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RECIRCULATED DRAFT

Termino Avenue Drain Project

ENVIRONMENTAL IMPACT REPORT

prepared for:
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Environmental Planning & Assessments
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RECIRCULATED DRAFT ENVIRONMENTAL IMPACT REPORT
TERMINO AVENUE DRAIN

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ES EXECUTIVE SUMMARY

ES.1 INTRODUCTION

This Recirculated Draft Environmental Impact Report (EIR) has been prepared by the County of Los Angeles (County) to evaluate potential environmental effects that may result from the proposed Termino Avenue Drain Project (proposed project). This EIR has been prepared in accordance with the California Environmental Quality Act of 1970 (CEQA), as amended (Cal. Pub. Res. Code, § 21000 *et seq*.), and implementing State CEQA Guidelines (Cal. Code Regs., Title 14, § 15000 *et seq*.).

ES.2 PROJECT BACKGROUND

The proposed project area is located in the southern portion of the San Gabriel River watershed, in an area that has historically had flooding problems. The existing drainage system in this portion of the watershed is not sufficient to convey the maximum runoff that would be generated on average once every fifty years during what is known as a 50-year flood event. The City of Long Beach (City) and County of Los Angeles, through its Department of Public Works (DPW), have been working together since 1993 to alleviate flooding problems within this portion of the San Gabriel River watershed.

Previous hydrology and drainage studies recommended a storm drain system that would convey stormwater flows to an outlet at Colorado Lagoon. Based on these previous studies and community input, the County and the City revised the plans and, in 2000, identified a preferred alignment for conveying stormwater and appropriate measures for reducing pollutants from the stormwater. The alignment, similar to Alternative 2 evaluated in this EIR, resulted in storm drain discharge into Colorado Lagoon, with a low-flow bypass leading into Marine Stadium.

In February 2001, the County prepared a Mitigated Negative Declaration (MND) for the Termino Avenue Drain Project. The MND found that, with the incorporation of the recommended mitigation measures, there would be no significant environmental impacts as a result of the proposed project. Mitigation was proposed for aesthetics, biological resources, cultural resources, hazardous materials, hydrology/water quality, and noise that would reduce all potentially significant impacts to a less than significant level. The MND was approved by the County Board of Supervisors in June 2001. Following approval, the document was challenged in court and the County was ordered to conduct a ". . . proper study of the baseline conditions of the tidal culvert connecting the Colorado Lagoon and the Marine Stadium."

In addition to determining the baseline conditions of the tidal culvert, the County has made changes to the Termino Avenue Drain Project. On April 21, 2004, the County hosted a field meeting with the California Department of Fish and Game (CDFG), US Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), Regional Water Quality Board (RWQCB), US Army Corps of Engineers (ACOE), and the Coastal Commission to solicit input regarding the two potential outlet structure

locations (Colorado Lagoon and Marine Stadium). Based on agency input regarding the potential benefits and impacts associated with each alternative and subsequent analysis, the Marine Stadium option was selected by the County as the proposed project. Instead of a storm drain system that would convey stormwater flows to an outlet at the Colorado Lagoon, the proposed project would bypass Colorado Lagoon and all storm flows would be diverted directly into Marine Stadium. The proposed project includes a low-flow diversion and catch basin screens to improve water quality.

An Initial Study was prepared for this project in May 2004. The Initial Study concluded that there was substantial evidence that the project may have a significant impact on the environment in the areas of biological resources and hydrology/water quality. Based on the Initial Study, the County determined that an EIR would be required for the project. A Draft EIR for the project was circulated for public review and comment on March 1, 2007, initiating a 45-day public review period pursuant to CEQA and its implementing guidelines (CEQA Guidelines). The document and Notice of Completion (NOC) was distributed to the California Office of Planning and Research, State Clearinghouse. Relevant agencies also received copies of the document. A Notice of Availability (NOA) was distributed to over 500 interested parties and adjacent property owners and residents, which informed them of where they could view the document and how to comment. The purpose of the 45-day review period was to provide interested public agencies, groups and individuals the opportunity to comment on the contents and accuracy of the document. The document was available to the public at the County of Los Angeles Department of Public Works's (DPW's) Headquarters, the City of Long Beach Main Library, and the Brewitt Neighborhood Library. A copy of the document was also posted online. During the 45-day public review period, a total of 22 comment letters and emails were received.

As stated in Section 15088.5 of the CEQA Guidelines, a lead agency is required to recirculate an EIR when significant new information is added to the EIR after public notice is given of the availability of the Draft EIR for public review, but before the Final EIR is certified. Information can include changes in the project or environmental setting, as well as additional data or other information. Based on comments received during the public review period, revisions have been made to portions of the Termino Avenue Drain EIR and those modified portions are being recirculated for public review pursuant to Section 15088.5(c) of the CEQA Guidelines. Specifically, the project description has been revised and new significant information has been added to the EIR regarding the potential for green sea turtles to occur within the project area, which required further analysis and discussion. In addition, supplemental information related to air quality and global climate change is provided in this EIR.

Pursuant to Section 15088.5(f)(2) of the CEQA Guidelines, the Lead Agency requests that any additional comments you wish to make on the Recirculated Draft EIR are limited to the revised and updated sections included in this document. All comment letters submitted during the 45-day public review period for the original Draft EIR and responses to those comments, as well as new comments received on the Recirculated Draft EIR and responses to those comments that relate to the revised sections of the EIR will be included in the Final EIR.

ES.3 PROPOSED PROJECT LOCATION AND SETTING

The proposed project is located in southern Los Angeles County within the City of Long Beach. The proposed storm drain alignment generally falls within existing roads and a former Pacific Electric (PE) Railway right-of-way. The mainline of the proposed project would run along Anaheim Street, southerly on Termino Avenue between 8th Street and 11th Street, along the PE right-of-way, across several streets, and along Appian Way, terminating at Marine Stadium. A lateral storm drain would extend from Termino Avenue along the PE right-of-way across several streets and terminate on Redondo Avenue just north of Anaheim Street. Other short lateral drains would connect to the mainline along 4th Street, 6th Street, 7th Street, 8th Street, Park Avenue, and Termino Avenue.

Land uses adjacent to the storm drain alignment are primarily residential. Commercial businesses are located at several of the street intersections that would be crossed by the proposed storm drain. The alignment passes west of Colorado Lagoon, a V-shaped water body of approximately 40 acres, which is connected to Marine Stadium to the southeast by a tidal culvert. Recreation Park, a City park and golf course, is located north of Colorado Lagoon. The proposed outlet structure at Marine Stadium is surrounded by residential and open space land uses. Marine Stadium is a mile-long rectangular inlet within Alamitos Bay, which outlets to the Pacific Ocean.

ES.4 PROPOSED PROJECT SUMMARY

The proposed project would involve the construction of a storm drain mainline, six lateral drains, low flow treatment pump station, catch basin screens, and an outlet to Marine Stadium in the City. The purpose of the proposed project is to construct a storm drain to alleviate flooding problems in the area and to accommodate water flows in a 50-year flood event. The proposed project would contain two key components; the storm drain to Marine Stadium; and the diversion system to the County Sanitation District sewer line. A description of the key components is provided below.

The two changes to the proposed project that have occurred since the original Draft EIR (February 2007) include the location of the Marine Stadium outlet structure and the construction process at 7th Street. Specifically, the outlet structure has been moved slightly inland to reduce the project's effects on eelgrass. At 7th Street, tunneling is now proposed to avoid impacts to vehicular traffic.

STORM DRAIN TO MARINE STADIUM

This component would include the construction of a 12,190 linear-foot storm drain to accommodate the 50-year frequency storm of 703 cubic feet per second (cfs). The mainline would consist of 8,090 linear feet of storm drain conduit from the terminus at Termino Avenue and Anaheim Street to Marine Stadium and would connect to the existing drainage system at various locations. In addition to the mainline, the proposed drain would include six lateral lines totaling 4,100 linear feet of conduit.

A double box culvert outlet structure with an opening of approximately 25 feet would also be constructed at Marine Stadium. The outlet structure would include energy dissipater blocks to reduce the velocity of stormwater from the box culvert and a woven geotextile fabric to minimize erosion. Approximately 560 cubic yards of material from the riprap embankment would be dredged in order to construct the outlet structure. Construction of the outlet structure in Marine Stadium would involve constructing a temporary coffer dam around the proposed construction zone. In addition, catch basin screens would be installed in all catch basins to capture suspended solids and water-borne litter and debris known as floatables before they enter the storm drain system.

The majority of the main drain project construction would be within portions of the abandoned Pacific Electric (PE) railway right-of-way, which is currently owned by the City.

DIVERSION SYSTEM TO COUNTY SANITATION DISTRICT SEWER LINE

This component would include a diversion system to divert non-storm flows collected north of 7th Street from the storm drain and direct them into an existing County sanitary sewer line. An underground storage box and a pump unit would be constructed at Roswell Avenue and the PE railway right-of-way to temporarily store the non-storm flows diverted from the proposed project until the water is conveyed to the sewer. The Los Angeles County Sanitation Districts would be responsible for treating the stormwater at existing sewage treatment plants. Based on an agreement with the County, the City would accept ownership and be responsible for operation and maintenance of the low-flow diversion system.

CONSTRUCTION ACTIVITIES

Construction of the proposed project is estimated to begin in summer of 2009. Construction would occur over a period of approximately 18 to 24 months, contingent on weather conditions suitable for construction. The proposed project would be constructed in continuous operation in sections, progressing approximately 100 feet per day.

GENERAL CONSTRUCTION REQUIREMENTS

To minimize construction impacts, a construction staging and traffic plan would be prepared by the County prior to construction. All affected roads would maintain two-way traffic (i.e., at least one lane in each direction) during the construction phase. Construction staging for the alignment would take place mostly within the PE right-of-way.

Construction activities would not occur before 7:00 AM or after 7:00 PM on weekdays and no construction would take place on Saturdays, Sundays, or national holidays, with the exception of emergency construction activities. No construction would occur on Sunday unless a permit is issued from the noise control officer, and activities would be limited to between the hours of 9:00 AM and 6:00 PM. Any additional weekend construction activities would be coordinated with the City. Construction crews

would implement standard Best Management Practices (BMPs) during construction and adhere to all applicable construction safety guidelines. All construction activities would conform to DPW specifications and Americans with Disabilities Act (ADA) guidelines and would be undertaken in a manner consistent with all applicable federal, state, and local regulations regarding the handling and disposal of hazardous materials.

ES.5 AREAS OF CONTROVERSY

Community outreach efforts have been undertaken to solicit input on the proposed Termino Avenue Drain alternatives. A series of public meetings were held in 1996 and January, June, and July 2000 to discuss the storm drain options. Issues and concerns raised by the public regarding the proposed project and alternatives include water quality at Colorado Lagoon and Marine Stadium, impacts to marine and wildlife habitat at Colorado Lagoon and Marine Stadium, visual impacts associated with the location and size of the outfall structure, risks associated with stormwater overflow flooding adjacent properties, construction impacts on the community, particularly with respect to air quality, traffic and transportation, and noise, the consideration of alternatives to reduce water quality impacts to Colorado Lagoon and Marine Stadium, and the adequacy of mitigation measures to reduce impacts.

Similar comments were received in response to the NOP/IS for this EIR and at the public scoping meeting for the proposed project.

ES.6 SUMMARY OF ENVIRONMENTAL IMPACTS

Table ES-1 provides a summary of the significant environmental impacts that would result during construction and operation of the proposed project, mitigation measures that would lessen the significant environmental impacts, and the level of significance of the environmental impacts that would remain after implementation of the proposed mitigation. Detailed analysis of environmental impacts is presented in Chapter 3 of this EIR.

SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

This section is prepared in accordance with Section 15126.2(b) of the CEQA Guidelines, which requires the discussion of any significant environmental effects that cannot be avoided if a project is implemented. These include impacts that can be mitigated but cannot be reduced to a less than significant level. An analysis of environmental impacts caused by the proposed project has been conducted and is contained in this EIR. Eleven issue areas were analyzed in detail in Chapter 3. Two issues have been found to result in significant unavoidable adverse impacts – Air Quality (construction PM_{10} and $PM_{2.5}$) and Noise (construction noise and vibration).

EFFECTS FOUND NOT TO BE SIGNIFICANT

Sections 15128 and 15143 of the CEQA Guidelines require the identification of impacts of a project that were determined not to be significant and that were not discussed in detail in the impact section of the EIR. For this project, it was determined that significant impacts would not occur in the following resource categories: Agricultural Resources, Mineral Resources, Population and Housing, Public Services, and Utilities and Service Systems. An IS was prepared which outlines the reasons why these effects were found to be not significant.

CUMULATIVE IMPACTS

According to Section 15130 (b)(1)(A) of the CEQA Guidelines, a list of past, present, and probable future projects producing related or cumulative impacts may be used as the basis of the cumulative impacts analysis. The "list" approach was used for the cumulative impacts discussion in this EIR. A list of related projects was provided by the City Planning Department. A radius of 1 mile was selected, since the cumulative impacts would primarily be limited to construction effects. As discussed in this EIR, the project's operational impacts would be minimal, since the storm drain would require limited maintenance and would not create new land uses in the project area. However, cumulative air quality impacts related to PM_{10}, $PM_{2.5}$, and Greenhouse Gas (GHG) emissions from construction of the project and other cumulative projects in the area would be significant and unavoidable. The related projects, when combined with the proposed project, would also contribute to the already significant short-term construction noise and vibration impacts of the proposed project.

SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Construction of the proposed project would result in the irreversible commitment of nonrenewable resources, including fossil fuels; natural gas; water; and building materials such as lumber, concrete, and steel. However, the proposed project is not anticipated to consume substantial amounts of energy in a wasteful manner, and it is unlikely to result in significant impacts as a result of consumption of utilities. Operation of the proposed project would also consume small amounts of nonrenewable resources including energy to operate the diversion system pump, which would limit the availability of these resources for future generations or other uses during the life of the project. However, the small amounts of resources consumed during operation of the proposed project are considered to be negligible. Although irreversible environmental changes would result from the proposed project, such changes would not be considered significant.

GROWTH INDUCING IMPACTS

Implementation of the proposed project would not directly induce growth, as it is an infrastructure project that would serve existing and planned development in the project area. In addition, the project site and its immediate vicinity are already developed with urban land uses, including planned development,

commercial and residential uses, and public facilities. The proposed project would construct a storm drain and a diversion system to divert non-storm flows originating north of 7th Street. The project would not directly or indirectly introduce new uses inconsistent with the surrounding uses or create new housing or residential land uses which would cause an increase in population. No significant impacts would occur to public services or utilities which would require an increase in service or coverage which would require the employment of additional staff, and no increase in the use of adjacent areas would occur as a result of the construction or operation of the proposed project.

The proposed project could indirectly induce some growth within the City due to reduced flooding conditions; however, this growth would be limited, since the drainage area is already highly developed. Substantial population growth would not occur as a result of the proposed project; therefore, the project is not expected to significantly induce growth in the City and surrounding communities

ES.7 ALTERNATIVES TO THE PROPOSED PROJECT

Section 15126.6 of the CEQA Guidelines requires consideration and discussion of alternatives to the proposed project which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project. Three alternatives, including alternate flood control facilities, were considered but rejected from consideration in this EIR as infeasible. Two alternatives, including the No Project Alternative and the Colorado Lagoon Outlet Structure Alternative, are reviewed in Chapter 5 of this document and briefly summarized here.

ALTERNATIVE 1 – NO PROJECT

Under the No Project Alternative, the proposed Termino Avenue Drain would not be constructed. Stormwater flows would continue to flow through existing, inadequate storm drains and discharge into Colorado Lagoon and Marine Stadium. No new construction would occur; however, alternate flood control methods may need to be implemented. No construction impacts associated with hazardous materials, air quality, noise, traffic, or disturbance of cultural or biological resources would occur; however, impacts associated with flooding and degraded water quality would continue and could worsen with time. The environmental characteristics would be generally the same as those described in the existing conditions sections of Chapter 3.0.

ALTERNATIVE 2 – COLORADO LAGOON OUTLET STRUCTURE

This alternative is similar to the proposed project except that the majority of stormwater flows would be conveyed to Colorado Lagoon instead of Marine Stadium. Alternative 2 would have an identical alignment north of the intersection of East 4th Street and Park Avenue; however, two storm drain alignments would be constructed south of the intersection to convey flows to both Colorado Lagoon and Marine Stadium. The smaller storm drain would convey an initial stormwater flow into Marine Stadium, with the larger storm drain conveying additional stormwater flows into Colorado Lagoon. Similar to the

proposed project, non-stormwater flows collected north of 7th Street would be diverted to the County Sanitation sewer line via a low-flow bypass pump.

Impacts associated with Alternative 2 would be similar to the proposed project for land use, cultural resources, transportation and circulation, air quality, noise and vibration, geology and soils, recreation. However, some impacts would be slightly greater than the proposed project, including aesthetics, biological resources, hydrology and water quality, and hazards and hazardous materials (see Table 5.3-1). These additional impacts are associated with the construction of the Colorado Lagoon outlet structure, which would not occur under the proposed project. Although none of the significance determinations would change for this alternative, the impacts would be increased for the categories described. Alternative 2 would reduce impacts to eelgrass and marine resources in Marine Stadium and would reduce aesthetic impacts at Marine Stadium by reducing the size of the outfall structure. Due to the additional impacts associated with construction at Colorado Lagoon, Alternative 2 would not be environmentally superior to the proposed project.

TABLE ES-1 SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES ADDRESSED IN THIS RECIRCULATED DRAFT EIR

Environmental Impacts	Significance Determination	Mitigation Measures	Level of Significance after Mitigation
BIOLOGICAL RESOURCES			
BIO-1 Tree removal during construction of the proposed project would disturb nesting birds, including raptors.	Significant	**BIO-A** Should tree removal or removal of the Long Beach Greenbelt restoration area occur during the breeding season for migratory non-game native bird species (generally March 1-September 1, as early as February 1 for raptors), weekly bird surveys would be performed to detect any protected native birds in the trees to be removed and other suitable nesting habitat within 300 feet of the construction work area (500 feet for raptors). The surveys would be conducted 30 days prior to the disturbance of suitable nesting habitat by a qualified biologist with experience in conducting nesting bird surveys. The surveys would continue on a weekly basis with the last survey being conducted no more than 3 days prior to the initiation of clearance/construction work. If a protected native bird is found, DPW would delay all clearance/construction disturbance activities in suitable nesting habitat or within 300 feet of nesting habitat (within 500 feet for raptor nesting habitat) until August 31 or continue the surveys in order to locate any nests. If an active nest is located, clearing and construction with 300 feet of the nest (within 500 feet for raptor nests) shall be postponed until the nest is vacated and juveniles have fledged and when there is no evidence of a second attempt at nesting. Limits of construction to avoid a nest should be established in the field with	Less than Significant

Environmental Impacts	Significance Determination	Mitigation Measures	Level of Significance after Mitigation
		flagging and stakes or construction fencing. Construction personnel shall be instructed on the sensitivity of the area. The results of this measure would be recorded to document compliance with applicable State and Federal laws pertaining to the protection of native birds.	
BIO-2 Construction of the proposed project would temporarily and permanently impact eelgrass within Marine Stadium. Construction of the outlet structure would temporarily displace 0.0189 acre of eelgrass, while the increased turbidity during construction would cause an increase in sediment deposition on eelgrass blades and result in decreased underwater light levels. In addition, 0.0008 acre of eelgrass would be permanently removed at the location of the outlet structure. The proposed project would also result in the removal of a native landscape planting area in the PE right-of-way, which includes plants that are typically associated with southern California native scrublands.	Significant	**BIO-B** A qualified marine biologist will resurvey the extent of eelgrass coincident with the construction easement to confirm the extent of eelgrass within the permanent and temporary impact areas. Based on 2005 surveys, the direct permanent and temporary impacts to marine sea grasses in Marine Stadium (i.e., 0.0189 acre total) shall be mitigated at a ratio of 1.2:1, in accordance with the Southern California Eelgrass Mitigation Policy. A total of 0.0227 acres of eelgrass will be replanted by DPW, including at least 0.0181 acres in the temporary impact area when sediment conditions stabilize following the completion of outlet construction. The remaining 0.0046 acres of eelgrass shall be planted within Marine Stadium or elsewhere within Alamitos Bay in a location determined by a qualified biologist. The location of eelgrass transplant mitigation shall be in areas similar to proposed outlet structure location. Factors such as, distance from project, depth, sediment type, distance from ocean connection, water quality, and currents are among those that shall be considered in evaluating potential sites. Monitoring the success of eelgrass mitigation shall be required for a period of five years in accordance with the Southern	Less than Significant

Environmental Impacts	Significance Determination	Mitigation Measures	Level of Significance after Mitigation
		California Eelgrass Mitigation Policy. A wetland eelgrass mitigation plan shall be prepared to discuss the methods and schedule for planting eelgrass at the Marine Stadium and Alamitos Bay locations, and post-planting monitoring. In accordance with the California Coastal Commission's (CCC's) Procedural Guidance for the Review of Wetland Projects in California's Coastal Zone, the mitigation plan will include the following information, as relevant to the eelgrass mitigation sites: 1) Clearly stated objectives and goals consistent with regional habitat goals. These regional goals must identify functions and or habitats most in need of enhancement or restoration and must be as specific as possible. If the regional goals have not been identified, then the applicant and CCC staff should work with relevant federal, State, or local agencies to determine if the proposed plan is consistent with the ecology and natural resource composition of the area. 2) Adequate baseline data regarding the biological, physical, and chemical criteria for the mitigation area. 3) Documentation that the project will continue to function as a viable wetland over the long term. 4) Sufficient technical detail in the project design including, at a minimum, an engineered grading plan and water control structures, methods for conserving or stockpiling topsoil, a	

Environmental Impacts	Significance Determination	Mitigation Measures	Level of Significance after Mitigation
		planting program including removal of exotic species, a list of all species to be planted, sources of seeds and/or plants, timing of planting, plant locations and elevations on the mitigation site base map, and maintenance techniques. 5) Documentation of performance standards, which provide a mechanism for making adjustments to the mitigation site when it is determined through monitoring, or other means that the enhancement or restoration techniques are not working. 6) Documentation of the necessary management and maintenance requirements, and provisions for remediation should the need arise. 7) An implementation plan that demonstrates there is sufficient scientific expertise, supervision, and financial resources to carry out the proposed activities. 8) A five-year monitoring program. **BIO-C** A project marine biologist shall mark the positions of eelgrass beds with buoys prior to the initiation of any construction to minimize damage to eelgrass beds outside the construction zone. **BIO-D** The project marine biologist shall meet with the construction crews prior to dredging to review areas of eelgrass to avoid and to review proper construction techniques. **BIO-E** If barges and work vessels are used during construction, measures shall be taken to ensure that eelgrass beds are not impacted through grounding, propeller damage, or	

Environmental Impacts	Significance Determination	Mitigation Measures	Level of Significance after Mitigation
		other activities that may disturb the sea floor. Such measures shall include speed restrictions, establishment of off-limit areas, and use of shallow draft vessels. **BIO-F** No construction materials, equipment, debris, or waste shall be place or stored where it may be subject to tidal erosion and dispersion. Construction materials shall not be stored in contact with the soil. Any construction debris within the temporary cofferdam area shall be removed from the site at the end of each construction day. **BIO-G** During construction of the Marine Stadium outlet structure, floating booms shall be used to assist in containing debris discharged into Marine Stadium, and any debris discharged should be removed as soon as possible but no later than the end of each day. **BIO-H** A silt curtain shall be utilized to assist in controlling turbidity during construction of the cofferdam at Marine Stadium. The County of Los Angeles shall limit, to the greatest extent possible, the suspension of benthic sediments into the water column. **BIO-I** Reasonable and prudent measures shall be taken to prevent all discharge of fuel or oily waste from heavy machinery or construction equipment or power tools into Marine Stadium. Such measures include deployed oil booms and a silt curtain around the proposed construction zone at all times to minimize the spread of any accidental fuel spills, turbid construction-related water discharge, and debris. Other possible measures include training construction workers on	

