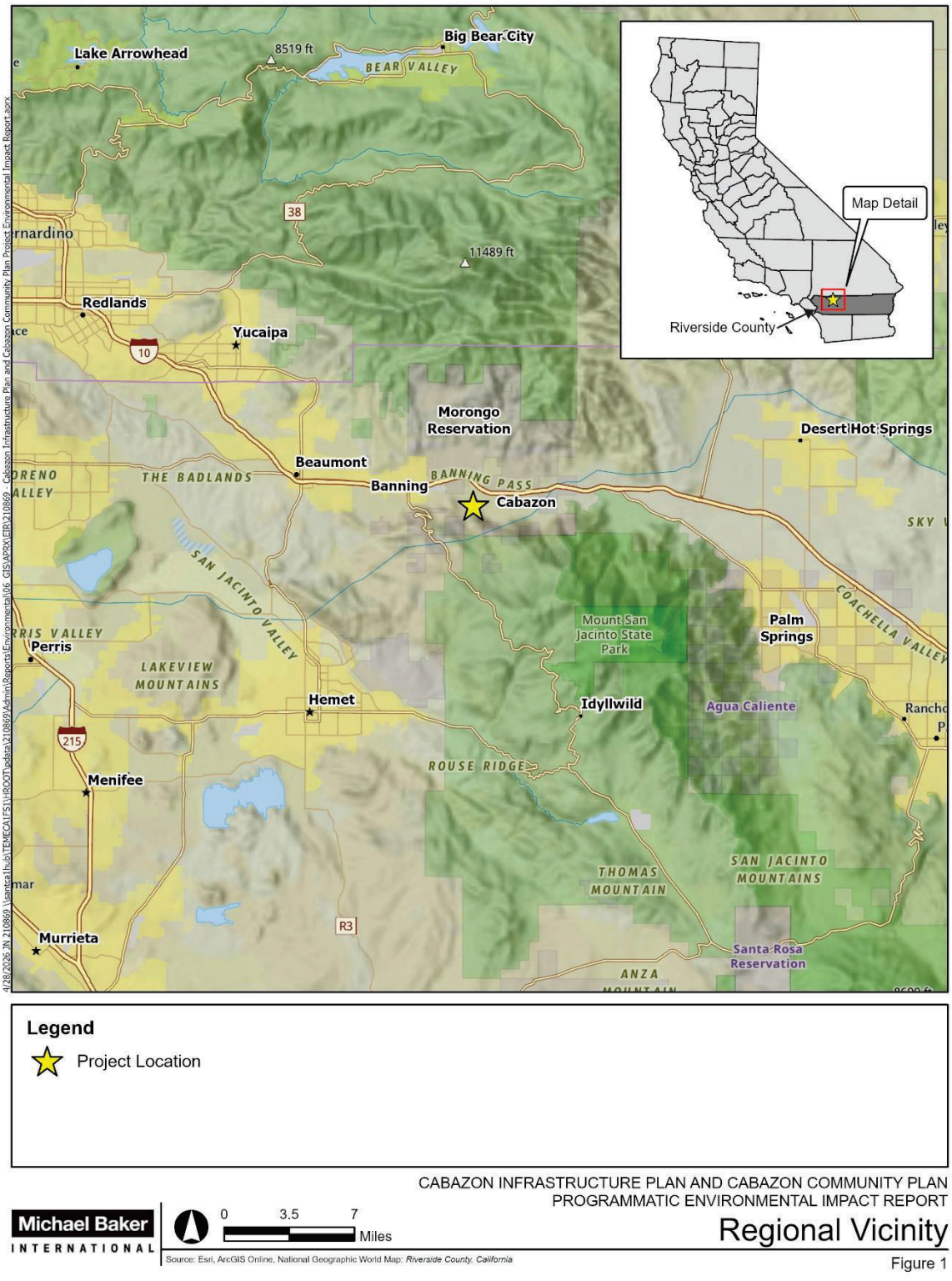

FIGURE 1. REGIONAL VICINITY MAP

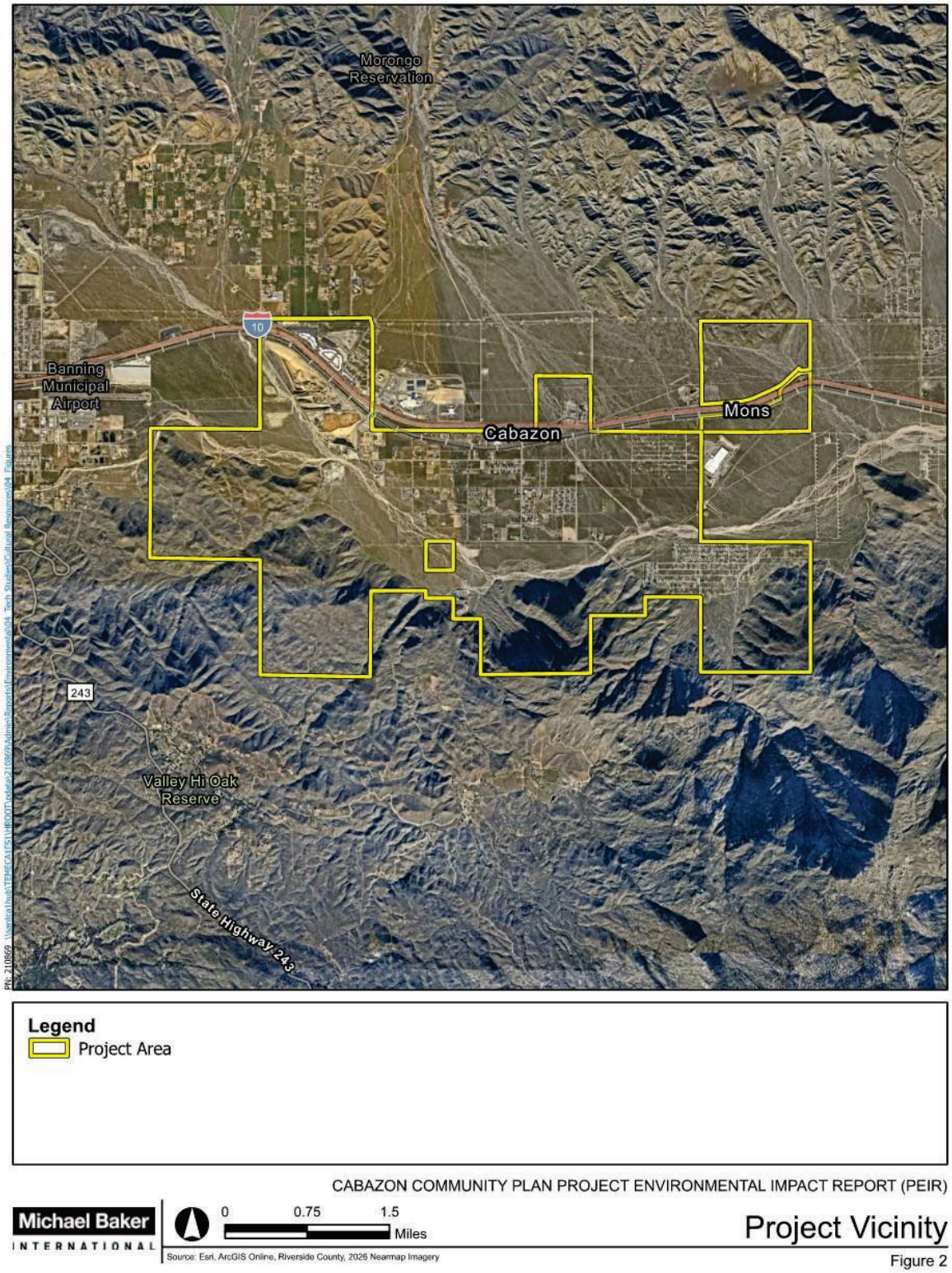

FIGURE 2. PROJECT VICINITY MAP

1.2.3 Project Description

Cabazon Community Plan

The Cabazon Community Plan (GPA No. 1206) would address the vision for the community's character/placemaking, land use, access and circulation, infrastructure and public services, design standards, and land use regulations and development standards. The Cabazon Community Plan Land Use Map proposes the following types of land uses: Commercial Retail, High Density Residential, Highest Density Residential, Low Density Residential, Medium Density Residential, Very Low Density Residential, Rural Residential, Rural Desert, Rural Mountainous, Mixed-Use Area, Heavy Industrial, Light Industrial, Public Facilities, and Open Space – Conservation.

