SAN DIEGO GAS & ELECTRIC COMPANY

EAST COUNTY SUBSTATION PROJECT
PALEONTOLOGICAL MONITORING & TREATMENT PLAN

BLM California Permit for Paleontological Investigations Number: CA-10-00-009P
BLM El Centro Field Office Fieldwork Authorization Number: CA-670-08-088FA04

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PREPARED BY:

Department of PaleoServices
San Diego Natural History Museum
BLM State Permit Number: CA-10-00-009P
Fieldwork Authorization Number: CA-670-08-088FA04

PREPARED FOR:

SDGE
A Sempra Energy utility℠

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1 – PROJECT DESCRIPTION

San Diego Gas & Electric Company (SDG&E) received a Permit to Construct for the East County (ECO) Substation Project (Project), which includes construction of the new 500/230/138 kilovolt (kV) ECO Substation, as well as a new approximately 14-mile-long 138 kV transmission line, and the rebuilt Boulevard Substation. A short loop-in from the Southwest Power Link (SWPL) 500 kV transmission line will also be constructed to supply power to the new ECO Substation. The Project is located entirely in southeastern San Diego County within and between the unincorporated communities of Jacumba and Boulevard. The Project Area, which is depicted in Figure 1, includes the substation sites, SWPL Loop-in, 138 kV transmission line corridor, and all other ancillary Project facilities, such as access roads and work areas. The four primary ECO Substation Project components are discussed in the following subsections.

1.0 ECO SUBSTATION

Construction of the ECO Substation will occur on three parcels totaling approximately 398 acres of land located south of Old Highway 80 and north of the United States (U.S.)-Mexico International Border. The actual fenced footprint of the proposed substation will only cover approximately 63 acres. Preliminary designs call for a western 230 kV yard and an eastern 500 kV yard. Access to the substation will be via an existing dirt road that will be improved, and which will extend southeastward from Old Highway 80, approximately 1.8 miles southwest of its intersection with In-Ko-Pah Park Road and Interstate 8.

Topographically, the ECO Substation site lies on the southern flank of a prominent flat-topped butte (Jade Peak) that is crossed on its northwestern side by Old Highway 80. Away from Jade Peak to the south, the substation property consists of a northwestwardly sloping alluvial surface, which becomes erosionally dissected adjacent to Old Highway 80. The extreme southeastern corner of the property is characterized by more rugged canyon topography associated with the foothills of the Jacumba Mountains.

1.1 SWPL LOOP-IN

The SWPL Loop-in will be constructed in the same general location as described for the ECO Substation. The SWPL loop-in site is located slightly east of the ECO Substation site at 47317 Old Highway 80, approximately 0.5 mile south of Interstate 8 and four miles east of the community of Jacumba. The SWPL loop-in includes the installation of five three-pole dead-end structures and one H-frame tangent structure east of the ECO Substation fence. A permanent maintenance pad will be cleared and graded around each of the six structure locations to accommodate installation and maintenance. In addition, seven pull sites are required to install the SWPL loop-in. New permanent dirt access roads, approximately 20 feet wide and totaling approximately 2,000 feet long, will be constructed from the SWPL right-of-way to the six new SWPL loop-in structures. The SWPL loop-in structures and access roads are located on SDG&E land. The SWPL loop-in ROW shares the same basic topographic setting as the ECO Substation.

1.2 NEW 138 KV TRANSMISSION LINE

A new, approximately 14-mile-long, 138 kV transmission line will be constructed from the new ECO Substation to the rebuilt Boulevard Substation, which is located within the unincorporated

community of Boulevard in southeastern San Diego County. Section 1 of the 138 kV Underground Transmission Line is within and adjacent to Tule Jim Road, Jewel Valley Road, other unnamed San Diego County-maintained roads, private roads, and on SDG&E-owned property. Construction will include excavating two duct bank trenches and installing access vaults and conduit within and adjacent to gravel and paved roads. Trenching and vault excavations will be based on the surveyed alignment, and excavated material will be removed from the trench using a backhoe or trenching machine. The dimensions of each trench will vary based on localized topography, vault, horizontal directional drill, and jack-and-bore locations, but are expected to be approximately 2.5 to 6.5 feet wide and 6 to 28 feet deep and each trench would be separated up to 20 feet apart. The trench alignment will begin at the new Boulevard Substation Rebuild site and head south on Tule Jim Road until the road enters private land. The trench alignment will travel within and adjacent to Jewel Valley Road for approximately 350 feet and then continue on San Diego County public and private roads to steel pole (SP-) 38A and SP-38B (riser poles) where the underground portion terminates. At this point, Section 1 connects to the Section 2 138 kV Overhead Transmission Line.

Section 2 of the 138 kV Transmission Line is overhead and will extend from riser pole Steel Pole- (SP-) 38B to riser pole SP-91B. This section will include construction of associated permanent access roads, pads, and rock removal workspace, as well as temporary workspace for the construction of guard structures, access roads, pole maintenance pads, and pull sites.

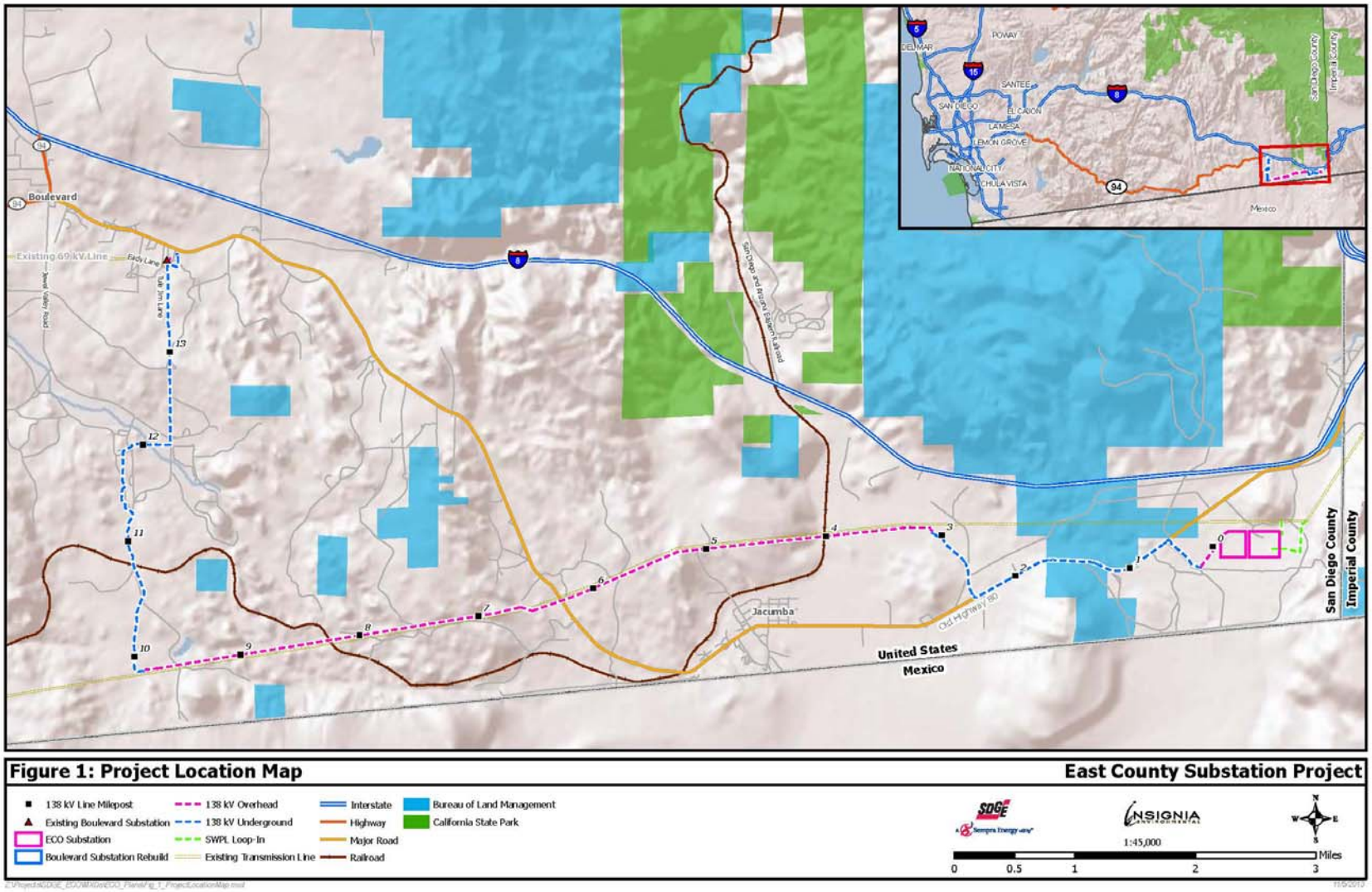
Section 3 (138 kV Underground Within Old Highway 80 and Carrizo Gorge Road) includes excavating two duct bank trenches and installing access vaults within the paved and adjacent disturbed portions of Carrizo Gorge Road and Old Highway 80. Trenching and vault excavations will involve cutting asphalt based on the surveyed alignment and excavating using a backhoe. The dimensions of each trench will vary based on localized topography and vault and jack-and-bore locations, but are expected to be approximately 2.5 to 6.5 feet wide and 6 to 28 feet deep. The trench alignment will begin at the intersection of the approved access road to steel pole (SP-) 90 and Carrizo Gorge Road and head southeast for approximately 3,200 feet until the intersection of Old Highway 80. At this point, the trench alignment will head northeast within the Old Highway 80 road corridor for approximately 1.8 miles until it turns into the Southern Access Road at the ECO Substation site.

