

8.16 Paleontological Resources

8.16.1 Introduction

Paleontological resources (fossils) are the remains or traces of prehistoric animals and plants. This subsection assesses the potential that earth-moving activities associated with construction of the proposed Vernon Power Project (VPP) and associated linear facilities will affect scientifically important fossil remains. Subsection 8.16.2 presents applicable laws, ordinances, regulations and standards (LORS). Subsection 8.16.3 discusses the affected environment. Subsection 8.16.4 addresses potential environmental impacts of construction and operation, and Subsection 8.16.5 addresses potential impacts from project closure/abandonment. Subsection 8.16.6 addresses cumulative impacts, and Subsection 8.16.7 describes proposed mitigation measures. Subsection 8.16.8 addresses agency contacts. Subsection 8.16.9 presents permit requirements and schedules. Subsection 8.16.10 lists the references used to prepare this section.

The analysis presented in this subsection meets all requirements of the California Energy Commission (CEC) Appendix B Section (g)(16) and incorporates the Society of Vertebrate Paleontology (SVP) (1995, 1996) standard measures for mitigating adverse construction-related environmental impacts on paleontological resources.

8.16.2 Laws, Ordinances, Regulations and Standards

Paleontological resources are classified as non-renewable scientific resources and are protected by several federal and state statutes, most notably by the 1906 Federal Antiquities Act and other subsequent federal legislation and policies and by the State of California’s environmental regulations (California Environmental Quality Act [CEQA], Section 15064.5). Professional standards for assessment and mitigation of adverse impacts on paleontological resources have been established for vertebrate fossils by the SVP (1995, 1996). Design, construction, and operation of the VPP, including pipelines and ancillary facilities, will be conducted in accordance with LORS applicable to paleontological resources. Federal and state LORS applicable to paleontological resources are summarized in Table 8.16-1 and discussed briefly below, along with SVP professional standards.

TABLE 8.16-1
Applicable LORS Regarding Paleontological Resources

LORS	Applicability	AFC Reference	Project Conformity
Antiquities Act of 1906	Not applicable	--	--
CEQA, Appendix G	Fossil remains may be encountered by earth-moving activities	Subsections 8.16.2 and 8.16.4	Yes
Public Resources Code, Sections 5097.5/5097.9	Applies only if project land is acquired by state (currently no state land)	--	--

AFC = Application for Certification

8.16.2.1 Federal LORS

Federal protection of paleontological resources will apply to the VPP if construction or other related project impacts take place on federally managed lands, or if certain federal entitlements are required. Federal legislative protection for paleontological resources stems from the Antiquities Act of 1906 (PL 59-209; 16 U.S. Code 431 et seq.; 34 Stat. 225), which calls for protection of historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest on federal land. The project does not cross such lands, and no federal entitlement is required that will involve paleontologic resources mitigation requirements. Federal requirements will apply if a federal agency obtains ownership of project lands during the term of the project license.

8.16.2.2 State LORS

Paleontologic resources are a limited, nonrenewable, sensitive scientific and educational resource and, in California, are protected under the state environmental legislation (California Office of Historic Preservation, 1983).

CEQA (Public Resources Code 21000 et seq.) requires public agencies and private interests to identify the environmental consequences of their proposed projects on any object or site significant to the scientific annals of California (Division I, Public Resources Code 5020.1[b]).

Guidelines for the implementation of CEQA, as amended March 29, 1999 (Title 14, Chapter 3, California Code of Regulations: 15000 et seq.) defines procedures, types of activities, persons, and public agencies required to comply with CEQA and includes definitions of significant impacts on a fossil site (Section 15023, Appendix G [5.c]).

Public Resources Code, Section 5097.5 (Stats. 1965, c. 1136, p. 2792) defines any unauthorized disturbance or removal of fossil site or remains on public land as a misdemeanor.

The Warren-Alquist Act (Public Resources Code 25000 et seq.) requires the CEC to evaluate energy facility siting in unique areas of scientific concern (Section 25527).

