# Chapter 7
# CULTURAL RESOURCES (TERRESTRIAL AND MARINE)

## 7.1 Introduction

This chapter describes the existing conditions and regulations applicable to historical, archaeological, and paleontological resources, both terrestrial and marine; analyzes the potential impacts that would result from the implementation of the program and project elements; and determines the significance of those impacts. Where feasible, mitigation measures to reduce impacts are provided.

As discussed in Section 3.6.1, a Preliminary Screening Analysis (Appendix 1-A) was performed to determine impacts associated with the construction and operation of program and project elements by resource area. During preliminary screening, each element was determined to have no impact, a less than significant impact, or a potentially significant impact. Those elements determined to be potentially significant were further analyzed in this environmental impact report/environmental impact statement (EIR/EIS). This EIR/EIS analysis discloses the final impact determination for those elements deemed potentially significant in the Preliminary Screening Analysis. The location of the cultural resources impact analysis for each program element is summarized by alternative in Table 7-1.

**Table 7-1. Impact Analysis Location of Program Elements by Alternative**

| | Alternative | | | | | | Analysis Location | |
|---|---|---|---|---|---|---|---|---|
| **Program Element** | **1** | **2** | **3** | **4** | **5[a]** | **6[b]** | **PSA** | **EIR/EIS** |
| **Conveyance System** | | | | | | | | |
| Conveyance Improvements | X | X | X | X | X | N/A | C,O | C |
| **SJCWRP** | | | | | | | | |
| Plant Expansion | X | X | X | X | X | N/A | C,O | C |
| Process Optimization | X | X | X | X | N/A | N/A | C,O | C |
| WRP Effluent Management | X | X | X | X | X | N/A | O | - |
| **POWRP** | | | | | | | | |
| Process Optimization | X | X | X | X | N/A | N/A | C,O | C |
| WRP Effluent Management | X | X | X | X | X | N/A | O | - |
| **LCWRP** | | | | | | | | |
| Process Optimization | X | X | X | X | N/A | N/A | C,O | C |
| WRP Effluent Management | X | X | X | X | X | N/A | O | - |
| **LBWRP** | | | | | | | | |
| Process Optimization | X | X | X | X | N/A | N/A | C,O | C |
| WRP Effluent Management | X | X | X | X | X | N/A | O | - |
| **WNWRP** | | | | | | | | |
| WRP Effluent Management | X | X | X | X | X | N/A | O | - |

**Table 7-1 (Continued)**

| | Alternative | | | | | | Analysis Location | |
|---|---|---|---|---|---|---|---|---|
| **Program Element** | **1** | **2** | **3** | **4** | **5[a]** | **6[b]** | **PSA** | **EIR/EIS** |
| **JWPCP** | | | | | | | | |
| Solids Processing | X | X | X | X | X | N/A | C,O | C |
| Biosolids Management | X | X | X | X | X | N/A | O | - |
| JWPCP Effluent Management | X | X | X | X | N/A | N/A | Evaluated at the project level. See Table 7-2. | |

WRP effluent management and biosolids management do not include construction.
[a] See Section 7.4.7 for a discussion of the No-Project Alternative.
[b] See Section 7.4.8 for a discussion of the No-Federal-Action Alternative.
PSA = Preliminary Screening Analysis
C = construction
O = operation
N/A = not applicable

As discussed in Section 3.2.2, Joint Water Pollution Control Plant (JWPCP) effluent management was the one program element that was carried forward as a project. The location of the cultural resources impact analysis for each project element is summarized by alternative in Table 7-2.

**Table 7-2. Impact Analysis Location of Project Elements by Alternative**

| | Alternative | | | | | | Analysis Location | |
|---|---|---|---|---|---|---|---|---|
| **Project Element** | **1** | **2** | **3** | **4** | **5[a]** | **6[b]** | **PSA** | **EIR/EIS** |
| **Tunnel Alignment** | | | | | | | | |
| Wilmington to SP Shelf (onshore) | X | | | | N/A | N/A | C,O | C |
| Wilmington to SP Shelf (offshore) | X | | | | N/A | N/A | C,O | C |
| Wilmington to PV Shelf (onshore) | | X | | | N/A | N/A | C,O | C |
| Wilmington to PV Shelf (offshore) | | X | | | N/A | N/A | C,O | C |
| Figueroa/Gaffey to PV Shelf (onshore) | | | X | | N/A | N/A | C,O | C |
| Figueroa/Gaffey to PV Shelf (offshore) | | | X | | N/A | N/A | C,O | C |
| Figueroa/Western to Royal Palms (onshore) | | | | X | N/A | N/A | C,O | C |
| **Shaft Sites** | | | | | | | | |
| JWPCP East | X | X | | | N/A | N/A | C,O | C |
| JWPCP West | | | X | X | N/A | N/A | C,O | C |
| TraPac | X | X | | | N/A | N/A | C,O | C |
| LAXT | X | X | | | N/A | N/A | C,O | C |
| Southwest Marine | X | X | | | N/A | N/A | C,O | C |
| Angels Gate | | | X | | N/A | N/A | C,O | C |
| Royal Palms | | | | X | N/A | N/A | C,O | C |
| **Riser/Diffuser Areas** | | | | | | | | |
| SP Shelf | X | | | | N/A | N/A | C,O | C,O |
| PV Shelf | | X | X | | N/A | N/A | C,O | C,O |

**Table 7-2 (Continued)**

| | Alternative | | | | | | Analysis Location | |
|---|---|---|---|---|---|---|---|---|
| **Project Element** | **1** | **2** | **3** | **4** | **5[a]** | **6[b]** | **PSA** | **EIR/EIS** |
| Existing Ocean Outfalls | X | X | X | X | N/A | N/A | C,O | C,O |

[a] See Section 7.4.7 for a discussion of the No-Project Alternative.
[b] See Section 7.4.8 for a discussion of the No-Federal-Action Alternative.
PSA = Preliminary Screening Analysis
C = construction
O = operation
N/A = not applicable

# 7.2 Environmental Setting

## 7.2.1 Regional Setting

### 7.2.1.1 Geomorphic Setting

The project area is located within the Los Angeles Basin (a broad, level expanse of land comprising more than 800 square miles that extends from Cahuenga Peak south to the Pacific Coast, and from Topanga Canyon southeast to the vicinity of Aliso Creek). Prior to historical settlement of the area, the basin was characterized by extensive inland prairies and a lengthy coastal strand, with elevations approximately 500 feet above mean sea level. The Los Angeles Basin is traversed by several large watercourses, most notably the Los Angeles, Rio Hondo, San Gabriel, and Santa Ana Rivers. Marshlands fed by fresh or salt water also once covered many portions of the area. To the west, the coastal region encompasses approximately 375 square miles of varied terrain. West of Topanga Canyon, the terrain is rugged; the steep, westward slopes of the Santa Monica Mountains reach 1,000 feet or more in elevation, except where stream-cut ravines and canyons drain onto narrow beaches at the water's edge. From Topanga Canyon southward to the Palos Verdes Peninsula, a distance of roughly 22 miles, the coast is flat and level. Extensive marshlands once existed near the mouth of Ballona Creek in the area now known as Playa del Rey. The terrain becomes rugged once again as the coast follows Palos Verdes Peninsula for a distance of approximately 12 miles before reaching San Pedro Bay, which was characterized by extensive mud flats and sand bars in prehistoric times (McCawley 1996).

Alluvial sediments from nearby hills and mountains have filled the Los Angeles Basin over time with thick sedimentary deposits. Throughout the basin, surface deposits (usually 5 feet or more in thickness) generally consist of younger alluvium, which does not contain significant vertebrate fossils. Underlying the younger alluvium is older Quaternary alluvium, which does contain significant paleontological resources and fossil deposits. The older Quaternary alluvium is exposed on the ground surface in limited areas of the Los Angeles Basin, but more typically, the older Quaternary alluvium is present at a depth of 5 feet or more below the natural ground surface.

### 7.2.1.2 Ethnographic Setting

The project area lies within the territory of the Gabrielino (or Tongva) Native American people (Bean and Smith 1978). The Gabrielino are characterized as one of the most complex societies in native Southern California, second perhaps only to the Chumash, their coastal neighbors to the northwest. This complexity derives from their overall economic, ritual, and social organization (Bean and Smith 1978:538; Kroeber 1925:621).

The Gabrielino, an Uto-Aztecan (or Shoshonean) group, may have entered the Los Angeles Basin as recently as 1,500 years before present (BP). In early protohistoric times, the Gabrielino occupied a large territory including the entire San Fernando Valley and Los Angeles Basin. This region encompasses the coast from Malibu to Aliso Creek, parts of the Santa Monica Mountains, the San Fernando Valley, the San Gabriel Valley, the San Bernardino Valley, the northern parts of the Santa Ana Mountains, and much of the middle to the lower Santa Ana River. They also occupied the islands of Santa Catalina, San Clemente, and San Nicolas. Within this large territory were more than 50 residential communities with populations ranging from 50 to 150 individuals. The Gabrielino had access to a broad and diverse resource base. This wealth of resources, combined with an effective subsistence technology, well-developed trade network, and ritual system, resulted in a society that was among one of the most materially wealthy and culturally sophisticated groups in California at the time of contact with Europeans (McCawley 1996).

### 7.2.1.3 Prehistoric Terrestrial Setting

The prehistoric occupation of Southern California is divided chronologically into four temporal phases or horizons extending from about 12,000 years ago to the arrival of the first Europeans in the region (Moratto 1984). The names, durations, and characteristics of each of the temporal horizons are defined in Table 7-3.

**Table 7-3. Temporal Horizons**

| Horizon | Horizon Name | Duration | Characteristics |
|---|---|---|---|
| Horizon I | Early Man Horizon | 12,000 years ago to about 5000 BC | ▪ First appearance of semi-nomadic people in the region<br>▪ Subsisted primarily on game |
| Horizon II | Millingstone Horizon or Encinitas Tradition | 5000–1500 BC | ▪ Widespread use of milling stones (manos and metates), core tools, and few projectile points or bone and shell artifacts<br>▪ Diversification of subsistence activities and a more sedentary settlement pattern<br>▪ Hunting became less important, and reliance on collecting shellfish and vegetal resources increased (Moratto 1984) |
| Horizon III | Intermediate Horizon or Campbell Tradition | 1500 BC and continued until about 600–800 AD | ▪ Shift from the use of milling stones to increased use of mortar and pestle, possibly indicating a greater reliance on acorns as a food source<br>▪ Projectile points become more abundant<br>▪ Increased use of both land and sea mammals (Moratto 1984) |
| Horizon IV | Late Horizon | AD 600–800 to the arrival of Europeans | ▪ Dense populations<br>▪ Diversified hunting and gathering subsistence strategies, including intensive fishing and sea mammal hunting<br>▪ Extensive trade networks<br>▪ Use of the bow and arrow<br>▪ A general cultural elaboration (Moratto 1984) |

### 7.2.1.4 Prehistoric Maritime Setting

The prehistoric maritime setting extends from approximately 12,000 years ago to until European contact in 1542. The maritime setting mirrors that of the prehistoric terrestrial setting (see Section 7.2.1.3) and includes four temporal phases or horizons (see Table 7-3). By Horizon II (5000 BC to 1500 BC), aboriginal populations likely became more dependent on resources from the marine environment (such as shellfish) within the littoral and near-shore environment. Other subsistence resources likely consisted of fish, crustaceans, sea mammals, algae, and sea birds (Pierson et al. 1987:66). Rising sea levels, which

began approximately 18,000–19,000 years ago, subsequently inundated prehistoric sites associated with the maritime setting in Southern California.

Rising sea levels have affected coastal regions around the globe in what is known as the Flandrian Transgression. This rise in sea levels is a result of complex regional and global climatic patterns and included causes such as the melting of the Wisconsin continental polar and mountain piedmont glaciers. The sea level in Southern California was approximately 120 meters (approximately 400 feet) lower than present day prior to the Flandrian Transgression. As water levels began to rise, shorelines were forced inland over the edges of the San Pedro Shelf (SP Shelf) and Palos Verdes Shelf (PV Shelf), creating a large lagoon/estuary system. Prehistoric sites may, therefore, be located on submerged landforms or exposed on bedrock outcroppings such as the SP Shelf or PV Shelf (Macfarlane Archaeological Consultants 1991:3).

Additional authors (Pierson 1980:16; Schwartz 1983; Pierson et al. 1987; Macfarlane Archaeological Consultants 1991) offer an expanded analysis of the potential for inundated prehistoric sites in or near Los Angeles Harbor. These authors indicate that there is likelihood for prehistoric deposits between the present shoreline and the shoreline of 8,500 BP (18 meters [approximately 60 feet] below present sea level), although most sites undergoing erosion in this zone would result in reworked artifacts offshore. Studies also indicate a likelihood of prehistoric deposits between the 8,500 BP (18 meters [approximately 60 feet] below present sea level) and 11,000 BP (46 meters [approximately 150 feet] below present sea level) shoreline. "However, fewer of the landforms selected for settlement by prehistoric peoples survive in this zone than in the 18 m – 0 m zone…due to extensive erosion that occurred during the slow sea level rise between 10,000 – 8,500 B.P." (Pierson et al. 1987:99) Submerged prehistoric resources at these depths may include *in-situ* sites, watercraft, or isolated artifacts left behind from early human activities or relic landforms (i.e., landforms that were of specific use or interest to prehistoric peoples).

### 7.2.1.5 Historic Terrestrial Setting

Although the southern coastal region of California had been inhabited by Native Americans for millennia, California was not known to Europeans until 1542, when it was visited by Cabrillo. The San Diego area was the original center of Spanish settlement, but by 1769, explorers such as Gaspar de Portola had entered the Los Angeles Basin in search of the best route to Monterey, where a mission was to be established. Near one of the spots where Portola had camped, the Mission San Gabriel was established in 1771.

In the years following the establishment of the mission, several homesteads with adobe structures were established throughout the area, and El Pueblo de Nuestra Señora la Reina de Los Angeles de Porciunula (the Town of Our Lady the Queen of Angels of the Little Portion) was founded in 1781. Los Angeles began to grow and became the center of the settlements of the Spanish aristocracy. The surrounding land throughout the Los Angeles Basin was divided into numerous Spanish and Mexican land grant ranchos. Many of the ranchos were later subdivided or portions of them were sold, and these subdivisions often grew into thriving communities that exist to the present.

The establishment of several industries in the Los Angeles region in the late 19$^{th}$ and early 20$^{th}$ century (most notably the oil, agriculture, and motion picture industries) has fueled the growth of the greater Los Angeles area into an extensively developed urban area (Jones & Stokes 1994:16-3).

### 7.2.1.6 Historic Maritime Setting

The remains of thousands of historic and modern vessels lie offshore of North America on the Outer Continental Shelf (OCS) and in the shallow waters adjacent to the modern shoreline. The waters off Los Angeles County have a long maritime history beginning with the use of reed and plank canoes by the Gabrielino Indians. The first historic maritime use of Los Angeles Harbor began in 1542, with the voyage of Cabrillo and extends through the 21st century. A summary of the maritime history for the Los Angeles and Southern California area is included in Table 7-4.

**Table 7-4. Southern California Maritime History**

| Period | Vessels | Characteristics |
|---|---|---|
| Pre-Columbian times | Indigenous reed and plank canoes; Japanese fishing vessels | ▪ The first non-indigenous seafarers arrive at the West Coast from Asia<br>▪ Japanese fishing vessels, damaged and adrift on the Japanese current, may have subsequently wrecked along the west coast of North America (Pierson et al. 1987:79) |
| 1542 | Spanish exploratory vessels | ▪ Spanish exploratory expedition (led by Juan Rodriguez Cabrillo) sailed into San Pedro Bay (Weinman and Stickel 1978:25) |
| 1565 | Spanish vessels (commonly referred to as "Manila galleons") | ▪ Spanish initiated trading voyages between Manila (in the Philippines) and Acapulco, Mexico<br>▪ Route followed the Japanese Current from Manila to North America, passing Los Angeles Harbor to Acapulco; vessels returning to Manila followed the North Equatorial Current<br>▪ Spanish sailed this circuitous route annually for the next 250 years (Pierson et al. 1987:80) |
| Spanish colonial period (1769–1818) and Mexican colonial period (1818–1846) | Hispanic vessels | ▪ Only Hispanic vessels allowed in California waters due to reactionary political practices<br>▪ Foreign trade vessels allowed to bring in manufactured goods in exchange for furs and cowhides during the later part of these periods (Pierson et al. 1987:82) |
| Mexican-American War of 1846 and the Gold Rush of 1849 | Clipper ships and side-wheel steamboats | ▪ Maritime trade of California expanded rapidly<br>▪ The population of Southern California grew<br>▪ Manufacturing, mining, agriculture, and fishing industries replaced the California livestock-raising economy (and to some degree the fur trade)<br>▪ Ships of all kinds from all over the world brought goods and distributed California products to ports worldwide (Pierson et al. 1987:82) |
| 19th century | Steam-powered vessels | ▪ Maritime trade in and out of Los Angeles Harbor continued to grow as the 19th century progressed<br>▪ To accommodate growth, Point Fermin lighthouse was authorized in 1858, although construction did not take place until 1874 (Schwartz 1983:15)<br>▪ Construction of the Los Angeles Harbor breakwater authorized in 1896, began in 1899, and was completed in 1912 (Schwartz 1983:17)<br>▪ Sailing vessels replaced toward the end of the 19th century as technological advancements in shipbuilding increased<br>▪ Shipbuilding in California increased; most yards were located in San Francisco and Humboldt Bay where wood resources were more prevalent (Hall 1974:131-132) |
| 20th century | All types of watercraft | ▪ Waterborne traffic increased after World War I<br>▪ Los Angeles Harbor surpassed San Francisco for trade using the Panama Canal in 1923 (Schwartz 1983:19)<br>▪ 20th century progressed and the growth of Los Angeles Harbor continued, including the construction of container terminals as well the use of bulk loaders and supertankers (Schwartz 1983:24) |

Shipwrecks off the Southern California coast, in varying states of preservation, represent hundreds of years of history because of the lengthy Southern Californian coast historical maritime period. It has been estimated that there are "upwards of 100 wrecks in the harbors [Los Angeles and Long Beach], which vary in age from significant old wrecks to culturally insignificant modern wrecks" (Weinman and Stickel 1978:76). Approximately 415 vessel losses have been reported within Los Angeles County by the Bureau of Ocean Energy Management, Regulation, and Enforcement (BOEMRE), and 156 vessel losses have been identified within Los Angeles County by the California State Lands Commission (CSLC) database (see Section 7.4.1.2 for more information on each of these databases). Only a small fraction of these wrecks has ever been located. A number of reported vessels lost off Los Angeles County are reported to be in excess of 400 feet in length and are primarily freighters and tankers (CSLC 2011). Title to all abandoned shipwrecks, archaeological sites, and historic or cultural resources on or in the tide and submerged lands of California is vested in the state and under the jurisdiction of the CSLC.

Besides traditional vessel losses, two other types of shipwrecks have added to the number of vessels sunk off Los Angeles County – the Hollywood Navy and the United States (U.S.) Navy's Pacific Fleet. The Hollywood Navy is a collection of deactivated ships, purchased and sunk at various times during the production of motion pictures. In addition, the U.S. Navy has, over the years, used many retired warships for gunnery target practice off Los Angeles County (Pierson et al. 1987:84). Other types of historic resources may also potentially exist in the offshore environment, including downed airplanes, anchors, navigational aids, and other isolated finds.

## 7.2.2 Program Setting

An archival records search was conducted at the South Central Coastal Information Center of the California Historical Resources Information System located at California State University, Fullerton, on March 2, March 3, and March 16, 2010, to identify previously recorded archeological cultural resources and historical buildings within 0.5 mile of the program elements. The records search included a review of federal, state, and local historic registers. Previous architectural historical resources surveys and inventories in the area were consulted. The results of the record searches provide background research for the existing program setting and are summarized below.

### Conveyance System

The conveyance system is located throughout the Los Angeles Basin. Generally, the conveyance system is located within the thick alluvial deposits from the nearby hills and mountains. The depth of the conveyance system is generally between 5 and 25 feet below ground surface (bgs); therefore, it would be encompassed within deposits of older Quaternary alluvium, which can contain significant paleontological resources and fossils. Excavation for underground utilities in the past has recovered fossil and human remains, such as the Los Angeles Man, recovered during shallow storm drain trenching in the Ballona Creek area of West Los Angeles in 1936.

### San Jose Creek Water Reclamation Plant

The San Jose Creek Water Reclamation Plant (SJCWRP) is situated adjacent to the junction of the San Gabriel River and San Jose Creek, and is bisected by Interstate (I-) 605 and is adjacent to State Route (SR-) 60. The former Southern Pacific Railroad, which is now part of the Union Pacific Railroad, is a cultural resource recorded within 0.5 mile of the SJCWRP. The San Gabriel River and San Jose Creek are now confined by riprap dike structures and concrete retaining walls for flood control. Younger alluvial deposits are likely to be deep in this geomorphic setting. The parcel has undergone grading and excavation for construction of the existing plant facilities and for channelization of the adjacent streams.

### Pomona Water Reclamation Plant

The Pomona Water Reclamation Plant (POWRP) is situated at the base of the northeast side of Elephant Hill (a small, 1,145-foot-high hill) adjacent to the former Southern Pacific Railroad. A National Register of Historic Places (NRHP)-listed landmark, Phillips Mansion, is located across the railroad tracks at 2640 Pomona Boulevard within 1 mile of the POWRP. The POWRP is situated on alluvial fan surfaces at the base of the north east side of Elephant Hill. Bedrock is shallow in the POWRP area, although the POWRP itself is sited on graded alluvial material, which was leveled for construction of the existing plant facilities. A prehistoric archaeological site, CA-LAN-883, has been recorded on the southern slope of Elephant Hill, approximately 1,800 feet from the POWRP.

### Los Coyotes Water Reclamation Plant

The Los Coyotes Water Reclamation Plant (LCWRP) is situated adjacent to the Ironwood Golf Course and the San Gabriel River, near the junction of I-605 and SR-91. The San Gabriel River is now confined to a concrete-lined flood control channel. Younger alluvial deposits are likely to be deep in this geomorphic setting. The LCWRP parcel has undergone grading and excavation for construction of the existing plant facilities and for channelization of the adjacent stream.

### Long Beach Water Reclamation Plant

The Long Beach Water Reclamation Plant (LBWRP) is situated near the junction of the San Gabriel River and Coyote Creek. Both streams are now confined to concrete channels. Younger alluvial deposits are likely to be deep in this geomorphic setting. The LBWRP parcel has undergone grading and excavation for construction of the existing plant facilities and for channelization of the adjacent streams.

### Joint Water Pollution Control Plant

The JWPCP is situated adjacent to I-110. The natural movement of the Los Angeles River channel, coupled with springs and upwelling, resulted in a system of small creeks, wetlands, and lakes in this area. A portion of this system to the west of the JWPCP was channelized for flood control purposes into the Wilmington Drain, which extends south to Lake Machado at the Ken Malloy Harbor Regional Park. Younger alluvial deposits are likely to be deep in this geomorphic setting. The JWPCP parcel has undergone grading and excavation for construction of the existing plant facilities.

## 7.2.3 Project Setting

An archival records search was conducted at the South Central Coastal Information Center of the California Historical Resources Information System located at California State University, Fullerton, on March 2, March 3, and March 16, 2010, to identify previously recorded archeological cultural resources and historical buildings within 0.5 mile of the project elements. The records search included a review of federal, state, and local historic registers. Previous architectural historical resources surveys and inventories in the area were consulted. The results of the record searches provide background research for the existing project setting and are summarized in this section.

### 7.2.3.1 Sanitation Districts' Existing Ocean Discharge System

The Sanitation Districts of Los Angeles County (Sanitation Districts) operate and maintain the existing ocean discharge system near Whites Point on the Palos Verdes Peninsula in San Pedro. As described in Chapter 2, the existing ocean discharge system extends from the JWPCP to the Pacific Ocean and consists of two parallel tunnels, four separate ocean outfalls, and four sets of diffusers. The four ocean outfalls are constructed of reinforced concrete, and each pipe varies in diameter and length. Three of the ocean outfalls are more than 50 years old; the fourth is 45 years old.

As shown in Table 2-7, the first 8-foot-diameter tunnel and the 60-inch-diameter ocean outfall were completed in 1937. After the significant Southern California population increase following World War II (WWII), the expansion of the ocean discharge system became necessary. In 1947, the second ocean outfall, 72 inches in diameter, was constructed. The first of four sections of the second 12-foot-diameter tunnel was constructed in 1949. By 1958, the fourth section of the 12-foot tunnel and the manifold structure at Royal Palms Beach were constructed and placed into operation. The third ocean outfall, 90 inches in diameter, was placed in operation in 1957, and the fourth ocean outfall, 120 inches in diameter, was placed in operation in 1966. (Parsons 2011:1-1; Powell and Van Heuit 1968:1900).

