



APPENDIX 5.6-2

**Paleontological Resource Assessment
for Ontario Airport South Cargo Center Project
PaleoWest. April 22, 2022**



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April 22, 2022

Tony Locacciato, AICP
Partner
Meridian Consultants, LLC
706 South Hill Street, 11th Floor
Los Angeles, California 90014
Transmitted via email to TLocacciato@meridianconsultantsllc.com

RE: Paleontological Resource Assessment for Ontario Airport South Cargo Center Project, City of Ontario, San Bernardino County, California

Dear Mr. Locacciato,

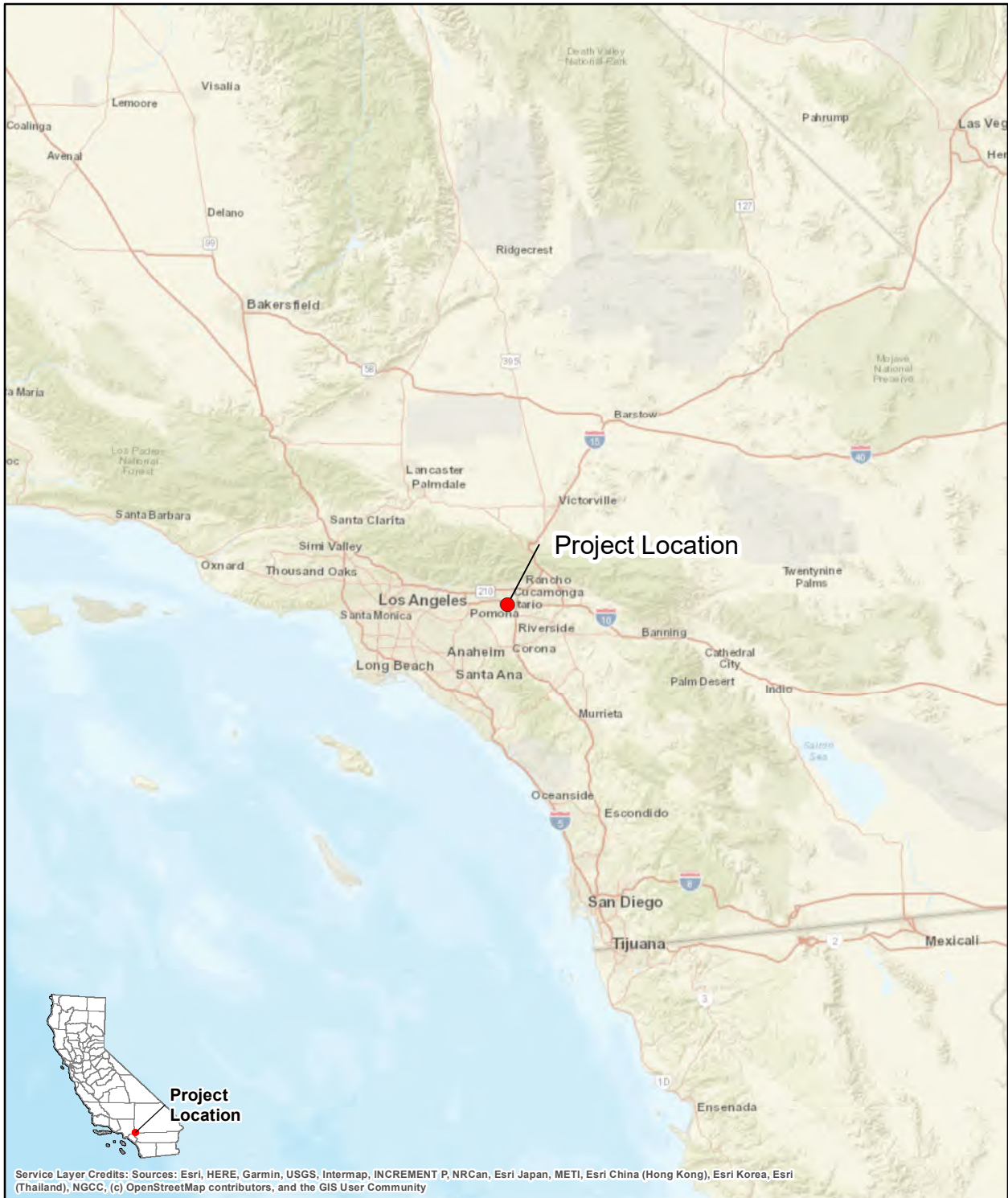
At the request of Meridian Consultants, LLC (Meridian), PaleoWest, LLC (PaleoWest) conducted a paleontological resource assessment for the Ontario Airport (ONT Airport) South Cargo Center project (Project), in the city of Ontario, San Bernardino County, California. The goal of the assessment is to identify the geologic units that may be impacted by development of the Project, determine the paleontological sensitivity of geologic units within the Project area, assess potential for impacts to paleontological resources from development of the Project, and recommend mitigation measures to avoid or mitigate impacts to scientifically significant paleontological resources, as necessary.