The new 138 kV transmission line will require an approximately 100-foot-wide ROW for the overhead portion and an approximately 60-foot-wide ROW for the underground portion. As approved, half of the 138 kV line will be undergrounded (approximately seven miles) and the other half will be overhead lines (approximately seven miles). Topographically, the 138 kV transmission line ROW crosses a diverse landscape consisting of, from east to west, a low relief alluvial surface adjacent to the ECO Substation site, an eroded and weathered hilly granitic terrain roughly paralleling the north side of Carrizo Creek east of Jacumba Valley, the alluvial floor of Jacumba Valley itself, resistant volcanic slopes south of Round Mountain on the west side of Jacumba Valley, and more extensive eroded and weathered hilly granitic terrain for the run to the Boulevard Substation.

1.3 BOULEVARD SUBSTATION REBUILD

The rebuilt Boulevard Substation will provide 138 kV and 69 kV facilities to accommodate the proposed transmission line, gen-tie interconnections, and 12 kV facilities to service the surrounding area. The existing Boulevard Substation site is located at 40749 Old Highway 80,

Figure 1



Project location map, showing the proposed ECO Substation, SWPL Loop-in, 138 kV transmission line, and Boulevard Substation (Insignia, 2013).

south of Interstate 8 within the unincorporated community of Boulevard. The proposed Boulevard Substation rebuild site will be located immediately east of the existing substation on an approximately 8.5-acre parcel owned by SDG&E, but will only permanently occupy approximately two acres. Once the rebuilt Boulevard Substation has been constructed and energized, the existing substation will be dismantled and removed, and the site will be recontoured.

Topographically, the Boulevard Substation site consists of an eroded and weathered hilly granitic terrain.

1.4 AGENCY REVIEW

Agency review will include the California Public Utilities Commission (CPUC) and the U.S. Department of the Interior Bureau of Land Management (BLM). Alternatives considered for the Project, but not selected, are discussed in the Environmental Impact Report/Environmental Impact Statement (EIR/EIS) prepared for the Project (Dudek, 2010).

2 – INTRODUCTION

The following Paleontological Monitoring and Treatment Plan (PMTP) was prepared to comply with Mitigation Measure (MM) Paleo-1B of the Final EIR/EIS issued by the CPUC and BLM, which is intended to reduce impacts to paleontological resources from ground disturbance during construction (see Appendix for a complete listing of the mitigation measures related to paleontological resources). The text of the MMs that apply to paleontological resources is provided in Attachment A: Mitigation Measures. This PMTP takes into consideration BLM requirements and incorporates the requirements set forth in the Mitigation Monitoring, Compliance and Reporting Program developed for this Project, including BLM H-8270-1 (BLM, 1998), BLM Instruction Memorandum 2007-009 (BLM, 2007), BLM Instruction Memorandum 2009-011 (BLM, 2009), and Deméré (2008).

Paleontological resources (i.e., fossils) are the remains and/or traces of prehistoric plant and animal life. Although typically it is assumed that fossils must be older than approximately 10,000 years (i.e., the generally accepted end of the last glacial interval of the Pleistocene Epoch), organic remains of early Holocene age can also be considered to represent fossils because they are part of the record of past life. Fossil remains such as bones, teeth, shells, leaves, and wood are found in the geologic deposits (rock formations) within which they were originally buried. For the purposes of this report, paleontological resources can be thought of as including not only the actual fossil remains but also the collecting localities and the geologic formations containing those localities.

Construction-related impacts that typically affect paleontological resources include mass excavation operations (e.g., grading of new access roads, tower pads, and substations), drilling/borehole excavations (e.g., boreholes for direct embedded light and heavy-duty steel poles, boreholes for heavy-duty foundation poles, and drilling for micropile foundation poles), and trenching (e.g., trenching for transmission line undergrounding, vaults, and laterals). Most, if not all of these construction techniques will be used during construction of the ECO Substation Project. Such impacts have the potential to be significant and, under the California Environmental Quality Act (CEQA) and BLM (BLM Manual H-8270-1 – General Procedural

Guidance for Paleontological Resource Management) guidelines, may require mitigation. From a National Environmental Policy Act (NEPA) perspective, implementation of mitigation measures consistent with BLM guidelines on Assessment and Mitigation of Potential Impacts to Paleontological Resources (BLM Instruction Memorandum No. 2009-011) would be expected to mitigate impacts to a less than significant level.

As discussed in the ECO Substation Paleontological Resource Assessment Report (San Diego Natural History Museum [SDNHM], 2008) and summarized in Table 1: Potential Fossil Yield Classification (PFYC) of Geologic Rock Units Underlying the Project Area, the distribution of paleontological resources along the Project ROW is not uniform (Todd, 2004). Instead, paleontological resources are confined to only two geologic rock units, the Anza Formation (equals the Table Mountain Formation as discussed in SDNHM, 2008) and Pleistocene Older alluvium and fanglomerate. These rock units are preserved in only a few areas, including the ECO Substation site and the eastern portion of the 138 kV transmission line ROW.

In the ECO Substation Paleontological Resource Assessment Report (2008), each geologic rock unit exposed along the Project ROW was ranked according to a five-step significance classification (Zero to High). For the purposes of this Paleontological Monitoring and Treatment Plan, these rankings have been modified to conform to the BLM Potential Fossil Yield Classification (PFYC; BLM, 2007). PFYC rankings generally reflect the relative abundance of vertebrate fossils and significant non-vertebrate fossils in a given rock unit. Under the PFYC, a higher ranking indicates a higher potential fossil yield.

