

## 3.4 Cultural Resources

### 3.4.1 Introduction

This section evaluates the potential for the proposed project to result in adverse impacts related to cultural resources. The analysis is based on review of site-specific investigations conducted for the proposed project site, the relevant regulatory ordinances, consultation with Native American tribes, and a discussion of the methodology and thresholds used to determine whether the proposed project would result in significant impacts. Cultural resources include prehistoric and historical period archaeological sites, buildings, structures, and districts, as well as places, modified landscapes, and any other physical evidence associated with human activity or considered important to a particular community or cultural group. Tribal cultural resources, as that term is defined in California Environmental Quality Act (CEQA) Section 21074, are addressed in Section 3.16, *Tribal Cultural Resources*. Under CEQA, paleontological resources, including fossil localities, are grouped within cultural resources. For purposes of this analysis, cultural resources are categorized into the following groups: archaeological resources, historic resources (including architectural/engineering resources), human remains, and paleontological resources. This section analyzes the potential for both project-level and cumulative environmental impacts.

Data used in this section includes information obtained from *Historic Resources Assessment Report: City of Long Beach Los Cerritos Wetlands Project* (Kainer and Brown 2017), *Historic Resources Assessment: Los Cerritos Oil Consolidation and Wetland Restoration Project, City of Long Beach, County of Los Angeles, California* (Heck 2017 [Appendix D1]); *Archaeological Resources Assessment: Los Cerritos Oil Consolidation and Wetland Restoration Project, City of Long Beach, County of Los Angeles, California* (Fulton and Fulton 2017 [Appendix D2]); and *Paleontological Resources Assessment: Los Cerritos Oil Consolidation and Wetland Restoration Project, City of Long Beach, County of Los Angeles, California* (Rieboldt 2016 [Appendix D3]). All information sources used are included as citations within the text; sources are listed in Section 3.4.5, References.

### 3.4.2 Environmental Setting

#### 3.4.2.1 Prehistoric Setting

The following prehistoric chronology of the Long Beach area is divided into four major cultural periods occurring from 12,000 years before present (B.P.) to A.D. 1542: Paleocoastal Period, Millingstone Period, Intermediate Period, and Late Period. These periods correspond to changes in the archaeological record seen across the broader Southern California region.

##### ***Paleocoastal Period (12,000–8,000 years B.P.)***

Archaeological evidence from the northern Channel Islands suggests that the first people, known as Paleoindians, migrated down the California coast by as early as 12,000 years B.P. (Cassidy et al. 2004; Erlandson et al. 2007). At Daisy Cave, on San Miguel Island, cultural materials have been radiocarbon dated to between 11,100 and 10,950 years B.P. (Byrd and Raab 2007). Radiocarbon dates from the Arlington Springs Woman site on Santa Rosa Island indicate a human presence in the region by about 13,000 years B.P. (Glassow et al. 2007). On the southern Channel Island of San Clemente, site CA-SCLI-43 (Eel Point) revealed

evidence of boat technology dating to around 8,000 years B.P. (Cassidy et al. 2004). Site CA-ORA-64, located south of the project in the Newport Beach area, is one of the few mainland sites that contains an early component, also dating to about 8,000 years B.P. (Cleland et al. 2007). Data from early coastal California sites indicate a reliance on maritime resources, such as shellfish, fish, marine mammals, and birds.

### ***Millingstone Period (8,000–3,000 years B.P.)***

Southern California coastal sites increase in number dramatically after about 8,000 years B.P. This time period, known as the Millingstone Period because of the appearance of ground stone implements, is characterized by regional differentiation in material culture and adaptation to local conditions and the intensified utilization of ground stone tools (Wallace 1955). Millingstone Period habitation sites, as compared to those of the preceding period, are characteristically more sedentary, permanent settlements located adjacent to local water sources, which supported edible plant, animal, and marine resources. Settlement patterns during this time period indicate the use of residential bases surrounded by seasonal satellite camps (Glassow et al. 1988; Grenda and Altschul 2002; Koerper et al. 2002; Macko 1998). Early Millingstone sites, beginning around 8,000 years B.P., typically contain numerous handstones (manos) and millingstones (metates), while those dating later than 5,000 years B.P. often contain a mortar and pestle component as well, suggesting regional use of acorns (Vellanoweth and Altschul 2002).

### ***Intermediate Period (3,000–1,000 years B.P.)***

Between approximately 3,500 and 3,000 years B.P., settlement patterns shifted to reflect more sedentary and territorial lifestyles as compared to preceding periods. The number of sites decreased as populations settled into residential bases near freshwater sources and seasonal camps became more infrequent (Koerper et al. 2002). Population increase led to the intensified exploitation of terrestrial and marine resources and the use of increasingly labor-intensive hunting, fishing, and processing equipment, such as the circular shell fishhook and the mortar and pestle for acorn processing (Erlandson 1994; Koerper 1979; Koerper et al. 2002; Raab et al. 1995). Use of the bow and arrow spread to the coast around 1,500 years B.P. (Homburg et al. 2014). Increasing population densities, with ensuing territoriality and resource intensification, may have given rise to increased disease and violence between 3,300 and 1,650 years B.P. (Raab et al. 1995).

### ***Late Period (1,000 years B.P.–A.D. 1542)***

The Late Period is associated with the florescence of the Gabrielino-Tongva (Wallace 1955). The Gabrielino-Tongva occupied what is presently Los Angeles County and northern Orange County, along with the southern Channel Islands, including Santa Catalina, San Nicholas, and San Clemente (Kroeber 1925). This period saw the development of elaborate trade networks and use of shell-bead currency. Fishing became an increasingly significant part of subsistence strategies at this time, and investment in fishing technologies, including the plank canoe, are reflected in the archaeological record (Erlandson 1994; Glassow 1980; Raab et al. 1995). Settlement at this time is believed to have consisted of dispersed family groups that revolved around a limited number of permanent village settlements that were located centrally with respect to a variety of resources (Koerper et al. 2002).

## **3.4.2.2 Historic Setting**

In 1784, the City of Long Beach was first settled as part of a 167,000-acre Spanish land grant to soldier Manuel Nieto. The City was divided into two Ranchos in 1834: Los Alamitos and Los Cerritos. The ranchos,

mainly used for agricultural pursuits such as sheep raising and farming, witnessed dramatic cultural, economic, and environmental changes in the early 20th century. Several factors caused these dramatic changes, including the competition between the Santa Fe Railroad and the Pacific Railroad; the incorporation of the City in 1888; the introduction of the Pacific Electric Trolley in 1902 that connected Long Beach and Los Angeles; and the discovery of oil. The biggest catalyst of change to Long Beach was the discovery of oil at Signal Hill in 1921, which forever transformed the landscape of Long Beach. This discovery influenced Fred H. Bixby to begin leasing tracts of land owned by the Alamitos Land Company to the Royal Dutch Shell Company and Standard Oil in 1921, and later to the Marland Oil Company in 1924. This land leased by the Alamitos Land Company would become known as the Seal Beach Oil Field and would commercially produce 70,000 barrels of oil per day during its peak production in 1927 and would at times out-produce Signal Hill, Huntington Beach, and other fields in the area. The oil industry was the key reason that the City's population grew exponentially from 55,000 in 1920 to 142,000 a decade later. The success of the oil industry and the increase of population resulted in a million-dollar-per-month building boom in Long Beach. The oil industry transformed the landscape of the City of Long Beach and the Los Angeles Basin from open rancho land in many places to oil derricks and wells dotting the landscape.

The Marland Oil Company joined the rush to tap the Californian petroleum market with its competitors, Standard Oil Company and the Shell Oil Company, in 1924 at Seal Beach Oil Field. After the Marland Oil Company obtained the Bixby and McGrath leases from the Alamitos Land Company at the Seal Beach Oil Field, they built the Bixby Ranch Field Office between 1924 and 1928 on the McGrath lease located in Tract Numbers 1077 and 1079 (generally in the area of the Marketplace Shopping Center at 2nd Street and Pacific Coast Highway), which was later moved to the Bixby lease now located on the Synergy Oil Field site. The exact date of construction of the Bixby Ranch Field Office is unknown, but can be narrowed down to sometime between 1924 and 1928, the range reflecting from when the Marland Oil Company began leasing land in the Seal Beach Oil Field to a circa 1928 panoramic photograph of the Seal Beach Oil Field. Furthermore, a 1928 Fairchild aerial of the Synergy Oil Field and vicinity (Fairchild Aerial Surveys 1928) shows the Bixby Ranch Field Office in its prior location on the McGrath lease and the Bixby lease is shown with a road network, storage tanks, and oil wells (Heck 2017, 33).

Due to the onset of the Great Depression and the decline of gas prices in the late 1920s, J.P. Morgan, Jr. managed Ernest Marland's finances and arranged a merger of Marland Oil Company with Continental Oil Company. On June 26, 1929, Marland Oil Company was renamed Continental Oil or Conco (Matthews 1951). Following the merger, the Bixby Ranch Office became associated with the Continental Oil Company. The ghosting of the "Continental" name can still be seen on the front of the Bixby Ranch Field Office, though the sign has been painted over. By 1942, as shown on a topographic map, much of the Bixby Lease and Synergy Oil Field site was developed with the present day road network and the Bixby Ranch Field Office is shown in its present location.