Overall, the proposed general plan amendment (GPA No. 01206) would amend the Riverside County General Plan by:

1. Amending the Pass Area Plan to update textual and graphic references to the Cabazon Policy Area to reflect changes proposed by the Cabazon Community Plan.

2. Revising land use designations within the proposed Cabazon Community Plan Area of the Pass Area Plan, including Foundation Component amendments. Approximately 64 parcels totaling about 7,761 acres would require Foundation Component Amendments that include changes from the Rural and Rural Community components to the Community Development component. Consistency zoning changes would occur in the future as a result of the revised land use designations proposed as part of the project, and are analyzed as part of this PEIR.

3. Amending Tables LU-1 (Unincorporated Riverside County Cumulative Acreage Summary), LU-2 (Unincorporated Riverside County Buildout Capacity Summary), and LU-5 (Population per Square Mile), as well as Figure LU-1 (Riverside County General Plan Land Use Foundation Components) in Chapter 3 Land Use Element of the Riverside County General Plan.

The Cabazon Community Plan proposes planning policies and direction to guide change, promote quality development, and implement the community's vision for the area. The project includes amended General Plan Land Use and Circulation Elements, Design Guidelines, and administrative and implementation programs to encourage high-quality development within the community by addressing the following topics:

- Placemaking
- Land use
- Access and circulation
- Infrastructure and public services
- Development and design standards
- Administration and implementation

Cabazon Infrastructure Plan Overview

The CIP (ZR6234) includes numerous projects related to public infrastructure and facilities that the Community proposes to undertake over the next 30 years in order to support anticipated land use changes associated with implementation of the Cabazon Community Plan. The CIP projects covered under this PEIR have been divided into the following categories:

- Domestic Water Supply and Distribution
- Wastewater Collection and Treatment
- Flood Control and Drainage Systems
- Electric Power Supply
- Natural Gas Distribution
- Telecommunications and Broadband Services
- Roadway Right-of-Way

1.3 Purpose and Need for Study

The purpose of this study is to evaluate the potential for the project to impact paleontological resources within the County's limits of the community of Cabazon. As required under CEQA, public agencies must identify and mitigate significant environmental impacts associated with discretionary projects, including those affecting paleontological resources.

This technical report supports the PEIR by providing a program-level assessment of resource sensitivity across the project area. It identifies areas where ground-disturbing activities may intersect with known or potential paleontological resources and outlines mitigation strategies to ensure compliance with CEQA Guidelines Section 15000 and 15023, PRPA (Public Law 111-011, Title VI, Subtitle D), and California Public Resource Code 5097.5.

The need for this study arises from the County's responsibility to protect significant nonrenewable scientific resources while implementing infrastructure improvements. By proactively identifying sensitive areas and establishing a tiered mitigation framework, the County can ensure that implementing projects proceed in a manner that respects and preserves the community of Cabazon's unique paleontological legacy.

1.4 Lead Agency and Regulatory Context

The County of Riverside is the lead agency for environmental review under CEQA for the project. This Phase I paleontological resources assessment has been prepared to identify potential paleontological resources within the project area and to evaluate potential impacts in accordance with CEQA Guidelines Section 15000 and 15023. The report is intended to support the PEIR and ensure compliance with applicable state regulations. If any implementing projects receive federal funding or require federal permits, additional review under the PRPA (Public Law 111-011, Title VI, Subtitle D), may be required. See Chapter 2, Regulatory Framework, for further detail.

1.5 Personnel and Qualifications

This report was prepared by qualified paleontological resource professionals who meet the Society of Vertebrate Paleontology (SVP) standards for paleontology. Peter Kloess, Ph.D., served as the Senior Paleontological Investigator and lead author for the report, meeting SVP qualifications for professional paleontological work and overseeing paleontological sensitivity analysis and mitigation recommendations.

No field survey was conducted for this programmatic assessment. The report was prepared between February and June 2026 to support the PEIR.

1.6 Report Organization

This report provides a structured outline for the Program-Level Paleontological Resources Technical Report. Chapter 2 provides the paleontological regulatory framework. Chapter 3 discusses the environmental setting. Chapter 4 provides the methods and results of the paleontological resource identification. Chapter 5 lays out the existing conditions and sensitivity for paleontological resources, as well as how the Cabazon Community Plan Conditions of Approval (COAs) apply to specific levels of sensitivity within the project area. Chapter 6 analyzes the potential impacts to paleontological resources in terms of the requirements of Appendix G of CEQA and recommendations based on those potential impacts. The goal is to ensure clarity and consistency with CEQA and County requirements, and to serve as a template for future use.

2.0 REGULATORY FRAMEWORK

2.1 Federal Regulations

2.1.1 National Environmental Policy Act (NEPA, 1969)

NEPA [42 U.S.C. 4321–4347] requires federal agencies to assess environmental impacts of federal actions, which include impacts on cultural and historic resources, as part of an environmental assessment or environmental impact statement. Under NEPA, cultural resources are considered in the "affected environment," and any significant impacts to historic properties (usually those protected by the NHPA) must be disclosed and mitigated if possible. NEPA's process dovetails with the NHPA—compliance with Section 106 is typically integrated into NEPA documents (CEQ and ACHP 2013). NEPA would apply only if a project is a federal action (for example, if an infrastructure project triggers a federal permit, uses federal funds, or is on federal land). In such cases, the County (or the relevant federal agency) would prepare the appropriate NEPA documentation analyzing cultural resource impacts, in addition to conducting Section 106 review.

In addition, NEPA directs federal agencies to use all practicable means to "preserve important historic, cultural, and natural aspects of our national heritage" (Section 101[b][4]). Consideration of paleontological resources may be required under NEPA when a project is proposed for development on federal land, or land under federal jurisdiction.

2.1.2 Paleontological Resources Preservation Act (2009)

The Paleontological Resources Preservation, Omnibus Public Lands Act (Public Law 111-011, Title VI, Subtitle D) of 2009 directs the Secretaries of the US Department of the Interior and US Department of Agriculture (USDA) to manage and protect paleontological resources on federal land controlled or administered by these departments using "scientific principles and expertise." The act codifies existing policies of the Bureau of Land Management, National Park Service, US Forest Service, Bureau of Reclamation, and US Fish and Wildlife Service, and provides the following:

- definitions of "paleontological resources" and "casual collecting";
- criteria for the issuance of resource-use permits; and
- requirements for the collection of paleontological resources and their curation in approved repositories; and penalties (criminal and civil) for the illegal removal, sale, purchase, transport, theft and/or vandalism of fossils from federal lands.
- requirements for limiting specific location data of paleontological sites to prevent vandalism/theft.

2.1.3 Antiquities Act (1906)

The Antiquities Act of 1906 (16 US Code 431-433) states, in part:

> *That any person who shall appropriate, excavate, injure or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States, without the permission of the Secretary*

> *of the Department of the Government having jurisdiction over the lands on which said antiquities are situated, shall upon conviction, be fined in a sum of not more than five hundred dollars or be imprisoned for a period of not more than ninety days, or shall suffer both fine and imprisonment, in the discretion of the court.*

The Antiquities Act was enacted to help protect any historic or prehistoric ruin or monument, or any "object of antiquity" situated on lands owned or controlled by the government of the United States. According to the Antiquities Act, fossil resources are considered to be objects of antiquity. The Antiquities Act has been used to designate national monuments based on the presence of fossil resources at those sites, like those at the Grand Staircase-Escalante National Monument, the Petrified Forest National Park, and others. State of California Regulations California Environmental Quality Act (CEQA, 1970) CEQA (PRC § 21000 et seq.) is California's principal environmental law, requiring state and local agencies to identify and mitigate significant environmental impacts of their actions. In the unincorporated community of Cabazon, the County of Riverside is the CEQA lead agency for future implementing projects

In addition, paleontological resources are afforded protection pursuant to CEQA requirements. Appendix G, Part V of the CEQA Guidelines explains significant impacts on paleontological resources. It details that a project would result in a significant impact if it disturbs or destroys unique paleontological resources or a unique geologic feature. Additionally, PRC Section 5097.5 specifies that any unauthorized removal of paleontological remains is a misdemeanor. Penalties for this removal or damage of paleontological resources are set forth in California Penal Code Section 622.5. California Register of Historical Resources (CRHR)

California PRC Section 5097.5 defines and details the unauthorized disturbance or removal of archaeological, paleontological, or historical resources located on public lands, which is considered a misdemeanor violation:

> A person shall not 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, rock art, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over the lands.