Environmental Impacts	Significance Determination	Mitigation Measures	Level of Significance after Mitigation
		emergency spill notification procedures, proper storage of fuels and lubricants, and provisions for on-site spill response kits. **BIO-J** A qualified marine biologist shall monitor the construction process on a weekly basis to ensure that all water quality BMPs are implemented, and to assist the project engineer in avoiding and minimizing environmental effects to benthic communities, including eelgrass. Within thirty days after the project is completed, a post-construction marine biological survey shall be conducted to determine the extent of any construction impacts on eelgrass habitat. The survey report shall be completed within 30 days and will be submitted to the California Coastal Commission and the U.S. Army Corps of Engineers. **BIO-P** The Pacific Electric (PE) right-of-way between 7th and 8th Streets shall be replanted with native vegetation at a 1:1 ratio. A restoration and monitoring plan for the site shall be prepared and implemented at the conclusion of construction. The restoration plan shall, at minimum, include the following components: ***** Prior to construction, a qualified horticulturist with experience in native plant cultivation shall supervise salvage of plants, soil, and other materials as appropriate from the Long Beach Greenbelt area in the PE right-of-way between 7th and 8th Streets. Salvaged materials shall be maintained and used in replanting of the site. Supplemental native species appropriate to the site (occurring	

Environmental Impacts	Significance Determination	Mitigation Measures	Level of Significance after Mitigation
		within the Los Angeles Basin and of local genetic stock) shall be used as necessary. * Following implementation, the restoration area shall be monitored quarterly for the first two years and biannually for three more years. Success shall be defined as 80 percent survival of container plants after two years and 100 percent survival thereafter.	
BIO-3 Construction activities associated with the outlet structure, including creation of the coffer dam, removal of rip-rap, and dredging would temporarily and permanently impact tidal zone marine organisms within Marine Stadium. The temporary increased turbidity and sediment loading would result in mortality of algae, benthic invertebrates, and benthic fishes. In addition, a permanent loss of benthic invertebrate biomass and goby biomass would occur within the footprint of the outlet structure.	Significant	See **BIO-B** through **BIO-J**	Less than Significant
BIO-4 Construction activities associated with the outlet structure, including the creation of the coffer dam, removal of rip-rap, and dredging would have the potential to impact green sea turtles, California sea lions, and Pacific harbor seals.	Significant	**BIO-K** A qualified marine biologist shall be on site during the construction period to monitor the potential presence of green sea turtles. The onsite biological monitor shall have the authority to halt construction operations and shall determine when construction operations can proceed. **BIO-L** Construction crews and work vessel crews shall be briefed on potential for this species to be present and will be provided with identification characteristics of sea turtles, since they may occasionally be mistaken for seals or sea lions. **BIO-M** In the event that a sea turtle is sighted within 500 meters (1,640 feet) of the construction zone, all construction activity shall be temporarily stopped until the sea turtle(s) is safely outside the outer perimeter of construction. The onsite biological monitor shall have the authority	Less than Significant

Environmental Impacts	Significance Determination	Mitigation Measures	Level of Significance after Mitigation
		to halt construction operation and shall determine when construction operations can proceed. **BIO-N** The biological monitor shall prepare an incident report of any green sea turtle activity in the project area and shall inform the construction manager to have his crews aware of the potential for additional sightings. The report shall be provided within 24 hrs to the California Department of Fish and Game and the National Marine Fisheries Service. **BIO-O** In the event that a California sea lion or a Pacific harbor seal is sighted within 500 meters (1,640 feet) of the construction zone, all construction activity shall be temporarily stopped until the sea lion(s) or seal(s) is safely outside the outer perimeter of construction. The onsite biological monitor shall have the authority to halt construction operation and shall determine when construction operations can proceed.	
AIR QUALITY			
AIR-1 Construction emissions would violate SCAQMD's air quality standards for NO_x. Construction equipment engine exhaust would result in emissions of 111 pounds per day of NOx as a result of conduit construction, trenching, pipe placement, and other construction activities exceeding the 100 pound per day threshold. Likewise, emissions related to PM_{10} and $PM_{2.5}$ would exceed the Localized Significance Threshold (LST) screening thresholds for daily emissions.	Significant	**AIR-A** The contractor shall provide a plan, for approval by the Los Angeles County Department of Public Works, demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 25 percent NO_X reduction compared to the most recent CARB fleet average at time of construction. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products,	Significant and Unavoidable (PM_{10} and $PM_{2.5}$)

Environmental Impacts	Significance Determination	Mitigation Measures	Level of Significance after Mitigation
		and/or other options as they become available. The construction contractor shall submit to the Los Angeles County Department of Public Works a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. The inventory shall include the horsepower rating, engine production year, and projected hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the construction contractor shall provide DPW with the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman. All property owners within 300 feet of the proposed storm drain construction zone shall be notified, in writing, of the proposed construction schedule. Contact information for questions or to report air quality violations shall be provided, including phone numbers for the County Department of Public Works inspector, area engineer, and office engineer. The notification, by standard mail, shall be delivered at least two weeks prior to the	

Environmental Impacts	Significance Determination	Mitigation Measures	Level of Significance after Mitigation
		start of work. **AIR-B** The construction contractor shall ensure that all excavation sites and excavated soil shall be watered to ensure that the soil is wet to minimize dust plumes. Haul trucks shall be covered when loaded with fill. Open storage piles shall have water applied once per hour or shall be covered to prevent fugitive dust plumes beyond the project boundary.	

TABLE ES-2 COMPARISON OF IMPACTS FOR THE PROPOSED PROJECT AND THE ALTERNATIVES

Impact Area	Proposed Project	Alternative 1: No Project	Alternative 2: Colorado Lagoon Outlet Structure
Biological Resources	II	IV (Less)	II (Greater)
Air Quality: Construction	I	IV (Less)	I (Similar)
Operation	IV	IV (Similar)	IV (Similar)

Notes:

I: Significant Unavoidable Impact
II: Significant Impact Unless Mitigated
III: Less Than Significant Impact
IV: No Impact

Less: Impact is lower in magnitude than impacts of the proposed project
Similar: Impact is similar in magnitude to impacts of the proposed project
Greater: Impact is greater in magnitude than impacts of the proposed project
Mixed: Some impacts are less than, similar to, and/or greater in magnitude than impacts of the proposed project

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1 INTRODUCTION

The Draft Environmental Impact Report (EIR) for the Termino Avenue Drain project was circulated for public review and comment on March 1, 2007, initiating a 45-day public review period pursuant to the California Environmental Quality Act of 1970 (CEQA) and its implementing guidelines. The document and Notice of Completion (NOC) was distributed to the California Office of Planning and Research, State Clearinghouse. Relevant agencies also received copies of the document. A Notice of Availability (NOA) was distributed to over 500 interested parties and adjacent property owners and residents, which informed them of where they could view the document and how to comment. The purpose of the 45-day review period was to provide interested public agencies, groups and individuals the opportunity to comment on the contents and accuracy of the document. The document was available to the public at the County of Los Angeles Department of Public Works's (DPW's) Headquarters, the City of Long Beach Main Library, and the Brewitt Neighborhood Library. A copy of the document was also posted online. During the 45-day public review period, a total of 22 comment letters and emails were received.

As stated in Section 15088.5 of the CEQA Guidelines, a lead agency is required to recirculate an EIR when significant new information is added to the EIR after public notice is given of the availability of the Draft EIR for public review, but before the Final EIR is certified. Information can include changes in the project or environmental setting, as well as additional data or other information. Based on comments received during the public review period, revisions have been made to portions of the Termino Avenue Drain EIR and those modified portions are being recirculated for public review pursuant to Section 15088.5(c) of the CEQA Guidelines. Specifically, the project description has been revised and new significant information has been added to the EIR regarding the potential for green sea turtles to occur within the project area, which required further analysis and discussion. In addition, supplemental information related to air quality and global climate change is provided in this EIR.

1.1 CEQA PROCESS

1.1.1 RECIRCULATED DRAFT EIR

This Recirculated Draft EIR is being circulated for 45 days. Pursuant to CEQA Guidelines Section 15088.5 (f)(2), DPW requests that you limit your comments to only the material contained in this document. The 45-day public comment period for this Recirculated Draft EIR will commence on April 4, 2008 and conclude on May 19, 2008. Copies of the Recirculated Draft EIR will be available for review at the following locations:

- County of Los Angeles Department of Public Works, 900 South Fremont Avenue, Alhambra, CA 91803
- City of Long Beach Main Library, 101 Pacific Avenue, Long Beach, CA 90822
- Brewitt Neighborhood Library, 4036 East Anaheim Street, Long Beach, CA 90804

A copy of the document will also be posted online at http://dpw.lacounty.gov/tabGov.cfm. Please submit comments responding to the adequacy and appropriateness of this Recirculated Draft EIR in writing to the address provided below. Comment letters must be postmarked by May 19, 2008.

County of Los Angeles Department of Public Works
P.O. Box 1460
Alhambra, CA 91802-1460
Contact: Dale Sakamoto
Email: dsakamoto@dpw.lacounty.gov

A public meeting will be held in April 2008 to solicit input from interested parties on those portions of the Draft EIR that have been revised and are being recirculated. The meeting will be held on Saturday, April 26, from 10:00 a.m. to 11:30 a.m. at the Lowell Elementary School Auditorium Auditorium (5201 East Broadway, Long Beach, CA 90803).

1.1.2 FINAL EIR

Upon completion of the comment period on the Recirculated Draft EIR, DPW will publish the Final EIR for the Termino Avenue Drain project. The Final EIR will include responses to all comments received on the Draft EIR during the original Draft EIR public comment period, as well as new comments received on the Recirculated Draft EIR and responses to comments received on this Recirculated Draft EIR that relate to the revised sections of the EIR. The Final EIR will also include all of the new information provided in Chapter 2 of this document. The Final EIR will be provided to all commenting agencies at least 10-day prior to DPW'S Board hearing.

1.2 ORGANIZATION OF THE RECIRCULATED DRAFT EIR

This Recirculated Draft EIR is organized as follows:

Chapter 1.0 of this Recirculated Draft EIR provides a brief description and the proposed background, an overview of the CEQA environmental review process, and a section describing the organization of the Draft EIR.

Chapter 2.0 of this Recirculated Draft EIR provides a detailed description of all clarifications and modifications which were made to the text or graphics of the Draft EIR. Clarifications and revisions reflect changes made to the project, analysis, or mitigation as a result of a comment made by an agency or individual during the public review period.

Chapter 3.0 of this Recirculated Draft EIR provides a detailed description of the proposed project and includes a discussion of the new information. Specifically, new information is provided for the following topics:

- Project Description
- Biological Resources
- Air Quality
- Impact Overview

Chapter 4.0 of this Recirculated Draft EIR provides a bibliography of reference materials used in its preparation.

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2 CLARIFICATIONS AND MODIFICATIONS

The following clarifications and revisions are intended to update the Draft EIR in response to the changes to the proposed project as well as to the comments received during the public review period. These changes, which have been incorporated into the Draft EIR, constitute the Recirculated Draft EIR.

The changes to the Draft EIR are listed by section, and page number. Text which has been removed is shown with a strikethrough line, while text that has been added is shown underlined. All of the changes shown described in this section have also been made in the corresponding Recirculated Draft EIR sections.

SECTION 3.1 (FORMERLY SECTION 2.0) PROJECT DESCRIPTION

PAGE CLARIFICATION/REVISION

3-12 *First paragraph under heading 'Storm Drain to Marine Stadium' (formerly Section 2.4.1) has been revised as follows:*

The proposed Termino Avenue Storm Drain alignment is shown on Figure 3-4. The total length of the storm drain, including mainline and laterals, would be approximately 12,190 linear feet. The mainline would consist of 8,090 linear feet of storm drain conduit varying in size from 48-inch reinforced concrete pipe (RCP) at the upstream terminus at Termino Avenue and Anaheim Street, to ~~8~~ 9 by 8-foot double reinforced concrete box conduit at the downstream terminus with Marine Stadium. Dimensions of the proposed conduit are shown in Table 3-1. The proposed storm drain conduit would connect to the existing drainage system at various locations. In addition to the mainline, the proposed drain would include a tunnel consisting of 560 feet of double pipes beneath the alignment's intersection with 7th Street and six laterals totaling 4,100 linear feet of conduit and ranging in size from 48 to 36 inches. The laterals would also be constructed of reinforced concrete pipe. The storm drain would be sized to accommodate the 50-year frequency storm of 703 cubic feet per second (cfs).

3-12 *Table 3-1 Storm Drain Conduit Details has been revised has follows:*

Location	Pipe/Box	Size
Marine Stadium vicinity	Dbl Box	~~8' x 8'~~ 9'W x 8'H
Colorado Lagoon vicinity	Dbl Box	~~8' x 6.5'~~ 9'W x 8'H
4th Street and Park Avenue	Dbl Box	~~8' x 6.5'~~ 8'W x 5.5'H
PE right-of-way	Dbl Box	~~24' 1" x 6.5'~~ 8'W x 5.5'H
Ximeno Avenue	Dbl Jacked pipe	~~11 x 5.5'~~ 2– 72" RCP

Location	Pipe/Box	Size
Rosewell and PE right-of-way	Box	~~9' x 5.5'~~ 10'W x 5.5'H
Termino Avenue	Pipe	~~66"~~ 72" RCP
Termino Avenue and 11th street	Box	~~9' x 4'~~ 7'W x 4'-6'H RCB
Termino Avenue and Anaheim Street	Box	6'W x 4'H
Anaheim Street	Pipe	48" RCP

3-12 *Second paragraph under heading 'Storm Drain to Marine Stadium' (formerly Section 2.4.1) has been revised as follows:*

The outlet structure at Marine Stadium would consist of a double box culvert. Figure 3-5 shows a rendering of the proposed Marine Stadium outlet structure. ~~The width of the proposed outfall opening would be approximately 25 feet at the head wall.~~ The width of the outlet structure would be approximately 22 feet at the upstream end and 30 feet at the downstream end. All parts of the outlet structure would remain within the profile of the existing rip rap. A handrail would be placed on the top of the wing wall to provide access for maintenance of the outfall. Energy dissipater blocks would be placed in the outlet opening to reduce the velocity of stormwater from the box culvert during major storm events. A woven geotextile fabric would extend into Marine Stadium from the terminus of the outlet to minimize erosion. Approximately ~~250~~ 560 cubic yards of material from the rip rap embankment of Marine Stadium would be dredged in order to construct the outlet structure. Architectural treatments for the proposed outlet structure would be compatible with the color and texture of the surrounding rip rap-lined bank.

3-12 *Third paragraph under heading 'Storm Drain to Marine Stadium' has been added:*

Storm drain construction would be underground at 7th Street and the PE right-of-way. A jacking pit would be excavated on one side of 7th Street. A receiving pit would be excavated on the other side of 7th Street. Two pipes would be hydraulically pressed from the jacking pit to the receiving pit in construction of this section of the drain. This construction method would avoid impacts to vehicular traffic on 7th Street.

3-12 *Fourth paragraph under heading 'Storm Drain to Marine Stadium' (formerly the Third paragraph under Section 2.4.1) has been revised as follows:*

Catch basin screens would be installed to capture suspended solids and water-borne litter and debris known as floatables before they enter Marine Stadium. The screens would be installed in all 89 catch basins within the storm drain system. Inspection and maintenance of the catch basins would occur after major storm events in order to ensure that the system operates efficiently. Additionally, the catch basins would be inspected and cleaned once during the summer, prior to and following a rain event, and when the

sump is 40 percent full during the winter, or as needed. Maintenance and operation of the water quality features would be undertaken by the City of Long Beach[1].

3-13 *The following paragraph was deleted from under heading 'Storm Drain to Marine Stadium' (formerly Section 2.4.1):*

~~Construction of the mainline would require removal of a one-story detached commercial structure on the southwest corner of Ximeno Avenue and 7th Street owned by the County. The building occupies approximately 1,500 square feet. The building is currently vacant and had previously been used for storage. No relocation would be required as part of the project.~~

3-14 *First paragraph under heading 'Diversion to County Sanitation Districts Sewer Line' (formerly Section 2.4.2) has been revised as follows:*

Based on discussions with the City and the County Sanitation Districts, the proposed project would include a diversion system that would divert the non-storm flows (i.e., irrigation and other sources of urban runoff) occurring north of 7th Street from the storm drain and direct them into an existing County sanitary sewer line. DPW has coordinated with the Sanitation Districts to determine the size of the system. ~~The diversion system~~ A diversion berm would be located in the mainline near ~~8th Street adjacent to the storm drain alignment~~ Roswell Avenue and the PE railway right-of-way intersection. ~~An independent low-flow parallel line would convey dry flows from the mainline at 8th Street downstream to a storage and diversion box located under the PE right-of-way at 4th Street and Park Avenue.~~

3-15 *First paragraph under Section 3.1.5 (formerly Section 2.5) has been revised as follows:*

It is anticipated that construction activities would begin in ~~April 2008~~ summer of 2009. Construction of the proposed new drainage system would occur over a period of approximately 18 to 24 months, contingent on weather conditions suitable for construction. The proposed project would be constructed in continuous operation in sections, with the longest section being approximately 1,700 feet. Construction would progress approximately 100 feet per day, and no one residential block would typically be disturbed during construction for more than approximately 3 to 5 weeks. Construction would begin ~~at the outlet and progress~~ at Marine Stadium and proceed northwesterly to ~~the upper end of the project~~ Anaheim Street. The deepest portion of the excavation would be 25 feet below ground surface in the vicinity of the 8th Street and Termino

[1] Email from Mark_Christoffels (City of Long Beach) to Dale Sakamoto (LADPW) dated July 25, 2007.

Avenue intersection. No construction other than emergency work would take place on Saturdays, Sundays, or national holidays. Construction activities would not occur before 7:00 AM or after 7:00 PM on weekdays. Table 3-2 lists the equipment that would likely be used to build the storm drain during construction.

3-15 *Table 3-2 (formerly Table 2-2) has been replaced with the following:*

Equipment Type	Pavement Demolition	Excavation	Pipe Construction and Backfill	Paving	Coffer Dam Construction
Tractor/Loader/Back-Hoe (rubber-tired)	2	2			1
Concrete/Industrial Saw	4	1			
Wheeled Loader	1	2	1	1	
Forklift					2
Crane		2			1
Skidsteer Loader	2		1		
Generators		3			
Compressor		1	1		
Cement/Mortar Mixer				4	
Grader			1		
Excavator		2			
Compactor			1		
Asphalt Paving Machine				1	
Roller				2	
Water Truck		1	1		
*Construction signs would likely be used predominately at intersections and along Termino Avenue; not all equipment is assumed to be operating 8 hours per day.					

3-16 *Sixth paragraph under Section 3.1.5 (formerly Section 2.5) has been revised as follows:*

Construction of the outlet structure in Marine Stadium would involve constructing a temporary coffer dam around the proposed construction zone, removing and replacing rip rap along the shoreline, and recontouring the rip rap shoreline to depths of minus five (–5) feet mean lower low water (MLLW) around the opening of the outlet structure~~, and dredging approximately 250 cubic yards of bayfloor~~. Construction of the temporary cofferdam would require installation of sheet piling, which would extend approximately ~~120~~ 60 feet into Marine Stadium from the edge of the existing pavement (see Figure 3-4). The temporary construction easement would extend approximately 34 feet to the north of the proposed outlet structure centerline and 48 feet south of the centerline. The temporary sheet piling would extend approximately 7 feet above the water surface elevation during construction, depending on tide levels. Dewatering, the discharge of pollutants when non-storm water or accumulated precipitation must be removed from a work location so that construction work may be accomplished, would be required during dredging and construction operations. A total of approximately 560 cubic yards of material would be removed from the embankment area of Marine Stadium. Of the 560

cubic yards, 350 cubic yards would be removed from immediately beneath the outlet structure and replaced with construction engineered fill in order to prevent seismically induced settlement. A portion of the existing rip rap would be removed and hauled to an off-site facility for recycling. Construction of the Marine Stadium outlet structure would take approximately three months. Construction-related impacts, including air quality, noise, and traffic, are discussed in this EIR in Chapters 3.6, 3.7, and 3.5 respectively.

SECTION 3.2 (FORMERLY SECTION 3.3) BIOLOGICAL RESOURCES

PAGE CLARIFICATION/REVISION

3-20 *The first paragraph under Section 3.2 has been revised as follows:*

This section evaluates existing biological resources at the site and potential impacts associated with the proposed project. Information in this section was gathered through literature review, examination of available databases, and through field reconnaissance. Field surveys for vegetation communities, rare plants, wildlife, and eelgrass were conducted from 2003 through 2005 (see Appendix A, Biological Technical Report). This information adequately reflects the existing conditions that were present at the time the notice of preparation was published for this project (May 2004). The site is located in an urbanized area and no major changes in biological resource conditions were observed or documented within the survey area ~~between~~ since project surveys began in May 2004 ~~and the completion of the field surveys in 2005 (see Appendix B, Biological Technical Report)~~. In August 2007, in anticipation of necessary project permitting, a focused assessment of potential jurisdictional waters was conducted throughout the entire study area. Based on this assessment, it was determined that waters regulated under the California Fish and Game Code are not coincident with the proposed project; however, tidal waters regulated by both USACE and CCC are present at Marine Stadium. In addition, water quality testing, including salinity and turbidity analysis, were conducted for the project. A Biological Technical Report prepared for the proposed project is included as Appendix B.

3-21 *Table 3-5 (formerly Table 3.2-1) has been revised as follows:*

Vegetation Communities	Acre(s)[3]
Marine[1]/Eelgrass[2]	~~5.75/0.13~~ 3.96/0.0189
Native landscaping	2.54
Disturbed	7.27
Developed	43.89
Ornamental	1.66
Other	0.75
Total Acres	**~~61.86~~ 60.09**

Vegetation Communities	Acre(s)[3]

1 "Marine" includes a 500-foot buffer from the outlet structure. All other acreages include a 100-foot buffer around the proposed alignment.
2 "Eelgrass" includes only eelgrass patches within "Marine."
3 Acreage includes entire survey area boundary shown on Figure 3.3-1.

3-21 *The second paragraph under heading "Marine" has been revised as follows:*

The subtidal soft bottom of Marine Stadium provides habitat for eelgrass (*Zostera marina*) beds. Eelgrass is a flowering marine plant that forms meadows in southern California embayments. This species of seagrass grows in Alamitos Bay between the ocean entrance channel and Marine Stadium at depths between 0.0 feet MLLW and -12 feet MLLW. Figure 3.3-2 maps the existing eelgrass in Marine Stadium. Eelgrass vegetation was mapped by a team of biologists consisting of a scuba-diving biologist, a surface support biologist, and a safety vessel/safety diver (CRM 2005a), using a Global Position System (GPS). The eelgrass canopy (consisting of shoots and leaves approximately two to three feet long) attracts many marine invertebrates and fishes, and the added vegetation and the vertical relief it provides enhances the abundance and the diversity of the marine life compared to areas where the sediments are barren. The vegetation also serves a nursery function for many juvenile fishes, including species of commercial and/or sportsfish value (California halibut and barred sand bass). A diverse community of bottom-dwelling invertebrates (i.e., clams, crabs, and worms) lives within the soft sediments that cover the root and rhizome mass system. Eelgrass meadows are also critical foraging centers for seabirds (such as the endangered California least tern) that seek out baitfish (i.e., juvenile topsmelt) attracted to the eelgrass cover. Eelgrass is an important contributor to the detrital (decaying organic) food web of bays as the decaying plant material is consumed by many benthic invertebrates (such as polychaete worms) and reduced to primary nutrients by bacteria. Approximately ~~0.13~~ 0.0189 acres of eelgrass habitat occur within the project study area. Marine habitat, including the eelgrass habitat and a 500-foot buffer around the outlet structure, occupies approximately ~~5.75~~ 3.96 acres of the project study area. A complete discussion of marine vegetation in the study area is included in Appendix A.

3-27 *The following text was added after the first paragraph under heading 'Reptiles and Amphibians':*

Green sea turtles have occasionally been found offshore of Orange County and Los Angeles County, north of their more common southerly range due to warmer water temperatures during El Nino periods. Green sea turtles have been reported in the San Gabriel River where they encounter the warmer, discharged waters of the power generating facilities located farther up the River. According to the Long Beach

Lifeguards and Marine Bureau staff, green sea turtles have been seen in Alamitos Bay and appear to be curious (Vivian Cook, Marine Bureau; Allen Powder, Long Beach Lifeguards pers. Com with R. Ware 27 July 2007). However, no records are kept as to where they have been seen, the time of year of occurrence, or the numbers observed. There is no evidence that these species breed in the project area.

On July 30, 2007, EDAW contacted Christina Fahy at the National Marine Fisheries Fisheries Service for additional documentation regarding the presence of green sea turtles in Alamitos Bay. The following information was provided:

> Green sea turtles have stranded in the Long Beach area; for example, in October, 2004, three green sea turtles stranded in the Belmont Shore area and one green sea turtle stranded in the Treasure Island Marina area. In addition, over the years, our office has received numerous reports of sightings of sea turtles in the area. Lastly, in October, 2006, the Long Beach Aquarium attached a satellite transmitter to a green sea turtle that had live-stranded in Long Beach. The turtle was tracked south to the San Clemente area and then turned around and headed back north to the Long Beach area, where it remained for several weeks, presumably foraging on eel grass or algae in the area.