In response to CEQA and subsequent acts, many agencies in California, including the CEC (2000), have developed environmental guidelines for protecting paleontologic resources in areas under their respective jurisdictions. Under its guidelines, the CEC can require a paleontologic resource inventory/impact assessment of an area to be adversely affected by a discretionary project deemed nonexempt under its guidelines. As part of such an assessment, the CEC can require an inventory and mapping of fossil-bearing rock units and previously recorded and newly documented fossil sites by a qualified paleontologist in the area to be affected, an evaluation of the scientific importance of these resources, a determination of the adverse environmental impacts that might arise from the project and an appraisal of their significance, and formulation of measures to mitigate these impacts to an insignificant level. The CEC required that such an assessment be conducted for the nearby Malburg Generating Station (MGS) project because the earthmoving activities associated with the project construction may result in impacts to fossil remains. The results of the *Paleontologic Resource Inventory/Impact Assessment Technical Report* prepared for the MGS project (Lander, 2001) were reviewed for this Application for Certification (AFC) and are incorporated as appropriate into this study (e.g., Subsection 8.16.3.4).

This AFC, including the mitigation measures presented herein, complies with CEC (2000) paleontologic resource guidelines. The CEC guidelines, in turn, follow SVP (1995 and 1996) standard measures for assessing the scientific importance of paleontologic resources in an area of potential environmental effect and mitigating significant adverse construction-related environmental impacts on these resources and with conditions for acceptance of an impact mitigation program fossil collection by a museum repository.

8.16.2.3 Local LORS

No Los Angeles County or City of Vernon LORS apply to paleontologic resources.

8.16.3 Affected Environment

8.16.3.1 Geographic Location and Physiographic Environment

The VPP project area is located on the alluvial fan that extends south and southwest from the Hollywood and Glendale Hills to the ocean, on what was once the floodplain of the Los Angeles River. The Los Angeles River lies about three-quarters of a mile to the northeast and about 1.75 miles to the east of the project site and was an important source of sediment to this area during the Late Quaternary.

The project site lies on the northwest-trending central block of the Los Angeles Basin, near the northwestern corner of the Peninsular Ranges province where major linear geologic structures (faults, folds) and geographic features (mountains, valleys) trend in a generally northwesterly direction. The central block of the Los Angeles Basin is bounded by the Newport-Inglewood Fault to the southwest, the Santa Monica Fault to the northwest, and the Whittier Fault to the northeast. The Los Angeles Basin is actively subsiding, so the strata exposed in the hills to the north dip steeply to the south and are found at great depth in the project area (Jahns, 1954; Yerkes, et al., 1965).

8.16.3.2 Regional and Local Geologic Setting

Regional surficial geologic mapping of the project site and vicinity is provided by Jennings (1962) at a scale of 1:250000. This mapping indicates that the entire project site is underlain by Late Quaternary (Late Pleistocene and Holocene) alluvium, which locally consists of unconsolidated Los Angeles River floodplain and alluvial fan deposits of silt, sand, and gravel derived from the hills and mountain ranges that form the northern border of the central Los Angeles Basin (Dibblee, 1989). A surficial geologic map of the project site is presented as Figure 8.16-1.

The central Los Angeles Basin in the project site vicinity is underlain by unconsolidated to poorly consolidated alluvial fan and fluvial sediments. These materials are derived from the hills and mountain ranges bordering the northern margin of the central Los Angeles Basin, and from elsewhere in the Los Angeles River drainage basin (Dibblee, 1989; Jennings, 1962; Yerkes, et al., 1965).

8.16.3.3 Stratigraphic and Paleontological Resource Inventory

A stratigraphic inventory and a paleontological resource inventory were completed to develop a baseline paleontological resource inventory of the project site and surrounding area by rock unit and to assess the potential paleontological productivity of each rock unit.

Research methods included a review of published and unpublished literature and a field review of the project site and offsite linears. These tasks complied with CEC (2000) and SVP (1995) guidelines.

Geological maps and reports covering the geology of the project site and area were reviewed to determine rock units present and to delineate their respective distributions in the project area. Published and unpublished geological and paleontological literature was reviewed to document the number and locations of previously recorded fossil sites from rock units exposed in and near the project site and surrounding area and the types of fossil remains each rock unit has produced. The results of record searches conducted at the Los Angeles County Museum of Natural History and the San Bernardino County Museum by Scott (2005), as well as Lander's (2001) report for the MGS, are incorporated herein

Field reconnaissance was conducted on September 7, 2005, and January 25, 2006, and included the project site as well as offsite linears. These field reviews were conducted by Dr. W. Geoffrey Spaulding, a qualified paleontologist and a recognized authority on the Quaternary paleoenvironments of the American west. The project area is thoroughly developed and is typified by asphalt and concrete surfaces and buildings (largely warehouses and manufactories). However, bare ground was evident in a few areas including the Los Angeles Department of Water and Power's (LADWP) transmission line right-of-way (ROW), as well as along the east side of the concrete lining of the Los Angeles River. In all cases, these surfaces are assumed to be composed of a varying combination of fill from previous excavations and imported material.

