3.4 CULTURAL RESOURCES

This section describes the cultural resources present within the project site from a regional context and at the site-specific level for the Otay River Estuary Restoration Project. A more detailed description of the cultural resources and archaeological setting in and around the south end of San Diego Bay is presented in the Final Comprehensive Conservation Plan/Environmental Impact Statement (EIS) for the San Diego Bay National Wildlife Refuge (NWR) (USFWS 2006), which is incorporated by reference into this document.

The information presented here is based on research and fieldwork conducted by Dudek (Comeau et al. 2016; Hale and Giacinto 2012) for the U.S. Fish and Wildlife Service, attached as Confidential Appendix K to this EIS, and several prior investigations conducted in the general area (ASM 1987; Cook and Andrews 2003; Gustafson and Gregory 2001; Laguna Mountain Environmental 2009; Laylander 1993). The proposed action's area of potential effect includes all areas where disturbance related to the proposed action (e.g., grading, filling, truck access, general construction activities) would occur.

3.4.1 Cultural Context

Native American History

The earliest recognized period of California prehistory is referred to as Paleo-Indian. In the San Diego region, this period is usually considered to date from at least 10,000 years before present until 8,500 to 7,200 years before present. The sites that have been documented from this period are identified as belonging to the San Dieguito Complex. Flaked stone tools, such as knives, blades, and scrapers, suggest a hunter-gatherer society, and the apparent absence of milling implements and ceramics from these sites suggests little or no use of seed-grinding technology (Appendix K, Confidential).

The Archaic period began at least 7,200 years ago, possibly as early as 9,000 years before present, and lasted until about 2,000 years ago. Sites from this time are identified by some as belonging to the La Jolla Complex. This cultural tradition appears to have two distinct subdivisions in Southern California. The first, found along the coastal areas of Southern California, had an economy that relied largely on gathering wild resources, such as shellfish and seeds, along the coast; farther inland, hunting and gathering techniques were replaced with horticultural and agricultural techniques. During this phase, a reliance on seed and nut resources is suggested by the presence of grinding implements such as manos and metates. Coastal sites from this period are frequently characterized by shell midden and fire hearths (Appendix K, Confidential).

The Late Archaic, also referred to as the Late Prehistoric Period, is defined as approximately 2,000 years before present to Spanish contact (1769). This period is represented by the Yuman-speaking people from the Colorado River region who migrated into what is now Southern California. This period is recognized archaeologically by small pressure-flaked projectile points and the use of mortars and pestles for grinding seeds and acorns. Archaeological evidence indicates that the manufacture and use of ceramic vessels for cooking, storage, and other uses began about 1,000 years ago (Appendix K, Confidential).

At the time of European contact, a fairly large, stable population of Kumeyaay people occupied the region of what is now Southern California; they were direct descendants of the early Yuman hunter-gathers of the Late Archaic period. The Kumeyaay people lived in small groups within territories where they claimed minor plant resources and eagle aeries. Acorns were an important food source for the Kumeyaay, along with upland game in the hills and fish and shellfish in coastal areas. The Kumeyaay also practiced resource management and were proficient in many plant propagation methods. According to Kumeyaay Elder Delfina Cuero, as described in her autobiography (Cuero and Shipek 1991), local Native Americans also gathered salt near the southern end of San Diego Bay for cooking and preserving fish and as a trade good for other tribes.

Displacement of Kumeyaay culture and society began at European contact. The introduction and development of the Mission system, and later the establishment of ranchos under the Mexican land grant program, all contributed to the disruption and break down of Kumeyaay cultural institutions (USFWS 2006).

Early Euro-American History

The first recorded exploration of what is now known as San Diego Bay was conducted in 1542 by Portuguese explorer Juan Rodriguez Cabrillo, sailing under the Spanish flag. Sixty years later in 1602, Sebastian Vizcaino sailed into what is now known as San Diego Bay. It was not until 1769, however, that an overland party of missionaries, traveling north from Baja California, began the exploration and settlement of the region. This period, which extended from 1769 to 1821, is referred to as the Spanish Period. It is during this time that the San Diego Presidio and San Diego and San Luis Rey Missions were established (Appendix K, Confidential).

In the 1770s, the land now included within the San Diego Bay NWR boundaries was part of La Purisima Concepcion, a grazing area for Mission herds. In 1795, the area was taken from the Mission by soldiers at the San Diego Presidio and renamed El Rancho del Rey. The land was then used to graze the horses and cattle for the presidio garrison (Appendix K, Confidential).

San Diego Bay was first mapped by Juan Pantoja in 1782 during a 7-week layover in the area. On his map, entitled “Plano del Puerto De S. Diego,” the project site is located along the eastern edge of the marshy floodplain, at the southeastern extent of San Diego Bay in the

vicinity of Rancheria de La Punta. However, the map is highly generalized. Pantoja likely dedicated the majority of his attention to determining the depths of the bay and the river inlets. It appears likely that the project site is located south of "Est de agua salada" (salt water estuary) and north of "R[io] y Ranc[heria] de La Punta" (River and Ranch of La Punta). This indicates that the two northwest-trending drainages may be the Otay River to the north and Nestor Creek to the south. The Ranch of La Punta, presumably a native Kumeyaay village, is represented on Pantoja's 1782 map. The villages of Melijo and La Punta were both referenced in historical records, notably by Lt. Francisco Ortega, who listed them as two of 15 Native American villages that contributed members to the San Diego Mission uprising of 1775 (Carrico 1983). Ortega conducted a thorough investigation of the Village of La Punta, known as a Christian village, and Melijo following the uprising. In this way, the presence of the Kumeyaay village of La Punta in this area has been substantiated by a number of ethnographic sources; however, the discrete location of this habitation area, if in fact it was associated with a specific place, was lost over time (Appendix K, Confidential).

In 1821, control of California passed from Spain to Mexico. This period, referred to as the Mexican Period, extended to 1848, when Mexico ceded California to the United States after the Mexican–American War of 1846–1848. Following Mexico's independence from Spain, the missions were secularized and the large missions were divided and granted to individuals and families loyal to Mexico. This process became known as the rancho system of land distribution (Appendix K, Confidential).

In 1848, Mexico ceded California to the United States, and under the provisions of the Treaty of Guadalupe Hidalgo, residents of California were guaranteed property rights to land held in accordance with Mexican law. Acquiring title to these lands, however, was difficult. In 1851, the U.S. Congress established procedures that would assist individuals in gaining clear title (a "patent") to these lands. In 1866, U.S. President Andrew Johnson granted a land patent for the El Rancho de la Nacion (listed as National Ranch), and on June 15, 1868, the Kimball brothers purchased the National Ranch for $30,000. This land patent included 6 miles of bayfront in the vicinity of what is now National City (Appendix K, Confidential).

Development of National City began slowly. In 1869, many individuals came to National City in hopes of working for the Memphis and El Paso Railroad, a project that did not materialize as promised. Between 1869 and 1873, the road connecting National City to the border was improved, a post office was established, and a wharf was constructed along the bayfront. Following a financial crash in 1873, which ended the current hopes for a railroad boom, the Kimball brothers turned to agriculture. Much of the area was used to raise sheep; grow wheat; and cultivate oranges, lemons, grapes, and olives (Appendix K, Confidential).

In 1885, the vision of a railroad line connecting National City to other parts of California and beyond was realized with the completion of a line that connected National City to San Bernardino. This was followed by the incorporation of National City in 1887. During that same year, the San Diego Land and Town Company, the syndicate controlled by the Santa Fe Railroad, began construction of the Sweetwater Dam to promote land sales in National City and Chula Vista. Early in its history, Chula Vista was an agricultural center, known for its flowers, citrus, and celery. Later, Chula Vista became a residential and industrial area, and a center for aircraft parts manufacturing. The Coronado Belt Line was completed in 1888. This railroad provided service from 5th and L Streets in San Diego, through National City and Chula Vista around the south end of the San Diego Bay, and up the Silver Strand to Coronado. The railroad, which was originally owned by Elisha S. Babcock, Jr., H.L. Story, and associates, was built as part of the Coronado Beach development. The railroad was used to transport freight and passengers to and from Coronado. Regular passenger service on this line ended in 1896, but special excursion trains continued to operate for several years thereafter. In addition to the community and agricultural development occurring in the mid to late 1800s in the vicinity of the area now included within the San Diego Bay NWR Sweetwater Marsh Unit, agricultural and industrial development was also occurring in and around lands and waters now included in the South San Diego Bay Unit (Appendix K, Confidential).

The history of solar salt production in the South Bay began in 1871 with development of La Punta Salt Works. This small-scale salt production facility was initially constructed on approximately 60 acres in the extreme southeast corner of San Diego Bay. This facility subsequently closed, and in 1902, Graham Babcock established the Western Salt Company approximately 0.25 mile northeast of the extant La Punta Salt Works. In 1911, when E.S. Babcock took over the Western Salt Company operation, he began purchasing much of the land along the south end of San Diego Bay to expand the facility. As the facility expanded, the historic salt marsh and intertidal mudflats were eliminated by the formation of diked evaporation ponds. By 1916, the facility extended across the entire end of the South Bay. A major flood severely damaged the facility in early 1916, but reconstruction began immediately and continued through 1918 (Appendix K, Confidential).