The Sanitation Districts commissioned a study (White et al.; included as Appendix 7-A) to identify all potentially significant cultural resources situated within the boundaries of the area of potential effects (APE) and to determine if the rehabilitation of the existing ocean outfalls, which is a portion of every project alternative, could result in adverse effects upon these resources.

### 7.2.3.2 Tunnel Alignments

#### Wilmington to San Pedro Shelf Alignment (Onshore)

The onshore portion of the Wilmington to SP Shelf tunnel alignment would be bored between approximately 100 to 200 feet bgs (as measured from the tunnel crown). The geologic formations crossed by this tunnel alignment would include the Pleistocene Lakewood Formation, San Pedro Sand, Timms Point Silt, and deposits of unconsolidated sand and silt. These are sedimentary deposits of unconsolidated sand and silt derived from near shore, marine and non-marine deposits, including beach, estuary, tidal flat, lagoon, shallow-water bay, and shoreline terrace deposits (ICF 2009:3.5-1).

#### Wilmington to San Pedro Shelf Alignment (Offshore)

The offshore portion of the Wilmington to SP Shelf tunnel alignment would be bored between approximately 100 to 200 feet bgs or below the seafloor (as measured from the tunnel crown). The tunnel alignment would extend through the geologic Miocene Monterey Formation. This formation consists of marine sedimentary rock deposits of mudstone, shale, and fine-grained rock.

#### Wilmington to Palos Verdes Shelf Alignment (Onshore and Offshore)

The geologic formations of the Wilmington to PV Shelf onshore and offshore tunnel alignment are the same as for the onshore and offshore portions of the Wilmington to SP Shelf tunnel alignment. The onshore portion of the Wilmington to PV Shelf tunnel alignment would be bored between approximately 100 to 200 feet bgs (as measured from the tunnel crown). The offshore portion of the Wilmington to PV Shelf tunnel alignment would be bored between approximately 100 to 250 feet bgs or below the seafloor (as measured from the tunnel crown).

#### Figueroa/Gaffey to Palos Verdes Shelf Alignment (Onshore and Offshore)

The onshore portion of the Figueroa/Gaffey to PV Shelf tunnel alignment would be bored between approximately 70 to 370 feet bgs (as measured from the tunnel crown). The offshore portion would be bored approximately 100 to 250 feet bgs or below the seafloor (as measured from the tunnel crown). The geologic formations of the onshore and offshore portions of this tunnel alignment are similar to the onshore and offshore portions of the Wilmington to SP Shelf alignment.

#### Figueroa/Western to Royal Palms Alignment (Onshore)

The onshore portion of the Figueroa/Western to Royal Palms tunnel alignment would be bored between approximately 70 to 450 feet bgs (as measured from the tunnel crown), except at the Royal Palms shaft

site where the tunnel crown depth would be approximately 30 feet bgs. The geologic formations of this tunnel alignment are similar to the onshore portion of the Wilmington to SP Shelf alignment.

#### 7.2.3.3 Shaft Sites

##### JWPCP East

The JWPCP East shaft site is situated within the JWPCP property. Younger alluvial deposits are likely to be deep in this geomorphic setting, overlying Holocene-Age Lakewood Formation sediments due to the fact that this shaft site is situated within a tributary of the Wilmington Drain. The JWPCP East shaft site has undergone grading and excavation for construction and removal of oil wells and tanks once present on the parcel.

##### JWPCP West

The JWPCP West shaft site is situated within the JWPCP property, adjacent to I-110. Younger alluvial deposits are likely to be deep in this geomorphic setting, overlying Holocene-Age Lakewood Formation sediments due to the fact that this shaft site is within the former flood channel and wetlands now known as the Wilmington Drain. The JWPCP West shaft site has undergone grading and excavation for construction and removal of oil wells and tanks once present on the parcel.

##### TraPac

The Trans Pacific Container Service Corporation (TraPac) shaft site is situated in the TraPac container facility, adjacent to Harry Bridges Boulevard and a rail line. Vacant lots abut the TraPac shaft site to the north of Harry Bridges Boulevard. Several blocks to the east of the site, the records search identified an NRHP-eligible Los Angeles Department of Water and Power steam plant containing an Art-Deco style main building (19-188178) and the Union Oil Refinery (Ca-LAN-2135H). The shaft site is located near the original shoreline of Los Angeles Harbor on Holocene-Age beach sediments underlain by Holocene-Age Lakewood Formation sediments and the San Pedro Sand. These naturally deposited beach sands and muds are overlain by artificial fill. The TraPac shaft site has undergone grading for construction of the adjacent railroad and the existing container terminal.

##### LAXT

The Los Angeles Export Terminal (LAXT) shaft site is located on Terminal Island on Ferry Street, across from the city of Los Angeles Terminal Island Water Reclamation Plant. The shaft site is located on the western portion of the former Petroleum Coke Storage and Reclaim Facility site. The shaft site would be on an undeveloped area adjacent to railroad tracks maintained by the Port of Los Angeles, a bridge structure, and LAXT structures. The LAXT structures are being demolished by the port and would be gone prior to the start of project construction.

The LAXT shaft site is located on land built completely of artificial fill overlying Holocene-Age Lakewood Formation sediments. The LAXT shaft site has undergone extensive excavation, filling, and grading for construction of the former Petroleum Coke Storage and Reclaim Facility site.

##### Southwest Marine

The Southwest Marine shaft site is adjacent to the Main Channel of the Los Angeles Harbor. The NRHP-eligible Bethlehem Shipyard Historic District, formerly a WWII-era shipbuilding facility, is located adjacent to the shaft site. The shaft site would be located to the south of the existing Southwest Marine shipbuilding warehouses at the Port of Los Angeles and east of the basins at Berths 243–245. In the Architectural Survey and Evaluation of the Southwest Marine Terminal (Berth 240) of the Port of Los Angeles, ICF evaluated the Bethlehem Shipyard Historic District and determined it to be eligible for the

NRHP under Criterion A because of its association with the WWII emergency shipbuilding program (ICF 2000). The period of significance was established as 1941 to 1945, beginning with the time the site was first reconfigured to construct U.S. Navy destroyers and other vessels as part of the emergency shipbuilding program, and ending with the war's conclusion.

In 2008, the NRHP-eligible Bethlehem Shipyard Historic District was updated, and six buildings that had been contributors were found to have been demolished, although the district's historic integrity remained. The NRHP-eligible Bethlehem Shipyard Historic District is designated within the APE. (The APE is discussed in Sections 7.3.1.1 and 7.4.1.1.) Two additional built-environment resources that are eligible for the NRHP have been recorded within a 0.5-mile radius of the Southwest Marine shaft site (Building 10 on the U.S. Government Reservation and the Municipal Wholesale Fish Market across the Main Channel from the shaft site) but these sites are not included in the APE.

The Southwest Marine shaft site is located on land built completely of artificial fill, overlying Holocene sediment and Timms Point Silt. The Southwest Marine shaft site has undergone extensive excavation, filling, and grading for marine construction facilities on this built land.

### Angels Gate

The Angels Gate shaft site is situated adjacent to Point Fermin Park on a portion of the former Fort MacArthur Military Reservation. A portion of Fort MacArthur on the Upper Reservation is listed in the NRHP as a historic district. A second historic district on the Upper Reservation is owned by the California Department of Parks and Recreation, and it is listed in the California Register of Historic Resources (CRHR). A third historic district on the Upper Reservation is on land owned by the Los Angeles Unified School District and was determined eligible for the CRHR. The Angels Gate shaft site is located outside the boundaries of these three historic districts.

An archaeological site (CA-LAN-144) has been recorded across the street from the Angels Gate shaft site in Point Fermin Park. However, the brief site record from 1912 also indicates that the shell material discovered at that time may be a modern accumulation (Nelson 1912). Also across the street from the Angels Gate shaft site is the Point Fermin Light House, which is on the NRHP.

This shaft site is located on the southern edge of the Palos Verdes Hills, adjacent to the Pacific Ocean. The Palos Verdes Hills consist of a Jurassic-Age metamorphic basement complex (Catalina Schist) that is overlain by about 3,000 feet of sedimentary rock formations of Miocene-Age Monterey Formation marine sedimentary rock, consisting of deposits of mudstone, shale, and fine-grained silts (Deméré 2007). Fossil localities are also locally common in the Monterey Formation (Deméré 2007). The shaft site is situated at the base of a hill on an uplifted wave cut terrace underlain by the Altamira Shale Member of the Monterey Formation. The Angels Gate shaft site has undergone grading for construction of an existing parking lot.

### Royal Palms

The Royal Palms shaft site is located at the end of Kay Fiorentino Road in the community of San Pedro. A stone wall fragment with posts constructed prior to 1935 is located adjacent to the Royal Palms shaft site.

The record search identified CA-LAN-142, CA-LAN-143, CA-LAN-152, CA-LAN-1144, CA-LAN-1269, and CA-LAN-2211 within 0.5 mile of the shaft site. All of these recorded archaeological sites are located on the bluff top above and to the southeast of the Royal Palms shaft site.

The shaft site is situated on an uplifted wave cut terrace adjacent to the Pacific Ocean. The shaft site is situated at the base of a cliff underlain by the Altamira Shale Member of the Monterey Formation. The Royal Palms shaft site has undergone grading for construction of an existing parking lot, and extensive excavation for the Sanitation Districts' existing manifold structure and existing ocean outfalls.

### 7.2.3.4 Riser/Diffuser Area

#### San Pedro Shelf

The SP Shelf is an area of the OCS located offshore of Los Angeles County. Although no prehistoric sites are currently known on the SP Shelf, there is a potential for their existence based on the coastal characteristics, sea level changes, and activities of early humans (Weinman and Stickel 1978:76). If prehistoric sites or resources do exist on the SP Shelf, they are likely buried under sediment due to changing sea levels over time and dynamic shelf morphology. Prehistoric sites are more likely to be found on the SP Shelf at shallow depths. There is a slightly greater probability of finding isolated artifacts rather than prehistoric sites at a depth of 200 feet. However, their locations generally cannot be predicted. These artifacts are typically randomly deposited and left from accidental loss or ceremonial activities, or are uncovered due to erosion. Examples of isolated artifacts found off Southern California include a diving weight stone recovered 100 kilometers (approximately 62 miles) offshore at a depth exceeding 3,600 meters (approximately 11,800 feet), a refined stone milling device recovered from 200 meters (approximately 650 feet) south of Santa Rosa Island, and large stone mortars found offshore of La Jolla and Del Mar in San Diego County (Pierson et al. 1987: 98-99).

The general approach to Los Angeles Harbor is over the SP Shelf. Many historic vessels traversed this area, and numerous vessels are known to have sunk on the SP Shelf. While the locations of many wrecks are known, no known wrecks are located within close proximity of the riser and diffuser area.

#### Palos Verdes Shelf

The PV Shelf exhibits the same geomorphologic characteristics as the SP Shelf. Therefore, the potential to find prehistoric resources on the PV Shelf is the same as on the SP Shelf. A number of shipwrecks are located on the PV Shelf. The closest wrecks to the riser and diffuser location include the *Benita* (sunk in 1951) and the *Nelson* (sunk 1936). Both the *Benita* and *Nelson* are reported lost on the PV Shelf (in approximately 100 to 150 feet of water).

#### Existing Ocean Outfalls

The existing ocean outfalls are located on the PV Shelf. Three shipwreck sites are reported at or near the existing ocean outfalls. The CSLC Shipwreck database indicates these are the reported wrecks of the *San Ubaldo*, the *Saint Joseph*, and the *Melrose* (CSLC 2011). Very little is known about the *San Ubaldo* other than it was sunk in 1926. The year the vessel was built is unknown. The plotted location of the wreck is in 30 fathoms of water (180 feet) within 1,000 feet of the existing ocean outfalls although this location has not been confirmed. Very little is known about the *Saint Joseph* other than it was a 60-ton motor vessel that sank in 1975. The unsubstantiated wreck location is in 20 fathoms of water (120 feet) approximately 2,600 feet east northeast of the outfalls. The *Saint Joseph* is not a historically significant shipwreck because it is considered modern based on the sink date. The *Melrose* was a 274-foot double-ended ferry owned by the Southern Pacific and built in the early 1900s. The 2,662 ton vessel had a 43-foot beam and sank in shallow water during a storm in April 1932 (cawreckdivers.org 2011a). The plotted location of this wreck site (from coordinates provided by the CSLC Shipwreck database) indicates it is located in shallow water near the existing ocean outfalls.

# 7.3 Regulatory Setting

Cultural resources include prehistoric archaeological sites, historic archaeological sites, traditional cultural properties, and historic buildings and structures. This section discusses the applicable federal and state laws and regulations that protect cultural resources, including Section 106 of the National Historic Preservation Act (NHPA) and California Public Resources Code Sections 5024.1 and 21084.1, and assesses the potential for program and project elements to have impacts on these resources. Paleontological resources are resources in the fossil record, such as prehistoric remains and other evidence of past life. While paleontological resources are not subject to Section 106 of the NHPA, destruction of a "unique paleontological resource or site or unique geologic feature" constitutes a significant impact under the California Environmental Quality Act (CEQA) (CEQA Guidelines Appendix G, Section V.e.).

## 7.3.1 Federal

### 7.3.1.1 National Historic Preservation Act (16 USC Section 470 et seq. and 36 CFR Section 800)

The NHPA (16 United States Code [USC] Section 470 et seq.) established a national program to preserve the country's historical and cultural resources. Section 106 of the NHPA requires federal agencies to consider the effects of their actions on historic properties and provide the President's Advisory Council on Historic Preservation an opportunity to comment on a proposed action before it is implemented. Regulations for implementing the Section 106 process are provided in 36 Code of Federal Regulations (CFR) Section 800. Both state and federal guidelines for cultural resources recognize that buildings, structures, objects, districts, and cultural landscapes can be historically significant. The NHPA refers to these significant resources as historic properties, while under CEQA, such highly sensitive resources are referred to as historical resources. Under NHPA Section 106 (36 CFR Section 800.16), a historic property is "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places [NRHP]." To be eligible for the NRHP, these property types must meet at least one of the NRHP significance evaluation criteria (36 CFR Section 60.4) to be considered a historic property, and the property must also possess integrity. NRHP historic properties meet one or more of the following evaluation criteria:

- The property is associated with events that have made a significant contribution to the broad patterns of our history (Criterion A).
- The property is associated with the lives of persons significant in our past (Criterion B).
- The property embodies the distinctive characteristics of a type, period, or method of construction; represents the work of a master; possesses high artistic values; or represents a significant and distinguishable entity whose components may lack individual distinction (Criterion C).
- The property has yielded, or may be likely to yield, information important to prehistory or history (Criterion D).

The U.S. Army Corps of Engineers (Corps) is the federal agency responsible for identifying buildings, structures, sites, objects, and districts that are listed in or eligible for listing in the NRHP. The Corps is responsible for compliance with Section 106 of the NHPA as a part of its permitting process of the program. In accordance with 36 CFR Section 800.4(a)(1), the Corps must determine and document an APE.

The term APE is specifically drawn from the Advisory Council on Historic Preservation's federal regulations implementing Section 106 and is defined as follows:

> Area of Potential Effects means the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by an undertaking.

The APE is also defined by 33 CFR Part 325, Appendix C, which is used to determine the permit area. The APE for the project elements is defined in Section 7.4.1. Adverse changes to historic properties and historical resources caused by an undertaking are described as adverse effects under Section 106, and as adverse changes or adverse impacts under CEQA. The definition of effect for the purposes of Section 106 of NHPA is contained within 36 CFR Section 800.16 (i): "Effect means alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register." An adverse effect occurs "when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association…. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative." Examples of adverse effects may include, but are not limited to, destruction, damage, alteration, or relocation of a historic property, as well as the introduction of elements that diminish the property's integrity, cause neglect of a property, or its transfer out of federal ownership.

#### 7.3.1.2 Abandoned Shipwrecks Act

The Abandoned Shipwrecks Act (43 USC 2101) of 1987 was signed into law by President Reagan on April 28, 1988. Under the act, the U.S. Government claimed title to three categories of abandoned shipwrecks:

- Abandoned shipwrecks embedded in a state's submerged lands
- Abandoned shipwrecks embedded in corraline formations protected by a state on its submerged lands
- Abandoned shipwrecks located on a state's submerged lands and included in or determined eligible for inclusion in the NRHP

This act gave the title of certain shipwrecks located in state waters (within 3 nautical miles in California) to the state. The BOEMRE oversees the protection of shipwrecks that are located beyond the 3-mile limit but still on the OCS. The act also stipulated that states have management authority over those certain abandoned shipwrecks. The U.S. government maintained its title to shipwrecks located in or on public lands under this act. In addition, the act stipulates that title to any shipwreck found in or on Indian lands was to be retained by that respective Indian tribe.

### 7.3.2 State

#### 7.3.2.1 Submerged Lands Act

The Submerged Lands Act (43 USC Sections 1301–1315, May 22, 1953, as amended 1986) gives coastal states title to all offshore lands within their historic boundaries (typically up to 3 nautical miles from the coastline). This includes the rights all natural resources on or within those lands. The U.S. government

does, however, maintain the rights to regulate offshore activities for national defense, international affairs, navigation, and commerce.

### 7.3.2.2 California Register of Historical Resources

Under CEQA, significant cultural resources are called historical resources whether they are of historic or prehistoric age. Historical resources are resources that are listed or eligible for listing in the CRHR, that are listed in the historical register of a local jurisdiction (county or city), or that are identified as significant in a historical resources survey meeting the requirements in Public Resources Code (PRC) Section 5024.1(g). NRHP historic properties located in California are considered historical resources for the purposes of CEQA and are also automatically listed in the CRHR (PRC Section 5024.1). Generally, a resource should be considered a historical resource for the purposes of CEQA if it has integrity and meets one or more of the criteria for listing in the CRHR (CEQA Guidelines Section 15064.5[a][3]). These state criteria are based on, and are very similar to, federal significance criteria:

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

The NRHP and CRHR criteria are almost identical. Any resource determined eligible for NRHP is also automatically eligible for CRHR. However, the term historical resources under CEQA and CRHR is more inclusive because resources listed in local historical registers or in local historical surveys that meet Office of Historic Preservation standards are encompassed.

Impacts on historical resources meeting the criteria in Section 15064.5(a) of the CEQA Guidelines constitute a significant effect on the environment (significant impacts that must be disclosed in a CEQA environmental document) if the impact constitutes a substantial adverse change in the significance of a historical resource (PRC Section 21084.1). A substantial adverse change in the significance of a historical resource under CEQA includes "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" (CEQA Guidelines Section 15064.5[b][1]). Material impairment includes changes to the physical characteristics that make a historical resource eligible for listing in the CRHR such that the resource would no longer be eligible for the CRHR or a local historical register (CEQA Guidelines Section 15064.5[b][2]).

### 7.3.2.3 State Health and Safety Code Section 7050.5 and Public Resources Code 5097.98

These legal requirements outline the appropriate procedures to follow should human remains be identified during construction activities in the state of California. These codes call for construction to stop and no further disturbance to occur, and for the county coroner to be contacted for an evaluation of the remains. The county coroner will determine the origin and disposition of the human remains. If the coroner recognizes the remains to be Native American, he or she will contact the California Native American

Heritage Commission (NAHC) within 24 hours. For remains of Native American origin, no further excavation or disturbance will take place until the most likely descendant of the deceased Native American has made a recommendation to the landowner or the person responsible for the excavation work regarding means of treating or disposing of the human remains and any associated grave goods, with appropriate dignity, as provided in PRC Section 5097.9. In consultation with the most likely descendant, the project archaeologist and the project proponent will determine a course of action regarding preservation or excavation of Native American human remains, and this recommendation will be implemented expeditiously. If the NAHC is unable to identify a most likely descendant or the descendant fails to make a recommendation within 48 hours after being notified by the commission, the project archaeologist and the project proponent will determine a course of action regarding preservation or excavation of Native American human remains, which will be submitted to the NAHC for review prior to implementation.

## 7.3.3 Local

### 7.3.3.1 Archaeology and Historical Architectural Resources

City guidelines for the protection of archeological resources are set forth in Section 3 of the city of Los Angeles general plan conservation element, which, in addition to compliance with CEQA, requires the identification and protection of archaeological sites and artifacts as a part of local development permit processing. Specifically, Los Angeles Municipal Code Section 91.106.4.5 states that the building department:

> shall not issue a permit to demolish, alter or remove a building or structure of historical, archaeological or architectural consequence if such building or structure has been officially designated, or has been determined by state or federal action to be eligible for designation, on the National Register of Historic Places, or has been included on the City of Los Angeles list of historic cultural monuments, without the department having first determined whether the demolition, alteration or removal may result in the loss of or serious damage to a significant historical or cultural asset. If the department determines that such loss or damage may occur, the applicant shall file an application and pay all fees for the California Environmental Quality Act Initial Study and Check List, as specified in Section 19.05 of the Los Angeles Municipal Code. If the Initial Study and Check List identify the historical or cultural asset as significant, the permit shall not be issued without the department first finding that specific economic, social or other considerations make infeasible the preservation of the building or structure.

Five types of historic protection designations apply in the city: (1) historic-cultural monument designation by the Los Angeles Cultural Heritage Commission and approved by the city council; (2) placement on the CRHR; (3) placement on the NRHP (1980 NHPA); (4) designation by the Community Redevelopment Agency as being of cultural or historical significance within a designated redevelopment area; and (5) classification by the city council (recommended by the planning commission) as a historic preservation overlay zone (HPOZ). These designations help protect structures and support rehabilitation fund requests (City of Los Angeles 2001a).

The significance of a historical resource is based on whether the resource:

1. Has been coded by the Department of Building and Safety with a Zoning Instruction number in the 145 series (indicating prior identification of the property as historic)

2. Has been classified as historic in a historical resources survey conducted as part of updating the community plan, the adoption of a redevelopment area, or other planning project
3. Is subject to other federal, state, or local preservation guidelines
4. Has a known association with an architect, master builder, or person or event important in history such that the resource may be of exceptional importance
5. Is over 50 years old and a substantially intact example of an architectural style significant in Los Angeles (City of Los Angeles 2006)

### 7.3.3.2 City of Los Angeles Historic-Cultural Monument Designation

In the city of Los Angeles, the Los Angeles Cultural Heritage Commission, established by ordinance in 1962, may designate resources as historic-cultural monuments under Los Angeles Administrative Code Sections 22.120, et seq. A historical or cultural monument is defined as:

> Any site (including significant trees or other plant life located thereon), building or structure of particular historic or cultural significance to the City of Los Angeles, such as historic structures or sites in which the broad cultural, political, economic or social history of the nation, state or community is reflected or exemplified, or which are identified with historic personages or with important events in the main currents of national, state or local history, or which embody the distinguishing characteristics of an architectural-type specimen, inherently valuable for a study of a period style or method of construction, or a notable work of a master builder, designer, or architect whose individual genius influenced his age.

The Los Angeles Cultural Heritage Commission has designated over 900 sites as historic-cultural monuments, including historic buildings, corridors (tree-lined streets), and geographic areas. Historical resources may also include resources listed in the State Historic Resources Inventory as significant at the local level or higher, and those evaluated as potentially significant in a survey or other professional evaluation. (City of Los Angeles 2001b.)

### 7.3.3.3 City of Los Angeles Historic Preservation Overlay Zones

The HPOZ provision of the Los Angeles Municipal Code (Los Angeles Municipal Code Section 12.20.3) was adopted in 1979 and amended in 2001. As defined in Section 12.20.3.B.17 of the Los Angeles Municipal Code, a preservation zone is "any area of the City of Los Angeles containing buildings, structures, landscaping, natural features, or lots having historic, architectural, cultural, or aesthetic significance and designated as a HPOZ under the provisions of this section." Subsection 12.20.3 of the Los Angeles Municipal Code requires that a historical resources survey be prepared, identifying all contributing and noncontributing elements.

Under the HPOZ provision, to be significant, structures, natural features, or sites within the involved area or the area as a whole would meet one or more of the following criteria:

(A) Have substantial value as part of the development, heritage, or cultural characteristics of, or are associated with the life of a person important in the history of the city, state, or nation

(B) Are associated with an event that has made a substantial contribution to the broad patterns of our history

(C) Are constructed in a distinctive architectural style characteristic of an era of history

(D) Embody those distinguishing characteristics of an architectural type or engineering specimen

(E) Are the work of an architect or designer who has substantially influenced the development of the city

(F) Contain elements of design, details, materials, or craftsmanship that represent an important innovation

(G) Are part of or related to a square, park, or other distinctive area and should be developed or preserved according to a plan based on a historic, cultural, architectural, or aesthetic motif

(H) Represent an established feature of the neighborhood, community, or city owing to unique location or singular physical characteristics

(I) Preserve and protect a historic place or area of historic interest in the city

A contributor is "any building, structure, landscaping, [or] natural feature identified on the Historic Resources Survey as contributing to the historic significance of the HPOZ, including a building or structure which has been altered, where the nature and extent of the alterations are determined reversible by the Historic Resources Survey" (Los Angeles Municipal Code Section 12.20.3 B.6). The following criteria set forth in subsection 12.20.3 F.3(c)(1)-(3) of the Los Angeles Municipal Code determine if a resource is a contributor.