8.16.3.3.1 Paleontological Resource Assessment Criteria

The paleontological sensitivity of the project area can be assessed by identifying the paleontological potential of stratigraphic units within the project area through records search and literature review. Because the distribution of stratigraphic units can be identified through geologic mapping, parts of the project that have varying paleontologic sensitivity (high, low, or no sensitivity) for paleontological resources can be delineated and appropriate impact assessments and mitigation recommendations formulated based on these data.

A paleontologically sensitive rock or stratigraphic unit is a sedimentary deposit that has a high potential to yield fossils that may be unique or scientifically important. The paleontological sensitivity of a stratigraphic unit is based on the abundance or density of fossil specimens previously recovered from that unit, and the proximity of those records to the project site. Paleontologic survey and reconnaissance can inform these assessments where exposures of specific rock units are available for field inspection, but do not contribute substantially to assessments in cases such as the VPP where the project area is thoroughly urbanized. Although well-developed and documented, fossil-bearing units may still yield unique paleontological resources to the extent that fossil faunas and floras frequently consist of many rare taxa, as well as a few common ones.

An individual vertebrate fossil specimen may be considered unique or scientifically significant if it is (1) identifiable, (2) complete, (3) well preserved, (4) age diagnostic, (5) useful in paleoenvironmental reconstruction, (6) a type or topotypic specimen, (7) a member of a rare species, and/or (8) a skeletal element different from, or a specimen more complete than, those now available for its species. For example, identifiable vertebrate marine and terrestrial fossils are generally considered scientifically important because they

are relatively rare. The value or importance of different fossil groups varies, depending on the age and depositional environment of the rock unit that contains the fossils, their rarity, the extent to which they have already been identified and documented, and the ability to recover similar materials under more controlled conditions such as part of a research project. For example, marine invertebrates (radiolarians, dinoflagelates, diatoms) as well as other microfossils (pollen and spores, ostracods) may be important to specialized paleoenvironmental studies, but as isolated samples they are generally not considered a unique or significant paleontological resource.

The following tasks were completed to establish the paleontological importance of each rock unit exposed at or near the project site:

- The stratigraphic inventory was completed, and the stratigraphic units at and near the project site were identified.
- The paleontological sensitivity of each stratigraphic unit in the vicinity of the project site was assessed, based on the fossil remains previously documented within that unit.

8.16.3.4 Paleontological Resource Inventory Results

Since the 19th Century, the Los Angeles Basin has been known for its rich Late Pleistocene paleontologic record, chiefly from the La Brea tar pits that lie approximately 8 miles west-northwest of the VPP (e.g., Stock, 1972). These remains are preserved in asphalt seeps, and no asphalt seeps are known in the vicinity of the VPP. However, their mode of preservation (anaerobically without mineral replacement) is important to note in that this is also the case for other fossil sites in the area, discussed below. The potential for fossilization *per se* is therefore not a criterion to be used for assessing paleontologic sensitivity in this area. In addition, the fact that some of these remains are younger than 10,000 years before present (B.P.), and therefore post-date the end-Pleistocene extinctions (e.g., Martin and Klein, 1984) needs to be noted. Normally, paleontological assessments focus on extinct vertebrates older than 10,000 B.P. For the sake of this assessment, however, organic remains younger than 10,000 B.P. are also considered potentially significant paleontologic resources, provided they are not in a demonstrably cultural (archaeological) context.

8.16.3.4.1 Stratigraphic Inventory

The stratigraphic inventory includes those rock units that may occur in the region, but are unlikely to be encountered as well as those units that may be disturbed by project-related excavations.

Field reconnaissance revealed the project area to be thoroughly urbanized, and the ground surface is visible in only limited areas, adjacent to streets and in transmission line and railroad ROWs. The ground surface is well-compacted and consists of a sandy, loamy alluvium with variable amounts of what appears to be imported gravel. No evidence of paleontologic potential was noted on the ground surface in the vicinity of the plant or the proposed ROWs for the offsite laterals. Back-dirt from an unrelated pipeline excavation along District Street immediately to the west of the Los Angeles River channel (and east of the project site) was observed to be a fine-grained sandy loam, a sediment type that could yield fossil remains.