In 1922, the salt works facility was purchased by H.G. Fenton and remained under the ownership of H.G. Fenton Company until the majority of the salt works was incorporated into the South San Diego Bay Unit in 1999. The southeastern-most bittern ponds, which were not included in the San Diego Bay NWR acquisition boundary, were retained by H.G. Fenton Company until the land was sold to the Charles Company. The salt ponds included within the San Diego Bay NWR, now operated by South Bay Salt Works, continue to produce salt through solar evaporation under a Special Use Permit issued by the U.S. Fish and Wildlife Service. In 2011, the salt production operation was downsized when the western salt ponds were taken out of operation and restored to tidally influenced coastal wetlands (Appendix K, Confidential).

Until 1986, the portion of the Otay River floodplain previously known as the MKEG/Fenton area was primarily used for the production of truck crops. The 146-acre parcel, located to the south of the salt works facility, included the 126-acre MKEG property owned by the Egger and Ghio Corporation and a 20-acre Fenton parcel purchased by the City of San Diego in the late 1990s (USFWS 2006). The area currently consists of a combination of fallow agricultural land that is regularly disked to control weed growth and restored riparian habitat located to the east and west of the Otay River channel. To the west of Nestor Creek, the project site includes approximately 33.5 acres of Otay River floodplain. This area encompasses the northern one-third of what was previously referred to as Pond 20. Pond 20 was at one time part of the evaporative salt pond system operated by the Western Salt Company.

3.4.2 Regulatory Context

Federal Regulations

Requirements for federal agencies to identify, evaluate, and protect cultural resources are outlined in several federal regulations, including the National Historic Preservation Act of 1966 (NHPA), the Antiquities Act of 1906, the Archaeological Resources Protection Act of 1979, and the Native American Graves Protection and Repatriation Act of 1990.

The NHPA (16 U.S.C. 470 et seq.) establishes the nation's policy for historic preservation and sets in place a program for the preservation of historic properties by requiring federal agencies to consider effects to significant cultural resources (e.g., historic properties) prior to undertakings. The NHPA established the National Register of Historic Places (NRHP) and the President's Advisory Council on Historic Preservation, and provided that states may establish State Historic Preservation Offices to carry out some of the functions of the NHPA. Most significantly for federal agencies responsible for managing cultural resources, Section 106 of the NHPA directs that "[t]he head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the NRHP." Section 106 also affords the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking (16 U.S.C. 470f).

Title 36, Part 800 of the Code of Federal Regulations implements Section 106 of the NHPA. It defines the steps necessary to identify historic properties (those cultural resources listed in or eligible for listing in the NRHP), including consultation with federally recognized Native American tribes to identify resources with important cultural values; to determine whether they

may be adversely affected by a proposed undertaking; and to outline the process for eliminating, reducing, or mitigating adverse effects.

The content of Title 36, Part 60.4 of the Code of Federal Regulations defines criteria for determining eligibility for listing in the NRHP. The significance of cultural resources identified during an inventory must be formally evaluated for historical significance in consultation with the State Historic Preservation Officer to determine if the resources are eligible for inclusion in the NRHP. Cultural resources may be considered eligible for listing if they possess integrity of location, design, setting, materials, workmanship, feeling, and association and:

A. Are associated with events that have made a significant contribution to the broad patterns of our history; or

B. Are associated with the lives of persons significant in our past; or

C. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. Have yielded or may be likely to yield, information important in prehistory or history (36 CFR, Part 60.4).

The Antiquities Act of 1906 authorizes the scientific investigation of antiquities on federal land, prohibits and provides penalties for unauthorized search for or collection of artifacts or other objects of scientific interest, and authorizes the U.S. president to establish national monuments and cultural areas on federal lands. The Archaeological Resources Protection Act protects archaeological resources on public lands. The Native American Graves Protection and Repatriation Act requires federal agencies to provide information about Native American cultural items (e.g., human remains, funerary objects, sacred objects, and objects of cultural patrimony) to parties with standing, such as lineal descendants or culturally affiliated Native American tribes, and, upon presentation of a valid request, dispose of or repatriate these objects to them.

State Regulations

California Register of Historical Resources

The California Office of Historic Preservation maintains the California Register of Historical Resources (CRHR). The CRHR is the authoritative guide to the state's significant historic and archaeological resources. The program provides for the identification, evaluation, registration, and protection of California's historic resources. The CRHR encourages public recognition and protection of resources of architectural, historic, archaeological, and cultural significance;

identifies historic resources for state and local planning purposes; and determines eligibility for state historic preservation grant funding.

The CRHR has four criteria to be used when evaluating the eligibility of a property or resource for listing:

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

Similar to the NRHP, eligibility for the CRHR requires establishment of physical integrity, including the seven aspects previously described. The CRHR's list of special considerations is less stringent than the NRHP's, providing allowances for relocated buildings, structures, or objects, and reduced requirements for physical integrity.

Native American Historic Cultural Sites (California Public Resources Code, Section 5097 et seq.)

State law addresses the disposition of Native American burials in archaeological sites, and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction projects; and establishes the Native American Heritage Commission to resolve disputes regarding the disposition of such remains. In addition, the Native American Historic Resource Protection Act makes it a misdemeanor punishable by up to 1 year in jail to deface or destroy a Native American historic or cultural site that is listed or may be eligible for listing in the CRHR.

California Native American Graves Protection and Repatriation Act

The California Native American Graves Protection and Repatriation Act, enacted in 2001, required all state agencies and museums that receive state funding and that have possession or control over collections of human remains or cultural items, as defined, to complete an inventory and summary of these remains and items on or before January 1, 2003, with certain exceptions. The act also provides a process for the identification and repatriation of these items to the appropriate tribes.

California Health and Safety Code, Section 7050.5

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. Section 7050.5 of the California Health and Safety Code requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains can occur until the county coroner has examined the remains (Section 7050.5b). If the coroner determines or has reason to believe that the remains are those of a Native American, the coroner must contact the Native American Heritage Commission within 24 hours (Section 7050.5c). The Native American Heritage Commission will notify the most likely descendant. With the permission of the landowner, the most likely descendant may inspect the site of discovery. The inspection must be completed within 24 hours of notification of the most likely descendant by the Native American Heritage Commission. The most likely descendant may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

3.4.3 Cultural Resources in the Vicinity of the Project Site

Cultural resources investigations for the proposed action included a records search, pedestrian surveys, geotechnical monitoring, and significance evaluations. A records search was completed for the project site and a 0.25-mile radius around the project site ("study area") in April 2012 in support of archaeological monitoring of geotechnical soil sampling completed shortly thereafter. An intensive pedestrian survey was completed in August 2012, confirming the location and condition of resources identified in the records search, and subsequently recording two new prehistoric archaeological resources. Six cultural resources have been recorded within the study area. Table 3.4-1 outlines these resources and their NRHP eligibility.

Table 3.4-1
NRHP Eligibility Status for Cultural Resources in the Study Area

Resource	Description	Evaluated?	NRHP Eligibility
Prehistoric Archaeological Resources			
CA-SDI-7455	Prehistoric habitation, likely association with ethnohistoric Village of La Punta recorded by Spanish in 1872	Yes	Recommended eligible, Criteria A and D
CA-SDI-19,712	Prehistoric habitation	Yes	Recommended not eligible
CA-SDI-20,686	Prehistoric artifact scatter	Yes	Recommended not eligible
CA-SDI-20,765	Prehistoric artifact scatter	Yes	Recommended not eligible
Historic Period Resource			
P-37-026582	Western Salt Company Salt Works	Yes*	Recommended eligible, Criteria A and C
SDI-13,073	Coronado Belt Line Railroad	Yes*	Recommended not eligible

Sources: Comeau et al. 2014; *Gustafson and Gregory 2001.

CA-SDI-7455

This large scatter of prehistoric artifacts and ecofacts was first recorded by University of Southern California archaeologists in 1961. The resource was revisited by ASM Affiliates in 1987, when a number of areas containing scattered shell and artifacts were observed. The area was noted to have been substantially disturbed by agricultural activities and construction of Interstate 5. During monitoring activities conducted for a City of San Diego Metropolitan Wastewater Department project, stratified cultural deposits were encountered during trenching (Cook and Andrews 2003). It was determined that the cultural material was most likely related to the previously recorded resource, SDI-7455. A hollow-stem auger coring plan was implemented to map the subsurface distribution of archaeological deposits as a form of data recovery. The coring program indicated that cultural material decreased in density on a south-to-north gradient.

Dudek identified an extension of SDI-7455 during geotechnical coring conducted for the proposed action (Comeau et al. 2014). The investigation revealed a moderately sized and diverse assemblage of artifacts dominated by a marine shell midden, with the remainder of the assemblage consisting of flaked stone, groundstone, percussing tools, ceramics, fire-affected rock, and vertebrate faunal remains. Aside from flaked lithic debitage, other artifacts included flaked stone tools, groundstone tools, ceramic brownware sherds, fire-affected rock, and faunal bone. No human remains were recovered from SDI-7455. Five radiocarbon dates (four marine shell samples and one charcoal sample) yielded relatively consistent dates, all post-dating AD 1520. This age is consistent with those obtained for the Late Prehistoric deposit identified by Cook and Andrews (2003) for SDI-7455 deposits to the east. These dates also overlap with the Spanish observation of Native Americans inhabiting the general area in AD 1782. Dudek's study indicated that the deposits identified at SDI-7455 could be related to the ethnohistoric village of La Punta identified in 1782, and, as such, these deposits are recommended as eligible for listing in the NRHP under Criteria A (significant historical events) and D (scientific data potential).