Oil extraction successfully continued in the Seal Beach Oil Fields until the Postwar period when subsidence issues and three small earthquakes damaged a total of 518 wells across all Long Beach Oil Fields, causing a rapid decline. Major improvements in the mid-1950s led many fields to adopt water flooding programs to help extract oil and fight subsidence, which also improved oil extraction output. In 1974, 80 percent of the wells (223 total) located in Seal Beach were still in production, but had minor production numbers due to the expansion of offshore drilling in San Pedro Bay at the Wilmington Field (California DOC: Division of Oil and Gas 1974). As of 2017, Synergy Oil and Gas is actively producing oil from 6 wells on the North Block

(northern section) and 34 wells on the South Block (southern section) of the Bixby Lease (Hesson and Olilang 1990, 4). The remaining wells are in idle status.

### 3.4.2.3 Paleontological Resources Setting

The project is located at the northern end of the Peninsular Ranges Geomorphic Province, a 900-mile-long northwest-southeast trending structural block that extends from the Transverse Ranges in the north to the tip of Baja California in the south and includes the Los Angeles Basin (CGS 2002; Norris and Webb 1976). This province is characterized by mountains and valleys that trend in a northwest-southeast direction, roughly parallel to the San Andreas Fault. The total width of the province is approximately 225 miles, extending from the Colorado Desert in the east, across the continental shelf, to the Southern Channel Islands (i.e., Santa Barbara, San Nicolas, Santa Catalina, and San Clemente) (Sharp 1976). It contains extensive pre-Cretaceous (more than 145 million years ago [Ma]) and Cretaceous (145 to 66 Ma) igneous and metamorphic rock covered by limited exposures of post-Cretaceous (less than 66 Ma) sedimentary deposits (Norris and Webb 1976).

Within this larger region, the project is located in the Los Angeles Basin, a broad alluvial lowland bounded to the north and east by the San Gabriel and Santa Ana Mountains, respectively, and by the Pacific Ocean to the southwest (Yerkes et al. 1965). The basin is underlain by a structural depression that has discontinuously accumulated thousands of feet of marine and terrestrial deposits since the Late Cretaceous (approximately 100.5 Ma) (Yerkes et al. 1965). Over millions of years, the basin has experienced episodes of subsidence, deposition, uplift, erosion, and faulting, all of which have resulted in a complex geology as well as a prolific oil industry (Bilodeau et al. 2007; Yerkes et al. 1965). The surface of the basin slopes gently southwestward toward the ocean, interrupted in various places by low hills and traversed by several large rivers, including the Los Angeles River, Rio Hondo, Santa Ana River, and San Gabriel River (Sharp 1976; Yerkes et al. 1965). Because the gradient of the basin is quite shallow, these rivers have not always flowed in their current channels; rather, they have flowed across various parts of the basin, depositing sediments over large areas (Sharp 1976; Yerkes et al. 1965). These sediments include the Young Alluvial Fan and Valley Deposits, Undivided, which are mapped to the northeast of the project site and which likely exist beneath the Artificial Fill mapped at the surface of the project site (Saucedo et al. 2003). These geologic units are briefly described below.

#### ***Artificial Fill***

According to Saucedo et al. (2003), Artificial Fill is present over the entire project site, likely placed during development of the oil field, construction of the nearby marina, and channelization of the San Gabriel River. Artificial Fill consists of sediments that have been removed from one location and transported to another by humans. Artificial Fill may contain modern debris such as asphalt, wood, bricks, concrete, metal, glass, plastic, and even plant material. Artificial Fill may also contain fossils, but these fossils have been removed from their original location and are thus out of stratigraphic context. Therefore, they are not considered important for scientific study. As such, Artificial Fill has no paleontological sensitivity.

#### ***Young Alluvial Fan and Valley Deposits, Undivided***

The Young Alluvial Fan and Valley Deposits, Undivided are Holocene to Late Pleistocene in age (less than 126,000 years ago) and consist of poorly consolidated clay, sand, gravel, and cobbles (Saucedo et al. 2003). These sediments were eroded from higher elevations, carried by flooding streams and debris flows, and deposited at lower elevations. These deposits are mapped to the northeast of the project site and along the

length of the San Gabriel River, the low-lying floodplain of which encompasses the project site near where the river empties into the Pacific Ocean (Saucedo et al. 2003). As such, the Young Alluvial Fan and Valley Deposits likely underlie the Artificial Fill placed within the project site.

The San Gabriel River cuts through late to middle Pleistocene (11,700–781,000 years ago) Old Paralic Deposits mapped on the slightly elevated areas to the northwest and southeast of the project site (Saucedo et al. 2003). The Old Paralic Deposits consist of reddish-brown siltstone, sandstone, and conglomerate deposited in beach, estuary, and terrestrial environments (Saucedo et al. 2003). They rest on wave-cut platforms that have been preserved by regional uplift (Saucedo et al. 2003).

Although Holocene deposits can contain remains of plants and animals, generally not enough time has passed for the remains to become fossilized. In addition, the remains are conspecific (generally of the same species) with modern species and are usually not considered scientifically important; however, the older, Pleistocene deposits have produced scientifically important fossils elsewhere in Southern California (Jefferson 1991a, 1991b; Miller 1971). These older deposits span the end of the Rancholabrean North American Land Mammal Age (NALMA), which was named for the Rancho La Brea fossil site in central Los Angeles and dates from 240,000 to 11,000 years ago (Alroy 2000). The presence of bison defines the beginning of the Rancholabrean NALMA (Bell et al. 2004), but fossils from this time also include other large and small mammals, reptiles, fish, invertebrates, and plants. There is a potential to find these types of fossils in the older sediments of this geologic unit, which may be encountered in the project site below a depth of approximately 15 feet. Therefore, the Young Alluvial Fan and Valley Deposits, Undivided are assigned a low paleontological sensitivity above a depth of 15 feet and a high sensitivity below that mark.

#### **3.4.2.4 Identification of Cultural Resources within the Project Area**

##### ***South Central Coastal Information Center Records Search***

A cultural resources records search was conducted at the South Central Coastal Information Center (SCCIC) of the California Historical Resources Information System (CHRIS) on December 4, 2015. The records search included the project site and a 0.5-mile radius. The SCCIC houses the pertinent archaeological and historic site and survey information necessary to determine whether cultural resources are known to exist within the project site. The records search included a review of all recorded historic and prehistoric archaeological sites within the search area as well as a review of known cultural resources survey and excavation reports. The SCCIC records search also included an examination of the National Register of Historic Places (National Register), the California Register of Historical Resources (California Register), California Historical Landmarks, California Points of Historical Interest, and various local historical registers.

The results of the records search indicate that 38 cultural resources studies have been conducted that include the project site, resulting in approximately 98 percent of the project site having been previously surveyed. No cultural resources were previously recorded within the project site itself, and nine cultural resources were previously recorded within the 0.5-mile records search radius (see **Table 3.4-1, Previously Recorded Cultural Resources within 0.5 Mile of the Project Area**).

**Table 3.4-1 Previously Recorded Cultural Resources within 0.5 Mile of the Project Area**

Resource Designation	Resource Description	Date Recorded	California Register Eligibility Status
P-19-000272	Human skull found in 1960 in marine deposits at the mouth of the San Gabriel River north of Seal Beach. Deposition was determined to be "accidental" and not associated with any other skeletal remains.	1961	Not evaluated
P-19-000702	Shell deposit. The site record notes that the possibility of its destruction is "very high" due to planned condominium construction.	1974	Not evaluated
P-19-001821	Shell midden. No artifacts were observed.	1990	Not evaluated
P-19-186115	Long Beach Marine Stadium	2009; earlier dates unknown	Determined eligible through local status
P-19-186880	Alamitos Generating Station Fuel Oil Tank Farm	2004	Recommended not eligible
P-19-186924	Southern California Edison Lake Hughes 12 kV Distribution Circuit	2003	Not evaluated
CA-30-000256	Prehistoric archaeological site that had been destroyed circa 1958 (prior to recording)	1969	Not evaluated
P-30-000257	Prehistoric archaeological site that had been destroyed circa 1958 (prior to recording)	1969	Not evaluated
P-30-001473	Shell deposit	1996	Not evaluated

California Register = California Register of Historical Resources

### **Previous Project-Related Research**

In January 2017, LSA prepared the Historic Resources Assessment (Heck 2017) and the Archaeological Resources Assessment (Fulton and Fulton 2017) in connection with the project. Both of these studies addressed the entirety of the project site, including the Synergy Oil Field, City Property, Pumpkin Patch, and Los Cerritos Wetlands Authority (LCWA) portions of the project; however, because built architectural resources occur only on the Synergy Oil Field site, only that site was subject to an architectural resources field survey. All four individual sites of the project were subject to an archaeological resources field survey. These assessments identified two cultural resources located on the Synergy Oil Field site, including one historic architectural resource identified as the Bixby Ranch Field Office (P-19-187657) and one archaeological resources consisting of a historic-period refuse scatter (temporary designation LSA-LYC-1501-S-1). A second archaeological resource, a subsurface landfill (LSA-LYC-1501-S-2) identified through archival research, was documented on the Pumpkin Patch site. No other archaeological or architectural resources were identified. As part of these studies, LSA recommended the Bixby Ranch Field Office (P-19-187657) eligible for listing in the California Register under Criterion A and also eligible for local listing. LSA identified the period of significance for the Bixby Ranch Field Office as 1921 to 1945 and found it to retain integrity of location, setting, feeling and association. The historic-period refuse scatter (LSA-LYC-1501-S-1) and the landfill (LSA-LYC-1501-S-2) were recommended ineligible for California Register and local listing.