This paleontological resource assessment included a fossil locality records search conducted by the Natural History Museum of Los Angeles County (NHMLAC). 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, which was written in accordance with the guidelines set forth by the Society of Vertebrate Paleontology (SVP) (2010), has been prepared to support environmental review under the California Environmental Quality Act (CEQA).

PROJECT LOCATION AND DESCRIPTION

The proposed Project is a facility expansion project at the ONT Airport that includes the redevelopment of approximately 97 acres of existing underutilized parcels, including Assessor's Parcel Numbers (APN) 11326106, 11326107, **11326108**, **11327101**, and **11327102**, located on the south side of the ONT Airport in San Bernardino County, California (Figure 1). More specifically, the Project area is situated within Sections 27 and 34, Township 1 South, Range 7 West, San Bernardino Baseline and Meridian (SBBM), as depicted on the Guasti, CA 7.5' U.S. Geological Survey (USGS) topographic quadrangle (Figure 2). The elevation of the Project area ranges from approximately 886 to 915 feet below mean sea level.





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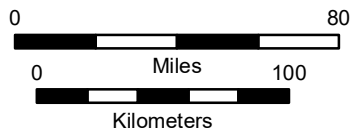
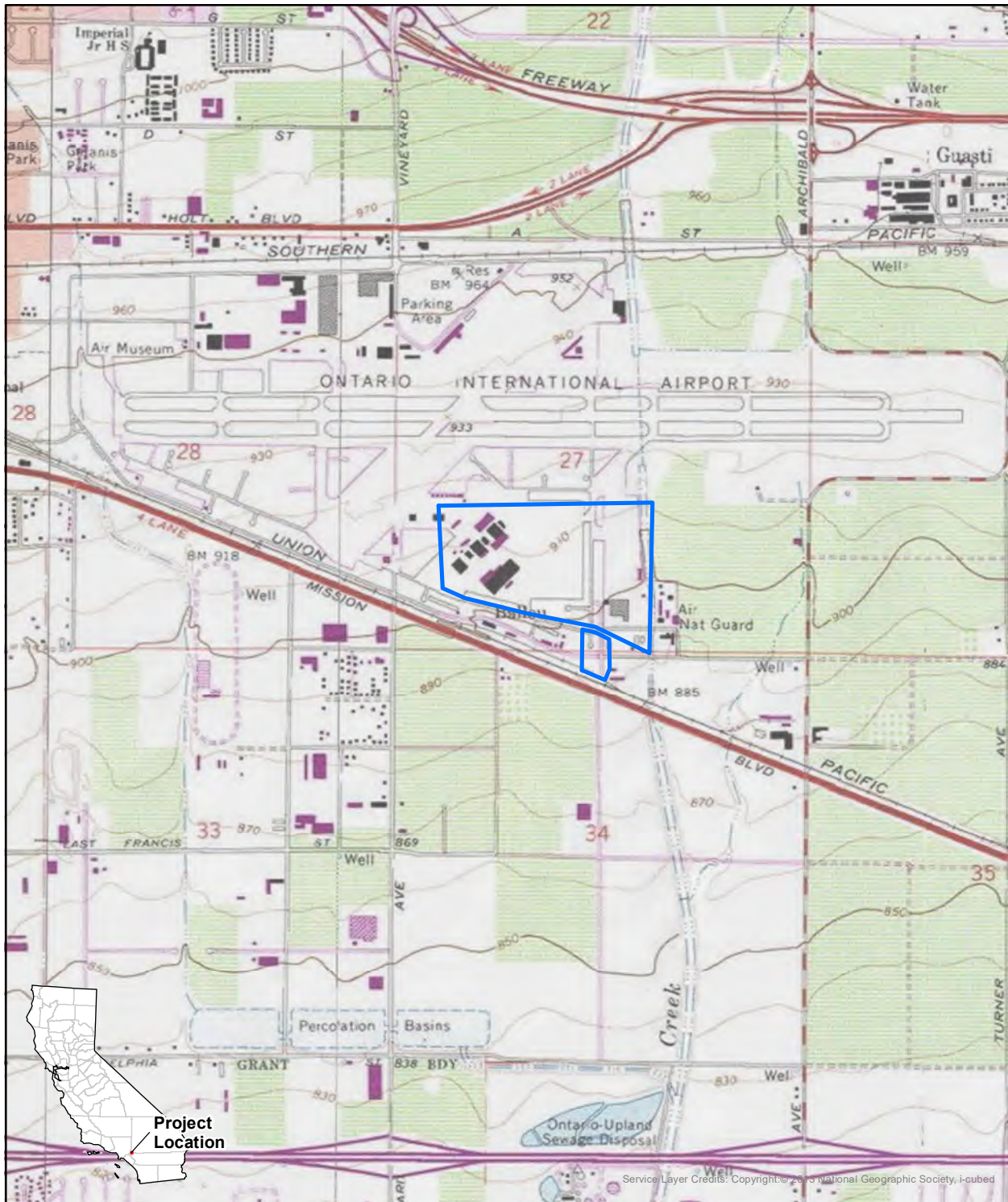