CA-SDI-19,712

CA-SDI-19,712 was first recorded by Laguna Mountain Environmental in 2009 as a small prehistoric artifact scatter. An additional scatter of artifacts was recorded as a new prehistoric resource, CA-SDI-20,687, during geotechnical monitoring. SDI-19,712 and SDI-20,687 were eventually combined into a single resource (labeled SDI-19,872) due to an overlap of cultural material.

During geotechnical exploration and archaeological testing at SDI-19,712, pieces of debitage, groundstone tools, and ceramics were found. In addition, four human bone fragments were identified, which triggered implementation and resolution of inadvertent discovery procedures in accordance with the Native American Graves Protection and Repatriation Act. The Kumeyaay

Cultural Repatriation Committee was determined to be the Most Likely Descendant for treatment of human remains. Following discussions between the Kumeyaay Cultural Repatriation Committee and the U.S. Fish and Wildlife Service, the remains were repatriated to the Kumeyaay Cultural Repatriation Committee on July 24, 2013 (USFWS 2013).

All four bone fragments were recovered from the very loose, pale brown soil within the upper 100 centimeters (39 inches) of the site. As is to be expected in or along a river channel, artifacts found in this area are those accumulated through deposition of swiftly moving sediment. Additionally, given the extensive historic use of the area for solar salt production, repeated grading, agricultural use, and other earthmoving activities have likely deposited and redeposited material throughout the site and surrounding area. Therefore, the assemblage of artifacts found at SDI-19,712 lacks contextual integrity and cannot offer an interpretation of specific past activities at the site. The assemblage is, therefore, viewed in a regional context as a sample of the artifact types present in Otay River Valley in general. Cultural deposits identified at SDI-19,712 do not meet any of the significance criteria for listing under the NRHP. The site is recommended as not eligible.

SDI-20,686

SDI-20,686 was originally recorded in May 2012 during archaeological monitoring of geotechnical soil sampling as a small lithic scatter. The general resource boundaries were expanded to better encompass the relatively sparse distribution of marine shell and other prehistoric cultural material, recognizing that the boundary is artificial, given the history of grading in the area. Extensive ground disturbance is evidenced by a large number of machine-fractured cobbles, and pieces of concrete, asphalt, and historical period bottle glass that were observed within and west of the resource area.

During the recent Dudek investigation of SDI-20,686, no significant buried deposits were identified. The surface scatter of artifacts is interpreted as a product of past land modifications rather than having been deposited there during Native American habitation. As such, SDI-20,686 is considered not eligible for NRHP listing under any of the NRHP significance criteria.

SDI-20,765

SDI-20,765 was first recorded during Dudek's survey as a small scatter of prehistoric artifacts. The resource was revisited by Dudek during the evaluation of SDI-7455 and SDI-20,686, and all artifacts were collected. However, the artifacts were found situated near and on top of chunks of asphalt and concrete. It was subsequently determined that no primary archaeological deposits existed in the vicinity based on the assumption that the artifacts were deposited there during modern times. As such, the resource is considered not eligible for NRHP listing under any of the significance criteria.

SDI-13,073

SDI-13,073, the Coronado Belt Line Railroad, was first recorded and evaluated by Laylander in 1993. Further evaluation of the resource occurred in 1994 (King 1994, cited in Tierra Environmental Services 2001). The site was subsequently determined not to be eligible for the NRHP by the California State Historic Preservation Officer (Widell 1994, cited in Tierra Environmental Services 2001). The resource consists of a 7.5-mile-long portion of the railroad ties, trestle bridges, railroad grade, and tracks, which are still extant. The resource was recommended as not eligible for the NRHP, and the State Historic Preservation Officer concurred with this recommendation in 1994. In 2003, the City of San Diego designated the resource as Historic Landmark Site No. 640, finding it to be a local historic resource under the City of San Diego's Historic Resource Board Criteria A, B, and C. Following an appeals process, in 2005, the City Council upheld the historic designation of the 1.5-mile portion of the railroad located within the San Diego (Appendix K, Confidential). During the current investigation, no additional recordation or research was performed related to this resource since it has been fully documented in previous studies.

P-37-026582

The Western Salt Company Salt Works facilities (P-37-026582) were first recorded and evaluated for NRHP eligibility by Gustafson and Gregory (2001). This historic period resource was recommend as significant under Criterion A of the NRHP because it played an important role in the solar salt industry in Southern California from 1916 through the 20th century, even though it began operating in 1871 (Gustafson and Gregory 2001). It was also recommended eligible for NRHP listing under Criterion C since it was interpreted to embody the distinctive characteristics of a solar salt processing facility of the era, being the only one of its kind in San Diego County (minor solar salt farms were present in Carlsbad and La Costa, northern San Diego County, in the early 1900s). The resource is extensive; during the period of operation, it covered much of the southern edge of San Diego Bay. The Western Salt Company Salt Works was found eligible by the State Historic Preservation Officer as a historic district under both Criteria A and C, as defined by 36 CFR 60.4, in 2002. The salt ponds and their associated levees, berms, and tidal gates were defined as some of the contributing elements of the district (Appendices K1 and K2).

Dudek conducted additional archival and field research on this resource, paying particular attention to those salt ponds located within the project site. The goal of the additional research was to prepare updated resource records and condition assessments of this historic period resource. Most recently, Dudek revisited the levees that separate the salt ponds in October 2013. Dudek confirmed the essential elements of the salt works district noted in previous research to determine whether any significant changes to the resource have occurred. Dudek completed an update to the original Department of Parks and Recreation site form for this resource, essentially

confirming the condition of the resource as it was last recorded, and the recommendation that the levees are eligible for listing in the NRHP as contributing elements to a district under Criterion A for playing a significant role in the solar salt industry from 1916 to 1949, and Criterion C because it embodies the distinctive characteristics of a solar salt processing facility. In addition, Dudek found that the levees appear to retain integrity of location, setting, design, materials, workmanship, feeling, and association.

3.5 SOCIAL AND ECONOMIC ENVIRONMENT

3.5.1 Land Use

This section provides information regarding land use both on the project site and in the general vicinity of the project site for the Otay River Estuary Restoration Project (proposed action). Overlapping regional land uses and land use policies that affect land use in the immediate vicinity are also discussed. The project site is located in the southeastern portion of the South San Diego Bay Unit of the San Diego Bay National Wildlife Refuge (NWR). The U.S. Fish and Wildlife Service (Service) manages the San Diego Bay NWR consistent with applicable federal laws and regulations and in accordance with the guidance provided in the *San Diego Bay National Wildlife Refuge Comprehensive Conservation Plan* (CCP; USFWS 2006). The approximately 165.3-acre project site includes two separate non-contiguous sites: the Otay River Floodplain Site and the Pond 15 Site, as shown in Figure 1-2, Vicinity Map, in Chapter 1. Outside of the two defined sites, there are several project features associated with the proposed action, outlined in detail within Section 2.3.2 of this Environmental Impact Statement (EIS) and shown in Figure 2-1a in Chapter 2.

Five city boundaries extend into the south end of San Diego Bay: San Diego, Chula Vista, National City, Imperial Beach, and Coronado. The Otay River Floodplain Site is located within the jurisdictional boundaries of the City of San Diego, and the Pond 15 Site is located within the boundaries of the City of National City. The majority of the lands within the area of potential effects for the proposed action are sovereign lands held by the California State Lands Commission for the benefit of the people of California and leased to the Service for management as a wildlife refuge. On June 16, 1999, the California State Lands Commission leased 2,209 acres at the south end of San Diego Bay, including areas within the Otay River Floodplain Site and the Pond 15 Site, to the Service for 49 years with an automatic extension to 66 years (California State Lands Commission 1999).

Executive Order 12372, Intergovernmental Review of Federal Programs, requires federal agencies to provide opportunities for consultation to state and local governments that would be directly affected by a federal action. Although the project site is located within the cities of National City and San Diego, the area is managed by the Service as a part of the San Diego Bay NWR, and activities proposed on lands within the San Diego Bay NWR do not require permits or approvals from these local jurisdictions. However, coordination and consultation among the Service; local, state, and federal agencies; and tribes are ongoing.

Otay River Floodplain Site

The Otay River Floodplain Site encompasses 33.51 acres of the Otay River floodplain. The proposed action would also include approximately 40.9 acres of project features associated with

implementation of the restoration efforts. Historically, the area in which the Otay River Floodplain Site is located was composed of intertidal mudflats and salt marsh, but was filled to allow agricultural use and to expand salt production. Currently, the uses within the floodplain are limited to open space and wildlife habitat.

The CCP for the San Diego Bay NWR (USFWS 2006) proposes that the lands within the Otay River Floodplain Site be restored to native wetland and upland habitats. No public access is permitted within this portion of the San Diego Bay NWR, but public access is permitted farther to the east along the City of San Diego bike path that extends south from Main Street to Palm Avenue and along the Otay River Valley Regional Trail that enters the San Diego Bay NWR from under the Otay River/Interstate 5 (I-5) bridge and then extends northeast through a corner of the San Diego Bay NWR to Main Street.