2.0 CLASS 1 – VERY LOW

Geologic rock units with very low yield potential are those that are not likely to contain fossil remains, such as igneous and metamorphic rocks, as well as sedimentary rocks that are older than 542 million years (Precambrian in age). In the Project Area, geologic deposits mapped as Jacumba Volcanics (Tj), Peninsular Ranges Batholith (Klp), and Julian Schist (Jsp) have been assigned a very low fossil yield potential (PFYC Class 1) because of their igneous and metamorphic origin.

2.1 CLASS 2 – LOW

Geologic rock units with low yield potential are those that are not likely to contain vertebrate fossils or scientifically significant non-vertebrate fossils, such as units that are generally younger than 10,000 years old, Recent aeolian deposits, and sediments that have undergone significant physical and chemical changes. In the Project Area, geologic deposits mapped as Holocene alluvium and fanglomerate (Qya) have been assigned a low fossil yield potential (PFYC Class 2) because of their young age.

2.2 CLASS 3 – MODERATE OR UNKNOWN

Geologic rock units with moderate or unknown yield potential are sedimentary deposits in which fossil discoveries vary in significance, abundance, and predictable occurrence (moderate), or sedimentary units of unproven or unknown fossil potential. In the Project Area, geologic deposits mapped as Pleistocene Older alluvium and fanglomerate (Qt) are here assigned a

Table 1: Potential Fossil Yield Classification (PFYC) of Geologic Rock Units Underlying the Project Area

Geologic Rock Unit	Symbol	Geologic Age	Paleontological Sensitivity	PFYC[1]
ECO Substation & SWPL Loop-In				
Holocene alluvium & fanglomerate	Qya	Holocene	Low	2
Pleistocene Older alluvium and fanglomerate	Qt	Pleistocene	Moderate	3
Jacumba Volcanics	Tj	Miocene	Very Low	1
Anza Formation	Ta	Miocene	High	4
Peninsular Ranges Batholith	Klp	Cretaceous	Very Low	1
138 kV Transmission Line				
Holocene alluvium	Qya	Holocene	Low	2
Pleistocene Older alluvium and fanglomerate	Qt	Pleistocene	Moderate	3
Jacumba Volcanics	Tj	Miocene	Very Low	1
Anza Formation	Ta	Miocene	High	4
Peninsular Ranges Batholith	Klp, Klh	Cretaceous	Very Low	1
Julian Schist	Jsp	Triassic?	Very Low	1
Boulevard Substation Rebuild				
Holocene alluvium	Qya	Holocene	Low	2
Peninsular Ranges Batholith	Klp	Cretaceous	Very Low	1

[1] Class 1 is least sensitive; Class 5 is most sensitive.

moderate or unknown fossil yield potential (PFYC Class 3) because of their older age and sedimentary origin.

2.3 CLASS 4 – HIGH

Geologic rock units with high yield potential are those that contain a high occurrence of significant fossils that have been documented, but which may vary in occurrence and predictability. In the Project Area, geologic deposits mapped as Anza Formation (Ta) are assigned a high fossil yield potential (PFYC Class 4).

2.4 CLASS 5 – VERY HIGH

Geologic rock units with very high yield potential are those that consistently and predictably produce vertebrate or scientifically significant non-vertebrate fossils. No rock units within the Project Area are assigned a very high fossils yield potential (PFYC Class 5).

3 – PRE-CONSTRUCTION

Prior to commencement of construction activities some or all of the following actions will be necessary.

3.0 FIELD SURVEY

An additional field survey will not need to be conducted before commencement of construction activities. The pedestrian field survey that was performed during the earlier assessment phase of Project evaluation is deemed sufficient to evaluate the paleontological resource potential of the Project Area (SDNHM, 2008). Although there remains some uncertainty concerning the resource potential of deposits mapped as Quaternary alluvium and fanglomerate, as discussed in the previous section, additional field surveys would not be able to determine whether these surficial deposits overlie those of the Anza Formation. Instead, it would be necessary to conduct geotechnical-style exploratory work (e.g., trenching and boreholes) to resolve the issue. This would provide only duplicative results to what would be obtained during monitoring of the Project during construction activities.

3.1 WORKER TRAINING

As part of the Safe Worker and Environmental Awareness Program (SWEAP) administered by SDG&E and its consultants, construction personnel will be trained regarding the recognition of possible subsurface paleontological resources and the need for protection of paleontological resources unearthed during construction. The SWEAP training will inform all construction personnel of the location and boundaries of any paleontological Environmentally Sensitive Areas (ESAs) and the procedures to be followed upon the discovery of paleontological materials. The SWEAP training will also emphasize to all personnel that unauthorized collection or disturbance of protected fossils on or off the ROW is prohibited and may result in criminal penalties and fines. The SWEAP training will include instruction for construction personnel on procedures and notifications required in the event of fossil discoveries by Project personnel or

paleontological monitors. The Qualified Paleontologist or qualified paleontological monitor may attend tailgate meetings to brief the construction crew on paleontological monitoring protocols.

3.2 RESEARCH DESIGN

Specific research themes, as listed below, are associated with the Class 3 and Class 4 sedimentary rock units present within the Project Area. These research themes provide a framework for formulating hypotheses to be addressed by a particular fossil discovery. Further, the research themes and hypotheses directly affect formulation of the subsequent data recovery program by serving to constrain what types of data to collect in the field, what field methods and equipment to employ, and what laboratory analyses to conduct. Having the research themes spelled out before construction begins also provides a framework for evaluating the significance of a particular fossil discovery.

3.2.0 Quaternary alluvium

Paleontological resources in the eastern portion (e.g., ECO Substation and Jacumba Valley) of the Project Area may be preserved in sedimentary deposits of Quaternary alluvium and fanglomerate. Research themes applied to these deposits include the following:

- Pleistocene land mammal diversity, including "Ice-Age" megafauna, of southern California
- Pleistocene non-marine paleoenvironments of southern California
- Paleoecologic structure of Pleistocene land mammal assemblages of southern California
- Pleistocene land mammal evolution and systematic

3.2.1 Anza Formation

Paleontological resources in the eastern portion (e.g., ECO Substation and Jacumba Valley) of the Project Area are preserved in sedimentary rocks of the Anza Formation. Research themes applied to this rock unit include the following:

- Miocene land mammal diversity of southern California
- Paleoecologic structure of Miocene plant, invertebrate, and vertebrate assemblages of southern California
- Miocene invertebrate and vertebrate evolution and systematics
- Miocene paleoenvironments of southern California

3.3 PERMITS

Certain public jurisdictions have formal permitting policies and procedures governing survey work and fossil collecting on lands under their management. The BLM requires that Qualified Paleontologists obtain a Paleontological Resource Use Permit (e.g., Survey and Limited Surface Collection Permits). Such permits will be obtained before actual field work begins on BLM-managed lands. Copies of BLM California Permit for Paleontological Investigations Number: CA-10-00-009P and BLM El Centro Field Office Fieldwork Authorization Number: CA-670-08-088FA04 are provided in Attachment B: San Diego Natural History Museum, Department of PaleoServices Authorizations.