Figure 1. Project Vicinity Map
 USGS 7.5' Quadrangle:
 Guasti, CA (1982) T1S R7W,
 Secs 27 & 34 UTM Zone 11,
 NAD 83 SBBM



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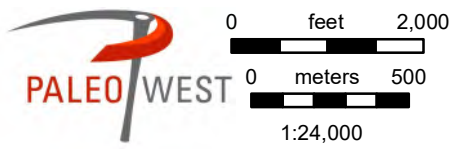


Figure 2. Project Location Map
 USGS 7.5' Quadrangle:
 Guasti, CA (1982) T1S R7W,
 Secs 27 & 34 UTM Zone 11,
 NAD 83 SBBM

 Project Area

The Project will be composed of the construction of four primary elements: (1) a cargo sorting building; a 60-ft tall, approximately 857,000 ft² facility that will house a sorting facility and office spaces; (2) a 210,000 ft² truck yard and visitor parking area that will include ground-to-air and air-to-ground cargo operations and trailer truck parking/staging stalls; (3) visitor and employee parking that would include 933 automobile parking stalls; 900 employee stalls in an approximately 271,000 ft² parking garage on 3 acres and 33 at-grade, visitor parking stalls; and (4) an aircraft apron with approximately 26 aircraft parking stalls/gates, comprising 2,900,000 ft² and ground service equipment maintenance building, garage, and parking area. In addition, the Project requires infrastructural improvements including internal roadways, an aircraft fuel system, substation and substation building, a stormwater drainage / detention system, security systems, utility services and related developments. The Project would include demolition of the existing buildings and will be constructed in two phases.

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 [b]). Appendix G in Section 15023 provides an Environmental Checklist of questions (PRC 15023, Appendix G, Section VII, Part f) 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 Society of Vertebrate Paleontology (SVP) has provided guidance specifically designed to support state and Federal environmental review. The SVP broadly defines significant paleontological resources as follows (SVP 2010, page 11):

“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).”

Significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, diagnostically important, or are 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 pattern and process, 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 own activities, including construction and maintenance, as well as for permit actions (e.g., encroachment permits) undertaken by others.

LOCAL

Impact 5.5.2 of The Ontario Plan (City of Ontario 2009) states the following:

“5-2 In areas of documented or inferred archaeological and/or paleontological resource presence, City staff shall require applicants for development permits to provide studies to document the presence/absence of such resources. On properties where resources are identified, such studies shall provide a detailed mitigation plan, including a monitoring program and recovery and/or in situ preservation plan, based on the recommendations of a qualified cultural preservation expert. The mitigation plan shall include the following requirements:

- a) Archaeologists and/or paleontologist shall be retained for the project and will be on call during grading and other significant ground-disturbing activities.
- b) Should any cultural/scientific resources be discovered, no further grading shall occur in the area of the discovery until the Planning Director is satisfied that adequate provisions are in place to protect these resources.
- c) Unanticipated discoveries shall be evaluated for significance by a San Bernardino County Certified Professional Archaeologist/Paleontologist. If significance criteria are met, then the project shall be required to perform data recovery, professional identification, radiocarbon dates, and other special studies; submit materials to a museum for permanent curation; and provide a comprehensive final report including catalog with museum numbers.”