Prior to San Diego Bay NWR establishment, the Otay River Floodplain Site was designated in the City of San Diego's General Plan as "Park, Open Space, and Recreation," as shown in Figure LU-2 of the City of San Diego's General Plan (City of San Diego 2008), and designated as "Open Space – Special Study Area" by the Otay Mesa–Nestor Community Plan (City of San Diego 1997a). The Special Study Area, which includes other properties adjacent to the San Diego Bay NWR, is intended to ensure that the area maintains its current use or is restored and managed as a natural resource area or regional recreation area, or as part of the salt production industry (City of San Diego 1997a). Although these designations do not apply to the San Diego Bay NWR lands, the uses proposed in the CCP are consistent with the City of San Diego's previous designations for this area.

All of the land immediately adjacent to the Otay River Floodplain Site is included within the San Diego Bay NWR with the exception of the area directly south of the project site. Of these areas south of the project site, those lands located to the east of Nestor Creek are regulated by the City of San Diego, and the 95-acre parcel (referred to as Pond 20) located immediately south of the Otay River Floodplain Site and west of Nestor Creek is owned, managed, and controlled by the Port of San Diego (Port). In July 2015, the Board of Port Commissioners approved a plan for Pond 20 that calls for the establishment of an 84-acre wetlands mitigation bank, a 3.1-acre commercial parcel on the western edge of Pond 20 that could be developed to complement the new Bikeway Village project under development in the City of Imperial Beach, and a 7.9-acre area on the eastern edge of the parcel that could be developed with low-intensity commercial uses. In October 2015, the Port issued a Request for Proposals seeking qualified consultants and/or developers to establish and operate an 84-acre wetlands mitigation bank in Pond 20. Plans for the development of the two smaller areas will be addressed at a later date (Port 2015).

The lands located to the south of the Otay River Floodplain Site and east of Nestor Creek are designated as "Park, Open Space, and Recreation" in the City of San Diego General Plan (City of San Diego 2008). Within the Otay Mesa–Nestor Community Plan, the parcels are designated as "Open Space" and are located within the Special Study Area described above. The parcels are zoned as OF-1-1 (Open Space – Floodplain). Approximately 0.16 mile south of the open space is an area of residential development that has a General Plan land use designation of "Residential," but is zoned "IL-3-1," which allows for a mix of light industrial, office, and commercial uses (City of San Diego 2008, 1997a, 2013a). Refer to Figure 3.5-1, Surrounding Land Uses in the Project Vicinity, for a visual representation of the land use designations surrounding the project site.

The area east of the Otay River Floodplain Site (between the Otay River Floodplain Site and I-5) is also part of the San Diego Bay NWR, although the City of San Diego retains ownership of narrow strips of land that were dedicated to the City of San Diego for future public streets in association with a subdivision map for the area that was never implemented. The area surrounding these dedicated lands are located within the San Diego Bay NWR, and the City of San Diego retains ownership of the "paper streets." There are also numerous utility easements in this area (see Section 3.5.3).

Directly adjacent to the southeastern edge of the San Diego Bay NWR is the Otay Valley Regional Park, which extends approximately 13 miles inland to Upper and Lower Otay Lakes. This area protects wildlife and historical, agricultural, and archaeological resources while providing recreational playing fields and picnic areas. A trail from this area goes through the San Diego Bay NWR to provide a connection to the main Otay Valley Regional Trail that extends to the east, and to provide a connection from the east and south to the Bayshore Bikeway, a regional bicycle facility that, when completed, will extend for 24 miles around San Diego Bay.

As shown in Figure 3.5-1, the Otay River follows the north and northwestern Otay River Floodplain Site boundary. A portion of the Bayshore Bikeway provides public access along the northern edge of the Otay River Floodplain Site as it travels along a San Diego Metropolitan Transit System right-of-way located outside of the boundaries of the San Diego Bay NWR. Farther to the north, within the San Diego Bay NWR boundary, are active solar salt ponds associated with South Bay Salt Works.

To the west and southwest of the Otay River Floodplain Site are properties located within the City of Imperial Beach. These areas include residential development consistent with the City of Imperial Beach General Plan and R-3000-D zoning, which permit two-family detached residential uses (City of Imperial Beach 2010) and mixed-use development associated with the City of Imperial Beach's Bikeway Village project. Another area of multi-family residential development is located on the northeast corner of 13th Street and Palm Avenue. This area is included within the City of San Diego's Otay Mesa–Nestor community. Both residential areas have the potential to be affected by construction activities associated with implementation of the proposed action.

Pond 15 Site

The majority of the approximately 90.90-acre Pond 15 Site is included in the San Diego Bay NWR. A 1.3-acre area to the north of the outer levee, where breaching of the levee is proposed to accommodate tidal exchange within the restored pond, is managed by the Port. Pond 15 is an active salt pond within the South Bay Salt Works that operates within the San Diego Bay NWR under a Special Use Permit. South Bay Salt Works currently uses approximately 830 acres of the San Diego Bay NWR for producing salt through a solar evaporation process. This includes approximately 300 acres of primary ponds (Ponds 12–15), 360 acres of secondary ponds (Ponds 20–27), and 170 acres of ponds used in the pickling and crystallizing process (Ponds 28–30 and 41–48). Outside of the San Diego Bay NWR, the South Bay Salt Works includes Pond 40, which is owned by the Friends of the San Diego Wildlife Refuges, and Ponds 50–54, which are leased from a private landowner for harvesting salt and capturing magnesium chloride, the last product produced in the solar evaporation process (Yuen, pers. comm. 2014a). Public access to all areas associated with active salt production, including the Pond 15 Site, is limited. The CCP proposes that the Pond 15 Site be restored to coastal wetland with an area set aside for seabird nesting (USFWS 2006).

The Pond 15 Site is bound by lands within the cities of Chula Vista, National City, and San Diego. On the western perimeter of the Pond 15 Site are Ponds 13 and 14, to the south are Ponds 24 and 25, and to the east is Pond 28, all part of the existing solar salt operation, as shown in Figure 1-2 in Chapter 1.

Directly north of the Pond 15 Site are areas managed by the Port, including the open water in San Diego Bay. The Port Master Plan (San Diego Unified Port District 2015) includes this area within the Chula Vista Bayfront Precise Plan and identifies a portion of the Bay immediately north of Pond 15 as wetlands. Farther north is a gated dirt road used by the Port for maintenance and management access to the 55-acre Chula Vista Wildlife Reserve.

The land directly northeast of the Pond 15 Site is within the jurisdiction of the City of Chula Vista, governed by the City of Chula Vista's General Plan and Local Coastal Plan, and the City of Chula Vista Redevelopment and Housing Authority. The Chula Vista General Plan defers to the Port Master Plan (City of Chula Vista 2005), which defines the area within Planning District 7 or the Chula Vista Bayfront (refer to Figure 3.5-1).

AERIAL SOURCE: BING MAPPING SERVICE

FIGURE 3.5-1

Surrounding Land Uses in the Project Vicinity

Otay River Estuary Restoration Project EIS

INTENTIONALLY LEFT BLANK

The lands adjacent to the northeast edge of the Pond 15 Site and to the east of Ponds 28 and 29 along the west side of Bay Boulevard are included within the Otay District (Planning Subarea 76) of the Port Master Plan. The Port Master Plan proposes moderate-intensity mixed-use development, including industrial and low-cost visitor-serving recreational uses, within the Otay District (Port 2012). In addition, San Diego Gas & Electric is in the process of relocating its South Bay Substation to the southernmost end of the Otay District. Farther to the east, between Bay Boulevard and I-5, the properties have been developed with a mix of industrial, residential, and commercial uses.

Construction access to the Pond 15 Site would involve providing a temporary road along an existing Service access easement located to the north of the intersection of Palomar Street and Bay Boulevard. The temporary road would extend west from Bay Boulevard and then turn south along the eastern edge of Pond 29, as shown in Figure 2-1a of Chapter 2.

Regional Habitat Conservation Planning

The San Diego Multiple Species Conservation Program (MSCP) is a comprehensive, long-term habitat conservation planning program that covers approximately 900 square miles (582,243 acres) in southwestern San Diego County pursuant to the federal and California Endangered Species Acts and the California Natural Community Conservation Planning Act. It was developed cooperatively by participating jurisdictions/special districts in partnership with the Service, the California Department of Fish and Wildlife, property owners, and representatives of the development industry and environmental groups. The MSCP is designed to preserve native habitat for multiple species rather than focusing efforts on one species at a time. This is accomplished by identifying areas for directed development and areas to be conserved in perpetuity (referred to as a Multi-Habitat Planning Area (MHPA)) to achieve a workable balance between smart growth and species protection. This approach allows for preservation of entire ecosystems on a large scale, rather than on a single-species, project-by-project basis, as under the original state and federal species protection laws (City of San Diego 2013b). The portion of the MSCP that is within the City of San Diego's jurisdiction is governed by the City of San Diego MSCP Subarea Plan, which includes the City of San Diego's MHPA boundary. The Otay River Floodplain Site is located within the boundaries of the City of San Diego's MHPA. Although the Service is not subject to overview by the City of San Diego, the Service's management proposals for this area, as described within the San Diego Bay NWR CCP, are consistent with the recommendations presented in the MSCP for this area. Specifically, the City of San Diego MSCP Subarea Plan recommends that future use of the site be compatible with the resource goals and objectives of the MHPA and other regulations and policies applicable to the site, or be enhanced or restored (City of San Diego 1997b). The MSCP Subarea Plan also states that the area at the mouth of the Otay River should be enhanced or restored to tidelands once it is no longer used for solar salt production (City of San Diego 1997b).