The green sea turtle strandings described above occurred within two miles of the Marine Stadium. The nearest recorded sighting was documented using the satellite transmitter described above. Based on this data, the sea turtle was present within Alamitos Bay in October and December 2006, residing most frequently in the Long Beach Marina area. The turtle appears to have entered the Marine Stadium area on multiple occasions[2]. Although individual sightings have occurred, no resident groups have been observed within Alamitos Bay.

Although occasional green sea turtles have been observed in Alamitos Bay, the likelihood of encountering this species in the northern extreme northeast limit of the bay is relatively low. Green sea turtles' north Pacific range extends from Baja California to southern Alaska; however, turtles within this range most commonly occur south of San Diego. Juvenile turtles are rarely seen as they spend the first several years of their lives swimming in the open ocean. As juveniles, they eat plants and other organisms such as jellyfish, crabs, sponges, snails, and worms. Adult green sea turtles are mostly

[2] http://www.seaturtle.org/tracking/index.shtml?keyword=mickey (Accessed August 7, 2007)

herbivorous and spend most of their time feeding on algae in the sea and the grass that grow in shallow waters inside reefs, bays, and inlets.

Sea turtles are not known to nest along the west coast of the US; the closest known nesting grounds occur along the Pacific coast of Mexico and in the Hawaiian Islands, particularly the French Frigate Shoals, approximately 1,280 miles southeast and 2,500 miles west of the project area, respectively. This species demonstrates strong selectivity and fidelity for both nesting and feeding sites; they have been known to migrate between the same feeding and nesting sites for many generations.

3-28 *The first paragraph under heading "Mammals" has been revised as follows:*

No sensitive mammals were observed or detected within the project vicinity. Table 3 of Appendix A presents sensitive mammals that have potential to occur within the project site and include the San Diego desert woodrat, ~~and the~~ Pacific pocket mouse, Pacific Harbor seal, and California sea lion.

In general, California sea lions inhabit rocky or sandy beaches, and prefer sandy beaches to breed. They are not known to breed in man-made structures such as Marine Stadium. Outside of the breeding season they will often gather at man-made environments such as piers and buoys for protection from predators. The construction zone, however, contains no surfaces for the animals to haul out during low tide to rest and absorb heat from the sun.

Harbor seals spend their time equally between land and water. They are wary of humans and will leave if they are approached too closely. The open water of Marine Stadium hosts swimmers, rowers, and water skiers daily, and its beaches are used for picnicking and special events. The large amount of human activity in the area makes it unlikely that harbor seals would inhabit the project area. The construction zone also contains no surfaces for the animals to haul out during low tide to rest and absorb heat from the sun.

3-30 *The first paragraph under Section 3.22 has been revised as follows:*

The following provides a general description of the applicable permitting requirements for the project. Since the project would not result in the direct take of federally regulated species, USFWS consultation is not expected to occur. In addition, because the project would not substantially divert or obstruct the natural flow of, or substantially change (remove or deposit material into), the bed, channel, or bank of any river, stream, or lake, authorization under Sections 1600-1616 of the California Fish and Game Code would not apply. Regulatory requirements related to impacts to "waters of the U.S." (Section 404 and 401 of the Clean Water Act [CWA]) are included for potential impacts to Colorado

Lagoon and Marine Stadium. In addition, the California Coastal Act (CCA) and the Magnuson-Stevens Fishery Management and Conservation Act regulate activities within the Coastal Zone.

3-31 *The following heading and text has been replaced in Section 3.22:*

~~**SECTION 1600 OF THE CALIFORNIA FISH AND GAME CODE**~~

~~Under Sections 1600-1607 of the California Department of Fish and Game Code, CDFG regulates activities that would alter the flow, bed, channel, or bank of streams and lakes. The limits of CDFG jurisdiction are defined in the code as the "bed, channel or bank of any river, stream or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit." The California Code of Regulations (14 CCR 1.72) defines a stream as:~~

~~"[A] stream is a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation."~~

~~In practice, CDFG usually extends its jurisdictional limit to the top of a stream or lake bank, or outer edge of the riparian vegetation, whichever is wider. Riparian habitats do not always have identifiable hydric soils, or clear evidence of wetland hydrology as defined by the U.S. Army Corps of Engineers (ACOE). Therefore, CDFG wetland boundaries often extend beyond ACOE wetland boundaries, which sometimes include only portions of the riparian habitat adjacent to a river, stream, or lake. Jurisdictional boundaries under Sections 1600-1607 may encompass an area that is greater than that under the jurisdiction of Section 404 (Cylinder et al. 1995).~~

MARINE MAMMAL PROTECTION ACT

Under the Federal Marine Mammal Protection Act (MMPA) of 1972, *take* (defined as *harass, hunt, capture, kill or collect, or attempt to harass, hunt, capture, kill or collect*) of all marine mammals is prohibited, except as set forth in the act. The 1994 amendment of the MMPA provided certain exceptions for the take prohibitions, such as for Alaska Native subsistence and for such activities as scientific research, or the enhancement of a particular species' survival or recovery, as authorized by NOAA Fisheries. Endangered and Threatened marine mammals are also protected under the Endangered Species Act. NOAA Fisheries and the USFWS jointly administer the MMPA. NOAA is responsible for protecting whales, dolphins, porpoises, seals and sea lions. The protection of walrus, manatees, otters, and polar bears is enforced by the USFWS.

3-30 *The third paragraph under the heading 'Impact analysis BIO-1' has been revised as follows:*

Construction activities associated with the proposed project would occur in the northern limit of the bay, which is more than two miles from the entrance of Alamitos Bay. Construction activities within Marine Stadium would involve constructing a temporary coffer dam around the proposed construction zone, removing and replacing rip rap along the shoreline, and recontouring the rip rap shoreline to depths of minus five (–5) ft MLLW around the opening of the outlet structure Construction of the temporary cofferdam would require installation of sheet piling, which would extend approximately ~~120~~ 60 feet into Marine Stadium from the edge of the existing pavement (see Figure 2-4). The temporary sheet piling would extend approximately 7 feet above the water surface elevation during construction, depending on tide levels. Construction of the Marine Stadium outlet structure would take approximately three months; however, the majority of this construction would occur behind the cofferdam and would not directly affect marine resources. All construction activities would occur between the hours of 7:00 AM and 7:00 PM on weekdays only. Upon completion of the outlet structure, no additional construction activities would occur within Marine Stadium.

3-33 *The following text was added under heading 'Impact analysis BIO-1':*

As shown on Figure 3-8, eelgrass beds extend into the Marine Stadium. As discussed above, the potential for green sea turtles to occur in the project area is relatively low. However, because Alamitos Bay has a productive eelgrass system, green sea turtles may be utilizing the eelgrass beds located throughout the bay as one source of their nutritional requirements. Alamitos Bay is north of this species' typical range, so the occurrence of individuals in the Long Beach area is likely to remain low. The project area within Marine Stadium is approximately 2.5 miles from the mouth of the Bay, further decreasing the chance that this species will occur within the project area.

If, however, a green sea turtle were to be present during the one- to two-week installation period of the sheet piling for the cofferdam or the one-week removal period, it could potentially result in a behavioral modification to this species that would include a likely change in swimming behavior to avoid excessive noise or turbidity. Once the cofferdam is installed, the potential for impacts would be reduced, since the construction area would be physically separated from the marine environment. No mortality or other adverse impacts would be expected to occur as a result of any project-related activities. Furthermore, Mitigation Measures BIO-K through BIO-N, would reduce the potential for impacts to sea turtles in the unlikely event that one is present in the project area during the three-month outlet structure construction process. No significant impacts to green sea turtles would occur during construction.

Similarly, the proposed project would not have a substantial adverse effect, either directly or through habitat modifications, on California sea lions or Pacific harbor seals due to the low potential for these species to occur in the project area. In the event that either of these species is sighted within 500 meters (1,640 feet) of the construction zone, Mitigation Measure BIO-O would reduce potential impacts to a less than significant level. Accordingly, the proposed project would not have a substantial adverse effect on California sea lions or Pacific harbor seals.

No operational impacts to green sea turtles, California sea lions, or Pacific harbor seals would occur as a result of the project. As discussed in Section 3.9.3 the EIR, impacts to marine life from temporary changes in salinity levels immediately following storm events would be less than significant. In addition, the low-flow diversion system and catch basin screens that are included in the proposed project would improve overall water quality and flooding conditions in Colorado Lagoon and Marine Stadium compared to existing conditions.

3-34 *Table 3-6 (formerly Table 3.2-2) has been revised as follows:*

Vegetation/Cover Type	Permanent/Direct Impacts	Temporary Impacts
Marine/Eelgrass	~~0/0.05~~ 0/0.0008	~~5.75/0.08~~ 3.96/0.0189[2]
Native landscaping	0	2.54
Disturbed	0	7.27
Developed	0	43.89
Ornamental	0	1.66
Other	0	0.75
Total Vegetation Impacts	~~0.05~~ 0.0008	~~61.86~~ 60.09

[1] Impact calculations include a 100-foot buffer around the proposed alignment.

[2] 'Marine' includes a 500-foot buffer from the outlet structure, as shown on Figure 3-7; 'Eelgrass' includes only eelgrass patches, as shown on Figure 3-8.

3-36 *The third paragraph under heading 'Impact analysis BIO-1' has been revised as follows:*

As shown, the project would result in ~~0.05~~ 0.0008 acres of permanent impacts and ~~61.86~~ 60.09 acres of temporary impacts. The majority of the impacts would occur within disturbed and developed vegetation types, which are not considered sensitive by state or federal agencies or by the County. Impacts to these vegetation communities are not considered significant.

3-37 *The first paragraph under the heading 'Construction Impacts' has been revised as follows:*

A total of ~~0.13~~ 0.0189 acre of eelgrass is located within the outlet structure construction easement zone (see Figure ~~3-8~~ 3.3-2). Initially, all of the eelgrass would be removed once the coffer dam is constructed, the area is dredged, and the waters are pumped out of the coffer dam. Once the outlet is constructed, and the coffer dam is removed, a total of

~~0.05~~ 0.0008 acre would be permanently lost in the footprint of the outlet structure or by rip rap placed along side and in front of the structure to depths of -6 ft MLLW. The remaining ~~0.08~~ 0.0181 acre of removed eelgrass habitat within the coffer dam would be available for onsite eelgrass mitigation once the bayfloor is restored to tidal action. The loss of ~~0.13~~ 0.0189 acre of eelgrass is considered a localized, significant impact that can be mitigated to a less than significant level with the successful transplantation of eelgrass within Alamitos Bay. Mitigation measures BIO-B through BIO-E would require the replacement of eelgrass habitat directly affected by construction activities.

3-37 *The first paragraph under "Terrestrial Vegetation Communities" has been revised as follows:*

On-land construction activities would primarily affect developed and disturbed areas. All of the Long Beach Greenbelt native landscaping area within the PE right-of-way (2.54 acres) would be removed for construction of the proposed project, including planted oak trees. As part of the proposed project, at the conclusion of project construction, all impacted areas would be restored to their existing condition, including the Long Beach Greenbelt. However, short-term impacts to vegetation communities would be significant. Implementation of mitigation measure ~~BIO-K~~ BIO-P would reduce the level of impact to less than significant. Mitigation measure ~~BIO-K~~ BIO-P is provided to ensure that the native landscaping is replaced at a 1:1 ratio with the native species appropriate to the site. The remainder of the Long Beach Greenbelt project remains ruderal and disturbed; therefore, no significant impacts to these areas would occur.

3-38 *The second paragraph under "Impact Analysis Bio-3" has been revised as follows:*

Construction of the outlet structure in Marine Stadium would involve constructing a coffer dam around the proposed construction zone, removing and replacing rip rap along the shoreline, and recontouring the rip rap shoreline to depths of –5 ft MLLW around the opening of the outlet structure~~, and dredging approximately 250 cubic yards of bayfloor~~. These impacts would have a short-term adverse impact on water quality when the coffer dam is constructed, related to an increase in suspended sediment loads, and an increase of water turbidity. Resuspension of bottom sediments also has a potential to release sediment-bound contaminants back into the water column that can become available to water column and bottom-dwelling filter feeders. Impacts to water quality would be significant. Implementation of mitigation measures BIO-F through ~~BIO-K~~ BIO-J and measure BIO-P would reduce the level of impact to less than significant. ~~These short-term impacts would be minimized to a level less than significant by the implementation of BMPs and implementation of mitigation measures BIO-F through BIO-K.~~ Water quality conditions would return to ambient conditions when construction activity is completed.

3-40 *Text under Mitigation Measure BIO-B has been revised as follows:*

BIO-B A qualified marine biologist will resurvey the extent of eelgrass coincident with the construction easement to confirm the extent of eelgrass within the permanent and temporary impact areas. Based on 2005 surveys, the direct permanent and temporary impacts to marine sea grasses in Marine Stadium (i.e., 0.0189 acre total) shall be mitigated at a ratio of 1.2:1, in accordance with the Southern California Eelgrass Mitigation Policy (http://swr.nmfs.noaa.gov/hcd/policies/EELPOLrev11_final.pdf). A total of ~~0.16~~ 0.0227 acres of eelgrass will be replanted by DPW, including at least ~~0.08~~ 0.0181 acres in the temporary impact area when sediment conditions stabilize following the completion of outlet construction. The remaining ~~0.08~~ 0.0046 acres of eelgrass shall be planted within Marine Stadium or elsewhere within Alamitos Bay in a location determined by a qualified biologist. The location of eelgrass transplant mitigation shall be in areas similar to proposed outlet structure location. Factors such as, distance from project, depth, sediment type, distance from ocean connection, water quality, and currents are among those that shall be considered in evaluating potential sites. Monitoring the success of eelgrass mitigation shall be required for a period of five years in accordance with the Southern California Eelgrass Mitigation Policy. A wetland eelgrass mitigation plan shall be prepared to discuss the methods and schedule for planting eelgrass at the Marine Stadium and Alamitos Bay locations, and post-planting monitoring. In accordance with the California Coastal Commission's (CCC's) Procedural Guidance for the Review of Wetland Projects in California's Coastal Zone, the mitigation plan will include the following information, as relevant to the eelgrass mitigation sites:

1) Clearly stated objectives and goals consistent with regional habitat goals. These regional goals must identify functions and or habitats most in need of enhancement or restoration and must be as specific as possible. If the regional goals have not been identified, then the applicant and CCC staff should work with relevant federal, State, or local agencies to determine if the proposed plan is consistent with the ecology and natural resource composition of the area.

2) Adequate baseline data regarding the biological, physical, and chemical criteria for the mitigation area.

3) Documentation that the project will continue to function as a viable wetland over the long term.

4) Sufficient technical detail in the project design including, at a minimum, an engineered grading plan and water control structures, methods for conserving or stockpiling topsoil, a planting program including removal of exotic species, a list of all species to be planted, sources of seeds and/or plants, timing of planting, plant locations and elevations on the mitigation site base map, and maintenance techniques.

5) Documentation of performance standards, which provide a mechanism for making adjustments to the mitigation site when it is determined through monitoring, or other means that the enhancement or restoration techniques are not working.

6) Documentation of the necessary management and maintenance requirements, and provisions for remediation should the need arise.

7) An implementation plan that demonstrates there is sufficient scientific expertise, supervision, and financial resources to carry out the proposed activities.

8) A five-year monitoring program.

3-43 *The following new mitigation measures have been added to the Biological Resources Section:*

BIO-K A qualified marine biologist shall be on site during the construction period to monitor the potential presence of green sea turtles. The onsite biological monitor shall have the authority to halt construction operations and shall determine when construction operations can proceed.

BIO-L Construction crews and work vessel crews shall be briefed on potential for this species to be present and will be provided with identification characteristics of sea turtles, since they may occasionally be mistaken for seals or sea lions.

BIO-M In the event that a sea turtle is sighted within 500 meters (1,640 feet) of the construction zone, all construction activity shall be temporarily stopped until the sea turtle(s) is safely outside the outer perimeter of construction. The onsite biological monitor shall have the authority to halt construction operation and shall determine when construction operations can proceed.

BIO-N The biological monitor shall prepare an incident report of any green sea turtle activity in the project area and shall inform the construction manager to have his crews aware of the potential for additional sightings. The report shall be provided within 24 hours to the California Department of Fish and Game and the National Marine Fisheries Service.

BIO-O In the event that a California sea lion or a Pacific harbor seal is sighted within 500 meters (1,640 feet) of the construction zone, all construction activity shall be temporarily stopped until the sea lion(s) or seal(s) is safely outside the outer perimeter of construction. The onsite biological monitor shall have the authority to halt construction operation and shall determine when construction operations can proceed.

BIO-~~K~~P The Pacific Electric (PE) right-of-way between 7th and 8th Streets shall be replanted with native vegetation at a 1:1 ratio. A restoration and monitoring plan for the site shall be prepared and implemented at the conclusion of construction. The restoration plan shall, at minimum, include the following components:

- Prior to construction, a qualified horticulturist with experience in native plant cultivation shall supervise salvage of plants, soil, and other materials as appropriate from the Long Beach Greenbelt area in the PE right-of-way between 7th and 8th Streets. Salvaged materials shall be maintained and used in replanting of the site. Supplemental native species appropriate to the site (occurring within the Los Angeles Basin and of local genetic stock) shall be used as necessary.

- Following implementation, the restoration area shall be monitored quarterly for the first two years and biannually for three more years. Success shall be defined as 80 percent survival of container plants after two years and 100 percent survival thereafter.

SECTION 3.3 (FORMERLY SECTION 3.6) AIR QUALITY

PAGE CLARIFICATION/REVISION

3-45 *The second paragraph under heading 'Regional Climate' has been revised as follows:*

The City of Long Beach (City) is within the South Coast Air Basin (Basin), which consists of all or part of four counties – San Bernardino, Riverside, Los Angeles, and Orange – ~~all of Orange County, and the non-desert portions of Los Angeles, San Bernardino and Riverside counties~~ including some portions of what used to be the Southeast Desert Air Basin. The distinctive climate of the Basin is determined by its terrain and geographic location. The Basin is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean to the southwest and high mountains around the rest of its perimeter. The general region lies in the semi-permanent high pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light average wind speeds. The usually mild climatological pattern is interrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds.

3-42 *The first paragraph under heading 'Existing Air Quality' has been modified as follows:*

Ambient air pollutant concentrations in the County of Los Angeles are measured at 15 air quality monitoring stations operated by the SCAQMD. The nearest air quality monitoring station to the project site is in North Long Beach, approximately 5 miles northwest of the project site. The gaseous pollutants, ozone, carbon monoxide, nitrogen dioxide, and sulfur dioxide, are monitored at this site, as well as respirable particulate matter and fine particulate matter. Table ~~3-6~~ 3-7 presents a summary of the highest pollutant values recorded at these stations and compliance with federal and state standards from ~~2000~~ 2002 to ~~2004~~ 2007.

3-46 *The first paragraph under heading 'Ozone (O_3)' has been revised as follows:*

The most pervasive air quality problem in the South Coast Air Basin is high O_3 concentrations. O_3 is the principal component of smog and is formed in the atmosphere through a complex series of photochemical reactions involving volatile organic compounds (VOC) and nitrogen oxides (NO_X), which are commonly referred to as precursors of O_3 and are both considered critical in O_3 formation; NO_X includes various combinations of nitrogen and oxygen, including NO, NO_2, NO_3, etc. Significant O_3 production generally requires about three hours in a stable atmosphere with strong sunlight. O_3 is a regional air pollutant because it is transported and diffused by wind concurrent with the photochemical reaction process. Motor vehicles are the major source of ozone precursors in the air basin. During late spring, summer, and early fall, light winds, low mixing heights, and abundant sunshine combine to produce conditions favorable for maximum production of O_3. O_3 causes eye and respiratory irritation, reduces resistance to lung infection, and may aggravate pulmonary conditions in persons with lung disease. O_3 is also damaging to vegetation and untreated rubber. Control strategies for O_3 have focused on reducing emissions from vehicles, industrial processes using solvents and coatings, and consumer products. The state 1-hour ozone standard was exceeded on ~~3 days in 2000 and~~ 1 day in 2003 in Long Beach from ~~2000~~ 2002 through ~~2004~~ 2007. During that period the federal 1-hour O_3 standard was not exceeded (see Table ~~3-7~~ 3-6).

3-50 *Second paragraph under heading 'Federal Clean Air Act' has been revised as follows:*

The Transportation Project-Level Carbon Monoxide Protocol, UCD-ITS-97-21, University of California, Davis, December 1997, (Protocol) provides procedures and guidelines for use by agencies to evaluate the potential local level CO impacts of a transportation project. The Protocol provides a methodology for determining the level of analysis, if any, required on a project. ~~On April 1, 2003, the USEPA approved EMFAC 2002 for use in the State of California (USEPA 2003). As of April 3, 2003, the California Department of Transportation (Caltrans), through a notice on its web site, has~~

~~required the use of EMFAC 2002 for use in all CO Hot Spot Analysis in new projects, which require their approval (Caltrans 2003).~~

3-52 *Table 3-9 (formerly Table 3.3-3) has been replaced with the following table:*

Pollutant	Attainment Status	
	Federal	**State**
O_3 (1[a]- and 8-hour)	Severe-17 nonattainment	Nonattainment
PM_{10}	Nonattainment Serious	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment/Maintenance	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
Pb	Attainment	Attainment

[a] Federal 1-hour O_3 repealed by law with implementation of the 8-hour standard.

Sources: EPA, *The Green Book Nonattainment Areas for Criteria Pollutants*, website http://www.epa.gov/air/oaqps/greenbk/, accessed February 5, 2008; ARB, Area Designations, 2007, website http://www.arb.ca.gov/desig/adm/adm.htm, accessed February 4, 2008.

3-53 *Section 3.3.3 has been revised as follows:*

Project-related emissions were estimated by use of the URBEMIS ~~2002~~ 2007 software package, version ~~8.7~~ 9.2.4 (Jones & Stokes ~~2005~~ 2008). The emission factors and calculation methodologies contained in the URBEMIS ~~2002~~ 2007 program have been approved for use by the CARB. URBEMIS is a calculation tool designed to estimate air emissions from land use development projects based on development type and size. The model contains data that are specific for each California air basin.

Air quality impacts associated with the proposed action are caused by emissions from construction activities. Construction may affect air quality as a result of (1) construction equipment emissions, including both on-site equipment and trucks operating off-site for the import of fill and building materials and the export of demolition and grading spoils; (2) fugitive dust from grading and earth-moving; (3) emissions from vehicles driven to/from the sites by construction workers; and (4) VOC from ~~architectural coating and~~ asphalt application.

The URBEMIS program considers a typical development project to have ~~three non-overlapping sequential phases of construction: demolition, grading, and building~~ several sequential phases of construction including demolition, grading, building construction, paving etc. ~~The building phase includes separate elements for architectural coatings and paving, as well as the general use of equipment for construction of structures~~. A pipeline installation project is not a typical development project, and it is probable that

excavation, pipeline placement, backfill, and paving would all occur simultaneously during the project. The phases used for this project are coffer dam construction, pavement demolition, excavation, pipe construction and backfill and paving. ~~Therefore, the~~ The program elements are combined to evaluate reasonable worst-case conditions. Data relative to the proposed action are based on the description in Chapter 2 of this EIR and the following assumptions:

- Construction would begin in ~~April 2008~~ June 2009.
- The duration of construction would be ~~18~~ 20 months, averaging 22 days per month. While inclement weather may extend the total duration, there would be the equivalent of ~~18~~ 20 months of construction, or 396 days.
- Approximately 400 cubic yards of soil would be exported from the project site per day.
- Except for the initial and final phases, pavement demolition, excavation, pipe installation, form construction, concrete placement, backfill, and paving would often occur simultaneously, resulting in the reasonable worst-case day.
- ~~The demolition of one 1,500 square foot structure would be a short term event that, while requiring the use of construction equipment and trucks for hauling of spoils, would not add substantially to the reasonable worst case day.~~

Changes in plan layouts and area or other factors are anticipated to be within the accuracy of the estimating methodology. URBEMIS data sheets are included in this EIR as Appendix B.