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 the geologic unit(s) (or members thereof) underlying a Project area can be assigned to one of four categories defined by SVP (2010). While 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 non-renewable fossiliferous resources. These units include but are not limited to, sedimentary formations and some volcanic formations which contain significant nonrenewable.

LOW POTENTIAL (SENSITIVITY)

Sedimentary rock units that are potentially fossiliferous but have not yielded fossils in the past or contain common and/or widespread invertebrate fossils of well documented and understood taphonomic, phylogenetic species and habitat ecology. Reports in the paleontological literature or field surveys by a qualified vertebrate paleontologist may allow determination that some areas or units have low potentials for yielding significant fossils prior to 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 gets 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 specifically determine the potentials of the rock units are required before programs of impact mitigation for such areas may be developed.

NO POTENTIAL

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

METHODS

In order to assess whether or not a particular area has the potential to contain significant fossil resources at the subsurface, it is necessary to review published geologic mapping to determine the geology and stratigraphy of the area. Geologic units are considered to be "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 or not fossil localities have been previously discovered within a particular rock unit. For this Project, a formal museum records search was conducted at the NHMLAC, as the San Bernardino County Museum is currently not accepting paleontological records search requests. Informal records searches were also conducted of the online University of California Museum of Paleontology Collections and San Diego Natural History Museum Collections, the online Paleobiology Database and FAUNMAP, and other published and unpublished geological and paleontological literature of the area.