Military Operations

San Diego Bay supports three major naval bases: Naval Base San Diego, Naval Base Point Loma, and Naval Base Coronado. The closest operating facility to the project site is the Naval Radio Receiving Facility, which is used primarily by Naval Special Warfare for clandestine training. The Navy, in coordination with the Port and a committee of government agencies and non-governmental organizations, prepared an Integrated Natural Resources Management Plan in 2013 (NAVFAC and Port 2013). The document ensures compliance with natural resource protection laws and stewardship of these resources within San Diego Bay while supporting the ability of the Navy and the Port to continue functioning successfully within this area. The Navy equips, maintains, trains, and supports Naval surface and aviation units of the Pacific Fleet in this area while supporting the eastern and northern Pacific Ocean naval operations. The Port is a public benefit corporation and special government entity that manages the San Diego harbor and administers the public lands along much of San Diego Bay. The Integrated Natural Resources Management Plan serves as a planning tool, management guide, reference document, and policy strategy for the Navy and the Port to support the continuing function of their actions within San Diego Bay and provide direction for the good stewardship of natural resources (NAVFAC and Port 2013).

3.5.2 Traffic, Circulation, and Parking

This section describes the existing roadways and available parking areas within the immediate vicinity of the project site. Bicycle and pedestrian access points surrounding the project site are described in Section 3.5.4, Public Access and Recreational Opportunities. Data used to assess traffic and parking conditions in the area of the proposed action were derived from the San Diego Association of Governments, the City of San Diego, and the San Diego Bay NWR Final CCP and Environmental Impact Report (USFWS 2006).

Existing Roadways

The following local streets provide access to the San Diego Bay NWR and surrounding area: Palomar Street, West Frontage Road, Anita Street, Main Street, Bay Boulevard, Palm Avenue, Saturn Boulevard, and 13th Street. These roadways are described below and shown in Figure 1-2, Vicinity Map, in Chapter 1. Tables 3.5-1 and 3.5-2 provide road classification and trip volume data for these roadways and the major intersection within the proposed action's area of influence.

Interstate 5

I-5 runs north/south and is located approximately 0.5 mile east of the project site. This interstate freeway provides regional access from the project site to surrounding jurisdictions.

Palomar Street

Palomar Street, which runs east/west, provides one of two connections from the project site to I-5. The western terminus of Palomar Street is the north side of Pond 40, as indicated in Figure 1-2. The interchange of I-5 and Palomar Street provides access to the industrial and commercial uses located along Bay Boulevard.

West Frontage Road

In the vicinity of the project site, West Frontage Road is a two-lane light collector with a designated bike lane and parking available on either side of the roadway. The roadway is located west of and runs parallel to I-5, extending from Main Street north to Stella Street, which is just south of Palomar Street.

Anita Street

Anita Street is a local two-lane roadway that extends east/west under I-5. It connects West Frontage Road to Bay Boulevard, which is its western terminus.

Bay Boulevard

Bay Boulevard is a two-lane light collector that runs north/south along the eastern boundary of the South Bay Salt Works. North of Palomar Street, Bay Boulevard includes a sidewalk on the east side of the street and a Class I bike lane, a portion of the Bayshore Bikeway to the west of the street. The Class I segment of the Bayshore Bikeway ends just north of the intersection of Bay Boulevard and Palomar Street. No parking is permitted on this portion of the roadway. On Bay Boulevard south of Palomar Street, no on-street parking is permitted, and a painted bike lane is provided up to the intersection with Stella Street. Beyond Stella Street, the roadway narrows and no shoulder or bike lane is provided.

Main Street

In the project vicinity, Main Street is a two-lane collector street running east/west over I-5. Freeway ramps provide full access to Main Street to the east and the west. Main Street terminates just west of the I-5 southbound off-ramp. The portion of this roadway located to the west of I-5 does not have a shoulder, parking, or designated bike lane.

Palm Avenue

Palm Avenue, also referred to as State Route 75, is classified as a six-lane prime arterial. This roadway runs through the jurisdiction of the cities of Coronado, Imperial Beach, and Chula Vista, and provides access to a high volume of traffic.

Saturn Boulevard

Saturn Boulevard is a four-lane major roadway within the jurisdiction of the City of San Diego. This roadway terminates to the south of the project site. A bike path maintained by the City of San Diego Street Division extends north of the Saturn Boulevard terminus through the Otay River floodplain, but outside the boundaries of the San Diego Bay NWR, ending at Main Street and providing bicycle access to the Bayshore Bikeway.

13th Street

13th Street is a three-lane light collector providing access to residential areas to the southwest of the project site. On-street parking is available along both sides of 13th Street, and several additional parking stalls are available at the northern terminus of the street where it connects to the Bayshore Bikeway. The terminus of 13th Street is directly west of the western boundary of the Otay River Floodplain Site.

Table 3.5-1
Surrounding Streets 2010 Average Weekday Trip Volume

Street	Street Segment	Jurisdiction	Classification[1]	Capacity at LOS D[2]	Average Weekday Trip Volume[1]
West Frontage Road	Anita Street to Main Street	City of Chula Vista	2-Lane Light Collector	6,500	1,900
Anita Street	Bay Boulevard to West Frontage Road	City of Chula Vista	Local	—	—
Palomar Street	I-5 to Bay Boulevard	City of Chula Vista	4-Lane Major	30,000	6,600
Bay Boulevard	Palomar Street to Main Street	City of Chula Vista	2-Lane Light Collector	12,000	1,900
Main Street	West Frontage Road to I-5	City of Chula Vista	2-Lane Collector	9,000	1,900
	I-5 to Alamitos Avenue	City of Chula Vista	4-Lane Major	35,000	29,200
I-5	L Street to Palomar Street	City of Chula Vista	Freeway	70,000	157,900
	Palomar Street to Main Street	City of Chula Vista	Freeway	70,000	161,100
	Main Street to Palm Avenue	City of San Diego	Freeway	70,000	157,900
Palm Avenue/State Route 75	13th Street to Saturn Boulevard	City of Imperial Beach/City of San Diego	6-Lane Prime	55,000	43,100
	Saturn Boulevard to I-5	City of San Diego	6-Lane Prime	55,000	62,900
Saturn Boulevard	Boundary Avenue to Doris Street	City of San Diego	4-Lane Major	35,000	22,100
	Doris Street to Palm Avenue	City of San Diego	4-Lane Major	35,000	23,400

Table 3.5-1
Surrounding Streets 2010 Average Weekday Trip Volume

Street	Street Segment	Jurisdiction	Classification[1]	Capacity at LOS D[2]	Average Weekday Trip Volume[1]
13th Street	Palm Avenue to Elm Avenue	City of Imperial Beach	3-Lane Light Collector	N/A[3]	11,500

LOS = level of service; N/A = not applicable.
1 Sources: Non I-5 segments: SANDAG 2014; Average Daily: SANDAG 2010; I-5 Segments: Caltrans 2013.
2 Sources: City of Chula Vista 2005; City of San Diego 1998, 2008.
3 This roadway segment is within the City of Imperial Beach, which does not have an adopted city-specific average daily traffic threshold for classifications of roadway segments. Additionally, the City of Imperial Beach maintains a standard of level of service (LOS) C or better for arterial and local streets.

Table 3.5-2
Potentially Impacted Intersections within the Project Vicinity

Intersection	Jurisdiction	Peak Hour	Delay	LOS
Bay Boulevard and Palomar Street	City of Chula Vista/City of San Diego	AM	9.6	A
		PM	13.5	B

Source: The Perfect Solution 2010.

Public Transit

A variety of public transit services surround the project site, including bus and trolley services. These services are primarily provided by the San Diego Metropolitan Transit System, and include bus services and trolley routes that serve the cities of Chula Vista, National City, and San Diego.

Bus

The Metropolitan Transit System operates the bus transit system in the general vicinity of the project site. The closest bus stops to the project site are located on Palomar Street and Palm Avenue. The Palm Avenue stop is served by Routes 932, 933, and 934 at the intersection of Industrial Boulevard and Palm Avenue, approximately 0.55 mile southeast of the Otay River Floodplain Site. The Palomar Street stop is served by Routes 701, 704, and 712 at the intersection of Industrial Boulevard and Palomar Street, approximately 0.75 mile east of the Pond 15 Site.

Trolley

San Diego Trolley Inc., a wholly owned subsidiary of the Metropolitan Transit System, operates the Blue Line, which provides service between Old Town San Diego and San Ysidro on the border with Mexico. The trolley line is located to the east of I-5 and would not be affected by the proposed action.

Parking

On-street parking availability in the vicinity of the Otay River Floodplain Site is very limited. No parking is permitted along Main Street west of I-5, and parking is not permitted on West Frontage Road until about 600 feet to the north of its intersection with Main Street, where some on-street parking is available along the west side of the street. Parking for trail users is available at the western terminus of Main Street, near the Otay River Floodplain Site, and at the northern terminus of Saturn Boulevard, located to the south of the Otay River Floodplain Site. Both parking areas are intended for use by visitors to the Otay River Valley Regional Open Space Park and the park's regional trail system that extends from these points east through the Otay River Valley.