### **Historic Aerial Photograph and Map Review and Other Archival Research**

Historic maps and aerial photographs of the entire project site, including the Synergy Oil Field, City Property, Pumpkin Patch, and LCWA sites, were examined to provide historical information about land uses of the project site. Historic aerial photographs (historicaerials.com) taken in 1928, 1947, 1953, 1963, and 1972 were examined, as was the 1896 USGS *Downey Sheet, California*, 1925 Long Beach, 1949 and 1964 Los Alamitos topographic maps (USGS 1896, 1925, 1949, 1964, 1981). Additionally, as part of the research for the Synergy

Oil Field site, ESA conducted online research of the following archival resources: the Petroleum Collection and the Long Beach History Digital Archive at the Long Beach Public Library; Library of Congress; Historic Aerials.com; One Petro; American Institute of Mining, Metallurgical, and Petroleum Engineers; Calisphere; University California, Los Angeles (UCLA) Library Digital Collections; Santa Ana Register; Los Angeles Times; University of Southern California (USC) Digital Collections; Los Angeles Public Library (LAPL) photo collection; LAPL California Index; Los Angeles County Assessor; LA84 Foundation, and other published sources. The following organizations and libraries were also contacted to inquire about relevant information: LAPL; Historical Society of Long Beach; Orange County Historical Society; the Huntington Library; Department of Conservation Division of Oil, Gas & Geothermal Resources; Map Department at Los Angeles Public Library; and the United States Geological Survey. The results of this archival research are incorporated where appropriate into the discussion of the identified resources below.

### ***Archaeological Resources Field Survey***

On December 15 and 16, 2015, LSA archaeologists conducted a pedestrian survey of the full 195-acre project site, including accessible areas of all four individual sites. Where possible, the survey was conducted by walking parallel transects spaced by approximately 30 feet. The remainder of the project site was surveyed opportunistically wherever exposed ground surface was visible.

The project site generally consists of open land and, on the Synergy Oil Field site, currently operational oil features (e.g., wells, tanks, pipelines, roads, and occasional utility buildings) and non-operational well pads, structures, and pipelines. The entire project site has been disturbed by oil field operations and contains sparse to dense introduced vegetation and native coastal wetlands vegetation. Ground visibility during the survey was poor to excellent depending on vegetation; oil field operation structures; and the fluctuating tidal flow, which, when at high tide, created large areas of standing water. These factors limited the accessible survey area to approximately 80 percent.

No prehistoric archaeological resources were observed during the pedestrian survey of the four individual sites, but one historic-period archaeological resource, a surficial trash scatter, was identified within the Synergy Oil Field site. It was recorded on California Department of Parks and Recreation (DPR) 523 forms and temporarily designated as LSA-LYC1501-S-1. In addition, a second resource, identified primarily through historical research but also through previous subsurface geotechnical investigations, was identified on the Pumpkin Patch site. This resource is the City Dump and Salvage Landfill #2. The resource is currently buried, and while no evidence of the resource was identified during the pedestrian surface survey, based on the research that revealed its presence and geotechnical work, it was recorded on DPR forms and assigned a temporary designation of LSA-LYC1501-S-2. These two historic-period archaeological resources are described below.

#### **LSA-LYC1501-S-1**

This historic-period trash scatter consists of miscellaneous industrial and domestic debris and was observed extending along the southern edge of Steamshovel Slough in the Synergy Oil Field. Artifacts noted appear to date from the 1930s to approximately the 1970s, and likely are, in part, associated with the historic oil field that encompasses the project site. As described in the archaeological resources technical report prepared for the project (Fulton and Fulton 2017), the trash scatter contains a diversity of artifacts and materials, including modern trash, construction debris, glass fragments and bottles, and a wide variety of other refuse—none of which is unique and most of which is consistent with the sort of trash that would be deposited in association

with the oil field business. LSA concluded that the trash scatter is a typical example of a common resource type and contains minimal, if any, archaeological potential. For these reasons, the resource was recommended as not eligible for listing in the California Register as an individual resource. That said, as a refuse deposit located within and associated with the Synergy Oil Field, the archaeological site is also an element of the Synergy Oil Field (discussed below) and must be evaluated as a contributor to the Synergy Oil Field. Based on the field description, LSA-LYC1501-S-1 consists of a mixed deposit of historic-period and modern trash. While individual identified artifacts date to the period of significance for the Synergy Oil Field, those artifacts are mixed with modern refuse, have poor context and integrity, and lack direct association to specific oil field activities or events. As such, the resource does not contribute to the eligibility of the Synergy Oil Field and is recommended as ineligible for listing in the California Register as a contributor to the district.

### **LSA-LYC1501-S-2**

While no surface evidence of the City Dump and Salvage Landfill #2 was identified, historical research indicates that the landfill is located on the Pumpkin Patch site and is old enough to qualify as a historical resource under CEQA. Research shows that in 1960 the Pumpkin Patch site was leased from the Bixby Ranch Company by City Dump and Salvage, Inc., of Long Beach, California, for the creation of the City Dump and Salvage Landfill #2. During September 1960, City Dump and Salvage, Inc., received a permit from the County of Los Angeles, Industrial Waste Division, to accept wastes in the eastern half of the site at a minimum of 300 feet from Pacific Coast Highway. City Dump and Salvage, Inc., commenced waste acceptance operations at the site in mid-1960 (prior to receiving an approved permit) and ceased operations in early 1961, after filling the landfill to its permitted capacity. Although currently buried, drilling and sampling conducted in 1987 indicates that the landfill is rectangular in shape and encompasses the eastern half of the Pumpkin Patch site, and that refuse in the central portion of the burial area extends to a depth of 30 feet below ground surface. The refuse consists of newspaper, plastic, metal, wood, glass, plant debris, rubber tubes and tires, and green waste. Based on this historical information, and the possibility that the resource could be encountered during excavation for the current project, a DPR 523 site record form was prepared and the resource was evaluated for listing in the California Register (Fulton and Fulton 2017). Based on the research findings, the evaluation concluded that the City Dump and Salvage Landfill #2 is a typical example of a common resource type and contains minimal, if any, archaeological data. While the period of operation is tightly constrained (1960 to 1961), the landfill represents the deposition of debris from multiple unknown locations throughout the City and is not associated with a specific event or historic theme. For these reasons, the resource was recommended as not eligible for listing in the California Register.

A final potential historical-period resource was brought to the attention of the City through the public scoping process for the project, in an email from a local resident dated November 8, 2016. That email contained a photograph of a pile of concrete construction rubble alongside Steam Shovel Slough on the Synergy Oil Field, and raised the question that the rubble might represent the remnants of a structure or structures damaged in the 1933 Long Beach earthquake and then redeposited on the site. In response, LSA, the cultural resources consultant for the project, prepared a memo, subsequent to the technical report, addressing this concern (Fulton and Fulton 2017). The memo concludes that, based on the type of concrete with rebar reinforcement seen in the rubble, coupled with historical research indicating that this likely was not the type of concrete used in the buildings damaged by the earthquake, and there is no evidence linking the trash scatter to the Long Beach earthquake. Further, there is no clear indication of the age of the resource, and whether it even dates to the historical period. Therefore, as a resource that lacks context and clear association with a specific historic event,

and as a resource that cannot be dated, the memo concludes that the resource does not require recording and, in any case, would not be eligible for listing in the California Register.

### ***Historic Architectural Resources Field Survey***

LSA's archaeologists and architectural historians conducted a pedestrian survey of the project site on December 11, 15, and 16, 2015, as part of their preparation of a Historic Resources Assessment (Heck 2017). The architectural survey was limited to the Synergy Oil Field portion of the project, since the City Property, Pumpkin Patch, and LCWA sites do not contain built resources. The LSA field survey identified one architectural resource on the Synergy Oil Field portion of the project site, identified as the Bixby Ranch Field Office (P-19-187657).

Subsequently, a historic architectural resources survey of the Synergy Oil Field portion of the project site was conducted by ESA architectural historians Margarita Jerabek, Ph.D., and Amanda Kainer, M.S., on December 13, 2016. Detailed notes and digital photographs were taken, and the survey work used the survey methodology of the California Office of Historic Preservation (OHP). Two historic architectural resources, including the Synergy Oil Field (temporary designation ESA-LCW-1) and the Bixby No. 2 Discovery Well (temporary designation ESA-LCW-2), were documented as a result of ESA's survey. The Bixby Ranch Field Office (P-19-187657) was also further documented by ESA.