2.2 Local Regulations

2.2.1 Riverside County General Plan

The Riverside County General Plan's structure is two-tiered, meaning that the General Plan covers the entire unincorporated portion of the County of Riverside and is augmented by 19 more detailed Area Plans covering Riverside County's territory, with the exception of the undeveloped desert areas and the March Air Joint Reserve Base. The thrust of the General Plan is to manage the overall pattern of development more effectively. The Area Plans provide a clear and more focused opportunity to enhance community identity within the County and stimulate quality of life at the community level (Riverside County, n.d.). The CCP is designed to replace the former Cabazon Community Plan Policy Area and the Cabazon Town Center Policy Area of the Pass Area Plan. While the Pass Area Plan still provides a broader regional framework for

land use, mobility, environmental resources, and infrastructure planning in the San Gorgonio Pass, the new CCP establishes the primary policy framework for land use and development within the Cabazon Community Plan Area.

Multipurpose Open Space Element

The following policies contained in the County of Riverside General Plan Multipurpose Open Space Element are applicable to the project regarding paleontology:

- **OS 19.6**: Whenever existing information indicates that a site proposed for development has high paleontological sensitivity as shown on Figure OS-8, paleontological resource impact mitigation program (PRIMP) shall be filed with the Riverside 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 Riverside 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 Riverside 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.

3.0 ENVIRONMENTAL SETTING

This section establishes the context of the project area, including geological setting, paleontological context, and natural setting. It provides background information that helps predict and interpret the presence or absence of paleontological resources.

3.1 Natural Environment

California is divided into 11 geomorphic provinces, each defined by unique geologic and geomorphic characteristics. The project area is in the northeastern Peninsular Ranges geomorphic province, a region of northwest-trending ranges and valleys, subparallel to faults related to the San Andreas Fault (California Geological Survey 2002). The project area is situated in a geographic sub-region of the Peninsular Ranges known as the San Gorgonio Pass. The San Gorgonio Pass is bounded to the north by the San Bernardino Mountains and to the south by the San Jacinto Mountains. The project area and surrounding area are located between the San Jacinto Fault Zone and the inactive Banning Fault. This province is bordered to the north by the Transverse Ranges geomorphic province and to the east by the Colorado Desert province (California Geological Survey 2002).

Terrain in the project area ranges in elevation from 1,275 feet at the southeast corner within the San Gorgonio River to a maximum of 4,000 feet above sea level at the southern edge of the boundary bordering the Cleveland National Forest. The San Gorgonio River and its tributary creeks through Millard Canyon, Deep Canyon, and Lion Canyon provide seasonal water flows. Due to the surrounding steep terrain and low-lying position, much of Cabazon is prone to hazardous flooding.

The region's bedrock exposures consist predominantly of igneous and metamorphic rock with sedimentary units. Alluvial valleys between the mountain ranges contain sediments with significant variation in thickness.

The USDA soil survey map units for the project area include Cieneba series rocky sandy loam, Gorgonio series loamy sand, gravelly loam and cobbly loam, Hanford series coarse sandy loam, coarse sandy loam, cobbly coarse sandy loam, Soboba series cobbly loamy sand, stony loamy sand, Tujunga series gravelly loam and loamy sand, along with several others that each make up less than 1 percent of the total project area.

The project area is located in the Banning Subwatershed and Cabazon Subwatershed within the larger San Gorgonio Subbasin. The Subbasin roughly covers territory between the eastern edge of the City of Banning on the west, and the community of Verbenia on the east. It includes the community of Cabazon. The Morongo Band of Mission Indians Reservation is completely contained within the Subbasin. The Subbasin does not receive much natural precipitation with most of the inflow into the Subbasin in the form of runoff from the mountains to the north and south. This runoff is the result of rainfall and snowmelt. Because the population overlying the Subbasin is not large there is not much pumping within the Subbasin (San Gorgonio Pass Water Agency 2025).

Numerous unnamed ephemeral drainages are mapped within the project area. These features originate in the hills within the upper watershed and flow downslope to the lower valleys, converge downstream, and generally flow south off-site. The San Gorgonio River flows through the center of the project area.

The project area is within the Inland Hills ecoregion, which occurs on moderate to steep slopes, northeast of Lake Perris. The climate is hot and dry compared to the coastal hills to the west with annual precipitation at 10–14 inches. Historically, vegetation included interior or Riversidian sage scrub coastal sage scrub, sagebrush, and chamise, several cacti and Spanish bayonet mixed with areas of grassland and chaparral (Griffith et al. 2016).

3.2 Paleontological Setting

3.2.1 Geology

According to local geologic maps by Dibblee and Minch (2004) and Bedrossian et al. (2012), the project area is underlain by Holocene alluvial deposits, late Pleistocene to Holocene alluvial fan deposits, Pleistocene fanglomerate sediments, and Paleozoic and Mesozoic metasedimentary and intrusive igneous rocks. These different geologic units and their potential paleontological sensitivity are explained further in the following paragraphs.

Holocene-aged (less than approximately 11,700 years old) alluvial sand and gravel deposits underlie much of the project area's lowlands and stream channels, deposited along the San Gorgonio River and its tributaries. These units consist mainly of alluvial gravel and sand of stream channels and alluvial sand and gravel of flat floodplains and valleys. These units are poorly compacted and moderately sorted sediments derived from the local mountains. Holocene-age sedimentary deposits are not typically considered to have the potential to preserve significant fossil remains based on their relatively young geologic age, and are, therefore, assigned a low paleontological resource potential at the surface. However, these deposits may transition in the subsurface into older, Pleistocene-age sedimentary deposits. These deposits span the Rancholabrean North American Land Mammal Age (11,000–240,000 years ago) (Bell et al. 2004). Recorded fossils from these deposits include mammoths, mastodons, horses, bison, camels, saber-toothed cats, coyotes, deer, and sloths, as well as smaller animals like rodents, rabbits, birds, reptiles, and fish (Jefferson 1991a, 1991b; Miller 1971). As such, these Holocene-aged deposits are considered to have low paleontological sensitivity potential at depths below 5 feet (SVP 2025), equivalent to Low sensitivity of the County's Paleontological Sensitivity Map.

Late Pleistocene- to Holocene-aged (less than approximately 129,000 years old) alluvial deposits underlie the majority of the valley areas within the project area and may underlie Holocene-aged alluvial deposits at unknown depths elsewhere within the project area. These units include Alluvial fan deposits of the San Gorgonio Pass and Alluvial fans of gneissic rubble. These units are primarily derived from sand and gravel of the plutonic and gneissic bedrock from the San Bernardino Mountains (Dibblee and Minch 2004). Holocene-aged sedimentary deposits are not typically considered to have the potential to preserve significant fossil remains based on their relatively young geologic age; however, portions of this unit are known to be of late Pleistocene age, which are generally old enough to produce fossils. Elsewhere in the lowlands of western Riverside County, Pleistocene-aged alluvial deposits have produced important fossilized remains of terrestrial vertebrates, particularly of large-bodied mammals, including ground sloth, mammoth, mastodon, camel, bison, dire wolf, saber-toothed cat, American lion, and giant short-faced bear (e.g., Jefferson 1991a, Jefferson 1991b; Anderson et al. 2002; Springer et al. 2009); however, few fossil localities have been found within San Gorgonio Pass. Based on the Pleistocene age, prior recovery of significant vertebrate fossils from similar sediments, and a lack of local instances, Pleistocene alluvial fan deposits in this area are assigned a moderate paleontological resource potential at all depths, previously listed as Low sensitivity of the County's Paleontological Sensitivity Map.