3-54 *Table 3-10 (formerly Table 3.3-4) has been replaced with the following table:*

Mass Daily Thresholds		
Pollutant	**Construction**	**Operation**
NO_X	100 lbs/day	55 lbs/day
ROC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_X	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Toxic Air Contaminants (TACs) and Odor Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Hazard Index ≥ 1.0 (project increment) ~~Hazard Index ≥ 3.0 (facility-wide)~~	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	

Mass Daily Thresholds		
Pollutant	**Construction**	**Operation**
Ambient Air Quality for Criteria Pollutants [a]		
NO_2	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards:	
1-hour average	0.25 ppm (state)	
annual average	0.053 ppm (federal)	
PM_{10} 24-hour average	10.4 µg/m^3 (construction) [b] & 2.5 µg/m^3 (operation)	
annual geometric average	1.0 µg/m^3	
annual arithmetic mean	20 µg/m^3	
$PM_{2.5}$ 24-hour average	10.4 µg/m^3 (construction) [b] & 2.5 µg/m^3 (operation)	
Sulfate 24-hour average	~~25 ug/m^3~~ 1 ug/m^3	
CO	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards:	
1-hour average	20 ppm (state)	
8-hour average	9.0 ppm (state/federal)	

lbs/day = pounds per day
ppm = parts per million
ug/m^3 = micrograms per cubic meter
≥ greater than or equal to

[a] Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated.

[b] Ambient air quality threshold based SCAQMD Rule 403.

Table revision date: ~~October 2006~~ December 2007

Source: SCAQMD, *Air Quality Analysis Guidance Handbook.* Available at http://www.aqmd.gov/ceqa/hdbk.html. Accessed ~~November 20, 2006~~ March 19, 2008

3-55 *Second paragraph under heading 'Effects Found Not to be Significant' has been revised as follows:*

As discussed in the Initial Study, operation of the storm drain system would be passive (it would not require the routine or daily use of machinery or personnel to operate), except for periodic cleaning of the storm drain catch basin screens, the operation of the pumps to divert flows collected north of 7th Street to the sanitary sewer system, and intermittent trips by maintenance personnel to check system facilities. Emissions from these activities would be negligible and would not trigger any of the applicable operations thresholds. Accordingly, there would be no air quality emissions impact from operations. For example, the project would not create or contribute to a non-stationary sources "hot spot" since no operational vehicle trips would occur. Likewise, the project would not conflict with or obstruct implementation of the applicable air quality management plan as no housing or job growth would occur and no long-term emissions would be attributed to the project. Accordingly, the following impact analysis discusses potential impacts associated with construction of the proposed project only. Additionally, the proposed project would not result in any construction or operational activities that would generate objectionable odors. Therefore, impacts associated with odors are not discussed further.

3-56 *Third paragraph under heading 'Impact Analysis AIR-1' has been revised as follows:*

Construction emissions provided in Table ~~3.6-5~~ 3-11 were calculated in accordance with the methodology described above. The proposed project would be required to adhere to the requirements of SCAQMD Rule 403 for dust abatement as part of their construction permits. SCAQMD Rule 403 includes dust abatement requirements to ensure the inclusion of best management practices for addressing construction-related dust. However, as shown in the table, estimated emissions of NO_X for the maximum day of activity are ~~292~~ 111 pounds, which would exceed the 100 pound per day threshold. Estimated emissions of the other four pollutants, VOC, CO, PM_{10}, and $PM_{2.5}$ would be less than the applicable thresholds. The exceedance of the NO_X emissions threshold would be a significant impact. However, mitigation ~~measures~~ measure AIR-A ~~and AIR-B are~~ is included below to reduce impacts from NO_X~~. However, emissions of NOX during project construction would remain above~~ below the SCAQMD CEQA significance thresholds.

3-56 *Table 3-11 (formerly Table 3.3-5) has been replaced with the following table:*

TABLE 3-11 ESTIMATED REGIONAL CONSTRUCTION EMISSIONS – TERMINO AVENUE DRAIN

Activity	Estimated Pollutant Emissions (lbs/day)					
	ROG	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Coffer Dam Construction	2	17	16	<1	1	1
Pavement Demolition[1]	1	4	5	<1	1	1
Excavation[2]	8	63	33	<1	58	15
Pipe Construction and Backfill[3]	5	50	21	<1	17	5
Paving	1	5	5	<1	<1	<1
Overlap: Coffer Dam Construction, Pavement Demolition, Excavation, Pipe Construction and Backfill	16	**134**	75	<1	77	21
Overlap: Pavement Demolition, Excavation, Pipe Construction and Backfill, Paving	14	**121**	64	<1	76	20
Daily Thresholds for Construction Emissions	*75*	*100*	*550*	*150*	*150*	*55*
Exceeds Threshold?	*No*	***Yes***	*No*	*No*	*No*	*No*

Bold = exceeds threshold

[1] Assumptions: 80 cubic feet of pavement demolition per day

[2] Assumptions: 400 cubic yards of cut/fill per day, 20 round trips per day, hauling distance = 20 miles

[3] Assumptions: 20 round trips per day for concrete hauling - distance 20 miles

3-57 *Text and tables under heading 'Impact Analysis AIR-3' has been revised as follows:*

In order to minimize efforts for detailed dispersion modeling, SCAQMD developed screening (lookup) tables to assist lead agencies with a simple tool for evaluating impacts from small typical projects. The use of LST lookup tables is limited to projects that are 5

acres or smaller in size, with operations during the day, limited to 8 hours of operations, and with emissions distributed evenly across the proposed site. ~~The~~ Since the Termino Avenue Drain project ~~meets these criteria~~ would not have construction activities occurring on an area larger than 5 acres at a time, ~~and~~ the look-up tables were used for analysis. The screening tables require the following information:

- **The area of the project site.** The lookup tables provide data for 1, 2, and 5-acre sites. Because the site is linear, and any single receptor would be exposed to construction activities on a limited duration when construction is in the immediate vicinity of the receptor, a 1-acre area was selected. This size would represent, for example, a work area 15 meters (50 feet) wide by 244 meters (800 feet) long.

- **Maximum daily emissions of CO, NO_X, PM_{10}, and $PM_{2.5}$, in pounds per day.** These data were calculated with the URBEMIS ~~2002~~ 2007, version ~~8.7~~ 9.2.4 model, as described above. Unlike the regional emissions calculations, simultaneous construction activities would not occur in a 1-acre area near a receptor. ~~Two scenarios were~~ The worst case scenario was examined: ~~trenching, pipe installation, and backfill, which~~ excavation would produce the greatest amount of CO, ~~and~~ NO_X, ~~and road building, which would produce the greatest amount of~~ PM_{10}, and $PM_{2.5}$. In the LST analysis, only on-site emissions are considered; thus, off-site emissions, such as haul trucks and worker commuting are not included. The URBEMIS data sheets are included in Appendix B to this EIR.

- **Distance from the boundary of the project to the nearest off-site receptor.** The look-up tables analyze distances of 25, 50, 100, 200, and 500 meters (82, 164, 328, 656, and 1,640 feet) from the boundary of the project to the nearest off-site receptor. The closest receptors to the project site are residences adjacent to the storm drain corridor, less than 25 meters (82 feet) away. The LST methodology states that projects with boundaries located closer than 25 meters (82 feet) from the nearest receptors should use the values for the distance of 25 meters (82 feet) away.

- **Geographic location of the construction site in terms of district source/receptor area (SRA).** These data are required because emissions thresholds are based on local pollutant measurements and meteorology. The proposed project is located in SRA 4 – South Coastal Los Angeles County.

Construction emissions for the LST analysis were calculated in accordance with the methodology described above. Results are shown in Table ~~3-12~~ 3-6. According to the SCAQMD methodology, "if the calculated emissions for the proposed construction or operational activities are below the LST emission found on the LST lookup tables, then the proposed construction or operation activity is not significant" (SCAQMD 2005d). ~~As~~

~~seen from Table 3-12, all emissions values would be less than the LST thresholds. Accordingly, impacts from local emissions of the proposed project to sensitive receptors would not be significant.~~

TABLE 3-12 LOCAL PROJECT EMISSIONS

Pollutant		Maximum Daily Emissions[1] lbs/day	LST Threshold[2] lbs/day	Exceed threshold?
NO_X		~~54.1~~ 48.55	125/100[3]	No
CO		~~54.4~~ 24.05	~~417~~ 449	No
PM_{10}	Unmitigated	~~2.1~~ 57.57	4	~~No~~ Yes
	Mitigated	19.58		
$PM_{2.5}$	Unmitigated	~~1.7~~ 14.06	4 3	~~No~~ Yes
	Mitigated	6.13		

[1] See URBEMIS data sheets, Appendix B; greatest values from the two scenarios described above.
[2] LST thresholds from SCAQMD 2005d.
[3] LST thresholds for NO_X are higher than SCAQMD mass emissions thresholds; therefore the lower numbers, which are the mass emissions thresholds, apply.

As shown in Table ~~3-12~~ 3-6, PM_{10} and $PM_{2.5}$ emissions would exceed the LST thresholds. The mitigated PM emissions in Table ~~3-11~~ 3-6 represent emissions after dust mitigation allowed by URBEMIS. As mentioned above, the project would comply with SCAQMD Rule 403 for dust control. Not all measures included in Rule 403 can be quantified in URBEMIS; therefore, the emission reductions would likely be greater than those shown above. Additionally, excavation activities would not occur near a particular receptor for more than 1 to 2 days, before construction activities are completed. Thus, the LST analysis for the Termino Project is not representative of a construction project where receptors would be exposed to construction emissions for a longer period. Although impacts from local emissions of the proposed project to sensitive receptors would likely be less than indicated in the above table, because the daily emissions would exceed the LST thresholds, impacts would be significant and unavoidable.

3-59 *Text under Mitigation measure AIR-A has been revised as follows:*

The ~~project~~ contractor shall provide a plan, for approval by the Los Angeles County Department of Public Works, demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average ~~20~~ 25 percent NO_X reduction ~~and 45 percent particulate reduction~~ compared to the most recent CARB fleet average at time of construction. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.

The construction contractor shall submit to the Los Angeles County Department of Public Works a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. The inventory shall include the horsepower rating, engine production year, and projected hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the construction contractor shall provide DPW with the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman.

All property owners within 300 feet of the proposed storm drain construction zone shall be notified, in writing, of the proposed construction schedule. Contact information for questions or to report air quality violations shall be provided, including phone numbers for the project's Department of Public Works inspector, area engineer, and office engineer. The notification, by standard mail, shall be delivered at least two weeks prior to the start of work.

3-60 *The following mitigation measure AIR-B has been added to Section 3.3.4:*

AIR-B The construction contractor shall ensure that all excavation sites and excavated soil shall be watered to ensure that the soil is wet to minimize dust plumes. Haul trucks shall be covered when loaded with fill. Open storage piles shall have water applied once per hour or shall be covered to prevent fugitive dust plumes beyond the project boundary.

3-60 *Text under Section 3.3.5 (formerly Section 3.6.5) has been revised as follows:*

The application of mitigation ~~measures~~ measure AIR-A ~~and AIR-B~~ would reduce NO_X emissions~~; however, emissions of NOX during project construction would remain above~~ below the SCAQMD CEQA significance thresholds. ~~Accordingly, impacts associated with NO_x emissions would be significant and unavoidable~~. However, although implementation of Rule 403 and Mitigation Measure AIR-B would reduce LST impacts associated with PM_{10} and $PM_{2.5}$ emissions, they would still exceed the maximum daily emissions thresholds and impacts would remain significant and unavoidable.

Tables 3-7 and 3-11 (formerly Tables 3.3-1 and 3.3-5 respectively) have been replaced with the following revised tables:

TABLE 3-7 AMBIENT AIR QUALITY DATA SUMMARY (2000-2004)[1]

Pollutant	Averaging Time	Federal Primary Standards	California Air Quality Standards	Maximum Concentrations[2]					Number of Days Exceeding Federal Standard[3]					Number of Days Exceeding State Standard[3]				
				2002	2003	2004	2005	2006	2002	2003	2004	2005	2006	2002	2003	2004	2005	2006
O_3	1 hour	0.12 ppm[4]	0.09 ppm	0.084	0.099	0.090	0.091	0.081	0	0	0	0	0	0	1	0	0	0
	8 hours	0.08 ppm	0.070 ppm	0.064	0.068	0.074	0.069	0.058	0	0	0	0	0	--	--	--	--	--
CO	1 hour	35 ppm	20 ppm	6	6	4	4	4	0	0	0	0	0	0	0	0	0	0
	8 hours	9.0 ppm	9.0 ppm	4.56	4.66	3.36	3.51	3.36	0	0	0	0	0	0	0	0	0	0
NO_2	1 hour	None	0.18 ppm	0.130	0.14	0.12	0.14	0.10	--	--	--	--	--	0	0	0	0	0
	Annual	0.053 ppm	0.030ppm[5]	0.026	0.029	0.028	0.024	0.022	0	0	0	0	0	--	--	--	--	--
PM_{10}	24 hours	150 µg/m3	50 µg/m^3	74	63	72	66	78	0	0	0	0	0	5	4	4	4	5
	Annual	Revoked	20 µg/m^3	36	32	33	30	31	--	--	--	--	--	1	1	1	1	1
$PM_{2.5}$	24 hours	35 µg/m3	None	62.7	115.2	66.6	53.8	58.5	0	3	1	0	0	--	--	--	--	--
	Annual/AAM	15 µg/m3	12 µg/m3	19.5	18.0	17.8	16.0	*	1	1	1	1	1	1	1	1	1	*
SO_2	24 hours	.14 ppm	.04 ppm	0.008	0.008	0.013	0.010	0.010	0	0	0	0	0	0	0	0	0	0

Source: CARB 2007; SCAQMD 2007

Notes:

[1] Data are from the SCAQMD monitoring station located in North Long Beach.

[2] Concentration units for ozone, carbon monoxide, nitrogen dioxide, and sulfur dioxide are in parts per million (ppm). Concentration units for PM_{10} are in micrograms per cubic meter (µg/m^3).

[3] For PM_{10}, calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year. For annual standards, a 1 means the standard was exceeded.

[4] The federal 1-hour ozone standard was revoked in June 2005.

[5] The nitrogen dioxide ambient air quality standard was amended to lower the 1-hr standard to 0.18 ppm and establish a new annual standard of 0.030 ppm. These changes became effective March 20, 2008

na = data not available

"*" = there were insufficient data to determine the value

TABLE 3-11 ESTIMATED REGIONAL CONSTRUCTION EMISSIONS – TERMINO AVENUE DRAIN[1]

Activity	Estimated Pollutant Emissions (lbs/day)					
	ROG	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Coffer Dam Construction	2	17	16	<1	1	1
Pavement Demolition[1]	1	4	5	<1	1	1
Excavation[2]	8	63	33	<1	58	15
Pipe Construction and Backfill[3]	5	50	21	<1	17	5
Paving	1	5	5	<1	<1	<1
Overlap: Coffer Dam Construction, Pavement Demolition, Excavation, Pipe Construction and Backfill	16	**134**	75	<1	77	21
Overlap: Pavement Demolition, Excavation, Pipe Construction and Backfill, Paving	14	**121**	64	<1	76	20
Daily Thresholds for Construction Emissions	75	100	550	150	150	55
Exceeds Threshold?	No	**Yes**	No	No	No	No

Bold = exceeds threshold

[1] Assumptions: 80 cubic feet of pavement demolition per day

[2] Assumptions: 400 cubic yards of cut/fill per day, 20 round trips per day, hauling distance = 20 miles

[3] Assumptions: 20 round trips per day for concrete hauling - distance 20 miles

SECTION 3.4 (FORMERLY SECTION 4.0) IMPACT OVERVIEW

PAGE CLARIFICATION/REVISION

3-60 *Section 3.4.1 has been revised as follows:*

This section is prepared in accordance with Section 15126.2(b) of the *CEQA Guidelines*, which requires the discussion of any significant environmental effects that cannot be avoided if a project is implemented. These include impacts that can be mitigated but cannot be reduced to a less than significant level. An analysis of environmental impacts caused by the proposed project has been conducted and is contained in this EIR. Eleven issue areas were analyzed in detail in Chapter 3. Two issues have been found to result in significant unavoidable adverse impacts – Air Quality (construction NO_x) and Noise (construction noise and vibration). <u>The project would also result in significant unavoidable cumulative impacts related to air quality, as discussed in Section 3.4.3 below.</u>

3-66 *First paragraph under heading 'Biological Resources' has been revised as follows:*

The project site is situated in a heavily urbanized area and is not linked to any migration corridors, significant ecological areas, or other protected natural areas. The one-mile

cumulative project radius adequately captures the past, present, and probable future projects that would potentially contribute to cumulative biological resource impacts. Related projects are unlikely to result in significant impacts to biological resources due to the disturbed and/or developed condition of the area. After construction of the project, the Pacific Electric (PE) right-of-way would be restored to its existing condition. Impacts to terrestrial habitats along the right-of-way would be mitigated to less than significant levels and no impacts to regionally significant resources would occur. The analysis in Chapter 3.3, Biological Resources, evaluates impacts to marine biological communities in Marine Stadium and Colorado Lagoon. Mitigation measures are also provided for the proposed project to replace the affected eelgrass habitat in Marine Stadium, as well as to prevent impacts to sea turtles, Pacific harbor seals, and California sea lions.

3-67 *The following text has been added under heading 'Air Quality':*

Global Climate Change

As discussed in Section 3.6, Air Quality, climate change is a global problem, and GHGs are global pollutants, unlike criteria air pollutants and TACs, which are pollutants of regional and local concern, respectively. Human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for an enhancement of the Greenhouse Effect, which have led to a trend of unnatural warming of the Earth's climate, known as global warming or global climate change (Ahrens 2003). Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with industrial/manufacturing, utility, transportation, residential, and agricultural sectors (California Energy Commission 2006). Because every nation is an emitter of GHGs, and therefore makes an incremental cumulative contribution to global climate change, cooperation on a global scale will be required to reduce the rate of GHG emissions to a level that can help slow or stop human-caused increase in average global temperatures and associated changes in climatic conditions. As such, this issue is discussed in a cumulative context only.

As discussed in Section 3.6, operation of the storm drain system would be passive (it would not require the routine or daily use of machinery or personnel to operate), except for periodic cleaning of the storm drain catch basin screens, the operation of the small electric pumps to divert flows collected north of 7th Street to the sanitary sewer system, and intermittent trips by maintenance personnel to check system facilities. Emissions from these activities would be minimal and would be similar to those required for the current storm drain system. As such, operational emissions would not trigger any of the applicable operations thresholds. Accordingly, GHG emissions associated with the proposed project are focused on the 18- to 24-month construction period. Additionally,

completion of the Termino Avenue Drain project would allow the City to proceed with the planned greenbelt restoration project, which would result in the creation of new vegetation and trees in an area currently consisting of vacant dirt corridors. Using sunlight for energy, trees and other green plants take one of the dominant GHGs, carbon dioxide, out of the atmosphere and store the carbon safely while releasing oxygen in the process.

Short-term sources of project-generated GHG emissions would be the off-road construction equipment and on-road vehicles used for site preparation, grading, and construction of the site facilities. The combustion of gasoline and diesel fuel results in the generation of CO_2, methane, and nitrous oxide. As such, construction of the proposed project would generate emissions that would exceed existing levels and contribute to global warming impacts. Specifically, the project would generate 2,561 tons of CO_2 emissions. Implementation of mitigation measure AIR-A during construction would reduce the proposed project's contribution of GHG emissions. In addition, at least 50 percent of the site materials would be recycled or salvaged in accordance with AB 939 further reducing the proposed project's contribution to GHG emissions during construction activities.

On September 27 2006, Governor Arnold Schwarzenegger signed AB 32, which requires the CARB to monitor and reduce greenhouse gas emissions. Specifically, AB 32 requires the CARB to:

- Establish a statewide greenhouse gas emissions cap for 2020, based on 1990 emissions by January 1, 2008.
- Adopt mandatory reporting rules for significant sources of greenhouse gases by January 1, 2008.
- Adopt a plan by January 1, 2009 indicating how emission reductions will be achieved from significant greenhouse gas sources via regulations, market mechanisms and other actions.
- Adopt regulations by January 1, 2011 to achieve the maximum technologically feasible and cost-effective reductions in greenhouse gases, including provisions for using both market mechanisms and alternative compliance mechanisms.
- Convene an Environmental Justice Advisory Committee and an Economic and Technology Advancement Advisory Committee to advise CARB.
- Ensure public notice and opportunity for comment for all CARB actions.

- Prior to imposing any mandates or authorizing market mechanisms, requires CARB to evaluate several factors, including but not limited to: impacts on California's economy, the environment, and public health; equity between regulated entities; electricity reliability, conformance with other environmental laws, and to ensure that the rules do not disproportionately impact low-income communities.

- Adopt a list of discrete, early action measures by July 1, 2007 that can be implemented before January 1, 2010 and adopt such measures.

As of this writing, there are no adopted Federal plans, policies, regulations or laws addressing global warming. Further, although the California Global Warming Solutions Act of 2006 provides new regulatory direction towards limiting GHG emissions, no air districts in California, including SCAQMD, have a recommended emission threshold for determining significance associated with GHGs from development projects. To date there is little guidance regarding thresholds for construction impacts and there are no local, regional, state, or federal regulations to establish a criterion for significance to determine the cumulative impacts of GHG emissions on global warming. Therefore, in the absence of defined regulation, DPW has conservatively determined that for the purposes of this EIR, the proposed project's contribution to GHG emissions would be significant. Mitigation measure AIR-A would reduce the project's contribution to global climate change; however, given the magnitude of the impact (2,561 tons of CO2 emissions), the impacts would remain significant and unavoidable.

GRAPHICS

Several EIR figures have been revised to reflect the following changes to the proposed project: deletion of the mainline splitter structure; addition of the mainline diversion berm; relocation of the low flow pump station; and changes to the construction process at 7th Street. The revised figures are listed below and are included in the respective sections of the Final EIR.

FIGURES

Figure 3-2 (formerly Figure 2-2) Project Location

Figure 3-3 (formerly Figure 2-3) Existing Land Uses in the Project Vicinity

Figure 3-4 (formerly Figure 2-4) Termino Avenue Storm Drain Alignment

Figure 3-5 (formerly Figure 2-5) Rendering of Proposed Outlet Structure

Figure 3-6 (formerly Figure 2-6) Related Projects

3 RECIRCULATED DRAFT EIR SECTIONS

The Recirculated Draft EIR has been prepared by DPW in conformance with CEQA Guidelines Section 15088.5. Since circulation of the original Draft EIR, the project description has been revised and new information regarding the potential for green sea turtles to occur within the project area has been identified. In addition, supplemental information related to air quality and global climate change is provided in this EIR. These sections reflect the clarifications and modifications detailed in Section 2. Pursuant to CEQA Guidelines Section 15088.5(f)(2), DPW requests that you limit your comments to only the material contained in the following sections.