On-street parking in the vicinity of the Pond 15 Site is also limited. No parking is permitted along Bay Boulevard. The closest on-street parking is located along Palomar Street, Stella Street, and Ada Street, all of which are used by employees of surrounding businesses during the workweek. A parking area associated with the South Bay Salt Works is located approximately 0.5 miles southeast of the Pond 15 Site, but available spaces are limited at this location during the workweek.

Current San Diego Bay NWR Trip Generation

The San Diego Bay NWR is estimated to generate fewer than 100 vehicle trips per day from activities associated with Service employee visits to this portion of the San Diego Bay NWR for maintenance and monitoring, occasional tours of the salt works, intermittent truck trips associated with the sale of salt and salt-associated byproducts, deliveries related to the salt operation, South Bay Salt Works employee-related trips, and other activities associated with the current solar salt operation. The Otay River Floodplain Site is currently undeveloped, and traffic associated with general maintenance and management is minimal.

3.5.3 Public Utilities/Easements

Information regarding public utilities, including sewer and water lines, storm drains, underground gas lines, fiber-optic conduit, and electrical transmission lines are described in this section. Land dedicated to currently unimproved roadways and easements for potential future utilities are also presented. The information provided in this section is based on the *Otay River Estuary Restoration Project Existing Utility Investigation Final Report* conducted by Everest International Consultants in August 2015, provided as Appendix L of this EIS.

Otay River Floodplain Site

The portion of the Otay River floodplain located just to the east of the project site contains a number of above- and below-ground public utilities. These utilities are located in easements created prior to the establishment of the San Diego Bay NWR and/or within dedicated, unimproved street sections owned by the City of San Diego. The majority of the utilities present in this area extend north/south along the closed portion of Saturn Boulevard (see Figures 3.5-2 through 3.5-6 for utility locations). At a point just south of where the existing Saturn Boulevard bike path crosses the Otay River, the utility easement in which most of the utilities that extend along Saturn Boulevard occur turns to the east making a diagonal connection between the bike path and the western terminus of Main Street (see Figures 3.5-2, 3.5-3, and 3.5-6). This corridor contains an 8-inch-diameter and 3-inch-diameter gas line, an underground 3-inch-diameter PVC electrical transmission conduit, overhead power lines, a 2-inch-diameter fiber-optic conduit, a 57-inch-diameter sewer force main, and a 54-inch-diameter sewer interceptor line (the South Metro Interceptor). Several manholes associated with these utilities are present along the bike path. Other utilities in the area that occur to the east of Saturn Boulevard include 36-inch, 30-inch, and 27-inch-diameter gravity sewer lines; a 24-inch-diameter storm drain, a 2-inch-diameter fiber-optic conduit, an underground 3-inch-diameter PVC electrical transmission conduit, and a 4-inch-diameter gas line. The only known facilities located to the west of the Saturn Boulevard utility easement are two abandoned sewer lines associated with a long-since removed sewer pump station (the old Palm City public station) (Appendix L).

Pond 15 Site

No utilities are located within the Pond 15 Site. The closest utilities include the underground 54-inch-diameter South Metro Interceptor pipeline and overhead electrical distribution lines within or adjacent to Bay Boulevard. There is also a storm drain that runs north/south to the west of the existing railroad line.

3.5.4 Public Access and Recreational Opportunities

The San Diego Convention & Visitors Bureau estimated that 31.1 million people visited the San Diego Region in 2011 (San Diego Convention & Visitors Bureau 2012). San Diego Bay and the open space areas that surround it serve as an established destination for tourists and residents. Public access is restricted within the Otay River Floodplain Site and Pond 15 Site, but there are numerous areas in the vicinity that provide a variety of recreation opportunities, including boating, fishing, wildlife observation, biking, and hiking, as described in this section. Although public access is restricted for the project site, guided birding tours are conducted during the fall and winter along the salt pond levees.

Boating

The waters within the south end of San Diego Bay are relatively shallow, limiting the type of boats that can be used in the area. Many of these boats are used for wildlife viewing, exercising, and fishing, or for general recreation purposes. No boat access is permitted in proximity to the salt pond levees, within the restored western salt ponds, or in any portion of the Otay River that is located within the San Diego Bay NWR boundary.

Fishing

Fishing is permitted in the open waters of San Diego Bay, but not from any shoreline in the San Diego Bay NWR, in the salt ponds, or in the restored western salt ponds. The project site does not contain any areas or improvements dedicated to fishing.

Wildlife Observation

The Bayshore Bikeway runs along the northern edge of the Otay River, which is adjacent to the northern boundary of the Otay River Floodplain Site. The bikeway offers the public opportunities to observe wildlife on the project site and in the surrounding areas, including the salt ponds. Some wildlife observation opportunities are also available from kayaks and other small boats in authorized areas of the South Bay. Occasional guided tours within the South Bay Salt Works during the fall and winter months support wildlife observation and photography.

Bicycle and Pedestrian Facilities

The primary bicycle facility located near the project site is the Bayshore Bikeway, which supports recreational users and commuters. This bikeway passes directly to the north of the Otay River Floodplain Site between the salt ponds and the Otay River channel within the old Coronado Branch of the San Diego & Arizona Eastern railroad right-of-way (USFWS 2006). This segment of the bicycle path provides views of the salt ponds and the Otay River Floodplain Site. The bikeway currently ends at the western terminus of Main Street, where riders share the road with cars until the bikeway resumes just north of the intersection of Bay Boulevard and Palomar Street.

SOURCE: Everest International Consultants, Inc. 2015

FIGURE 3.5-2
Approximate Location of Existing Gas and Oil Pipelines

Otay River Estuary Restoration Project EIS

Z:\Projects\SESR\MAP\DOC\DEIR\Figures\

INTENTIONALLY LEFT BLANK

SOURCE: Everest International Consultants, Inc. 2015

FIGURE 3.5-3
Approximate Location of Existing Power Utilities

Otay River Estuary Restoration Project EIS

Z:\Projects\RS\MWD\DOC\MP\AP\SES\

INTENTIONALLY LEFT BLANK

SOURCE: Everest International Consultants, Inc. 2015

FIGURE 3.5-4
Approximate Location of Existing Communications Utilities

Z:\Projects\R53010\MXD\DOC\FAP\SES\

INTENTIONALLY LEFT BLANK

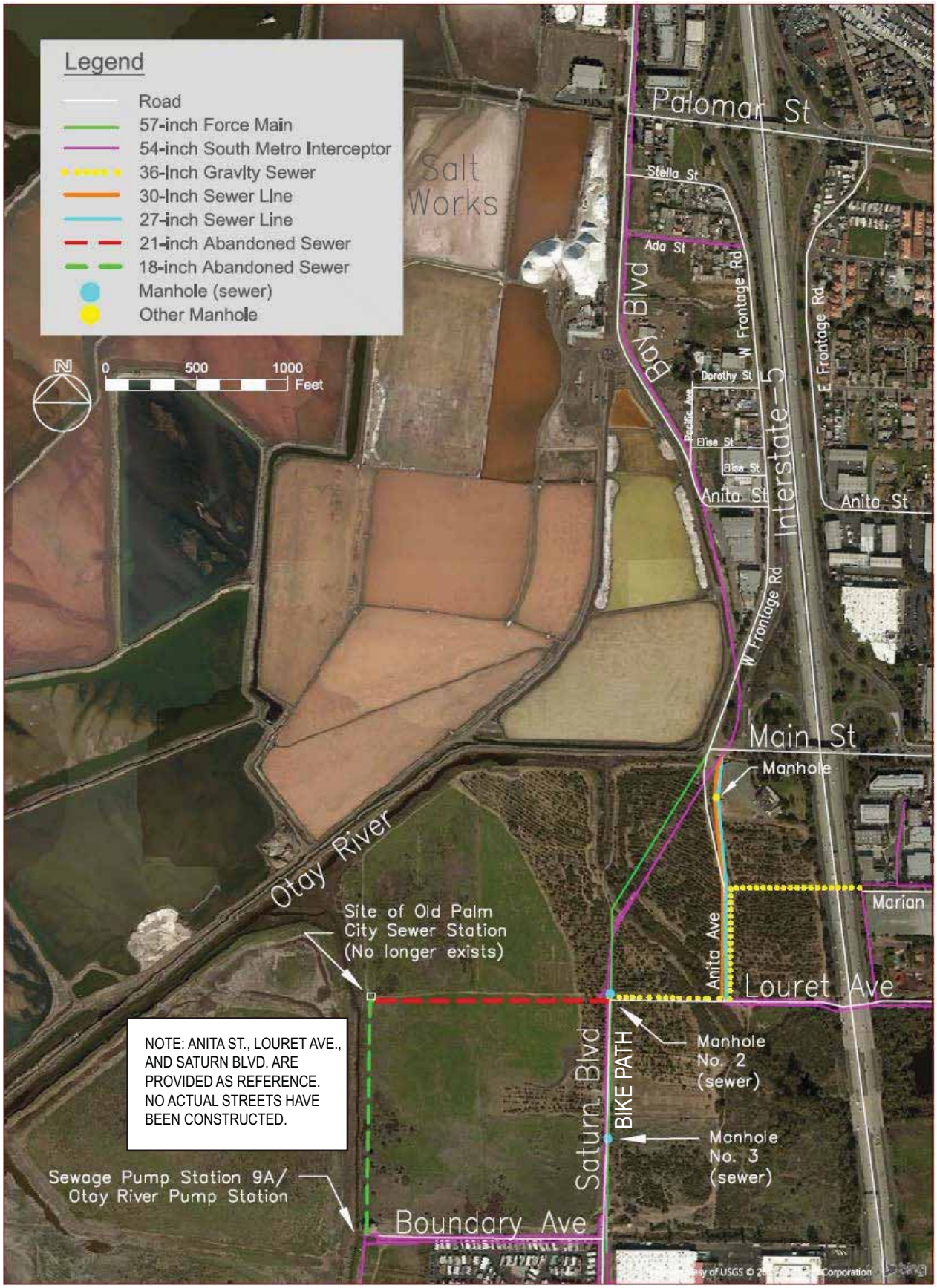
SOURCE: Everest International Consultants, Inc. 2015

FIGURE 3.5-5

Approximate Location of Existing Water and Storm Drain Pipelines

Z:\Projects\675801\MAPDOC\MAPS\

INTENTIONALLY LEFT BLANK



SOURCE: Everest International Consultants, Inc. 2015

FIGURE 3.5-6

Approximate Location of Existing Sewer Pipelines

Z:\Projects\675801\MAPDOC\MAPS\

INTENTIONALLY LEFT BLANK

Another bike path maintained by the City of San Diego extends north from the Saturn Boulevard right-of-way along the eastern boundary of the Otay River Floodplain Site. This path runs between Palm Avenue to the south and Main Street to the northeast of the Otay River Floodplain Site.