1. Adds to the historic architectural qualities or historic associations for which a property is significant because it was present during the period of significance and possesses historic integrity reflecting its character at that time
2. Represents an established feature of the neighborhood, community, or city owing to its unique location or singular physical characteristics
3. Contributes to the preservation and protection of a historic place or area of historic interest in the city

#### 7.3.3.4 L.A. CEQA Thresholds Guide

The L.A. CEQA Thresholds Guide (City of Los Angeles 2006) sets forth specific thresholds to be used in determining the significance of cultural resource impacts. These thresholds are grouped under three topics: paleontological resources, archaeological resources, and historical resources.

- A project would have a significant impact on paleontological resources if it results in the permanent loss of, or loss of access to, a paleontological resource of regional or statewide significance
- An impact on archaeological resources would be considered significant if it would disturb, damage, or degrade an archaeological resource or its setting that is found to be important under the criteria of CEQA because it:
    - Is associated with an event or person of recognized importance in California or American history or of recognized scientific importance in prehistory
    - Can provide information which is both of demonstrable public interest and useful in addressing scientifically consequential and reasonable archaeological research questions
    - Has a special or particular quality, such as the oldest, best, largest, or last surviving example of its kind

- Is at least 100 years old and possesses substantial stratigraphic integrity
- Involves important research questions that historical research has shown can be answered only with archaeological methods

- An impact on historical architectural resources would be considered significant if it would result in a substantial adverse change that would impair the significance of a historical resource that is found to be important because it:
  - Is associated with an event or person of recognized importance in California or American history
  - Has associations with an architect, master builder, or person or event important in history such that the resource may be of exceptional importance
  - Is over 50 years old and is a substantially intact example of an architectural style significant in Los Angeles
- A substantial adverse change in significance would occur if the project involves:
  - Demolition of a significant resource
  - Relocation that does not maintain the integrity and significance of a significant resource
  - Conversion, rehabilitation, or alteration that does not conform to the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings
  - Construction that reduces the integrity or significance of important resources on the site or in the vicinity

The L.A. CEQA Thresholds Guide was used in development of the thresholds for this analysis.

### 7.3.3.5 Ethnographic Resources

Relative to ethnographic resources, the L.A. CEQA Thresholds Guide (2006) states: "Consider compliance with guidelines and regulations such as the California Public Resources Code." No specific local regulations mandating the protection of ethnographic resources exist.

### 7.3.3.6 Paleontological Resources

City guidelines for the protection of paleontological resources are specified in Section 3 of the City of Los Angeles General Plan Conservation Element. The policy requires that the city's paleontological resources be protected for research and/or educational purposes. It mandates the identification and protection of significant paleontological sites and/or resources known to exist or that are identified during land development, demolition, or property modification activities.

### 7.3.3.7 City of Carson

The City of Carson General Plan Update was approved in 2004. City guidelines for the protection of historical resources are specified in the Parks, Recreation, and Human Services Element of the City of Carson General Plan, Chapter 9 (City of Carson 2004). The city of Carson has no local historic preservation ordinance.

## 7.3.4 Standards

Historic properties proposed for modification are evaluated using the Secretary of the Interior's standards for preservation, rehabilitation, restoration, and reconstruction.

### 7.3.4.1 Standards for Preservation

1. A property will be used as it was historically, or be given a new use that maximizes the retention of distinctive materials, features, spaces, and spatial relationships. Where a treatment and use have not been identified, a property will be protected and, if necessary, stabilized until additional work may be undertaken.
2. The historic character of a property will be retained and preserved. The replacement of intact or repairable historic materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate, and conserve existing historic materials and features will be physically and visually compatible, identifiable upon close inspection, and properly documented for future research.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. The existing condition of historic features will be evaluated to determine the appropriate level of intervention needed. Where the severity of deterioration requires repair or limited replacement of a distinctive feature, the new material will match the old in composition, design, color, and texture.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

### 7.3.4.2 Standards for Rehabilitation

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.
2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.

6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.
9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.
10. New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

### 7.3.4.3 Standards for Restoration

1. A property will be used as it was historically or be given a new use that reflects the property's restoration period.
2. Materials and features from the restoration period will be retained and preserved. The removal of materials or alteration of features, spaces, and spatial relationships that characterize the period will not be undertaken.
3. Each property will be recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate, and conserve materials and features from the restoration period will be physically and visually compatible, identifiable upon close inspection, and properly documented for future research.
4. Materials, features, spaces, and finishes that characterize other historical periods will be documented prior to their alteration or removal.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize the restoration period will be preserved.
6. Deteriorated features from the restoration period will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials.
7. Replacement of missing features from the restoration period will be substantiated by documentary and physical evidence. A false sense of history will not be created by adding conjectural features, features from other properties, or by combining features that never existed together historically.
8. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
9. Archeological resources affected by a project will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.
10. Designs that were never executed historically will not be constructed.

#### 7.3.4.4 Standards for Reconstruction

1. Reconstruction will be used to depict vanished or non-surviving portions of a property when documentary and physical evidence is available to permit accurate reconstruction with minimal conjecture, and such reconstruction is essential to the public understanding of the property.
2. Reconstruction of a landscape, building, structure, or object in its historic location will be preceded by a thorough archeological investigation to identify and evaluate those features and artifacts that are essential to an accurate reconstruction. If such resources must be disturbed, mitigation measures will be undertaken.
3. Reconstruction will include measures to preserve any remaining historic materials, features, and spatial relationships.
4. Reconstruction will be based on the accurate duplication of historic features and elements substantiated by documentary or physical evidence rather than on conjectural designs or the availability of different features from other historic properties. A reconstructed property will re-create the appearance of the non-surviving historic property in materials, design, color, and texture.
5. A reconstruction will be clearly identified as a contemporary re-creation.
6. Designs that were never executed historically will not be constructed.

# 7.4 Environmental Impacts and Mitigation Measures

## 7.4.1 Methodology and Assumptions

### 7.4.1.1 Terrestrial Cultural Resources

Impacts on cultural resources were evaluated by determining whether demolition or ground disturbance activities would affect areas that contain or could contain any archaeological or historical sites that are listed in or eligible for listing in the NRHP or the CRHR, that are designated as a city of Los Angeles historic-cultural monument, that are included within a city of Los Angeles HPOZ, or that are otherwise considered a unique or important archaeological resource under CEQA (City of Los Angeles 2006).

The CEQA study area evaluated for the program-level CEQA analysis is the footprint of each water reclamation plant (WRP) and the JWPCP because all construction and operation activities would be confined within each site. For historical architectural resources, the CEQA study area includes program elements that require the construction of new buildings or the modification of existing structures at the WRPs or the JWPCP. If existing buildings are over 50 years of age, they are evaluated as potential historical architectural resources. If the program elements do not include the construction of new buildings or the modification of existing structures at the WRPs or the JWPCP, there is no CEQA study area for historic architectural resources. Because the program has no National Environmental Policy Act (NEPA) element, there is no NEPA study area or APE.

For prehistoric or historic archeological resources, the CEQA study area includes program elements that require excavation or ground disturbance. The potential for the excavation or ground disturbance to have an impact on buried unknown significant archaeological resources is analyzed. If the program elements do not include excavation or ground disturbance, then there is no CEQA study area for prehistoric or historic archeological or paleontological resources.

The CEQA study area evaluated for the project-level CEQA analysis is identical to the federal APE as determined by the Corps (33 CFR Part 325 Appendix C). The NEPA study area is the same as the APE. In accordance with 36 CFR Section 800.4(a)(1), on February 12, 2010, the Corps made a preliminary determination and documented an APE on vicinity maps (Figures 3-16, 3-17, 3-18, 3-19, 3-20, 3-21, 3-22, and 3-23). The APE includes areas of ground disturbance at the shaft sites, the tunnel bore itself (but not the area above the tunnel), the riser/diffuser areas (also including the existing ocean outfalls), and the ocean dredged material disposal sites. Permanent visual effects associated with activities in these areas on proximate historic properties are also considered. Detailed magnetometer studies of the marine APE are only needed for the preferred alternative (see Section 7.4.1.2), including the direct construction area of the riser and diffuser and the portion of the existing ocean outfalls subject to rehabilitation actions. Incidental anchor drop locations are not included in the APE. The term APE is specifically drawn from the Advisory Council on Historic Preservation's federal regulations implementing Section 106 of the NHPA as described in Section 7.3.1.1. There is one NRHP-eligible property identified within the APE, described in detail in Section 7.2 of this chapter:

- Bethlehem Shipyard Historic District

As discussed in Section 7.2.3, the NRHP-eligible Bethlehem Shipyard Historic District is adjacent to the Southwest Marine shaft site. Impacts of construction and operation activities at this shaft site on the Bethlehem Shipyard Historic District are discussed in the analysis.

A field reconnaissance survey was conducted in January 2009. If a potential built environment resource was identified during the survey, further research was conducted. This research included:

- Sanitation Districts' archival photo collection
- Sanitation Districts' archival collection of historic articles and publications
- Sanborn fire insurance maps
- ProQuest historical newspapers: Los Angeles Times 1881 – December 31, 1985
- JSTOR and WorldCat academic databases
- Online Archive of California
- Los Angeles Public Library local history collection – photo database and California index

An archaeological and historic architectural resources field survey of the project elements (seven shaft sites) was completed in January 2009. The Angels Gate and Royal Palms shaft sites were re-examined on February 25, 2010.

### 7.4.1.2 Submerged Cultural Resources

Direct and indirect cultural resource impacts on submerged resources could occur due to the construction and operation of the riser and diffuser or the rehabilitation of the existing ocean outfalls. Direct cultural resource impacts would include damage caused by construction activities (i.e., dredging, placement of ground tackle) associated with the placement of the riser and diffuser. Indirect cultural resource impacts would include the inadvertent exposure or burial of submerged cultural resources. These direct and indirect impacts (which are in reference to cultural resource impacts) differ from those identified and defined by the Corps in Section 7.4.1.3 (which are in reference to federal regulations and responsibilities). The study area for submerged cultural resources includes those areas directly affected by activities associated with the construction and subsequent operation of the riser and diffusers. This may also

include areas surrounding the construction site such as mooring areas, wire drags, and any other direct impacts on the seafloor. Submerged cultural resources may be either prehistoric or historic.

Numerous sources were consulted to determine the location (or potential location) of submerged prehistoric and historic cultural sites and resources. These sources include:

- Consultation with the Corps
- Consultation with interested parties
- CSLC database for shipwrecks
- BOEMRE shipwreck database
- National Oceanic and Atmospheric Administration's (NOAA) Automated Wreck and Obstruction Information System (AWOIS) database
- Global Maritime Wrecks database (GMWD)
- NRHP database
- Previous cultural resource/geophysical surveys and inventories
- Secondary sources and avocational wreck diving websites
- Predictive modeling based on past research

## Consultation With the Corps

On February 12, 2010, the Corps made a preliminary determination that the PV and SP Shelf riser and diffuser areas are not within the federal APE. However, to comply with Section 106 requirements of the NHPA, the Corps is requiring that additional detailed technical studies be performed once an alternative is selected by the Sanitation Districts. The additional studies may include, as feasible, detailed side-scan sonar and magnetometer studies for the selected alternative in locations of direct disturbance to the seafloor. The Corps is not requiring side-scan sonar and magnetometer studies of incidental anchor drop locations. The Corps will not issue the 404(b)(1) permit without compliance with Section 106 of the NHPA and the required additional studies. Therefore, the analysis assumes that the required additional studies will be performed as feasible.

## Consultation With Interested Parties

Interested parties were consulted to gather information relative to known submerged cultural resources and the potential for such resources within the study area. This included individuals with an interest in the prehistory, history, and archaeology of the region. Such individuals included the state of California underwater archaeologist, private cultural resource managers, and other maritime archaeologists familiar with the area.

## Shipwreck Database Review

A number of shipwreck databases were reviewed. Plotted positions of shipwreck sites are usually inaccurate because the coordinates are typically generated from multiple sources such as eyewitness accounts, secondary sources, and newspaper accounts; however, the databases do provide information on the shipwrecks and their general vicinity. The databases reviewed and the particular information associated with each database are shown in Table 7-5.

The four databases that were searched include the NOAA AWOIS database, the CSLC database for shipwrecks, the BOEMRE shipwreck database, and the GMWD. These databases provide information relative to known vessel losses, including vessel name, type, date built, date lost, and any other pertinent

information. The NOAA AWOIS database and CSLC shipwreck database are available to the general public and can be searched online. However, both the BOEMRE shipwreck database and GMWD are proprietary and are not available to the general public.

**Table 7-5. Shipwreck Databases**

| Database | Locations Included | Notes |
|---|---|---|
| NOAA AWOIS | United States | This database, available to the public, contains information on over 10,000 shipwreck sites. Information on the database includes position (latitude/longitude), feature description, and any known historic and/or descriptive details. Position accuracy of AWOIS wrecks is highly variable and usually poor. |
| CSLC | State | This database, available to the public, is searchable by ship name, type, county, and location. The database provides information relative to known vessel losses including ship's name, type, year built, year sunk, cause, owner, captain, length, beam, tonnage, engine, county, and location within California state waters. |
| BOEMRE | United States | The database is searchable by state and county. This database includes vessel name, nationality, date built, date lost, vessel type, tonnage, county, depth lost, locational accuracy, lease number, wreck verification, and any additional information available relative to vessel losses. This database is not available to the general public. |
| GMWD | Worldwide | This proprietary database contains over 270,000 wrecks worldwide. The database includes wreck name, nationality, date of sinking, depth of wreck, vessel category, gross tons, sinking agent, nominal accuracy of wreck location, source of wreck, nationality of the vessel that sunk the wreck, and more. |

In addition to these databases, the NRHP maintains a list of historic properties (including shipwrecks) that is searchable by state and county (National Park Service 2010).

## Previous Cultural Resource/Geophysical Surveys and Previous Environmental Documentation

A variety of submerged cultural resource reports were reviewed relative to both offshore prehistoric and historic sites off Los Angeles County (Weinman and Stickel 1978; Pierson 1980; Schwartz 1983; Pierson et al. 1987; Macfarlane Archaeological Consultants 1991). In addition, a review of side-scan sonar data from a geophysical survey, conducted by Fugro West (2011), was also performed. This survey conducted by Fugro West collected side-scan sonar data over portions of the SP Shelf and PV Shelf. Side-scan sonar data can be useful by recording exposed features on the seafloor, some of which may be associated with submerged cultural resources. However, this geophysical survey did not incorporate the use of a magnetometer or sub bottom profiler (in addition to a side-scan sonar). These two instruments are typically used to locate submerged cultural resources and help to confirm the type of material identified by the side-scan sonar (e.g., metal, wood, other). Therefore, a complete analysis of the data collected by Fugro West, relative to submerged cultural resources, could not be made.

The effects of the Clearwater Program from excavated material (fill) disposal at LA-2 and LA-3 were evaluated previously in the Draft Environmental Impact Statement for the Proposed Site Designation of the LA-3 Ocean Dredged Material Disposal Site off Newport Bay, Orange County, California (LA-3 DEIS), prepared for the U.S. Environmental Protection Agency and the Corps, Los Angeles District (December 2004), and incorporated herein by reference. The Final Environmental Impact Statement for the Proposed Site Designation of the LA-3 Ocean Dredged Material Disposal Site off Newport Bay, Orange County, California, was adopted in September 2005. The LA-3 DEIS analyzed the impacts associated with the proposed designation of the LA-3 site as a permanent site for the ocean disposal of dredged material and the continued operation of LA-2 (also known as the LA-3 DEIS Preferred Alternative [Alternative 3]). The LA-3 site is used in conjunction with the LA-2 site for the disposal of

dredged material originating from projects located within Los Angeles and Orange Counties. The relevant analysis for the LA-3 DEIS Preferred Alternative included in the LA-3 DEIS and incorporated into this chapter is associated with cultural resources.[1]

## Secondary Sources

A number of secondary sources were reviewed relative to submerged cultural resources off Los Angeles County. This includes shipwreck references (Marx 1971), dive site books (Cardone and Smith 1989), and professional journals. An avocational wreck diver website (Cawreckdivers.org 2011b) was also reviewed for known shipwrecks off Los Angeles County. Secondary sources can help provide information relative to known and potential submerged cultural resources within the region.

## Predictive Models for Prehistoric and Historic Resources

Many prehistoric and historic submerged cultural resources are not identified or categorized in a database. Therefore, a methodology was developed to appropriately predict and analyze the likelihood of unknown prehistoric and historic submerged cultural resources within the study area. This methodology is discussed below.

A predictive model based on previous research and shelf characteristics was applied to each study area to analyze the potential locations of unidentified prehistoric sites and artifacts. This model depends upon numerous geologic and archaeological elements. The geologic elements include shelf morphology, post-Wisconsin erosional/depositional history of the coastal strip, and nearshore processes on various landforms during the Flandrian Transgression. Embayments, which evolved into estuaries and relic channels, have the highest potential for prehistoric sites and artifact deposits. The archaeological elements include how long humans have been present along the coast as well as land use and site distribution patterns (Pierson et al. 1987:92). There is a likelihood of prehistoric sites being found between the 8,500 BP shoreline (18 meters [approximately 60 feet] below present sea level) and the 11,000 BP shoreline (46 meters [approximately 150 feet] below present sea level). However, extensive erosion from 10,000 to 8,500 BP may have affected any potential deposits. The various predictive elements are analyzed to predict the occurrence of unrecorded in situ or reworked prehistoric archaeological deposits located within the study area.

A similar model was used to predict the location of unidentified historic shipwrecks. Typically, shipwrecks occur much closer to shore than in the open ocean. Researchers have assumed between 75 and 98 percent of all shipping losses in the western hemisphere through the 19th century occurred in less than 10 meters (approximately 32 feet) of water or very close to shore (Garrison et al. 1989: I-3). Furthermore, it is assumed where ship traffic is concentrated there are more vessel losses, especially when concentrated traffic occurs near navigational hazards such as islands, headlands, or submerged rocks. If these factors coincide with areas with a likelihood of foul weather or fog, an even greater frequency of accidents can be expected. However, wrecks may occur even where traffic is not concentrated or when

[1] The analysis regarding cultural resources is included in Chapter 4 of the LA-3 DEIS on pages 4-1 to 4-5 and 4-38. Additionally, the cumulative analysis for cultural resources associated with the LA-3 Preferred Alternative is included in Chapter 4 of the LA-3 DEIS on pages 4-76 to 4-79. Finally, the relationship between short-term and long-term resource use and the irreversible or irretrievable commitment of resources on page 4-80 to 4-81 is applicable. The analysis in the LA-3 DEIS is relevant to the Clearwater Program analysis because construction of the offshore tunnel in Alternatives 1 to 3 could require ocean disposal of the excavated material and would make use of either LA-3 or LA-2. The quantity of excavated material is defined in Chapter 3 of the Clearwater Program EIR/EIS and would not exceed the maximum limits of either LA-3 or LA-2. Therefore, because the LA-3 DEIS analyzed the cultural resource impacts associated with disposing dredged materials at LA-3 and LA-2, this chapter incorporates the analysis by reference and does not provide additional information.

the weather is clear (Pierson et al. 1987:102). The various predictive elements are analyzed to predict the occurrence of unrecorded historic shipwrecks or artifacts associated with wrecks.

#### 7.4.1.3 Baseline

### CEQA Baseline

The CEQA baseline for unknown prehistoric and historic archaeological resources, including submerged resources, includes all buried sites. The CEQA baseline would not change unless the sites are encountered during construction.

The CEQA baseline for historical architectural resources includes the NRHP-eligible Bethlehem Shipyard Historic District at the Southwest Marine shaft site.

### NEPA No-Federal-Action Baseline

The NEPA no-federal-action baseline for the Clearwater Program is described in Section 1.7.4.2. The NEPA baseline in general represents the condition of resources at the year 2022 when construction of project elements under the Corps jurisdiction would conclude.

The NEPA baseline for unknown prehistoric and historic archaeological resources, including submerged resources, includes all buried sites that may be eligible for the NRHP. The NEPA baseline may change if sites are encountered during construction and are subsequently deemed to be NRHP eligible.

The NEPA baseline for historical architectural resources is the same as the CEQA baseline and includes: the NRHP-eligible Bethlehem Shipyard Historic District at the Southwest Marine shaft site.

Note that the NEPA analysis includes direct and indirect impacts as discussed in Section 3.5.2. Any impact associated with project elements located within the Corps' geographic jurisdiction (i.e., the marine environment) during construction would be the direct result of the Corps permit and considered a direct impact under NEPA. Any impact associated with project elements located outside the Corps' geographic jurisdiction during construction would be the indirect result of the Corps permit and considered an indirect impact under NEPA. Any impact that occurs during operation would be considered an indirect impact under NEPA.

## 7.4.2 Thresholds of Significance

Thresholds of significance for impacts on cultural resources, are developed from both federal (Section 106 of the NHPA) and state (CEQA) regulations. These two sets of regulations overlap in terms of known prehistoric and historic archaeological resources, unknown prehistoric and historic archaeological resources, and historical architectural resources. Because of this overlap, thresholds for adverse effects (federal) or impacts (state) on known archaeological resources, unknown archaeological resources, and historical architectural resources are numbered CUL-1 and CUL-2, respectively. Therefore, CUL-1 includes historical resources and historic properties such as buildings, structures, objects, sites, or historic districts, but not archaeological sites. This allows for a streamlined discussion of impacts. Paleontological resources are protected only under state regulations, and, therefore, this threshold is numbered CUL-3.

The identification of cultural resources in the project area was based on the results of a record search; archival and historic map research; site visits; and consultation with the NAHC, local Native American

representatives, and other interested parties. This information represents the cultural resources baseline for the impact analysis because cultural resources information does not change substantially over time.

The program and/or project would pose a significant impact if it exceeds any of the following thresholds for cultural resources (CUL):

CUL-1. Causes a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5 or results in an adverse effect on a historic property pursuant to 36 CFR Section 800.5.[2]

CUL-2. Causes a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5 or results in an adverse effect on a historic property that is an archaeological site pursuant to 36 CFR Section 800.5.[3]

CUL-3. Results in disturbance or destruction of a unique paleontological resource or site or a unique geologic feature.

CUL-4. Results in disturbance of any human remains, including those interred outside of formal cemeteries.

CUL-5. Results in direct or indirect damage or removal of a significant submerged marine cultural resource or results in alteration or causes change to stable environmental conditions for a significant submerged marine cultural resource(s).

Program and project elements were analyzed by threshold in the Preliminary Screening Analysis (Appendix 1-A) to identify potentially significant impacts on cultural resources before mitigation. Table 7-6 identifies which elements were brought forward for further analysis by threshold in this EIR/EIS for Alternatives 1 through 4. If applicable, Table 7-6 also identifies thresholds evaluated in this EIR/EIS if an emergency discharge into various water courses were to occur under the No-Project or No-Federal-Action Alternatives, as described in Sections 3.4.1.5 and 3.4.1.6.

**Table 7-6. Thresholds Evaluated**

| | | Threshold | | | | |
|---|---|---|---|---|---|---|
| | **Alt.** | **CUL-1** | **CUL-2** | **CUL-3** | **CUL-4** | **CUL-5[a]** |
| **Program Element** | | | | | | |
| Conveyance System Improvements | 1–5 | X | X | X | X | |
| SJCWRP Plant Expansion | 1–5 | X | X | X | X | |
| SJCWRP Process Optimization | 1–4 | X | X | X | X | |
| POWRP Process Optimization | 1–4 | X | X | X | X | |
| LCWRP Process Optimization | 1–4 | X | X | X | X | |

[2] Because there is no federal involvement at the program level, CUL-1 for the program only includes state regulations and is evaluated as follows: CUL-1. Causes a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5.

[3] Because there is no federal involvement at the program level, CUL-2 for the program only includes state regulations and is evaluated as follows: CUL-2. Causes a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.