Pleistocene-aged (2.5 million to 11,700 years old) Fanglomerates appear in the foothills within the northeast corner of the project area. Locally named the Cabazon Fanglomerate, this sedimentary layer is a light gray and thinly bedded mix of unsorted boulders, cobbles, and pebbles derived from the San Jacinto Mountains. Scientifically significant paleontological resources have been recovered from similar Pleistocene-aged old alluvial deposits elsewhere in the County and include recorded fossil-bearing localities. These localities have yielded fossils of terrestrial mammals (e.g., mammoths, mastodons, ground sloths, dire wolves, saber-toothed cats, large and small horses, large and small camels, and bison) in addition to plant macro- and micro-fossils and microvertebrate fossils (Jefferson 1991a, 1991b; Reynolds and Reynolds 1991; Scott and Cox 2008; Springer et al. 2009, 2010; Scott 2010). Due to this unit's similarities to other highly productive Pleistocene sedimentary units in the region, this unit is given a high paleontological resource potential at all depths, equivalent to High A of the County's Paleontological Sensitivity Map.

Paleozoic- to Mesozoic-aged metasedimentary and intrusive igneous rocks underlie the southern margin of the project area. Intrusive igneous rocks do not preserve fossils because they form at extremely high temperatures and pressures below the earth's surface. Similarly, metasedimentary rocks in this area have melted at high temperatures and pressures. Intrusive igneous rocks and metasedimentary rocks in this region are assigned Very Low potential for paleontological resources at all depths, equivalent to No sensitivity of the County's Paleontological Sensitivity Map.

3.2.2 Soils

Soils across the community of Cabazon vary depending on elevation and distance from rivers. In the northern half of the project area, much of the soils are dominated by silty and sandy loams, such as the Gorgonio and Hanford series (USDA 2023, 1999b), from the deposition of sediments along the San Gorgonio River. In the southern and western portions of the project area, covering approximately 20 percent of the entire study area, Cieneba series soils depict a higher gradient and more seasonal runoff-dependent depositional environment further away from fluvial channeling. Along the path of the San Gorgonio River through the center of the project area, Riverwash, Soboba, Greenfield, Grangeville, Tollhouse, and Visalia soils are present in negligible amounts as well. Throughout the City, much of the land has already been developed, with pockets of made land present in small quantities in these regions. These and several other minor soil types are described below (**Table 1**).

TABLE 1: SOILS WITHIN THE COMMUNITY OF CABAZON

Soil Name	Soil Description	Percent of Community
Cieneba rocky sandy loam (USDA 2009)	This series consists of brown, pale brown, and very pale brown slightly acid gravelly loamy sand A horizons, pale brown and light brown, slightly and strongly acid heavy loamy sand C horizons underlain by weakly cemented duripans at a depth of 38 inches.	19.5%
Gorgonio loamy sand (USDA 2023)	This series consists of deep, somewhat excessively drained soils that formed in recent sandy alluvium derived from acid sandstone and related rocks. Corralitos soils are on alluvial fans and in small valleys and have slopes of 0 to 15 percent. The mean annual precipitation is about 20 inches and mean annual air temperature is about 14.5 degrees Celsius.	27.9%

Soil Name	Soil Description	Percent of Community
Hanford coarse sandy loam (USDA 1999b)	This series consists of very deep, well drained soils that are formed in moderately coarse textured alluvium dominated by granite. These soils were deposited along stream bottoms and alluvial fans and have a coarse but loamy texture with a moderate A horizon followed by a deep C horizon and no B horizon	20.5%
Ramona sandy loam (USDA 2024)	The Marina series consists of very deep, somewhat excessively drained soils formed in old eolian deposits. Marina soils are on fluviomarine terraces, marine terraces, and coastal plains and have slopes of 0 to 30 percent. The mean annual precipitation is about 400 mm, and the mean annual air temperature is about 17 degrees Celsius.	0.8%
Riverwash (USDA 1999a)	A miscellaneous soils unit applied to barren alluvial areas of unstabilized sand, silt, clays or gravel frequently flooded, washed, and reworked by stream activity.	5.9%
Rockland (USDA 2007)	This series consists of well drained soils formed in loamy colluvium from rotational landslides on slopes of stream valleys and dissections of ground moraines. Saturated Hydraulic conductivity is moderate in the upper part of profile and moderately slow in the lower part. The mean annual air temperature is about 5 degrees C.	7.7%
Soboba loamy sand (USDA, 2025.)	This series soils consist of deep, excessively drained soils that are formed in alluvium from predominantly granitic rock sources on alluvial fans. They are typically sandy with a poorly developed horizon and a deep C-horizon	9.2%
Terrace Escarpments (USDA, 2002)	Terrace escarpments are the remnants of alluvial plains or escarpments which have highly variable profiles, are generally xerorthenic, and have very high runoff erosion and low drainage.	1.3%
Tujunga Loamy Sand (USDA 2017)	The Tujunga series consists of very deep, somewhat excessively drained soils that formed in alluvium from granitic sources. Tujunga soil is on alluvial fans and floodplains, including urban areas. Slopes range from 0 to 12 percent. The mean annual precipitation is about 450 mm and the mean annual temperature is about 18 degrees Celsius.	5.4%
Lithic Xerorthents (Exchequer Series) (USDA 2003)	This series consists of shallow, somewhat excessively drained soils that formed in material weathered from hard andesitic breccia, schist and metamorphose volcanic rocks. These soils are on undulating to steep uplands. The mean annual air temperature is about 61 degrees F.	0.9 %
Units that make up less than 0.8% of the project area (US Dept. Of Agriculture NRCS 2026)	Crafton (CsF2) (0.06%); Trigo family lithic Xerorthents (DnG)(0.7%), Greenfield Sandy Loam (GyD2, GyE2)(0.1%), Made land (Ma) (0.2%), Tollhouse Vista sandy loam (VsC2, VsD2, VsF2, VtF2) (0.6%)	%1.6%

3.2.3 Hydrology and Topography

The community of Cabazon is situated within the San Gorgonio Pass (also known as Banning Pass), on the rim of the Great Basin topographic zone. A geological survey water-supply paper dating to 1971 described the surface-drainage area of the San Gorgonio Pass as covering about 280 square miles and being situated in a climatic and topographic transition zone between the Los Angeles Coastal Basin to the west and the Colorado Desert province to the east. The topography of the San Gorgonio Pass consists of a relatively flat

floor, with borders on the north from the San Bernardino Mountains, on the southeast from the San Jacinto Mountains, and on the west by the San Timoteo Badlands. A panoramic view of the Coachella Valley can be seen on the southeast end of the San Gorgonio Pass (Bloyd, Jr. 1971).

The San Gorgonio River is part of the San Gorgonio Pass Subbasin (SGP Subbasin) and runs through the center of the project area (San Gorgonio Pass Groundwater Sustainability Agency 2026). The community of Cabazon has high risk for flooding, and the San Gorgonio River Levee System, referred to by the United States Army Corps of Engineers (USACE) as the Banning Levee system, is designed to assist in flood reduction, and both segments of the levee are located in the nearby City of Banning (USACE 2017).

4.0 RESOURCE IDENTIFICATION METHODS AND RESULTS

Michael Baker International staff requested and received a fossil locality records search through the SDNHM on March 5, 2026 (see **Attachment 3**). The SDNHM records search did not find any previously known fossil localities within the project area or within 1 mile of the project area. However, the records search identified Late Pleistocene to Holocene alluvial fan deposits, which are old enough to produce fossil material, and the SDNHM had records of multiple specimens (exact number was not provided) collected from similar alluvial deposits within Riverside County, including ground sloth, mammoth, mastodon, camel, bison, dire wolf, saber-toothed cat, American lion, and giant short-faced bear (SDNHM 2026).

A paleontological records search was also requested at the local Western Science Center (WSC) museum in Hemet, California, on February 6, 2026; however, the museum did not respond to the request in time for the records search to be included in this document and the request was rescinded. Michael Baker International conducted supplemental paleontological records searches within 10 miles of the project area using the following databases:

- University of California Museum of Paleontology Locality Search (UCMP 2026)
- The Paleobiology Database (PBDB 2026)

Localities contained within these databases do not contain specific location data and are all listed within Riverside County. Pleistocene Fanglomerate sediments were not recorded by name in these databases, so a general search of Pleistocene-aged sediments within 10 miles of the project area was completed. The records searches were limited to data available online.