### ***Historical Resources Evaluation***

As a result of ESA's historic architectural resources research and field survey, three resources were identified (the Synergy Oil Field, the Bixby Ranch Field Office, and the Bixby No. 2 Discovery Well) and evaluated for eligibility to the California Register and for local listing. All occur on the Synergy Oil Field site. ESA recommends the Bixby Ranch Field Office (P-19-187657) as individually eligible for listing in the California Register under Criterion 3 and local Criterion C as an example of a property type (oil field office), in addition to California Register Criterion 1 and local Criterion A for its historical importance in association with the Synergy Oil Field as previously recommended by LSA (Heck 2017). Furthermore, ESA also recommends the Bixby No. 2 Discovery Well (ESA-LCW-2) as individually eligible for listing in the California Register under Criterion 1 and local Criterion A. The Synergy Oil Field (ESA-LCW-1) is recommended ineligible for both the California Register and local register as the resource lacks sufficient integrity to convey historic associations associated with the themes of Los Angeles Basin Oil Industry (1892–1945), Long Beach Oil Industry (1921–1945), and the Petroleum Property Type. ESA concurs with the previous recommendation that the historic-period refuse scatter (LSA-LYC-1501-S-1) identified by LSA (Fulton and Fulton 2017) is not individually eligible for listing and also recommends that it is not eligible as a contributor to either the Bixby Ranch Field Office or Bixby No. 2 Discovery Well.

## **3.4.2.5 Identification of Paleontological Resources within the Project Site**

### ***Literature Review***

The literature review conducted for the project included an examination of geologic maps of the project area and a review of relevant geological and paleontological literature to determine which geologic units are present within the project sites and whether fossils have been recovered from those geologic units elsewhere in the region. As geologic units may extend over large geographic areas and contain similar lithologies and fossils, the literature review includes areas well beyond the project site. The results of this literature review

include an overview of the geology of the project site and a discussion of the paleontological sensitivity (or potential) of the geologic units within the project site. The results of the literature review are discussed in Section 3.4.2, Environmental Setting.

### **Locality Search**

The purpose of a locality search is to establish the status and extent of previously recorded paleontological resources within and adjacent to the study area for a given project. In December 2015, a locality search was completed through the Natural History Museum of Los Angeles County (LACM). This search identified vertebrate localities in the LACM records that exist near the project site in the same or similar deposits. When available, details of those localities, such as formation, rock type, depth, and species lists were also noted.

According to the locality search conducted by the LACM, the project site includes Artificial Fill overlying younger Quaternary Alluvium derived from the San Gabriel River that currently flows just to the southeast (i.e., Young Alluvial Fan and Valley Deposits, Undivided as mapped by Saucedo et al. 2003). The museum notes that the uppermost layers of the younger Quaternary deposits are unlikely to contain significant vertebrate fossils, but that the older Quaternary sediments, which may be encountered at depth, may do so. Moreover, the museum has records of vertebrate fossil localities from older Quaternary deposits near the project site. The closest vertebrate fossil locality is LACM 3757, located just northwest of the project site. This locality produced specimens of eagle ray (*Myliobatis*), skate (*Rhinobatoidea*), white shark (*Carcharodon*), blue shark (*Prionace*), requiem shark (*Carcharhinidae*), surfperch (*Damalichthys* and *Rhacochilus*), croaker (*Genyonemus*), pond turtle (*Emys*), diving duck (*Chendytes*), loon (*Gavia*), dog (*Canis*), sea otter (*Enhydra*), horse (*Equus*), camel (*Hemiauchenia*), and pocket gopher (*Thomomys*). Another locality, LACM 6746, located northwest of the project site, produced a fossil mammoth (*Mammuthus*). West of the project site and near or on the beach, the LACM has additional vertebrate fossil localities in older Quaternary deposits. Locality LACM 2031 produced specimens of fossil bison (*Bison antiquus*) from a depth of 25 feet below the top of a bluff. Locality LACM 7739 yielded a diverse suite of marine vertebrate fossils from a depth of about 55 feet. These fossils include dusky shark (*Carcharhinus*), soupfin shark (*Galeorhinus galeus*), hammerhead shark (*Sphyrna*), leopard shark (*Triakis semifasciata*), horn shark (*Heterodontus francisci*), stingray (*Dasyatis*), eagle ray (*Myliobatis californica*), skate (*Raja*), guitarfish (*Rhinobatis productus*), dogfish (*Squalus acanthias*), angel shark (*Squatina californica*), midshipman (*Porichthys notatus*), cusk-eel (*Chilara taylori*), surfperches (*Cymogaster aggregata*, *Damalichthys*, *Embiotoca jacksoni*, *Hyperprosopon argenteum*, *Micrometrus aurora*, and *Phanerodon furcatus*), goby (*Gobiidae*), croaker (*Genyonemus lineatus*), queenfish (*Seriphus politus*), barracuda (*Sphyraena argentea*), sanddabs (*Citharichthys sordidus* and *C. stigmaeus*), sole (*Glyptocephalus zachirus* and *Lyopsetta exilis*), sculpin (*Cottidae*), rockfish (*Sebastes goodei*), herring (*Clupeidae*), and undetermined mammal (Mammalia). Locality LACM 1005 produced specimens of fossil mammoth (*Mammuthus columbi*) and ground sloth (*Nothrotheriops shastensis*) at a depth of approximately 60 feet.

The LACM suggests that excavation below a depth of approximately 5 feet has the potential to reach older Quaternary deposits and encounter significant vertebrate fossils. As such, the museum recommends that any excavation below 5 feet be monitored by a qualified paleontological monitor, as defined by the Society of Vertebrate Paleontology (SVP), to quickly and professionally recover any fossils that may be discovered. The museum also recommends that sediment samples be collected and processed to test for the presence of small vertebrate fossils. Any fossils recovered should be deposited in a permanent scientific institution.

### **Field Survey**

On December 15 and 16, 2016, LSA surveyors Terri Fulton and Phil Fulton conducted a pedestrian survey of accessible portions of the project site, including all four components of the project. All accessible parts of the undeveloped portion that had at least some ground visibility were surveyed in systematic parallel transects spaced 10 to 12 meters (33 to 40 feet) apart. Special attention was paid to any graded areas and to rodent burrows that offered a better view of the underlying sediment. The purpose of this survey was to confirm the accuracy of the geologic mapping and to identify whether any previous ground-disturbing activities had brought any paleontological resources to the surface. In this way, LSA could locate areas within the project that could potentially contain paleontological resources.

No paleontological resources were observed during the field survey. The entire project site has been disturbed by oil field operations and contains sparse to dense introduced vegetation and native coastal wetlands vegetation. Ground visibility during the survey was poor to excellent depending on the presence of vegetation, oil field operation structures, and the fluctuating tidal flow, which at high tide created large areas of standing water. These factors limited the accessible survey area to approximately 80 percent. Where exposed, the surveyor noted that the sediments within the project site are consistent with the Artificial Fill mapped by Saucedo et al. (2003).

## 3.4.3 Regulatory Framework

### **3.4.3.1 Federal**

#### ***National Historic Preservation Act***

The National Historic Preservation Act (NHPA), and specifically Section 106, requires that federal agencies consider the effects of their actions on properties that may be eligible for listing or are currently listed on the National Register. It is the federal agency's responsibility to consult with the State Historic Preservation Officer (SHPO) regarding the effects of their actions on cultural resources before granting permits, funding, or other authorization of the undertaking. The Section 106 review process normally involves a four-step procedure described in detail in the regulations implementing NHPA Section 106 (36 CFR Part 800):

1. Identify and evaluate historic properties in consultation with the SHPO and interested parties;
2. Assess the effects of the undertaking on properties that are eligible for inclusion in the NRHP;
3. Consult with the SHPO, other agencies, and interested parties to develop an agreement that addresses the treatment of historic properties and notify the Advisory Council on Historic Preservation; and
4. Proceed with the project according to the conditions of the agreement.

Compliance with the NHPA is triggered by a federal action, such as the issuance of a federal permit such as a Clean Water Act Section 404 permit by the U.S. Army Corps of Engineers, or federal funding for a project. The proposed project does not require any federal permits; thus, compliance with the NHPA is not triggered.

### 3.4.3.2 State

#### ***California Environmental Quality Act***

CEQA is the principal statute governing environmental review of projects occurring in the state and is codified at California Public Resources Code (PRC) Sections 21000 et seq. CEQA requires lead agencies to determine if a proposed project would have a significant effect on the environment, including significant effects on historical or unique archaeological resources.

Under CEQA (Section 21084.1), a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. An archaeological resource may qualify as an “historical resource” under CEQA. The *CEQA Guidelines* (Title 14 California Code of Regulations [CCR] Section 15064.5) recognize that an historical resource includes (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register; (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency’s determination is supported by substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be an historical resource as defined in PRC Section 5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, the provisions of CEQA Section 21084.1 and *CEQA Guidelines* Section 15064.5 apply. If a project may cause a substantial adverse change (defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired) in the significance of an historical resource, the lead agency must identify potentially feasible measures to mitigate these effects (*CEQA Guidelines* Sections 15064.5(b)(1), 15064.5(b)(4)).

If an archaeological site does not meet the criteria for a historical resource contained in the *CEQA Guidelines*, then the site may be treated in accordance with the provisions of Section 21083, which is as a unique archaeological resource. As defined in CEQA Section 21083.2, a “unique” archaeological resource is an archaeological artifact, object, or site, about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological site meets the criteria for a unique archaeological resource as defined in Section 21083.2, then the site is to be treated in accordance with the provisions of Section 21083.2, which state that if the lead agency determines that a project would have a significant effect on unique archaeological resources, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place (Section 21083.1(a)). If preservation in place is not feasible, mitigation measures shall be required.