4 – DURING CONSTRUCTION

Commencement of construction-related excavation activities marks the time when impacts to paleontological resources may begin. To reduce impacts, some or all of the actions described in the following subsections will be required:

4.0 EXCAVATION MONITORING

A qualified paleontological monitor(s) will be present full-time during grading/excavation of native geological deposits that have been assigned a high paleontological resource potential ranking (Class 4) and during grading/excavation of native geological deposits that have been assigned a moderate or unknown paleontological resource potential ranking (Class 3). The BLM approving official and CPUC Project Manager will be notified via email at the commencement of monitoring. If monitoring activities are temporarily halted, the BLM approving officer and CPUC Project Manager will be notified via email at the cessation and restart of monitoring. In the event that fossils are unearthed during excavations in native geological deposits that have been assigned a low paleontological resource potential ranking (Class 2), the qualified paleontologist, in consultation with the Construction Manager and Environmental Compliance Manager, may determine that part-time monitoring should be conducted in these deposits. No monitoring will be required for native geological deposits that have been assigned a very low paleontological resource potential ranking (Class 1). The paleontological monitor will observe active excavation operations and inspect fresh cut slopes, graded pads, trench sidewalls, and borehole sidewalls and spoils for exposed fossil remains or traces.

4.0.0 Qualifications

The Qualified Paleontologist will have a Master's Degree or Ph.D. in paleontology, and will have knowledge of the local paleontology and professional familiarity with paleontological procedures and techniques. In turn, the qualified paleontological monitor(s) will have a Bachelor's Degree in geology or paleontology and a minimum of one year of monitoring experience in local sedimentary rocks. A proven record of paleontological field monitoring and fossil recovery experience may be substituted upon approval from the BLM. The names of any and all monitors will be submitted to the BLM and CPUC one month prior to beginning any fieldwork. Monitors must be listed on the BLM Permit for Paleontological Investigations as a Field Agent or Field Monitor.

4.0.1 Ground-disturbing Activities

In all identified areas of concern (i.e., areas underlain by PFYC Class 3 or Class 4 deposits), the paleontological monitor will be present to observe ground disturbance where previously undisturbed sediments are excavated. The opportunity to observe sedimentary deposits within which fossils are present is ideal during trenching, foundation, and access road excavation activities. In contrast, observation of micro-pile drilling or jack-and-bore work (except for entrance and exit portal excavations) is unlikely to produce any intact fossil materials of paleontological interest. It is the Environmental Compliance Field Manager's responsibility to keep the Qualified Paleontologist and paleontological monitor(s) up-to-date with current plans and any construction or scheduling changes. The monitors will coordinate with Construction Management to determine the timing for monitoring in the identified areas of concern. It will be

the qualified paleontologist's responsibility to maintain communication and coordination with the environmental compliance and construction teams as appropriate.

4.0.2 Stratigraphic data

Recording of stratigraphic data will be an on-going aspect of excavation monitoring to provide context for any eventual fossil discoveries. Outcrops exposed in active cuts and finished slopes should be examined. Unique geologic features will be recorded in field notes and any identified ESAs will be plotted in Project map books and stored in the Project geographic information systems (GIS) database. The goal of this work is to delimit the nature of fossil-bearing sedimentary rock units along the Project ROW, determine their areal distribution and depositional contacts, and record any evidence of structural deformation. Standard geologic and stratigraphic data collected include lithologic descriptions (i.e., color, sorting, texture, structures, and grain size), stratigraphic relationships (i.e., bedding type, thickness, and contacts), and topographic position. Stratigraphic sections will be routinely measured; areas containing exposures of fossiliferous sedimentary deposits will be studied in detail and fossil localities recorded on measured stratigraphic sections. Fossil localities will be recorded using BLM Form H-8270-1, which documents the following critical information: types of fossils discovered, geologic rock unit/formation, geologic age, base map, geographic coordinates (UTM, Latitude/Longitude, Section/Township/Range), collector, and collection date, as provided in Attachment C: Paleontological Discovery Forms. In addition, fossil localities will be photo documented to record important stratigraphic and taphonomic data.

4.1 AREAS TO BE MONITORED

Given that portions of the Project ROW are underlain by geologic rock units assigned either PFYC Class 3 or Class 4, as shown in Table 1: Potential Fossil Yield Classification (PFYC) of Geologic Rock Units Underlying the Project Area, any excavation penetrating previously undisturbed deposits of these rock units will require paleontological monitoring by the Qualified Paleontologist or qualified paleontological monitor(s). Discussions of the general locations of PYFC Class 3 and Class 4 paleontological resources and types of proposed excavations for each construction component are provided below. More precise determination of the locations of PYFC Class 3 and Class 4 paleontological resources will be made when the Project construction drawings have been finalized. At that time, ESAs will be identified and plotted in Project map books and will also be stored in the Project GIS database. SDG&E will be required to coordinate and oversee the successful initiation and completion of all required monitoring tasks based on this information.

4.1.0 ECO Substation

Conceptual construction plans for the ECO Substation indicate extensive excavations for two sheet pads: a western pad to house the 230 kV equipment yard and an eastern pad to house the 500 kV equipment yard. Because of the general westerly slope of the ground surface at the proposed ECO Substation site, the two sheet pad excavations will each involve a cut-fill transition where the eastern portion of the pad is cut to produce fill material to build the western portion of the pad. The plans suggest a maximum cut depth of approximately 35 feet for the 230 kV equipment yard and up to approximately 65 feet deep for the 500 kV equipment yard. If correct, this level of excavation will result in significant impacts to the Pleistocene Older alluvium and fanglomerate deposits in this area. Likewise, these deep pad excavations will also

result in extensive impacts to the Anza Formation. Without knowing the true thickness of the overlying Pleistocene Older alluvium and fanglomerate deposits, it is currently not possible to determine the exact volume of Anza Formation that will be impacted by these excavations. However, given the extent of the proposed sheet pad excavations, significant impacts to the Anza Formation will occur. Because of the cut-fill transition nature of the proposed sheet pad excavations, the greatest impacts will occur in the eastern (i.e., cut) portions of each pad.

4.1.1 SWPL Loop-In

Construction of the SWPL Loop-in to the ECO Substation will involve installation of five new three-pole dead-end structures, each with three drilled concrete piers, as well as one H-frame tangent structure requiring two drilled concrete piers. The SWPL Loop-in will be installed in the area east of the ECO Substation. Pier construction will require a truck-mounted auger to excavate holes measuring three to five feet in diameter and 10 to 15 feet deep, depending on soil conditions. Each pier borehole has the potential to create significant impacts to the Pleistocene Older alluvium and fanglomerate deposits in this area. Depending on thickness of these Pleistocene-age deposits, the older Miocene-age Anza Formation may also be impacted by the pier boreholes.

4.1.2 138 kV Transmission Line

Construction of the approximately 14-mile-long 138 kV transmission line will involve installation of approximately 55 direct-bury steel poles, as well as excavation of approximately 6.4 miles of trenching for the underground portions of the line. Each pole will require the excavation of holes approximately 6 feet in diameter and approximately 13 to 20 feet deep, depending on the type and height of the pole. In addition, installation of angle poles will be on drilled pier foundations that will require the excavation of holes approximately seven to eight feet diameter by approximately 20 to 30 feet deep, depending on the type and height of the pole. Undergrounding excavations will consist of trenches approximately three feet wide and up to 10 feet deep and will also require construction of a series of approximately 18 vaults for line splicing and access. Excavations for these vaults will be approximately 12 feet wide, 24 feet long, and up to 14 feet deep. In some cases, jack-and-bore tunneling will be also be conducted and will require excavation of entry and exit portals. Construction of the overhead section of the proposed 138 kV transmission line between Jacumba Peak and Jacumba Valley (approximately SP 74 to SP 83) and between Jacumba Valley and Carrizo Gorge Road (approximately SP 85 to SP 88) may result in significant impacts to paleontological resources preserved in the Anza Formation (PYFC Class 4) and the Pleistocene Older alluvium and fanglomerate (PYFC Class 3). Construction of the underground section of the proposed 138 kV transmission line between Carrizo Gorge Road and the ECO Substation (approximately MP 0 to MP 3) may also result in significant impacts to paleontological resources preserved in the Anza Formation (PYFC Class 4) and the Pleistocene Older alluvium and fanglomerate (PYFC Class 3).