Granitic Basement

Granitic rocks may be present at great depth below the VPP area. These are igneous rocks with no paleontologic sensitivity and will not be affected by the project.

Tertiary Marine Strata

The hills that lie approximately 5 miles to the north of the project area are composed primarily of Miocene-age marine sedimentary rocks of high paleontological sensitivity. As noted above, the Los Angeles Basin is actively subsiding, and, as a consequence, these and other Tertiary rocks of high paleontologic potential deep steeply beneath the surface to the south toward the center of the Los Angeles Basin and the project area. These Tertiary strata are, therefore, likely to be present, but at depths greater than those that will be disturbed by project construction.

Quaternary Alluvium

Quaternary (Pleistocene and Holocene) terrestrial sediments underlie the project site and will be affected by project construction. These are subareally deposited strata laid down as a consequence of debris flows from the hills to the north, as well as fluvial channel and overbank deposits of the Los Angeles River which, prior to its channelization, meandered across this alluvial plain. Quaternary alluvium is often devoid of fossil remains due to its high-energy depositional regime and the subareal nature of that deposition, which generally precludes rapid burial. However, fluvially deposited sediments of the Los Angeles River are expected in this area, and fine-grained channel and over-bank facies may yield well-preserved fossil remains. The undisturbed Quaternary sediments beneath the project site and offsite laterals possess high paleontologic sensitivity because of their potential to contain fluvial facies deposited by the ancestral Los Angeles River (see below).

8.16.3.4.2 Paleontologic Inventory

An inventory of the paleontologic resources associated with the Quaternary alluvial and fluvial sediments of the Los Angeles Basin is presented below, and the paleontologic importance of these resources is assessed. As noted above, these are based chiefly on the results of this project-specific records search (Scott, 2005) and the records summarized by Lander (2001). See Figure 8.16-2 (filed under a request for confidentiality).

The literature review, archival searches, and field survey conducted for this inventory documented only one previously recorded fossil site as occurring within 3 miles of the project site. Approximately three-quarters of a mile to the northwest of the VPP excavations at depths of up to 37 feet yielded plant, invertebrate, and vertebrate remains associated with radiocarbon dates of less than 2,000 B.P. (Scott, 2005). In addition, a number of previously recorded fossil sites have been documented in this portion of the Los Angeles Basin in proximity to the Los Angeles River (Lander, 2001) but more than 3 miles from the VPP. The fossil remains from most of these sites were recovered as part of paleontologic resource impact mitigation programs conducted for other major construction projects.

The well-preserved wood, pollen, seeds, and leaves of land plants determined to be middle Holocene age (5,020±80 B.P.) were recovered at a stratigraphic level 5 feet above the base of the younger alluvium and at a depth approximately 20 feet below grade at University of California Museum of Paleontology (UCMP) fossil site PB 98033 in the ancestral Los Angeles River channel at Union Station. Additional wood fragments occurred at shallower depths (Lander, 1997, 2001).

Lander (2001) also notes that the shells of nonmarine mollusks (freshwater snails and clams, land snails), the valves of freshwater ostracods (bivalved crustaceans), the bones and teeth of vertebrates (freshwater fishes, frogs, lizards, snakes, birds, shrews, rabbits, rodents), logs of cottonwood (*Populus* sp.), and the pollen and spores of other land plants were recovered from a stratigraphic interval in the lower 5 to 10 feet of the younger alluvium and at depths approximately 44 to 60 feet below grade at the Metro Red Line Universal City Station (Natural History Museum of Los Angeles County Vertebrate Paleontology Department [LACMVP] fossil sites 6306, 6385, 6386; UCMP fossil site PB 98002) (Lander, 2000, 2001). The fossil remains from these sites, which lie 0.25 mile south of the current Los Angeles River channel, were associated with radiocarbon dates of 7,860 ±80 B.P., 8,880 ±60 B.P., and 10,500 ±70 B.P., indicating an early Holocene to latest Pleistocene age for these remains (Lander, 2000). Additional land plant remains were recovered at a depth 16 feet below grade at the Metro Red Line North Hollywood Station, approximately 1.7 miles north of the Los Angeles River (Lander, 2000, 2001).

