TABLE OF CONTENTS

4.5 CULTURAL RESOURCES 4.5-1
4.5.0 Introduction 4.5-1
4.5.1 Methodology 4.5-1
4.5.2 Existing Conditions 4.5-3
4.5.3 Impacts 4.5-10
4.5.4 Applicant-Proposed Measures 4.5-13
4.5.5 References 4.5-15

LIST OF TABLES

Table 4.5-1: Previously Recorded Sites 4.5-8

LIST OF ATTACHMENTS

Attachment 4.5-A: Cultural Resources Survey Report
Attachment 4.5-B: NAHC Correspondence
Attachment 4.5-C: Paleontological Resource Assessment

CHAPTER 4 – ENVIRONMENTAL IMPACT ASSESSMENT

4.5 CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Measures	Less-Than-Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	❒	❒	☑	❒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	❒	❒	☑	❒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	❒	❒	☑	❒
d) Disturb any human remains, including those interred outside of formal cemeteries?	❒	❒	☑	❒

4.5.0 Introduction

This section describes cultural resources identified within the San Diego Gas & Electric Company (SDG&E) South Bay Substation Relocation Project (Proposed Project) site and identifies potential impacts that could result from construction, operation, or maintenance of the Proposed Project. Cultural resources include archaeological sites, sacred sites, traditional cultural properties, rock art, rock piles or cairns, historic buildings, and other features of the historic built environment. Cultural resources identified within the Proposed Project site are limited to prehistoric and historic archaeological sites. There is a moderate sensitivity for paleontological resources in one of the geologic formations that underlays the substation. With the implementation of applicant-proposed measures (APMs), potential impacts to cultural and paleontological resources that may result from the Proposed Project would be reduced to a less-than-significant level.

4.5.1 Methodology

Cultural Resources

Records Search

Site record and archival searches were completed at the South Coastal Information Center (SCIC) of the California Historic Resources Information System, San Diego State University, and at the San Diego Museum of Man. The records search study area encompassed a one-mile radius around the Proposed Project site. Extant historic maps, historic registers, landmark lists, and other documents were consulted. Previous archaeological survey projects and all cultural resources within the study area were identified in the records search. A cultural resources survey

report was prepared for the Proposed Project and has been included as Attachment 4.5-A: Cultural Resources Survey Report.

Native American Contacts

The Native American Heritage Commission (NAHC) was contacted for a Sacred Lands Record Search and for a list of the appropriate Native American representatives to contact for input on the Proposed Project. This correspondence is included in Attachment 4.5-A: Cultural Resources Survey Report. The NAHC failed to indicate the presence of any sensitive locations in the vicinity of the Proposed Project. However, the NAHC provided a list of local Native American contacts that may be knowledgeable of cultural resources within or near the Proposed Project area. Letters have also been sent to these representatives, copies of which are included in Attachment 4.5-B: NAHC Correspondence.

Archaeological Survey

RECON Environmental Inc. (RECON) archaeologists conducted cultural resources fieldwork on April 4 and 5, 2007. The purpose of the archaeological survey was to relocate and update previously recorded sites, as well as to obtain new field data on the presence/absence of archaeological sites in the Proposed Project area. The 2007 survey included an inspection of all accessible areas within the area of potential effect (APE), as shown in Attachment 4.5-A: Cultural Resources Survey Report. Because the H & Bay Yard and the fly yard are developed areas, they were not surveyed. The APE includes two easements that house the transmission lines, the 33-acre liquefied natural gas (LNG) site, and a portion SDG&E's existing 300-foot-wide right-of-way (ROW) located east of Bay Boulevard. The first easement is located directly adjacent to the west side of the unused San Diego and Arizona Eastern Railroad and traverses the Proposed Project area in a generally north-to-south direction. This easement varies in width from approximately 150 feet near Marina Drive to approximately 300 feet within the LNG site. The second easement comprises an approximately 10.47-acre triangular-shaped area located directly northeast of the existing South Bay Substation. The eastern edge of this triangular-shaped area is located directly adjacent to the aforementioned easement. A 10-meter interval between archaeologists was maintained during the survey, except where terrain and brush density made it impractical. Areas with good ground visibility were sought out and examined carefully, including rodent holes and other disturbed areas. As appropriate, an opportunistic survey approach was used to access areas with good ground visibility.

Paleontological Resources

A review was conducted of relevant published geologic reports (Kennedy and Tan 1977; Tan 2002), unpublished paleontological reports (Deméré and Walsh 1993), and museum paleontological site records (San Diego Natural History Museum [SDNHM] 2009). This approach was utilized due to the direct relationship between paleontological resources and the geologic formations within which they occur. A paleontological resource assessment technical report was prepared for the Proposed Project and has been included as Attachment 4.5-C: Paleontological Resource Assessment.

4.5.2 Existing Conditions

Regulatory Background

Federal

National Historic Preservation Act

The National Historic Preservation Act requires federal agencies to consider the effects of their undertakings on historic properties. Historic properties are cultural resources (archaeological sites, historic built environment features, or Native American sites) that are listed on or determined to be eligible for listing on the National Register of Historic Places (NRHP). The governing regulation, Section 106, 36 Code of Federal Regulations (CFR) Part 800, requires the project's lead federal agency to consult with the State Historic Preservation Officer regarding potential impacts to historic properties.

American Indian Religious Freedom Act of 1978

The American Indian Religious Freedom Act establishes a federal policy of respect for, and protection of, Native American religious practices. It also contains provisions that allow limited access to Native American religious sites.

Native American Graves Protection and Repatriation Act of 1990

The Native American Graves Protection and Repatriation Act (NAGPRA) provides for the repatriation of certain items from the federal government and certain museums to the native groups to which they once belonged. The act defines "cultural items," "sacred objects," and "objects of cultural patrimony," and establishes a means for determining ownership of these items. However, the provisions for repatriation only apply to items found on federal lands.

Executive Orders 13007 and 13084

Executive Order 13007 requires federal agencies with land management responsibilities to allow access to and use of Native American sacred sites on public lands and to avoid adversely affecting these sites. Executive Order 13084 reaffirms the government-to-government relationship between the federal government and recognized Native American Indian tribes, and requires federal agencies to establish procedures for consultation with tribes. These executive orders only apply to projects that are federal undertakings or have federal involvement.

Archaeological Resources Protection Act

The Archaeological Resources Protection Act of 1979 applies to projects that are located on public lands and Native American lands. The purpose of this act is "the protection of archaeological resources and sites which are on public lands and Indian lands, and to foster increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals having collections of archaeological resources and data which were obtained before the date of the enactment of this Act."

State

California Register of Historical Resources

The California Register of Historical Resources (CRHR) is a public listing of specific properties to be "protected from substantial adverse change." Any resource eligible for listing in the CRHR must also be considered under the California Environmental Quality Act (CEQA), described in this section under California Public Resources Code (PRC) Section 21000, *et seq*. and California Code of Regulations, Title 14, Section 15000, *et seq*.

A historical resource may be listed in the CRHR if it meets one or more of the following criteria:

- It is associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States.
- It is associated with the lives of persons important to local, California, or national history.
- It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic value.
- It has yielded or has the potential to yield information important in the prehistory or history of the local area, California, or the nation.

Automatic listings include properties listed in the NRHP, determined eligible either by the Keeper of the National Register or through a consensus determination on a project review, or State Historical Landmarks from number 770 onward. In addition, Points of Historical Interest nominated from January 1998 onward are to be jointly listed as Points of Historical Interest and in the CRHR. Landmarks prior to number 770 and Points of Historical Interest may be listed through an action of the State Historical Resources Commission.

Resources listed in a local historic register or deemed significant in a historical resources survey, as provided under PRC Section 5024.1(g), are presumed to be historically or culturally significant unless the preponderance of evidence demonstrates that they are not. A resource that is not listed on or determined to be ineligible for listing in the CRHR, not included in a local register of historical resources, or not deemed significant in a historical resources survey may, nonetheless, be historically significant (PRC Section 21084.1 and Section 21098.1).

Native American Graves Protection and Repatriation Act of 2001, California Health and Safety Code

Broad provisions for the protection of Native American cultural resources are contained in the California Health and Safety Code, Division 7, Part 2, Chapter 5 (Sections 8010 through 8030), including the NAGPRA. NAGPRA established a state policy to ensure that California Native American human remains and cultural items are treated with respect and dignity. The NAGPRA also provides the mechanism for disclosure and return of human remains and cultural items held by publicly funded agencies and museums in California. Likewise, the NAGPRA outlines the process that California Native American tribes who are not recognized by the federal government may follow to file claims for human remains and cultural items held in agencies or museums.

California Public Resources Code

Several provisions of the PRC govern archaeological finds in terms of human remains, or any other related object of archaeological or historical interest or value. Procedures are detailed under PRC Section 5097.9 through 5097.996 for actions to be taken whenever Native American remains are discovered. Furthermore, Section 7050.5 of the California Health and Safety Code states that any person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes any human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor, except as provided in Section 5097.99 of the PRC. Any person removing any human remains without authority of law or written permission of the person or persons having the right to control the remains under PRC Section 7100 has committed a public offense that is punishable by imprisonment.