3.1 PROJECT DESCRIPTION

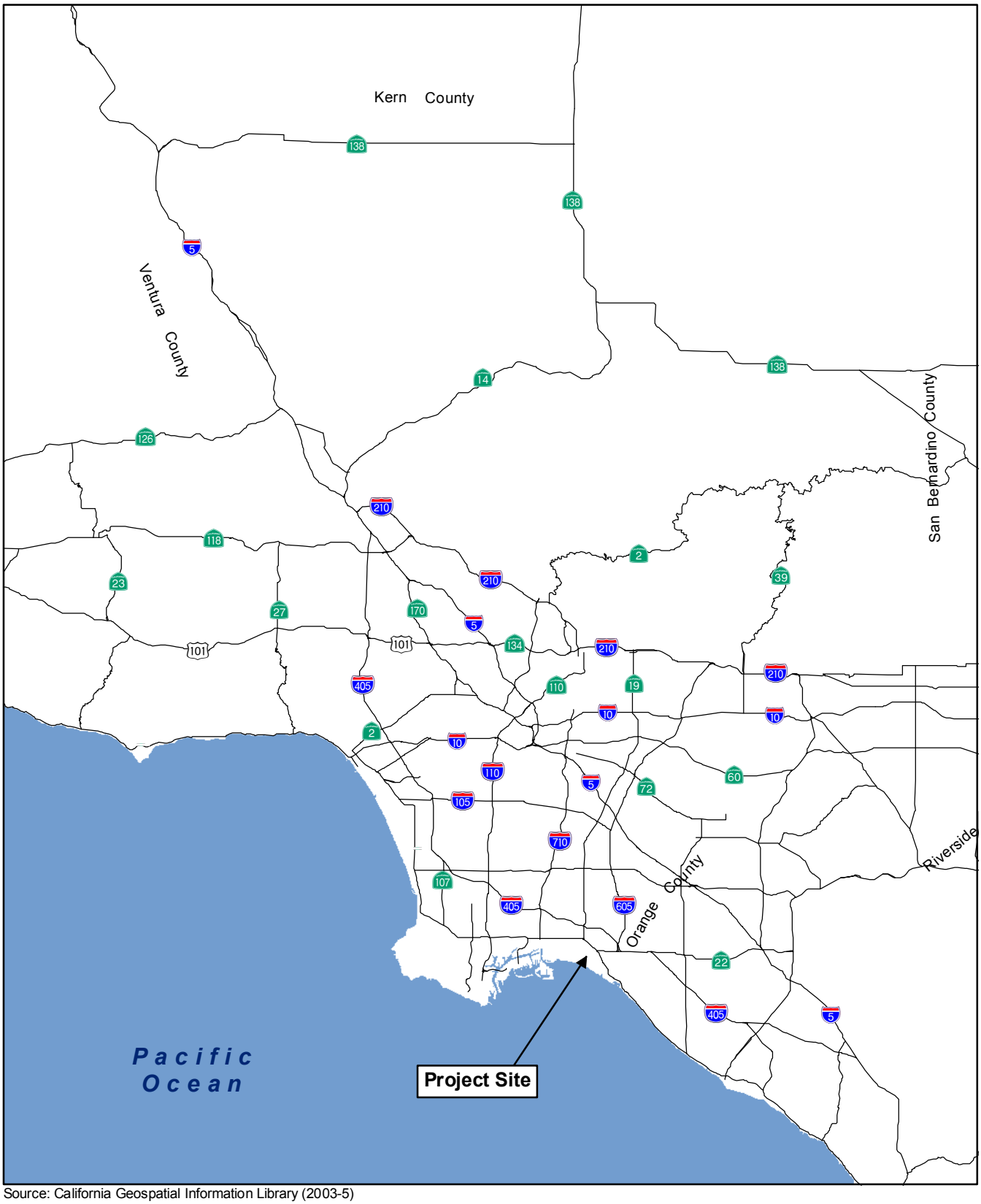
This chapter describes the project location and setting, the project background, the objectives of the project, the project components and construction requirements, the intended uses of the EIR, project approvals required, and a list of related projects. This information is provided pursuant to the *CEQA Guidelines*, Section 15124.

3.1.1 PROJECT LOCATION AND SETTING

The proposed project is located in southern Los Angeles County within the City of Long Beach (Figure 3-1). The City occupies approximately 50 square miles and has an estimated population of 461,522 (U.S. Census Bureau 2000). The topography of Long Beach is generally flat with scattered rolling hills.

The proposed storm drain alignment generally falls within existing roads and a former Pacific Electric (PE) Railway right-of-way (Figure 3-2). The mainline of the proposed project would run along Anaheim Street, southerly on Termino Avenue between 8th Street and 11th Street, along the PE right-of-way, across several streets, and along Appian Way, terminating at Marine Stadium. A lateral storm drain would extend from Termino Avenue along the PE right-of-way across several streets and terminate on Redondo Avenue just north of Anaheim Street. Other short lateral drains would connect to the mainline along 4th Street, 6th Street, 7th Street, 8th Street, Park Avenue, and Termino Avenue. The project area is shown on the USGS 7.5 Minute Topographic Long Beach quadrangle. The project area is generally flat with a slight slope toward Alamitos Bay to the southeast.

A land use map of the project area is provided on Figure 3-3. Land uses adjacent to the storm drain alignment are primarily residential. Commercial businesses are located at several of the street intersections that would be crossed by the proposed storm drain, including East Anaheim Street and East 11th Street. The alignment passes west of Colorado Lagoon, a V-shaped water body of approximately 40 acres, which is connected to Marine Stadium to the southeast by a tidal culvert. Recreation Park, a City park and golf course, is located north of Colorado Lagoon. The proposed outlet structure at Marine



Source: California Geospatial Information Library (2003-5)

N

1 inch equals 12 miles

0 3 6 12 18 24 Miles

Figure 3-1
Regional Location Map

Source: City of Long Beach, 2004; California Geospatial Information Library (CalGIS), 2003-2005

N

1 inch equals 0.5 mile

0 0.25 0.5 1 Miles

Figure 3-2
Project Vicinity Map

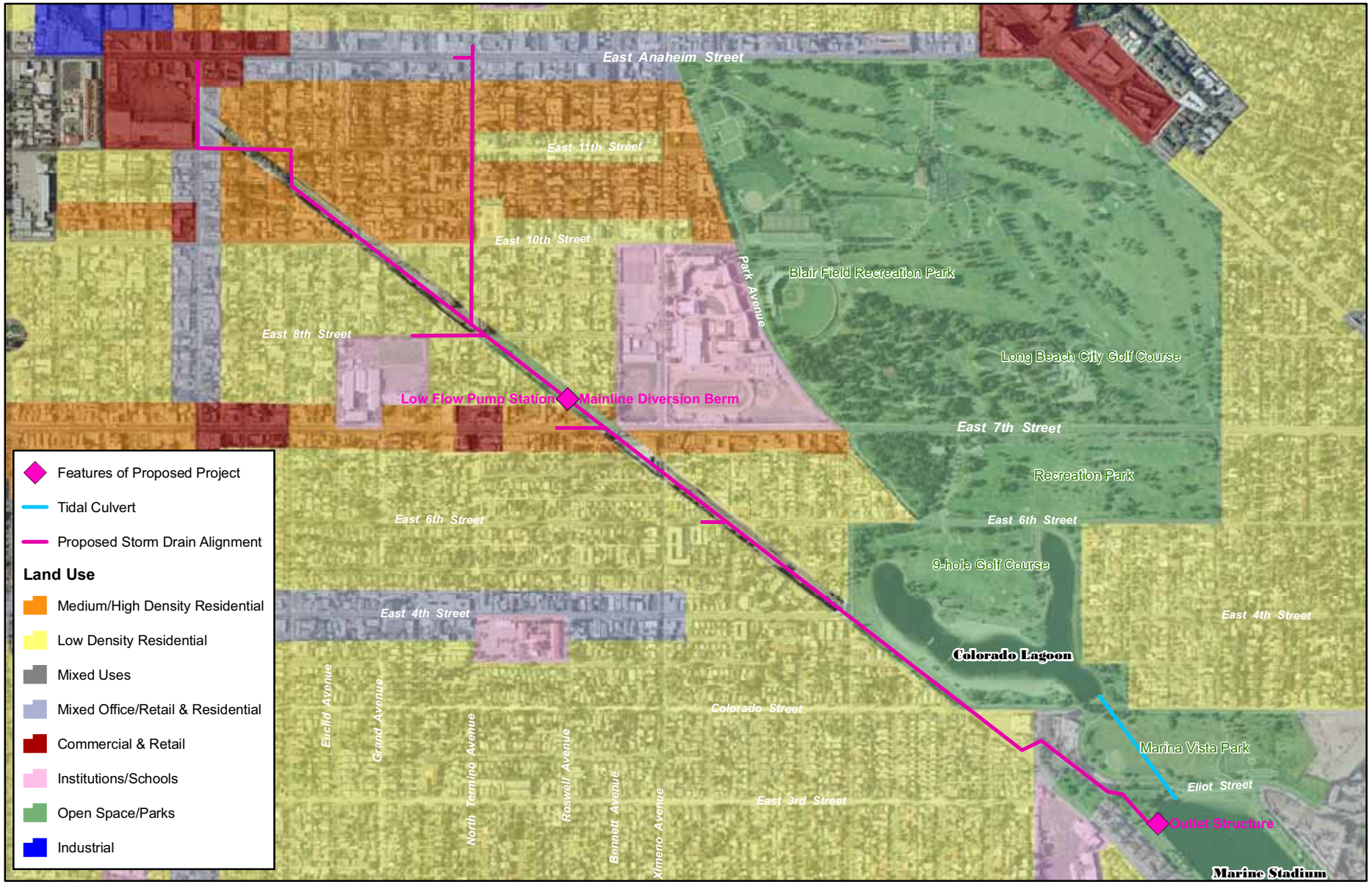


Figure 3-3
Existing Land Use

Stadium is surrounded by residential and open space land uses. Marine Stadium is a mile-long rectangular inlet within Alamitos Bay, which outlets to the Pacific Ocean.

There are four elementary schools, two middle schools, and one high school located within ¼ mile of the proposed alignment: Lowell Elementary School (5201 East Broadway Avenue), located approximately 0.16 mile southwest of the termination of the alignment at Marine Stadium; John C. Fremont Elementary School (4000 East 4th Street), located approximately ¼-mile southwest of the alignment's intersection with Ximeno Avenue; Bryant Elementary School (4101 East Fountain Street), located approximately 0.12 mile northeast of the termination of the Termino Avenue lateral at Anaheim Street; Willard Elementary School (1055 Freeman Avenue), located approximately 0.15 mile west of the termination of the alignment at Redondo Beach Avenue and Anaheim Street; Will Rogers Middle School (356 Monrovia Avenue), located 0.1 mile west of the termination of the alignment at Marine Stadium; Jefferson Middle School (750 Euclid Avenue), located approximately 0.12 mile southwest of the intersection of the main storm drain alignment and the Termino Avenue lateral; and Woodrow Wilson High School (4400 East 10th Street); located approximately 0.2 mile northeast of alignment.

3.1.2 PROJECT BACKGROUND

The proposed project area is located in the southern portion of the San Gabriel River watershed, which has historically experienced flooding problems. In 1995, severe flooding of up to 5 feet caused extensive property damage in the southern portion of the watershed. Portions of the watershed are located in a special flood hazard area as designated by the Federal Emergency Management Agency (FEMA). In 1983, the City amended its General Plan with the adoption of FEMA maps, which indicate the areas subject to flooding in 100- and 500-year frequency flood events. The existing drainage system in this portion of the watershed is not sufficient to convey the maximum runoff that would be generated on average once every 50 years during what is known as a 50-year flood event.

The City and County of Los Angeles, through its Department of Public Works, have been working together since 1993 to alleviate flooding problems within this portion of the San Gabriel River watershed. Previous hydrology and drainage studies recommended a storm drain system that would convey storm water flows to an outlet at Colorado Lagoon. Public concerns regarding these studies were voiced by the City and local residents during the public review period and at a series of public meetings in 1996. One prevalent concern related to the provision of adequate flood control without degrading water quality at Colorado Lagoon and Marine Stadium. In addition, meetings were conducted in January, June, and July 2000 for the purpose of presenting the status of the project and receiving additional public input. Community concerns raised at the meetings included:

- Water quality at Colorado Lagoon and Marine Stadium;
- Impacts to marine and wildlife habitat at Colorado Lagoon and Marine Stadium (i.e. birds, fish, eelgrass, and benthic organisms);

- Visual impacts associated with the size of the outfall structure(s) at Colorado Lagoon and Marine Stadium;
- Risks associated with stormwater overflowing from Colorado Lagoon and flooding adjacent properties;
- Construction effects on the community (i.e. traffic, air quality, and noise);
- Consideration of alternatives that would reduce or minimize water quality impacts to Colorado Lagoon and Marine Stadium; and
- Adequacy of mitigation measures to reduce impacts.

Based on these previous studies and community input, the County and the City revised the plans and, in 2000, identified a preferred alignment for conveying stormwater and appropriate measures for reducing pollutants from the stormwater. The alignment, similar to Alternative 2 evaluated in this EIR, resulted in storm drain discharge into Colorado Lagoon, with a low-flow bypass leading into Marine Stadium.

In February 2001, the County prepared a Mitigated Negative Declaration (MND) for the Termino Avenue Drain Project. The MND found that, with the incorporation of the recommended mitigation measures, there would be no significant environmental impacts as a result of the proposed project. Mitigation was proposed for aesthetics, biological resources, cultural resources, hazardous materials, hydrology/water quality, and noise that would reduce all potentially significant impacts to a less than significant level. The MND was approved by the County Board of Supervisors in June 2001. Following approval, the document was challenged in court by Friends of the Colorado Lagoon. The court found that the document provided inadequate CEQA analysis; consequently, the County was ordered to conduct a ". . . proper study of the baseline conditions of the tidal culvert connecting the Colorado Lagoon and the Marine Stadium." Based on the results of their May 2004 Initial Study which identified potentially significant impacts for Biological Resources and Hydrology/Water Quality, the County decided to prepare an EIR for the proposed project.

Since June 2001, when the MND was approved, a number of changes have been made to the Termino Avenue Drain Project. On April 21, 2004, the County hosted a field meeting with the California Department of Fish and Game (CDFG), US Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), Regional Water Quality Board (RWQCB), US Army Corps of Engineers (ACOE), and the Coastal Commission to solicit input regarding the two potential outlet structure locations (Colorado Lagoon and Marine Stadium). Based on agency input regarding the potential benefits and impacts associated with each alternative and subsequent analysis, the Marine Stadium option was selected by DPW as the proposed project. Instead of a storm drain system that would convey storm water flows to an outlet at the Colorado Lagoon, the proposed project would bypass Colorado Lagoon and all

storm flows would be diverted directly into Marine Stadium. The project includes a low-flow diversion and storm drain catch basin screens to improve water quality.

A comprehensive hydrology and water quality analysis has been prepared to evaluate potential project impacts to Colorado Lagoon and Marine Stadium. In addition, a detailed inspection of the tidal culvert has been completed.

3.1.3 PROJECT OBJECTIVES

The goal of the proposed project is to provide an efficient storm water drainage system that would protect the project vicinity from flooding. The primary project objectives that have been identified in support of this goal include:

- Construct a storm water drainage system suitable to convey a 50-year flood event;
- Minimize flood-related damage to properties in the low-lying portions of the sub-watershed;
- Convey non-storm flows to the Los Angeles County Sanitation Districts (Sanitation Districts) sewer treatment plant; and
- Develop feasible alternatives and mitigation measures that address watershed flooding issues.

3.1.4 PROJECT COMPONENTS

The proposed project would consist of two components intended to achieve the project objectives, as presented above. The following sections describe the construction of the storm drain to Marine Stadium and the diversion system to the County Sanitation Districts sewer line. The two changes to the proposed project that have occurred since the original Draft EIR (February 2007) include the location of the Marine Stadium outlet structure and the construction process at 7th Street. Specifically, the outlet structure has been moved slightly inland to reduce the project's effects on eelgrass. At 7th Street, tunneling is now proposed to avoid impacts to vehicular traffic.

STORM DRAIN TO MARINE STADIUM

The proposed Termino Avenue Storm Drain alignment is shown on Figure 3-4. The total length of the storm drain, including mainline and laterals, would be approximately 12,190 linear feet. The mainline would consist of 8,090 linear feet of storm drain conduit varying in size from 48-inch reinforced concrete pipe (RCP) at the upstream terminus at Termino Avenue and Anaheim Street, to 9 by 8-foot double reinforced concrete box conduit at the downstream terminus with Marine Stadium. Dimensions of the proposed conduit are shown in Table 3-1. The proposed storm drain conduit would connect to the existing drainage system at various locations. In addition to the mainline, the proposed drain would

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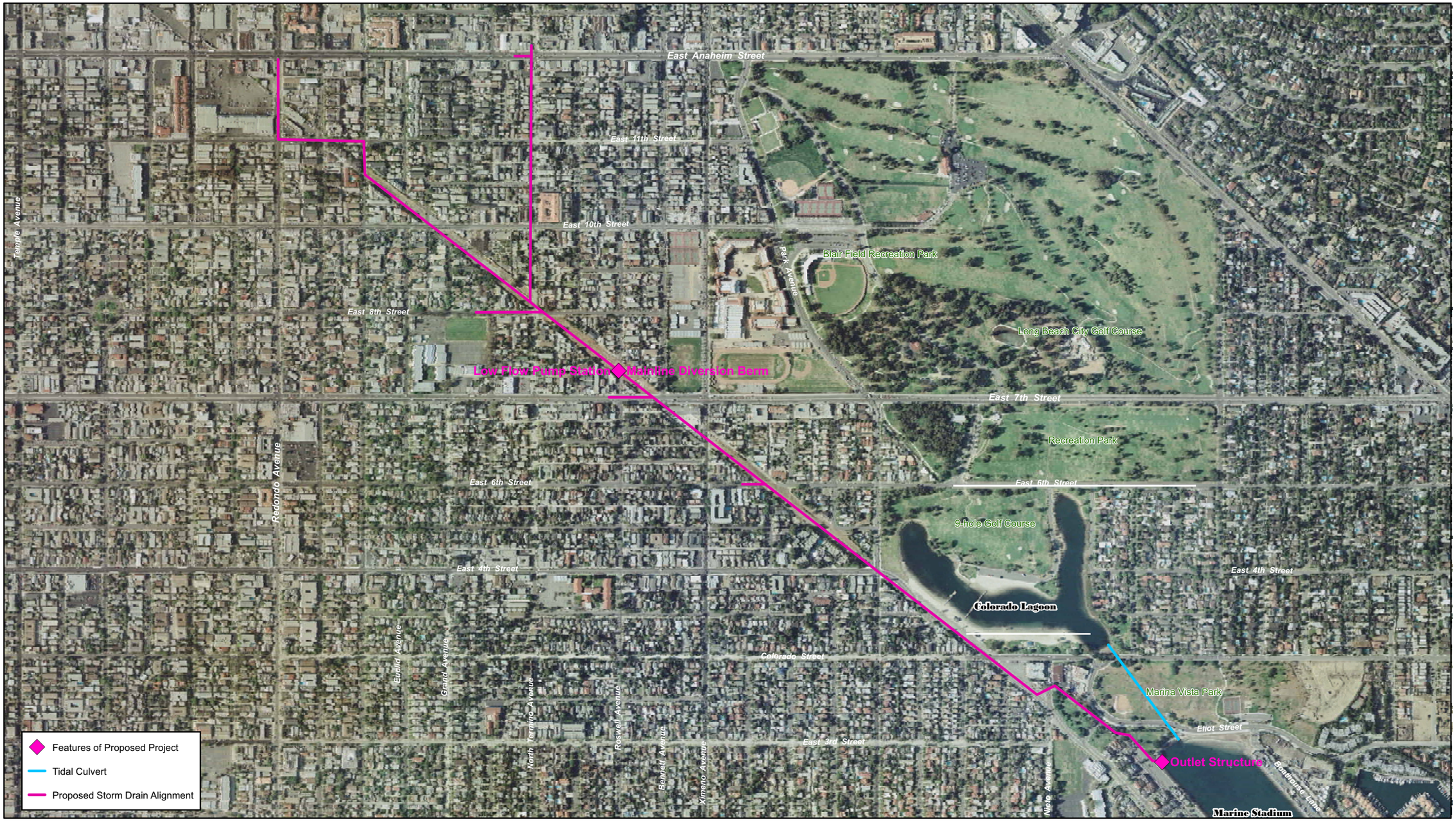


Figure 3-4
Termino Avenue Storm Drain Alignment

include a tunnel consisting of 560 feet of double pipes beneath the alignment's intersection with 7th Street and six laterals totaling 4,100 linear feet of conduit and ranging in size from 48 to 36 inches. The laterals would also be constructed of reinforced concrete pipe. The storm drain would be sized to accommodate the 50-year frequency storm of 703 cubic feet per second (cfs).

TABLE 3-1 STORM DRAIN CONDUIT DETAILS

Location	Pipe/Box	Size
Marine Stadium vicinity	Dbl Box	9'W x 8'H
Colorado Lagoon vicinity	Dbl Box	9'W x 8'H
4th Street and Park Avenue	Dbl Box	8'W x 5.5'H
PE right-of-way	Dbl Box	8'W x 5.5'H
Ximeno Avenue	Dbl Jacked Pipe	2– 72" RCP
Rosewell and PE right-of-way	Box	10'W x 5.5'H
Termino Avenue	Pipe	72" RCP
Termino Avenue and 11th street	Box	7'W x 4'-6'H RCB
Termino Avenue and Anaheim Street	Box	6'W x 4'H
Anaheim Street	Pipe	48" RCP

The outlet structure at Marine Stadium would consist of a double box culvert. Figure 3-5 shows a rendering of the proposed Marine Stadium outlet structure. The width of the outlet structure would be approximately 22 feet at the upstream end and 30 feet at the downstream end. All parts of the outlet structure would remain within the profile of the existing rip rap. A handrail would be placed on the top of the wing wall to provide access for maintenance of the outfall. Energy dissipater blocks would be placed in the outlet opening to reduce the velocity of stormwater from the box culvert during major storm events. A woven geotextile fabric would extend into Marine Stadium from the terminus of the outlet to minimize erosion. Approximately 560 cubic yards of material from the rip rap embankment of Marine Stadium would be dredged in order to construct the outlet structure. Architectural treatments for the proposed outlet structure would be compatible with the color and texture of the surrounding rip rap-lined bank.

Storm drain construction will be underground at 7th Street and the PE right-of-way. A jacking pit would be excavated on one side of 7th Street. A receiving pit would be excavated on the other side of 7th Street. Two pipes would be hydraulically pressed from the jacking pit to the receiving pit in construction of this section of the drain. This construction method would avoid impacts to vehicular traffic on 7th Street.

Catch basin screens would be installed to capture suspended solids and water-borne litter and debris known as floatables before they enter Marine Stadium. The screens would be installed in all 89 catch basins within the storm drain system. Inspection and maintenance of the catch basins would occur after major storm events in order to ensure that the system operates efficiently. Additionally, the catch basins would be inspected and cleaned once during the summer, prior to and following a rain event, and when

Figure 3-5
Rendering of Proposed Outlet Structure

the sump is 40 percent full during the winter, or as needed. Maintenance and operation of the water quality features would be undertaken by the City of Long Beach[1].

The majority of the main drain project construction would be within portions of the abandoned PE right-of-way, which is currently owned by the City. Some existing landscape features within the PE right-of-way would be replaced, including the landscaped area north of 7th Street. The main alignment would include crossings at Anaheim Street, Loma Avenue, Euclid Avenue, 11th Street, 10th Street, Termino Avenue, 8th Street, Roswell Avenue, 7th Street, Bennett Avenue, Ximeno Avenue, 6th Street, Park Avenue, Appian Way, Colorado Street, and Nieto Avenue. The alignment is shown on Figure 3-4.

DIVERSION SYSTEM TO COUNTY SANITATION DISTRICTS SEWER LINE

Based on discussions with the City and the County Sanitation Districts, the proposed project would include a diversion system that would divert the non-storm flows (i.e., irrigation and other sources of urban runoff) occurring north of 7th Street from the storm drain and direct them into an existing County sanitary sewer line. DPW has coordinated with the Sanitation Districts to determine the size of the system. A diversion berm would be located in the mainline near Roswell Avenue and the PE railway right-of-way intersection.

The sewer line has the capacity to receive a maximum of 40,000 gallons per day from the proposed project. An underground storage box and a pump unit would be constructed to temporarily store the non-storm flows diverted from the proposed project until 12:00 AM. The pump would drain the storage box daily and convey flows to the sewer between the hours of 12:00 AM and 5:00 AM, when the flows in the sewer pipe are typically at their lowest. The diversion system would include a pump station screening device, a six-inch ductile iron pipe (DIP), and other appurtenant structures. These structures would be located underground, with the exception of a small pump enclosure (approximately 4 feet high) and utility bores.

The Sanitation Districts would be responsible for treating the stormwater at existing sewage treatment plants. The City would maintain the pump station screening device, DIP, and other structures.

POST-CONSTRUCTION REVEGETATION

Installation of the mainline would result in the removal of a native landscaping area in the PE right-of-way between 7th and 8th Streets, called the Long Beach Greenbelt. Upon completion of project construction, this area would be revegetated with native species appropriate to the site (occurring within the Los Angeles Basin and of local genetic stock). To the extent feasible, plants, soil, and woody material from the areas to be impacted would be made available for salvage and use in planting efforts. Installation of the mainline would also result in the removal of the community garden at the northern end of the PE right-of-way. The garden would be replaced upon completion of the project.

[1] Email from Mark_Christoffels (City of Long Beach) to Dale Sakamoto (LADPW) dated July 25, 2007.

3.1.5 CONSTRUCTION REQUIREMENTS

It is anticipated that construction activities would begin in summer of 2009. Construction of the proposed new drainage system would occur over a period of approximately 18 to 24 months, contingent on weather conditions suitable for construction. The proposed project would be constructed in continuous operation in sections, with the longest section being approximately 1,700 feet. Construction would progress approximately 100 feet per day, and no one residential block would typically be disturbed during construction for more than approximately 3 to 5 weeks. Construction would begin at Marine Stadium and proceed northwesterly to Anaheim Street. The deepest portion of the excavation would be 25 feet below ground surface in the vicinity of the 8th Street and Termino Avenue intersection. No construction other than emergency work would take place on Saturdays, Sundays, or national holidays. Construction activities would not occur before 7:00 AM or after 7:00 PM on weekdays. Table 3-2 lists the equipment that would likely be used to build the storm drain during construction.