**Table 7-6 (Continued)**

| | | Threshold | | | | |
|---|---|---|---|---|---|---|
| | **Alt.** | **CUL-1** | **CUL-2** | **CUL-3** | **CUL-4** | **CUL-5[a]** |
| **Project Element** | | | | | | |
| LBWRP Process Optimization | 1–4 | X | X | X | X | |
| JWPCP Solids Processing | 1–5 | X | X | X | X | |
| Wilmington to SP Shelf (onshore tunnel)[b] | 1,2 | | | X | | |
| Wilmington to SP Shelf (offshore tunnel) | 1 | | | X | | |
| Wilmington to PV Shelf (onshore tunnel)[b] | 1,2 | | | X | | |
| Wilmington to PV Shelf (offshore tunnel) | 2 | | | X | | |
| Figueroa/Gaffey to PV Shelf (onshore tunnel) | 3 | | | X | | |
| Figueroa/Gaffey to PV Shelf (offshore tunnel) | 3 | | | X | | |
| Figueroa/Western to Royal Palms (onshore tunnel) | 4 | | | X | | |
| JWPCP East Shaft Site | 1,2 | X | X | X | X | |
| TraPac Shaft Site | 1,2 | X | X | X | X | |
| LAXT Shaft Site | 1,2 | X | X | X | X | |
| Southwest Marine Shaft Site | 1,2 | X | X | X | X | |
| JWPCP West Shaft Site | 3,4 | X | X | X | X | |
| Angels Gate Shaft Site | 3 | X | X | X | X | |
| Royal Palms Shaft Site | 4 | X | X | X | X | |
| SP Shelf Riser/Diffuser Area | 1 | | | | | X |
| PV Shelf Riser/Diffuser Area | 2,3 | | | | | X |
| Existing Ocean Outfalls Riser/Diffuser Area | 1–4 | X | | | | X |

[a] CUL-5 was not evaluated for the program because the program does not have marine elements.
[b] The onshore tunnel alignment for the Wilmington to SP Shelf is the same as the onshore tunnel alignment for the Wilmington to PV Shelf.
Alt. = alternative

In the alternatives analysis that follows, if a program or project element is common to more than one alternative, a detailed discussion is presented only in the first alternative in which it appears. Additionally, in subsequent alternatives where no new elements are introduced under a specific threshold, that threshold is not repeated.

## 7.4.3 Alternative 1

### 7.4.3.1 Program

#### *Impact CUL-1. Would Alternative 1 (Program) cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?*

### Conveyance System – Conveyance Improvements

#### Construction

The exact location of the conveyance system improvements is not known at this time, but it would be primarily constructed in cut-and-cover construction in public street right-of-way. No above ground buildings or structures would be acquired or altered for the construction, so the improvements would not have the potential to affect above ground historic buildings and structures. There would be no impacts on historical resources.

### San Jose Creek Water Reclamation Plant – Plant Expansion and Process Optimization

#### Construction

The SJCWRP began operating in June 1971; therefore, there are no buildings or structures on the site that were constructed over 50 years ago. Typically, properties less than 50 years of age are not considered eligible for the CRHR unless it can be demonstrated that sufficient time has passed to understand its historical importance (14 CCR Section 4852[d][2]). The expansion of the SJCWRP would not affect buildings or structures more than 50 years of age within the CEQA study area; therefore, there would be no impacts on historical resources.

### Pomona Water Reclamation Plant – Process Optimization

#### Construction

Phillips Mansion is located northwest of the POWRP; however, it is not located within the footprint of the POWRP (South Central Coastal Information Center of the California Historical Resources Information System March 2010). Process optimization would not modify existing buildings and structures; therefore, there would be no impacts on historical resources.

### Los Coyotes Water Reclamation Plant and Long Beach Water Reclamation Plant – Process Optimization

#### Construction

No architectural historical resources were identified within or near the LCWRP or LBWRP. Process optimization would not modify existing buildings and structures at the LCWRP and LBWRP; therefore, there would be no impacts on historical resources.

## Joint Water Pollution Control Plant – Solids Processing

### Construction

Operation of the JWPCP began in 1928. Therefore, some onsite structures may have been constructed over 50 years ago and may be considered historical architectural resources. The construction and operation of the new digesters, sludge dewatering facilities, and gas handling facilities would be considered alterations and improvements that comply with the Secretary of the Interior's Standards for the Treatment of Historic Properties and would not cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5(b)(3). Construction of these facilities meets Standard 1 because the property would be used as it was historically, and it meets Standard 2 because the character of the property would be retained and preserved. Standard 9 is also relevant because new additions or related new construction would not destroy historic materials, features, and spatial relationships that characterize the property. There would be no impacts on historical resources.

## CEQA Impact Determination

Construction of Alternative 1 (Program) would not cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5. There would be no impacts.

### Mitigation

No mitigation is required.

### Residual Impacts

No impacts would occur.

## *Impact CUL-2. Would Alternative 1 (Program) cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?*

## Conveyance System – Conveyance Improvements

### Construction

The Clearwater Program Master Facilities Plan has identified the need for future conveyance system improvements. The conveyance system is generally located between 5 and 25 feet bgs. It is likely located within deposits of older Quaternary alluvium because that is the type of alluvium most commonly found in the Los Angeles Basin. Construction of the conveyance system has the potential to encounter significant unknown buried archaeological resources because it cannot be predicted with certainty whether significant unknown buried archaeological deposits are currently present or absent within these sediments. At this time, however, no specific projects have been proposed, and the actual future sewer alignments are unknown. Even so, given that most of the construction would occur within highly developed public rights-of-way where much of the sediments have been previously disturbed, the potential to encounter significant buried archeological resources is greatly reduced. Furthermore, as standard practice, a Sanitation Districts inspector would be present during sewer construction, and if a potential significant archeological resource were discovered, work would be ordered stopped until a qualified archaeologist could evaluate the find and make appropriate recommendations. Therefore, impacts on unknown buried archaeological resources during construction activities would be less than significant.

## San Jose Creek Water Reclamation Plant – Plant Expansion and Process Optimization

### Construction

Approximately 70 percent of the SJCWRP property was previously surveyed at the surface for cultural resources in 1976, 1988, 1993, 2000, and 2006 (Lindsey and Schiesl 1976; SRS 1988; McKenna 1993; Smith and Sciro 2000; Storey 2000; McKenna 2006). These surveys did not include subsurface study. No prehistoric or historic archaeological sites have been recorded within the SJCWRP (South Central Coastal Information Center of the California Historical Resources Information System March 2010). The former Southern Pacific Railroad is located near but is not within the CEQA study area; therefore, it would not be affected by the plant expansion. Surface surveys and record search results are generally inconclusive regarding the presence and the exact nature of buried archeological resources within the CEQA study area. Therefore, construction of the plant expansion has the potential to encounter significant unknown buried archaeological resources because it cannot be predicted with certainty whether significant unknown buried archaeological deposits are currently present or absent within the SJCWRP. Furthermore, improvements to the SJCWRP have the potential to encounter significant unknown buried archaeological resources because of the depth of ground disturbance (at least 15 feet bgs) associated with the plant expansion. Any significant impacts on unknown buried archaeological resources caused during construction activities would be reduced through the implementation of Mitigation Measure (MM) CUL-2.

## Pomona Water Reclamation Plant – Process Optimization

### Construction

The POWRP property has not been previously surveyed for cultural resources. No prehistoric or historic archaeological sites have been recorded at the POWRP (South Central Coastal Information Center of the California Historical Resources Information System March 2010). The prehistoric archaeological site (CA-LAN-883) and two historic resources (Phillips Mansion and the former Southern Pacific Railroad) are within the general vicinity of the POWRP, but they are not within the CEQA study area (South Central Coastal Information Center of the California Historical Resources Information System March 2010). However, construction of process optimization at the POWRP has the potential to encounter significant unknown buried archaeological resources because it cannot be predicted with certainty whether buried archaeological deposits are currently present or absent on site. Furthermore, construction at the POWRP has the potential to encounter significant unknown buried archaeological resources because of the depth of ground disturbance (at least 15 feet bgs). Any significant impacts on unknown buried archaeological resources caused during construction activities would be reduced through the implementation of MM CUL-2.

## Los Coyotes Water Reclamation Plant – Process Optimization

### Construction

Approximately 50 percent of the LCWRP property was previously surveyed at the surface for cultural resources in 1997 and 2000 (Mason 1997; Smith and Sciro 2000; Smith 2000). These surveys did not include subsurface study. No prehistoric or historic archaeological sites have been recorded at the LCWRP (South Central Coastal Information Center of the California Historical Resources Information System March 2010). The recorded cultural resource (the former Southern Pacific Railroad) is not within

the CEQA study area (South Central Coastal Information Center of the California Historical Resources Information System March 2010). Surface surveys and record search results are generally inconclusive regarding the presence and the exact nature of buried archeological resources. The CEQA analysis for the LCWRP is the same as for the POWRP, and there is the potential to encounter significant unknown buried archaeological deposits during construction. Any significant impacts on unknown buried archaeological resources caused during construction activities would be reduced through the implementation of MM CUL-2.

## Long Beach Water Reclamation Plant – Process Optimization

### Construction

The LBWRP property was previously surveyed at the surface for cultural resources in 1975 (Rosen 1975). No prehistoric or historic archaeological sites have been recorded at the LBWRP (South Central Coastal Information Center of the California Historical Resources Information System March 2010). These surveys did not include subsurface study. The CEQA analysis for the LBWRP is the same as for the POWRP, and there is the potential to encounter significant unknown buried archaeological deposits during construction. Any significant impacts on unknown buried archaeological resources caused during construction activities would be reduced through the implementation of MM CUL-2.

## Joint Water Pollution Control Plant – Solids Processing

### Construction

Parts of the JWPCP were previously surveyed at the surface for cultural resources in 1975, 1977, 1979, and 1994 (Rosen 1975; Eggers 1977; Stickel 1979; Desautels 1979; Scott 1994), resulting in a complete survey of the site over time. These surveys did not include subsurface study. No prehistoric or historic archaeological sites have been recorded at the JWPCP (South Central Coastal Information Center of the California Historical Resources Information System March 2010). The CEQA analysis for the JWPCP is the same as for the POWRP, and there is the potential to encounter significant unknown buried archaeological deposits during construction. Any significant impacts on unknown buried archaeological resources caused during construction activities would be reduced through the implementation of MM CUL-2.

## CEQA Impact Determination

Construction of plant expansion at the SJCWRP; process optimization at the SJCWRP, POWRP, LCWRP, and LBWRP; and solids processing facilities at the JWPCP for Alternative 1 (Program) could cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5. Impacts would be significant before mitigation.

### Mitigation

**MM CUL-2.** In the event that buried archaeological resources are discovered during ground-disturbing activities, work will stop in that area and within 30 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures. Treatment measures may include development of avoidance strategies, capping with fill material, or mitigation of impacts through data recovery programs such as excavation or detailed documentation. During cultural resources monitoring, if the qualified archaeologist determines that the sediments being excavated are previously disturbed or unlikely to contain significant cultural materials, the qualified archaeologist can specify that monitoring be reduced or eliminated.

### Residual Impacts

MM CUL-2 would allow for the preservation and/or recordation of a significant archaeological resource discovered during the construction of the program elements. Therefore, residual impacts would be less than significant.

### *Impact CUL-3. Would Alternative 1 (Program) result in disturbance or destruction of a unique paleontological resource or site or a unique geologic feature?*

## Conveyance System – Conveyance Improvements

### Construction

As described in Section 7.2.2, the conveyance system is generally located within Quaternary alluvium, which can contain significant paleontological resources and fossils. Therefore, improvements to the conveyance system have a potential to encounter significant buried paleontological resources. However, given that most of the construction would occur within highly developed rights-of-way where much of the sediments have been previously disturbed, the potential to encounter significant buried paleontological resources is greatly reduced. Any significant impacts on unknown buried paleontological resources caused during construction activities would be addressed through the Sanitation Districts' standard practices for conveyance system improvements, which include having an inspector onsite with the authority to stop work and notify a qualified archeologist if potential significant paleontological resources were discovered.

The Joint Outfall System (JOS) service area has a number of well-known unique geologic features, including the Santa Monica Mountains, the California coastline, and the San Gabriel Mountains. However, construction of the conveyance system would be primarily located in the public right-of-way of existing streets and would generally occur within a trench up to approximately 25 feet bgs. Once construction has concluded, the ground surface would be returned to its original condition. Therefore, construction of the conveyance system would not result in a permanent disturbance or destruction to a unique geologic feature. Impacts would be less than significant.

## San Jose Creek Water Reclamation Plant – Plant Expansion and Process Optimization

### Construction

The SJCWRP is generally located within Quaternary alluvium, which can contain significant paleontological resources and fossils. Therefore, plant expansion at the SJCWRP, especially excavation and grading deeper than 5 feet, has a potential to encounter significant buried paleontological resources. Any significant impacts on unknown buried paleontological resources caused during construction activities would be reduced through the implementation of MM CUL-3.

The SJCWRP is located within the built urban environment of the county of Los Angeles on a flat developed site. There are no unique geologic features within the existing WRP or within close proximity. Therefore, construction of the plant expansion would not result in a permanent disturbance or destruction of a unique geologic feature.

## Pomona Water Reclamation Plant, Los Coyotes Water Reclamation Plant, and Long Beach Water Reclamation Plant – Process Optimization

### Construction

The POWRP is generally located within Quaternary alluvium overlying shallow bedrock, both of which can contain significant paleontological resources and fossils. Furthermore, the LCWRP and LBWRP are also generally located within Quaternary alluvium. Therefore, construction of process optimization at the POWRP, LCWRP, and LBWRP has a potential to encounter significant buried paleontological resources. Any significant impacts on unknown buried paleontological resources caused during construction activities would be reduced through the implementation of MM CUL-3.

The POWRP is adjacent to Elephant Hill, which could be considered a unique geologic feature. However, the construction of process optimization would take place within the footprint of the POWRP. Therefore, construction would not permanently disturb or destroy any part of Elephant Hill. The LCWRP and LBWRP are located in flat, generally developed, urban areas and do not have any unique geologic formations within their general vicinities. Therefore, construction of process optimization at the LCWRP and LBWRP would not permanently disturb or destroy any unique geologic feature.

## Joint Water Pollution Control Plant – Solids Processing

### Construction

The JWPCP is generally located within Quaternary alluvium, which can contain significant paleontological resources and fossils. Therefore, construction at the JWPCP, especially excavation and grading deeper than 5 feet, has a potential to encounter significant buried paleontological resources. Any significant impacts on unknown buried paleontological resources caused during construction activities would be reduced through the implementation of MM CUL-3.

The JWPCP is located in a flat, urban, developed setting. There are no unique geologic formations on site at the JWPCP or within the general vicinity. Therefore, construction would not permanently destroy or disturb a unique geologic feature.

## CEQA Impact Determination

Construction of plant expansion at the SJCWRP; process optimization at the SJCWRP, POWRP, LCWRP, and LBWRP; and solids processing facilities at the JWPCP for Alternative 1 (Program) could result in disturbance or destruction of an unknown paleontological resource or site or a unique geologic feature. Impacts would be significant before mitigation.

### Mitigation

**MM CUL-3.** In the event that potential paleontological resources are discovered during ground-disturbing activities, work will stop in that area and within 30 feet of the find until a qualified paleontologist can assess the significance of the find and, if necessary, develop appropriate treatment measures. Treatment measures may include monitoring by a qualified paleontologist during construction-related ground-disturbing activities. The monitor will retain the option to reduce monitoring if it is determined that the sediments were previously disturbed. Monitoring may also be reduced if potentially fossiliferous units are not present or, if present, are determined to have a low potential to contain fossil resources. The monitor will be equipped to salvage fossils and samples of sediments as they are unearthed and will be empowered to temporarily halt or divert equipment to allow removal of

abundant or large specimens. Recovered specimens will be prepared to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates. Specimens will be curated into a professional, accredited museum repository with permanent retrievable storage. A report of findings, with an appended itemized inventory of specimens, will be prepared and will signify completion of the mitigation.

#### Residual Impacts

Mitigation would allow for the preservation and/or recordation of any paleontological resource found during construction activities. Therefore, the paleontological resource would be appropriately and permanently documented. Residual impacts would be less than significant.

### *Impact CUL-4. Would Alternative 1 (Program) result in disturbance of any human remains, including those interred outside of formal cemeteries?*

### Conveyance System – Conveyance Improvements

#### Construction

Construction of the conveyance system would take place primarily in the right-of-way of public streets between depths of 5 and 25 feet bgs. This type of construction would have a very limited potential to encounter unknown human remains interred outside of formal cemeteries. In the highly unlikely event that buried human remains are encountered during construction, the legal requirements of State Health and Safety Code Section 7050.5 and Public Resources Code 5097.98 would be implemented as discussed in Section 7.3.2.3 and would ensure the appropriate treatment of human remains. Impacts would be less than significant.

### San Jose Creek Water Reclamation Plant – Plant Expansion and Process Optimization

#### Construction

The SJCWRP is not known to contain human remains, and no prehistoric or historic archaeological sites have been recorded at the SJCWRP (South Central Coastal Information Center of the California Historical Resources Information System March 2010). In the highly unlikely event that buried human remains are encountered during excavation associated with plant expansion and process optimization, the legal requirements of State Health and Safety Code Section 7050.5 and Public Resources Code 5097.98 would be implemented as discussed in Section 7.3.2.3 and would ensure the appropriate treatment of human remains. Impacts would be less than significant.

### Pomona Water Reclamation Plant, Los Coyotes Water Reclamation Plant, Long Beach Reclamation Plant – Process Optimization

#### Construction

The POWRP, LCWRP, and LBWRP are not known to contain human remains, and no prehistoric or historic archaeological sites have been recorded at the plants (South Central Coastal Information Center of the California Historical Resources Information System March 2010). In the highly unlikely event that buried human remains are encountered during excavation associated with process optimization at the three plants, the legal requirements of the State Health and Safety Code Section 7050.5 and Public

Resources Code 5097.98 would be implemented as discussed in Section 7.3.2.3 and would ensure the appropriate treatment of human remains. Impacts would be less than significant.

### Joint Water Pollution Control Plant – Solids Processing

#### Construction

The JWPCP is not known to contain human remains, and no prehistoric or historic archaeological sites have been recorded at the plant (South Central Coastal Information Center of the California Historical Resources Information System March 2010). In the highly unlikely event that buried human remains are encountered during excavation associated with solids processing at the JWPCP, the legal requirements of the State Health and Safety Code Section 7050.5 and Public Resources Code 5097.98 would be implemented as discussed in Section 7.3.2.3 and would ensure the appropriate treatment of human remains. Impacts would be less than significant.

### CEQA Impact Determination

Construction of Alternative 1 (Program) would not result in disturbance of any human remains, including those interred outside of formal cemeteries. Impacts would be less than significant.

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

## 7.4.3.2 Project

### *Impact CUL-1. Would Alternative 1 (Project) cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5 or result in an adverse effect on a historic property pursuant to 36 CFR Section 800.5?*

### Shaft Sites – JWPCP East, TraPac, and LAXT

#### Construction

#### CEQA Analysis

No historical resources were identified within the CEQA study area for the JWPCP East, TraPac, and LAXT shaft sites. Therefore, there would be no impacts.

#### NEPA Analysis

No historical resources were identified within the NEPA study area for the JWPCP East, TraPac, and LAXT shaft sites. Therefore, there would be no impacts under NEPA.

## Shaft Site – Southwest Marine

### Construction

#### CEQA Analysis

The Southwest Marine shaft site would be located south of the existing Southwest Marine shipbuilding warehouses at the Port of Los Angeles and east of the basins at Berths 243–245. The Southwest Marine shaft site would be located approximately 330 feet from one contributor to the NRHP-eligible Bethlehem Shipyard Historic District (Plate Shop No. 6) and 225 feet from the closest contributor (Machine Shop and Storage Building No. 7), a far enough distance that no historic buildings would be affected by construction. In addition, construction would be temporary. After construction, the shaft would be covered, and there would be no permanent structures that would be out of character with the industrial setting of the district. Therefore, there would be no impacts.

The Southwest Marine shaft site would be located due east of the basins at Berths 243–245. These basins were not identified as contributors to the NRHP-eligible Bethlehem Shipyard Historic District in 2000, but they are located within the historic district boundary. WW II-era slipways, used for the purpose of constructing ships, were demolished in 1959–1961 and converted into basins to accommodate floating dry-docks used for ship repair. The floating dry-docks were mobile, were not an integral part of the basins, and have since been removed.

The Southwest Marine shaft site construction would be adjacent to and to the east of the basins, but would not alter the basins or the setting of the NRHP-eligible historic district. Therefore, there would be no impacts.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis. There would be no impacts under NEPA.

## Riser/Diffuser Area – Existing Ocean Outfalls

### Construction

#### CEQA Analysis

Rehabilitation of the existing ocean outfalls would include additional ballast and repair of joints to the existing ocean outfalls. Application of both NRHP and CRHP criteria resulted in the opinion that none of the outfalls appear significant at the federal, state, or local levels. Therefore, the rehabilitation of the existing ocean outfalls would result in less than significant impacts.

#### NEPA Analysis

Environmental impacts within the NEPA study area would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered direct impacts.

## CEQA Impact Determination

Construction of Alternative 1 (Project) would not cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5. Impacts under CEQA would be less than significant.

### Mitigation
No mitigation is required.

### Residual Impacts
Impacts would be less than significant.

## NEPA Impact Determination
Construction of Alternative 1 (Project) would not result in an adverse effect on a historic property pursuant to 36 CFR Section 800.5. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

### Mitigation
No mitigation is required.

### Residual Impacts
Impacts would be less than significant.

## *Impact CUL-2. Would Alternative 1 (Project) cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5 or result in an adverse effect on a historic property that is an archaeological site pursuant to 36 CFR Section 800.5?*

## Shaft Site – JWPCP East

### Construction

#### CEQA Analysis
Shaft construction would begin by preparing the site with conventional equipment such as bulldozers and scrapers prior to the use of more unconventional equipment for the construction of the shaft itself.

Typically, prehistoric and historic archaeological resources in the CEQA study area are found buried within 10 to 15 feet bgs, although on rare occasions archaeological resources have been found at greater depths. These resources are found at shallow depths because it typically takes many years for sediment to accumulate and cover resources that have been left behind. Part of the JWPCP East shaft site was previously surveyed at the surface as part of a general cultural resources inventory in 1977 (Eggers 1977). However, no subsurface surveys were conducted. No prehistoric or historic archaeological sites have been recorded at the JWPCP or within a 0.5-mile radius (South Central Coastal Information Center of the California Historical Resources Information System March 2010). Therefore, there is a low potential for disturbing any unknown prehistoric or historic archaeological resources during excavation and grading associated with shaft excavation. However, surface surveys and record search results are generally inconclusive regarding the presence and the exact nature of buried archeological resources within the CEQA study area. Despite the previous surface surveys, it cannot be predicted with certainty whether buried archaeological deposits are located within 10 to 15 feet bgs at the JWPCP East shaft site. Therefore, shaft construction has the potential to encounter significant unknown buried prehistoric or historic archaeological resources. Any significant impacts on unknown buried archaeological resources caused during construction activities would be reduced to less than significant through the implementation of MM CUL-2.

### NEPA Analysis

Environmental impacts within the NEPA study area would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

## Shaft Sites – TraPac and LAXT

### Construction

### CEQA Analysis

The TraPac and LAXT shaft sites were previously surveyed at the surface in 1984 (Anonymous 1984). No prehistoric or historic archaeological sites have been recorded at either site (South Central Coastal Information Center of the California Historical Resources Information System March 2010). Two historical cultural resources have been recorded near the edge of the 0.5-mile record search radius of TraPac, but no cultural resources within a 0.5-mile radius for LAXT (South Central Coastal Information Center of the California Historical Resources Information System March 2010). Typically, prehistoric and historic archaeological resources in the CEQA study area are found buried within 10 to 15 feet bgs. However, the TraPac and LAXT shafts are located on artificial fill built into harbor waters where there is no potential for prehistoric or historic archaeological resources. Therefore, there would be no impacts.

### NEPA Analysis

Environmental impacts within the NEPA study area would be the same as described for the CEQA analysis. There would be no impacts under NEPA.

## Shaft Site – Southwest Marine

### Construction

### CEQA Analysis

The Southwest Marine shaft site was surveyed in 1984 (Anonymous 1984) and was re-surveyed in 2000 and 2008 (Lassell 2000; ICF 2008). The Southwest Marine shaft site is adjacent to the NRHP-eligible Bethlehem Shipyard (19-187658) (South Central Coastal Information Center of the California Historical Resources Information System March 2010). Two other built resources (Building 10 and the Municipal Wholesale Fish Market) are outside the designated CEQA study area (South Central Coastal Information Center of the California Historical Resources Information System March 2010). The Southwest Marine shaft would be built on land made from artificial fill, overlying Holocene sediment and Timms Point Silt. Typically, prehistoric and historic archaeological resources in the CEQA study area are almost always found buried within 10 to 15 feet bgs. However, the Southwest Marine shaft site is located on artificial fill built into harbor waters where there is no potential for prehistoric or historic archaeological resources. Therefore, there would be no impacts.

### NEPA Analysis

Environmental impacts within the NEPA study area would be the same as described for the CEQA analysis. There would be no impacts under NEPA.

## CEQA Impact Determination

Construction at the JWPCP East shaft site for Alternative 1 (Project) could cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5. Impacts under CEQA would be significant before mitigation.