Paleontological resources are limited, non-renewable resources of scientific, cultural, and educational value that are protected under the CEQA (PRC 21000 *et seq.*). CEQA and PRC Section 5097, *et seq*. govern the preservation and protection of these resources.

Ethnographic Overview

The Kumeyaay (also known as Kamia, Ipai, Tipai, and Diegueño) occupied the southern two-thirds of San Diego County between 1000 B.C. and A.D. 1000 and lived in semi-sedentary, politically autonomous villages or rancherias. The settlement system typically consisted of two or more seasonal villages with temporary camps radiating away from these central places (Cline 1984). A "permanent" village, as recorded by early European explorers, probably consisted of an area that was regularly utilized by local band members for a large part of the yearly cycle (Luomala 1978:597). Their economic system consisted of hunting and gathering, with a focus on small game, acorns, grass seeds and other plant resources. The most basic social and economic unit was the patrilocal extended family. The Kumeyaay usually cremated their dead until the Spanish period (Davis 1921; Luomala 1978; Waterman 1910).

A wide range of tools were made of locally available and imported materials. A simple shoulder-height bow was utilized for hunting. Arrows had either fire-hardened wood or flaked stone points. Numerous other flaked stone tools were made, including scrapers, choppers, flake-based cutting tools, and biface knives. Preferred stone materials were locally available metavolcanics, cherts, and quartz. Obsidian was imported from the deserts to the north and east.

Ground stone objects included mortars and pestles typically made of locally available, fine-grained granite like that found in the Proposed Project area. Both portable and bedrock types were known. Simple basin metates and cobble manos were also used for grinding grass seeds and other items.

The Kumeyaay made fine baskets, employing either coiled or twined construction. Some finer coiled-construction baskets were watertight and were used for carrying water. The Kumeyaay also made pottery using the paddle-and-anvil technique. Most were a plain brown utility ware called Tizon Brownware, but some simple painted line decoration occurred, as did fingernail and stick incising. The ceramic tradition was not well developed and relatively few pottery shapes were made (Meighan 1954; May 1976 and 1978).

Historic Overview

Prehistoric Background

The prehistoric cultural sequence in San Diego County is generally conceived as comprising three basic periods—the Paleoindian, dating between about 11,500 and 8,500 years ago and manifested by the artifacts of the San Dieguito Complex; the Archaic, lasting from about 8,500 to 1,500 years ago and manifested by the cobble and core technology of the La Jollan complex; and the Late Prehistoric represented by the Cuyamaca Complex. The Cuyamaca Complex is marked by the appearance of ceramics, small arrow points, and cremation burial practices. The Kumeyaay occupied the general area of the Proposed Project.

The Paleoindian Period in San Diego County is most closely associated with the San Dieguito Complex, as identified by Rogers (1938, 1939, 1945). A typical San Dieguito assemblage consists of scraper planes, choppers, scraping tools, crescentics, elongated bifacial knives, and leaf-shaped points. The most thoroughly investigated San Dieguito component in San Diego County is CA-SDI-149 (the C.W. Harris site), located on a terrace overlooking the San Dieguito River. At this location, distinctive San Dieguito materials were found stratigraphically below Archaic Period artifacts, locally manifested as the La Jollan Complex, and below an organic stratum that was radiocarbon dated to before 9,030 ± 350 years before present (B.P.), or about 7080 B.C. The San Dieguito Complex is thought to represent an early emphasis on hunting (Warren et al. 1993: III-33). The C.W. Harris Site (CA-SDI-149) is the only securely dated site with a clearly defined San Dieguito component in San Diego County (Warren et al. 1993: III-12).

The Archaic period brings an apparent shift toward a more generalized economy and an increased emphasis on seed resources, small game, and shellfish. The local cultural manifestations of the Archaic Period are called the La Jollan Complex along the coast and the Pauma Complex inland. Pauma Complex sites lack the shell that dominates many La Jollan sites. Along with an economic focus on gathering plant resources, the settlement system appears to have been more sedentary. The La Jollan assemblage is dominated by rough, cobble-based choppers and scrapers, and slab and basin metates.

The earliest radiocarbon dates for La Jollan sites are from approximately 8600 B.P. Thus, there is an overlap of some 200 years between the temporal range of the Paleoindian Period San Dieguito and the early Archaic Period La Jollan. This overlap is the source of considerable controversy about the relationship between the San Dieguito and La Jollan Complexes (Warren et al. 1993). The two main positions are:

- San Dieguito temporally precedes and overlaps the La Jollan (Warren 1987), and
- San Dieguito and La Jollan are different environmental adaptations of one culture (Gallegos 1987).

Near the coast and in the Peninsular Mountains beginning as far back as approximately 1,500 years ago, patterns began to emerge that seem to suggest the ethnohistoric Kumeyaay (Moratto 1984). The Late Prehistoric period is characterized by higher population densities and elaborations in social, political, and technological systems. Economic systems diversify and

intensify during this period, with the continued elaboration of trade networks, the use of shell-bead currency, and the appearance of more labor-intensive, but effective technological innovations.

The late prehistoric archaeology of the San Diego coast and foothills is characterized by the Cuyamaca complex (True 1970). The Cuyamaca complex is characterized by the presence of steatite arrowshaft straighteners, steatite pendants (some of these steatite items are incised with crosshatching), steatite comales (heating stones, some of which are biconically drilled on one end), Tizon Brownware pottery, ceramic figurines reminiscent of Hohokam styles, ceramic "Yuman bow pipes," ceramic rattles, miniature pottery, various cobble-based tools (e.g., scrapers, choppers, hammerstones), bone awls, manos and metates, mortars and pestles, and Desert Side-Notched (more common) and Cottonwood Series projectile points. The practice of cremation and ceramic styles were introduced from the Colorado River area (True 1970).

Historic Background

The historic period began in the San Diego area with the voyage of Juan Rodríguez Cabrillo, who landed near Point Loma on September 28, 1542. Although several expeditions were later sent to explore the Alta California coast, for nearly two centuries following Cabrillo's voyage, the Spanish government showed little interest in the region, focusing instead on the Mexican mainland and Baja California. In the 1760s however, spurred on by the threat to Spanish holdings in Alta California by southward expansion of the Russian sphere of influence, the Spanish government began planning for the colonization of Alta California (Rolle 1978).

The Spanish originally planned to establish their first settlement in Alta California at San Diego, using a four-pronged expedition. Two groups were to arrive by sea and two by land. The various expeditions departed from their respective locations throughout the first half of 1769. The two ships and both over-land parties eventually reached San Diego. A third supply ship was dispatched to join the expedition, but it was apparently lost at sea. The colonists succeeded in establishing Mission San Diego de Alcala on July 16, 1769 at the present-day location of Presidio Park. The mission was moved inland to its present location after the original setting proved unsatisfactory. The Presidio remained on the hillside, overlooking present day Old Town and the mouth of the San Diego River, but it gradually fell into disrepair. Occupants of the Presidio made their way to Old Town and contributed to the development of this very early settlement in the San Diego region.

For the next 50 years, mission influence grew in Southern California. Mission San Luis Rey de Francia, north of San Diego in present-day Oceanside, was established on June 13, 1798 (James 1912) and other missions and Presidios were established along the coast of California. The mission economy was based on farming and open-range ranching over vast expanses of territory. Ranching included both sheep and cattle.

As part of their colonization goals, the church hierarchy was obligated to convert the native people to Christianity, and the church worked diligently at converting the local aboriginal populations. The mission priests gathered as many Kumeyaay to the mission as possible. Once there, the neophytes essentially were held captive while they received religious instructions and provided free labor for the mission, often forcibly. The effects of mission influence upon the

local native population were devastating. The reorganization of their traditional lifestyle alienated them from their previous subsistence patterns and social customs. European diseases, for which the Kumeyaay had no immunity, reached epidemic proportions, and many died.

Mexican independence from Spain in 1821 was followed by secularization of the California missions in 1832. Between 1833 and 1845, the newly formed Mexican government divided up the immense church holdings into land grants. By the 1840s, ranches, farms, and dairies were being established throughout the El Cajon Valley, along the Sweetwater River, and in nearby areas.

The Rancho era in California was short-lived and, in 1848, Mexico ceded California to the United States under the Treaty of Guadalupe Hidalgo. Growth of the region was comparatively rapid after succession. Subsequent gold rushes, land booms, and transportation development all played a part in attracting settlers to the area. San Diego County was established in 1850, the same year that the City of San Diego was incorporated. Over the next 20 years, the county's population increased six-fold and the city population more than tripled (San Diego Historical Society 2004). By the late 1800s, the county was still growing and a number of outlying communities developed around the old ranchos and land grants; in particular, areas in the southern limits of the county (Collett and Cheever 2002).