The PBDB database contained 120 localities within 10 miles of the project area that contained fossil specimens from Pleistocene-aged sediments like those found within the project area. These localities are presented in the following table.

A search of the UCMP online fossil database yielded 11 fossil-bearing localities from Pleistocene-aged sediments within Riverside County. Precise locality coordinates are not publicly available in this database, so the localities could not be refined to within 10 miles of the project area. These localities are presented in the following table.

TABLE 2: ONLINE RECORDS SEARCH PALEONTOLOGICAL LOCALITIES WITHIN 10 MILES OF THE CITY

Collection Number	Taxa	Formation	Intervals	Distance to Project Area
PBDB 20486, 20489	*Camelops* sp., *Equus* sp.	Pauba Formation	Irvingtonian Rancholabrean	9 miles west
PBDB 20461, 20466, 20467, 20469, 20488	*Equus* sp.	Pauba Formation	Irvingtonian Rancholabrean	9 miles west
PBDB 20487	*Mammuthus* sp., *Equus* sp., *Camelops* sp., *Paramylodon harlani*, Rodentia indet., Ruminatia indet.	Pauba Formation	Irvingtonian Rancholabrean	9 miles west

Collection Number	Taxa	Formation	Intervals	Distance to Project Area
PBDB 20474	Leporidae (*Sylvilagus* sp.,)	Pauba Formation	Irvingtonian	9 miles west
PBDB 20459, 20465, 20471, 20473	Geomyidae (*Thomomys* sp.)	Pauba Formation	Irvingtonian	9 miles west
PBDB 2072	Leporidae (*Sylvilagus sp., Lepus sp.*), Sciuridae (*cf. Sciuridae indet.*), Geomyidae (*Thomomys bottae*), Heteromyidae (*Dipodomys* sp.), Critetidae (*Neotoma sp., Microtus sp.*), Bovidae (*Ovis canadensis*).	Pauba Formation	Irvingtonian	9 miles west
PBDB 20470	Geomyidae (*Thomomys sp.*), Heteromyidae (*Perognathinae* indet*., Dipodomys* sp.) Cricetidae (*Microtus* sp.)	Pauba Formation	Irvingtonian	9 miles west
PBDB 20468	Mylodontidae (*Paramylodon* sp.)	Pauba Formation	Irvingtonian	9 miles west
PBDB 20464	Soricidae (*Sorex* sp.*),* Leporidae (*Sylvilagus* sp., *Lepus* sp.), Sciuridae (*Sciuridae* indet.), Geomyidae (*Thomomys bottae*), Heteromyidae (*Dipodomys* sp.) Cricetidae (*Peromyscus* sp., *Microtus* sp.) Equidae (*Equus* sp.) Carnivora indet.	Pauba Formation	Irvingtonian	9 miles west
PBDB 20463	Equidae (*Equus mexicanus*)	Pauba Formation	Irvingtonian	9 miles west
PBDB 20462	Leporidae (*Leporidae* indet.) Geomyidae (*Thomomys* sp.) Cricetidae (*Peromyscus* sp., *Microtus* sp.) Equidae (*Equus* sp.)	Pauba Formation	Irvingtonian	9 miles west
PBDB 20460	Talpidae (*Scapanus* sp.) Leporidae (*Sylvilagus* sp., *Lepus* sp.), Geomyidae (*Thomomys* sp.), Cricetidae (*Peromyscus* sp., *Neotoma* sp., *Microtus* sp.)	Pauba Formation	Irvingtonian	9 miles west
PBDB 20458	Leporidae indet.	Pauba Fm.	Irvingtonian	9 miles west
PBDB 20457	Cricetidae (? *Crecetidae* indet.), Camelidae (*Camelops* sp.)	Pauba Fm.	Irvingtonian	9 miles west
PBDB 20456, 20455	Mylodontidae (*Paramylodon harlani*)	Pauba Fm.	Irvingtonian	9 miles west
PBDB 20454	Soricidae (*Sorex* sp.), Talpidae (*Talpidae* indet.), Mylodontidae (*Paramylodon harlani*), Leporidae (*Sylvilagus* sp.), Sciuridae (*Sciuridae* indet.), Geomyidae (*Thomomys bottae*), Heteromyidae (*Perognathinae* indet., *Dipodomys* sp.), Cricetidae (? *Peromyscus* sp., *Neotoma* sp., *Microtus californicus*), Canidae (*Canis latrans*), Mustelidae (*Mustela* sp.), Felidae (*Smilodon fatalis*), Mammutidae (*Mammut pacificus*), Elephantidae (*Mammuthus hayi*), Equidae (*Equus mexicanus*), Tapiridae (*Tapirus*	Pauba Fm.	Irvingtonian	9 miles west

Collection Number	Taxa	Formation	Intervals	Distance to Project Area
	californicus), Tayassuidae (? *Tayassuidae* indet.), Camelidae (*Hemiauchenia* sp., *Camelops hesternus*), Cervidae (cf. *Odocoileus* sp.), Antilocapridae (*Capromeryx* sp.), Chiroptera indet.			
PBDB 20453	Leporidae indet., Geomyidae (*Thomomys* sp.), Antilocapridae (*Antilocapridae* indet.)	Pauba Fm.	Irvingtonian	9 miles west
PBDB 20452	*Mammuthus columbi*	Pauba Fm.	Irvingtonian	9 miles west
PBDB 20442	Leporidae indet., Cerbidae (*Odocoileus* sp.) Geomyidae (*Thomomys gidleyi*), Heteromyidae (*Prodipodomys idahoensis*), Cricetidae (*Peromyscutus truei*, *Neotoma* sp., "*Microtus meadensis*"	San Timoteo Fm.- Upper member	Irvingtonian	9 miles west
PBDB 20319	Leporidae indet., Megalonychidae (*Megalonyx* sp.), Ursidae (*Arctodus* sp.) Mustelidae (*Mustelidae* indet., Canidae (*Canis edwardii*), Camelidae (*Camelops hesternus*), Cervidae (*Odocoileus hemionus*), Equidae (*Plesippus simplicidens*), Tapiridae (*Tapirus* (*Helicotapirus*) *haysii*), Geomyidae (*Thomomys* sp.), Heteromyidae (*Dipodomys* sp.), Cricetidae (*Neotoma* sp., *Arvicolinae* indet., *Ondatra idahoensis*, *Mictomys kansasensis*), Erethizontidae (*Erthizon cascoensis*)	San Timoteo Fm.- Upper member	Irvingtonian	9 miles west
PBDB 20155	Leporidae (*Sylvilagus* sp., Leporidae indet), Geomyidae (*Thomomys* gidleyi), Heteromyidae (? *Dipodomys* sp., *Perognathinae* indet.), Cricetidae (*Sigmodon minor*, *Ondatra* sp., *Ophiomys parvus*), Equidae (*Equus* sp.)	San Timoteo Fm.- Lower member	Irvingtonian	9 miles west
PBDB 20173–20271 ("California Oaks" collection)	108 unique taxon names including: *Sylvilagus*, Leporidae, *Canis latrans*, *Mammut*, *Equus* sp., *Sigmodon*, *Camelops*, Perognathinae, *Vulpes velox*, *Megalonyx*, and Canidae.	"unnamed sandstone" formation	Irvingtonian	9-miles west
PBDB 20149	Mammalia- misc. Unranked taxa	Pauba Fm.	Irvingtonian	9 miles west
UCMP -3245	*Odocoileus*, *Antilocapra*, *Lepus*	Bautista Beds	Pleistocene-Irvingtonian	Within Riverside County
UCMP -3245	*Equus, Capromeryx*	Bautista Beds	Pleistocene-Irvingtonian	Within Riverside County
UCMP -3244	*Equus*	Bautista Beds	Pleistocene-Irvingtonian	Within Riverside County