#### Mitigation
Implement MM CUL-2.

#### Residual Impacts
MM CUL-2 would allow for the preservation and recording of a significant prehistoric or historic archaeological resource discovered during construction at the JWPCP East shaft site. Prehistoric and historic archaeological resources in the region are almost always found within the upper 15 feet of sediment. Because shaft construction would begin with bulldozers, scrapers, and other conventional equipment to remove sediment at the shaft site prior to the use of more unconventional methods, there would be an opportunity to identify, preserve, and record any prehistoric or historic archaeological finds. Once shaft construction extends beyond the first 15 feet of sediment, it is highly unlikely any prehistoric or historic resources would be found. Residual impacts would be less than significant.

### NEPA Impact Determination
Construction at the JWPCP East shaft site for Alternative 1 (Project) could result in an adverse effect on a historic property that is an archaeological site pursuant to 36 CFR Section 800.5. Impacts under NEPA would be significant before mitigation with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

#### Mitigation
Implement MM CUL-2.

#### Residual Impacts
Residual impacts would be less than significant, as described under the CEQA impact determination.

### *Impact CUL-3. Would Alternative 1 (Project) result in disturbance or destruction of a unique paleontological resource or site or a unique geologic feature?*

### Tunnel Alignment – Wilmington to San Pedro Shelf (Onshore)

#### Construction

#### CEQA Analysis
The tunnel depth for the Wilmington to SP Shelf (onshore) alignment would range from approximately 100 to 200 feet bgs. As discussed in Section 7.2.3.2, this tunnel alignment extends through the Pleistocene Lakewood Formation, San Pedro Sand, and Timms Point Silt. Fossil deposits are locally common in the Lakewood Formation, San Pedro Sand, and Timms Point Silt (Deméré 2007). Because these sediments are known to contain fossils, paleontological resources may be present in this subsurface alignment.

Construction of the tunnel through subsurface sediments has the potential to destroy paleontological resources, some of which may be significant. Tunneling would be performed using a tunnel boring machine (TBM). The rock face being removed could not be observed for paleontological resources before being destroyed by the machine. Therefore, impacts associated with onshore tunneling on unknown buried paleontological resources would be significant and could not be mitigated.

The onshore tunnel alignment would be constructed underground and would not encounter any unique geologic features. Unique geologic features that exist on the surface would not be affected by the subsurface tunneling. Therefore, construction of the onshore tunnel alignment would not permanently destroy or disturb any unique geologic features.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

## Tunnel Alignment – Wilmington to San Pedro Shelf (Offshore)

### Construction

#### CEQA Analysis

The tunnel depth for the Wilmington to SP Shelf (offshore) alignment would range from approximately 100 to 200 feet below the seafloor. As discussed in Section 7.2.3.2, the alignment would extend through the Miocene Monterey Formation, which is known to contain fossils. Therefore, paleontological resources may be present during the construction of the offshore tunnel alignment.

Construction of the tunnel through subsurface sediments has the potential to destroy paleontological resources, some of which may be significant. Tunneling would be performed using a TBM. The rock face being removed could not be observed for paleontological resources before being destroyed by the machine. Therefore, impacts associated with offshore tunneling on unknown buried paleontological resources would be significant and could not be mitigated.

The offshore tunnel alignment would be constructed underground and would not encounter any unique geologic features. Unique geologic features that exist on the surface would not be affected by the subsurface tunneling. Therefore, construction of the offshore tunnel alignment would not permanently destroy or disturb any unique geologic features.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered direct impacts.

## Shaft Site – JWPCP East

### Construction

#### CEQA Analysis

As discussed in Section 7.2.3.3, the JWPCP East shaft site is located within an area that is a tributary to the Wilmington Drain. Younger alluvial deposits are likely to be deep in this geomorphic setting, overlying Holocene-Age Lakewood Formation sediments. Paleontological remains may be present in the Lakewood Formation. Therefore, excavation at the JWPCP East shaft site has the potential to encounter significant buried paleontological resources within the Lakewood Formation. Impacts associated with construction would be significant. MM CUL-3 would be implemented but would not completely prevent the potential destruction of unknown significant paleontological resources during construction, and impacts would remain significant.

The JWPCP East shaft site is located within the flat, built, urban environment, and there are no unique geologic features located within or near the shaft site area. Therefore, shaft construction would not permanently destroy or disturb any unique geologic features.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

## Shaft Site – TraPac

### Construction

#### CEQA Analysis

As discussed in Section 7.2.3.3, the TraPac shaft site is located near the original shoreline of Los Angeles Harbor. Holocene-Age Lakewood Formation sediments and the San Pedro Sand are found in this area. Paleontological remains may be present in the Lakewood Formation; in addition, the San Pedro Sand has a high potential to contain fossil materials. Therefore, excavation at the TraPac shaft site has the potential to encounter significant buried paleontological resources within the Lakewood Formation and the San Pedro Sand. Impacts associated with construction would be significant. MM CUL-3 would be implemented but would not completely prevent the potential destruction of unknown significant paleontological resources during construction, and impacts would remain significant.

The TraPac shaft site is located within the flat, built, urban environment, and there are no unique geologic features located within or near the shaft site area. Therefore, shaft construction would not permanently destroy or disturb any unique geologic features.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

## Shaft Site – LAXT

### Construction

#### CEQA Analysis

As discussed in Section 7.2.3.3, the LAXT shaft site is located on artificial fill overlying Holocene-Age beach sediments of the Lakewood Formation. While the artificial fill has no potential to contain paleontological resources, paleontological remains may be present in the Lakewood Formation. Therefore, excavation at the LAXT shaft site to a depth of approximately 170 feet bgs has the potential to encounter significant buried paleontological resources. Impacts associated with construction would be significant. MM CUL-3 would be implemented but would not completely prevent the potential destruction of unknown significant paleontological resources during construction, and impacts would remain significant.

The LAXT shaft site is located within the flat, built, urban environment, and there are no unique geologic features located within or near the shaft site area. Therefore, shaft construction would not permanently destroy or disturb any unique geologic features.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

## Shaft Site – Southwest Marine

### Construction

#### CEQA Analysis

As discussed in Section 7.2.3.3, the Southwest Marine shaft site is located on artificial fill overlying Holocene sediment and Timms Point Silt. Paleontological remains may be present in the Timms Point Silt. Therefore, excavation at the Southwest Marine shaft site to a depth of approximately 170 feet bgs has the potential to encounter significant buried paleontological resources. Impacts associated with construction would be significant. MM CUL-3 would be implemented but would not completely prevent the potential destruction of unknown significant paleontological resources during construction, and impacts would remain significant.

The Southwest Marine shaft site is located within the flat, built, urban environment, and there are no unique geologic features located within or near the shaft site area. Therefore, shaft construction would not permanently destroy or disturb any unique geologic features.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

### CEQA Impact Determination

Construction at the JWPCP East, TraPac, LAXT, and Southwest Marine shaft sites for Alternative 1 (Project) could result in disturbance or destruction of a unique paleontological resource or site or a unique geologic feature. Impacts under CEQA would be significant before mitigation. Construction of the onshore and offshore tunnel for Alternative 1 (Project) could also result in disturbance or destruction of a unique paleontological resource or site. Impacts under CEQA would be significant, and there is no feasible mitigation to reduce impacts.

#### Mitigation

Implement MM CUL-3.

#### Residual Impacts

MM CUL-3 would apply to the disturbance of the natural sediment at each shaft site construction area during the use of conventional excavation equipment. However, once the shaft has been excavated to depths below the groundwater table, conditions would limit effective monitoring and recovery of paleontological resources, and there would be no feasible way to apply MM CUL-3. Furthermore, MM CUL-3 could not be applied during construction of the tunnel. This is because the TBM continually moves forward and offers no opportunity for appropriate monitoring for paleontological resources. Therefore, residual impacts would be significant and unavoidable.

### NEPA Impact Determination

Construction at the JWPCP East, TraPac, LAXT, and Southwest Marine shaft sites for Alternative 1 (Project) could result in disturbance or destruction of a unique paleontological resource or site or a unique geologic feature. Impacts under NEPA would be significant before mitigation with respect to the No-Federal-Action Alternative (see Section 3.4.1.6). Construction of the onshore and offshore tunnel for Alternative 1 (Project) could also result in disturbance or destruction of a unique paleontological resource

or site. Impacts under NEPA would be significant before mitigation with respect to the No-Federal-Action Alternative (see Section 3.4.1.6), and there is no feasible mitigation to reduce impacts.

#### Mitigation
Implement MM CUL-3.

#### Residual Impacts
Residual impacts would be significant and unavoidable, as described for the CEQA impact determination.

### *Impact CUL-4. Would Alternative 1 (Project) result in disturbance of any human remains, including those interred outside of formal cemeteries?*

### Shaft Sites – JWPCP East, TraPac, LAXT, and Southwest Marine

#### Construction

#### CEQA Analysis
The JWPCP East, TraPac, LAXT, and Southwest Marine shaft sites are not known to contain human remains, and no prehistoric or historic archaeological sites have been recorded in these locations (South Central Coastal Information Center of the California Historical Resources Information System March 2010). Construction at the shaft sites would have a very limited potential to encounter unknown human remains interred outside of formal cemeteries. In the highly unlikely event that buried human remains are encountered during excavation at the shaft sites, the legal requirements of State Health and Safety Code Section 7050.5 and Public Resources Code 5097.98 would be implemented as discussed in Section 7.3.2.3 and would ensure the appropriate treatment of human remains. Impacts would be less than significant.

#### NEPA Analysis
Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

### CEQA Impact Determination
Construction of Alternative 1 (Project) would not result in disturbance of any human remains, including those interred outside of formal cemeteries. Impacts under CEQA would be less than significant.

#### Mitigation
No mitigation is required.

#### Residual Impacts
Impacts would be less than significant.

### NEPA Impact Determination
Construction of Alternative 1 (Project) would not result in disturbance of any human remains, including those interred outside of formal cemeteries. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

#### Mitigation
No mitigation is required.

### Residual Impacts
Impacts would be less than significant.

### *Impact CUL-5. Would Alternative 1 (Project) result in direct or indirect damage or removal of a significant submerged marine cultural resource or result in alteration or cause change to stable environmental conditions for a significant submerged marine cultural resource(s)?*

## Riser/Diffuser Area – San Pedro Shelf

### Construction

#### CEQA Analysis
Construction activities on the SP Shelf could directly affect the construction site and may also include areas surrounding the construction site such as mooring areas, wire drags, and any other areas where there are direct impacts on the seafloor. Therefore, impacts on submerged cultural resources during construction activities may occur from bottom disturbances during the installation of the riser and diffuser; disturbances from wire drags; and any other disturbances to the seafloor.

A review of data from a previous geophysical survey conducted by Fugro West identified 20 side-scan sonar returns on the SP Shelf. These sonar returns are exposed features on the seafloor, some of which may represent potentially significant prehistoric or historic submerged cultural resources that are currently undiscovered and unknown. Examples of the exposed features include man-made debris, possible shipwrecks, dredge spoils, rock outcroppings, cables, wires, wellheads, and anchors. However, all of the sonar contacts located during this survey are located on the SP Shelf, and it is unlikely that any of these targets would be affected by project activities.

It is unlikely that any unknown prehistoric cultural resources or sites would be affected by the construction footprint of the SP Shelf riser and diffuser at a depth of approximately 200 feet. The human populations along the 12,000 BP to 10,000 BP shoreline (a depth of 150 to 60 feet below present sea level) were much smaller than those later in history. Therefore, they would have left fewer cultural resources in the area during their time. While the potential for outcrops, relic channels, and paleovalleys (which would indicate potential for prehistoric sites and resources) exists on the SP Shelf, the probability of finding resources is low because of the planned depth of the riser and diffuser. Therefore, because the location of the SP Shelf riser and diffuser area is deeper than 150 feet below present sea level and the geomorphology likely prevented preservation, the probability of finding unknown significant submerged prehistoric resources within the SP Shelf riser and diffuser area is considered low.

Review of available resources indicates no known historic submerged resources within the construction footprint of the SP Shelf riser and diffuser area (CSLC; BOEMRE shipwreck database; NOAA AWOIS (2007); GMWD; Macfarlane Archaeological Consultants 1991; Pierson 1980; Pierson et al. 1987; Weinman and Stickel 1978; Cardone and Smith 1989; Marx 1971). While historic shipwrecks are reported on the SP Shelf, no known shipwrecks are within the construction footprint. Generally, there is a low probability that any unknown or unrecorded shipwrecks are within this area.

Submerged cultural resource surveys have not been conducted in the study area. Therefore, although there is a low probability of finding significant prehistoric or historic submerged cultural resources in the study area, the potential does exist. Construction of the riser and diffuser on the SP Shelf may disturb or destroy unknown submerged prehistoric or historic archaeological resources. Any disturbance of a currently

unknown significant prehistoric or historic archaeological resource would result in an adverse impact on that resource. Implementation of MM CUL-5 would mitigate the impact on unknown prehistoric or historic archaeological resources during construction activities on the SP Shelf to less than significant.

There are no established avoidance criteria for archaeological resources. As an example, the BOEMRE allows avoidance distances to be recommended at the discretion of each archaeologist responsible for the region (Pacific OCS Region). No other federal agencies have formally established avoidance criteria; only the state of Texas requires a 50 meter (164 feet) avoidance margin for potentially significant resources in inshore waters (bays, estuaries, rivers, etc.) (Research Planning, Inc. et al. 2004:44). Therefore, the establishment of a buffer zone is recommended as an acceptable method of avoidance around a potentially significant resource. The key factor in determining the size of the buffer zone is the areal extent of the magnetic or acoustic anomaly; the larger the anomaly, the larger the perimeter of the avoidance zone. Buffer zones should be designed to conform to the shape of a known anomaly (shipwreck) or designed to encompass the possible extents of the unknown anomaly, generally a circle around the center point.

Construction activities associated with the riser and diffuser area may alter or change stable environmental conditions. This may include the removal of sediment at or near a resource, seafloor disturbance activities, and other construction-related activities. Any of these activities may alter stable environmental conditions, which may have an adverse effect on historic resources. Impacts would be significant. Implementation of MM CUL-5 would reduce impacts on unknown submerged cultural resources to less than significant. Furthermore, the additional studies required by the Corps to comply with Section 106 requirements of the NHPA, as discussed in Section 7.4.1.2, would serve to reduce impacts on unknown prehistoric and historic archaeological resources during construction activities.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered direct impacts.

### Operation

#### CEQA Analysis

It is unlikely that any submerged cultural resources would be affected by the operation of the riser and diffuser. Isolated prehistoric artifacts that may be located near the diffuser would consist primarily of lithic (rock, stone) material. This type of artifact is also likely buried by sediment and would not likely be affected by the introduction of effluent being released in the water column. Organic artifacts (i.e., wood or reed) are more susceptible to a change in water quality. However, this type of material is not likely to be found in the area of the SP Shelf because it has likely deteriorated or been washed away.

Potential effects of effluent into the water column were considered relative to historic shipwrecks (i.e., accelerated wood deterioration, increased biologic activity on shipwreck sites). However, it is unlikely these resources would be affected by the operation of the riser and diffuser. Effects to shipwreck sites would be negligible to non-existent due to a lack of bacteria within the effluent and dilution of the effluent within the water column once it passes through the riser and diffuser.

Furthermore, evidence suggests burial of submerged cultural resources enhances their preservation (Research Planning, Inc. et al. 2004:24). Any accumulation of sediment over the top of a wreck site or other resource would likely assist in protecting it. Therefore, the removal of sediment by the operation of the diffuser may constitute an indirect impact because it may reduce the integrity of a shipwreck or other

resource. However, the diffuser legs would be aligned to parallel the contours of the ocean floor, which coincide with the direction of prevailing currents. Therefore, it is highly unlikely that the diffuser would alter local currents to the extent that would result in the removal of a protective sediment layer overlying nearby submerged cultural resources. Impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the operational life of the structure. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

## Riser/Diffuser Area – Existing Ocean Outfalls

### Construction

#### CEQA Analysis

Impacts on submerged cultural resources during rehabilitation activities may include bottom disturbances, wire drags, and any other direct impacts on the seafloor. Rehabilitation activities associated with the existing diffuser areas may alter or change stable environmental conditions as described under construction of the SP Shelf riser and diffuser area. During the course of rehabilitation, it is possible that unanticipated archaeological remains may be encountered.

Rehabilitation of the existing ocean outfalls would be localized; therefore, it is unlikely that any prehistoric sites would be affected by project activities. Furthermore, previous construction and maintenance activities have already directly affected or destroyed any prehistoric resources. Therefore, prehistoric resources would not be affected during rehabilitation activities.

It is likely that any historic or submerged cultural resources located within the study area were directly affected during initial construction activities during the mid-20$^{th}$ century as well as subsequent maintenance activities associated with the existing ocean outfalls. In addition, the Sanitation Districts have not encountered any historic or submerged cultural resources during their annual visual inspections of the existing ocean outfalls and ballast materials. Therefore, it is unlikely that rehabilitation activities would have an impact on existing historic and submerged cultural resources. However, it is acknowledged that no underwater cultural resource surveys have been conducted within or near the APE. Consequently, it is noted that the potential exists to encounter significant historic resources in the general area. Therefore, impacts would be significant before mitigation. Implementation of MM CUL-5 would reduce impacts on unknown submerged historical resources to less than significant. Furthermore, the additional studies required by the Corps to comply with Section 106 of the NHPA discussed in Section 7.4.1.2 would serve to reduce impacts to unknown prehistoric and historic archaeological resources during construction activities.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered direct impacts.

### Operation

#### CEQA Analysis

Maintenance of the existing ocean outfalls has been ongoing since the mid-20$^{th}$ century; therefore, it is unlikely that continued maintenance would directly or indirectly affect any unknown significant

prehistoric or historic resources. Furthermore, there would be no net increase in the effluent discharged, so there would be no change from existing conditions. Impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the operational life of the structure. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

### CEQA Impact Determination

Construction of the riser and diffuser on the SP Shelf and rehabilitation of the existing ocean outfalls for Alternative 1 (Project) could result in direct or indirect damage or removal of a significant submerged marine cultural resource or result in alteration or cause change to stable environmental conditions for a significant submerged marine cultural resource(s). Impacts under CEQA would be significant before mitigation. Operation of Alternative 1 (Project) would result in less than significant impacts.

#### Mitigation

**MM CUL-5.** In the event that potentially historic resources, such as shipwrecks, are encountered in the project area during construction activities, work will stop immediately until a qualified archaeologist can assess the significance of the resource and, if necessary, enact appropriate management measures. This may include the initiation of avoidance or buffer zones, or a data recovery program that may include excavation or documentation of the resource.

#### Residual Impacts

MM CUL-5 would result in the preservation and recordation of any unknown prehistoric or historic resource discovered during construction within the study area on the SP Shelf or the existing ocean outfalls. Furthermore, the additional studies required by the Corps to comply with Section 106 requirements of the NHPA, as discussed in Section 7.4.1.2, would serve to reduce impacts on unknown prehistoric and historic archaeological resources during construction activities. Therefore, residual impacts would be less than significant.

### NEPA Impact Determination

Construction of the riser and diffuser on the SP Shelf and the existing ocean outfalls for Alternative 1 (Project) could result in direct or indirect damage or removal of a significant submerged marine cultural resource or cause change to stable environmental conditions for a significant submerged marine cultural resource(s). Impacts under NEPA would be significant before mitigation with respect to the No-Federal-Action Alternative (see Section 3.4.1.6). Operation of Alternative 1 (Project) would result in less than significant impacts.

#### Mitigation

Implement MM CUL-5.

#### Residual Impacts

Residual impacts would be less than significant, as described for the CEQA impact determination.

## 7.4.3.3 Impact Summary – Alternative 1

Impacts on cultural resources analyzed in this EIR/EIS for Alternative 1 are summarized in Table 7-7 and Table 7-8. The proposed mitigation, where feasible, and the significance of the impact before and following mitigation are also listed in the tables.

## Table 7-7. Impact Summary – Alternative 1 (Program)

| Program Element | Impact Determination Before Mitigation | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|
| Impact CUL-1. Would Alternative 1 (Program) cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5? | | | |
| Conveyance System | | | |
| Conveyance Improvements | CEQA<br>No Impact During Construction | No mitigation is required. | CEQA<br>No Impact During Construction |
| SJCWRP | | | |
| Plant Expansion | CEQA<br>No Impact During Construction | No mitigation is required. | CEQA<br>No Impact During Construction |
| Process Optimization | CEQA<br>No Impact During Construction | No mitigation is required. | CEQA<br>No Impact During Construction |
| POWRP | | | |
| Process Optimization | CEQA<br>No Impact During Construction | No mitigation is required. | CEQA<br>No Impact During Construction |
| LCWRP | | | |
| Process Optimization | CEQA<br>No Impact During Construction | No mitigation is required. | CEQA<br>No Impact During Construction |
| LBWRP | | | |
| Process Optimization | CEQA<br>No Impact During Construction | No mitigation is required. | CEQA<br>No Impact During Construction |
| JWPCP | | | |
| Solids Processing | CEQA<br>No Impact During Construction | No mitigation is required. | CEQA<br>No Impact During Construction |
| Impact CUL-2. Would Alternative 1 (Program) cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5? | | | |
| Conveyance System | | | |
| Conveyance Improvements | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |

**Table 7-7 (Continued)**

| Program Element | Impact Determination Before Mitigation | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|
| SJCWRP | | | |
| Plant Expansion | CEQA<br>Significant Impact During Construction | MM CUL-2. In the event that buried archaeological resources are discovered during ground-disturbing activities, work will stop in that area and within 30 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures. Treatment measures may include development of avoidance strategies, capping with fill material, or mitigation of impacts through data recovery programs such as excavation or detailed documentation. During cultural resources monitoring, if the qualified archaeologist determines that the sediments being excavated are previously disturbed or unlikely to contain significant cultural materials, the qualified archaeologist can specify that monitoring be reduced or eliminated. | CEQA<br>Less Than Significant Impact During Construction |
| Process Optimization | CEQA<br>Significant Impact During Construction | MM CUL-2 | CEQA<br>Less Than Significant Impact During Construction |
| POWRP | | | |
| Process Optimization | CEQA<br>Significant Impact During Construction | MM CUL-2 | CEQA<br>Less Than Significant Impact During Construction |
| LCWRP | | | |
| Process Optimization | CEQA<br>Significant Impact During Construction | MM CUL-2 | CEQA<br>Less Than Significant Impact During Construction |
| LBWRP | | | |
| Process Optimization | CEQA<br>Significant Impact During Construction | MM CUL-2 | CEQA<br>Less Than Significant Impact During Construction |
| JWPCP | | | |
| Solids Processing | CEQA<br>Significant Impact During Construction | MM CUL-2 | CEQA<br>Less Than Significant Impact During Construction |
| Impact CUL-3. Would Alternative 1 (Program) result in disturbance or destruction of a unique paleontological resource or site or a unique geologic feature? | | | |
| Conveyance System | | | |
| Conveyance Improvements | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| SJCWRP | | | |
| Plant Expansion | CEQA<br>Significant Impact During Construction | MM CUL-3. In the event that potential paleontological resources are discovered during ground-disturbing activities, work will stop in that area and within 30 feet of the find until a qualified paleontologist can assess the significance of the find and, if necessary, develop appropriate treatment measures. Treatment measures may | CEQA<br>Less Than Significant Impact During Construction |

**Table 7-7 (Continued)**

| Program Element | Impact Determination Before Mitigation | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|
| | | include monitoring by a qualified paleontologist during construction-related ground-disturbing activities. The monitor will retain the option to reduce monitoring if it is determined that the sediments were previously disturbed. Monitoring may also be reduced if potentially fossiliferous units are not present or, if present, are determined to have a low potential to contain fossil resources. The monitor will be equipped to salvage fossils and samples of sediments as they are unearthed and will be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. Recovered specimens will be prepared to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates. Specimens will be curated into a professional, accredited museum repository with permanent retrievable storage. A report of findings, with an appended itemized inventory of specimens, will be prepared and will signify completion of the mitigation. | |
| Process Optimization | CEQA Significant Impact During Construction | MM CUL-3 | CEQA Less Than Significant Impact During Construction |
| POWRP | | | |
| Process Optimization | CEQA Significant Impact During Construction | MM CUL-3 | CEQA Less Than Significant Impact During Construction |
| LCWRP | | | |
| Process Optimization | CEQA Significant Impact During Construction | MM CUL-3 | CEQA Less Than Significant Impact During Construction |
| LBWRP | | | |
| Process Optimization | CEQA Significant Impact During Construction | MM CUL-3 | CEQA Less Than Significant Impact During Construction |
| JWPCP | | | |
| Solids Processing | CEQA Significant Impact During Construction | MM CUL-3 | CEQA Less Than Significant Impact During Construction |
| Impact CUL-4. Would Alternative 1 (Program) result in disturbance of any human remains, including those interred outside of formal cemeteries? | | | |
| Conveyance System | | | |
| Conveyance Improvements | CEQA Less Than Significant Impact During Construction | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| SJCWRP | | | |
| Plant Expansion | CEQA Less Than Significant Impact During Construction | No mitigation is required. | CEQA Less Than Significant Impact During Construction |