Throughout the early twentieth century, most of San Diego County remained rural. Like most of Southern California, the region changed rapidly following World War II, when the pace of migration and growth quickened.

Cultural Resources in the Proposed Project Area

Records Search Results

The results of the record search indicate that two previously recorded sites are within the Proposed Project's APE. One previously recorded site—CA-SDI-4886 (SDMM-W-5363)—consists of an isolated artifact and is located within the Proposed Project site. The other previously recorded site—CA-SDI-13073H (SDMM-W-7678)—is located immediately adjacent to the eastern boundary of the Proposed Project site. The previously recorded sites are summarized in Table 4.5-1: Previously Recorded Sites and described further in this section.

Table 4.5-1: Previously Recorded Sites

Site Number	San Diego Museum of Man Number	Site Description	Date Recorded	Site Evaluated?
CA-SDI-4886	SDM-W-5363	Flaked Lithic Tool	1977 Toren	No
CA-SDI-13073H	SDM-W-4886	Historic/Railroad line	1993 Laylander	No

Source: Price, 2010

CA-SDI-4886 (SDMM-W-5363) is an isolated artifact mapped within the Bay Boulevard Substation site. It was recorded in 1977 and consists of a flaked lithic tool (scraper). The location of the isolated artifact was highly disturbed by miscellaneous public dumping, as well as grading and vehicle traffic assumed to have been associated with the former LNG facilities.

CA-SDI-13073H (SDMM-W-7678) is the Coronado Belt Line Railroad line, which ran along the eastern edge of the Bay Boulevard Substation site and directly adjacent to the existing SDG&E transmission corridor. The Coronado Belt Line Railroad was constructed in 1888, as part of the currently unused San Diego and Arizona East Railway, to service Coronado and the communities along San Diego Bay. In February 2002, the Coronado Belt Line Railroad line was listed on the California Register of Historic Resources by the State Historical Resources Commission; however the State Historic Preservation Office requested a redetermination of the listing. In November 2002, the SHRC, based on new information, determined that the resource was ineligible for listing and it is therefore, not currently on the California Register. On August 3, 2005, 1.5 miles of the Coronado Belt Line within the City of San Diego was designated City of San Diego Historical Landmark No. 640. The segment of the rail line that runs through the Proposed Project boundaries is within the City of Chula Vista and is not listed as a historic landmark.

Archaeological Field Survey Results

No new cultural resources were identified during the survey of the Proposed Project area. CA-SDI-13037H (SDMM-W-7678) was identified immediately adjacent to the property boundary and relocated. CA-SDI-13037H (SDMM-W-7678) appeared to be in the same condition as it was when recorded in 1993. CA-SDI-4866 (SDMM-W-5363) was not relocated, and a parking lot now exists in the mapped location of this resource. The entire survey area has been disturbed and/or developed.

Paleontological Resources in the Proposed Project Area

There are no museum fossil-collecting localities recorded within the Proposed Project area, or within a one-mile radius. The nearest recorded localities occur approximately 3.3 miles east and northeast of the Proposed Project. Both localities occur within Pleistocene-age alluvial/fluvial deposits mapped as the Bay Point Formation by Kennedy and Tan (1977). The following section discusses the paleontological resource potential of the paleontologically sensitive geologic rock units that have been mapped within, or have the potential to be encountered within, the Proposed Project area.

Kennedy and Tan (1977) mapped the sedimentary deposits underlying the locations of the existing South Bay Substation and the Bay Boulevard Substation sites as an undifferentiated mixture of Quaternary-age (probably Holocene) alluvium and slope wash. The Quaternary alluvium consists primarily of silts, sands, and gravels transported and deposited by the Sweetwater River. These deposits are assumed to be entirely Holocene in age, (approximately 0 to 10,000 years old) and are generally considered too young to yield scientifically significant paleontological resources. Due to the relatively young age of Quaternary alluvial deposits, these sediments are assigned a low resource sensitivity rating. All of the Proposed Project components cross the Quaternary alluvium.

The Bay Point Formation (Kennedy 1975) represents a sequence of marine and/or non-marine sedimentary deposits of late Pleistocene age (approximately 0.1 to 0.5 million years old). Typical exposures consist of light brown to gray, fine- to coarse-grained, micaceous, friable sandstones and pebble conglomerates. The Bay Point Formation varies in thickness from less than 10 feet to over 100 feet, and is thought to have been deposited under fluvial, aeolian, and/or

shallow nearshore marine conditions (Kennedy 1975). In the Chula Vista bayfront region of San Diego Bay, sedimentary rocks of the Bay Point Formation are not associated with a wave-cut platform, and instead occur as a thick sequence of primarily non-marine deposits that accumulated in the structural graben formed by faulting within the La Nacion and Rose Canyon fault zones. Fossil localities are locally common in the Bay Point Formation and have been recorded from a number of coastal sites from Carlsbad to Chula Vista. While there are no recorded museum localities within the sedimentary deposits of the Bay Point Formation in the immediate vicinity of the project site, correlative strata are known to be fossiliferous. The nearest recorded Bay Point Formation localities occur in non-marine fluvial sandstones exposed east of Hilltop Drive in Chula Vista (SDNHM Locality 4839). A single, well-preserved lower leg bone of a fossil rabbit (cf. Lepus sp.) was collected from this locality.

Kennedy and Tan (1977) mapped sedimentary deposits of the Pleistocene-age Bay Point Formation on the east side of Bay Boulevard, less than 600 feet from the proposed site of the Bay Boulevard Substation. The presence of mapped outcrops of the Bay Point Formation so close to the Proposed Project area suggests that excavations on the project site may penetrate through the Holocene-age alluvium and into buried Pleistocene-age strata of the Bay Point Formation. Boring samples taken as part of the Geotechnical Investigation for the Proposed Project found that the Bay Point Formation was encountered at depths as shallow as four feet and as deep as 14 feet below the present ground surface. However, in the immediate vicinity of the Bay Boulevard Substation site, the Bay Point Formation appears to consistently occur between seven and 8.5 feet below the present ground surface. The Bay Point Formation has been assigned a high paleontological resource sensitivity (Deméré and Walsh 1993).

4.5.3 Impacts

Significance Criteria

Cultural Resources

Under the CEQA, Proposed Project construction or operation and maintenance effects to unique or important resources must be considered. A resource is unique or important if it meets any of the following criteria:

- Is associated with an event or person of recognized importance in California or American history or scientific importance in prehistory
- Can provide useful information of demonstrable public interest and is useful in addressing scientifically consequential and reasonable archaeological research questions
- Has a special or particular quality, such as oldest, best example, largest, or last surviving example of its kind
- Is at least 100 years old and possesses substantial stratigraphic integrity
- Involves important research questions that historical research has shown can only be answered with archaeological methods

Construction-related subsurface and surface disturbances could result in a loss of integrity of cultural deposits, a loss of scientific information, and the alteration of an archaeological site setting. Potential indirect impacts, primarily vandalism, can result from increased access and use of the general area during construction and long-term operation and maintenance activities. The potential also exists for the inadvertent discovery of buried or masked archaeological materials during construction activities.

Impacts to cultural resources would be considered significant if the Proposed Project:

- Causes a substantial adverse change in the significance of a historical resource, as defined in Section 15064.5 of the CEQA Guidelines
- Causes a substantial adverse change in the significance of an archaeological resource, pursuant to Section 15064.5 of the CEQA Guidelines
- Disturbs any human remains, including those interred outside of formal cemeteries

"Substantial adverse change" means demolition, destruction, relocation, or alteration such that the significance of a historical resource would be impaired. Section 21084.1 of the CEQA Guidelines stipulates that any resource listed on, or eligible for listing on, the CRHR is presumed to be historically or culturally significant. Section 21084.1 treatment of any substantial adverse change in the significance of a historical resource listed on, or eligible to be listed on, the CRHR as a significant effect on the environment.

Paleontological Resources

Impacts to paleontological resources would be considered significant if the Proposed Project directly or indirectly destroys a unique paleontological resource or site or unique geologic feature. Because fossils are the remains of prehistoric animal and plant life, they are considered to be non-renewable. Impacts to paleontological resources are identified from high to zero depending on the resource sensitivity of impacted formations. The specific criteria applied for each sensitivity category are summarized as follows:

- High significance: Impacts to high-sensitivity formations (Bay Point Formation)
- Moderate significance: Impacts to moderate-sensitivity formations (none expected within the Proposed Project boundaries)
- Low significance: Impacts to low-sensitivity formations (Quaternary alluvium)
- Zero significance: Impacts to zero-sensitivity formations (artificial fill)

Question 4.5a – Historical Resource Change

Construction – Less-than-Significant Impact

Based on archival information and survey results, no historic resources are located within the Proposed Project area. Since the Coronado Belt Line Railroad line has been removed from the CRHR and only the section in the City of San Diego is listed in their historic landmark register, the Proposed Project, including the new railroad crossing, would not have an adverse effect on historical resources, and no impacts are anticipated.