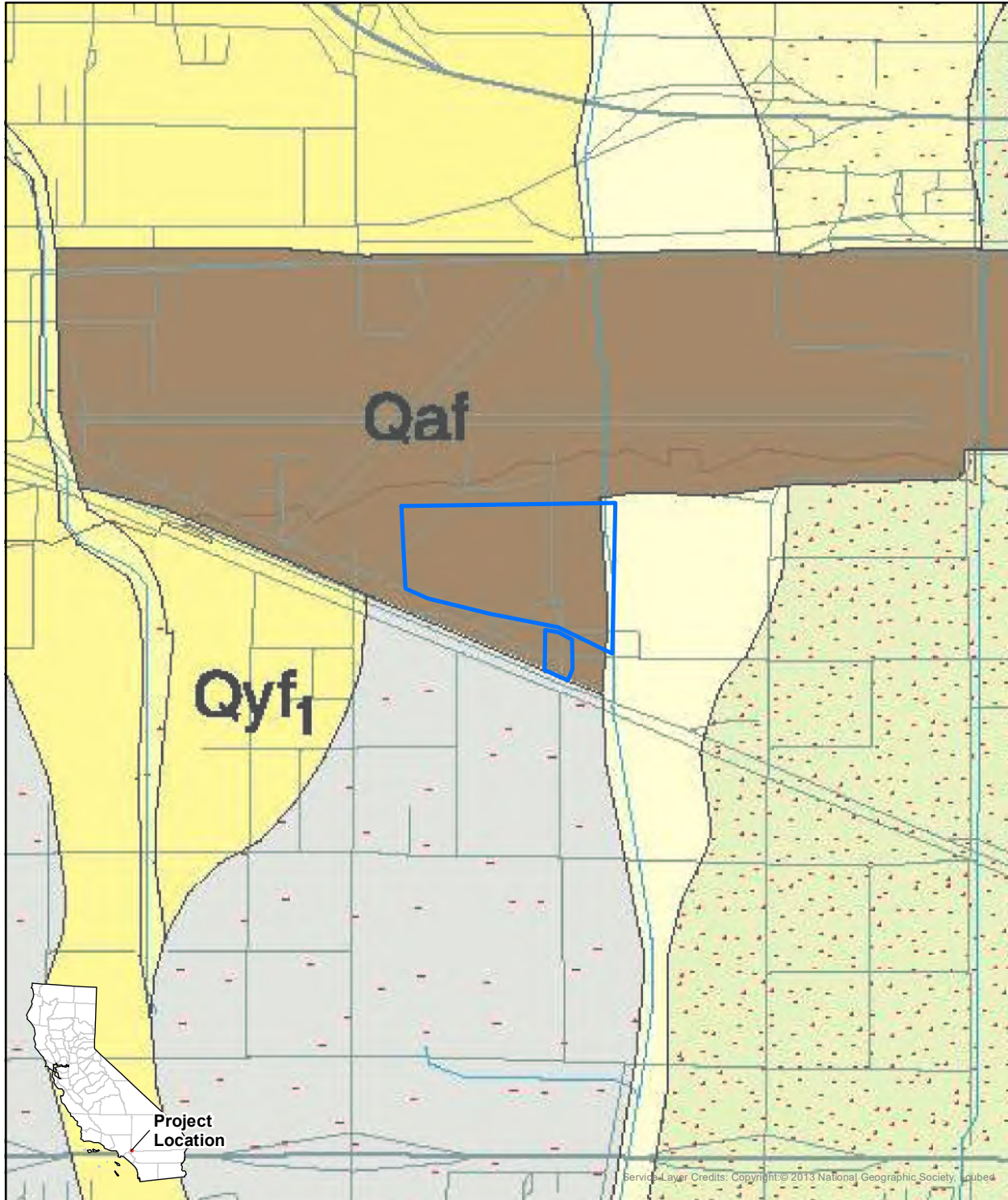
RESOURCE CONTEXT

GEOLOGIC SETTING

The Project area is located in the northwestern portion of the Peninsular Ranges geomorphic province. Northwest trending mountain ranges and valleys following faults branching from the San Andreas Fault distinguish the Peninsular Ranges province. The Peninsular Ranges are bound to the east by the Colorado Desert and extend north to the San Bernardino – Riverside County line, west into the submarine continental shelf, and south to the California state line (Norris and Webb 1976). Locally, the Project is located in the Fontana Plain, an alluvial fan originating in Lytle Creek canyon in the foothills of the San Bernardino Mountains to the north and extending south to the Jurupa Mountains (Dutcher and Garrett 1963). The Fontana plain is divided by Lytle Creek into an eastern section that is dominated by deposits of the late Holocene Epoch (11,700 years ago to today), and a western portion that contains deposits of the Pleistocene (2.6 million years ago to 11,700 years ago) and Holocene Epochs (Dutcher and Garrett 1963).

SITE SPECIFIC GEOLOGY AND PALEONTOLOGY

According to Morton and Miller (2006), the majority of the Ontario Airport, including the majority of the Project area, is built on artificial fill (Qaf), deposited during the late Holocene Epoch (11,700 years ago to today). The Qaf was deposited on Very young alluvial-fan deposit Unit 1 (Qyf₁) and Young alluvial-fan deposit Unit 3 (Qyf₃), both of which were deposited during the late Pleistocene Epoch (2.6 million years ago to 11,700 years ago) and Holocene Epoch (Figure 3). The artificial fill extends to an unknown depth under the Project area, and the Young alluvial-fan units are mapped at the surface immediately outside the airport. The eastern edge of the Project area is underlain by Very young alluvial fan deposits (Qyf) of the late Holocene Epoch. Locally, the alluvial fans are sourced from the San Bernardino Mountains to the north. Due to its artificial nature and *ex situ* context, artificial fill has no paleontological sensitivity. Holocene units are typically considered to have a low paleontological sensitivity, as they are too young to have accumulated and preserved significant biologic material, but often transition with depth into high sensitivity Pleistocene deposits. Elsewhere in San Bernardino County, Pleistocene deposits have produced remains of a diverse terrestrial fauna, including ground sloth, deer, mammoth, camel, horse, bison, badger, mole, rabbit, gray fox, coyote, snake (Jefferson 1991a, 1991b; Miller 1971; NHMLAC 2021).



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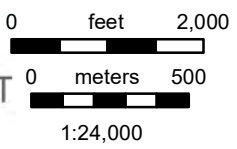


Figure 3. Project Geology Map
 USGS 7.5' Quadrangle:
 Guasti, CA (1982) T1S R7W,
 Secs 27 & 34 UTM Zone 11,
 NAD 83 SBBM

- Project Area
- Qf
- Qyf3
- Qyf1
- Qye
- Qaf

RECORDS SEARCH RESULTS

The NHMLAC records search did not produce any fossil localities from within the Project area, nor within one mile, but did produce several fossil localities in deposits of Pleistocene sediment in the region (NHMLAC 2021) (Table 1). Searches of online databases and other literature did not produce any additional fossil localities within one mile of the Project.

Table 1
Fossil Localities in the Project Vicinity¹

Locality No.	Geologic Unit	Age	Taxa	Depth
LACM VP 7811	Unknown eolian tan silt	Pleistocene	Whip snake (<i>Masticophis</i>)	9-11 feet bgs
LACM VP 7268, 7271	Unknown	Pleistocene	Horse (<i>Equus</i>)	Unknown
LACM VP 7508	Unknown	Pleistocene	Ground sloth (<i>Nothrotheriops</i>), proboscidean (Proboscidea), horse (<i>Equus</i>)	Unknown
LACM VP 1728	Unknown light brown shale with interbeds of very coarse brown sand	Pleistocene	Horse (<i>Equus</i>), camel (<i>Camelops</i>)	15 – 20 ft bgs
LACM VP 1207	Unknown	Pleistocene	Bovidae	Unknown

Source: ¹NHMLAC (2021)

FINDINGS

This memorandum utilizes 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 on the basis of the relative abundance and risk of adverse impacts to vertebrate fossils and significant invertebrates and plants.