The *CEQA Guidelines* note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment (*CEQA Guidelines* Section 15064.5(c)(4)).

Senate Bill (SB) 18 (Burton) was enacted by the Legislature in 2004 and requires local governments to consult with Native American tribes to aid in the protection of traditional tribal cultural places through local land use planning. Because the project includes a proposed amendment to the SEADIP, the City initiated consultation pursuant to SB 18. The results of the Native American consultation are addressed in Section 3.16, *Tribal Cultural Resources*.

In 2015, CEQA was amended by Assembly Bill (AB) 52 (Gatto), which requires lead agencies to consult with Native American tribes that is traditionally and culturally affiliated with the geographic area of a proposed project concerning tribal cultural resources (Section 21080.3.1). Tribal cultural resources is defined in CEQA Section 21074 and includes sites, features, places, cultural landscapes, sacred places and objects with cultural value to a California Native American tribe that are either included or determined to be eligible for inclusion in the California Register, or in a local register of historical resources. The proposed project's impact on tribal cultural resources is addressed in Section 3.16, *Tribal Cultural Resources*.

### ***California Register of Historical Resources***

The California Register is “an authoritative listing and guide to be used by State and local agencies, private groups, and citizens in identifying the existing historical resources of the State and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change” (PRC Section 5024.1(a)). The criteria for eligibility for the California Register are based upon National Register criteria (PRC Section 5024.1(b)). Certain resources are determined by the statute to be automatically included in the California Register, including California properties formally determined eligible for, or listed in, the National Register.

To be eligible for the California Register, a prehistoric or historic-period property must be significant at the local, state, and/or federal level under one or more of the following four criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

A resource eligible for the California Register must meet one of the criteria of significance described above, and retain enough of its historic character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance. It is possible that a historic resource may not retain sufficient integrity to meet the criteria for listing in the National Register, but it may still be eligible for listing in the California Register.

Additionally, the California Register consists of resources that are listed automatically and those that must be nominated through an application and public hearing process. The California Register automatically includes the following:

- California properties listed on the National Register and those formally determined eligible for the National Register;
- California Registered Historical Landmarks from No. 770 onward; and
- Those California Points of Historical Interest that have been evaluated by the California OHP and have been recommended to the State Historical Commission for inclusion on the California Register.

Other resources that may be nominated to the California Register include:

- Historical resources with a significance rating of Category 3 through 5 (those properties identified as eligible for listing in the National Register, the California Register, and/or a local jurisdiction register);
- Individual historical resources;
- Historical resources contributing to historic districts; and
- Historical resources designated or listed as local landmarks, or designated under any local ordinance, such as an historic preservation overlay zone.

### ***California Health and Safety Code Section 7050.5***

California Health and Safety Code Section 7050.5 requires that in the event human remains are discovered, the County Coroner be contacted to determine the nature of the remains. In the event the remains are determined to be Native American in origin, the Coroner is required to contact the California Native American Heritage Commission (NAHC) within 24 hours to relinquish jurisdiction.

### ***California Public Resources Code Section 5097.96***

PRC Sections 5094(a) and 5097.96 authorize the NAHC to establish a Sacred Lands Inventory to record Native American sacred sites and burial sites, including Native American sacred places that are located on public lands.

### ***California Public Resources Code Section 5097.98***

PRC Section 5097.98, as amended by AB 2641, provides procedures in the event human remains of Native American origin are discovered during project implementation. PRC Section 5097.98 requires that no further disturbances occur in the immediate vicinity of the discovery, that the discovery is adequately protected according to generally accepted cultural and archaeological standards, and that further activities take into account the possibility of multiple burials. PRC Section 5097.98 further requires the NAHC, upon notification by a County Coroner, designate and notify a Most Likely Descendant (MLD) regarding the discovery of Native American human remains. Once the MLD has been granted access to the site by the landowner and inspected the discovery, the MLD then has 48 hours to provide recommendations to the landowner for the treatment of the human remains and any associated grave goods.

In the event that no descendant is identified, or the descendant fails to make a recommendation for disposition, or if the land owner rejects the recommendation of the descendant, the landowner may, with appropriate dignity, reinter the remains and burial items on the property in a location that would not be subject to further disturbance.

PRC Section 5097.5 protects historic, archaeological, and paleontological resources on public lands in California and establishes criminal and civil penalties for violations. Specifically, this law states:

- (a) No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.
- (b) As used in this section, “public lands” means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.

PRC Section 5097.5 specifies that any unauthorized removal of paleontological remains is a misdemeanor. Further, the California Penal Code Section 622.5 sets the penalties for the damage or removal of paleontological resources.

Paleontological resources are also afforded protection by CEQA. *CEQA Guidelines* Appendix G provides guidance relative to significant impacts on paleontological resources, stating that a project will normally result in a significant impact on the environment if it will “... disrupt or adversely affect a paleontological resource or site or unique geologic feature, except as part of a scientific study.”

### **3.4.3.3 Local**

#### ***Historic Preservation Element***

The Historic Preservation Element of the City’s General Plan (2010) outlines a vision for future historic preservation efforts within the City and the actions that need to be taken to achieve it. The primary goals of the Historic Preservation Element are to integrate historic preservation into City procedures and interdepartmental decisions and to create a meaningful partnership with the community to implement the Historic Preservation Program. The Historic Preservation Element contains five specific goals, listed below, as well as detailed policies and implementation measures.

**Goal 1:** Maintain and support a comprehensive, citywide historic preservation program to identify and protect Long Beach’s historic, cultural, and archaeological resources.

**Goal 2:** Protect historic resources from demolition and inappropriate alterations through the use of the City’s regulatory framework, technical assistance, and incentives.

**Goal 3:** Maintain and expand the inventory of historic resources in Long Beach.

**Goal 4:** Increase public awareness and appreciation of the City’s history and historic, cultural, and archaeological resources.

**Goal 5:** Integrate historic preservation policies into City’s community development, economic development, and sustainable-city strategies.

### **Local Designation**

The Long Beach Municipal Code (2.63.050) establishes criteria for designating local historic landmarks and landmark districts. A cultural resource may be recommended for designation as a Landmark if it retains integrity and manifests one or more of the following criteria:

- A. It is associated with events that have made a significant contribution to the broad patterns of the City's history; or
- B. It is associated with the lives of persons significant in the City's past; or
- C. It embodies the distinctive characteristics of a type, period or method of construction, or it represents the work of a master or it possesses high artistic values; or
- D. It has yielded, or may be likely to yield, information important in prehistory or history.

A group of cultural resources may be recommended for designation as a Landmark District if it retains integrity as a whole and meets the following criteria:

- A. The grouping represents a significant and distinguishable entity that is significant within a historic context.
- B. A minimum of 60 percent of the properties within the boundaries of the proposed landmark district qualify as a contributing property.

### **Professional Standards**

The SVP has established standard guidelines for acceptable professional practices in the conduct of paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, and specimen preparation, identification, analysis, and curation. Most practicing professional paleontologists in the nation adhere closely to the SVP's assessment, mitigation, and monitoring requirements as specifically provided in its standard guidelines. Most California State regulatory agencies accept the SVP standard guidelines as a measure of professional practice.

## 3.4.4 Analysis of Impacts

This section describes the impact analysis relating to cultural resources for the proposed project. It describes the methods and applicable thresholds used to determine the impacts of the proposed project.

### **3.4.4.1 Significance Criteria**

*CEQA Guidelines* Appendix G provides that a project would have a significant cultural resources impact if it would:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- Disturb any human remains including those interred outside of formal cemeteries.

CEQA provides that a project may cause a significant environmental effect where the project could result in a substantial adverse change in the significance of a historical resource (PRC Section 21084.1). *CEQA Guidelines* Section 15064.5 defines a “substantial adverse change” in the significance of a historical resource to mean physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be “materially impaired” (*CEQA Guidelines* Section 15064.5(b)(1)).

*CEQA Guidelines* Section 15064.5(b)(2), defines “materially impaired” for purposes of the definition of “substantial adverse change” as follows:

The significance of a historical resource is materially impaired when a project:

- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or
- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to PRC Section 5020.1(k) or its identification in an historical resources survey meeting the requirements of PRC Section 5024.1(g), unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
- Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA.

In accordance with *CEQA Guidelines* Section 15064.5(b)(3), a project that follows the Secretary of the Interior’s *Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* or *Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings* is considered to have mitigated impacts to historic resources to a less-than-significant level.

### 3.4.4.2 Methodology

To evaluate the project’s potential effects on significant archaeological resources, LSA conducted a Phase I cultural resources study of the project site, which included archival research, a Native American contact program, and field survey (Fulton and Fulton 2017). To evaluate potential impacts to historical built resources, LSA conducted archival research as well as field survey and documentation (Heck 2017). In addition, ESA conducted archival research, a field survey, reviewed the SCCIC records search, and evaluated the resources on the project site against state and local eligibility criteria (Kainer and Brown 2017). To evaluate potential impacts to paleontological resources, LSA performed a literature and geologic map review, a formal paleontological locality search conducted through the LACNHM, and a field survey (Rieboldt 2016).