Construction of the Proposed Project would involve grading, trenching, and excavation activities, which have the potential to uncover and potentially damage or destroy unknown resources. To minimize potential impacts to unknown resources, SDG&E would implement the APMs discussed in Section 4.5.4 Applicant-Proposed Measures, which include receiving a training of appropriate work practices prior to construction, and halting work and contacting SDG&E's archaeologist if a cultural resource is discovered. Impacts to unknown resources would therefore be reduced to a less-than-significant level.

Operation and Maintenance – No Impact

Operation and maintenance activities associated with the Proposed Project would be conducted in areas previously disturbed during construction of the Proposed Project. As the Coronado Belt Line Railroad line has been removed from the CRHR and the Proposed Project is outside of the area designated by the City of San Diego, the Proposed Project would not have an adverse effect on historical resources. Therefore, no impact would occur.

Question 4.5b – Archaeological Resource Change

Construction – Less-than-Significant Impact

As discussed in the response to Question 4.5a, no cultural resources or cultural resource sites are located within the Proposed Project area. However, ground-disturbing construction activities—including the grading and excavation necessary to develop the Bay Boulevard Substation site and trenching activities necessary to install the underground duct banks—have the potential to inadvertently impact unknown cultural resources within the Proposed Project area. These activities disturb subsurface soils and can potentially disturb or destroy unknown buried cultural deposits (archaeological sites). These potential impacts would be reduced to a less-than-significant level with the implementation of the APMs discussed in Section 4.5.4 Applicant-Proposed Measures, which include receiving a pre-construction training regarding the appropriate work practices necessary to effectively implement the APMs and to comply with the applicable environmental laws and regulations, and halting work and contacting SDG&E's archaeologist if a cultural resource is discovered.

Operation and Maintenance – No Impact

Operation and maintenance activities associated with the Proposed Project would be conducted in areas that were previously disturbed during construction of the Proposed Project. As no significant cultural resources have been identified in the Proposed Project area, impacts to cultural resources are not anticipated during operation and maintenance of the Proposed Project.

Question 4.5c – Paleontological Resource Destruction

Construction – Less-than-Significant Impact

Direct impacts to paleontological resources occur when earthwork activities, such as mass grading, excavation, and trenching operations, cut into the geological deposits (formations) within which fossils are buried. These direct impacts occur in the form of physical destruction of the fossil locality and the contained fossil remains. As previously discussed, the top of the Bay Point Formation within the immediate vicinity of the Bay Boulevard Substation site varies from seven to 8.5 feet below the ground surface. The Proposed Project would involve embedding the

69 kV tangent poles to a depth of approximately eight to 12 feet, excavating the trenches of the bore pits to a depth of approximately 10 to 20 feet, and excavating foundation holes to a depth of 20 to 45 feet in order install steel poles for the 230 kilovolt (kV) loop-in, 138 kV extension, and 69 kV relocation work. Therefore, excavation activities associated with the construction of the Bay Boulevard Substation have the potential to impact paleontological resources because the potential for discovery of a sensitive paleontological resource is high within the Bay Point Formation. With implementation of the APMs, which would include monitoring during the original cutting of previously undisturbed deposits of maximum paleontological resource potential (Bay Point Formation) and during the excavation activities that extend deeper than seven feet below ground surface, Proposed Project impacts to paleontological resources would be reduced to a less-than-significant level.

Operation and Maintenance – No Impact

Operation and maintenance activities associated with the Proposed Project would be conducted in areas that were previously disturbed during construction of the Proposed Project. As a result, it is not anticipated that paleontological resources would be encountered during such activities, and there would be no impact.

Question 4.5d – Human Remains Disturbance

Construction – Less-than-Significant Impact

No known cemeteries exist and no recorded Native American or other human remains have been identified within or adjacent to the Proposed Project area. As such, the potential for the unintended discovery of human remains during subsurface construction activities required for the Proposed Project is considered to be low. Regardless, if human remains are encountered during the course of construction, SDG&E would implement the appropriate notification processes as required by law. In the unlikely event that Native American human remains are discovered during construction, work would be halted in the vicinity of the find and the county coroner would be notified, as required by the PRC. As a result, potential impacts would be less than significant.

Operation and Maintenance – No Impact

As previously described, the presence of human remains is considered unlikely in the Proposed Project area. Because Proposed Project operation and maintenance activities would occur in the same areas disturbed for construction, they would have no impact on any human remains.

4.5.4 Applicant-Proposed Measures

When implemented, the following APMs would reduce the potential adverse impacts to cultural resources to a less-than-significant level:

- APM-CUL-01: Prior to construction, all SDG&E, contractor, and subcontractor Project personnel would receive training regarding the appropriate work practices necessary to effectively implement the APMs and to comply with the applicable environmental laws and regulations, including the potential for exposing subsurface cultural resources and paleontological resources and to recognize possible buried resources. This training would include presentation of the procedures to be followed upon discovery or suspected

discovery of archaeological materials, including Native American remains, and their treatment, as well as of paleontological resources.

- APM-CUL-02: In the event that cultural resources are discovered, SDG&E's Cultural Resource Specialist and Environmental Project Manager would be contacted at the time of discovery. SDG&E's Cultural Resource Specialist would determine the significance of the discovered resources. SDG&E's Cultural Resource Specialist and Environmental Project Manager must concur with the evaluation procedures to be performed before construction activities in the vicinity of the discovery are allowed to resume. For significant cultural resources, a Research Design and Data Recovery Program would be prepared and carried out to mitigate impacts.

- APM-CUL-03: All collected cultural remains would be cleaned, cataloged, and permanently curated with an appropriate institution. All artifacts would be analyzed to identify function and chronology as they relate to the history of the area. Faunal material would be identified as to species.

- APM-CUL-04: A qualified paleontologist would attend pre-construction meetings, as needed, to consult with the excavation contractor concerning excavation schedules, paleontological field techniques, and safety issues. A qualified paleontologist is defined as an individual with a Master of Science or Doctor of Philosophy in paleontology or geology who is experienced with paleontological procedures and techniques, who is knowledgeable in the geology and paleontology of San Diego County, and who has worked as a paleontological mitigation project supervisor in the region for at least one year. The requirements for paleontological monitoring would be noted on the construction plans.

- APM-CUL-05: A paleontological monitor, defined as an individual who has experience in the collection and salvage of fossil materials, would work under the direction of the qualified Project paleontologist and would be on site to observe excavation operations that involve the original cutting of previously undisturbed deposits with high paleontological resource sensitivity (i.e., Bay Point Formation). These impacts are likely to occur for all Project-related excavations that extend deeper than seven feet below present existing grades. For those Project-related excavation activities known to be restricted to depths shallower than seven feet, a paleontological monitor would not be needed on site. However, because the Pleistocene-age Bay Point Formation is locally covered by Quaternary alluvium and artificial fill deposits, careful monitoring of deeper excavations in these deposits (i.e., less than six to seven feet) would be necessary to ensure that overall monitoring of the Bay Point Formation is as complete as possible.

- APM-CUL-06: In the event that fossils are encountered, the Project paleontologist would have the authority to divert or temporarily halt construction activities in the area of discovery to allow the recovery of fossil remains in a timely fashion. The paleontologist would contact SDG&E's Cultural Resource Specialist and Environmental Project Manager at the time of discovery. The paleontologist, in consultation with SDG&E's Cultural Resource Specialist, would determine the significance of the discovered

resources. SDG&E's Cultural Resource Specialist and Environmental Project Manager must concur with the evaluation procedures to be performed before construction activities are allowed to resume. Because of the potential for recovery of small fossil remains, it may be necessary to set up a screen-washing operation on site. When fossils are discovered, the paleontologist (or paleontological monitor) would recover them along with pertinent stratigraphic data. In most cases, this fossil salvage can be completed in a short period of time. Because of the potential for recovery of small fossil remains, such as isolated mammal teeth, recovery of bulk-sedimentary-matrix samples for off-site wet screening from specific strata may be necessary, as determined in the field. Fossil remains collected during monitoring and salvage would be cleaned, repaired, sorted, cataloged, and deposited in a scientific institution with permanent paleontological collections. A final summary report would be completed that outlines the results of the mitigation program. The report would discuss the methods used, stratigraphic section(s) exposed, fossils collected, and significance of recovered fossils.

4.5.5 References

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ATTACHMENT 4.5-A: CULTURAL RESOURCES SURVEY REPORT

The Cultural Resources Survey Report has been omitted from this document due to its confidential nature.