Information provided by Meridian indicated that Project-related ground disturbance would reach a maximum of 20 feet below ground surface (bgs) for utilities trenching, with most of the ground disturbance reaching less than seven feet bgs. In most of the Project area, shallow excavation (less than nine feet bgs) will likely impact only artificial fill (Qaf), while deeper excavation (greater than nine feet bgs) may impact underlying Very young alluvial-fan deposits (Qyf₁ or Qyf₃). Excavation into Qaf and upper levels of Qyf₁ or Qyf₃ are unlikely to yield any significant paleontological resources, as late Holocene deposits are too young to contain fossils, and therefore possess low sensitivity. Along the eastern edge, ground disturbance will impact Very young alluvial fan deposits (Qyf) at the surface; these late Holocene deposits also possess low sensitivity near the surface. As a result, no impacts to paleontological resources would occur from earth-moving activities less than nine feet bgs within the Project area. Excavations deeper than nine feet bgs may extend down into older, high sensitivity Pleistocene sediments, which are considered to have a high paleontological sensitivity because they have proven to

yield significant paleontological resources (i.e., identifiable vertebrate fossils) in San Bernardino County. As such, ground disturbing activities in the Project area below nine feet bgs could potentially impact paleontological resources and should be monitored by a qualified paleontological monitor under direction of a Principal Paleontologist to identify and effectively salvage any recovered resources while minimizing discovery-related delays.

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 for a cargo building, airport gates, truck yard, roadway, and other infrastructure, new ground disturbances are anticipated. Geologic units in the Project area have a high paleontological sensitivity below nine feet bgs. Ground disturbing activities in the Project area may result in significant impacts under CEQA to paleontological resources, such as 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 in the event that a fossil discovery is made and provide contact information for the Project-qualified Paleontologist. The training will be developed by the Project-qualified Paleontologist and can be delivered concurrent with other training including cultural, biological, safety, etc.

PALEONTOLOGICAL MITIGATION MONITORING

Prior to the commencement of ground-disturbing activities, a professional paleontologist will be retained to prepare and implement a Paleontological Resources Mitigation and Monitoring Plan (PRMMP) for the proposed Project. The PRMMP will describe the monitoring required during excavations that extend into Pleistocene sediment (at nine feet bgs), and the location of areas deemed to have a high paleontological resource potential. It is recommended that the results of the geotechnical investigation conducted for the Project are consulted to determine the approximate depth of Pleistocene sediment in the Project area. Monitoring will entail the visual inspection of excavated or graded areas and trench sidewalls. If the Project-qualified Paleontologist determines full-time monitoring is no longer warranted, based on the geologic conditions at depth, he or she may recommend that monitoring be reduced or cease entirely.

FOSSIL DISCOVERIES

In the event that 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-qualified Paleontologist shall complete the following:

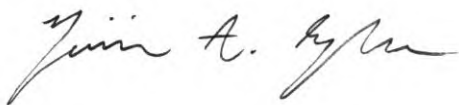
1. Salvage of Fossils. If fossils are discovered, all work in the immediate vicinity should be halted to allow the paleontological monitor, and/or Project-qualified Paleontologist to evaluate the discovery and determine if the fossil may be considered significant. If the fossils are determined to be potentially significant, the Project-qualified Paleontologist (or paleontological monitor) should recover them following standard field procedures for collecting paleontological as outlined in the PRMMP prepared 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 fossil(s) can be removed in a safe and timely manner.
2. Fossil Preparation and Curation. The PRMMP 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 90 days after all fieldwork 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-qualified Paleontologist should prepare a final mitigation and monitoring report outlining the results of the mitigation and monitoring program. The report should include discussion of the location, duration and methods of the monitoring, stratigraphic sections, any recovered fossils, and the scientific significance of those fossils, and where fossils were curated.

It has been a pleasure working with you on this Project. If you have any questions, please do not hesitate to contact us.

Sincerely,



Benjamin Scherzer, M.S. | Senior Paleontologist
PALEOWEST

REFERENCES

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