Impacts on cultural resources (including paleontological resources) could result from ground-disturbing activities and/or damage, destruction, or alteration of historic structures. Ground-disturbing activities include project-related excavation, grading, trenching, vegetation clearance, the operation of heavy equipment, or other surface and sub-surface disturbance that could damage or destroy surficial or buried cultural resources including prehistoric or historic-period archaeological resources, paleontological resources, or human burials.

As stated in Chapter 1, *Introduction*, on April 28, 2016, the City sent an NOP to responsible, trustee, and federal agencies, as well as to organizations, and individuals potentially interested in the project to identify the relevant environmental issues that should be addressed in the EIR. Two responses pertaining to cultural resources were received in response to the NOP/Initial Study. A comment was received from a local resident via email regarding a deposit of construction rubble on the project site and the question of whether it might relate to the Long Beach earthquake of 1933. As discussed above in Section 3.4.2.4, Identification of Cultural Resources within the Project Area, subsequent historical research concluded that the construction rubble is not related to the earthquake and should not be considered a historical resource, or an otherwise significant cultural resource (Fulton and Fulton 2017). It will not be discussed further in the impacts analysis below. In addition, an email was received on April 20, 2016, with information regarding an archaeological resource on the project site, and recommending research at the Southern California Indian Center (SCIC) and outreach to the NAHC and local tribal representatives. Research at the SCIC and Native American consultation required under CEQA were conducted for the project pursuant to the requirements of AB 52 (PRC Section 21080.3.1). Results of these studies are discussed previously and addressed in the impacts section below, and the results of the City's tribal consultation is addressed in Section 3.16, *Tribal Cultural Resources*.

### 3.4.4.3 Impact Evaluation

**Impact CUL-1: The project would not cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5. (Less than Significant with Mitigation)**

#### ***Construction***

ESA evaluated each of the three identified historic architectural resources for their individual eligibility for listing in the California Register and for local listing and recommends that the Bixby Ranch Field Office (P-19-187657) is eligible for listing in the California Register under Criterion 3 and local Criterion C in addition to California Register Criterion and local Criterion A as previously recommended by LSA (Heck 2017). The Bixby No. 2 Discovery Well (ESA-LCW-2) is recommended eligible under California Register Criterion 1 and local Criterion A. The Synergy Oil Field (ESA-LCW-1) is recommended ineligible for both the California Register and local listing under all applicable criteria. In addition, a historic-period archaeological site, a trash scatter (LSA-LYC-1501-S-1), was also identified as a component of the Synergy Oil Field. Based on the ubiquitous nature of the scatter, and a lack of clear context and association, the resource was recommended as not eligible for the California Register (Fulton and Fulton 2017). ESA concurs with this recommendation, and also recommends that, for the same reasons, the trash scatter is not eligible as a contributor to either the Bixby Ranch Field Office or Bixby No. 2 Discovery Well.

The portion of the project on the Synergy Oil Field includes the removal of 95 percent of oil production infrastructure, including the aboveground pipelines and tanks, removal of all instrumentational appurtenances associated with the tank farms, well plugging and abandonment over a 40-year period; replacement of a berm and roads the phased rehabilitation of the existing oil field to wetlands, and the addition of parking lots, sidewalks, and the overlook terrace from the trail. The project proposes to relocate and rehabilitate the Bixby Ranch Field Office for use as a visitors center. Comprehensive relocation and rehabilitation plans have not been developed for the Bixby Ranch Field Office. The Bixby Ranch Field Office would be moved 427 feet southwest of its current location, rotated 180 degrees so the west façade would be facing east, raised to address potential impacts of sea-level rise, and rehabilitated and adapted into a visitors center. Landscape, hardscape, and parking lots would be improved around the Bixby Ranch Field Office.

Because the Synergy Oil Field was recommended ineligible for listing on the California Register and local register, the Synergy Oil Field does not qualify as a historical resource under CEQA. Therefore, the project would have no impacts to the Synergy Oil Field as a cultural resource.

The Bixby Ranch Field Office is recommended individually eligible for listing in the California Register and local register under Criteria 1/A and 3/C. The existing proposed preliminary Relocation and Rehabilitation Plan would not conform to the Secretary of the Interior's Standards for Rehabilitation (Standards). More specifically, under this Plan, the Bixby Ranch Field Office would be moved from its current location and rotated 180 degrees altering its relationship with its views, spatial relationships and setting within the oil field. The proposed landscaping and addition of a tree at the southwest corner of the building interferes with the historic visual relationships of the building with the oil field. The proposed Los Cerritos Visitors Center sign and ADA ramp also detracts from the south elevation, views of which were clear and unobstructed in the circa 1928 historical photograph of the building. The Plan to rehabilitate the primary (west) elevation and south elevation in a manner consistent with the 1928 historic photograph includes the addition of a ramp, railings, and deck that are not differentiated from the historic materials of the Bixby Ranch Field Office, as the baluster guardrails would match the existing non-contributing porch railings (altered as part of the last renovation). In addition, the building's one-story massing is a character-defining feature; raising the building to protect it from sea level rise would alter the scale of the building and detract from its architectural character and design. Furthermore, without a relocation and rehabilitation plan, the building could be damaged during relocation and/or rehabilitation; a relocation and rehabilitation plan would protect the building from potential adverse impacts during relocation and provide guidelines for rehabilitation in conformance with the Standards.

Because the proposed project plans to relocate and rehabilitate the Bixby Ranch Field Office would not conform to the Standards, the project would result in a significant impact to the resource. After project completion and once all the oil facilities are removed (over a 40-year period), the Bixby Ranch Field Office would no longer retain its historical associations with the themes of themes of Los Angeles Basin Oil Industry (1892–1945), Long Beach Oil Industry (1921–1945), and the Petroleum Property Type and property types of Petroleum Property Type and Field Office Property Type since the character-defining features of the Synergy Oil Field would be removed. Furthermore, the Bixby Ranch Field Office would lose its existing important spatial and visual relationships with the existing Synergy Oil Field, and the orientation and scale of the Bixby Ranch Field Office would be altered. Mitigation Measures CUL-1, CUL-2, CUL-3, and CUL-4 would reduce impacts to the resource identified as the Bixby Ranch Field Office to a level of less than a significant. These measures ensure that the building is properly documented in compliance with federal guidelines, and that relocation and re-use plans conform to the methodology recommended by the National Park Service (NPS) and Secretary of the Interior's Standards for Treatment of Historic Properties and other federal guidelines.

The Bixby No. 2 Discovery Well, is recommended individually eligible for listing in the California Register and local listing under Criterion 1/A. The resource retains character-defining features of an early oil well associated with the Petroleum Property Type and retains sufficient integrity to convey its historical significance. Because the project, as currently designed, proposes to remove 95 percent of oil production infrastructure, including this well, the proposed project would have significant impact on the Bixby No. 2 Discovery Well because after project completion the resource would no longer retain character-defining features or integrity to convey its historical significance; however, Mitigation Measures CUL-1, CUL-2, and CUL-4, which require retention of the well, documentation, and public interpretation, are included to reduce potential impacts to the resource identified as the Bixby No. 2 Discovery Well to a level of less than

significant. After project completion with mitigation incorporated, the impact would be less than significant because the Bixby No. 2 Discovery Well would be preserved.

Lastly, the project would have no indirect impacts on historical resources within the project vicinity (0.5-mile radius). The Marine Stadium (P-19-186115) is a California Historical Landmark (see Table 3.4-1) and is the only previously identified historic resource located in within the project vicinity. The Marine Stadium would have no views of the project and the historic setting of the Marine Stadium, dredged in 1925 and extended in 1932 for the Olympics, is not materially or visually tied to the Synergy Oil Field. Intervening contemporary development in the immediate vicinity of the Marine Stadium also appears to have eroded its integrity of setting. Therefore, the project would have no indirect impacts to historic resources in the project vicinity.

In addition to the historic-period archaeological trash scatter (LSA-LYC1501-S-1) discussed above as part of the Synergy Oil Field, a second historic-period archaeological resource was also identified. This is the now buried City Dump and Salvage Landfill #2 (LSA-LYC1501-S-2). Based on the ubiquitous nature of the contents of the landfill, and a lack of clear context and association, LSA-LYC1501-S-2 was also recommended as not eligible for individual listing in the California Register (Fulton and Fulton 2017).

No prehistoric archaeological resources were identified, and the technical report prepared for the project (Fulton and Fulton 2017) indicates the area has a low sensitivity for buried prehistoric archaeological sites, given that the area was largely an inundated wetland prior to recent times; however, there is the possibility that buried prehistoric and historic-period resources do exist in the project site and those resources could be impacted by the project. Consultation with the Gabrieleño Band of Mission Indians – Kizh Nation and the Soboba Band of Luiseño Indians, conducted as part of AB 52 and SB 18 requirements (and discussed in Section 3.16, *Tribal Cultural Resources*), indicates that both Tribes consider the area to have a high sensitivity for archaeological resources. Further, both Tribes recommended Native American monitoring of all ground-disturbing activities. If previously undocumented cultural resources are encountered, those resource could be found eligible for listing in the California Register and could be impacted by the project. Implementation of Mitigation Measures CUL-5 through CUL-7 would ensure that impacts to historical resources as defined in Section 15064.5 would be less than significant.