ATTACHMENT 4.5-B: NAHC CORRESPONDENCE

1927 Fifth Avenue
San Diego, CA 92101-2357
P 619.308.9333 F 619.308.9334
www.recon-us.com

525 W. Wetmore Rd., Suite 111
Tucson, AZ 85705
P 520.325.9977 F 520.293.3051

1412 W. 6th 1/2 Street
Austin, TX 78703-5150
P 512.913.1200 F 512.474.1184

RECON

A Company of Specialists

April 26, 2010

Mr. Harlan Pinto
Ewilaapaayp Tribal Office
P.O. Box 2250
Alpine, CA 91903-2250

Reference: San Diego Gas & Electric South Bay Relocation Project (RECON Number 4482.2A)

Dear Mr. Pinto:

RECON has been retained by Insignia Environmental on behalf of San Diego Gas & Electric (SDG&E) to complete the survey report for the South Bay Relocation property located in the city of Chula Vista, California. SDG&E proposes replacing the existing South Bay Substation with the new Bay Boulevard Substation. The Proposed Project would involve the following work: construction of the new substation, relocation of 69kV facilities, extension of a 138kV underground duct bank, loop-in of 230kV into the new substation, and demolition of the existing substation. The Proposed Project is located west of Interstate 5 and south of the existing South Bay Substation; this site is shown on the U.S. Geological Survey (USGS) Imperial Beach quadrangle, Township 18 South, Range 2 West, within the La Nacion Land Grant (Figure 2).

A letter requesting identification of spiritually significant and sacred sites or traditional use areas in the proposed project vicinity was sent to the Native American Heritage Commission (NAHC). Pursuant to the letter received in response from Dave Singleton of the NAHC, we are contacting you as a potentially interested party.

We request that you:

1. Supply RECON with specific information about the impact on cultural resources that may be located within the vicinity of the area of potential effect;

2. Refer us to another tribe or person knowledgeable about the cultural resources within the area of potential effect.

Please feel free to contact me if you have questions, comments, or concerns. If we have not heard from you by May 10, 2010, we will assume that you have no comments. Thank you for your assistance.

Sincerely,

Carmen Zepeda-Herman

Carmen Zepeda-Herman
Project Archaeologist

CZH:sjg

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San Diego, CA 92101-2357
P 619.308.9333 F 619.308.9334
www.recon-us.com

525 W. Wetmore Rd., Suite 111
Tucson, AZ 85705
P 520.325.9977 F 520.293.3051

1412 W. 6th 1/2 Street
Austin, TX 78703-5150
P 512.913.1200 F 512.474.1184

RECON

A Company of Specialists

April 26, 2010

Mr. Leroy Elliott
Manzanita Band of Kumeyaay Nation
P.O. Box 1302
Boulevard, CA 91905

Reference: San Diego Gas & Electric South Bay Relocation Project (RECON Number 4482.2A)

Dear Mr. Elliott:

RECON has been retained by Insignia Environmental on behalf of San Diego Gas & Electric (SDG&E) to complete the survey report for the South Bay Relocation property located in the city of Chula Vista, California. SDG&E proposes replacing the existing South Bay Substation with the new Bay Boulevard Substation. The Proposed Project would involve the following work: construction of the new substation, relocation of 69kV facilities, extension of a 138kV underground duct bank, loop-in of 230kV into the new substation, and demolition of the existing substation. The Proposed Project is located west of Interstate 5 and south of the existing South Bay Substation; this site is shown on the U.S. Geological Survey (USGS) Imperial Beach quadrangle, Township 18 South, Range 2 West, within the La Nacion Land Grant (Figure 2).

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525 W. Wetmore Rd., Suite 111
Tucson, AZ 85705
P 520.325.9977 F 520.293.3051

1412 W. 6th 1/2 Street
Austin, TX 78703-5150
P 512.913.1200 F 512.474.1184

RECON

A Company of Specialists

April 26, 2010

Mr. Danny Tucker
Sycuan Band of the Kumeyaay Nation
5459 Sycuan Road
El Cajon, CA 92021

Reference: San Diego Gas & Electric South Bay Relocation Project (RECON Number 4482.2A)

Dear Mr. Tucker:

RECON has been retained by Insignia Environmental on behalf of San Diego Gas & Electric (SDG&E) to complete the survey report for the South Bay Relocation property located in the city of Chula Vista, California. SDG&E proposes replacing the existing South Bay Substation with the new Bay Boulevard Substation. The Proposed Project would involve the following work: construction of the new substation, relocation of 69kV facilities, extension of a 138kV underground duct bank, loop-in of 230kV into the new substation, and demolition of the existing substation. The Proposed Project is located west of Interstate 5 and south of the existing South Bay Substation; this site is shown on the U.S. Geological Survey (USGS) Imperial Beach quadrangle, Township 18 South, Range 2 West, within the La Nacion Land Grant (Figure 2).

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1412 W. 6th 1/2 Street
Austin, TX 78703-5150
P 512.913.1200 F 512.474.1184

RECON

A Company of Specialists

April 26, 2010

Mr. Ron Christman
Kumeyaay Cultural Historic Committee
56 Viejas Grade Road
Alpine, CA 92001

Reference: San Diego Gas & Electric South Bay Relocation Project (RECON Number 4482.2A)

Dear Mr. Christman:

RECON has been retained by Insignia Environmental on behalf of San Diego Gas & Electric (SDG&E) to complete the survey report for the South Bay Relocation property located in the city of Chula Vista, California. SDG&E proposes replacing the existing South Bay Substation with the new Bay Boulevard Substation. The Proposed Project would involve the following work: construction of the new substation, relocation of 69kV facilities, extension of a 138kV underground duct bank, loop-in of 230kV into the new substation, and demolition of the existing substation. The Proposed Project is located west of Interstate 5 and south of the existing South Bay Substation; this site is shown on the U.S. Geological Survey (USGS) Imperial Beach quadrangle, Township 18 South, Range 2 West, within the La Nacion Land Grant (Figure 2).

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1412 W. 6th 1/2 Street
Austin, TX 78703-5150
P 512.913.1200 F 512.474.1184

RECON

A Company of Specialists

April 26, 2010

Mr. H. Paul Cuero, Jr.
Campo Kumeyaay Nation
36190 Church Road, Suite 1
Campo, CA 91906

Reference: San Diego Gas & Electric South Bay Relocation Project (RECON Number 4482.2A)

Dear Mr. Cuero, Jr.:

RECON has been retained by Insignia Environmental on behalf of San Diego Gas & Electric (SDG&E) to complete the survey report for the South Bay Relocation property located in the city of Chula Vista, California. SDG&E proposes replacing the existing South Bay Substation with the new Bay Boulevard Substation. The Proposed Project would involve the following work: construction of the new substation, relocation of 69kV facilities, extension of a 138kV underground duct bank, loop-in of 230kV into the new substation, and demolition of the existing substation. The Proposed Project is located west of Interstate 5 and south of the existing South Bay Substation; this site is shown on the U.S. Geological Survey (USGS) Imperial Beach quadrangle, Township 18 South, Range 2 West, within the La Nacion Land Grant (Figure 2).

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www.recon-us.com

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1412 W. 6th 1/2 Street
Austin, TX 78703-5150
P 512.913.1200 F 512.474.1184

RECON

A Company of Specialists

April 26, 2010

Mr. Leon Acebedo
Jamul Indian Village
P.O. Box 612
Jamul, CA 91935

Reference: San Diego Gas & Electric South Bay Relocation Project (RECON Number 4482.2A)

Dear Mr. Acebedo:

RECON has been retained by Insignia Environmental on behalf of San Diego Gas & Electric (SDG&E) to complete the survey report for the South Bay Relocation property located in the city of Chula Vista, California. SDG&E proposes replacing the existing South Bay Substation with the new Bay Boulevard Substation. The Proposed Project would involve the following work: construction of the new substation, relocation of 69kV facilities, extension of a 138kV underground duct bank, loop-in of 230kV into the new substation, and demolition of the existing substation. The Proposed Project is located west of Interstate 5 and south of the existing South Bay Substation; this site is shown on the U.S. Geological Survey (USGS) Imperial Beach quadrangle, Township 18 South, Range 2 West, within the La Nacion Land Grant (Figure 2).

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1412 W. 6th 1/2 Street
Austin, TX 78703-5150
P 512.913.1200 F 512.474.1184

RECON

A Company of Specialists

April 26, 2010

Ms. Carmen Lucas
Kwaaymii Laguna Band of Mission Indians
P.O. Box 775
Pine Valley, CA 91962

Reference: San Diego Gas & Electric South Bay Relocation Project (RECON Number 4482.2A)

Dear Ms. Lucas:

RECON has been retained by Insignia Environmental on behalf of San Diego Gas & Electric (SDG&E) to complete the survey report for the South Bay Relocation property located in the city of Chula Vista, California. SDG&E proposes replacing the existing South Bay Substation with the new Bay Boulevard Substation. The Proposed Project would involve the following work: construction of the new substation, relocation of 69kV facilities, extension of a 138kV underground duct bank, loop-in of 230kV into the new substation, and demolition of the existing substation. The Proposed Project is located west of Interstate 5 and south of the existing South Bay Substation; this site is shown on the U.S. Geological Survey (USGS) Imperial Beach quadrangle, Township 18 South, Range 2 West, within the La Nacion Land Grant (Figure 2).