The area from Jacumba Peak west to the Boulevard Substation is underlain by geologic deposits with very low paleontological resource potential (PYFC Class 1). Consequently, construction activities along this portion of the ROW are not anticipated to result in any significant impacts.

4.1.3 Boulevard Substation Rebuild

Rebuild of the Boulevard Substation will not require any deep excavations or boreholes and will not impact any PYFC Class 3 or Class 4 paleontological resources.

4.2 PALEONTOLOGICAL DISCOVERIES

The goal of paleontological monitoring is to observe excavation activities and to be on site in the event that fossils are unearthed by grading, trenching, or drilling activities. When fossils are discovered, the procedures described in this section will be followed. Recovery methods will vary to some degree depending on the types of fossils discovered (e.g., macrofossils, microfossils, or plant fossils).

4.2.0 Discovery process

In the event of a discovery, the monitor or Qualified Paleontologist has the authority to temporarily stop construction or grading work at the discovery location. When work is stopped, the Qualified Paleontologist shall be contacted immediately. The monitor, under direction of the Qualified Paleontologist, will divert, direct, or temporarily halt ground-disturbing activities in the area of discovery to allow for preliminary evaluation of potentially significant paleontological resources and to determine if additional mitigation (i.e., collection and curation) is required. According to BLM guidance for the evaluation of significant finds, a Paleontological Investigator or Field Agent must be available within two hours travel time to provide oversight and advice to Field Monitors in the event of a potentially significant fossil discovery. A Paleontological Mitigation Monitoring Discovery Form, which is provided in Attachment C: Paleontological Discovery Forms, will be submitted to the BLM within 24 hours of the initial discovery.

4.2.0 Determination of significance

The significance of the discovered resources will be determined by the Qualified Paleontologist, in consultation with the BLM El Centro Field Office and CPUC Staff. For significant paleontological resources, a data recovery plan will be developed for BLM and CPUC review within five business days. Once approved, implementation of the data recovery program will be initiated. It will follow the general steps outlined below, with some refinements based on the type and nature of the specific discovery.

The types of research themes to be addressed by a particular fossil discovery are specific to the identified Project regions of sensitivity previously discussed in Section 2 – Introduction. The data recovery program will largely be driven by these research themes and will incorporate appropriate field methods for data collection to address specific hypotheses. In addition the data recovery program will include plans for the preparation, curation, and storage of recovered fossils, as well as an itemized scope of work and budget to accomplish the data collection and post-collection phases of fossil recovery.

4.2.1 Macrofossil recovery

Many fossil specimens discovered during monitoring of active excavation activities are readily visible to the naked eye and large enough to be easily recognized and removed. Upon discovery of such macrofossils, the paleontological monitor will temporarily flag the discovery site for avoidance and evaluation as described above. Actual recovery of unearthed macrofossils can involve several techniques including “pluck-and-run,” hand quarrying, plaster-jacketing, and/or large-scale quarrying. The “pluck-and-run” technique will be used when equipment activity in

the vicinity of the discovery area is heavy and immediate action is required to remove an isolated specimen so as not to unnecessarily slow the progress of construction operations. "Pluck-and-run" recovery involves exploratory probing around a partially exposed fossil specimen to determine its dimensions, the application of consolidants (*Acryloid*, *Butvar*, or *Vinac*) to stabilize any damaged or weakened areas of the fossil, and removal of the specimen in a block of sedimentary matrix. Hand quarrying typically consists of site specific "mining" of fossil-rich sedimentary rock layers without establishment of a geographic grid framework. Fragile fossils recovered by hand quarrying are stabilized as described above.

Particularly large vertebrate fossils require special handling because of their size and/or fragility and are typically recovered in a process called plaster-jacketing. The process begins by isolating a partially exposed specimen from the temporary exposure in a matrix-supported sedimentary pedestal. The pedestal is then slightly undercut at its base to form an overhanging lip and a layer of damp newsprint or tissue paper is placed on the surface of the block. Strips of burlap fabric are then soaked in a mixture of Plaster-of-Paris and laid across the matrix block to dry. Depending upon the volume of the block, one, two, or more layers of plaster-soaked burlap strips are formed on the block. Especially large blocks (over two feet in length) are reinforced with wooden or metal splints. Once the plaster hardens, the supporting pedestal is undercut and the block turned over. Hand tools are then used to remove any excess sedimentary matrix from the bottom of the block and a plaster and burlap cap constructed on the inverted bottom of the block, using the same methods described above. When all layers of plaster are dry and hardened, the completed plaster "jacket" is then labeled with a field number and north arrow and removed from the field.

The discovery of a concentration of large vertebrate fossils would require more time for recovery. In such cases, the Qualified Paleontologist will request an immediate halt of construction activities in the area of the fossil discovery and contact the appropriate BLM and/or CPUC representative. Together, the Qualified Paleontologist and the BLM and/or CPUC representative will evaluate the discovery and take action to protect or remove the resource within 10 working days.

4.2.2 Microfossil recovery

Many significant vertebrate fossils (e.g., small mammal, bird, reptile, amphibian, or fish remains) often are too small to be readily visible in the field, but are nonetheless significant and worthy of attention because of their potential to provide information concerning paleoenvironments, paleoclimates, and geologic age. Discovery of micro-vertebrate fossil sites is anticipated for this Project and may include sites that produce remains of macro-vertebrate fossils from fine-grained deposits and sites that, based on lithology alone (e.g., mudstones with soil carbonate), appear to have a potential for producing small vertebrate fossil remains. When discovered, micro-vertebrate fossil sites shall be sampled by collecting bulk quantities of sedimentary matrix. Guidelines developed by the Society of Vertebrate Paleontology (www.vertpaleo.org; downloaded 2 February 2012) define an adequate micro-vertebrate sample as comprising "…12 cubic meters (6,000 pounds or 2,500 kilograms) of matrix for each fossil horizon or paleosol, or as determined by the supervising paleontologist. The uniqueness of the recovered fossils may dictate salvage of larger amounts." Ideally, such sites will occur within a layered sequence of strata from which several successive strata may yield individual micro-

vertebrate fossil horizons. A maximum of one bulk matrix sample per fossil horizon shall be collected. This sample shall be assumed to contain a representative assemblage of fossils preserved in that fossil horizon. It should be emphasized that once a bulk matrix sample has been collected and removed from the Project site, construction activities can resume. It is recommended that a 200-pound subsample be initially processed to determine the fossil productivity of the larger sample. Generally, if five or more complete mammal teeth are recovered from the subsample, the remainder of the sample should be processed. If fewer teeth are recovered, processing should cease.