**Table 7-7 (Continued)**

| Program Element | Impact Determination Before Mitigation | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|
| Process Optimization | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| POWRP | | | |
| Process Optimization | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| LCWRP | | | |
| Process Optimization | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| LBWRP | | | |
| Process Optimization | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| JWPCP | | | |
| Solids Processing | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |

**Table 7-8. Impact Summary – Alternative 1 (Project)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Impact CUL-1. Would Alternative 1 (Project) cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5 or result in an adverse effect on a historic property pursuant to 36 CFR Section 800.5? | | | | |
| Shaft Site | | | | |
| JWPCP East | CEQA<br>No Impact During Construction | N/A | No mitigation is required. | CEQA<br>No Impact During Construction |
| | NEPA<br>No Impact During Construction | N/A | No mitigation is required. | NEPA<br>No Impact During Construction |
| TraPac | CEQA<br>No Impact During Construction | N/A | No mitigation is required. | CEQA<br>No Impact During Construction |
| | NEPA<br>No Impact During Construction | N/A | No mitigation is required. | NEPA<br>No Impact During Construction |
| LAXT | CEQA<br>No Impact During Construction | N/A | No mitigation is required. | CEQA<br>No Impact During Construction |
| | NEPA<br>No Impact During Construction | N/A | No mitigation is required. | NEPA<br>No Impact During Construction |
| Southwest Marine | CEQA<br>No Impact During Construction | N/A | No mitigation is required. | CEQA<br>No Impact During Construction |

**Table 7-8 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| | NEPA<br>No Impact During Construction | N/A | No mitigation is required. | NEPA<br>No Impact During Construction |
| Riser/Diffuser Area | | | | |
| Existing Ocean Outfalls | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Direct | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Impact CUL-2. Would Alternative 1 (Project) cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5 or result in an adverse effect on a historic property pursuant to 36 CFR Section 800.5? | | | | |
| Shaft Site | | | | |
| JWPCP East | CEQA<br>Significant Impact During Construction | N/A | MM CUL-2. In the event that buried archaeological resources are discovered during ground-disturbing activities, work will stop in that area and within 30 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures. Treatment measures may include development of avoidance strategies, capping with fill material, or mitigation of impacts through data recovery programs such as excavation or detailed documentation. During cultural resources monitoring, if the qualified archaeologist determines that the sediments being excavated are previously disturbed or unlikely to contain significant cultural materials, the qualified archaeologist can specify that monitoring be reduced or eliminated. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Significant Impact During Construction | Indirect | MM CUL-2 | NEPA<br>Less Than Significant Impact During Construction |
| TraPac | CEQA<br>No Impact During Construction | N/A | No mitigation is required. | CEQA<br>No Impact During Construction |
| | NEPA<br>No Impact During Construction | N/A | No mitigation is required. | NEPA<br>No Impact During Construction |
| LAXT | CEQA<br>No Impact During Construction | N/A | No mitigation is required. | CEQA<br>No Impact During Construction |
| | NEPA<br>No Impact During Construction | N/A | No mitigation is required. | NEPA<br>No Impact During Construction |
| Southwest Marine | CEQA<br>No Impact During Construction | N/A | No mitigation is required. | CEQA<br>No Impact During Construction |

**Table 7-8 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| | NEPA<br>No Impact During Construction | N/A | No mitigation is required. | NEPA<br>No Impact During Construction |
| Impact CUL-3. Would Alternative 1 (Project) result in disturbance or destruction of a unique paleontological resource or site or a unique geologic feature? | | | | |
| Tunnel Alignment | | | | |
| Wilmington to SP Shelf (Onshore) | CEQA<br>Significant Impact During Construction | N/A | No mitigation is feasible. | CEQA<br>Significant and Unavoidable Impact During Construction |
| | NEPA<br>Significant Impact During Construction | Indirect | No mitigation is feasible. | NEPA<br>Significant and Unavoidable Impact During Construction |
| Wilmington to SP Shelf (Offshore) | CEQA<br>Significant Impact During Construction | N/A | No mitigation is feasible. | CEQA<br>Significant and Unavoidable Impact During Construction |
| | NEPA<br>Significant Impact During Construction | Direct | No mitigation is feasible. | NEPA<br>Significant and Unavoidable Impact During Construction |
| Shaft Site | | | | |
| JWPCP East | CEQA<br>Significant Impact During Construction | N/A | MM CUL-3. In the event that potential paleontological resources are discovered during ground-disturbing activities, work will stop in that area and within 30 feet of the find until a qualified paleontologist can assess the significance of the find and, if necessary, develop appropriate treatment measures. Treatment measures may include monitoring by a qualified paleontologist during construction-related ground-disturbing activities. The monitor will retain the option to reduce monitoring if it is determined that the sediments were previously disturbed. Monitoring may also be reduced if potentially fossiliferous units are not present or, if present, are determined to have a low potential to contain fossil resources.<br><br>The monitor will be equipped to salvage fossils and samples of sediments as they are unearthed and will be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. Recovered specimens will be prepared to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates.<br><br>Specimens will be curated into a professional, accredited museum repository with permanent retrievable | CEQA<br>Significant and Unavoidable Impact During Construction |

**Table 7-8 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| | | | storage. A report of findings, with an appended itemized inventory of specimens, will be prepared and will signify completion of the mitigation. | |
| | NEPA Significant Impact During Construction | Indirect | MM CUL-3 | NEPA Significant and Unavoidable Impact During Construction |
| TraPac | CEQA Significant Impact During Construction | N/A | MM CUL-3 | CEQA Significant and Unavoidable Impact During Construction |
| | NEPA Significant Impact During Construction | Indirect | MM CUL-3 | NEPA Significant and Unavoidable Impact During Construction |
| LAXT | CEQA Significant Impact During Construction | N/A | MM CUL-3 | CEQA Significant and Unavoidable Impact During Construction |
| | NEPA Significant Impact During Construction | Indirect | MM CUL-3 | NEPA Significant and Unavoidable Impact During Construction |
| Southwest Marine | CEQA Significant Impact During Construction | N/A | MM CUL-3 | CEQA Significant and Unavoidable Impact During Construction |
| | NEPA Significant Impact During Construction | Indirect | MM CUL-3 | NEPA Significant and Unavoidable Impact During Construction |
| Impact CUL-4. Would Alternative 1 (Project) result in disturbance of any human remains, including those interred outside of formal cemeteries? | | | | |
| Shaft Site | | | | |
| JWPCP East | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| TraPac | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| LAXT | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |

**Table 7-8 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Southwest Marine | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Impact CUL-5. Would Alternative 1 (Project) result in direct or indirect damage or removal of a significant submerged marine cultural resource or result in alteration or cause change to stable environmental conditions for a significant submerged marine cultural resource(s)? | | | | |
| Riser/Diffuser Area | | | | |
| SP Shelf | CEQA<br>Significant Impact During Construction | N/A | MM CUL-5. In the event that potentially historic resources, such as shipwrecks, are encountered in the project area during construction activities, work will stop immediately until a qualified archaeologist can assess the significance of the resource and, if necessary, enact appropriate management measures. This may include the initiation of avoidance or buffer zones, or a data recovery program that may include excavation or documentation of the resource. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Significant Impact During Construction | Direct | MM CUL-5 | NEPA<br>Less Than Significant Impact During Construction |
| | CEQA<br>Less Than Significant Impact During Operation | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| | NEPA<br>Less Than Significant Impact During Operation | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Operation |
| Existing Ocean Outfalls | CEQA<br>Significant Impact During Construction | N/A | MM CUL-5 | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Significant Impact During Construction | Direct | MM CUL-5 | NEPA<br>Less Than Significant Impact During Construction |
| | CEQA<br>Less Than Significant Impact During Operation | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| | NEPA<br>Less Than Significant Impact During Operation | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Operation |

## 7.4.4 Alternative 2

### 7.4.4.1 Program

Alternative 2 (Program) is the same as Alternative 1 (Program).

### 7.4.4.2 Project

The impacts for the onshore tunnel; the JWPCP East, TraPac, LAXT, and Southwest Marine shaft sites; and the existing ocean outfalls for Alternative 2 (Project) would be the same as for Alternative 1 (Project).

#### *Impact CUL-3. Would Alternative 2 (Project) result in disturbance or destruction of a unique paleontological resource or site or a unique geologic feature?*

#### Tunnel Alignment – Wilmington to Palos Verdes Shelf (Offshore)

**Construction**

CEQA Analysis

The CEQA analysis for the Wilmington to PV Shelf (offshore) tunnel alignment from the TraPac shaft site to the Southwest Marine shaft site would be the same as for the Wilmington to SP Shelf (offshore) tunnel alignment analysis discussed for Alternative 1 (Project). The CEQA analysis for the offshore tunnel alignment from the Southwest Marine shaft site to the PV Shelf would also be the same as for the Wilmington to SP Shelf (offshore) alignment analysis discussed for Alternative 1 (Project) because this tunnel alignment would extend through the same Miocene Monterey Formation. Therefore, the CEQA analysis for the entire Wilmington to PV Shelf tunnel alignment is the same as the analysis discussed for Alternative 1 (Project). Impacts associated with offshore tunneling on unknown buried paleontological resources would be significant and could not be mitigated.

NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered direct impacts.

#### CEQA Impact Determination

Construction at the JWPCP East, TraPac, LAXT, and Southwest Marine shaft sites for Alternative 2 (Project) could result in disturbance or destruction of a unique paleontological resource or site or a unique geologic feature. Impacts under CEQA would be significant before mitigation. Construction of the onshore and offshore tunnel for Alternative 2 (Project) could also result in disturbance or destruction of a unique paleontological resource or site. Impacts under CEQA would be significant, and there is no feasible mitigation to reduce impacts.

Mitigation

Implement MM CUL-3.

Residual Impacts

MM CUL-3 would apply to the disturbance of the natural sediment at each shaft site construction area during the use of conventional excavation equipment. However, once the shaft has been excavated to depths below the groundwater table, conditions would limit effective monitoring and recovery of

paleontological resources, and there would be no feasible way to apply MM CUL-3. Furthermore, MM CUL-3 could not be applied during construction of the tunnel. This is because the TBM continually moves forward and offers no opportunity for appropriate monitoring for paleontological resources. Therefore, residual impacts would be significant and unavoidable.

## NEPA Impact Determination

Construction at the JWPCP East, TraPac, LAXT, and Southwest Marine shaft sites for Alternative 2 (Project) could result in disturbance or destruction of a unique paleontological resource or site or a unique geologic feature. Impacts under NEPA would be significant before mitigation with respect to the No-Federal-Action Alternative (see Section 3.4.1.6). Construction of the onshore and offshore tunnel for Alternative 2 (Project) could also result in disturbance or destruction of a unique paleontological resource or site. Impacts under NEPA would be significant before mitigation with respect to the No-Federal-Action Alternative (see Section 3.4.1.6), and there is no feasible mitigation to reduce impacts.

### Mitigation

Implement MM CUL-3.

### Residual Impacts

Residual impacts would be significant and unavoidable, as described for the CEQA impact determination.

### *Impact CUL-5. Would Alternative 2 (Project) result in direct or indirect damage or removal of a significant submerged marine cultural resource or result in alteration or cause change to stable environmental conditions for a significant submerged marine cultural resource(s)?*

## Riser/Diffuser Area – Palos Verdes Shelf

### Construction

#### CEQA Analysis

Impacts associated with the construction on the PV Shelf are the same as the impacts associated with construction on the SP Shelf. Construction activities on the PV Shelf could directly affect the construction site and may also include areas surrounding the construction site such as mooring areas, wire drags, and any other areas where there are direct impacts on the seafloor. Therefore, impacts on submerged cultural resources during construction activities may occur from bottom disturbances during the installation of the riser and diffuser; disturbances from wire drags; and any other disturbances to the seafloor.

A review of data from a previous geophysical survey conducted by Fugro West on the PV Shelf identified four side-scan sonar returns that may represent potentially significant submerged cultural resources. However, all of these sonar contacts are located outside of the study area on the PV Shelf and, it is unlikely that any of these targets would be affected by project activities.

Similar to Alternative 1, with the placement of the riser and diffuser at a depth of approximately 175 feet, it is unlikely any prehistoric sites would be affected by project activities. The Paleolithic shoreline (12,000 BP to 10,000 BP) would have been located in shallower water (60 to 150 feet below present sea levels) (Pierson et al. 1987:34). Therefore, the potential for submerged prehistoric sites remains low.

Review of available resources indicates no known historic submerged resources within the riser and diffuser area (CSLC; BOEMRE shipwreck database; NOAA AWOIS (2007); GMWD; Macfarlane

Archaeological Consultants 1991; Pierson 1980; Pierson et al. 1987; Weinman and Stickel 1978; Cardone and Smith 1989; Marx 1971). While there are known historic shipwrecks on the PV Shelf, no shipwrecks have been identified within the study area. The nearest reported shipwrecks (actual location not confirmed) include the *Benita* (sunk in 1951), the *Nelson* (sunk 1936), and the *Saint James* (built in 1940 and burned in 1949). Plotting the wreck locations (from coordinates provided by the CSLC shipwreck database) indicates the *Benita* and *Nelson* are located on the PV Shelf in approximately 120 to 181 feet of water. The *Saint James* is reported sunk in deeper water (400 feet or more and due west of the riser and diffuser area). Similar to Alternative 1, no submerged cultural resource surveys have been conducted in the study area. Therefore, although there is a relatively low probability of finding significant prehistoric or historic submerged cultural resources in the study area, the potential does exist. Construction of the riser and diffuser on the PV Shelf may potentially disturb or destroy an existing unknown submerged prehistoric or historic archaeological resource. Any disturbance of a currently unknown significant prehistoric or historic archaeological resource would result in an adverse impact on that resource. Impacts would be significant before mitigation. Implementation of MM CUL-5 would mitigate the impact on unknown submerged prehistoric or historic archaeological resources on the PV Shelf. Furthermore, the additional studies required by the Corps to comply with Section 106 requirements of the NHPA, as discussed in Section 7.4.1.2, would serve to reduce impacts on unknown submerged prehistoric and historic archaeological resources during construction activities.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered direct impacts.

### Operation

#### CEQA Analysis

Similar to Alternative 1, it is unlikely that any submerged cultural resources would be affected by the operation of the riser and diffuser. Isolated prehistoric artifacts that may be located near the riser and diffuser area would consist primarily of lithic (rock, stone) material. This type of artifact is also likely buried by sediment and would not be affected by the introduction of effluent being released in the vicinity. Organic artifacts (i.e., wood or reed) are more susceptible to a change in water quality, however this type of material is not likely to be found in the area of the PV Shelf because it has likely deteriorated or been washed away.

While the potential effects (i.e., accelerated wood deterioration, increased biologic activity on shipwreck sites) of effluent into the water column were considered relative to historic wooden- and iron-hulled shipwrecks, it is unlikely any of these resources would be affected by the operation of the riser and diffuser. Effects to shipwreck sites would be negligible to non-existent due to a lack of bacteria within the effluent and dilution of the effluent within the water column once it passes through the riser and diffuser.

Evidence suggests burial of submerged cultural resources enhances their preservation (Research Planning, Inc. et al. 2004:24). Any potential accumulation of sediment over the top of a wreck site or other resource would likely assist in protecting it. The potential removal of sediment by the operation of the diffuser may constitute an indirect impact was also considered because it may reduce the integrity of a shipwreck or other resource. However, the diffuser legs would be aligned to parallel the contours of the ocean floor, which coincide with the direction of prevailing currents. Therefore, it is highly unlikely that the diffuser would alter local currents to the extent that would result in the removal of a protective sediment layer overlying nearby submerged cultural resources. Impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the operational life of the structure. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

### CEQA Impact Determination

Construction of the riser and diffuser on the PV Shelf and rehabilitation of the existing ocean outfalls for Alternative 2 (Project) could result in direct or indirect damage or removal of a significant submerged marine cultural resource. Construction impacts under CEQA would be significant before mitigation. Operation of Alternative 1 (Project) would result in less than significant impacts.

#### Mitigation

Implement MM CUL-5.

#### Residual Impacts

MM CUL-5 would result in the avoidance, preservation, and/or recordation of any unknown submerged prehistoric or historic resource discovered during construction or operations on the PV Shelf. Furthermore, the additional studies required by the Corps to comply with Section 106 requirements of the NHPA, as discussed in Section 7.4.1.2, would serve to reduce impacts on unknown submerged prehistoric and historic archaeological resources during construction activities. Therefore, residual impacts would be less than significant.

### NEPA Impact Determination

Construction of the riser and diffuser on the PV Shelf and the existing ocean outfalls for Alternative 2 (Project) could result in direct or indirect damage or removal of a significant submerged marine cultural resource. Impacts under NEPA would be significant before mitigation with respect to the No-Federal-Action Alternative (see Section 3.4.1.6). Operation of Alternative 1 (Project) would result in less than significant impacts.

#### Mitigation

Implement MM CUL-5.

#### Residual Impacts

Residual impacts would be less than significant, as described for the CEQA impact determination.

## 7.4.4.3 Impact Summary – Alternative 2

Impacts on cultural resources for Alternative 2 (Program), which are the same as Alternative 1 (Program), are summarized in Table 7-7. Impacts analyzed in this EIR/EIS for Alternative 2 (Project) are summarized in Table 7-9. The proposed mitigation, where feasible, and the significance of the impact before and following mitigation are also listed in the tables.

## Table 7-9. Impact Summary – Alternative 2 (Project)

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Impact CUL-1. Would Alternative 2 (Project) cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5 or result in an adverse effect on a historic property pursuant to 36 CFR Section 800.5? | | | | |
| Shaft Site | | | | |
| JWPCP East | CEQA<br>No Impact During Construction | N/A | No mitigation is required. | CEQA<br>No Impact During Construction |
| | NEPA<br>No Impact During Construction | N/A | No mitigation is required. | NEPA<br>No Impact During Construction |
| TraPac | CEQA<br>No Impact During Construction | N/A | No mitigation is required. | CEQA<br>No Impact During Construction |
| | NEPA<br>No Impact During Construction | N/A | No mitigation is required. | NEPA<br>No Impact During Construction |
| LAXT | CEQA<br>No Impact During Construction | N/A | No mitigation is required. | CEQA<br>No Impact During Construction |
| | NEPA<br>No Impact During Construction | N/A | No mitigation is required. | NEPA<br>No Impact During Construction |
| Southwest Marine | CEQA<br>No Impact During Construction | N/A | No mitigation is required. | CEQA<br>No Impact During Construction |
| | NEPA<br>No Impact During Construction | N/A | No mitigation is required. | NEPA<br>No Impact During Construction |
| Riser/Diffuser Area | | | | |
| Existing Ocean Outfalls | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Direct | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Impact CUL-2. Would Alternative 2 (Project) cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5 or result in an adverse effect on a historic property that is an archaeological site pursuant to 36 CFR Section 800.5? | | | | |
| Shaft Site | | | | |
| JWPCP East | CEQA<br>Significant Impact During Construction | N/A | MM CUL-2. In the event that buried archaeological resources are discovered during ground-disturbing activities, work will stop in that area and within 30 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures. Treatment measures may include development of avoidance strategies, capping with fill material, or mitigation of impacts | CEQA<br>Less Than Significant Impact During Construction |

**Table 7-9 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| | | | through data recovery programs such as excavation or detailed documentation. During cultural resources monitoring, if the qualified archaeologist determines that the sediments being excavated are previously disturbed or unlikely to contain significant cultural materials, the qualified archaeologist can specify that monitoring be reduced or eliminated. | |
| | NEPA Significant Impact During Construction | Indirect | MM CUL-2 | NEPA Less Than Significant Impact During Construction |
| TraPac | CEQA No Impact During Construction | N/A | No mitigation is required. | CEQA No Impact During Construction |
| | NEPA No Impact During Construction | N/A | No mitigation is required. | NEPA No Impact During Construction |
| LAXT | CEQA No Impact During Construction | N/A | No mitigation is required. | CEQA No Impact During Construction |
| | NEPA No Impact During Construction | N/A | No mitigation is required. | NEPA No Impact During Construction |
| Southwest Marine | CEQA No Impact During Construction | N/A | No mitigation is required. | CEQA No Impact During Construction |
| | NEPA No Impact During Construction | N/A | No mitigation is required. | NEPA No Impact During Construction |
| Impact CUL-3. Would Alternative 2 (Project) result in disturbance or destruction of a unique paleontological resource or site or a unique geologic feature? | | | | |
| Tunnel Alignment | | | | |
| Wilmington to PV Shelf (Onshore) | CEQA Significant Impact During Construction | N/A | No mitigation is feasible. | CEQA Significant and Unavoidable Impact During Construction |
| | NEPA Significant Impact During Construction | Indirect | No mitigation is feasible. | NEPA Significant and Unavoidable Impact During Construction |
| Wilmington to PV Shelf (Offshore) | CEQA Significant Impact During Construction | N/A | No mitigation is feasible. | CEQA Significant and Unavoidable Impact During Construction |
| | NEPA Significant Impact During Construction | Direct | No mitigation is feasible. | NEPA Significant and Unavoidable Impact During Construction |

**Table 7-9 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Shaft Site | | | | |
| JWPCP East | CEQA<br>Significant Impact During Construction | N/A | MM CUL-3. In the event that potential paleontological resources are discovered during ground-disturbing activities, work will stop in that area and within 30 feet of the find until a qualified paleontologist can assess the significance of the find and, if necessary, develop appropriate treatment measures. Treatment measures may include monitoring by a qualified paleontologist during construction-related ground-disturbing activities. The monitor will retain the option to reduce monitoring if it is determined that the sediments were previously disturbed. Monitoring may also be reduced if potentially fossiliferous units are not present or, if present, are determined to have a low potential to contain fossil resources. The monitor will be equipped to salvage fossils and samples of sediments as they are unearthed and will be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. Recovered specimens will be prepared to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates.<br>Specimens will be curated into a professional, accredited museum repository with permanent retrievable storage. A report of findings, with an appended itemized inventory of specimens, will be prepared and will signify completion of the mitigation. | CEQA<br>Significant and Unavoidable Impact During Construction |
| | NEPA<br>Significant Impact During Construction | Indirect | MM CUL-3 | NEPA<br>Significant and Unavoidable Impact During Construction |
| TraPac | CEQA<br>Significant Impact During Construction | N/A | MM CUL-3 | CEQA<br>Significant and Unavoidable Impact During Construction |
| | NEPA<br>Significant Impact During Construction | Indirect | MM CUL-3 | NEPA<br>Significant and Unavoidable Impact During Construction |
| LAXT | CEQA<br>Significant Impact During Construction | N/A | MM CUL-3 | CEQA<br>Significant and Unavoidable Impact During Construction |
| | NEPA<br>Significant Impact During Construction | Indirect | MM CUL-3 | NEPA<br>Significant and Unavoidable Impact During Construction |

**Table 7-9 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Southwest Marine | CEQA<br>Significant Impact During Construction | N/A | MM CUL-3 | CEQA<br>Significant and Unavoidable Impact During Construction |
| | NEPA<br>Significant Impact During Construction | Indirect | MM CUL-3 | NEPA<br>Significant and Unavoidable Impact During Construction |
| Impact CUL-4. Would Alternative 2 (Project) result in disturbance of any human remains, including those interred outside of formal cemeteries? | | | | |
| Shaft Site | | | | |
| JWPCP East | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| TraPac | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| LAXT | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Southwest Marine | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |

**Table 7-9 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Impact CUL-5. Would Alternative 2 (Project) result in direct or indirect damage or removal of a significant submerged marine cultural resource or result in alteration or cause change to stable environmental conditions for a significant submerged marine cultural resource(s)? | | | | |
| Riser/Diffuser Area | | | | |
| PV Shelf | CEQA Significant Impact During Construction | N/A | MM CUL-5. In the event that potentially historic resources, such as shipwrecks, are encountered in the project area during construction activities, work will stop immediately until a qualified archaeologist can assess the significance of the resource and, if necessary, enact appropriate management measures. This may include the initiation of avoidance or buffer zones, or a data recovery program that may include excavation or documentation of the resource. | CEQA Less Than Significant Impact During Construction |
| | NEPA Significant Impact During Construction | Direct | MM CUL-5 | NEPA Less Than Significant Impact During Construction |
| | CEQA Less Than Significant Impact During Operation | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Operation |
| | NEPA Less Than Significant Impact During Operation | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Operation |
| Existing Ocean Outfalls | CEQA Significant Impact During Construction | N/A | MM CUL-5 | CEQA Less Than Significant Impact During Construction |
| | NEPA Significant Impact During Construction | Direct | MM CUL-5 | NEPA Less Than Significant Impact During Construction |
| | CEQA Less Than Significant Impact During Operation | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Operation |
| | NEPA Less Than Significant Impact During Operation | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Operation |

## 7.4.5 Alternative 3

### 7.4.5.1 Program

Alternative 3 (Program) is the same as Alternative 1 (Program).