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1412 W. 6th 1/2 Street
Austin, TX 78703-5150
P 512.913.1200 F 512.474.1184

RECON

A Company of Specialists

April 26, 2010

Mr. Steve Banegas
Kumeyaay Cultural Repatriation Committee
1095 Barona Road
Lakeside, CA 92040

Reference: San Diego Gas & Electric South Bay Relocation Project (RECON Number 4482.2A)

Dear Mr. Banegas:

RECON has been retained by Insignia Environmental on behalf of San Diego Gas & Electric (SDG&E) to complete the survey report for the South Bay Relocation property located in the city of Chula Vista, California. SDG&E proposes replacing the existing South Bay Substation with the new Bay Boulevard Substation. The Proposed Project would involve the following work: construction of the new substation, relocation of 69kV facilities, extension of a 138kV underground duct bank, loop-in of 230kV into the new substation, and demolition of the existing substation. The Proposed Project is located west of Interstate 5 and south of the existing South Bay Substation; this site is shown on the U.S. Geological Survey (USGS) Imperial Beach quadrangle, Township 18 South, Range 2 West, within the La Nacion Land Grant (Figure 2).

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Project Archaeologist

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P 512.913.1200 F 512.474.1184

RECON

A Company of Specialists

April 26, 2010

Mr. Devon Lomayesva
Santa Ysabel Band of Diegueno Indians
P.O. Box 701
Santa Ysabel, CA 92070

Reference: San Diego Gas & Electric South Bay Relocation Project (RECON Number 4482.2A)

Dear Mr. Lomayesva:

RECON has been retained by Insignia Environmental on behalf of San Diego Gas & Electric (SDG&E) to complete the survey report for the South Bay Relocation property located in the city of Chula Vista, California. SDG&E proposes replacing the existing South Bay Substation with the new Bay Boulevard Substation. The Proposed Project would involve the following work: construction of the new substation, relocation of 69kV facilities, extension of a 138kV underground duct bank, loop-in of 230kV into the new substation, and demolition of the existing substation. The Proposed Project is located west of Interstate 5 and south of the existing South Bay Substation; this site is shown on the U.S. Geological Survey (USGS) Imperial Beach quadrangle, Township 18 South, Range 2 West, within the La Nacion Land Grant (Figure 2).

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Project Archaeologist

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P 512.913.1200 F 512.474.1184

RECON

A Company of Specialists

April 26, 2010

Mr. Clint Linton
P.O. Box 507
Santa Ysabel, CA 92070

Reference: San Diego Gas & Electric South Bay Relocation Project (RECON Number 4482.2A)

Dear Mr. Linton:

RECON has been retained by Insignia Environmental on behalf of San Diego Gas & Electric (SDG&E) to complete the survey report for the South Bay Relocation property located in the city of Chula Vista, California. SDG&E proposes replacing the existing South Bay Substation with the new Bay Boulevard Substation. The Proposed Project would involve the following work: construction of the new substation, relocation of 69kV facilities, extension of a 138kV underground duct bank, loop-in of 230kV into the new substation, and demolition of the existing substation. The Proposed Project is located west of Interstate 5 and south of the existing South Bay Substation; this site is shown on the U.S. Geological Survey (USGS) Imperial Beach quadrangle, Township 18 South, Range 2 West, within the La Nacion Land Grant (Figure 2).

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P 512.913.1200 F 512.474.1184

RECON

A Company of Specialists

April 26, 2010

Mr. Sydney Morris
Sycuan Band of the Kumeyaay Nation
5459 Sycuan Road
El Cajon, CA 92021

Reference: San Diego Gas & Electric South Bay Relocation Project (RECON Number 4482.2A)

Dear Mr. Morris:

RECON has been retained by Insignia Environmental on behalf of San Diego Gas & Electric (SDG&E) to complete the survey report for the South Bay Relocation property located in the city of Chula Vista, California. SDG&E proposes replacing the existing South Bay Substation with the new Bay Boulevard Substation. The Proposed Project would involve the following work: construction of the new substation, relocation of 69kV facilities, extension of a 138kV underground duct bank, loop-in of 230kV into the new substation, and demolition of the existing substation. The Proposed Project is located west of Interstate 5 and south of the existing South Bay Substation; this site is shown on the U.S. Geological Survey (USGS) Imperial Beach quadrangle, Township 18 South, Range 2 West, within the La Nacion Land Grant (Figure 2).

A letter requesting identification of spiritually significant and sacred sites or traditional use areas in the proposed project vicinity was sent to the Native American Heritage Commission (NAHC). Pursuant to the letter received in response from Dave Singleton of the NAHC, we are contacting you as a potentially interested party.

We request that you:

1. Supply RECON with specific information about the impact on cultural resources that may be located within the vicinity of the area of potential effect;

2. Refer us to another tribe or person knowledgeable about the cultural resources within the area of potential effect.

Please feel free to contact me if you have questions, comments, or concerns. If we have not heard from you by May 10, 2010, we will assume that you have no comments. Thank you for your assistance.

Sincerely,

Carmen Zepeda-Herman

Carmen Zepeda-Herman
Project Archaeologist

CZH:sjg

Attachment

ATTACHMENT 4.5-C: PALEONTOLOGICAL RESOURCE ASSESSMENT

TECHNICAL REPORT
PALEONTOLOGICAL RESOURCE ASSESSMENT
SOUTH BAY SUBSTATION RELOCATION PROJECT
CITY OF CHULA VISTA
SAN DIEGO COUNTY, CALIFORNIA

Prepared for:

Insignia Environmental, Inc
540 Bryant Street, Suite 200
Palo Alto, CA 94301

Prepared by:

Department of PaleoServices
San Diego Natural History Museum
P.O. Box 121390
San Diego, California 92112

Thomas A. Deméré, Ph.D., Director

April 2010

TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 METHODOLOGY 2

3.0 BAY BOULEVARD SUBSTATION SITE 4

3.1 EXISTING CONDITIONS 4
3.1.1 PHYSICAL GEOLOGICAL SETTING 4
3.2 PALEONTOLOGICAL RESOURCE ASSESSMENT 5
3.2.1 SENSITIVITY 5
3.2.2 SITE SPECIFIC RESOURCE ASSESSMENT 5
3.3 IMPACT ANALYSIS 7
3.3.1 INTRODUCTION 7
3.3.2 SITE-SPECIFIC IMAPCTS 8

4.0 MITIGATION MEASURES 10

4.1 INTRODUCTION 10
4.1.1 GENERAL MITIGATION MEASURES 10

5.0 REFERENCES CITED 12

1.0 INTRODUCTION

SDG&E proposes to demolish the existing South Bay Substation and build a new substation (Bay Boulevard Substation) on a 12.42 acre site, approximately 0.25 mile south of the existing South Bay Power Plant (SBPP) site, on the southern half of a former Liquefied Natural Gas plant site (LNG Site). The new substation site is generally situated between San Diego Bay to the west and Bay Boulevard to the east (Figure 1). This parcel is located in a generally industrial area. An unused San Diego & Arizona Eastern Railroad (SD&AE) track borders the site immediately adjacent and parallel to the west side of Bay Boulevard, adjacent to the proposed substation site. The northern edge of the substation site is bordered by the existing SBPP, fuel oil tanks, and the existing SDG&E South Bay Substation. Light industrial uses border the site to the east and the south, while the west is bordered by the Western Salt Works salt evaporation ponds, which are used for the production of salt for commercial purposes.

Existing elevations on the proposed site range from approximately 10 feet to 17 feet above mean sea level (MSL). The site is mostly flat with a mild slope to the west and north. Parts of the site are elevated as a result of a man-made containment berm that ranges in elevation from approximately 21 feet to 23 feet above MSL. The containment berm was installed around the former LNG Site storage tanks. The site is disturbed and does not support native vegetation.

This technical report provides an assessment of issues related to paleontological resources that occur within the vicinity of the South Bay Substation Relocation Project. The purpose of this report is to assist SDG&E staff in planning and design efforts for the proposed project as it relates to paleontological resource issues. Specifically, this report is intended to summarize existing paleontological resource data in the vicinity of the proposed relocation site; assess potential impacts to paleontological resources from implementation of the project; and identify mitigation measures to avoid or reduce project-related impacts wherever feasible. Additional discussion of the report methodology is provided below. This report was prepared by Thomas A. Deméré of the Department of PaleoServices at the San Diego Natural History Museum, San Diego, California.

As defined here, paleontological resources (i.e., fossils) are the remains and/or traces of prehistoric plant and animal life exclusive of humans. 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.

2.0 METHODOLOGY

A review was conducted of relevant published geologic reports (Kennedy and Tan, 1977, 2005), unpublished geotechnical reports (Geocon, Inc., 2007), unpublished paleontological reports (Deméré and Walsh, 1993), and museum paleontological site records (San Diego Natural History Museum-SDNHM). This approach was followed in recognition of the direct relationship between paleontological resources and the geologic formations within which they are entombed. Knowing the geology of a particular area and the fossil productivity of the geologic formations that occur there it is possible to predict where fossils are likely to be encountered.