TABLE 3-2 CONSTRUCTION EQUIPMENT REQUIREMENTS

Equipment Type	Pavement Demolition	Excavation	Pipe Construction and Backfill	Paving	Coffer Dam Construction
Tractor/Loader/Back-Hoe (rubber-tired)	2	2			1
Concrete/Industrial Saw	4	1			
Wheeled Loader	1	2	1	1	
Forklift					2
Crane		2			1
Skidsteer Loader	2		1		
Generators		3			
Compressor		1	1		
Cement/Mortar Mixer				4	
Grader			1		
Excavator		2			
Compactor			1		
Asphalt Paving Machine				1	
Roller				2	
Water Truck		1	1		
*Construction signs would likely be used predominately at intersections and along Termino Avenue; not all equipment is assumed to be operating 8 hours per day.					

In general, the construction process for the proposed storm drain mainline and laterals would include the following components: (1) site preparation, including vegetation clearing and pavement removal; (2) excavation of the storm drain trench; (3) installation of the base material and storm drain conduit; (4) backfill and compact stockpiled material; and (5) revegetation, repavement, and/or cleaning of the area to restore alignment to previous condition. Approximately 40 percent of the construction would occur in the PE right-of-way and parking lots, with the remaining 60 percent occurring within public streets.

The project would require 10 to 20 construction workers on a daily basis. Approximately 570 truck loads of concrete would be required to construct the box conduits and outfall structure, with a maximum of 30

concrete truck deliveries daily during peak construction activity. Additional materials would be delivered to the site, such as rebar and forms, but these deliveries would not likely coincide with the delivery of concrete and would also be fewer in number. The project would require the excavation of soils and backfilling within the PE right-of-way. Demolition debris would include asphalt and concrete, which would be recycled or disposed of at certified landfills. Approximately 60 round trip loads of demolition debris would be taken to the chosen certified landfill. An estimated 20 truck loads of excavated soil would be transported from the site per day.

Construction staging for the alignment would take place mostly within the PE right-of-way, but, in some areas, staging would occur on local streets. Construction staging for the southernmost portion of the pipeline and the outlet structure into Marine Stadium would occur in the adjacent parking lot. Construction crews would implement standard Best Management Practices (BMPs) during construction and adhere to all applicable construction safety guidelines. All construction activities would conform to DPW specifications and Americans with Disabilities Act (ADA) guidelines and would be undertaken in a manner consistent with all applicable federal, state, and local regulations regarding the handling and disposal of hazardous materials.

To minimize construction impacts, a construction staging and traffic plan would be prepared by the County prior to construction. To the degree possible, staging of construction equipment and construction employee parking would occur on-site, thus eliminating the impacts along adjacent city streets. The plan would include, but is not limited to, hours of construction (limit to off-peak hours), identification of haul routes, and potential off-site parking/staging areas. All roads would maintain two-way traffic (i.e., at least one lane in each direction) during the construction phase.

Construction of the outlet structure in Marine Stadium would involve constructing a temporary coffer dam around the proposed construction zone, removing and replacing rip rap along the shoreline, and recontouring the rip rap shoreline to depths of minus five (–5) ft mean lower low water (MLLW) around the opening of the outlet structure. Construction of the temporary cofferdam would require installation of sheet piling, which would extend approximately 60 feet into Marine Stadium from the edge of the existing pavement (see Figure 3-4). The temporary construction easement would extend approximately 34 feet to the north of the proposed outlet structure centerline and 48 feet south of the centerline. The temporary sheet piling would extend approximately 7 feet above the water surface elevation during construction, depending on tide levels. Dewatering, the discharge of pollutants when non-storm water or accumulated precipitation must be removed from a work location so that construction work may be accomplished, would be required during dredging and construction operations. A total of approximately 560 cubic yards of material would be removed from the embankment area of Marine Stadium. Of the 560 cubic yards, 350 cubic yards would be removed from immediately beneath the outlet structure and replaced with construction engineered fill in order to prevent seismically induced settlement. A portion of the existing rip rap would be removed and hauled to an off-site facility for recycling. Construction of the Marine Stadium outlet structure would take approximately three months. Construction-related impacts,

including air quality, noise, and traffic, are discussed in this EIR in Chapters 3.6, 3.7, and 3.5 respectively.

3.1.6 Intended Uses of the EIR

An EIR is a public document used by a public agency to analyze the significant environmental effects of a proposed project, to identify alternatives, and to disclose possible ways to reduce or avoid environmental damage (Cal. Code Regs., Title 14, §15121). As an informational document, an EIR does not recommend approval or denial of a project. The main purpose of an EIR is to inform governmental decision makers and the public about potential environmental impacts of a proposed project.

This EIR will be used by the County Board of Supervisors, as the lead agency under CEQA, in making a decision with regard to the construction and operation of the proposed Termino Avenue Drain Project. The information in this EIR will also be used by responsible agencies and other agencies with jurisdiction, as listed below, in deciding whether to grant permits or approvals to construct or operate the proposed project.

3.1.7 Project Approvals Required

As described above, this EIR will be used by the County as a decision making tool for approval of the Termino Avenue Drain Project. Prior to implementation of the proposed project, the Los Angeles County Board of Supervisors must certify the EIR, adopt the Findings of Fact, Mitigation Monitoring Program and Statement of Overriding Considerations, and approve the various County permits required for the storm drain construction project. In addition, a series of approvals, permits, and notifications must be obtained from several federal and state, and local area regulatory agencies. The required permits and approvals for the proposed project are presented in Table 3-3.

Table 3-3 Project Entitlements and Regulatory Permits

Agency	Permit/Action
Federal	
U.S. Army Corps of Engineers	Section 404[2] and Section 10 Permit for the discharge of dredged or fill material into Marine Stadium.
State	
California Coastal Commission	Coastal Development Permit for development within a coastal zone.
California Regional Water Quality Control Board, Los Angeles Region	Construction General Permit for ground disturbing activities; Section 401 Permit for discharge of storm water into Marine Stadium; waste discharge permit for construction dewatering if groundwater is encountered during construction.

[2] This Project is part of the Nationwide Permit Program (NWP). As such, an Environmental Impact Statement is not required. The NWP program authorizes only those activities that have minimal adverse effects, individually or cumulatively. See U.S. Army Corps of Engineers' "Finding of No Significant Impact for Nationwide Permit Program" at www.usace.army.mil/cw/cecwo/reg/new98fons.htm.

Agency	Permit/Action
City	
City of Long Beach, Department of Public Works	Various ministerial approvals (e.g., utility relocation, grading, drainage, and traffic control)

3.1.8 RELATED PROJECTS

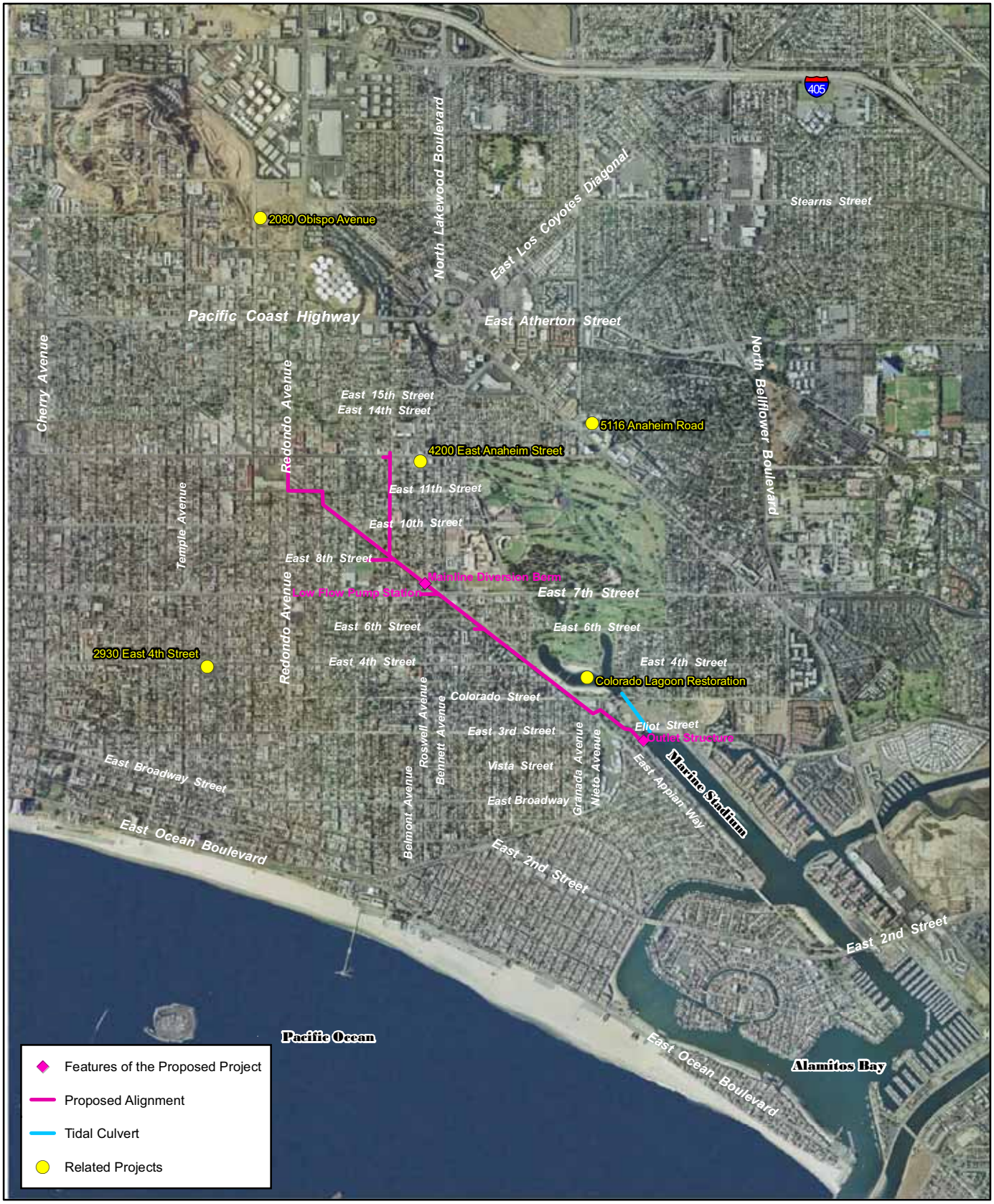
A list of related projects was compiled pursuant to Section 15130 of the *CEQA Guidelines*. The list includes related past, present, and probable future projects that, when taken together with the proposed project, could cause significant cumulative environmental impacts. This EIR includes an analysis of cumulative impacts for each environmental impact category in Chapter 4 of the Draft EIR.

Table 3-4 includes all of the approved, under construction, or reasonably foreseeable projects within one-mile of proposed Termino Avenue Drain alignment. The one-mile boundary was selected based on the location and type of the project. The list of related projects is derived from a larger City-wide list of related projects obtained by the City Planning Department. The locations of the following projects are shown on Figure 3-6, Related Projects.

TABLE 3-4 CUMULATIVE PROJECT LIST

Project No.	Address	Size	Description
1	2080 Obispo	106 units (single family homes)	Residential development project.
2	4200 E. Anaheim St.	29 units (condominiums)	Residential development project.
3	5116 Anaheim Road	34 units (attached town homes)	Residential development project
4	2930 E. 4th Street	6,200 square-feet	Commercial expansion project (Ralph's Supermarket)
5	Colorado Lagoon Restoration Project	N/A	This project includes clean-out of the existing tidal culvert that connects Marine Stadium to Colorado Lagoon, installation of a vegetated bioswale along the fenceline between Recreation Park Golf Course and Colorado Lagoon, installation of bioswales at Colorado Lagoon drain outlets, and installation of a low-flow diversion system to the sanitary sewer. The City was recently awarded $3.8 million in Proposition 40 grant funding for the project.

Source: City of Long Beach, February 6, 2007



Source: City of Long Beach, 2004; California Geospatial Information Library (CalGIS), 2003-2005

N

1 inch equals 0.5 mile

0 0.25 0.5 1 Miles

Figure 3-6
Related Projects

3.2 BIOLOGICAL RESOURCES

This section evaluates existing biological resources at the site and potential impacts associated with the proposed project. Information in this section was gathered through literature review, examination of available databases, and through field reconnaissance. Field surveys for vegetation communities, rare plants, wildlife, and eelgrass were conducted from 2003 through 2005 (see Appendix A, Biological Technical Report). This information adequately reflects the existing conditions that were present at the time the notice of preparation was published for this project (May 2004). The site is located in an urbanized area and no major changes in biological resource conditions were observed or documented within the survey area since project surveys began in May 2004. In August 2007, in anticipation of necessary project permitting, a focused assessment of potential jurisdictional waters was conducted throughout the entire study area. Based on this assessment, it was determined that waters regulated under the California Fish and Game Code are not coincident with the proposed project; however, tidal waters regulated by both USACE and CCC are present at Marine Stadium. In addition, water quality testing, including salinity and turbidity analysis, were conducted for the project. A Biological Technical Report prepared for the proposed project is included as Appendix A.

3.2.1 ENVIRONMENTAL SETTING

VEGETATION

The project site is located within existing streets and the abandoned PE railway right-of-way, which is generally heavily disturbed and/or developed. A portion of the PE right-of-way is currently a community sponsored environmental restoration project. The Long Beach Greenbelt project runs from 11th Street/Loma Avenue to 4th Street/Park Avenue along the PE right-of-way; however, habitat restoration has only occurred in one area, from 8th Street to 7th Street. A trail runs through the center of the restoration area.

The majority of the area within the proposed alignment is developed. Vegetation communities along the alignment include marine, native landscaping, developed, disturbed, and ornamental vegetation. A description of each vegetation community is provided below and the total acreage areas are presented in Table 3-5. The biological survey area included the alignment and a 100-foot buffer, with the exception of the outlet structure area, where a 500-foot buffer was included in the study area. A vegetation map showing the project boundary is shown on Figure 3-7, and a detailed eelgrass map is provided in Figure 3-8.

MARINE

The marine portion of the study area is within Marine Stadium, which was used for the 1932 Olympic rowing competition and is now used for water skiing, high performance boat racing, crew competition, and outrigger canoe competition. Marine habitats in Marine Stadium include sand beach, mudflat,

intertidal and subtidal rip rap, and subtidal soft bottom. The project area shoreline consists of protective quarry rock rip rap on the west side of Marine Stadium. A storm drain and a tidal culvert are located within this section of shoreline. This shoreline grades into a sandy beach (End Beach) on the east side of the tidal culvert, which was used as a mitigation site for eel grass. The entire length of the Marine Stadium's eastern shoreline is rock rip rap. This vegetation community and the associated acreage calculations do not include the shoreline and upland habitats of Marine Stadium, which are included below as 'Other'.

TABLE 3-5 VEGETATION COMMUNITIES AND LAND COVER TYPES[1]

Vegetation Communities	Acre(s)[3]
Marine[1]/Eelgrass[2]	3.96/0.0189
Native landscaping	2.54
Disturbed	7.27
Developed	43.89
Ornamental	1.66
Other	0.75
Total Acres	**60.09**

1 "Marine" includes a 500-foot buffer from the outlet structure. All other acreages include a 100-foot buffer around the proposed alignment.
2 "Eelgrass" includes only eelgrass patches within "Marine."
3 Acreage includes entire survey area boundary shown on Figure 3-8.

The subtidal soft bottom of Marine Stadium provides habitat for eelgrass (*Zostera marina*) beds. Eelgrass is a flowering marine plant that forms meadows in southern California embayments. This species of seagrass grows in Alamitos Bay between the ocean entrance channel and Marine Stadium at depths between 0.0 feet MLLW and -12 feet MLLW. Figure 3-7 maps the existing eelgrass in Marine Stadium. Eelgrass vegetation was mapped by a team of biologists consisting of a scuba-diving biologist, a surface support biologist, and a safety vessel/safety diver (CRM 2005a), using a Global Position System (GPS). The eelgrass canopy (consisting of shoots and leaves approximately two to three feet long) attracts many marine invertebrates and fishes, and the added vegetation and the vertical relief it provides enhances the abundance and the diversity of the marine life compared to areas where the sediments are barren. The vegetation also serves a nursery function for many juvenile fishes, including species of commercial and/or sportsfish value (California halibut and barred sand bass). A diverse community of bottom-dwelling invertebrates (i.e., clams, crabs, and worms) lives within the soft sediments that cover the root and rhizome mass system. Eelgrass meadows are also critical foraging centers for seabirds (such as the endangered California least tern) that seek out baitfish (i.e., juvenile topsmelt) attracted to the eelgrass cover. Eelgrass is an important contributor to the detrital (decaying organic) food web of bays as the decaying plant material is consumed by many benthic invertebrates (such as polychaete worms) and reduced to primary nutrients by bacteria. Approximately 0.0189 acres of eelgrass habitat occur within the project study area. Marine habitat, including the eelgrass habitat and a 500-foot buffer around the outlet structure, occupies approximately 3.96 acres of the project study area. A complete discussion of marine vegetation in the study area is included in Appendix A.

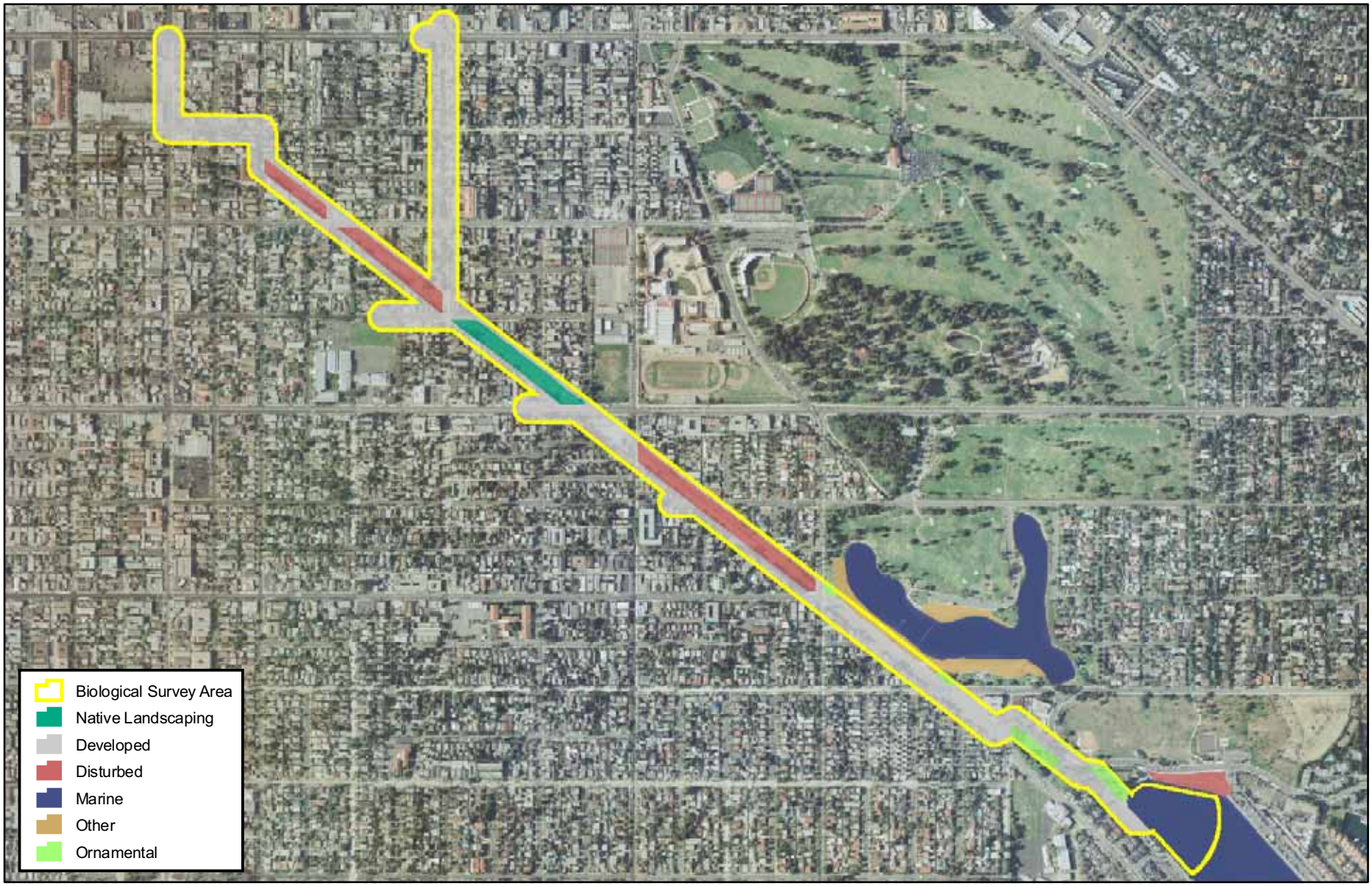
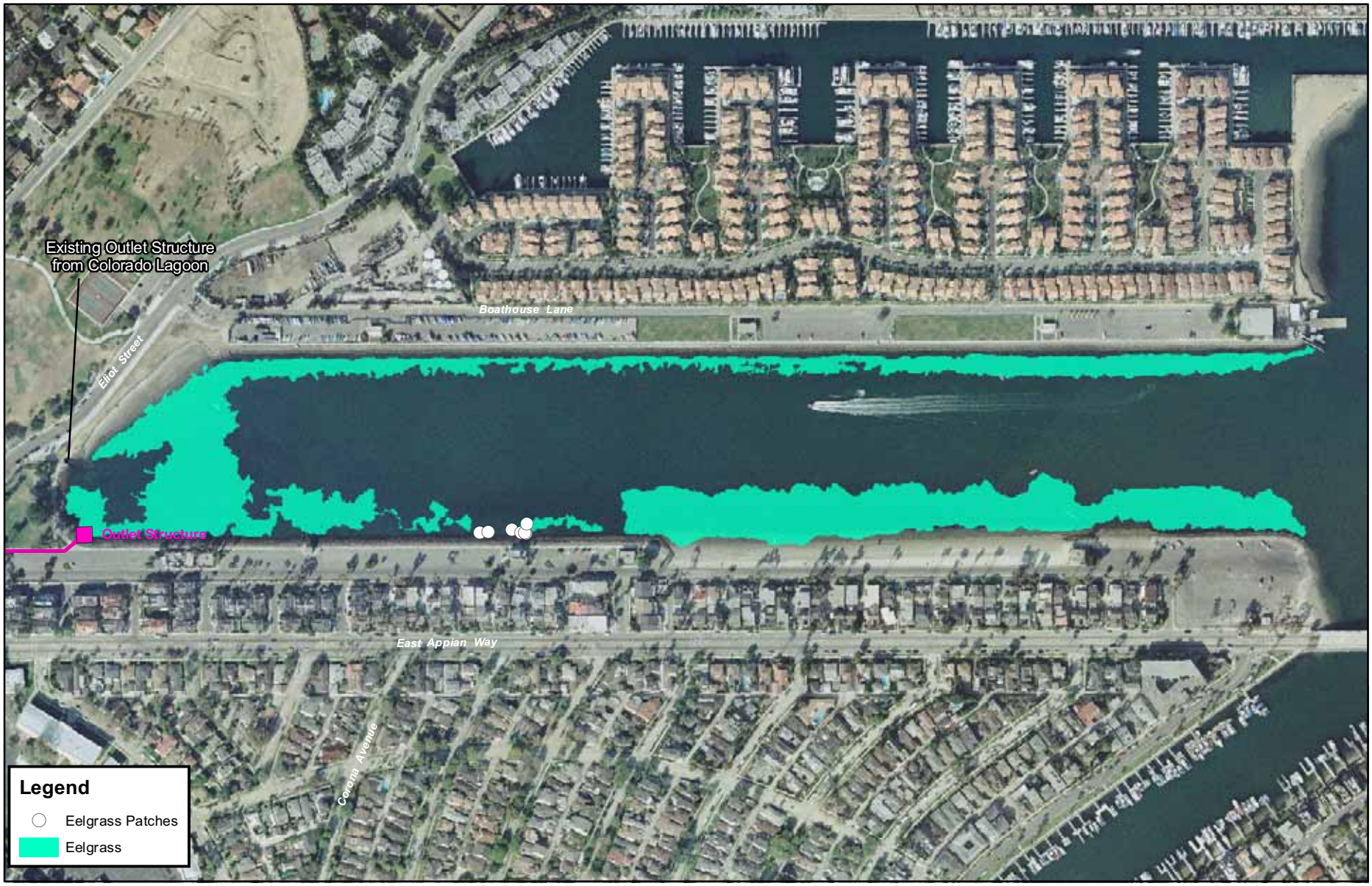


Figure 3-7
Vegetation Map



Source: Aerial base from City of Long Beach. Eelgrass survey by Coastal Resources Management, May 2005

Figure 3-8
Eelgrass Map

NATIVE LANDSCAPING

An area of native landscaping exists within the PE right-of-way, which includes California buckwheat (*Eriogonum fasciculatum*), California sagebrush (*Artemisia californica*), and various sage species (*Salvia* sp.) typical of southern California native scrublands. In addition to the above species, the area is dominated by species such as goldenbush (*Isocoma menziesii* var. *vernonioides*), coyote brush (*Baccharis salicifolia*), and big saltbush (*Atriplex lentiformis* ssp. *lentiformis*). The native landscaping area is not naturally occurring, and was planted, at least in part, in November of 2000. The plantings appear to be healthy and thriving. The native landscaping area is encroached upon by many escaped ornamental plants, has a significant cover of mulch, and experiences foot-traffic from recreational trail users. Approximately 2.54 acres of this habitat occur within the project area shown on Figure 3-7. A complete discussion of native landscaping in the study area is included in Appendix A.