East of the Otay River Floodplain Site is the western extension of the Otay River Valley Regional Trail. After crossing under the I-5 bridge at the Otay River, this trail proceeds northwest where it meets Main Street and southwest where it meets the northern extent of Saturn Boulevard. Staging areas are provided at the north and south ends of this trail.

3.5.5 Vectors and Odors

Environmental conditions or wildlife that can cause offensive odors or serious public health issues are described in this section using information from the County of San Diego Department of Health Vector Control Program's 2013 Annual Report (County of San Diego 2013). The potential for vector breeding and odor generation is similar within both the Otay River Floodplain Site and the Pond 15 Site. Although brine flies are not considered a vector, substantial populations of these are generated within the salt ponds.

Vectors

A vector is any insect or other arthropod, rodent, or animal of public health significance capable of causing human discomfort or injury, or capable of harboring or transmitting the causative agents of human disease. The most prominent vector in the vicinity of the project site is the mosquito. Of the world's 3,000 mosquito species, more than 50 live in California, and 24 have been identified in San Diego County. Seven species of mosquitoes found in San Diego County have the potential to transmit diseases: *Culex tarsalis*, *Culex quinquefasciatus*, *Culex erythrothorax*, *Anopheles hermsi*, *Culex thriambus*, *Culex restuans*, and *Ochlerotatus sierrensis* (County of San Diego 2015).

Various mosquito species have been documented at the San Diego Bay NWR, and several are known to carry western equine encephalomyelitis virus, St. Louis encephalitis virus, and/or West Nile virus. The County of San Diego, Department of Environmental Health, has a mosquito surveillance trap located near the intersection of Hollister Street with the Otay River. Based on trapping results from 2003, species of mosquitoes likely to occur in and around the project site when conditions are appropriate (USFWS 2006), include the following:

- *Anopheles hermsi* – This species of mosquito is very common in the Otay traps. Where malaria exists, this species is known as a very competent vector of the disease.

- *Culex tarsalis* – This species is a fairly common vector mosquito in San Diego County and is quite common in the Otay River trap. It is most active in the spring, winter, and fall.
- *Culex erythrothorax* – This species, which is the most common mosquito species in San Diego County, is very common in the Otay River trap. It is typically considered a nuisance, but has also been observed to vector disease.
- *Culex pipiens/quinquefasciatus* – A fairly competent disease vector, this species is only detected in measurable numbers when stagnant water is present.
- *Culiseta incidens* – Regularly found in the Otay River trap in small to moderate numbers, this species is not considered to be a disease vector, but can be a biting nuisance. It can breed in fresh or brackish water.
- *Culiseta inornata* – This species, which breeds in fresh or brackish water, is not common in the Otay River trap, but when it is present, it usually occurs in small numbers during the cooler months. This mosquito is also considered a nuisance and is not an important disease vector.
- *Culex stigmatosoma* – This relatively uncommon mosquito is active during the summer months close to its larval habitat or close to natural and built polluted waters such as sewage and dairy ponds. These vectors feed primarily on birds and rarely bite humans.
- *Ochlerotatus increpitus* – This species, which breeds in many freshwater situations, can also be commonly found in the Otay traps. An annoying day biter, this species represents more of a nuisance than a disease vector.
- *Ochlerotatus sierrensis* – This species, which breeds in tree holes and bites during the day, is often found in the traps in very small numbers. This mosquito is known to transmit heartworm to dogs.
- *Ochlerotatus squamiger* – This species generally occurs in intertidal marshes of the California coast, where the female lays eggs in puddles in the extreme high tide zone. When present, it is most common in February and March. This species was not observed in the traps in 2003; however, it has occurred in the South Bay region in the past.
- *Ochlerotatus taeniorhynchus* – This species, which is common in salt marsh habitat, is typically present between May and October. It is not considered a significant vector, but can be a day biting nuisance.

Two other mosquito species with the potential to occur within the project site are *Culiseta particeps* and *Aedes dorsalis*.

Potential breeding habitat near the Otay River Floodplain Site for these vectors includes fresh and brackish water in the Otay River and Nestor Creek, any shallow saltwater areas that form

along river and creek edges, and puddles that result from rainfall or tidal fluctuation. In the vicinity of the Pond 15 Site, the most likely breeding habitat is within the Palomar Channel, located immediately to the east.

Odors

Odors in the vicinity of the project site could be produced from shallow water, warm water, and increased nutrient concentrations that favor algal growth and result in low dissolved oxygen levels. Ponds 20 and 22 located adjacent to the project site to the north are most prone to generating strong odors from these sources (USFWS 2006).

3.5.6 Economics/Employment

Demographic and socioeconomic data used to assess social and economic conditions in the vicinity of the proposed action include population, employment, income, and industry data obtained from the U.S. Census Bureau, San Diego Association of Governments, and Bureau of Economic Analysis for communities surrounding the San Diego Bay. Subject communities and jurisdictions are the cities of Imperial Beach, Coronado, National City, Chula Vista, and San Diego, and the County of San Diego.

Population

The County of San Diego and incorporated municipalities support a diverse economic environment encompassing academic, private, and public-sector industries (including a large government sector due to a prominent military presence consisting of U.S. Navy and Marine installations in the northern-most and southern-most portions of San Diego County). Recreational and tourism-based industries contribute significantly to local and regional income generation, namely in and around the Port, Sea World, Del Mar Race Track, and numerous coastal recreational opportunities.

Table 3.5-3 shows recent population levels, growth rates, and population densities for California; San Diego County; and the cities of Imperial Beach, Coronado, National City, Chula Vista, and San Diego. As shown in the table, of the municipalities surrounding the project site, the two largest in both population and size in 2010 were the City of San Diego and the City of Chula Vista. However, National City and the City of Imperial Beach were the most densely populated of the municipalities in the San Diego Bay area (SANDAG 2011).

The table also demonstrates how San Diego County, National City, and the City of San Diego all grew at or slightly below the overall population growth rate for the entire State of California from 2000 to 2010. Proportionally, the City of Chula Vista grew at a faster rate than the surrounding jurisdictions or the State of California, with an average annual growth rate of

approximately 4.1%. Two of the municipalities experienced a loss in population from 2000 to 2010. The City of Imperial Beach had a slight decrease in population from 2000 to 2010, with an average annual growth rate of –0.2%, and the City of Coronado experienced a much greater loss in population with an average annual growth rate of –2.2%. The City of Imperial Beach and National City remain the most densely populated municipalities in the San Diego Bay area relative to population per square mile. San Diego County is estimated to continue its current growth rate, which would result in a population of approximately 4,384,867 by the year 2050 (SANDAG 2011).

Table 3.5-3
Population Levels, Growth Rates, and Density

Area	Population Levels		Population Growth Rates		Population per Square Mile		
	2000	*2010*	*2000–2010*	*Average Annual Growth Rate*	*2000*	*2010*	*Land Area (square miles)*
California	33,871,648	37,253,956	10.0%	1.0%	217.4	239.1	155,779.2
San Diego County	2,813,833	3,095,313	10.0%	1.0%	668.9	735.8	4,206.6
Imperial Beach (city)	26,992	26,324	–2.5%	–0.2%	6,488.5	6,327.9	4.2
Coronado (city)	24,100	18,912	–21.5%	–2.2%	3,039.1	2,384.9	7.9
National City (city)	54,260	58,582	8.0%	0.8%	7,453.3	8,047.0	7.3
Chula Vista (city)	173,556	243,916	40.5%	4.1%	3,497.0	4,914.7	49.6
San Diego (city)	1,223,400	1,307,402	6.9%	0.7%	3,762.1	4,020.4	325.2

Sources: SANDAG 2012; U.S. Census Bureau 2010.