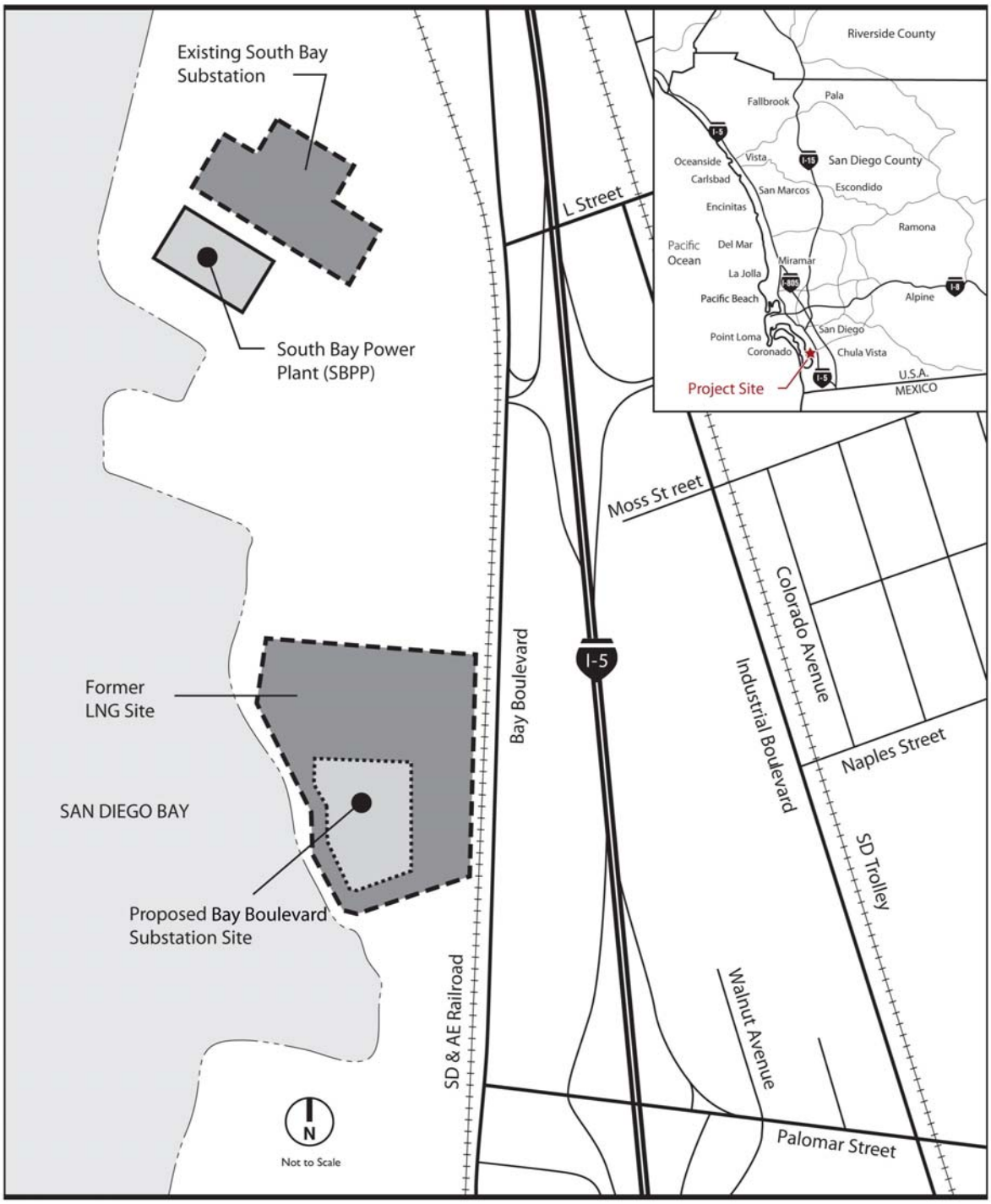

Figure 1. Map of the South Bay Substation Relocation Project Site showing locations of the existing South Bay Substation and the proposed Bay Boulevard Substation.

3.0 BAY BOULEVARD SUBSTATION SITE

3.1 EXISTING CONDITIONS

3.1.1 PHYSICAL GEOLOGICAL SETTING

Kennedy and Tan (1977) mapped the geologic deposits in the vicinity of the South Bay Substation Relocation Project site as artificial fill, Quaternary alluvium, and Pleistocene-age sedimentary rocks of the Bay Point Formation. In a more recently published map Kennedy and Tan (2005) slightly revised their stratigraphic terminology, referring to the Quaternary alluvium as Young alluvial floodplain deposits, and the Bay Point Formation as Old paralic deposits (Unit 6). The site specific geotechnical report prepared by Geocon, Inc. (2007) determined that the site of the proposed new Bay Boulevard Substation is underlain by Undocumented fill, Alluvium, and the Bay Point Formation.

Artificial Fill (= Undocumented fill)
Artificial fill materials in the project area were derived from earlier channel dredging operations and were placed on shore to provide topographically high areas for development. The on-site artificial fill materials as investigated by Geocon, Inc. (2007) range from 2 to 7 feet in thickness and primarily consist of sandy clay to silty sand with scattered pockets of gravel, shell fragments, and debris.

Quaternary Alluvium (= Young alluvial floodplain deposits & Alluvium)
Kennedy and Tan (1977) mapped the sedimentary deposits underlying the location of the current South Bay Substation and the proposed location for the proposed Bay Boulevard Substation as an undifferentiated mixture of Quaternary-age (probably Holocene) alluvium and slope wash. The fact that these deposits crop out in low lying areas at the mouth of the Telegraph Canyon drainage is suggestive of a Holocene age (younger than 10,000 years old). As mapped these deposits also include modern bay sediments within the littoral and shallow sublittoral portions of San Diego Bay. Also included in these Quaternary alluvial deposits are sands and muds occurring in the small isolated remnants of back bay marsh flats and tidal creeks that occur here and there along the Chula Vista bayfront. The on-site Quaternary alluvium as investigated by Geocon, Inc. (2007) ranges from 2 to 8.5 feet in thickness and primarily consists of sandy clay and clayey sand.

Bay Point Formation (= Old paralic deposits, Unit 6)
Kennedy and Tan (1977) mapped sedimentary deposits of the Pleistocene-age Bay Point Formation on the east side of Bay Boulevard, less than 600 feet from the proposed site of the new Bay Boulevard Substation. Kennedy and Tan (1977) have drawn the contact between the Bay Point Formation and the overlying Quaternary alluvium and slope wash as a dashed line, suggesting that the exact position of the contact between these two units is equivocal. The presence of mapped outcrops of the Bay Point Formation so close to the project area suggests that excavations on the project site may penetrate through the Holocene-age alluvium and into buried Pleistocene-age strata of the Bay Point Formation. In fact, the geotechnical investigation by Geocon, Inc. found the Bay Point Formation on-site to occur at depths as shallow as 4 feet below the present ground surface. In other areas of the project site the top of the Bay Point Formation was as much

as 14 feet below the present ground surface. In the immediate vicinity of the proposed new substation the Bay Point Formation appears to be consistently occur between 7 and 8.5 feet below the present ground surface. The on-site Bay Point Formation as investigated by Geocon, Inc. (2007) primarily consists of claystone, siltstone, silty sandstone, and sandstone.

3.2 PALEONTOLOGICAL RESOURCE ASSESSMENT

3.2.1 SENSITIVITY

The following levels of paleontological resource sensitivity are rated for individual formations and recognize the important relationship between fossils and the geologic formations within which they are entombed.

Maximum Sensitivity
Maximum sensitivity is assigned to geologic formations known to contain paleontological localities with rare, well-preserved, critical fossil materials for stratigraphic or paleoenvironmental interpretation, and fossils providing important information about the paleobiology and evolutionary history (phylogeny) of animal and plant groups. Generally speaking, highly sensitive formations produce vertebrate fossil remains or are considered to have the potential to produce such remains.

Major/Undetermined Sensitivity
Major/undetermined sensitivity is assigned to geologic formations known to contain paleontological localities with moderately well- to poorly-preserved, common elsewhere, or stratigraphically long-ranging fossil material. The major sensitivity category is also applied to geologic formations that are judged to have a strong, but unproven potential for producing important fossil remains.

Minor Sensitivity
Minor sensitivity is assigned to geologic formations that, based on their relatively youthful age and/or high-energy depositional history, are judged unlikely to produce important fossil remains. Typically, minor sensitivity formations produce poorly-preserved invertebrate fossil remains in low abundance.

Zero Sensitivity
Zero sensitivity is assigned to geologic formations that are entirely igneous in origin or have undergone high grade metamorphism, and therefore have no potential for producing fossil remains.

Impacts to paleontological resources are typically rated from high to zero depending upon the resource sensitivity of impacted geologic formations. The specific criteria applied for each sensitivity category are summarized below.