Some of the post-Pleistocene plant remains recovered from fluvial facies representing Los Angeles River sediments were directly examined by Dr. Spaulding in 1998, and the wood included that of cedar or juniper (Cupressaceae), some seeds were of wild grape (*Vitis* sp.), and leaves included those of sycamore (*Platanus occidentalis*) and willow (*Salix* sp.), plants that were probably common along the ancestral Los Angeles River.

In addition to these Holocene and terminal Pleistocene remains, Lander (2001) points out that older fossils have been found at other previously recorded fossil sites, including the bones and teeth of extinct late Pleistocene (Ice Age) land mammal species assignable to the Rancho La Brea North American Land Mammal Age. LACMVP fossil site 3250, near the intersection of Vermont Avenue and the Hollywood Freeway, yielded fossilized mammoth remains at a depth only 8 feet below grade; LACMVP fossil site 1755, near the intersection of South Hill and West 12th streets, yielded fossilized horse remains at a depth 43 feet below grade; and fossilized bison remains were uncovered at a depth roughly 35 to 55 feet below grade at a fossil site just west of Union Station in the Metro Red Line tunnel (Jefferson, 1991; Lander, 2000, 2001; Miller, 1971). Presumably, the fossil remains from these sites are 10,750 to 130,000 years in age (Jefferson, 1991; Lander, 2000, 2001). Additional fossil continental vertebrate and invertebrate remains of presumed late Pleistocene or early Holocene age were encountered at depths at least 30 feet below grade at San Bernardino County Museum fossil sites 09.006.017 to 09.006.021 in the Alameda Corridor approximately 4 miles south of the project site (Scott, 2005).

Although preserved in a special environment of deposition (asphalt seeps) unlikely to be duplicated in the project area, the paleontologic record from Rancho La Brea, about 8 miles to the west-northwest also deserves mention. The abundance and diversity of faunal and paleobotanical remains from this site demonstrate the paleontologic potential of Late Quaternary sediments in the Los Angeles Basin. Records of large carnivores (dire wolf, saber-tooth cat, the American lion), elephantids (mammoth, mastodon), ground sloths (mylodons, nothrotheria), and other large herbivores (including the extinct llama, camel, horse, and bison) demonstrate the diversity of the terrestrial ecosystem of the Los Angeles Basin during the Late Pleistocene (e.g., Stock, 1972).

8.16.4 Environmental Consequences

The potential environmental effects from construction and operation of the VPP on paleontological resources are presented in the following subsections.

8.16.4.1 Significance Criteria

In its standard guidelines for assessment and mitigation of adverse impacts to paleontological resources, the SVP (1995) established three categories of sensitivity for rocks potentially containing paleontological resources: high, low, and undetermined. To these categories is generally added that of “no sensitivity” as it is applied to such rock units as granite or basalt that, due to their igneous (molten) origin, never contain fossils.

As noted above, for the sake of this assessment, organic remains younger than 10,000 B.P. that include such remains as plant macrofossils have the potential to shed new light on what is now an extinct ecosystem, that of the ancestral Los Angeles River and environs. Therefore, they are also considered potentially significant paleontologic resources, provided they are not in a demonstrably cultural (archaeological) context. Also, in keeping with the significance criteria of the SVP (1995), all vertebrate fossils are categorized as being of potential significant scientific value.

Areas where fossils have been previously found are considered to have a high sensitivity and a high potential to produce fossils. In areas of high sensitivity that are likely to yield unique paleontological resources, full-time monitoring is typically recommended during project-related disturbance of those sediments.

Strata not known to produce fossils in the past, and that are unlikely to do so due to their geologic history, typically are considered to have low sensitivity. Monitoring is not recommended during project construction, although spot checks by the project paleontologist may be recommended to confirm that excavations continue in low-sensitivity sediments.

Sediments that have not had previous paleontological resource surveys or yielded fossil finds, but that are generally unaltered material deposited in low-energy environments, are considered to possess undetermined sensitivity. After reconnaissance surveys, observation of exposed cuts, and possibly subsurface testing, a qualified paleontologist can determine whether the area should be categorized as having high or low sensitivity.

Appendix G of CEQA addresses significance criteria with respect to paleontological resources (Public Resources Code Sections 21000 et seq.). Appendix G(V)(c) asks if the project will “directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.”