DISTURBED

Disturbed habitat is any land that has been permanently altered by previous human activity, including grading, repeated clearing, intensive agriculture, vehicular damage, or dirt roads. Disturbed land is typically characterized by more than 50 percent bare ground and an absence of remnant native vegetation. In addition, the previous disturbance was severe enough to eliminate future potential biological value of the land without active restoration. Such areas can include dirt trails and cleared areas. Disturbed habitat in the project area is characterized by mowed, non-native species such as Bermuda grass (*Cynodon dactylon*), wild radish (*Raphanus sativus*), and patches of bare ground. Approximately 7.27 acres of this habitat occur within the project area shown on Figure 3-7. A complete discussion of disturbed vegetation in the study area is included in Appendix A.

DEVELOPED

Developed areas include roadways, residences, commercial development, and ornamental landscaping associated with these facilities. There are few or no native plant species in developed areas. The developed community includes invasive, exotic species such as eucalyptus (*Eucalyptus* sp.) and iceplant (*Carpobrotus edulisi*) that have been used as ornamentals and, in some instances, slope stabilization. Approximately 43.89 acres of this habitat occur within the project area shown on Figure 3-7. A complete discussion of developed vegetation in the study area is included in Appendix A.

ORNAMENTAL VEGETATION

Ornamental areas can be characterized as sites that are dominated by commercially available, exotic species, most of which were planted for aesthetic purposes. Ornamentals have been planted throughout the parks of the project area for aesthetic or landscaping purposes to provide as visual screens. Eucalyptus and Bermuda grass, exotic species, are examples of common ornamental/exotic species within

the ornamental areas. Approximately 1.66 acres of this habitat occur within the project area shown on Figure 3-7. A complete discussion of ornamental vegetation in the study area is included in Appendix A.

OTHER

A portion of the 100-foot buffer in the study area includes the beach area of Colorado Lagoon. This beach sand area is an additional cover type, although it is not a separate vegetation community. This area is heavily used for recreational purposes. Approximately 0.75 acres of this habitat occur within the project area shown on Figure 3-7. A complete discussion of other vegatation in the study area is included in Appendix A.

WILDLIFE

Birds

Fifty-two species of birds were observed during general wildlife surveys and California least tern (*Sterna antillarum*) and California brown pelican (*Pelecanus occidentalis*) surveys. Surveys for California least tern and California brown pelican were conducted by Keane Biological Consulting (2004). Twice weekly foraging surveys were conducted from June 16 through August 27, 2004. Data recorded included number of foraging dives, foraging flights, and transit flights. The surveys found that foraging behavior by least terns is rare at Colorado Lagoon and occasional at Marine Stadium, and foraging and roosting behavior by brown pelicans is rare at both locations. Other species observed in the project vicinity include, but are not limited to, great blue heron (*Ardea herodias*), snowy egret (*Egretta thula*), mallard (*Anas platyrhynchos*), red-breasted merganser (*Mergus serrator*), western sandpiper (*Calidris mauri*), California gull (*Larus californicus*), cliff swallow (*Hirundo pyrrhonota*), and northern mockingbird (*Mimus polyglottos*). A complete list of birds observed in the study area is included in Appendix A.

Reptiles and Amphibians

No reptile or amphibian species were observed during recent surveys. Species likely to occur within the project vicinity include pacific tree frog (*Hyla regilla*), western toad (*Bufo boreas*), and gopher snake (*Pituophia melanoleucus*). A complete list of reptiles and amphibians observed in the study area is included in Appendix A.

Mammals

One mammal species was observed or detected during general wildlife surveys, a common squirrel. Other species expected to occur within the project site include striped skunk (*Mephitis mephitis*), domestic cat (*Felis silvestris*), house mouse (*Mus musculus*), black rat (*Rattus rattus*), California vole (*Microtus californicus*), domestic dog (*Canis familiaris*), and Virginia opossum (*Didelphis virginiana*). A complete list of mammals observed in the study area is included in Appendix A.

Marine

Sixteen marine species were observed during eelgrass surveys. Species observed in the project vicinity include but are not limited to: Gould's bubble snail (*Bulla gouldiana*), predatory sea slugs (*Navanax inermis*), the snail *Alia carinata*, found attached to eelgrass blades, concentrations of the amphipod *Grandidierella japonica* on lower intertidal sandy bottom habitat, numerous topsmelt baitfish (Atherinops affinis), black surf perch (*Embiotoca jacksoni*), shiner surfperch (*Cymatogaster aggregata*), staghorn sculpin (*Leptocottus armatus*), unidentified gobies (*Gobiidae*, unid.) on shallow sandy bottom habitat, unidentified flatfish (*Pleuronectidae*, unid), juvenile halibut (*Paralichthys californicus*) and round sting ray (*Urolophus halleri*). A complete list of marine wildlife observed in the study area is included in Appendix A.

SENSITIVE BIOLOGICAL RESOURCES

Sensitive biological resources include plant and animal species present in the project study area that are considered sensitive by federal, state, or local conservation agencies and organizations, or unique habitat areas that are of relatively limited distribution. Determination of sensitive wildlife is made by the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG). A California Natural Diversity Database (CNDDB) search of the Long Beach and seven adjacent quadrangles – Inglewood, South Gate, Whittier, Los Alamitos, Seal Beach, San Pedro, and Torrance – resulted in a total of 25 plant species and 35 sensitive animal species known to occur in the general area of the project site (CDFG 2005).

SENSITIVE PLANT SPECIES

The biological study area, shown as the pink boundary on Figure 3-7, was surveyed for the presence of sensitive plant species during the months of July and November. This involved searching for target sensitive species expected in the region by walking meandering transects through all habitats on and immediately surrounding the site. All of the potentially occurring sensitive plant species would have been detectable during the surveys because their blooming periods overlap or they are perennial shrubs species. No sensitive plant species were detected in the project area. Sensitive plant species known from the vicinity or with potential to occur within the project vicinity are described in Table 2 of Appendix A.

SENSITIVE WILDLIFE SPECIES

Birds

Eight sensitive bird species were observed within the project vicinity during surveys conducted for this project: California least tern, California brown pelican, Cooper's hawk, western yellow warbler, California gull, osprey, double-crested cormorant, and the elegant tern. A complete list of sensitive bird species with potential to occur in the project vicinity are described in Table 3 of Appendix A.

Reptiles and Amphibians

No sensitive reptile species were observed within the project vicinity. Sensitive reptile species with potential to occur in the project vicinity are described in Table 3 of Appendix A and include San Diego horned lizard and southwestern pond turtle.

Green sea turtles have occasionally been found offshore of Orange County and Los Angeles County, north of their more common southerly range due to warmer water temperatures during El Nino periods. Green sea turtles have been reported in the San Gabriel River where they encounter the warmer, discharged waters of the power generating facilities located farther up the River. According to the Long Beach Lifeguards and Marine Bureau staff, green sea turtles have been seen in Alamitos Bay and appear to be curious (Vivian Cook, Marine Bureau; Allen Powder, Long Beach Lifeguards pers. Com with R. Ware 27 July 2007). However, no records are kept as to where they have been seen, the time of year of occurrence, or the numbers observed. There is no evidence that these species breed in the project area.

On July 30, 2007, EDAW contacted Christina Fahy at the National Marine Fisheries Service for additional documentation regarding the presence of green sea turtles in Alamitos Bay. The following information was provided:

> Green sea turtles have stranded in the Long Beach area; for example, in October, 2004, three green sea turtles stranded in the Belmont Shore area and one green sea turtle stranded in the Treasure Island Marina area. In addition, over the years, our office has received numerous reports of sightings of sea turtles in the area. Lastly, in October, 2006, the Long Beach Aquarium attached a satellite transmitter to a green sea turtle that had live-stranded in Long Beach. The turtle was tracked south to the San Clemente area and then turned around and headed back north to the Long Beach area, where it remained for several weeks, presumably foraging on eel grass or algae in the area.

The green sea turtle strandings described above occurred within two miles of the Marine Stadium. The nearest recorded sighting was documented using the satellite transmitter described above. Based on this data, the sea turtle was present within Alamitos Bay in October and December 2006, residing most frequently in the Long Beach Marina area. The turtle appears to have entered the Marine Stadium area on multiple occasions[3]. Although individual sightings have occurred, no resident groups have been observed within Alamitos Bay.

Although occasional green sea turtles have been observed in Alamitos Bay, the likelihood of encountering this species in the northern extreme northeast limit of the bay is relatively low. Green sea turtles' north Pacific range extends from Baja California to southern Alaska; however, turtles within this range most commonly occur south of San Diego. Juvenile turtles are rarely seen as they spend the first several years of their lives swimming in the open ocean. As juveniles, they eat plants and other organisms such as

[3] http://www.seaturtle.org/tracking/index.shtml?keyword=mickey (Accessed August 7, 2007)

jellyfish, crabs, sponges, snails, and worms. Adult green sea turtles are mostly herbivorous and spend most of their time feeding on algae in the sea and the grass that grow in shallow waters inside reefs, bays, and inlets.

Sea turtles are not known to nest along the west coast of the US; the closest known nesting grounds occur along the Pacific coast of Mexico and in the Hawaiian Islands, particularly the French Frigate Shoals, approximately 1,280 miles southeast and 2,500 miles west of the project area, respectively. This species demonstrates strong selectivity and fidelity for both nesting and feeding sites; they have been known to migrate between the same feeding and nesting sites for many generations.

Mammals

No sensitive mammals were observed or detected within the project vicinity. Table 3 of Appendix A presents sensitive mammals that have potential to occur within the project site and include the San Diego desert woodrat, Pacific pocket mouse, Pacific Harbor seal, and California sea lion.

In general, California sea lions inhabit rocky or sandy beaches, and prefer sandy beaches to breed. They are not known to breed in man-made structures such as Marine Stadium. Outside of the breeding season they will often gather at man-made environments such as piers and buoys for protection from predators. The construction zone, however, contains no surfaces for the animals to haul out during low tide to rest and absorb heat from the sun.

Harbor seals spend their time equally between land and water. They are wary of humans and will leave if they are approached too closely. The open water of Marine Stadium hosts swimmers, rowers, and water skiers daily, and its beaches are used for picnicking and special events. The large amount of human activity in the area makes it unlikely that harbor seals would inhabit the project area. The construction zone also contains no surfaces for the animals to haul out during low tide to rest and absorb heat from the sun.

Sensitive Invertebrates

No sensitive invertebrates are known from the project vicinity. Table 3 of Appendix A presents sensitive invertebrates that have potential occur within the project site and include the monarch butterfly and the tiger beetle.

Marine Organisms

Marine Stadium is considered Essential Fish Habitat (EFH), defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 U.S.C. 1802(10)). The proposed project is located within an area designated as EFH for one Fisheries Management Plan (FMP), the Coastal Pelagics Management Plan. Although not observed during eelgrass surveys, of the 86 species managed under all of the FMP, four are known to occur in the San Pedro Channel area, and potentially

within Alamitos Bay: northern anchovy, Pacific sardine, Pacific mackerel, and jack mackerel (CRM 2005b).

SENSITIVE HABITATS

Sensitive habitats are those considered rare within the region, support sensitive flora and/or fauna, or function as linkages for wildlife movement. Although the native landscaping within the PE right-of-way includes plants that are typically associated with southern California native scrublands, there are no naturally occurring sensitive habitats in the project area. Non-naturally occurring sensitive habitats in the project vicinity include southern coastal bluff scrub and southern coastal salt marsh.

HABITAT CONNECTIVITY (WILDLIFE CORRIDORS AND HABITAT LINKAGES)

Wildlife corridors are relatively narrow landscape features that provide connections between larger blocks of native habitat. Habitat linkages are broader native habitat patches that join larger patches of habitat and can reduce the adverse effects of habitat fragmentation. Wildlife migration corridors are essential in geographically diverse settings, and especially in urban settings, for the sustenance of healthy and genetically diverse animal communities.

The project site north of Colorado Lagoon is heavily disturbed and urban, and surrounded by residential and commercial development. The existing abandoned railway may serve as a corridor for urban-adapted species that are accustomed to constant disturbance. As such, this portion of the site does not serve as a high-quality wildlife corridor. The Colorado Lagoon provides habitat for bird species, which likely also forage over Marine Stadium. There is no area between these two water bodies that serves as a wildlife corridor for terrestrial species.

REGIONAL RESOURCE PLANNING CONTEXT

No regional habitat conservation plans (HCP) or Natural Community Conservation Plans (NCCP) have been adopted that would affect the project study area. The City has a Local Coastal Plan (LCP) that was certified by the California Coastal Commission (CCC) in 1980. The LCP represents the commitment of the City to provide continuing protection and enhancement of its coastal resources. The LCP provides general policies for areas within the Coastal Zone and categorizes the coastal zone in Long Beach into eight community plans. The proposed project is within the Waterland Communities subarea, specifically Area C (Belmont Heights/Belmont Park). The LCP provides an implementation plan and a policy plan summary for the following categories: shoreline access; recreation and visitor serving facilities; locating and planning new development; historic preservation; and hazards. In addition, Marine Stadium is

considered essential fish habitat (EFH).[4] The proposed project is located within an area designated as EFH for one FMP, the Coastal Pelagics Management Plan.

3.2.2 REGULATORY SETTING

The following provides a general description of the applicable permitting requirements for the project. Since the project would not result in the direct take of federally regulated species, USFWS consultation is not expected to occur. In addition, because the project would not substantially divert or obstruct the natural flow of, or substantially change (remove or deposit material into), the bed, channel, or bank of any river, stream, or lake, authorization under Sections 1600-1616 of the California Fish and Game Code would not apply. Regulatory requirements related to impacts to "waters of the U.S." (Section 404 and 401 of the Clean Water Act [CWA]) are included for potential impacts to Colorado Lagoon and Marine Stadium. In addition, the California Coastal Act (CCA) and the Magnuson-Stevens Fishery Management and Conservation Act regulate activities within the Coastal Zone.

MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act (MBTA) restricts the killing, taking, collecting, and selling or purchasing of native bird species or their parts, nests, or eggs. Certain gamebird species are allowed to be hunted for specific periods determined by federal and state governments. The intent of the MBTA is to eliminate any commercial market for migratory birds, feathers, or bird parts, especially for eagles and other birds of prey. Although no permit is issued under the MBTA, if vegetation removal within the project area occurs during the breeding season for raptors and migratory birds (generally March 1 through September 1; as early as February 15 and as late as September 15 for raptors), the USFWS requires that surveys be conducted to locate active nests within the construction area. If active raptor or migratory bird nests are detected, project activities may be temporarily curtailed or halted.

SECTION 404 AND 401 OF THE CLEAN WATER ACT

The CWA governs pollution control and water quality of waterways throughout the U.S. Its intent, in part, is to restore and maintain the biological integrity of the nation's waters. The goals and standards of the CWA are enforced through permit provisions. Sections 401 and 404 of the CWA pertain directly to the proposed project. Section 401 requires certification from the Regional Water Quality Control Board (RWQCB) that the proposed project is in compliance with established water quality standards. Section 404 of the CWA requires an individual or nationwide permit from the ACOE for discharge into "waters of the U.S."

[4] Essential Fish Habitat (EFH) can consist of both the water column and the underlying surface (e.g. seafloor) of a particular area. Areas designated as EFH contain habitat essential to the long-term survival and health of our nation's fisheries.

CALIFORNIA COASTAL ACT OF 1976

At the state level, the California Coastal Act (CCA) of 1976 (Cal. Code Regs. Title 14 § 30000) requires each local jurisdiction along the coast to prepare and submit for state certification a LCP for that portion of its area located within a specified Coastal Zone. An LCP is defined as "a local government's land use plans, zoning ordinances, zoning district maps, and, within sensitive coastal resources areas, other implementing actions, which, when taken together, meet the requirements of, and implement the provisions and policies of [the Coastal Act] at the local level" (PRC §30108.6).

See the discussion of the City LCP under "Regional Resource Planning Context" above.

MAGNUSON-STEVENS FISHERY MANAGEMENT AND CONSERVATION ACT

An EFH Assessment for the project has been provided in conformance with the 1996 amendments to the Magnuson-Stevens Fishery Management and Conservation Act (FR 62, 244, December 19, 1997) (Appendix A). The 1996 amendments set forth a number of new mandates for the National Marine Fisheries Service (NMFS), eight regional fishery management councils, and other federal agencies to identify and protect important marine and anadromous fish habitat. The councils, with the assistance from NMFS are required to delineate EFH for all managed species. Federal action agencies which fund, permit, or carry out activities that may adversely impact EFH are required to consult with NMFS regarding the potential effects of their actions on EFH, and respond in writing to the NMFS recommendations.

MARINE MAMMAL PROTECTION ACT

Under the Federal Marine Mammal Protection Act (MMPA) of 1972, *take* (defined as *harass, hunt, capture, kill or collect, or attempt to harass, hunt, capture, kill or collect*) of all marine mammals is prohibited, except as set forth in the act. The 1994 amendment of the MMPA provided certain exceptions for the take prohibitions, such as for Alaska Native subsistence and for such activities as scientific research, or the enhancement of a particular species' survival or recovery, as authorized by NOAA Fisheries. Endangered and Threatened marine mammals are also protected under the Endangered Species Act. NOAA Fisheries and the USFWS jointly administer the MMPA. NOAA is responsible for protecting whales, dolphins, porpoises, seals and sea lions. The protection of walrus, manatees, otters, and polar bears is enforced by the USFWS.

3.2.3 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

The project would have a significant effect on biological resources if it would result in one or more of the following:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS;

- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG, NMFS, or USFWS;

- have a substantial adverse effect on any federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites; or

- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

EFFECTS DISMISSED IN THE INITIAL STUDY

The Initial Study issued for the proposed project in May 2004 determined that implementation of the proposed project would not conflict with the provisions of an adopted Habitat Conservation Plan (HCP), NCCP, or other approved local, regional, or state HCP as the project area is not located within an adopted HCP, NCCP, or other approved local, regional, or state HCP. As such, these impacts are not considered further in this analysis.

IMPACT ANALYSIS

BIO-1 *The proposed project would not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS.*

No sensitive plant species were found during the focused botanical surveys during the appropriate survey periods for the potentially occurring species. No federally or state-listed species are expected to occur within or adjacent to the potential area of impact based on survey results and habitat suitability. No impacts to sensitive plant species would occur as a result of the proposed project.

Two sensitive bird species were identified during general wildlife surveys, the California brown pelican and California least tern. Foraging behavior by California least terns is rare at Colorado Lagoon and occasional at Marine Stadium, and foraging and roosting behavior by California brown pelicans is rare at both locations (see Appendix A). The California brown pelican and California least tern that use Colorado Lagoon and Marine Stadium would not be adversely affected by project construction or

operation (Keane Biological Consulting 2004). Some tree removal would occur during construction in the Marine Stadium and Long Beach Greenbelt areas, which would significantly affect nesting birds, if present. Although no active nests were observed during the surveys, nesting birds could be present when construction activities commence. Disturbance of active nests would violate the Migratory Bird Treaty Act (MBTA) and result in a significant impact requiring mitigation. To ensure compliance with the MBTA, mitigation measure BIO-A has been provided to require nesting bird surveys prior to the start of project construction. With implementation of this mitigation measure, impacts to nesting birds would be less than significant.

Construction activities associated with the proposed project would occur in the northern limit of the bay, which is more than two miles from the entrance of Alamitos Bay. Construction activities within Marine Stadium would involve constructing a temporary coffer dam around the proposed construction zone, removing and replacing rip rap along the shoreline, and recontouring the rip rap shoreline to depths of minus five (–5) ft MLLW around the opening of the outlet structure. Construction of the temporary cofferdam would require installation of sheet piling, which would extend approximately 60 feet into Marine Stadium from the edge of the existing pavement (see Figure 3-4). The temporary sheet piling would extend approximately 7 feet above the water surface elevation during construction, depending on tide levels. Construction of the Marine Stadium outlet structure would take approximately three months; however, the majority of this construction would occur behind the cofferdam and would not directly affect marine resources. All construction activities would occur between the hours of 7:00 AM and 7:00 PM on weekdays only. Upon completion of the outlet structure, no additional construction activities would occur within Marine Stadium.

As shown on Figure 3-8, eelgrass beds extend into the Marine Stadium. As discussed above, the potential for green sea turtles to occur in the project area is relatively low. However, because Alamitos Bay has a productive eelgrass system, green sea turtles may be utilizing the eelgrass beds located throughout the bay as one source of their nutritional requirements. Alamitos Bay is north of this species' typical range, so the occurrence of individuals in the Long Beach area is likely to remain low. The project area within Marine Stadium is approximately 2.5 miles from the mouth of the Bay, further decreasing the chance that this species will occur within the project area.

If, however, a green sea turtle were to be present during the one- to two-week installation period of the sheet piling for the cofferdam or the one-week removal period, it could potentially result in a behavioral modification to this species that would include a likely change in swimming behavior to avoid excessive noise or turbidity. Once the cofferdam is installed, the potential for impacts would be reduced, since the construction area would be physically separated from the marine environment. No mortality or other adverse impacts would be expected to occur as a result of any project-related activities. Furthermore, Mitigation Measures BIO-K through BIO-N, would reduce the potential for impacts to sea turtles in the unlikely event that one is present in the project area during the three-month outlet structure construction process. No significant impacts to green sea turtles would occur during construction.

Similarly, the proposed project would not have a substantial adverse effect, either directly or through habitat modifications, on California sea lions or Pacific harbor seals due to the low potential for these species to occur in the project area. In the event that either of these species is sighted within 500 meters (1,640 feet) of the construction zone, Mitigation Measure BIO-O would reduce potential impacts to a less than significant level. Accordingly, the proposed project would not have a substantial adverse effect on California sea lions or Pacific harbor seals.

No operational impacts to green sea turtles, California sea lions, or Pacific harbor seals would occur as a result of the project. As discussed in Section 3.9.3 the EIR, impacts to marine life from temporary changes in salinity levels immediately following storm events would be less than significant. In addition, the low-flow diversion system and catch basin screens that are included in the proposed project would improve overall water quality and flooding conditions in Colorado Lagoon and Marine Stadium compared to existing conditions.

BIO-2 *The proposed project would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG, NMFS, or USFWS; however, significant impacts to eelgrass and native landscaping areas would occur during construction, requiring mitigation.*

Direct/permanent and temporary impacts to biological resources that would result from implementation of the proposed project are discussed below. Direct impacts were quantified by comparing the proposed project footprint with the biological resources mapping within the project area (Figures 3-7 and 3-9). This assessment assumes that all biological resources within the limits of grading for the project facilities would be eliminated during construction. Temporary impacts include impacts associated with construction of the project. During operation of the project, the only project features that would be above-ground would be the outfall structure, manholes, and small pump station components.

Implementation of the proposed project would result in the direct loss of habitat or land cover types as shown in Table 3-6.

TABLE 3-6 PERMANENT AND TEMPORARY VEGETATION IMPACT ACREAGES[1]

Vegetation/Cover Type	Permanent/Direct Impacts	Temporary Impacts
Marine/Eelgrass	0/0.0008	3.96/0.0189[2]
Native landscaping	0	2.54
Disturbed	0	7.27
Developed	0	43.89
Ornamental	0	1.66
Other	0	0.75
Total Vegetation Impacts	0.0008	60.09

[1] Impact calculations include a 100-foot buffer around the proposed alignment.