Collection Number	Taxa	Formation	Intervals	Distance to Project Area
UCMP -3243	*Equus, Megalonyx, Antilocapra, Odocoileus*, *Tapirus merriami*, and undifferentiated mammals.	Bautista Beds	Pleistocene-Irvingtonian	Within Riverside County
UCMP -3242, -3240	*Equus bautistensis*	Bautista Beds	Pleistocene-Irvingtonian	Within Riverside County
UCMP -3241	*Odocoileus*, *Equus bautistensis*	Bautista Beds	Pleistocene-Irvingtonian	Within Riverside County
UCMP RV8601	*Microtus californicus*, Microtinae, *Neotoma*	Unknown Pleistocene	Rancholabrean	Within Riverside County
UCMP V7006	Reptilia (*Gopherus*)	Unknown Pleistocene	Rancholabrean	Within Riverside County
UCMP V65248	*Equus bautistensis*, *Antilocapra*, *Mammuthus*, undifferentiated mammal	Unknown Pleistocene	Rancholabrean	Within Riverside County
UCMP V99828	Reptilia (*Gopherus*)	Chemehuevi (Sand and Gravel)	Rancholabrean	Within Riverside County

A review of relevant papers and reports identified previous paleontological sensitivity studies of a project west of Palm Springs conducted by Dudek Consulting (2020) that included locality records from the Natural History Museum of Los Angeles County (NHMLAC) of nearby Quaternary and Pleistocene-aged sediments containing vertebrate fossils such as bighorn sheep (*Ovis canadensis*), lizards, and rodents, as well as invertebrates such as freshwater gastropods. Many of these fossil-bearing localities are found within the same alluvial fan and Pleistocene alluvium deposits found within this project area.

5.0 EXISTING CONDITIONS AND SENSITIVITY ANALYSIS

5.1 Standards for Paleontological Sensitivity Analysis

The following thresholds of significance are based on the Society of Vertebrate Paleontology (SVP) Best Practices Guidelines for Mitigation of Adverse Impacts on Paleontological Resources (2025), which is an updated version of the SVP 2010 Guidelines.

The SVP 2025 Guidelines contain updates such as adding explicit guidelines for the paleontological mitigation procedure for any potential impact event, updated definitions and suggested requirements for paleontological staff, and updated impact sensitivity level assessment guidelines, now given a new name: the Fossil Prediction Map System (FPMS). The FPMS includes the following designations: 5 (Very High), 4 (High), 3 (Moderate), 2 (Low), 1 (Very Low), U (Unknown), I (Ice and snow), and W (Water). These new designations differentiate paleontological sensitivity zones into more nuanced categories than the 2010 guidelines due to the inclusion of fossil type-rarity, abundance, and sediment age as factors into sensitivity. The SVP 2025 Guidelines FPMS criteria are given in **Table 3** below.

TABLE 3: SVP 2025 GUIDELINES FOSSIL PREDICTION MAP SYSTEM CRITERIA

FPMS designation	Assignment Criteria
5 - Very High Potential	Highly fossiliferous geologic units that consistently and predictably preserve scientifically significant fossils
4 - High Potential	Highly fossiliferous geologic units that preserve scientifically significant fossils, but their concentrations vary and are less predictable than 5.
3 - Moderate Potential	Fossiliferous geologic units that are often marine in origin and in which fossils may be common, but scientifically significant fossils are isolated or sparse.
2 - Low Potential	Geologic units that are not likely to preserve fossils, including sedimentary deposits that are generally younger than 11,700 years before present, older sedimentary units that only rarely preserve fossils, or units that exhibit physical and chemical alteration (diagenetic changes) that make fossil preservation unlikely.
1 - Very Low Potential	Geologic units that are not likely to contain recognizable fossils including Precambrian units and units that are igneous or metamorphic, excluding air-fall and reworked volcanic ash.
U - Unknown Potential	Geologic units that cannot be assigned an informed FPMS designation. This includes units that have not been subject to prior field surveys but that contain lithologies or preserve depositional settings that are known to be conducive to fossil preservation, units that have not been published in the scientific literature, and units in which reports of fossils have not been verified.
I - Ice or Snow	Mapped geographic areas where underlying geology is obscured by ice or snow. Predictive potential for fossils is low, but when these areas appear on geologic maps or in GIS data, they may be useful for developing mitigation strategies or management recommendations for a larger analysis area that extends beyond the ice or snow.

FPMS designation	Assignment Criteria
W - Water	Mapped geographic area where underlying geology is obscured by water. No predictive potential for fossils, but when these areas appear on geologic maps or in GIS data, they may be useful for developing mitigation strategies or management recommendations for a larger analysis area that extends beyond the water or in projects in which the water is being drained. May need to consider the FPMS designation of the underlying geologic units.

Sensitivity assessments were made based on these SVP (2025) guidelines, using geologic maps at scales less than 1:100,000, and recent records searches of fossil localities. Equivalencies to the County's previously established sensitivity zones (based on the SVP 2010 Guidelines) were included in Section 3.2.1.

5.1.1 Significance Thresholds

For the purposes of this EIR, paleontological impact sensitivity is bound by the underlying geologic units. These geologic units mapped across the study area have been assigned to one of the FPMS designations based on their known geology, geologic age, known prior disturbances, and prior fossil specimen discoveries. The potential for each geologic unit is constrained by known surficial conditions, and do not account for factors such as unmapped ground disturbances, recent construction, or unmapped/untested subsurface geology.

5.1.2 Staff Qualifications

An SVP Qualified Paleontologist meets the SVP's standards for definition as a Qualified Paleontologist (Principal Investigator or Project Paleontologist). The Qualified Paleontologist is a practicing scientist who is recognized in the paleontological community as a professional and can demonstrate familiarity and proficiency with paleontology in a stratigraphic context. A Qualified Paleontologist shall have the equivalent of the following qualifications:

1. A graduate degree in paleontology or geology, and/or a publication record in peer reviewed journals; and demonstrated competence in field techniques, preparation, identification, curation, and reporting in the state or geologic province in which the project occurs. An advanced degree is less important than demonstrated competence and regional experience.

2. At least two full years of professional experience as assistant to a Project Paleontologist [Qualified Paleontologist] with administration and project management experience; supported by a list of projects and referral contacts.

3. Proficiency in recognizing fossils in the field and determining their significance.

4. Expertise in local geology, stratigraphy, and biostratigraphy.

5. Experience collecting vertebrate fossils in the field.

Paleontological Resources Monitors conduct field paleontology including monitoring, assisting with fossil collection, and documenting fossil material and associated locality data on behalf of the Qualified Paleontologist at the Qualified Paleontologist's discretion. They must have the equivalent of the following qualifications:

1. BS or BA degree in geology or paleontology and one year of experience monitoring in the state or geologic province of the specific project. An associate degree and/or demonstrated experience showing ability to recognize fossils in a biostratigraphic context and recover vertebrate fossils in the field may be substituted for a degree. An undergraduate degree in geology or paleontology is preferable, but is less important than documented experience performing paleontological monitoring, or

2. AS or AA in geology, paleontology, or biology and demonstrated two years of experience collecting and salvaging fossil materials in the state or geologic province of the specific project, or

3. Enrollment in upper division classes pursuing a degree in the fields of geology or paleontology and two years of monitoring experience in the state or geologic province of the specific project.

5.2 Sensitivity Analysis of Paleontological Resources

This paleontological sensitivity analysis for the community was developed using a GIS-based approach grounded entirely in the mapped geologic units; it focuses on reasonably foreseeable impacts and establishes standards for individual project review. This methodology relies on the principle that the fossil-bearing potential of a given area is primarily determined by the age, lithology, and depositional environment of the geologic formations present at or near the surface. The approach applies a screening-level evaluation of potential impacts to paleontological resources. The analysis utilizes a community-wide paleontological sensitivity map to classify areas as High, Moderate, Low, or Very Low sensitivity (defined by the SVP 2025 Guidelines), and based on known fossil localities recorded in relevant fossil databases, prior sensitivity maps created by the County, and maps of the underlying geology of the region. The reader is referred to the sensitivity map of the project area **(Figure 3).**

To begin, the geologic unit shapefiles from the Dibblee and Minch map (2004) were imported into ArcGIS Pro and clipped to the boundaries of the community. Each polygon was attributed with its formal unit label, geologic age, and descriptive lithology. These attributes formed the basis for assigning paleontological sensitivity ratings of High, Moderate, Low, or Very Low sensitivity. This four-tiered classification is based on the guidelines established by the Society of Vertebrate Paleontology (SVP 2025), which emphasize that any geologic unit known to contain significant fossils anywhere within its extent should be considered sensitive throughout its mapped area.