8.16.4.2 Project Assessment

The occurrence of fossil sites near the project site and within similar geologic environments as at the project site suggests a potential for additional similar, scientifically important fossil remains being encountered by earthmoving activities during this project. Encountering fine-grained fluvial facies of high paleontologic potential in the vicinity of the Los Angeles River is likely, *when* activities extend to a depth sufficient to encounter undisturbed sediment. The records of prior sites in the area indicate that excavations at depths of less than 20 feet will not affect significant paleontologic resources. This is consistent with the rapid subsidence rate of the Los Angeles Basin mentioned above, and consequent rapid sedimentation in the

area prior to urbanization. Within 20 feet of the surface, there is no more than a low potential for these activities to encounter paleontologic remains, and the scientific value of these remains will likely be negligible due to their young age and the potentially disturbed nature of the sediment.

8.16.4.2.1 Construction

This subsection identifies the potential adverse impacts on the paleontological resources resulting from construction-phase effects of each portion of the VPP. Construction-related activities that could affect paleontologic resources include trenching and grading, as well as drilling, tunneling, and boring. Construction activities that usually do not result in sediment disturbance, from laying foundations to construction of the superstructure, will not affect paleontologic resources.

Depth to paleontologically sensitive sediments is an important factor in this impact assessment. Based on the data from prior sites in the area, this depth is assumed to be greater than 20 feet below ground surface. Because fossils relating to the ancestral Los Angeles River are scientifically significant despite their frequently post-Pleistocene age, estimates of the depth to paleontologically sensitive strata implicitly include Holocene-age sediment as scientifically significant. This differs from the greater depth to paleontologically sensitive sediments assigned by Scott (2005), based on a determination not adopted here, that post-Pleistocene fossil remains do not represent significant paleontological resources.

Therefore, excavations within 20 feet of the current surface will affect sediment that has been previously disturbed or that is too young to yield scientifically important remains and, therefore, is of low paleontologic sensitivity. Subsequent refinement of the extent and depth of sediment of low paleontologic potential, as a tool to more precisely constrain areas that may require mitigation monitoring, is recommended.

Power Plant Site

Excavations to depths exceeding 20 feet below ground surface will affect Quaternary alluvium which, in this area, can be expected to include fluvial facies of the Los Angeles River with high paleontologic sensitivity. In the absence of mitigation, excavations at depths exceeding 20 feet will adversely affect paleontologic resources. Excavations at shallower depths will not adversely affect paleontologic resources.

Natural Gas Pipeline Route

As construction extends eastward toward the Los Angeles River channel, the probability of encountering fluvial sedimentary facies increases. However, the occurrence of previously recorded vertebrate fossil sites in these types of deposits have been at depths in excess of 20 feet, indicating a low potential to encounter additional similar fossils during earth-moving activities for installation of the natural gas pipeline, unless excavations exceed 20 feet in depth. In the absence of mitigation, excavations at depths exceeding 20 feet will adversely affect paleontologic resources. Excavations at shallower depths will not adversely affect paleontologic resources.

Sewer Line

Two options are being considered for the sanitary sewer line. Under Alternative A, the sanitary sewer line will travel from the west side of the plant south along Seville Avenue to Fruitland Avenue, west along Fruitland, south on Malabar Street, west on 52nd, south on

Santa Fe Avenue, and west on 52nd Street, for a total distance of about 1 mile. Under Alternative B, the sanitary sewer line will travel from the east side of the plant, south on Soto Street to 54th Street, east Boyle Avenue, and south to Slauson Avenue, for a total distance of about 1 mile. Excavations for this pipeline will not affect paleontologically sensitive sediment because they are not to extend to depths exceeding 20 feet below ground surface. Therefore, no adverse effect to paleontologic resources is expected to result from installation of either of the sanitary sewer alternatives.

Transmission Line

The proposed option would be to connect VPP to the power grid by looping the western circuit of the LADWP Velasco to Century 230-kV line into the plant switchyard on a double-circuit pole structure. The 230-kV transmission line would exit the plant switchyard and head north on Soto Street and east on Leonis Boulevard to the LADWP right-of-way. The total distance is about 4,500 feet.

An alternative transmission line route will use Southern California Edison's (SCE's) Laguna Bell substation. The first part of the route will be the same as the proposed LADWP route. However, it will continue on Leonis past the LADWP right-of-way, then east on District Boulevard and cross the Los Angeles River. It will follow an existing 66-kV subtransmission line along the east side of the river. At Randolph Street, the route turns east and proceeds to the Laguna Bell Substation. The total distance is approximately 5 miles.