There is also the possibility that sites may be discovered that preserve the fossil remains of micro-invertebrate organisms (e.g., ostracods, diatoms, micro-gastropods, and micro-bivalves). When micro-invertebrate sites are discovered, they initially should be evaluated in terms of fossil preservation, specimen abundance, and taxonomic diversity to determine the level of sampling. For sites with good preservation and high abundance and diversity, an adequate sample would comprise 0.1 cubic meters (50 pounds or 23 kilograms) of matrix from each fossil horizon. For micro-invertebrate sites with less than good preservation and relatively low abundance and diversity, an adequate sample would comprise 0.2 cubic meters (100 pounds or 45 kilograms) of matrix from each fossil horizon. As with micro-vertebrate sites, micro-invertebrate sites ideally should occur within a layered sequence of strata from which several successive strata may yield individual micro-invertebrate fossil horizons. A maximum of one matrix sample per fossil horizon shall be collected. Again, it should be emphasized that once a bulk matrix sample has been collected and removed from the Project site, construction activities can resume. Suggested procedures for laboratory processing of these bulk matrix samples are described in Section 5.0 Fossil Preparation.

4.2.3 Paleobotanical fossil recovery

Paleobotanical specimens typically occur in fine-grained, laminated strata (e.g., shale) and will require special recovery techniques, as described below. When fossil plant sites are discovered, they initially should be evaluated in terms of fossil preservation, specimen abundance, and taxonomic diversity to determine the level of sampling. For sites with well-preserved and relatively complete leaves, an adequate sample would aim to recover at least 20 specimens of each recognized leaf type (species or morphotypes). Large blocks (greater than two feet in diameter) of sedimentary rock typically can be hand quarried from the temporary outcrop and then split along bedding planes to reveal compressed fossil plant material (e.g., leaves, stems, and flowers). Individual slabs are then wrapped in newsprint to minimize destruction of the fossils during desiccation. Specimens that are delaminating or flaking badly may need to be coated with special consolidants (e.g., Vinac or Butvar). It should be emphasized that once an adequate sample has been collected and removed from a paleobotanical discovery site, construction activities can resume. Suggested procedures for laboratory processing of fossil plant material are described in Section 5.0 Fossil Preparation.

4.2.4 Data recovery

All fossil discoveries will also include the collection of stratigraphic data to delimit the nature of the fossil-bearing sedimentary rock units, determine the areal distribution and depositional contacts of the fossil-bearing sedimentary rock units, record any evidence of structural deformation, generate lithologic descriptions of fossil-bearing strata, determine stratigraphic

relationships (bedding type, thickness, and contacts), measure stratigraphic sections, and describe taphonomic patterns.

5 – POST CONSTRUCTION

Mitigation will not end with completion of the field related activities of paleontological monitoring and fossil recovery. Recovered fossils will then be prepared, identified, catalogued, and stored in a recognized professional repository and a final report will be written that summarizes the results of pre-construction, during-construction, and post-construction activities and findings.

5.0 FOSSIL PREPARATION

Fossil remains collected during the monitoring and salvage portion of the mitigation program will be cleaned, repaired, and/or screenwashed, as described in the following subsections.

5.0.0 Specimen preparation

Preparation of fossil specimens will involve removal of extraneous and concealing sedimentary matrix from specimens using various mechanical methods including pneumatic air scribes, micro sandblasters, and simple hand tools (hammers, chisels, X-acto knives, brushes, dental picks, and pin vises). Fossil preparation will also involve consolidation of weak or porous specimens by the application of specialized media including polyvinyl acetate resins (e.g., Vinac), acrylic resins (e.g., Acryloid), or polyvinyl butyral resins (e.g., Butvar). Repair of broken/damaged specimens will require the use of various adhesives including cyanoacrylate glues (e.g., Zap) polyvinyl acetate emulsions (e.g., carpenter's glue), and polyvinyl butyral resins (e.g., Butvar).

5.0.1 Screenwashing

Recovery of microvertebrate fossils will be accomplished by screenwashing bulk samples of fossil-bearing sedimentary matrix. The process begins by breaking large blocks into two- to three-centimeter cubes to facilitate air-drying of the matrix. Once dry, the matrix is placed into water-filled five-gallon plastic buckets to soak for no less than 15 minutes with stirring. The slurry is then poured onto nested 20- (0.84 millimeter [mm] openings) and 30- (0.59 mm) mesh stainless steel screens placed in water-filled troughs. Manual agitation of the screens forces the fine clays and silts through the mesh and concentrates the coarser sand and fossil material on the screens. The screens are then placed at a tilt facing the sun to dry. Once dry, the coarse concentrate is transferred into plastic sample bags and labeled with all pertinent site locality data.

5.0.2 Heavy liquid floatation

Screenwashed concentrates can be further concentrated by the use of heavy liquids (e.g., zinc bromide and/or tetrabromoethane) to concentrate particles of equal density. Generally, fossil bones and teeth sink along with heavy mineral grains (e.g., magnetite) while lighter quartz and feldspar mineral grains float. This separation process produces a very rich concentration of fossil remains, typically isolated teeth of small mammals (e.g., rodents).

5.0.3 Paleobotanical preparation

Preparation of plant fossils will involve first splitting slabs of mudstone/siltstone matrix along laminations to reveal individual or composite leaf impressions. Any remaining matrix still obscuring the impressions will then be removed with X-acto knives. The exposed impressions will then be stabilized with special adhesives (e.g., Vinac or Butvar).

5.1 FOSSIL CURATION

Following preparation of salvaged fossil remains, the specimens will be sorted/picked, identified, and catalogued as described below.

5.1.0 Sorting/picking

Fossils require sorting/picking to group together specimens of the same taxon (e.g., species and/or genus).

5.1.1 Identification

Once sorted, individual taxon lots will then be identified to the lowest taxonomic level practical (e.g., family, genus, and/or species).

5.1.2 Cataloguing

Sorted and identified specimens are then assigned unique specimen catalogue numbers and entered into an electronic catalogue database. A specimen number may represent a single fossil specimen or a batch of specimens belonging to a single species. Catalogue numbers are written on individual specimens using India ink on a patch of white acrylic paint. Curation also involves placement of taxon lots into archival specimen trays with labels containing relevant curatorial information.

5.1.3 Locality data

Formal descriptions of fossil-collecting locality records, including geographic, geologic, taphonomic, and collecting data, will be recorded in the BLM Locality Form 8270-3, as provided in Attachment C: Paleontological Discovery Forms, and stored electronically with the specimen catalogue data.

5.2 FOSSIL STORAGE

Fossils collected under a BLM Paleontological Resources Use Permit remain the property of the Federal Government and must be curated and stored in the paleontological collections of an approved repository. Any fossils collected from BLM-administered lands will be recorded in the Collection Inventory Form and submitted to the BLM with the Repository Receipt for Collections, which is provided in Attachment C: Paleontological Discovery Forms. All other salvaged fossil remains not recovered from federally managed lands also should be curated and stored in the paleontological collections of the San Diego Natural History Museum, which is a BLM-approved repository. For fossil collections obtained from private lands, clear title will be given to the approved repository, which will then assume the responsibility to maintain and make available the fossil collections in perpetuity as part of the public trust. Agreements for curation

responsibilities will be prepared and executed by the approved repository with the identified property owner or agency for public land. Generally property owners/managers are persuaded to "donate" discoveries once an agency or landowner is informed of the professional and financial responsibilities associated with professional curation and storage of recovered paleontological resources and understands that the approved repository will assume these responsibilities in perpetuity. The assumption of responsibility for the curation of these discoveries by the approved repository generally removes any notion of retaining ownership by the property owner.