- **High sensitivity** was assigned to the Pleistocene-aged (2.5 million to 11,700 years old) Fanglomerates found within the very northeast corner of the Cabazon limits. This formation is known regionally for yielding vertebrate and invertebrate fossils and is considered to have high potential for additional discoveries at all depths.
- **Moderate sensitivity** was assigned to Late Pleistocene to Holocene (less than approximately 129,000 years old) alluvial fan deposits of the San Gorgonio Pass and alluvial fans of gneissic rubble, which have previously yielded scientifically significant fossils but not in the Cabazon area. These units are relatively young at the surface but are old enough at depth to produce fossil material, and so the likelihood of additional discoveries increases with depth.
- **Low sensitivity** was assigned to Holocene alluvial sand and gravel deposits, because their young age makes fossil preservation unlikely unless significantly deep excavations are

conducted, which may unearth underlying older units. It has a low potential for additional discoveries unless those underlying older units are reached.

- **Very Low sensitivity** was assigned to Paleozoic and Mesozoic-age metasedimentary and intrusive igneous rocks which underlie the southern margin of the project area, as the types of rock within these units were formed in environments where fossils cannot be preserved and thus lack any in situ fossil potential.

The sensitivity ratings were added as a new attribute field within the GIS layer and symbolized using a standardized color scheme to support visual interpretation and integration into CCP and CIP planning workflows. This sensitivity layer serves as a screening tool for identifying areas where ground-disturbing activities may intersect fossil-bearing formations and where mitigation measures, such as paleontological monitoring, may be warranted under CEQA.

It is important to note that this model does not incorporate additional spatial variables such as anticipated disturbance depths, prior ground disturbance, unmapped modern fill material, or proximity to known fossil localities. Instead, it provides a baseline sensitivity map based solely on surface geology. While future iterations may integrate these factors to enhance predictive accuracy, the current methodology remains consistent with SVP guidance and regional best practices for paleontological resource management. **Figure 3** shows the results of the paleontological sensitivity analysis.

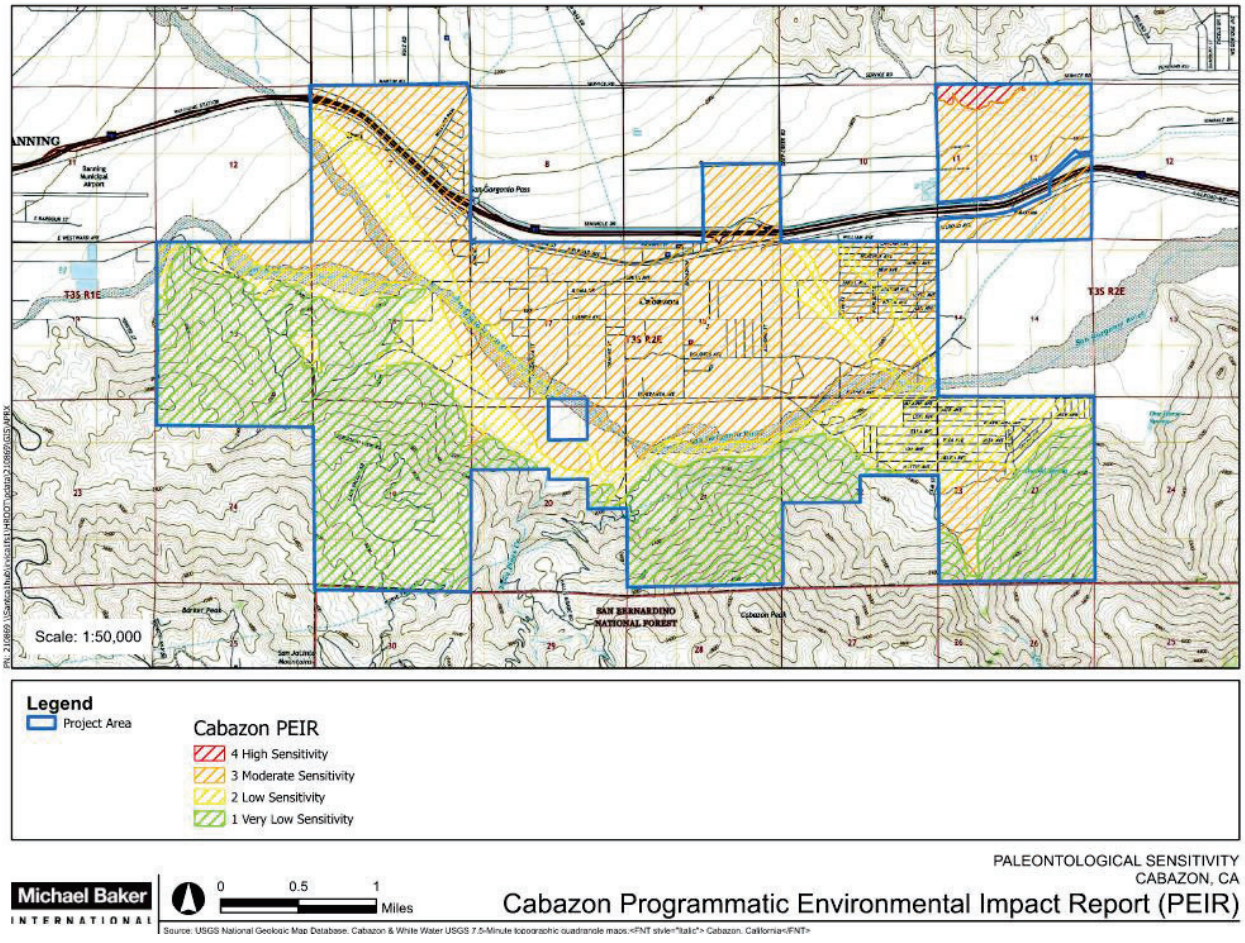

FIGURE 3: PALEONTOLOGICAL SENSITIVITY MAP

6.0 IMPACTS ANALYSIS AND RECOMMENDATIONS

Would the project have the potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Impacts on paleontological resources occur when excavation activities encounter fossiliferous geological deposits and cause physical destruction of fossil remains. Fossil remains, fossil sites, fossil-producing geologic formations, and geologic formations with the potential for containing fossil remains are all considered paleontological resources or have the potential to be paleontological resources. Fossil remains are considered important if they are well preserved, identifiable, type/topotypic specimens, age diagnostic, useful in environmental reconstruction, and/or represent new, rare, and/or endemic taxa.

Due to the programmatic nature of this PEIR, this analysis focuses on reasonably foreseeable impacts and establishes standards for individual project review. The approach integrates baseline data from the Programmatic Paleontological Resources Assessment and applies a screening-level evaluation of potential impacts. The analysis utilizes a community-wide paleontological sensitivity map to classify areas as High, Moderate, Low, or Very Low sensitivity, based on the age, lithology, and depositional environment of the geologic units present at or near the surface (see **Figure 3**).

> ***High sensitivity*** was assigned to the Pleistocene-aged (2.5 million to 11,700 years old) Fanglomerates found within the very northeast corner of the Cabazon limits. This formation is known regionally for yielding vertebrate and invertebrate fossils and is considered to have high potential for additional discoveries at all depths.
>
> ***Moderate sensitivity*** was assigned to Late Pleistocene to Holocene (less than approximately 129,000 years old) alluvial fan deposits of the San Gorgonio Pass and alluvial fans of gneissic rubble, which have previously yielded scientifically significant fossils but not in the Cabazon area. These units are relatively young at the surface but are old enough at depth to produce fossil material, and so the likelihood of additional discoveries increases with depth.
>
> ***Low sensitivity*** was assigned to Holocene alluvial sand and gravel deposits, because their young age makes fossil preservation unlikely unless significantly deep excavations are conducted, which may unearth underlying older units. It has a low potential for additional discoveries unless those underlying older units are reached.
>
> ***Very Low sensitivity*** was assigned to Paleozoic and Mesozoic-age metasedimentary and intrusive igneous rocks which underlie the southern margin of the project area, as the types of rock that make up these units were formed in environments where fossils cannot be preserved and thus lack any in situ fossil potential.