3.2.2 SITE SPECIFIC RESOURCE ASSESSMENT

There are no museum fossil collecting localities recorded within the South Bay Substation Relocation Project area, or within a one-mile radius of the site (see Figure 2). The nearest recorded localities occur approximately 3.3 miles east and northeast of the

project site. These localities occur within Pleistocene-age alluvial/fluvial deposits mapped as the Bay Point Formation by Kennedy and Tan (1977). The following section discusses the paleontological resource potential of the paleontologically sensitive geologic rock units that have been mapped within, or have the potential to be encountered within, the South Bay Substation Relocation Project area.

Quaternary Alluvium

Introduction Sedimentary deposits mapped within the South Bay Substation Relocation Project site as Quaternary alluvium consist primarily of silts, sands, and gravels transported and deposited by the Telegraph Canyon drainage. These deposits are assumed to be entirely Holocene in age (approximately 0 to 10,000 years old).

Paleontology Because of the recent age (probably Holocene) of the Quaternary alluvial deposits and their close association with modern drainages, these deposits are generally considered too young to yield scientifically significant paleontological resources.

Site Specific Assessment Due to the relatively young age of Quaternary alluvial deposits and the absence of recorded paleontological discovery sites in these sediments, they are assigned a minor paleontological resource sensitivity rating.

Bay Point Formation

Introduction The Bay Point Formation (Kennedy, 1975) represents a sequence of marine and/or non-marine sedimentary deposits of late Pleistocene age (approximately 0.1-0.5 million years old, Ma). Typical exposures consist of light brown to gray, fine- to coarse-grained, micaceous, friable sandstones and pebble conglomerates. The Bay Point Formation varies in thickness from less than 10 feet to over 100 feet and is thought to have been deposited under fluvial, aeolian, and/or shallow nearshore marine conditions (Hertlein and Grant, 1939; Kennedy, 1975). For the most part these deposits accumulated on flat, wave-cut platforms (i.e., sea floors) during periods of dropping sea levels. Today, these deposits form the low mesa surfaces immediately adjacent to the coastline in the Oceanside, Carlsbad, Encinitas, Solana Beach, Del Mar, Torrey Pines, La Jolla, and Pacific Beach areas of San Diego County. In the Chula Vista bay front region of San Diego Bay sedimentary rocks of the Bay Point Formation are not associated with a wave-cut platform and instead occur as a thick sequence of primarily non-marine deposits that accumulated in the structural graben formed by faulting within the La Nacion and Rose Canyon fault zones. Typically, bedrock exposures in this area consist of reddish-brown to gray-brown, fine- to coarse-grained massive fluvial sandstones; reddish-brown sandy paleosols; and light gray to brown, fine-grained, sandy siltstones.

Paleontology Fossil localities are locally common in the Bay Point Formation and have been recorded from a number of coastal sites from Carlsbad in the north to Border Field State Park in the south. Fossils collected from these sites primarily consist of well-preserved remains of nearshore marine invertebrates including shells of oysters, clams, scallops, snails, barnacles, crabs, and sand dollars (Emerson and Addicott, 1953; Valentine, 1961; Kern, 1977; Deméré, 1980; Kern and Rockwell, 1992). Sparse dental remains of sharks and rays, as well as rare remains of land mammals (Deméré and Walsh, 1993) have also been recovered from the Bay Point Formation. Recently, skeletal remains of Pleistocene land mammals (e.g., horse, camel, and mastodon) have been

recovered from both marine and non-marine strata of the Bay Point Formation in the downtown area of San Diego. While there are no recorded museum localities within the sedimentary deposits of the Bay Point Formation in the immediate vicinity of the South Bay Substation Relocation Project, the recent discoveries in downtown San Diego highlight the paleontological significance of this rock unit. The nearest recorded Bay Point Formation localities occur in non-marine fluvial sandstones exposed east of Hilltop Drive in Chula Vista (SDNHM Locality 4839).

Site Specific Assessment Due to the proven paleontological richness of the bay Point Formation and correlative strata in coastal San Diego County, this rock unit is assigned a maximum paleontological resource sensitivity rating.

3.3 IMPACT ANALYSIS

3.3.1 INTRODUCTION

Direct impacts to paleontological resources occur when earthwork activities, such as mass grading and trenching operations, cut into the geological deposits (formations) within which fossils are buried. These direct impacts occur in the form of physical destruction of the fossil locality and the contained fossil remains. Since fossils are the remains of prehistoric animal and plant life they are considered to be nonrenewable. Such impacts can be significant and, under CEQA guidelines, require mitigation.

Impacts to paleontological resources are rated in this report from high to no depending upon the resource sensitivity of impacted formations. The specific criteria applied for each sensitivity category are summarized below.

High Impact
A high impact to paleontological resources would result if the construction, operation, or maintenance of the proposed project would cause a significant or substantial ground disturbance or other adverse change to paleontological resources defined as having maximum sensitivity (Bay Point Formation).

Moderate Impact
A moderate impact to paleontological resources would result if the construction, operation, or maintenance of the proposed project would potentially cause ground disturbance or other adverse change to the condition of paleontological resources defined as having major/undetermined sensitivity (none in the project area).

Low Impact
A low impact to paleontological resources would result if the construction, operation, or maintenance of the proposed project would potentially cause any amount of ground disturbance or other adverse changes to paleontological resources that have been defined as having minor sensitivity (Quaternary alluvium).

No Identifiable Impact
No identifiable impact would be indicated where no measurable or suspected adverse impact would occur to any paleontological resources. These include areas that are underlain by igneous or metamorphic rock units or artificial fill materials (artificial fill).

3.3.2 SITE-SPECIFIC IMAPCTS

Based on the findings in the Geocon, Inc. (2007) report the top of the Bay Point Formation within the immediate vicinity of the proposed new Bay Boulevard Substation varies from 7 to 8.5 feet below the present ground surface. Thus, any project-related excavations deeper than 7 feet will likely reach the Bay Point Formation and result in a high level of initial impact. Conversely, any project-related excavations shallower than 7 feet will likely remain in Quaternary alluvium (minor paleontological resource sensitivity) or artificial fill materials (zero paleontological resource sensitivity and result in a low level of initial impact or no identifiable initial impact.

Figure 2. USGS Topographic map showing the location of the South Bay Substation Relocation Project site. The San Diego Natural History Museum does not have any recorded fossil localities within a one mile radius of the project site.

4.0 MITIGATION MEASURES

4.1 INTRODUCTION

Project-related excavation activities deeper than 7 feet below ground surface are likely to penetrate to a depth sufficient to encounter the paleontologically sensitive Bay Point Formation. These development activities will likely result in a high level of initial impact. Should this occur, it is recommended that the following mitigation measures be undertaken to reduce the impact to a level below significant**.**

4.1.1 GENERAL MITIGATION MEASURES

PAL 1.
A qualified Project paleontologist should be at the pre-construction meeting to consult with the grading and excavation contractors concerning excavation schedules, paleontological field techniques, and safety issues. (A qualified paleontologist is defined as an individual with a MS or Ph.D. in paleontology or geology that is familiar with paleontological procedures and techniques, who is knowledgeable in the geology and paleontology of San Diego County, and who has worked as a paleontological mitigation project supervisor in the county for at least one year.)

PAL 2.
A paleontological monitor will work under the direction of the qualified Project paleontologist and will be on site to observe excavation operations that involve the original cutting of previously undisturbed deposits with maximum paleontological resource sensitivity (i.e., Bay Point Formation). These impacts are likely to occur in all project-related excavations that extend deeper than 7 feet below ground surface. For those project-related excavation activities known to be restricted to depths shallower than 7 feet, a paleontological monitor will not needed. However, because the Pleistocene-age Bay Point Formation is locally covered by Quaternary alluvium and artificial fill deposits, careful monitoring of deeper excavations in these deposits (i.e., >6-7 feet) may be necessary to ensure that overall monitoring of the Bay Point Formation is as complete as possible. A paleontological monitor is defined as an individual who has experience in the collection and salvage of fossil materials.

PAL 3.
When fossils are discovered, the paleontologist (or paleontological monitor) should recover them. In most cases this fossil salvage can be completed in a short period of time. However, some fossil specimens (such as a complete large mammal skeleton) may require an extended salvage period. In these instances the paleontologist (or paleontological monitor) should be allowed to temporarily direct, divert, or halt grading to allow recovery of fossil remains in a timely manner. Because of the potential for the recovering of small fossil remains, such as isolated mammal teeth, it may be necessary to set up a screen-washing operation on the site.

PAL 4.

Fossil remains collected during monitoring and salvage should be cleaned, repaired, sorted, and cataloged as part of the mitigation program.

PAL 5.
Prepared fossils, along with copies of all pertinent field notes, photos, and maps, should be deposited (as a donation) in a scientific institution with permanent paleontological collections (such as the San Diego Natural History Museum) to ensure their availability to scientists, students, and interested members of the public. Donation of the fossils should be accompanied by financial support to fund proper curation and storage of the specimens.

PAL 6.
A final summary report should be completed that outlines the results of the mitigation program. This report should discuss the methods used, stratigraphic section(s) exposed, fossils collected, and significance of recovered fossils.

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