5.3 FINAL REPORT

A final summary report that presents the results of the Paleontological Monitoring and Treatment Plan will be prepared. This report will include discussions of the methods used, stratigraphic section(s) exposed, fossils collected, and significance of the recovered fossils relative to the research themes and questions. A complete inventory of salvaged, prepared, and curated fossils will be part of the final report. The report will be submitted to the BLM and CPUC for review and approval. According to the Standard Permit Conditions under the Paleontological Fieldwork Authorization, the "Permittee shall submit a final report to the approving official not later than 180 days after completion of fieldwork." However, "If the size or nature of the fieldwork merits, the approving official may authorize a longer timeframe for the submission of the final report as specified in Special Permit Condition q." Additionally, the "Permittee shall deposit all [fossils], samples, and collections, as applicable, and original clear copies of all records, data, photographs, and other documents, resulting from work conducted under [the] permit, with the curatorial facility named in item 12 [SDNHM], above, not later than 90 days after the date the final report is submitted to the approving official."

6 – REFERENCES

BLM Manual H-8270-1 - General Procedural Guidance for Paleontological Resource Management, 1998. Downloaded from www.blm.gov on 2 February 2012.

BLM Guidance for implementing the Potential Fossil Yield Classification (PFYC) System, 2007. Downloaded from www.blm.org on 2 February 2012.

BLM Instruction Memorandum No. 2009-011 - Assessment and Mitigation of Potential Impacts to Paleontological Resources, 2009. Downloaded from www.blm.gov on 2 February 2012.

Dudek. 2010. Final Environmental Impact Report/Environmental Assessment for the ECO Substation Project. Document dated December 2010.

San Diego Natural History Museum, 2008. Technical Report, Paleontological Resource Assessment, ECO Substation Project, San Diego County, California. Unpublished technical report prepared for Insignia Environmental dated 20 August 2008.

Todd, V.R. 2004. Preliminary geologic map of the El Cajon 30' x 60' quadrangle, southern California. USGS Open-File Report 2004-1361.

ATTACHMENT A: MITIGATION MEASURES

Attachment A: Mitigation Measures

The paleontological resource mitigation measures from the Final Environmental Impact Report/Environmental Impact Statement for the San Diego Gas & Electric East County Substation Project (http://www.cpuc.ca.gov/environment/info/dudek/ecosub/ECO_Final_EIR.htm) are provided as follows.

MM PALEO-1A Inventory and evaluate paleontological resources in the Final APE. Prior to construction, SDG&E shall conduct and submit to the BLM and CPUC for approval an inventory of significant paleontological resources within the affected area, based on field surveys of areas identified as marginal through high or undetermined paleontological sensitivity potential.

MM PALEO-1B Develop Paleontological Monitoring and Treatment Plan. Following completion and approval of the paleontological resources inventory and prior to construction, SDG&E shall prepare and submit to the CPUC and BLM for approval a Paleontological Monitoring Treatment Plan (Plan). The Plan shall be designed by a Qualified Paleontologist and shall meet all regulatory requirements, including BLM and County of San Diego Paleontological Resource Guidelines. The qualified paleontologist shall have an MA or PhD in paleontology, shall have knowledge of the local paleontology, and shall be familiar with paleontological procedures and techniques. The Plan shall identify construction impact areas of moderate to high sensitivity for encountering significant resources and the depths at which those resources are likely to be encountered.[2] The Plan shall outline a coordination strategy to ensure that a qualified paleontological monitor will conduct full-time monitoring of all ground disturbance in sediments determined to have a moderate to high sensitivity. Sediments of low, marginal, and undetermined sensitivity shall be monitored on a part-time basis (as determined by the Qualified Paleontologist). Sediments with zero sensitivity will not require paleontological monitoring. The Qualified Paleontologist shall have a BA in Geology or Paleontology, and a minimum of 1 year of monitoring experience in local sediments. The Plan shall detail the significance criteria to be used to determine which resources will be avoided or recovered for their data potential. The Plan shall also detail methods of recovery, preparation and analysis of specimens, final curation of specimens at a federally accredited repository, data analysis, and reporting. The Plan shall specify that all paleontological work undertaken by the applicant on public land shall be carried out by qualified paleontologists with the appropriate current permits, including, but not limited to, a Paleontological Resources Use Permit (for work on public lands administered by BLM). Notices to proceed shall be issued by the lead agency and other agencies with jurisdiction, following approval of the Paleontological Monitoring and Treatment Plan.

[2] Paleontologically sensitive units are mapped at the surface on the geological map and/or were observed during the initial pedestrian survey of the areas in the field.

MM PALEO-1C Monitor Construction for Paleontology. Based on the paleontological sensitivity assessment and Paleontological Monitoring and Treatment Plan consistent with Mitigation Measure PALEO-01b (Develop Paleontological Monitoring and Treatment Plan), SDG&E shall conduct full-time construction monitoring by the qualified paleontological monitor in areas determined to have moderate (PFYC – Class 3) to high (PFYC – Class 4) paleontological sensitivity within the ECO Substation. Sediments of low, marginal (i.e., PFYC – Class 2), or, undetermined (PFYC Class 3) sensitivity shall be monitored by a qualified paleontological monitor on a part-time basis (as determined by the Qualified Paleontologist). Construction activities shall be diverted when data recovery of significant fossils is warranted, as determined by the Qualified Paleontologist.

MM PALEO-1D Conduct paleontological data recovery. If avoidance of significant paleontological resources is not feasible or appropriate based on project design, treatment (including recovery, specimen preparation, data analysis, curation, and reporting) shall be carried out by the project, in accordance with the approved Treatment Plan per Mitigation Measure PALEO-01B (Develop Paleontological Monitoring and Treatment Plan).

MM PALEO-1E Train construction personnel. Prior to the initiation of construction or ground-disturbing activities, all construction personnel shall be trained regarding the recognition of possible subsurface paleontological resources and protection of all paleontological resources during construction. The project shall complete training for all construction personnel. Training shall inform all construction personnel of the procedures to be followed upon the discovery of paleontological materials. Training shall inform all construction personnel that Environmentally Sensitive Areas include areas determined to be paleontologically sensitive, as defined on the paleontological sensitivity maps for the project, and must be avoided, and that travel and construction activity must be confined to designated roads and areas. All personnel shall be instructed that unauthorized collection or disturbance of protected fossils on or off the ROW by the project, its representatives, or employees will not be allowed. Violators will be subject to prosecution under the appropriate state and federal laws, and violations will be grounds for removal from the project. Unauthorized resource collection or disturbance may constitute grounds for the issuance of a stop-work order. The following issues shall be addressed in training or in preparation for construction:

- All construction contracts shall include clauses that require construction personnel to attend training so they are aware of the potential for inadvertently exposing subsurface paleontological resources, their responsibility to avoid and protect all such resources, and the penalties for collection, vandalism, or inadvertent destruction of paleontological resources.

- The project shall provide a background briefing for supervisory personnel describing the potential for exposing paleontological resources, the location of any potential Environmentally Sensitive Areas, and procedures and notifications required in the event of discoveries by project personnel or paleontological monitors. Supervisory personnel shall enforce restrictions on collection or disturbance of fossils.

- Upon discovery of paleontological resources by paleontologists or construction personnel, work in the immediate area of the find shall be diverted, and the project paleontologist shall be notified. Once the find has been inspected and a preliminary assessment made, the project paleontologist will notify the lead agency and other appropriate land managers and proceed with data recovery in accordance with the approved Treatment Plan consistent with Mitigation Measure PALEO-1B (Develop Paleontological Monitoring and Treatment Plan).