### **Operation**

Once construction is complete, operation of the project is not expected to impact any archaeological resources or built environment resources that could qualify as historical resources; however, if archaeological resources that qualify as historical resources are identified during the course of operations, implementation of Mitigation Measures CUL-5 and CUL-7 would ensure that impacts to historical resources as defined in Section 15064.5 would be less than significant.

### **Mitigation Measures**

**Mitigation Measure CUL-1: Recordation.** Prior to the issuance by the City of Long Beach of a grading or building permit for the relocation of the Bixby Ranch Field Office and a grading permit for the wetlands restoration work on the Synergy Oil Field, a recordation document in accordance with the Historic American Landscape Survey (HALS) and the Historic American Buildings Survey (HABS) Level II requirements shall be completed for the Bixby No. 2 Discovery Well and the Bixby Ranch Field Office, both of which are individually eligible. The HABS/HALS document shall be prepared by a qualified architectural historian or historic preservation professional. These documents shall include a historical narrative on the industrial and historical importance of the Synergy Oil Field and Seal Beach Oil Field for

background information, in addition to recording the existing appearance of the Bixby Ranch Field Office and the Bixby No. 2 Discovery Well in professional large format HABS/HALS photographs. For HALS, the Bixby No. 2 Discovery Well, the property setting and contextual views shall be documented. For HABS, the exteriors of the Bixby Ranch Field Office, representative interior spaces, character-defining features, as well as the setting and contextual views shall be documented. All documentation shall be completed in accordance with the Secretary of the Interior's Standards and Guidelines for Architectural and Engineering Documentation (HABS/HALS standards). Original archivally sound copies of the report shall be submitted to the HABS/HALS collection at the Library of Congress and the archives of the South Central Coastal Information Center, California State University, Fullerton, CA. Non-archival digital copies shall be distributed to the City of Long Beach, City of Long Beach Public Library, and the Long Beach Historical Society. In addition, any existing and available design and/or as-built drawings and pertinent supporting materials such as maps and aerial photographs shall be compiled, reproduced, and incorporated into the recordation document.

**Mitigation Measure CUL-2: Retention of the Bixby No. 2 Discovery Well.** The Bixby No. 2 Discovery Well and sign shall be retained and preserved along with a 5-foot buffer around the furthest point from the concrete pad. Necessary maintenance to the sign shall be performed, see National Park Service Preservation Brief 25, "The Preservation of Historic Signs," by Michael J. Auer. A path for pedestrian traffic from the visitors center to the Discovery Well shall be developed and installed. At the Discovery Well site, a wayside sign shall be installed interpreting the Seal Beach Oil Field and the importance of the Bixby No. 2 Discovery Well. The interpretation of the Bixby No. 2 Discovery Well shall be overseen and prepared by a qualified architectural historian or historic preservation professional.

**Mitigation Measure CUL-3: Historic Preservation Consultation, Preparation of a Relocation and Rehabilitation Plan, and Construction Monitoring.** The project design for Bixby Ranch Field Office is presently conceptual and detailed architectural drawings showing the proposed rehabilitation have not been prepared. A qualified architectural historian shall provide input to the project architect to revise the design in accordance with the Standards to retain the character-defining features of the exterior and interior of the Bixby Ranch Field Office. Once the design has been finalized, the architectural historian shall prepare a Standards plan review for submittal to the City of Long Beach Planning for a Certificate of Appropriateness.

Following the approval of the Bixby Ranch Field Office project plans, a Relocation and Rehabilitation Plan (Plan) shall be developed by a qualified historic preservation consultant. The Plan shall include relocation and rehabilitation methodology recommended by the National Park Service (NPS), which are outlined in the booklet entitled "Moving Historic Buildings," by John Obed Curtis (1979). The Plan shall include an assessment of the building condition by a qualified engineer, and a shoring plan for relocation and storage, and guidelines for relocation to the final site. If temporary storage is required, the storage conditions should closely follow the recommendations of NPS Preservation Brief 31: Mothballing Historic Buildings with regard to recommendations for structural stabilization, pest control, protection against vandalism, fire, and moisture, adequate ventilation which should be applied to the building at the temporary storage location to ensure the safety of the building during storage. A periodic maintenance and monitoring plan shall also be included in the Plan and implemented during the storage period in accordance with the guidance outlined in NPS Preservation Brief 31. The Plan shall be reviewed and approved by the City prior to issuance by the City of permits to relocate the Bixby Ranch Field Office.

Upon relocation of the Bixby Ranch Field Office, any maintenance, repair, stabilization, rehabilitation, preservation, conservation, or reconstruction work performed in conjunction with the relocation of the building shall be undertaken in a manner consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Properties. The relocation and rehabilitation process shall be monitored by a

qualified historic preservation consultant at key intervals to ensure conformance with the Standards and NPS guidelines. The preservation consultant shall also be available to provide technical expertise to reduce potential impacts to historical resources from unforeseen circumstances.

Lastly, a permanent metal plaque shall be affixed to the primary elevation or a marker shall be imbedded in the pavement in front of the primary elevation of the relocated Bixby Ranch Field Office, which will briefly explain where the building was originally located (original and second location) and that the building was relocated to a third location. A qualified architectural historian or historic preservation professional shall provide oversight to the design and fabrication of an interpretive plaque/marker.

**Mitigation Measure CUL-4: Interpretation.** Interpretation about the significant history of the Synergy Oil Field shall be placed within the Bixby Ranch Field Office (the proposed visitors center), and along the proposed walking trails. The interpretation shall use the recommendations from Mitigation Measures CUL-2 (Retention) and CUL-3 (Recordation) to interpret the history of the Los Angeles Basin Oil Industry, Long Beach Oil Industry, Seal Beach Oil Field (including the Bixby and McGrath leases), Rancho Los Alamitos Company, Synergy Oil Field, Marland Oil Company, and Continental Oil Company. Furthermore, oral histories shall be conducted of previous employees who worked on the Synergy Oil Field or Seal Beach Oil Field, or experts with knowledge of the abovementioned themes to incorporate within the interpretive exhibit. Historical photographs, aerials, topographic maps, and newspapers shall compliment the interpretive exhibit to visually demonstrate the activities that took place on the Synergy Oil Field. A qualified architectural historian or historic preservation professional shall provide oversight to the design and installation of an interpretive program.

**Mitigation Measure CUL-5: Retention of Qualified Archaeologist and Worker Training.** Prior to the issuance of a grading permit for project implementation, evidence shall be provided to the City that a qualified archaeologist meeting the Secretary of the Interior's Standards for professional archaeology (U.S. Secretary of the Interior 2008) has been retained by the City to conduct any required training, evaluation, or treatment of archaeological resources that might be encountered during implementation of the project. As part of this, prior to the start of grading, the qualified archaeologist shall conduct cultural resources sensitivity training for all construction personnel. Construction personnel must be informed of the types of archaeological resources that may be encountered (both prehistoric and historical), and of the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources or human remains. The City must ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance.

**Mitigation Measure CUL-6: Native American Monitoring.** A Native American monitor from the Gabrieleño Band of Mission Indians—Kizh Nation, a consulting party for the project under AB 52, shall be present during all earth-moving construction activities. The Native American monitor shall be given the opportunity to participate in the cultural resources sensitivity training described in Mitigation Measure CUL-5. At least 30 days prior to issuance of grading permits, a Native American Monitoring Agreement (Monitoring Agreement) shall be developed between the City and the Gabrieleño Band of Mission Indians—Kizh Nation. The agreement shall pertain to prehistoric archaeological resources and Tribal cultural resources, respectively, and shall identify any monitoring requirements and treatment of cultural resources to meet both the requirements of CEQA and those of the Tribal representative. The Monitoring Agreement shall also address communication protocols in the event of an unanticipated discovery of cultural materials, and the roles, responsibilities, and authorities of the Native American Monitor. The Monitoring Agreement shall also detail the protocols for treatment and final disposition of any Native American cultural resources, sacred sites, and human remains discovered on the site that the Native American Monitor shall implement in consultation and coordination with the Native American Most Likely Descendant, as identified by the NAHC. In accordance with Mitigation Measure CUL-9, discussed below, discovery and treatment of human remains shall comply with State Health and Safety Code Section 7050.5 and PRC Section 5097.98.

**Mitigation Measure CUL-7: Archaeological Resource Discovery and Treatment.** In the event of the unanticipated discovery of archaeological or other cultural resources, whether discovered through Native American monitoring or not, all work activities in the area (within approximately 100 feet of the discovery) shall be halted or redirected until the discovery can be evaluated by a qualified archaeologist. Construction shall not resume until a qualified archaeologist has conferred with the City and, in the case of prehistoric archaeological resources, the Native American monitor, on the significance of the resource. If it is determined that the discovered archaeological resource is significant under CEQA, avoidance and preservation in place shall be the preferred manner of mitigation, pursuant to PRC Section 21083.2(b). Preservation in place may be accomplished by, but is not limited to, avoidance, incorporating the resource into open space, capping, or deeding the site into a permanent conservation easement. In the event that preservation in place is demonstrated to be infeasible and data recovery through excavation is the only feasible mitigation available, a Treatment Plan shall be prepared and implemented by a qualified archaeologist, in consultation with the City, that provides for the adequate recovery of the scientifically consequential information contained in the archaeological resource. The City shall also consult with appropriate Native American representatives in determining treatment for prehistoric or Native American resources to ensure cultural values ascribed to the resources, beyond those that are scientifically important, are considered. Any evaluation and treatment shall be supervised by an individual or individuals that meet the Secretary of the Interior's Professional Qualification Standards.