Economic Conditions

The following discussion highlights the distribution of employment by industry, incomes, and recent trends occurring in the vicinity of the project site. Data for 2010 are included since this year represents the most recent data available for personal income, employee compensation, and employment by industry. In 2010, San Diego County's personal income was $141.68 billion, and approximately 67% of personal income (nearly $95 billion) was from employee compensation. Personal income includes income "received by all persons from all sources," and is calculated as the sum of wage and salary disbursements, supplements to wages and salaries, proprietors' income with inventory valuation and capital consumption adjustments, rental income of persons with capital consumption adjustment, personal dividend income, personal interest income, and personal current transfer receipts, less contributions for government social insurance (BEA 2010).

As shown in Table 3.5-4, San Diego County's total employment level was 1,818,107 in 2010. Within this population, government and government enterprises represent the largest employer in San Diego County and account for approximately 18.8% of those people who were employed during 2010, followed by professional, scientific, and technical services at 10.3%. Other

important employment industries within San Diego County include the retail trade, professional services, healthcare and social assistance, and accommodation and food services (BEA 2010).

Table 3.5-4
San Diego County, California, Personal Income, Employee Compensation, and Employment by Industry (2010)

Industry	Personal Income ($1,000s)	Percent of Total	Employee Compensation ($1,000s)	Percent of Total	Employment (number)	Percent of Total
Total	141,678,210	100%	94,797,759	100%	1,818,107	100%
Farm	451,974	0.3%	316,447	0.3%	12,854	0.7%
Non-Farm	105,599,242	74.5%	75,481,312	79.6%	1,805,253	99.3%
Total private	76,776,743	54.2%	65,658,813	69.3%	1,464,204	80.5%
Forestry, fishing, related activities	74,588	0.1%	53,791	0.1%	2,820	0.2%
Mining	41,777	0.0%	31,304	0.0%	3,463	0.2%
Utilities	1,060,649	0.7%	1,048,041	1.1%	7,509	0.4%
Construction	5,519,595	3.9%	4,049,206	4.3%	82,230	4.5%
Manufacturing	9,037,945	6.4%	8,777,801	9.3%	102,820	5.7%
Wholesale trade	3,812,422	2.7%	3,475,726	3.7%	50,947	2.8%
Retail trade	5,735,225	4.0%	4,921,874	5.2%	166,101	9.1%
Transportation and warehousing	1,345,371	0.9%	1,108,604	1.2%	29,646	1.6%
Information	2,814,078	2.0%	2,502,470	2.6%	31,647	1.7%
Finance and insurance	5,023,865	3.5%	4,317,612	4.6%	89,096	4.9%
Real estate and rental and leasing	2,372,411	1.7%	1,485,161	1.6%	98,858	5.4%
Professional, scientific, and technical services	15,105,759	10.7%	12,638,431	13.3%	187,904	10.3%
Management of companies and enterprises	1,904,632	1.3%	1,899,703	2.0%	18,853	1.0%
Administrative and waste services	4,028,333	2.8%	3,563,258	3.8%	111,466	6.1%
Educational services	1,342,514	0.9%	1,253,075	1.3%	38,351	2.1%
Healthcare and social assistance	8,695,867	6.1%	7,539,454	8.0%	150,533	8.3%
Arts, entertainment, and recreation	1,339,958	0.9%	1,075,482	1.1%	45,869	2.5%
Accommodation and food services	3,819,455	2.7%	3,420,962	3.6%	140,613	7.7%

Table 3.5-4
San Diego County, California, Personal Income, Employee Compensation, and Employment by Industry (2010)

Industry	Personal Income ($1,000s)	Percent of Total	Employee Compensation ($1,000s)	Percent of Total	Employment (number)	Percent of Total
Other services except public administration	3,702,299	2.6%	2,496,858	2.6%	105,478	5.8%
Government and government enterprises	28,822,499	20.3%	28,822,499	30.4%	341,049	18.8%
Federal, civilian	5,217,008	3.7%	5,217,008	5.5%	47,246	2.6%
Military	11,287,330	8.0%	11,287,330	11.9%	110,885	6.1%
State and local	12,318,161	8.7%	12,318,161	13.0%	182,918	10.1%
State government	2,816,520	2.0%	2,816,520	3.0%	41,537	2.3%
Local government	9,501,641	6.7%	9,501,641	10.0%	141,381	7.8%

Source: BEA 2010.

As shown in Table 3.5-5, the various jurisdictions surrounding San Diego Bay have been affected differently by economic trends relative to employment. The only municipalities experiencing unemployment levels below the average unemployment rate for California are the cities of Coronado and San Diego at 6.1% and 9.5%, respectively, in March 2012. Additionally, National City was experiencing an unemployment rate of 18.2%, and the City of Imperial Beach had an unemployment rate of 15.2% in March 2012, both of which are at or above the average unemployment rate for San Diego County (BLS 2012).

Table 3.5-5
Unemployment Rate March 2012

Jurisdiction	Unemployment Rate
California	11.1%
San Diego County	15.2%
Imperial Beach (city)	15.2%
Coronado (city)	6.1%
National City (city)	18.2%
Chula Vista (city)	11.1%
San Diego (city)	9.5%

Source: BLS 2012.

The Otay River Floodplain Site does not currently contain any businesses or commercial enterprises that involve direct employment. However, the open space, wildlife preservation

areas, and opportunities for public access available elsewhere on the San Diego Bay NWR, such as the Bayshore Bikeway, contribute to tourism and recreation in the South San Diego Bay area.

The Pond 15 Site is one of four primary ponds currently in use by the South Bay Salt Works, a commercial solar salt operation that employs between 20 and 30 individuals. Approximately 70,000 tons of salt are produced per year (Yuen, pers. comm. 2014b). As of 2006, the South Bay Salt Works generated approximately $300,000 in local and state sales tax annually (USFWS 2006).

Although this area is not identified as having value for production of agricultural resources, salt production in San Diego is principally conducted at the South Bay Salt Works. This area, which includes the Pond 15 Site, contains approximately 1,068 acres and has produced salt for more than 130 years. The current operation uses solar evaporation in diked ponds to facilitate the concentration and precipitation of salt from San Diego Bay water (City of San Diego 2008). The approximately 90.90-acre Pond 15 Site is an active solar salt pond included within this operation.

3.5.7 Environmental Justice

This section describes communities in and around San Diego Bay and the project site, and their racial/economic composition. Minorities are defined as individuals who are members of one of the following population groups: Hispanic, African-American, American Indian or Alaskan Native, and Asian or Pacific Islander. Low-income populations are those exceeding the poverty threshold, or, as defined by the U.S. Department of Housing and Urban Development, low income is considered 80% of the median family income for a specific area, subject to adjustment for areas with unusually high or low incomes or housing costs.

The goal of environmental justice in the United States is to afford the same degree of protection from environmental and health hazards to all individuals and communities. Environmental justice is defined as the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations, or the execution of federal, state, local, or tribal programs and policies. To achieve meaningful involvement requires that all potentially affected individuals have an appropriate opportunity to participate in decisions about proposed activities that could affect their environment and/or health, and that the concerns of all participants are considered in the decision-making process.

Data used to assess environmental justice considerations were obtained from the U.S. Census Bureau, Census 2010, which is the most complete and accurate source of demographic data and economic/income data available for the area. Data related to the census tract block groups that

encompass the project site were used to compile information that could be used to distinguish minority and low-income populations.

The information provided in Table 3.5-6 shows the minority and low-income composition of communities surrounding San Diego Bay, specifically those located closest to the project site, and a comparison of those communities to the entire San Diego region and California. As shown in the table, the percentage of minorities in some of the communities surrounding the project site is higher than San Diego County as a whole.

Table 3.5-6
Minority Composition and Poverty Level Status (2010)

Jurisdiction	Total Population	Population Below Poverty Level	Below Poverty Level (%)	Minority* (%)	Median Income**
California	37,253,956	5,886,125	15.8%	37.6	$60,883
San Diego County	3,224,432	477,216	14.8%	28.4	$62,771
Imperial Beach (city)	28,680	6,080	21.2%	26.8	$52,148
Coronado (city)	23,916	1,459	6.1%	10.7	$85,985
National City (city)	57,799	12,485	21.6%	33.9	$38,849
Chula Vista (city)	237,595	19,958	8.4%	34.5	$66,955
San Diego (city)	1,376,173	239,454	17.4%	35.8	$61,118

Sources: SANDAG 2012; U.S. Census Bureau 2010.
* Minority aggregation includes the sum of Black, Asian, American Indian and Alaskan Native, Hawaiian and other Pacific Islander, some other race, and two or more races.
** Median household income in 2010 dollars, not adjusted for inflation.

The municipalities that encompass a greater percentage of racial minorities when compared to San Diego County as a whole include the City of San Diego, City of Chula Vista, and National City. However, all of these cities contain a lower proportion of racial minorities than that for California as a whole. National City, the City of Imperial Beach, and the City of San Diego have the highest percentage of people living below the poverty level at 21.6%, 21.2%, and 17.4%, respectively. These three cities also have a median household income below that of San Diego County as a whole at $38,849 for National City, $52,148 for Imperial Beach, and $61,118 for the City of San Diego.

The majority of the residences located in proximity to the project site are those located south of the Otay River Floodplain Site along Palm Avenue in the City of San Diego from 13th Street east and the City of Imperial Beach from 13th Street west. Residences in this area include mobile homes along Palm Avenue between 13th Street and Saturn Boulevard, and condominiums, single-family, or multi-family residential structures on 13th Street. There are also a few residences located on the west side of I-5 near the Pond 15 Site interspersed between commercial and industrial uses on Ada Street, Dorothy Street, and Stella Street.