To the extent that excavations for transmission tower footings will disturb sediments at depths exceeding 20 feet, the potential will exist for adverse impact in the absence of mitigation.

8.16.4.2.2 Operation

Project operation will not cause additional ground disturbance and, therefore, will not affect paleontological resources.

8.16.5 Abandonment/Closure Impacts

No paleontologic resource impact will be involved during abandonment/closure of the VPP project if there is no earth-moving activity in previously undisturbed strata. However, if earth-moving activities occur during abandonment/closure, the paleontologist will implement appropriate mitigation measures, if necessary.

8.16.6 Cumulative Impacts

If paleontological resources are encountered during VPP-related ground disturbance, the potential cumulative effect on paleontological resources will be low, as long as the proposed mitigation measures are implemented to recover significant paleontological resources. When properly implemented, these mitigation measures will effectively recover the scientific value of significant fossils encountered during VPP construction. Thus, the proposed VPP will not cause or contribute to significant adverse cumulative impacts to paleontological resources. Additionally, scientifically controlled recovery of paleontological resources from this and other projects contributes to a beneficial cumulative impact through the realization of increased scientific knowledge of the paleontology of the Los Angeles Basin and southern California in general.

8.16.7 Proposed Mitigation Measures

This subsection describes measures that the City of Vernon proposes to reduce or mitigate potential project-related adverse impacts to significant paleontological resources, should such resources be discovered during construction. No impact to paleontologic resources will occur as a consequence of operation, so no mitigation is proposed for the operational phase of the project.

- **The Paleontologic Resources Specialist (PRS)** – The project proponent will retain a qualified PRS to assist the proponent in meeting these mitigation commitments.
- **Final Determination of Paleontologic Effect** – At least 90 days prior to construction mobilization, the PRS will meet with the project engineer and identify project construction activities that will involve excavation, drilling, or boring to depths greater than 20 feet. The probability of such activities occurring, and their location, will be incorporated into the PRMMP.
- **Paleontological Resources Monitoring and Mitigation Plan (PRMMP)** – The PRMMP will provide the detailed protocol for a paleontological resource mitigation program to include the preparation of monitoring and discovery plans for construction. Procedures will be provided for preconstruction coordination, discovery procedures, sampling and data recovery, reporting, and museum curation for specimens and data recovered.
- **Paleontological Monitoring** – The PRS will design and implement the PRMMP in consultation with the proponent and construction supervisory personnel during project-related, earth-moving activities for deep excavation at the power plant site and for deep excavations associated with the construction of the offsite laterals. Qualified paleontologic monitors will be present during excavations where it will disturb potential paleontologically sensitive sediment at depths exceeding 20 feet. Monitoring will not take place in areas where the ground has been previously disturbed, in areas underlain by artificial fill, or in areas where undisturbed sediment will be buried, but will not otherwise be disturbed.
- **Construction Personnel Education** – Before starting construction, personnel involved with earth-moving activities will be informed of the possibility of encountering fossils, how to recognize them, and proper notification procedures. This worker training will be developed in a formal module to be included and presented.

Implementation of these mitigation measures will reduce the severity of impacts of project earth-moving activities on paleontological resources to an insignificant level by allowing for the recovery of fossil remains and associated specimen data and corresponding geologic and geographic site data that otherwise might have been destroyed by construction or by unauthorized fossil collecting.

8.16.8 Involved Agencies and Agency Contacts

Because the proposed VPP will not be located on federal land and will not receive federal funding, there are no applicable federal LORS and no federal agencies with jurisdiction to enforce LORS related to paleontological resources. Therefore, no federal agency contacts were included in the Application for Certification.

State LORS include the Warren-Alquist Act, the Public Resources Code, and CEQA. The agency with jurisdiction over these LORS is the CEC. With the exception of the CEC, no state or local agencies have responsibility for administering LORS related to paleontological resources.

8.16.9 Permits Required and Permit Schedule

No state or county agency requires a paleontological collecting permit to recover fossil remains discovered by construction-related earth moving on either state or private land in the project site. The project does not cross or occupy federal land.

8.16.10 References

California Energy Commission. 2000. Rules of Practice and Procedure & Power Plant Site Certification Regulations – Siting Regulations. August. P800-00-06.