**Significance Determination:** Less than Significant with Mitigation.

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**Impact CUL-2: The project would not cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5. (Less than Significant with Mitigation)**

### ***Construction***

As discussed under Impact CUL-1, two historic-period archaeological resources were identified within the project site, and both would be subject to disturbance as a result of project implementation: the historic-period trash scatter (LSA-LYC1501-S-1) and the now buried City Dump and Salvage Landfill #2 (LSA-LYC1501-S-2). LSA-LYC1501-S-1 is also an element of the Synergy Oil Field which was not determined to be a historical resource. Both resources were recommended as ineligible for listing in the California Register, and for the same reason, neither qualifies as a unique archaeological resource pursuant to Section 15064.5. Also as discussed above, while the potential for buried archaeological resources is considered low, based on the geological setting and historically inundated nature of the landscape (Fulton and Fulton 2017), both the Gabrieleño Band of Mission Indians – Kizh Nation and the Soboba Band of Luiseño Indians have indicated that the area may have a high sensitivity for cultural resources. Further, both Tribes recommended Native American monitoring of all ground-disturbing activities. If previously undocumented cultural resources were encountered and determined to be a significant archaeological resource pursuant to Section 15064.5, they could be impacted by project. Implementation of Mitigation Measures CUL-5 through CUL-7 during construction activities would ensure that impacts to archaeological resources as defined at Section 15064.5 would be less than significant.

### ***Operation***

Once construction is complete, operation of the project is not expected to impact archaeological resources; however, if archaeological resources were identified during the course of operations, implementation of

Mitigation Measures CUL-5 through CUL-7 would ensure that impacts to archaeological resources as defined at Section 15064.5 would be less than significant.

**Mitigation Measures:** Mitigation Measures CUL-5 through CUL-7 would apply.

**Significance Determination:** Less than Significant with Mitigation.

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**Impact CUL-3: The project would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. (Less than Significant with Mitigation)**

### ***Construction***

The results of the fossil locality search and field survey conducted during preparation of this report indicate that no paleontological resources have been found within or immediately adjacent to the project site. The project site contains Artificial Fill overlying Young Alluvial Fan and Channel Deposits, Undivided. Artificial Fill reaches a maximum depth of approximately 33 feet in the eastern half of the Pumpkin Patch site; however, the depth of Artificial Fill elsewhere in the project site is unknown. While Artificial Fill has no paleontological sensitivity, the underlying Young Alluvial Fan and Channel Deposits, Undivided have low paleontological sensitivity to a depth of 15 feet and high paleontological sensitivity below that mark. Given the sensitivity of the underlying geological deposits, there is a possibility that excavation could encounter significant paleontological resources. Disturbance of such resources would constitute a significant impact on the environment. Implementation of Mitigation Measure CUL-8 would ensure that impacts to paleontological resources are less than significant.

### ***Operation***

Once construction is complete, operation of the project does not have the potential to impact paleontological resources.

### ***Mitigation Measure***

**Mitigation Measure CUL-8: Paleontological Monitoring.** Prior to commencement of any grading or excavation activity on site, the City shall retain a qualified paleontologist, defined as a paleontologist meeting the guidelines of the Society of Vertebrate Paleontology (SVP) (2010). The qualified paleontologist, or a designated paleontological monitor working under the guidance of the qualified paleontologist, shall attend and participate in any preconstruction meetings and worker training (as discussed in Mitigation Measure CUL-5), and shall be on site during all excavation and other significant ground-disturbing activities that reach a depth of 15 feet or greater below the modern ground surface. This is the minimum depth at which Young Alluvial Fan and Channel Deposits, Undivided may be encountered. These deposits are considered to have low paleontological sensitivity near the top of the geologic unit (which may not necessarily correspond with the modern ground surface), and a high paleontological sensitivity greater than 15 feet below the top of the unit. In the event that paleontological resources (e.g., fossils) are unearthed during ground-disturbing activity, the paleontological monitor shall have the authority to temporarily halt or divert grading activity to allow recovery of paleontological resources. The area of discovery shall be roped off with a 50-foot-radius buffer. Once documentation and collection of the find is completed, the monitor shall allow grading to recommence in the area of the find. Daily field logs shall be prepared during the course of the monitoring, and upon completion of monitoring a final report shall be prepared.

**Significance Determination:** Less than Significant with Mitigation.

**Impact CUL-4: The project would not disturb any human remains, including those interred outside of formal cemeteries. (Less the Significant with Mitigation)**

***Construction***

While no known human remains have been identified in the project site as a result of the cultural resources studies, there is a possibility that ground-disturbing activities could encounter previously undocumented human remains. The discovery of human remains would require handling in accordance with PRC Section 5097.98, which states that in the event that human remains are discovered during construction, construction activity shall be halted and the area shall be protected until consultation and treatment can occur as prescribed by state law. In the unexpected event that human remains are unearthed during construction activities, impacts would be potentially significant, and as such, mitigation would be required. With implementation of Mitigation Measure CUL-9, impacts to human remains would be less than significant.

***Operation***

Once construction is complete, operation of the project is not expected to impact human remains; however, if human remains are identified during the course of operations, implementation of Mitigation Measure CUL-9 would ensure that impacts to human remains are less than significant.

***Mitigation Measure***

**Mitigation Measure CUL-9: Treatment of Human Remains.** In accordance with California Health and Safety Code Section 7050.5, if human remains are found, the Los Angeles County Coroner shall be immediately notified of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains (100 feet or as determined by the project archaeologist) shall occur until the procedures set forth in this measure have been implemented. If the County Coroner determines that the remains are, or are believed to be, Native American, he or she shall notify the Native American Heritage Commission (NAHC) within 24 hours. In accordance with California PRC Section 5097.98, the NAHC must immediately notify those persons it believes to be the Most Likely Descendant (MLD) from the deceased Native American. The MLD shall complete their inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains.

**Significance Determination:** Less than Significant with Mitigation.

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**3.4.4.4 Cumulative Impacts**

This analysis of cumulative impacts takes into consideration impacts on cultural and paleontological resources from implementation of the project. The geographic area of analysis for cultural resources typically covers the region within which similar types of cultural and paleontological resources occur. In this case, the geographic scope of analysis encompasses the broadly defined coastal zone of Orange and Los Angeles Counties, from roughly Santa Monica in the north to Newport Beach in the south. Prehistoric groups occupying this area focused to a large degree on littoral and immediately inland areas, particularly those associated with the estuaries and marshes at the mouths of the coastal drainages. A focus on coastal resources in these estuaries, coupled with use of inland resources, created archaeological patterns somewhat distinct from those of the more

inland areas of Southern California. A similar scope of analysis would be appropriate for paleontological resources, given the presence throughout the coastal zone of similar geological formations. This geographic scope of analysis is appropriate because the archaeological, historical, and paleontological resources within this area are expected to be similar to those that occur within the project site.

### ***Cumulative Impacts during Project Construction***

Multiple projects, mostly development within urban settings, are proposed throughout the geographic scope of analysis. Cumulative impacts to cultural resources could occur if any of these projects, in conjunction with the proposed project, would have impacts on resources that, when considered together, would be significant; however, the current project would not significantly affect known cultural resources, including archaeological resources, historical-period built resources, or human remains. Potential impacts to the known historical-period resources in the project site would be reduced to a less-than-significant level with the implementation of Mitigation Measures CUL-1 through CUL-4, which require adherence to the Secretary of the Interior's Standards and the development of appropriate documentation and interpretive materials. Further, while there is the potential for impacts to unknown archaeological resources, such as those that might be discovered during ground-disturbing activities during project construction, Mitigation Measures CUL-5 through CUL-7, which provide for cultural resources sensitivity training, Native American monitoring, and treatment protocols for unanticipated discoveries, would ensure that impacts are reduced to a less-than-significant level. Taken together, implementation of these mitigation measures would ensure that the project would not have an impact on cultural resources. Therefore, cumulative impacts during construction would not be cumulatively considerable.

Similarly, in the event that human remains are encountered during project implementation, Mitigation Measure CUL-9 would ensure that the remains are treated in accordance with relevant state laws and that impacts would be reduced to a less-than-significant level. It is assumed that any other projects in the geographic scope of analysis would also follow state law. Therefore, cumulative impacts on human remains during construction would not be cumulatively considerable.

Regarding paleontological resources, activities associated with the project do have the potential to impact paleontological resources, and the project, in conjunction with other projects in the area, could contribute to the progressive loss of paleontological resources, as-yet unrecorded fossil sites, associated geological and geographic data, and fossil bearing strata; however, excavation activities during project construction would require compliance with Mitigation Measure CUL-8, which requires monitoring of sensitive geologic deposits, and recovery and appropriate studies in the event of an unanticipated discovery. Adherence to Mitigation Measure CUL-8 would reduce impacts to paleontological resources to a less-than-significant level. Therefore, cumulative impacts to paleontological resources during construction would not be cumulatively considerable.

### ***Cumulative Impacts during Project Operations***

No impacts to cultural resources are anticipated during project operations. Therefore, cumulative impacts during operations would not be cumulatively considerable.

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