### 7.4.5.2 Project

The impacts for the riser and diffuser area on the PV Shelf for Alternative 3 (Project) would be the same as for Alternative 2 (Project). The impacts for the existing ocean outfalls for Alternative 3 (Project) would be the same as for Alternative 1 (Project).

### *Impact CUL-1. Would Alternative 3 (Project) cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5 or result in an adverse effect on a historic property pursuant to 36 CFR Section 800.5?*

## Shaft Site – JWPCP West

### Construction

CEQA Analysis
No historical resources were identified within the CEQA study area for the JWPCP West shaft site. Therefore, there would be no impacts.

NEPA Analysis
No historical resources were identified within the NEPA study area for the JWPCP West shaft site. Therefore, there would be no impacts under NEPA.

## Shaft Site – Angels Gate

### Construction

CEQA Analysis
The Angels Gate shaft site is not located within the boundary of any of the three historic districts on the Fort MacArthur Military Reservation. Therefore, no historical resource would be affected by construction at the shaft site. There would be no impacts.

NEPA Analysis
Environmental impacts would be the same as described for the CEQA analysis. There would be no impacts under NEPA.

## CEQA Impact Determination

Construction of Alternative 3 (Project) would not cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5. Impacts under CEQA would be less than significant.

Mitigation
No mitigation is required.

Residual Impacts
Impacts would be less than significant.

## NEPA Impact Determination

Construction of Alternative 3 (Project) would not result in an adverse effect on a historic property pursuant to 36 CFR Section 800.5. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

Mitigation
No mitigation is required.

### Residual Impacts
Impacts would be less than significant.

### *Impact CUL-2. Would Alternative 3 (Project) cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5 or result in an adverse effect on a historic property that is an archaeological site pursuant to 36 CFR Section 800.5?*

## Shaft Site – JWPCP West

### Construction

#### CEQA Analysis
Typically, prehistoric and historic archaeological resources in the CEQA study area are found buried within 10 to 15 feet bgs, although on rare occasions archaeological resources have been found at greater depths. These resources are found at shallow depths because it typically takes many years for sediment to accumulate and cover resources that have been left behind. Parts of the JWPCP West shaft site were previously surveyed at the surface for cultural resources in 1975, 1977, and 1994 (Rosen 1975; Stickel 1979; Scott 1994), resulting in a complete surface survey of the shaft site footprint over time. However, no subsurface surveys were conducted. No prehistoric or historic archaeological sites have been recorded in the JWPCP West shaft site or within a 0.5-mile radius (South Central Coastal Information Center of the California Historical Resources Information System March 2010). Therefore, there is a low potential for disturbing any unknown prehistoric or historic archaeological resources during excavation and grading associated with shaft excavation. However, surface surveys and record search results are generally inconclusive regarding the presence and the exact nature of buried archaeological resources within the CEQA study area. Therefore, despite the previous surface surveys, it cannot be predicted with certainty whether buried archaeological deposits are located at depths of 10 to 15 feet bgs at the JWPCP West shaft site. Shaft site excavation has the potential to encounter significant unknown buried archaeological resources. Any significant impacts on unknown buried archaeological resources caused during construction activities would be reduced to less than significant through the implementation of MM CUL-2.

#### NEPA Analysis
Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

## Shaft Site – Angels Gate

### Construction

#### CEQA Analysis
Typically, prehistoric and historic archaeological resources in the CEQA study area are almost always found buried within 10 to 15 feet bgs, although on rare occasions archaeological resources have been found at greater depths. These resources are found at shallow depths because it typically takes many years for sediment to accumulate and cover resources that have been left behind. The Angels Gate shaft site was previously surveyed at the surface in 1974, 1975, and 1989 (Eberhart 1974; Frierman 1989). However, no subsurface surveys were conducted. No prehistoric or historic archaeological sites have been recorded in the Angels Gate shaft site (South Central Coastal Information Center of the California

Historical Resources Information System March 2010). There are recorded historical resources within a 0.5-mile radius of the shaft site including CA-LAN-144, Point Fermin Lighthouse, and the Fort MacArthur historic districts. Because other historical resource sites are within the general area of the shaft site, there is a moderate potential for disturbing any unknown prehistoric or historic archaeological resources during excavation and grading associated with shaft excavation. Furthermore, surface surveys and record search results are generally inconclusive regarding the presence and the exact nature of buried archaeological resources within the CEQA study area. Therefore, it cannot be predicted with certainty whether buried archaeological deposits are located within 10 to 15 feet bgs at the Angels Gate shaft site. Therefore, shaft construction has the potential to encounter significant unknown buried prehistoric or historic archaeological resources. Any significant impacts on unknown buried archaeological resources caused during construction activities would be reduced to less than significant through the implementation of MM CUL-2.

### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

## CEQA Impact Determination

Construction at the JWPCP West and Angels Gate shaft sites for Alternative 3 (Project) could cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5. Impacts under CEQA would be significant before mitigation.

### Mitigation

Implement MM CUL-2.

### Residual Impacts

MM CUL-2 would allow for the preservation and recordation of a significant prehistoric or historic archaeological resource discovered during the construction of the JWPCP West and Angels Gate shaft sites. Prehistoric and historic archaeological resources in the region are almost always found within the upper 15 feet of sediment. Because shaft construction would begin with bulldozers, scrapers, and other conventional equipment to remove sediment at the shaft site prior to the use of more unconventional methods, there would be an opportunity to identify, preserve, and record any prehistoric or historic archaeological finds. Once shaft construction extends beyond the first 15 feet of sediment, it is highly unlikely any prehistoric or historic resources would be found. Residual impacts would be less than significant.

## NEPA Impact Determination

Construction at the JWPCP West and Angels Gate shaft sites for Alternative 3 (Project) could result in an adverse effect on a historic property that is an archaeological site pursuant to 36 CFR Section 800.5. Impacts under NEPA would be significant before mitigation with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

### Mitigation

Implement MM CUL-2.

### Residual Impacts

Residual impacts would be less than significant, as described under the CEQA impact determination.

### *Impact CUL-3. Would Alternative 3 (Project) result in disturbance or destruction of a unique paleontological resource or site or a unique geologic feature?*

## Tunnel Alignment – Figueroa/Gaffey to Palos Verdes Shelf (Onshore)

### Construction

#### CEQA Analysis

The tunnel depth for the Figueroa/Gaffey to PV Shelf (onshore) alignment would range from approximately 70 to 370 feet bgs. The geologic formations for this onshore tunnel alignment are similar to those for the Wilmington to SP Shelf (onshore) alignment (Pleistocene Lakewood Formation, San Pedro Sand, and Timms Point Silt). Therefore, the CEQA analysis for this onshore tunnel alignment is the same as for the Wilmington to SP Shelf (onshore) alignment discussed under Alternative 1 (Project). Impacts associated with onshore tunneling on unknown buried paleontological resources would be significant and could not be mitigated.

The onshore tunnel alignment would be constructed underground and would not encounter any unique geologic features. Unique geological features that exist on the surface would not be affected by the subsurface tunneling. Therefore, construction of the onshore tunnel alignment would not permanently destroy or disturb any unique geologic features.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

## Tunnel Alignment – Figueroa/Gaffey to Palos Verdes Shelf (Offshore)

### Construction

#### CEQA Analysis

The tunnel depth for the Figueroa/Gaffey to PV Shelf (offshore) alignment would range from approximately 100 to 250 feet bgs or below the seafloor. The geologic formations for this offshore tunnel alignment are similar to those for the Wilmington to SP Shelf (offshore) alignment (Miocene Monterey Formation). Therefore, the CEQA analysis for this offshore tunnel alignment is the same as for the Wilmington to SP Shelf (offshore) alignment. Impacts associated with offshore tunneling on unknown buried paleontological resources would be significant and could not be mitigated.

The offshore tunnel alignment would be constructed underground and would not encounter any unique geologic features. Unique geological features that exist on the surface would not be affected by the subsurface tunneling. Therefore, construction of the offshore tunnel alignment would not permanently destroy or disturb any unique geologic features.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered direct impacts.

## Shaft Site – JWPCP West

### Construction

#### CEQA Analysis

As discussed in Section 7.2.3.3, younger alluvial deposits at the JWPCP West shaft site are likely to be deep in this geomorphic setting, overlying Holocene-Age Lakewood Formation sediments. Paleontological remains may be present in the Lakewood Formation. Therefore, excavation at the JWPCP West shaft site has the potential to encounter significant buried paleontological resources. Impacts associated with construction would be significant. MM CUL-3 would be implemented but would not completely prevent the potential destruction of unknown significant paleontological resources during construction, and impacts would remain significant.

The JWPCP West shaft site is located within the flat, built, urban environment, and there are no unique geologic features located within or near the shaft site area. Therefore, shaft construction would not permanently destroy or disturb any unique geologic features.

#### NEPA Analysis

Environmental impacts would be the same as described above for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

## Shaft Site – Angels Gate

### Construction

#### CEQA Analysis

As discussed in Section 7.2.3.3, the Angels Gate shaft site is situated on an uplifted wave cut terrace underlain by the Altamira Shale Member of the Monterey Formation. These sediments have a high potential to encompass intact paleontological materials. Excavation at the Angels Gate shaft site has the potential to encounter significant buried paleontological resources. Impacts associated with construction would be significant. MM CUL-3 would be implemented but would not completely prevent the potential destruction of unknown significant paleontological resources during construction, and impacts would remain significant.

The Angels Gate shaft site is located within an existing parking lot, and there are no unique geologic features located within or near the shaft site area. Therefore, shaft construction would not permanently destroy or disturb any unique geologic features.

#### NEPA Analysis

Environmental impacts would be the same as described above for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

## CEQA Impact Determination

Construction at the JWPCP West and Angels Gate shaft sites for Alternative 3 (Project) could result in disturbance or destruction of a unique paleontological resource or site or unique geologic feature. Impacts under CEQA would be significant before mitigation. Construction of the onshore and offshore tunnel for Alternative 3 (Project) could also result in disturbance or destruction of a unique

paleontological resource or site. Impacts under CEQA would be significant, and there is no feasible mitigation to reduce impacts.

#### Mitigation
Implement MM CUL-3.

#### Residual Impacts
MM CUL-3 would apply to the disturbance of the natural sediment at each shaft site construction area during the use of conventional excavation equipment. However, once the shaft has been excavated to depths below the groundwater table, conditions would limit effective monitoring and recovery of paleontological resources, and there would be no feasible way to apply MM CUL-3. Furthermore, MM CUL-3 could not be applied during construction of the tunnel. This is because the TBM continually moves forward and offers no opportunity for appropriate monitoring for paleontological resources. Therefore, residual impacts would be significant and unavoidable.

### NEPA Impact Determination
Construction at the JWPCP West and Angels Gate shaft sites for Alternative 3 (Project) could result in disturbance or destruction of a unique paleontological resource or site or a unique geologic feature. Impacts under NEPA would be significant before mitigation with respect to the No-Federal-Action Alternative (see Section 3.4.1.6). Construction of the onshore and offshore tunnel for Alternative 3 (Project) could also result in disturbance or destruction of a unique paleontological resource or site. Impacts under NEPA would be significant before mitigation with respect to the No-Federal-Action Alternative (see Section 3.4.1.6), and there is no feasible mitigation to reduce impacts.

#### Mitigation
Implement MM CUL-3.

#### Residual Impacts
Residual impacts would be significant and unavoidable, as described for the CEQA impact determination.

## *Impact CUL-4. Would Alternative 3 (Project) result in disturbance of any human remains, including those interred outside of formal cemeteries?*

### Shaft Sites – JWPCP West and Angels Gate

#### Construction

#### CEQA Analysis
The JWPCP West and Angels Gate shaft sites are not known to contain human remains, and no prehistoric or historic archaeological sites have been recorded in these locations (South Central Coastal Information Center of the California Historical Resources Information System March 2010). Construction at the shaft sites would have a very limited potential to encounter unknown human remains interred outside of formal cemeteries. In the highly unlikely event that buried human remains are encountered during excavation at the shaft sites, the legal requirements of State Health and Safety Code Section 7050.5 and Public Resources Code 5097.98 would be implemented as discussed in Section 7.3.2.3 and would ensure the appropriate treatment of human remains. Impacts would be less than significant.

### NEPA Analysis
Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

## CEQA Impact Determination
Construction of Alternative 3 (Project) would not result in disturbance of any human remains, including those interred outside of formal cemeteries. Impacts under CEQA would be less than significant.

### Mitigation
No mitigation is required.

### Residual Impacts
Impacts would be less than significant.

## NEPA Impact Determination
Construction of Alternative 3 (Project) would not result in disturbance of any human remains, including those interred outside of formal cemeteries. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

### Mitigation
No mitigation is required.

### Residual Impacts
Impacts would be less than significant.

## 7.4.5.3 Impact Summary – Alternative 3

Impacts on cultural resources for Alternative 3 (Program), which are the same as Alternative 1 (Program), are summarized in Table 7-7. Impacts analyzed in this EIR/EIS for Alternative 3 (Project) are summarized in Table 7-10. The proposed mitigation, where feasible, and the significance of the impact before and following mitigation are also listed in the tables.

**Table 7-10. Impact Summary – Alternative 3 (Project)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Impact CUL-1. Would Alternative 3 (Project) cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5 or result in an adverse effect on a historic property pursuant to 36 CFR Section 800.5? | | | | |
| Shaft Site | | | | |
| JWPCP West | CEQA<br>No Impact During Construction | N/A | No mitigation is required. | CEQA<br>No Impact During Construction |
| | NEPA<br>No Impact During Construction | N/A | No mitigation is required. | NEPA<br>No Impact During Construction |
| Angels Gate | CEQA<br>No Impact During Construction | N/A | No mitigation is required. | CEQA<br>No Impact During Construction |

**Table 7-10 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| | NEPA<br>No Impact During Construction | N/A | No mitigation is required. | NEPA<br>No Impact During Construction |
| Riser/Diffuser Area | | | | |
| Existing Ocean Outfalls | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Direct | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Impact CUL-2. Would Alternative 3 (Project) cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5 or result in an adverse effect on a historic property that is an archaeological site pursuant to 36 CFR Section 800.5? | | | | |
| Shaft Site | | | | |
| JWPCP West | CEQA<br>Significant Impact During Construction | N/A | MM CUL-2. In the event that buried archaeological resources are discovered during ground-disturbing activities, work will stop in that area and within 30 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures. Treatment measures may include development of avoidance strategies, capping with fill material, or mitigation of impacts through data recovery programs such as excavation or detailed documentation. During cultural resources monitoring, if the qualified archaeologist determines that the sediments being excavated are previously disturbed or unlikely to contain significant cultural materials, the qualified archaeologist can specify that monitoring be reduced or eliminated. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Significant Impact During Construction | Indirect | MM CUL-2 | NEPA<br>Less Than Significant Impact During Construction |
| Angels Gate | CEQA<br>Significant Impact During Construction | N/A | MM CUL-2 | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Significant Impact During Construction | Indirect | MM CUL-2 | NEPA<br>Less Than Significant Impact During Construction |

**Table 7-10 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Impact CUL-3. Would Alternative 3 (Project) result in disturbance or destruction of a unique paleontological resource or site or a unique geologic feature? | | | | |
| Tunnel Alignment | | | | |
| Figueroa/ Gaffey to PV Shelf (Onshore) | CEQA Significant Impact During Construction | N/A | No mitigation is feasible. | CEQA Significant and Unavoidable Impact During Construction |
| | NEPA Significant Impact During Construction | Indirect | No mitigation is feasible. | NEPA Significant and Unavoidable Impact During Construction |
| Figueroa/ Gaffey to PV Shelf (Offshore) | CEQA Significant Impact During Construction | N/A | No mitigation is feasible. | CEQA Significant and Unavoidable Impact During Construction |
| | NEPA Significant Impact During Construction | Direct | No mitigation is feasible. | NEPA Significant and Unavoidable Impact During Construction |
| Shaft Site | | | | |
| JWPCP West | CEQA Significant Impact During Construction | N/A | MM CUL-3. In the event that potential paleontological resources are discovered during ground-disturbing activities, work will stop in that area and within 30 feet of the find until a qualified paleontologist can assess the significance of the find and, if necessary, develop appropriate treatment measures. Treatment measures may include monitoring by a qualified paleontologist during construction-related ground-disturbing activities. The monitor will retain the option to reduce monitoring if it is determined that the sediments were previously disturbed. Monitoring may also be reduced if potentially fossiliferous units are not present or, if present, are determined to have a low potential to contain fossil resources. The monitor will be equipped to salvage fossils and samples of sediments as they are unearthed and will be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. Recovered specimens will be prepared to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates. Specimens will be curated into a professional, accredited museum repository with permanent retrievable storage. A report of findings, with an appended itemized inventory of specimens, will be prepared and will signify completion of the mitigation. | CEQA Significant and Unavoidable Impact During Construction |

**Table 7-10 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| | NEPA Significant Impact During Construction | Indirect | MM CUL-3 | NEPA Significant and Unavoidable Impact During Construction |
| Angels Gate | CEQA Significant Impact During Construction | N/A | MM CUL-3 | CEQA Significant and Unavoidable Impact During Construction |
| | NEPA Significant Impact During Construction | Indirect | MM CUL-3 | NEPA Significant and Unavoidable Impact During Construction |
| Impact CUL-4. Would Alternative 3 (Project) result in disturbance of any human remains, including those interred outside of formal cemeteries? | | | | |
| Shaft Site | | | | |
| JWPCP West | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| Angels Gate | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| Impact CUL-5. Would Alternative 3 (Project) result in direct or indirect damage or removal of a significant submerged marine cultural resource or result in alteration or cause change to stable environmental conditions for a significant submerged marine cultural resource(s)? | | | | |
| Riser/Diffuser Area | | | | |
| PV Shelf | CEQA Significant Impact During Construction | N/A | MM CUL-5. In the event that potentially historic resources, such as shipwrecks, are encountered in the project area during construction activities, work will stop immediately until a qualified archaeologist can assess the significance of the resource and, if necessary, enact appropriate management measures. This may include the initiation of avoidance or buffer zones, or a data recovery program that may include excavation or documentation of the resource. | CEQA Less Than Significant Impact During Construction |
| | NEPA Significant Impact During Construction | Direct | MM CUL-5 | NEPA Less Than Significant Impact During Construction |
| | CEQA Less Than Significant Impact During Operation | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Operation |

**Table 7-10 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| | NEPA<br>Less Than Significant Impact During Operation | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Operation |
| Existing Ocean Outfalls | CEQA<br>Significant Impact During Construction | N/A | MM CUL-5 | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Significant Impact During Construction | Direct | MM CUL-5 | NEPA<br>Less Than Significant Impact During Construction |
| | CEQA<br>Less Than Significant Impact During Operation | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| | NEPA<br>Less Than Significant Impact During Operation | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Operation |

## 7.4.6 Alternative 4 (Recommended Alternative)

### 7.4.6.1 Program

Alternative 4 (Program) is the same as Alternative 1 (Program).

### 7.4.6.2 Project

The impacts for the JWPCP West shaft site for Alternative 4 (Project) would be the same as for Alternative 3 (Project), except tunnel construction would occur over a period of 4 years instead of 5 years. The construction impacts for rehabilitation of the existing ocean outfalls would be the same as for Alternative 1 (Project).

***Impact CUL-1. Would Alternative 4 (Project) cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5 or result in an adverse effect on a historic property pursuant to 36 CFR Section 800.5?***

### Shaft Site – Royal Palms

#### Construction

CEQA Analysis

The construction of the onshore tunnel alignment would terminate at the Royal Palms shaft site where the onshore tunnel would be connected to the existing manifold structure at a tunnel crown depth of approximately 30 feet bgs. The existing manifold structure at Royal Palms Beach is part of the Sanitation Districts' existing ocean discharge system. No historic resources have been identified in the CEQA study area around the Royal Palms shaft site. Therefore, impacts would not occur.

The stonewall fragment and posts located at Royal Palms Beach were constructed before 1935 of Altamira shale and retain most of their integrity. Research indicates that the stonewall fragment and posts may date to the same period as the Historic Stone Wall, Fort MacArthur Upper Reservation, which was declared eligible for the CRHR under Criterion 1 in October 2007 (ICF 2007). The stone wall fragment would not be demolished or otherwise altered by the construction, and no impacts would occur.

#### NEPA Analysis
Environmental impacts within the NEPA study area would be the same as described for the CEQA analysis. There would be no impacts under NEPA.

### CEQA Impact Determination
Construction of Alternative 4 (Project) would not cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064. Impacts under CEQA would be less than significant.

#### Mitigation
No mitigation is required.

#### Residual Impacts
Impacts would be less than significant.

### NEPA Impact Determination
Construction of Alternative 4 (Project) would not result in an adverse effect on a historic property pursuant to 36 CFR Section 800.5. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

#### Mitigation
No mitigation is required.

#### Residual Impacts
Impacts would be less than significant.

### *Impact CUL-2. Would Alternative 4 (Project) cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5 or result in an adverse effect on a historic property that is an archaeological site pursuant to 36 CFR Section 800.5?*

### Shaft Site – Royal Palms

#### Construction

#### CEQA Analysis
The Royal Palms shaft site has not been previously surveyed. No prehistoric or historic archaeological sites have been recorded at the shaft site. (South Central Coastal Information Center of the California Historical Resources Information System March 2010). There are several recorded archaeological sites within the general vicinity of the Royal Palms shaft site, but these are all located on the bluff top above and to the south east of the shaft site (South Central Coastal Information Center of the California Historical Resources Information System March 2010). Because there are recorded archeological sites in the general area of the shaft site, there is a moderate potential for excavation and grading associated with

shaft excavation to disturb unknown archaeological resources. Furthermore, surface surveys and record search results are generally inconclusive regarding the presence and the exact nature of buried archeological resources within the CEQA study area. It cannot be predicted with certainty whether buried archaeological deposits are present or absent within the Royal Palms shaft site; therefore, shaft construction has the potential to encounter significant unknown buried archaeological resources. Any significant impacts on unknown buried archaeological resources caused during construction activities would be reduced to less than significant through the implementation of MM CUL-2.

### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

## CEQA Impact Determination

Construction at the JWPCP West and Royal Palms shaft sites for Alternative 4 (Project) could cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5. Impacts under CEQA would be significant before mitigation.

### Mitigation

Implement MM CUL-2.

### Residual Impacts

MM CUL-2 would allow for the preservation and recording of a significant prehistoric or historic archaeological resource discovered during construction. Prehistoric and historic archaeological resources in the region are almost always found within the upper 15 of sediment. Because shaft construction would begin with bulldozers, scrapers, and other conventional equipment to remove sediment at the shaft site prior to the use of more unconventional methods, there would be an opportunity to identify, preserve, and record any prehistoric or historic archaeological finds during the preliminary shaft construction. Once shaft construction extends beyond the first 15 feet of sediment, it is highly unlikely any prehistoric or historic resources would be found. Residual impacts would be less than significant.

## NEPA Impact Determination

Construction at the JWPCP West and Royal Palms shaft sites for Alternative 4 (Project) could result in an adverse effect on a historic property that is an archaeological site pursuant to 36 CFR Section 800.5. Impacts under NEPA would be significant before mitigation with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

### Mitigation

Implement MM CUL-2.

### Residual Impacts

Residual impacts would be less than significant, as described under the CEQA impact determination.

### *Impact CUL-3. Would Alternative 4 (Project) result in disturbance or destruction of a unique paleontological resource or site or a unique geologic feature?*

## Tunnel Alignment – Figueroa/Western to Royal Palms (Onshore)

### Construction

#### CEQA Analysis

The tunnel depth for the Figueroa/Western to Royal Palms (onshore) alignment would range from approximately 30 to 450 feet bgs. The geologic formations for this onshore tunnel alignment are similar to those for the Wilmington to SP Shelf (onshore) alignment Pleistocene Lakewood Formation, San Pedro Sand, and Timms Point Silt). Therefore, the CEQA analysis for the this onshore alignment is the same as for the Wilmington to the SP Shelf (onshore) alignment discussed in Alternative 1 (Project). Impacts associated with onshore tunneling on unknown buried paleontological resources would be significant and could not be mitigated.

The onshore tunnel alignment would be constructed underground and would not encounter any unique geologic features. Unique geological features that exist on the surface would not be affected by the subsurface tunneling. Therefore, construction of the onshore tunnel alignment would not permanently destroy or disturb any unique geologic features.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

## Shaft Site – Royal Palms

### Construction

#### CEQA Analysis

As discussed in Section 7.2.3.3, the Royal Palms shaft site is situated at the base of a cliff underlain by the Altamira Shale Member of the Monterey Formation. These sediments have a high potential to encompass intact paleontological materials. Excavation at the Royal Palms shaft has the potential to encounter significant buried paleontological resources. Impacts associated with construction would be significant. MM CUL-3 would be implemented but would not completely prevent the potential destruction of unknown significant paleontological resources during construction, and impacts would remain significant.