ATTACHMENT B: SAN DIEGO NATURAL HISTORY MUSEUM, DEPARTMENT OF PALEOSERVICES AUTHORIZATIONS

United States Department of the Interior
FIELDWORK REQUEST AND AUTHORIZATION
PALEONTOLOGICAL INVESTIGATIONS

DI Form 1991
(BLM Rev July 2005)

Authorization to conduct Paleontological studies on public lands managed by the Bureau of Land Management under the authority of:

☒ The Antiquities Act of 1906 (P.L. 59-209; 34 Stat. 225, 16 U.S.C. 431-433) and its regulations (43 CFR 3).

☒ Bureau-specific statutory and/or regulatory authority: Federal Land Policy and Management Act of 1976 (Public Law 94-570), and Section 302 of Public Law 94-4579

Please use this number when referring to this permit

No.: CR CA-670-08-088FA04

1. Applicant (Business/Firm) and BLM State Permit Number San Diego Natural History Museum (BLM State Permit CA-10-00-009P)	**2. Application date:** 9/12/2012
3. Address	**4. Telephone number(s)** **5. E-mail address(es)**

6. Name of Permit Administrator Thomas A. Demere **Telephone number(s):** **Email address(es):**	**7. Name of Principal Investigator(s)** Thomas A. Demere; Sarah A. Siren **Telephone number(s):** **Email address(es):**
8. Name of Field Director(s) authorized to carry out field projects Thomas A. Demere; Sarah A. Siren	**Telephone number(s):** **Email address(es):**

9. Nature of paleontological fieldwork proposed:

☒ **Survey and limited surface collection.** ☐ **Excavation**

Briefly describe: Conduct paleontological resource monitoring and fossil collection during the construction of the East County (ECO) Substation project site in San Diego County, California (see attached map). Field observations will document geologic contacts, strata, and fossil occurences, as per the Paleontological Resource Plan and the BLM PYFC.

10. Location of proposed work (attach topographic map copy with project boundaries
San Diego County

11. Dates of proposed work: **From:** 9/12/2012 **To:** 9/12/2014

12. Name and address of the curatorial facility in which collections, records, data, photographs, and other documents resulting from work under this permit shall be deposited for permanent preservation on behalf of the United States Government.
Department of Paleontology, San Diego Natural History Museum

13. Permittee is required to observe the listed standard permit conditions and the special permit conditions attached to this permit.

14. Signature and title of applicant: [signature], Paleontological Field Manager	**15. Date** 9/12/12
16. Signature and title of approving official: [signature]	**17. Date** 9/18/12

ATTACHMENT C: PALEONTOLOGICAL DISCOVERY FORMS

United States
Department of the Interior
Bureau of Land Management

Form 8270-3 (Temporary)
May 1994

Paleontological Locality Form

1. Permit #/Permittee:
2. Repository/Accn.#:
3. Locality #: _____ ❑ Plant ❑ Vertebrate ❑ Invertebrate ❑ Other
4. Formation (and subunit): _____
5. Age: _____ 6. County: _____
7. BLM District: _____ 8. Resource Area: _____
9. Map name: _____10. Map source: _____
11. Map size: _____12. Map edition: _____
13. UTM Grid: NAD____ Zone_____ _____ m E _____ m N
14. Latitude (deg., min., sec., direction): _____

    Longitude (deg., min., sec., direction): _____
15. Survey (Sec., T & R): _____
16. Taxa Collected/observed: _____

_____

17. Collector: _____ 18. Date: _____
19. Remarks: _____

_____

_____

_____

_____

_____

_____

_____

ECO SUBSTATION PROJECT
PALEONTOLOGICAL MITIGATION MONITORING DISCOVERY FORM

Date:	**Discovery Date:**	**Project Discovery No.:**
Project Element:		
Environmental Lead:		**Notification Date:**
Principal Investigator(s):		**Notification Date:**
Project Superintendent:		**Notification Date:**
BLM Contact:		**Notification Date:**
Stratigraphic Rock Unit & Age:		
Description of Earthwork:		
Description of Discovery:		
Fossils Collected		
Action Required:		
Photos:	**Field Notes:**	
Paleontological Monitor	**Principal Investigator**	

Bureau of Land Management

(State/District/Field Office)

Address
City, State, Zip Code

BLM Verification of Collections (completed by BLM)	
BLM Official:	
Date Received:	

REPOSITORY RECEIPT FOR COLLECTIONS

Artifacts and specimens recovered from BLM-administered lands are Federal property, and must be managed in a manner consistent with Federal stewardship responsibilities for museum collections. Cultural or paleontological resource permits for collecting activities require that the permittee arrange for curation of artifacts and specimens in an appropriate repository. Collections must be deposited in a repository for curation within one year of completion of the permitted project, unless alternate arrangements have been approved by the BLM permitting official.

This Deposition of Museum Collections Confirmation and Inventory form is required as a condition of the permit and must be completed for all museum collections originating from BLM administered lands, with the associated documentation, to ensure collections are deposited in an appropriate curatorial facility. A receiving document generated by the repository may be substituted if it contains the same information as this form.

Instructions

1. All information requested on this form must be completed by the permittee and repository officials.
2. Permittees must provide an itemized inventory of the objects, lots, samples, and associated documentation to be deposited attached to this statement. The inventory must include site or locality designation, number of units per material type according to BLM and the repository standards. A complete collection includes:
   - All artifacts, specimens, and environmental materials collected with provenience data
   - All survey or excavation records and logs
   - All maps showing locations and boundaries
   - All valid photographs, negatives, and slides
   - All analysis records, and copies of all reports and publications
3. A repository official must acknowledge receipt of the collection. Before signing, the repository official should compare the inventory to the actual objects and records being deposited.
4. If the permittee and the Repository Official are the same individual, an additional Repository Official must be signatory to this form.
5. After this form has been signed by the repository official, the original form with the collection inventory must be submitted the BLM State Archaeologist by the permittee.
6. Upon submission to BLM, the BLM official may contact the repository to verify the inventory of collections deposited by the permittee.

Permittee Information

Permit Number: _____ Project Name and Number: _____

Permittee Name: _____

Address: _____

City, State Zip Code:

Telephone Number:

Certification of Collection Deposition in Repository by Permittee

I,_____(Permittee) certify that _____(name of repository) has on this date, _____, accepted the collections of objects, lots, samples, and associated documentation described on the attached inventory.

Signature: _____ Date: _____

Complete or Partial Deposit (check one)

____ I certify that the inventory represents all materials and associated documentation from the work performed under this permit (complete deposit).

____ I certify that this represents a portion of the materials and associated documentation. The attached sheet lists what materials are not yet deposited, the reason they are not deposited at this time and when they are expected to be deposited (partial deposit).

Curation Facility Information

Repository Name: _____

Address: _____

City, State Zip Code: _____

Telephone Number: _____

Official Authorizing Receipt (name and title): _____

Accession Number Assigned by the Repository: _____

Receipt of Collection Statement by Repository Official

I, _____ (Repository Official) certify that the _____(name of facility) has on this date,_____, accepted the collections of objects, lots, samples, and associated documentation described on the attached inventory from _____(permittee).

Signature: _____ Date: _____

Bureau of Land Management
COLLECTION INVENTORY FORM

Permit Number: _____
Repository Name: _____
Repository Accession Number: _____

Discipline: _____ **Archaeology**
(check one) _____ **Paleontology**

Site or Locality Number	**Catalog Numbers** or **Field Specimen Numbers**	**Material Type**	**Quantity**	**Unit Type** object, bag, cubic feet, linear feet, other (specify)	**Comments**
		TOTAL ITEMS:		Objects Bags (lot) Cubic Feet (lot) Linear Feet (archival lot)	