The paleontological sensitivity map is used as the baseline for the expected sensitivity of planned projects; however, the type of operations and excavations of a given project will greatly impact the required mitigation measures for each project. Depth of impact, as well as previous excavation, and/ or presence

of modern fill material that overlies the known natural sediment on a project area are all factors of a project's required mitigation measures. In general, the deeper that excavation is planned below the ground surface, the more likely that paleontological resources will be negatively impacted.. A detailed explanation of required mitigation measures is given below.

6.1 Mitigation Measures

Mitigation measure GEO-1 through GEO-3 would address the inadvertent discovery of previously unknown paleontological resources. Impacts would be less than significant with mitigation incorporated.

GEO-1 Paleontological Resource Impact Mitigation Program. For projects wholly and/or partially within Low, Moderate or High paleontological sensitivity zones as depicted in **Figure 3** that could encounter sensitive formations during grading or excavation at the ground surface (High) or at depth below the ground surface (Low, Moderate), the County shall retain a Society of Vertebrate Paleontology (SVP)-qualified paleontologist (i.e., possesses a graduate degree in paleontology, geology, or related field, with demonstrated experience in the vertebrate, invertebrate, or botanical paleontology of California, as well as at least one year of full-time professional experience or equivalent specialized training in paleontological research and at least four months of supervised field and analytic experience in general North American paleontology).

Prior to the issuance of grading permits, a project-specific plan for monitoring site grading/earthmoving activities shall be prepared and implemented by a qualified paleontologist approved by the County (project paleontologist). The project paleontologist shall review the approved development plan and grading plan and conduct any pre-construction work necessary to render appropriate monitoring and mitigation requirements as appropriate and document these requirements in a Paleontological Resource Impact Mitigation Program (PRIMP) to reduce any potential impacts to significant paleontological resources. The PRIMP shall outline where monitoring is required within the project site based on construction plans and/or geotechnical reports, procedures for adequate paleontological monitoring (below a depth of 10 feet below the original ground surface) and discoveries treatment, and paleontological methods, reporting, and collections management. This PRIMP shall be submitted to the County Geologist for approval prior to issuance of a grading permit. Information to be contained in the PRIMP, at a minimum and in addition to other industry standards and Society of Vertebrate Paleontology standards, are as follows:

a. A corresponding and active County Grading Permit (BGR) Number must be included in the title of the report. PRIMP reports submitted without a BGR number in the title will not be reviewed.

b. PRIMP must be accompanied by the final grading plan for the subject project.

c. Description of the proposed site and planned grading operations.

d. Description of the level of monitoring required for all earth-moving activities in the project area.

e. Identification and qualifications of the qualified paleontological monitor to be employed for grading operations monitoring.

f. Identification of personnel with authority and responsibility to temporarily halt or divert grading equipment to allow for recovery of large specimens.

g. Direction for any fossil discoveries to be immediately reported to the property owner who in turn will immediately notify the County Geologist of the discovery.

h. Means and methods to be employed by the paleontological monitor to quickly salvage fossils as they are unearthed to avoid construction delays.

i. Sampling of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates.

j. Procedures and protocol for collecting and processing samples and specimens.

k. Fossil identification and curation procedures to be employed.

l. Identification of the permanent repository to receive any recovered fossil material. *Pursuant the County "SABER Policy", paleontological fossils found in the County should, by preference, be directed to the Western Science Center in the City of Hemet. A written agreement between the property owner/developer and the repository must be in place prior to site grading.

m. All pertinent exhibits, maps, and references.

n. Procedures for reporting findings.

o. Identification and acknowledgement of the developer for the content of the PRIMP as well as acceptance of financial responsibility for monitoring, reporting and curation fees. The property owner and/or applicant on whose land the paleontological fossils are discovered shall provide appropriate funding for monitoring, reporting, delivery and curating the fossils at the institution where the fossils will be placed and will provide confirmation to the County that such funding has been paid to the institution.

p. All reports shall be signed by the project paleontologist and all other professionals responsible for the report's content (e.g., PG), as appropriate. One signed digital copy of the report(s) shall be submitted by email to the County Geologist along with a copy of this condition and the grading plan for appropriate case processing and tracking. These documents should not be submitted to the project Planner, Plan Check staff, Land Use Counter or any other County office. In addition, the applicant shall submit proof of hiring (i.e., copy of executed contract, retainer agreement, etc.) a project paleontologist for the in-grading implementation of the PRIMP.

Prior to the start of ground-disturbing activities, the SVP-qualified paleontologist shall attend the project preconstruction meeting to consult with the grading and excavation contractors concerning the grading plan and paleontological field techniques and shall provide or supervise a paleontological sensitivity training to all personnel involved with earth-moving activities. The training session shall focus on how to identify paleontological resources, such as fossils that may be encountered, and the procedures to follow if encountered during construction.

For projects wholly within Low or Very Low, paleontological sensitivity zone's grading is not expected to impact sensitive deposits at any depth. For these projects, retention of a qualified paleontologist is not required unless an unexpected discovery is made during project activities, or further geotechnical studies determine the paleontological sensitivity of the sediments underlying the project area is higher than initially identified.

GEO-2 Monitoring. For projects wholly and/or partially within High paleontological sensitivity zones as depicted in **Figure 3**, the qualified paleontologist, or a qualified paleontological monitor as determined by the qualified paleontologist, shall monitor earthwork affecting the aforementioned geological units or supervise the monitoring of these activities by a paleontological monitor. If any paleontological resources are encountered on the project area, the qualified paleontologist or the paleontological monitor shall halt all ground-disturbing activities within 50 feet of the find until a significance determination is made. If the fossils are determined to be significant, the qualified paleontologist shall prepare and implement a data recovery plan. The plan shall include, but not be limited to, the following measures:

- The paleontologist shall ensure that all significant fossils collected are cleaned, identified, catalogued, and permanently curated with an appropriate institution with a research interest in the materials (such as the Western Science Center);

- The paleontologist shall ensure that specialty studies are completed, as appropriate, for any significant fossil collected; and

- The paleontologist shall ensure that curation of fossils is completed in consultation with the County. A letter of acceptance from the curation institution shall be submitted to the County.

The qualified paleontologist will determine when work within the immediate vicinity of the find may resume or otherwise expand or reduce the construction exclusion buffer as warranted to ensure proper treatment of resources. The qualified paleontologist may reduce the frequency of monitoring or cease monitoring altogether if warranted by observations of specific site conditions.

For projects wholly or partially within Moderate or Low paleontological sensitivity zones as depicted in **Figure 3**, if excavations below a depth of 10 feet below the original ground surface (i.e., 10 feet below the surface of native sediments with low or moderate sensitivity) are planned for the project, a qualified paleontologist or a qualified paleontological monitor must be present to spot-check the excavations for paleontological resources when depth first reach the 10-foot depth. The qualified paleontologist shall determine if the sediments are old enough and fine-grained enough to warrant further monitoring. If the qualified paleontologist determines paleontological monitoring is not necessary at the 10-foot depth due to subsurface geological conditions, then paleontological spot-checking shall occur at 5-foot increments below 10 feet to determine the suitability for fossil preservation.

For projects wholly within Very Low sensitivity zones as depicted in **Figure 3**, GEO-2 does not apply.

GEO-3 Unexpected Discovery. Should any paleontological resources (Unexpected discovery) be discovered on any project where Mitigation Measure GEO-2 was not already implemented, ground-impacting activities shall be halted in the immediate 50-foot radius of the find and shall not occur in the area of the discovery until a qualified paleontologist has been brought on to determine the significance of the find. If significance criteria are met, then the qualified paleontologist must perform data recovery,

identification, and other special studies to determine the significance of the find. Based on the finding's potential significance, the qualified paleontologist may then recommend a new project mitigation plan to lessen potential paleontological impacts of remaining ground-disturbing phases of the project according to procedures put forth in Mitigation Measure GEO-1. If the unexpected find is determined to have no significance, the work area shall be released by the qualified paleontologist, and no further mitigation shall be required.

By implementing these recommendations, the project can ensure that any potential impacts on paleontological resources are minimized and managed effectively.

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APPENDIX A
PALEONTOLOGICAL RECORDS SEARCH RESULTS
CONFIDENTIAL BOUND SEPARATELY