The Royal Palms shaft site has undergone grading for construction of an existing parking lot and extensive excavation for the Sanitation Districts' existing manifold structure and existing ocean outfalls, and there are no unique geologic features located within the shaft site area. Therefore, shaft construction would not permanently destroy or disturb any unique geologic features.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

## CEQA Impact Determination

Construction at the JWPCP West and Royal Palms shaft sites for Alternative 4 (Project) could result in disturbance or destruction of a unique paleontological resource or site or a unique geologic feature. Impacts under CEQA would be significant before mitigation. Construction of the onshore tunnel for Alternative 4 (Project) could also result in disturbance or destruction of a unique paleontological resource or site. Impacts under CEQA would be significant, and there is no feasible mitigation to reduce impacts.

### Mitigation

Implement MM CUL-3.

### Residual Impacts

MM CUL-3 would apply to the disturbance of the natural sediment at each shaft site construction area during the use of conventional excavation equipment. However, once the shaft has been excavated to depths below the groundwater table, conditions would limit effective monitoring and recovery of paleontological resources, and there would be no feasible way to apply MM CUL-3. Furthermore, MM CUL-3 could not be applied during construction of the tunnel. This is because the TBM continually moves forward and offers no opportunity for appropriate monitoring for paleontological resources. Therefore, residual impacts would be significant and unavoidable.

## NEPA Impact Determination

Construction at the JWPCP West and Royal Palms shaft sites for Alternative 4 (Project) could result in disturbance or destruction of a unique paleontological resource or site or a unique geologic feature. Impacts under NEPA would be significant before mitigation with respect to the No-Federal-Action Alternative (see Section 3.4.1.6). Construction of the onshore tunnel for Alternative 4 (Project) could also result in disturbance or destruction of a unique paleontological resource or site. Impacts under NEPA would be significant before mitigation with respect to the No-Federal-Action Alternative (see Section 3.4.1.6), and there is no feasible mitigation to reduce impacts.

### Mitigation

Implement MM CUL-3.

### Residual Impacts

Residual impacts would be significant and unavoidable, as described under the CEQA impact determination.

## *Impact CUL-4. Would Alternative 4 (Project) result in disturbance of any human remains, including those interred outside of formal cemeteries?*

## Shaft Site – Royal Palms

### Construction

#### CEQA Analysis

The Royal Palms shaft site is not known to contain human remains, and no prehistoric or historic archaeological sites have been recorded in this location. Construction at the shaft site would have a very limited potential to encounter unknown human remains interred outside of formal cemeteries. In the highly unlikely event that buried human remains are encountered during excavation at the shaft site, the legal requirements of State Health and Safety Code Section 7050.5 and Public Resources Code 5097.98

would be implemented as discussed in Section 7.3.2.3 and would ensure the appropriate treatment of human remains. Impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

### CEQA Impact Determination

Construction of Alternative 4 (Project) would not result in disturbance of any human remains, including those interred outside of formal cemeteries. Impacts under CEQA would be less than significant.

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### NEPA Impact Determination

Construction of Alternative 4 (Project) would not result in disturbance of any human remains, including those interred outside of formal cemeteries. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

## 7.4.6.3 Impact Summary – Alternative 4

Impacts on cultural resources for Alternative 4 (Program), which are the same as Alternative 1 (Program), are summarized in Table 7-7. Impacts analyzed in this EIR/EIS for Alternative 4 (Project) are summarized in Table 7-11. The proposed mitigation, where feasible, and the significance of the impact before and following mitigation are also listed in the tables.

**Table 7-11. Impact Summary – Alternative 4 (Project)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Impact CUL-1. Would Alternative 4 (Project) cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5 or result in an adverse effect on a historic property pursuant to 36 CFR Section 800.5? | | | | |
| Shaft Site | | | | |
| JWPCP West | CEQA<br>No Impact During Construction | N/A | No mitigation is required. | CEQA<br>No Impact During Construction |
| | NEPA<br>No Impact During Construction | N/A | No mitigation is required. | NEPA<br>No Impact During Construction |

**Table 7-11 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Royal Palms | CEQA<br>No Impact During Construction | N/A | No mitigation is required. | CEQA<br>No Impact During Construction |
| | NEPA<br>No Impact During Construction | N/A | No mitigation is required. | NEPA<br>No Impact During Construction |
| Riser/Diffuser Area | | | | |
| Existing Ocean Outfalls | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Direct | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Impact CUL-2. Would Alternative 4 (Project) cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5 or result in an adverse effect on a historic property that is an archaeological site pursuant to 36 CFR Section 800.5? | | | | |
| Shaft Site | | | | |
| JWPCP West | CEQA<br>Significant Impact During Construction | N/A | MM CUL-2. In the event that buried archaeological resources are discovered during ground-disturbing activities, work will stop in that area and within 30 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures. Treatment measures may include development of avoidance strategies, capping with fill material, or mitigation of impacts through data recovery programs such as excavation or detailed documentation. During cultural resources monitoring, if the qualified archaeologist determines that the sediments being excavated are previously disturbed or unlikely to contain significant cultural materials, the qualified archaeologist can specify that monitoring be reduced or eliminated. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Significant Impact During Construction | Indirect | MM CUL-2 | NEPA<br>Less Than Significant Impact During Construction |
| Royal Palms | CEQA<br>Significant Impact During Construction | N/A | MM CUL-2 | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Significant Impact During Construction | Indirect | MM CUL-2 | NEPA<br>Less Than Significant Impact During Construction |

**Table 7-11 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Impact CUL-3. Would Alternative 4 (Project) result in disturbance or destruction of a unique paleontological resource or site or a unique geologic feature? | | | | |
| Tunnel Alignment | | | | |
| Figueroa/ Western to Royal Palms (Onshore) | CEQA Significant Impact During Construction | N/A | No mitigation is feasible. | CEQA Significant and Unavoidable Impact During Construction |
| | NEPA Significant Impact During Construction | Indirect | No mitigation is feasible. | NEPA Significant and Unavoidable Impact During Construction |
| Shaft Site | | | | |
| JWPCP West | CEQA Significant Impact During Construction | N/A | MM CUL-3. In the event that potential paleontological resources are discovered during ground-disturbing activities, work will stop in that area and within 30 feet of the find until a qualified paleontologist can assess the significance of the find and, if necessary, develop appropriate treatment measures. Treatment measures may include monitoring by a qualified paleontologist during construction-related ground-disturbing activities. The monitor will retain the option to reduce monitoring if it is determined that the sediments were previously disturbed. Monitoring may also be reduced if potentially fossiliferous units are not present or, if present, are determined to have a low potential to contain fossil resources. The monitor will be equipped to salvage fossils and samples of sediments as they are unearthed and will be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. Recovered specimens will be prepared to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates. Specimens will be curated into a professional, accredited museum repository with permanent retrievable storage. A report of findings, with an appended itemized inventory of specimens, will be prepared and will signify completion of the mitigation. | CEQA Significant and Unavoidable Impact During Construction |
| | NEPA Significant Impact During Construction | Indirect | MM CUL-3 | NEPA Significant and Unavoidable Impact During Construction |

**Table 7-11 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Royal Palms | CEQA Significant Impact During Construction | N/A | MM CUL-3 | CEQA Significant and Unavoidable Impact During Construction |
| | NEPA Significant Impact During Construction | Indirect | MM CUL-3 | NEPA Significant and Unavoidable Impact During Construction |
| Impact CUL-4. Would Alternative 4 (Project) result in disturbance of any human remains, including those interred outside of formal cemeteries? | | | | |
| Shaft Site | | | | |
| JWPCP West | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| Royal Palms | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| Impact CUL-5. Would Alternative 4 (Project) result in direct or indirect damage or removal of a significant submerged marine cultural resource or result in alteration or cause change to stable environmental conditions for a significant submerged marine cultural resource(s)? | | | | |
| Riser/Diffuser Area | | | | |
| Existing Ocean Outfalls | CEQA Significant Impact During Construction | N/A | MM CUL-5. In the event that potentially historic resources, such as shipwrecks, are encountered in the project area during construction activities, work will stop immediately until a qualified archaeologist can assess the significance of the resource and, if necessary, enact appropriate management measures. This may include the initiation of avoidance or buffer zones, or a data recovery program that may include excavation or documentation of the resource. | CEQA Less Than Significant Impact During Construction |
| | NEPA Significant Impact During Construction | Direct | MM CUL-5 | NEPA Less Than Significant Impact During Construction |
| | CEQA Less Than Significant Impact During Operation | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Operation |
| | NEPA Less Than Significant Impact During Operation | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Operation |

## 7.4.7 Alternative 5 (No-Project Alternative)

Pursuant to CEQA, an environmental impact report must evaluate a no-project alternative. A no-project alternative describes the no-build scenario and what reasonably would be expected to occur in the foreseeable future if the project were not approved. Under the No-Project Alternative for the Clearwater Program, the Sanitation Districts would continue to expand, upgrade, and operate the JOS in accordance with the JOS 2010 Master Facilities Plan (2010 Plan) (Sanitation Districts 1994), which includes all program elements proposed under the Clearwater Program, excluding process optimization at the WRPs, as described in Section 3.4.1.5. A new or modified ocean discharge system would not be constructed. As a result, there would be a greater potential for an emergency discharge into various water courses, as described in Section 3.4.1.5.

Because there would be no construction of a new or modified JWPCP ocean discharge system, the Corps would not make any significance determinations under NEPA and would not issue any permits or discretionary approvals for dredge or fill actions or for transport or ocean disposal of dredged material.

### 7.4.7.1 Program

Alternative 5 (Program) would consist of the implementation of the 2010 Plan. The impacts for conveyance improvements, plant expansion at the SJCWRP, WRP effluent management, JWPCP solids processing, and JWPCP biosolids management for Alternative 5 (Program) would be the same as for Alternative 1 (Program) and would be subject to mitigation in accordance with the EIR prepared for the 2010 Plan (Jones & Stokes 1994).

### 7.4.7.2 Project

Alternative 5 does not include a project; therefore, a new or modified ocean discharge system would not be constructed. As a consequence of taking no action, there could be emergency discharges or sewer overflows into various water courses, as described in Section 3.4.1.5. There would be no impacts on historical or archaeological cultural resources, paleontological resources, or human remains due to such emergency releases. The floodplains for the Wilmington Drain and Dominguez Channel do not contain structures. Therefore, there is no potential to affect historic structures. Because Alternative 5 does not include any construction within the marine environment, there would be no impacts associated with the SP Shelf and PV Shelf or the existing ocean outfalls. Alternative 5 would not have the potential to affect historic buildings and structures because no physical alterations would occur near the Bethlehem Shipyard Historic District.

### 7.4.7.3 Impact Summary – Alternative 5

Impacts on cultural resources for Alternative 5 (Program) would be the same as those summarized for Alternative 1 (Program) in Table 7-7, excluding process optimization. Note that the mitigation measures for Alternatives 1 through 4 (Program) are not applicable to Alternative 5 (Program). There would be less than significant impacts on cultural resources for Alternative 5 (Project).

## 7.4.8 Alternative 6 (No-Federal-Action Alternative)

Pursuant to NEPA, an EIS must evaluate a no-federal-action alternative. The No-Federal-Action Alternative for the Clearwater Program consists of the activities that the Sanitation Districts would perform without the issuance of the Corps' permits. The Corps' permits would be required for the

construction of the offshore tunnel, construction of the riser and diffuser, the rehabilitation of the existing ocean outfalls, and the ocean disposal of dredged material. Without a Corps permit to work on the aforementioned facilities, the Sanitation Districts would not construct the onshore tunnel and shaft sites. Therefore, none of the project elements would be constructed under the No-Federal-Action Alternative. The Sanitation Districts would continue to use the existing ocean discharge system, which could result in emergency discharges into various water courses, as described in Sections 3.4.1.6 and 7.4.7.2. The program elements for the recommended alternative would be implemented in accordance with CEQA requirements. However, based on the NEPA scope of analysis established in Sections 1.4.2 and 3.5, these elements would not be subject to NEPA because the Corps would not make any significance determinations and would not issue any permits or discretionary approvals.

#### 7.4.8.1 Program

The program elements are beyond the NEPA scope of analysis.

#### 7.4.8.2 Project

The impact analysis for Alternative 6 (Project) is the same as described for Alternative 5 (Project).

#### 7.4.8.3 Impact Summary – Alternative 6

The program is not analyzed under Alternative 6. Impacts for Alternative 6 would be the same as discussed under Alternative 5 (Project); therefore, there would be less than significant impacts on cultural resources for Alternative 6.

### 7.4.9 Comparison of Significant Impacts and Mitigation for All Alternatives

A summary of significant impacts on cultural resources resulting from the construction and/or operation of program and/or project elements is provided in Table 7-12. Impacts are compared by alternative. Proposed mitigation, where feasible, and the significance of the impact before and following mitigation under CEQA and NEPA are also listed in the table.

## Table 7-12. Comparison of Significant Impacts and Mitigation for Cultural Resources for All Alternatives

| Element | Impact Before Mitigation | Mitigation Measure | Residual Impact After Mitigation |
|---|---|---|---|
| **Alternatives 1, 2, 3, 4, and 5[a] (Program)** | | | |
| Impact CUL-2. Would Alternatives 1, 2, 3, 4, and 5 (Program) cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5? | | | |
| SJCWRP – Plant Expansion and Process Optimization; POWRP, LCWRP, and LBWRP – Process Optimization; JWPCP – Solids Processing | CEQA Significant Impact During Construction | MM CUL-2. In the event that buried archaeological resources are discovered during ground-disturbing activities, work will stop in that area and within 30 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures. Treatment measures may include development of avoidance strategies, capping with fill material, or mitigation of impacts through data recovery programs such as excavation or detailed documentation. During cultural resources monitoring, if the qualified archaeologist determines that the sediments being excavated are previously disturbed or unlikely to contain significant cultural materials, the qualified archaeologist can specify that monitoring be reduced or eliminated. | CEQA Less Than Significant Impact During Construction |
| Impact CUL-3. Would Alternatives 1, 2, 3, 4, and 5 (Program) result in disturbance or destruction of a unique paleontological resource or site or a unique geologic feature? | | | |
| SJCWRP – Plant Expansion and Process Optimization; POWRP, LCWRP, and LBWRP – Process Optimization; JWPCP – Solids Processing | CEQA Significant Impact During Construction | MM CUL-3. In the event that potential paleontological resources are discovered during ground-disturbing activities, work will stop in that area and within 30 feet of the find until a qualified paleontologist can assess the significance of the find and, if necessary, develop appropriate treatment measures. Treatment measures may include monitoring by a qualified paleontologist during construction-related ground-disturbing activities. The monitor will retain the option to reduce monitoring if it is determined that the sediments were previously disturbed. Monitoring may also be reduced if potentially fossiliferous units are not present or, if present, are determined to have a low potential to contain fossil resources. The monitor will be equipped to salvage fossils and samples of sediments as they are unearthed and will be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. Recovered specimens will be prepared to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates. Specimens will be curated into a professional, accredited museum repository with permanent retrievable storage. A report of findings, with an appended itemized inventory of specimens, will be prepared and will signify completion of the mitigation. | CEQA Less Than Significant Impact During Construction |

[a] Process optimization would not apply to Alternative 5 (Program). Additionally, all mitigation measures and residual impacts would not apply to Alternative 5 (Program).

**Table 7-12 (Continued)**

| Element | Impact Before Mitigation | Mitigation Measure | Residual Impact After Mitigation |
|---|---|---|---|
| **Alternative 1 (Project)** | | | |
| Impact CUL-2. Would Alternative 1 (Project) cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5 or result in an adverse effect on a historic property pursuant to 36 CFR Section 800.5? | | | |
| Shaft Site – JWPCP East | CEQA Significant Impact During Construction | MM CUL-2 | CEQA Less Than Significant Impact During Construction |
| | NEPA Significant Impact (Indirect) During Construction | MM CUL-2 | NEPA Less Than Significant Impact (Indirect) During Construction |
| Impact CUL-3. Would Alternative 1 (Project) result in disturbance or destruction of a unique paleontological resource or site or a unique geologic feature? | | | |
| Tunnel Alignment – Wilmington to SP Shelf (Onshore) | CEQA Significant Impact During Construction | No mitigation is feasible. | CEQA Significant and Unavoidable Impact During Construction |
| | NEPA Significant Impact (Indirect) During Construction | No mitigation is feasible. | NEPA Significant and Unavoidable Impact (Indirect) During Construction |
| Tunnel Alignment – Wilmington to SP Shelf (Offshore) | CEQA Significant Impact During Construction | No mitigation is feasible. | CEQA Significant and Unavoidable Impact During Construction |
| | NEPA Significant Impact (Direct) During Construction | No mitigation is feasible. | NEPA Significant and Unavoidable Impact (Direct) During Construction |
| Shaft Site – JWPCP East, TraPac, LAXT, Southwest Marine | CEQA Significant Impact During Construction | MM CUL-3 | CEQA Significant and Unavoidable Impact During Construction |
| | NEPA Significant Impact (Indirect) During Construction | MM CUL-3 | NEPA Significant and Unavoidable Impact (Indirect) During Construction |
| Impact CUL-5. Would Alternative 1 (Project) result in direct or indirect damage or removal of a significant submerged marine cultural resource or result in alteration or cause change to stable environmental conditions for a significant submerged marine cultural resource(s)? | | | |
| Riser/Diffuser Area – SP Shelf, Existing Ocean Outfalls | CEQA Significant Impact During Construction | MM CUL-5. In the event that potentially historic resources, such as shipwrecks, are encountered in the project area during construction activities, work will stop immediately until a qualified archaeologist can assess the significance of the resource and, if necessary, enact appropriate management measures. This may include the initiation of avoidance or buffer zones, or a data recovery program that may include excavation or documentation of the resource. | CEQA Less Than Significant Impact During Construction |
| | NEPA Significant Impact (Direct) During Construction | MM CUL-5 | NEPA Less Than Significant Impact (Direct) During Construction |

## Table 7-12 (Continued)

| Element | Impact Before Mitigation | Mitigation Measure | Residual Impact After Mitigation |
|---|---|---|---|
| **Alternative 2 (Project)** | | | |
| Impact CUL-2. Would Alternative 2 (Project) cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5 or result in an adverse effect on a historic property pursuant to 36 CFR Section 800.5? | | | |
| Shaft Site – JWPCP East | CEQA Significant Impact During Construction | MM CUL-2 | CEQA Less Than Significant Impact During Construction |
| | NEPA Significant Impact (Indirect) During Construction | MM CUL-2 | NEPA Less Than Significant Impact (Indirect) During Construction |
| Impact CUL-3. Would Alternative 2 (Project) result in disturbance or destruction of a unique paleontological resource or site or a unique geologic feature? | | | |
| Tunnel Alignment – Wilmington to PV Shelf (Onshore) | CEQA Significant Impact During Construction | No mitigation is feasible. | CEQA Significant and Unavoidable Impact During Construction |
| | NEPA Significant Impact (Indirect) During Construction | No mitigation is feasible. | NEPA Significant and Unavoidable Impact (Indirect) During Construction |
| Tunnel Alignment – Wilmington to SP Shelf (Offshore) | CEQA Significant Impact During Construction | No mitigation is feasible. | CEQA Significant and Unavoidable Impact During Construction |
| | NEPA Significant Impact (Direct) During Construction | No mitigation is feasible. | NEPA Significant and Unavoidable Impact (Direct) During Construction |
| Shaft Site – JWPCP East, TraPac, LAXT, Southwest Marine | CEQA Significant Impact During Construction | MM CUL-3 | CEQA Significant and Unavoidable Impact During Construction |
| | NEPA Significant Impact (Indirect) During Construction | MM CUL-3 | NEPA Significant and Unavoidable Impact (Indirect) During Construction |
| Impact CUL-5. Would Alternative 2 (Project) result in direct or indirect damage or removal of a significant submerged marine cultural resource or result in alteration or cause change to stable environmental conditions for a significant submerged marine cultural resource(s)? | | | |
| Riser/Diffuser Area – PV Shelf, Existing Ocean Outfalls | CEQA Significant Impact During Construction | MM CUL-5 | CEQA Less Than Significant Impact During Construction |
| | NEPA Significant Impact (Direct) During Construction | MM CUL-5 | NEPA Less Than Significant Impact (Direct) During Construction |

**Table 7-12 (Continued)**

| Element | Impact Before Mitigation | Mitigation Measure | Residual Impact After Mitigation |
|---|---|---|---|
| **Alternative 3 (Project)** | | | |
| Impact CUL-2. Would Alternative 3 (Project) cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5 or result in an adverse effect on a historic property pursuant to 36 CFR Section 800.5? | | | |
| Shaft Site – JWPCP West, Angels Gate | CEQA Significant Impact During Construction | MM CUL-2 | CEQA Less Than Significant Impact During Construction |
| | NEPA Significant Impact (Indirect) During Construction | MM CUL-2 | NEPA Less Than Significant Impact (Indirect) During Construction |
| Impact CUL-3. Would Alternative 3 (Project) result in disturbance or destruction of a unique paleontological resource or site or a unique geologic feature? | | | |
| Tunnel Alignment – Figueroa/ Gaffey to PV Shelf (Onshore) | CEQA Significant Impact During Construction | No mitigation is feasible. | CEQA Significant and Unavoidable Impact During Construction |
| | NEPA Significant Impact (Indirect) During Construction | No mitigation is feasible. | NEPA Significant and Unavoidable Impact (Indirect) During Construction |
| Tunnel Alignment – Figueroa/ Gaffey to PV Shelf (Offshore) | CEQA Significant Impact During Construction | No mitigation is feasible. | CEQA Significant and Unavoidable Impact During Construction |
| | NEPA Significant Impact (Direct) During Construction | No mitigation is feasible. | NEPA Significant and Unavoidable Impact (Direct) During Construction |
| Shaft Site – JWPCP West, Angels Gate | CEQA Significant Impact During Construction | MM CUL-3 | CEQA Significant and Unavoidable Impact During Construction |
| | NEPA Significant Impact (Indirect) During Construction | MM CUL-3 | NEPA Significant and Unavoidable Impact (Indirect) During Construction |
| Impact CUL-5. Would Alternative 3 (Project) result in direct or indirect damage or removal of a significant submerged marine cultural resource or result in alteration or cause change to stable environmental conditions for a significant submerged marine cultural resource(s)? | | | |
| Riser/Diffuser Area – PV Shelf, Existing Ocean Outfalls | CEQA Significant Impact During Construction | MM CUL-5 | CEQA Less Than Significant Impact During Construction |
| | NEPA Significant Impact (Direct) During Construction | MM CUL-5 | NEPA Less Than Significant Impact (Direct) During Construction |

## Table 7-12 (Continued)

| Element | Impact Before Mitigation | Mitigation Measure | Residual Impact After Mitigation |
|---|---|---|---|
| **Alternative 4 (Project)** | | | |
| Impact CUL-2. Would Alternative 4 (Project) cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5 or result in an adverse effect on a historic property pursuant to 36 CFR Section 800.5? | | | |
| Shaft Site – JWPCP West, Royal Palms | CEQA Significant Impact During Construction | MM CUL-2 | CEQA Less Than Significant Impact During Construction |
| | NEPA Significant Impact (Indirect) During Construction | MM CUL-2 | NEPA Less Than Significant Impact (Indirect) During Construction |
| Impact CUL-3. Would Alternative 4 (Project) result in disturbance or destruction of a unique paleontological resource or site or a unique geologic feature? | | | |
| Figueroa/ Western to Royal Palms (Onshore) | CEQA Significant Impact During Construction | No mitigation is feasible. | CEQA Significant and Unavoidable Impact During Construction |
| | NEPA Significant Impact (Indirect) During Construction | No mitigation is feasible. | NEPA Significant and Unavoidable Impact (Indirect) During Construction |
| Shaft Site – JWPCP West, Royal Palms | CEQA Significant Impact During Construction | MM CUL-3 | CEQA Significant and Unavoidable Impact During Construction |
| | NEPA Significant Impact (Indirect) During Construction | MM CUL-3 | NEPA Significant and Unavoidable Impact (Indirect) During Construction |
| Impact CUL-5. Would Alternative 4 (Project) result in direct or indirect damage or removal of a significant submerged marine cultural resource or result in alteration or cause change to stable environmental conditions for a significant submerged marine cultural resource(s)? | | | |
| Riser/Diffuser Area – Existing Ocean Outfalls | CEQA Significant Impact During Construction | MM CUL-5 | CEQA Less Than Significant Impact During Construction |
| | NEPA Significant Impact (Direct) During Construction | MM CUL-5 | NEPA Less Than Significant Impact (Direct) During Construction |