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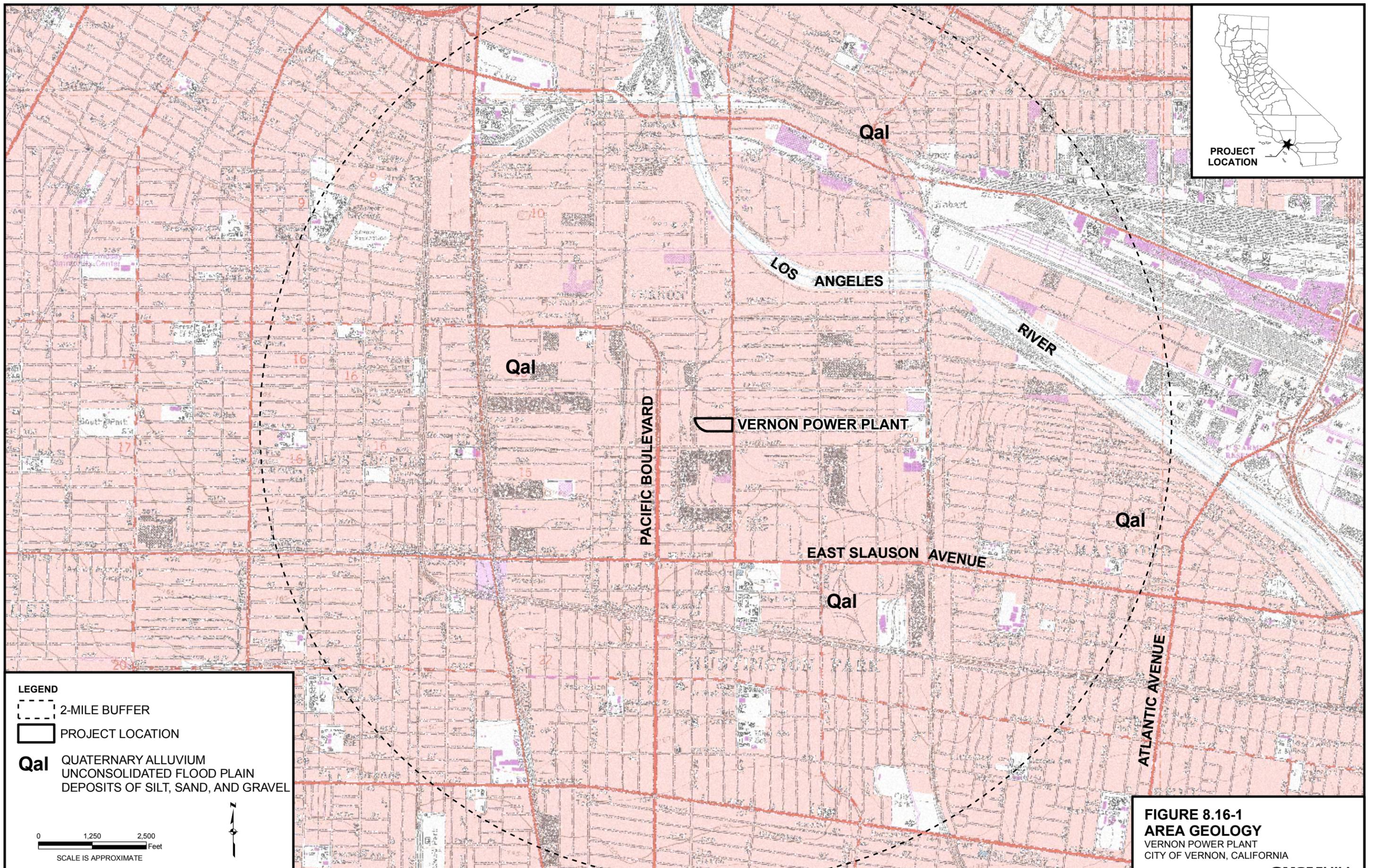
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LEGEND

-  2-MILE BUFFER
-  PROJECT LOCATION
- Qal** QUATERNARY ALLUVIUM UNCONSOLIDATED FLOOD PLAIN DEPOSITS OF SILT, SAND, AND GRAVEL

0 1,250 2,500 Feet
SCALE IS APPROXIMATE



FIGURE 8.16-1
AREA GEOLOGY
 VERNON POWER PLANT
 CITY OF VERNON, CALIFORNIA