[2] 'Marine' includes a 500-foot buffer from the outlet structure, as shown on Figure 3-7; 'Eelgrass' includes only eelgrass patches, as shown on Figure 3-8.

Source: Aerial base from City of Long Beach. Eelgrass survey by Coastal Resources Management, May 2005

Figure 3.3-3
Direct and Temporary Impacts to Eelgrass

As shown, the project would result in 0.0008 acres of permanent impacts and 60.09 acres of temporary impacts. The majority of the impacts would occur within disturbed and developed vegetation types, which are not considered sensitive by state or federal agencies or by the County. Impacts to these vegetation communities are not considered significant.

Indirect impacts are not easily quantifiable but are likely to occur with most development. Indirect effects include short-term indirect impacts related to construction or long-term indirect impacts associated with operation of the project in proximity to biological resources. During construction of the project, short-term indirect impacts may include dust and noise, which could temporarily disrupt habitat and species health and create soil erosion and runoff. As discussed in Chapter 2.0, all project grading and construction would be subject to the standard restrictions and requirements that address erosion and runoff, including the federal Clean Water Act (401 and 404 permit), National Pollution Discharge Elimination System (NPDES), and a Storm Water Pollution Prevention Plan (SWPPP).

Marine Habitat

Operational Impacts

The proposed project may affect the salinity of Colorado Lagoon and Marine Stadium by altering the direction of existing storm flows, which could have the potential to affect marine biological communities. Under the proposed project, the results of the salinity modeling showed that salinity levels within Colorado Lagoon would remain higher than under existing conditions during storm events, thereby suggesting an improvement in salinity levels (i.e., more stable salinity levels). However, salinity levels in Marine Stadium would temporarily drop near the new outlet structure during major storm events, suggesting a degradation of salinity levels compared to existing conditions. Salinity levels resulting from project operation are shown in Figures 5.1 through 5.8 of the Everest Report. Salinity levels in Marine Stadium near the tidal culvert would remain higher than under existing conditions during storm events since the salinity in the water flowing from Colorado Lagoon would remain higher than under existing conditions.

The significance of the decreased salinity in Marine Stadium relative to impacts on eelgrass and other species is based upon species' tolerances to low salinity for less than 48 hours during storm events, and the time in which recovery to ambient salinity occurs. Eelgrass can survive in a wide range of water salinities, including the range of salinities projected at Marine Stadium. Therefore, eelgrass is likely to be able to withstand periodic flooding events that would reduce salinities in Marine Stadium below 25 parts per thousand (ppt) for a maximum of 48 hours. In addition, eelgrass growth is generally dormant through the winter months, with most growth occurring during spring and summer (Phillips and Watson 1984). Therefore, most storm-related events would occur when eelgrass is within its dormant growing phase, which reduces the potential for salinity impacts to eelgrass. Impacts to eelgrass from a change in salinity levels would be less than significant.

Many benthic bay invertebrates tend to be introduced species capable of tolerating a wide range of salt water concentrations. In the sediments around outlets, some species respond by burrowing deeper into the sediments where salinity is less affected by stormwater flows. Those invertebrates that cannot escape the effects of lowered salinity and that may not be as tolerant of initial low salinities, such as species living on eelgrass blades, would be killed; however, invertebrate recolonization would begin to occur as soon as salinity levels return to ambient conditions, which is expected to occur within approximately 48 hours. Fishes, such as surfperch, topsmelt, and halibut would temporarily move away from low-salinity areas of Marine Stadium and then return to the areas near the outlets when salinity levels returned to ambient levels. Again, this would likely occur within 48 hours of the flood event, or when prey items for fishes again become prevalent.

The overall results of the water quality analysis indicate that only a small area near the outlet would be affected by reduced salinity, and that overall, the average salinity would be higher in both Colorado Lagoon and Marine Stadium.

Construction Impacts

A total of 0.0189 acre of eelgrass is located within the outlet structure construction easement zone (see Figure 3-9). Initially, all of the eelgrass would be removed once the coffer dam is constructed, the area is dredged, and the waters are pumped out of the coffer dam. Once the outlet is constructed, and the coffer dam is removed, a total of 0.0008 acre would be permanently lost in the footprint of the outlet structure or by rip rap placed along side and in front of the structure to depths of -6 ft MLLW. The remaining 0.0181 acre of removed eelgrass habitat within the coffer dam would be available for onsite eelgrass mitigation once the bayfloor is restored to tidal action. The loss of 0.0189 acre of eelgrass is considered a localized, significant impact that can be mitigated to a less than significant level with the successful transplantation of eelgrass within Alamitos Bay. Mitigation measures BIO-B through BIO-E would require the replacement of eelgrass habitat directly affected by construction activities.

Eelgrass beds located nearby the construction zone would be potentially affected by short-term increases in turbidity when the coffer dam is constructed. This may result in the deposition of fine sediments on eelgrass blades and reduce underwater light levels that would temporarily reduce eelgrass primary productivity. With implementation of mitigation measures, potential impacts to eelgrass beds would be less than significant. With the implementation of water quality Best Management Practices (BMPs) and mitigation measures BIO-F through BIO-J to reduce the spread of any turbidity plume, there should be no significant impacts to eelgrass bed resources outside of the localized construction zone.

Terrestrial Vegetation Communities

On-land construction activities would primarily affect developed and disturbed areas. All of the Long Beach Greenbelt native landscaping area within the PE right-of-way (2.54 acres) would be removed for construction of the proposed project, including planted oak trees. As part of the proposed project, at the

conclusion of project construction, all impacted areas would be restored to their existing condition, including the Long Beach Greenbelt. However, short-term impacts to vegetation communities would be significant. Implementation of mitigation measure BIO-P would reduce the level of impact to less than significant. Mitigation measure BIO-P is provided to ensure that the native landscaping is replaced at a 1:1 ratio with the native species appropriate to the site. The remainder of the Long Beach Greenbelt project remains ruderal and disturbed; therefore, no significant impacts to these areas would occur.

Project impacts to the disturbed, ruderal, and ornamental portions of the impact area would not result in significant impacts to biological resources. In addition, as part of the project, all disturbed areas would be restored to the existing condition following construction.

BIO-3: *The proposed project would not have a substantial adverse effect on any federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means; however, short-term adverse impact on water quality would occur when the coffer dam is constructed, related to an increase in suspended sediment loads, and an increase of water turbidity.*

The proposed project would result in impacts to Marine Stadium, an ACOE designated "waters of the U.S." Construction of the outlet structure would result in 'fill' of a jurisdictional waterbody. Therefore, the County would be required to obtain permits from the ACOE (CWA Section 404) and RWQCB (CWA Section 401). In addition, the project would be required to comply with the regulations of the CCC, as outlined in the Long Beach LCP.

Construction of the outlet structure in Marine Stadium would involve constructing a coffer dam around the proposed construction zone, removing and replacing rip rap along the shoreline, and recontouring the rip rap shoreline to depths of –5 ft MLLW around the opening of the outlet structure. These impacts would have a short-term adverse impact on water quality when the coffer dam is constructed, related to an increase in suspended sediment loads, and an increase of water turbidity. Resuspension of bottom sediments also has a potential to release sediment-bound contaminants back into the water column that can become available to water column and bottom-dwelling filter feeders. Impacts to water quality would be significant. Implementation of mitigation measures BIO-F through BIO-J and measure BIO-P would reduce the level of impact to less than significant. Water quality conditions would return to ambient conditions when construction activity is completed.

Impacts to marine organisms during construction would result in an initial mortality of algae and benthic invertebrates living on the rip rap and on the bayfloor, and resident benthic fishes (i.e., gobies) within the construction easement zones and within the areas where the coffer dam is constructed. There would be a permanent loss of benthic invertebrate biomass and goby biomass within the footprint of the outlet. Water column fishes such as topsmelt, black surf perch, and bottom fish such as California halibut, round sting ray, and barred sand bass would swim away from the zone of construction and would likely avoid

any significant mortality to their populations. As required in mitigation measures BIO-B through BIO-E, the restoration of intertidal and subtidal rip rap, unvegetated bay soft bottom habitat, and bayfloor eelgrass habitat in the months following the completion of the outfall would allow the establishment of basic habitat requirements for other marine organisms to recolonize these areas. Once the zone within the coffer dam has been restored to tidal action, algae, eelgrass, benthic invertebrates, and benthic-dwelling gobies would recolonize the substrate, beginning immediately after construction is completed and possibly taking one to five years for full recolonization.

Short-term impacts to federally protected wetlands would be significant. Adherence to the required regulatory permits and implementation of mitigation measures BIO-B through BIO-J would reduce impacts to wetlands below the level of significance.

BIO-4: *The proposed project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.*

Terrestrial

Direct impacts to terrestrial wildlife corridors would not occur from the proposed project. Urban adapted species may use the abandoned railway as a corridor; however, these species are not sensitive and are adapted to the urban environment. In addition, at the conclusion of construction, the project area would be restored to the existing conditions, and any current use by urban wildlife would resume. The project site does not serve as a high-quality wildlife corridor, and as such, the project would not result in significant impacts related to wildlife movement.

Marine

Construction activities would occur within designated EFH. Project activities that would affect identified FMP species, northern anchovy, Pacific sardine, Pacific mackerel, and jack mackerel, include increased water turbidity caused by the construction of the outlet structure, and potential temporary resuspension of any contaminants in the immediate area of the outlet during flood periods. An increase in the suspended sediment load would temporarily increase the exposure of FMP species to potentially harmful levels of contaminants. This would cause the northern anchovy to temporarily avoid the project area, thereby avoiding project impacts. There is minimal potential for mortality of larval anchovy.

All four FMP species are pelagic schooling species that utilize large expanses of San Pedro Bay. Of the four species, only the northern anchovy is expected to be in Alamitos Bay, but numbers within the Marine Stadium and the Colorado Lagoon portions of Alamitos Bay are not expected to be a major part of the northern anchovy population. The majority of the anchovy population is expected to occur nearshore, outside of Alamitos Bay, at depths greater than 12 feet deep.

Based upon these determinations, the proposed project is will not have adverse effects on populations of the four identified FMP species. Mitigation measures BIO-F through BIO-J have would further reduce any turbidity and water quality impacts on these species.

BIO-5 *The proposed project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.*

Construction of the project would result in the removal of juvenile oak trees that were planted in the Long Beach Greenbelt restoration area. These trees do not meet the minimum diameter at breast height to be protected by the County's Oak Tree Ordinance; therefore, impacts to these trees would be less than significant.

3.2.4 MITIGATION MEASURES

BIO-A Should tree removal or removal of the Long Beach Greenbelt restoration area occur during the breeding season for migratory non-game native bird species (generally March 1-September 1, as early as February 15 and as late as September 15 for raptors), weekly bird surveys would be performed to detect any protected native birds in the trees to be removed and other suitable nesting habitat within 300 feet of the construction work area (500 feet for raptors). The surveys would be conducted 30 days prior to the disturbance of suitable nesting habitat by a qualified biologist with experience in conducting nesting bird surveys. The surveys would continue on a weekly basis with the last survey being conducted no more than 3 days prior to the initiation of clearance/construction work. If a protected native bird is found, DPW would delay all clearance/construction disturbance activities in suitable nesting habitat or within 300 feet of nesting habitat (within 500 feet for raptor nesting habitat) until August 31 or continue the surveys in order to locate any nests. If an active nest is located, clearing and construction with 300 feet of the nest (within 500 feet for raptor nests) shall be postponed until the nest is vacated and juveniles have fledged and when there is no evidence of a second attempt at nesting. Limits of construction to avoid a nest should be established in the field with flagging and stakes or construction fencing. Construction personnel shall be instructed on the sensitivity of the area. The results of this measure would be recorded to document compliance with applicable State and Federal laws pertaining to the protection of native birds.

BIO-B A qualified marine biologist will resurvey the extent of eelgrass coincident with the construction easement to confirm the extent of eelgrass within the permanent and temporary impact areas. Based on 2005 surveys, the direct permanent and temporary impacts to marine sea grasses in Marine Stadium (i.e., 0.0189 acre total) shall be mitigated at a ratio of 1.2:1, in accordance with the Southern California Eelgrass Mitigation Policy. A total of 0.0227 acres of eelgrass will be replanted by DPW, including at least 0.0181 acres in the temporary impact area when sediment conditions

stabilize following the completion of outlet construction. The remaining 0.0046 acres of eelgrass shall be planted within Marine Stadium or elsewhere within Alamitos Bay in a location determined by a qualified biologist. The location of eelgrass transplant mitigation shall be in areas similar to proposed outlet structure location. Factors such as, distance from project, depth, sediment type, distance from ocean connection, water quality, and currents are among those that shall be considered in evaluating potential sites. Monitoring the success of eelgrass mitigation shall be required for a period of five years in accordance with the Southern California Eelgrass Mitigation Policy. A wetland eelgrass mitigation plan shall be prepared to discuss the methods and schedule for planting eelgrass at the Marine Stadium and Alamitos Bay locations, and post-planting monitoring. In accordance with the California Coastal Commission's (CCC's) Procedural Guidance for the Review of Wetland Projects in California's Coastal Zone, the mitigation plan will include the following information, as relevant to the eelgrass mitigation sites:

1) Clearly stated objectives and goals consistent with regional habitat goals. These regional goals must identify functions and or habitats most in need of enhancement or restoration and must be as specific as possible. If the regional goals have not been identified, then the applicant and CCC staff should work with relevant federal, State, or local agencies to determine if the proposed plan is consistent with the ecology and natural resource composition of the area.

2) Adequate baseline data regarding the biological, physical, and chemical criteria for the mitigation area.

3) Documentation that the project will continue to function as a viable wetland over the long term.

4) Sufficient technical detail in the project design including, at a minimum, an engineered grading plan and water control structures, methods for conserving or stockpiling topsoil, a planting program including removal of exotic species, a list of all species to be planted, sources of seeds and/or plants, timing of planting, plant locations and elevations on the mitigation site base map, and maintenance techniques.

5) Documentation of performance standards, which provide a mechanism for making adjustments to the mitigation site when it is determined through monitoring, or other means that the enhancement or restoration techniques are not working.

6) Documentation of the necessary management and maintenance requirements, and provisions for remediation should the need arise.

7) An implementation plan that demonstrates there is sufficient scientific expertise, supervision, and financial resources to carry out the proposed activities.

8) A five-year monitoring program.

BIO-C A project marine biologist shall mark the positions of eelgrass beds with buoys prior to the initiation of any construction to minimize damage to eelgrass beds outside the construction zone.

BIO-D The project marine biologist shall meet with the construction crews prior to dredging to review areas of eelgrass to avoid and to review proper construction techniques.

BIO-E If barges and work vessels are used during construction, measures shall be taken to ensure that eelgrass beds are not impacted through grounding, propeller damage, or other activities that may disturb the sea floor. Such measures shall include speed restrictions, establishment of off-limit areas, and use of shallow draft vessels.

BIO-F No construction materials, equipment, debris, or waste shall be place or stored where it may be subject to tidal erosion and dispersion. Construction materials shall not be stored in contact with the soil. Any construction debris within the temporary cofferdam area shall be removed from the site at the end of each construction day.

BIO-G During construction of the Marine Stadium outlet structure, floating booms shall be used to assist in containing debris discharged into Marine Stadium, and any debris discharged shall be removed as soon as possible but no later than the end of each day.

BIO-H A silt curtain shall be utilized to assist in controlling turbidity during construction of the cofferdam at Marine Stadium. The County of Los Angeles shall limit, to the greatest extent possible, the suspension of benthic sediments into the water column.

BIO-I Reasonable and prudent measures shall be taken to prevent all discharge of fuel or oily waste from heavy machinery or construction equipment or power tools into Marine Stadium. Such measures include deployed oil booms and a silt curtain around the proposed construction zone at all times to minimize the spread of any accidental fuel spills, turbid construction-related water discharge, and debris. Other measures include training construction workers on emergency spill notification procedures, proper storage of fuels and lubricants, and provisions for on-site spill response kits.

BIO-J A qualified marine biologist shall monitor the construction process on a weekly basis to ensure that all water quality Best Management Practices (BMPs) are implemented, and to assist the project engineer in avoiding and minimizing environmental effects to benthic communities, including eelgrass. Within thirty days after the project is completed, a

post-construction marine biological survey shall be conducted to determine the extent of any construction impacts on eelgrass habitat. The survey report will be completed within 30 days and shall be submitted to the California Coastal Commission and the U.S. Army Corps of Engineers.

BIO-K A qualified marine biologist shall be on site during the construction period to monitor the potential presence of green sea turtles. The onsite biological monitor shall have the authority to halt construction operations and shall determine when construction operations can proceed.

BIO-L Construction crews and work vessel crews shall be briefed on potential for this species to be present and will be provided with identification characteristics of sea turtles, since they may occasionally be mistaken for seals or sea lions.

BIO-M In the event that a sea turtle is sighted within 500 meters (1,640 feet) of the construction zone, all construction activity shall be temporarily stopped until the sea turtle(s) is safely outside the outer perimeter of construction. The onsite biological monitor shall have the authority to halt construction operation and shall determine when construction operations can proceed.

BIO-N The biological monitor shall prepare an incident report of any green sea turtle activity in the project area and shall inform the construction manager to have his crews aware of the potential for additional sightings. The report shall be provided within 24 hours to the California Department of Fish and Game and the National Marine Fisheries Service.

BIO-O In the event that a California sea lion or a Pacific harbor seal is sighted within 500 meters (1,640 feet) of the construction zone, all construction activity shall be temporarily stopped until the sea lion(s) or seal(s) is safely outside the outer perimeter of construction. The onsite biological monitor shall have the authority to halt construction operation and shall determine when construction operations can proceed.

BIO-P The Pacific Electric (PE) right-of-way between 7th and 8th Streets shall be replanted with native vegetation at a 1:1 ratio. A restoration and monitoring plan for the site shall be prepared and implemented at the conclusion of construction. The restoration plan shall, at minimum, include the following components:

- Prior to construction, a qualified horticulturist with experience in native plant cultivation shall supervise salvage of plants, soil, and other materials as appropriate from the Long Beach Greenbelt area in the PE right-of-way between 7th and 8th Streets. Salvaged materials shall be maintained and used in replanting of the site. Supplemental native species appropriate to the site

(occurring within the Los Angeles Basin and of local genetic stock) shall be used as necessary.

- Following implementation, the restoration area shall be monitored quarterly for the first two years and biannually for three more years. Success shall be defined as 80 percent survival of container plants after two years and 100 percent survival thereafter.

SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Implementation of mitigation measures BIO-A through BIO-P would reduce impacts to biological resources to a less than significant level and would promote restoration of native habitat. No significant unavoidable adverse impacts to biological resources would occur as a result of the proposed project.

3.3 AIR QUALITY

This section addresses the impacts of the proposed project on ambient air quality and the exposure of people, especially sensitive individuals, to unhealthful pollutant concentrations. Air pollutants of concern include ozone, carbon monoxide, particulate matter, volatile organic compounds, and oxides of nitrogen. This section analyzes the type and quantity of emissions that would be generated by the construction and operation of the proposed project.

3.3.1 ENVIRONMENTAL SETTING

REGIONAL CLIMATE

Air quality is affected by both the rate and location of pollutant emissions and by meteorological conditions which influence movement and dispersal of pollutants. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients, along with local topography, provide the link between air pollutant emissions and air quality.

The City of Long Beach (City) is within the South Coast Air Basin (Basin), which consists of all or part of four counties – San Bernardino, Riverside, Los Angeles, and Orange – including some portions of what used to be the Southeast Desert Air Basin. The distinctive climate of the Basin is determined by its terrain and geographic location. The Basin is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean to the southwest and high mountains around the rest of its perimeter. The general region lies in the semi-permanent high pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light average wind speeds. The usually mild climatological pattern is interrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds.

Compared with other urban areas in the United States, metropolitan Los Angeles has a low average wind speed. Mild sea breezes slowly carry pollutants inland. An inversion layer, which is a layer of warm air that lies over cooler, ocean-modified air, often acts as a lid, preventing air pollutants from escaping upward. In the summer, these temperature inversions are stronger than in winter and prevent ozone and other pollutants from escaping upward and dispersing. In the winter, a ground-level or surface inversion commonly forms during the night and traps carbon monoxide emitted by vehicles during the morning rush hours (SCAQMD 2005a).

EXISTING AIR QUALITY

Ambient air pollutant concentrations in the County of Los Angeles are measured at 15 air quality monitoring stations operated by the SCAQMD. The nearest air quality monitoring station to the project site is in North Long Beach, approximately 5 miles northwest of the project site. The gaseous pollutants, ozone, carbon monoxide, nitrogen dioxide, and sulfur dioxide, are monitored at this site, as well as

respirable particulate matter and fine particulate matter. Table 3-7 presents a summary of the highest pollutant values recorded at these stations and compliance with federal and state standards from 2002 to 2007.

Ozone (O_3)

The most pervasive air quality problem in the South Coast Air Basin is high O_3 concentrations. O_3 is the principal component of smog and is formed in the atmosphere through a complex series of photochemical reactions involving volatile organic compounds (VOC) and nitrogen oxides (NO_X), which are commonly referred to as precursors of O_3 and are both considered critical in O_3 formation; NO_X includes various combinations of nitrogen and oxygen, including NO, NO_2, NO_3, etc. Significant O_3 production generally requires about three hours in a stable atmosphere with strong sunlight. O_3 is a regional air pollutant because it is transported and diffused by wind concurrent with the photochemical reaction process. Motor vehicles are the major source of ozone precursors in the air basin. During late spring, summer, and early fall, light winds, low mixing heights, and abundant sunshine combine to produce conditions favorable for maximum production of O_3. O_3 causes eye and respiratory irritation, reduces resistance to lung infection, and may aggravate pulmonary conditions in persons with lung disease. O_3 is also damaging to vegetation and untreated rubber. Control strategies for O_3 have focused on reducing emissions from vehicles, industrial processes using solvents and coatings, and consumer products. The state 1-hour ozone standard was exceeded on 1 day in 2003 in Long Beach from 2002 through 2007. During that period the federal 1-hour O_3 standard was not exceeded (see Table 3-6).

In 1997, the United States Environmental Protection Agency (USEPA) issued a new standard for O_3, using an 8-hour average. After years of litigation, the standard was approved and attainment designations were made. Los Angeles County is nonattainment for both the state and federal standards; however, neither the federal nor state standards were exceeded at the North Long Beach site between 2000 and 2004. In June 2005, the federal 1-hour O_3 standard was revoked by the USEPA.

Carbon Monoxide (CO)

CO is a colorless and odorless gas which, in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. Relatively high concentrations are typically found near crowded intersections and along heavily used roadways carrying slow-moving traffic. Even under the most severe meteorological and traffic conditions, high concentrations of CO are limited to locations within a relatively short distance (300 to 600 feet) of heavily traveled roadways. Overall CO emissions are decreasing as a result of the Federal Motor Vehicle Control Program, which has mandated increasingly lower emission levels for vehicles manufactured since 1973. Concentrations of CO are typically higher in winter. As a result, California has required the use of oxygenated gasoline in the winter months to reduce CO emissions. CO interferes with the transfer of oxygen to the blood. It may cause dizziness and fatigue and can impair central nervous system functions. The 1-hour and 8-hour

TABLE 3-7 AMBIENT AIR QUALITY DATA SUMMARY (2000-2004)[1]

Pollutant	Averaging Time	Federal Primary Standards	California Air Quality Standards	Maximum Concentrations[2]					Number of Days Exceeding Federal Standard[3]					Number of Days Exceeding State Standard[3]				
				2002	2003	2004	2005	2006	2002	2003	2004	2005	2006	2002	2003	2004	2005	2006
O_3	1 hour	0.12 ppm[4]	0.09 ppm	0.084	0.099	0.090	0.091	0.081	0	0	0	0	0	0	1	0	0	0
	8 hours	0.08 ppm	0.070 ppm	0.064	0.068	0.074	0.069	0.058	0	0	0	0	0	--	--	--	--	--
CO	1 hour	35 ppm	20 ppm	6	6	4	4	4	0	0	0	0	0	0	0	0	0	0
	8 hours	9.0 ppm	9.0 ppm	4.56	4.66	3.36	3.51	3.36	0	0	0	0	0	0	0	0	0	0
NO_2	1 hour	None	0.18 ppm	0.130	0.14	0.12	0.14	0.10	--	--	--	--	--	0	0	0	0	0
	Annual	0.053 ppm	0.030ppm[5]	0.026	0.029	0.028	0.024	0.022	0	0	0	0	0	--	--	--	--	--
PM_{10}	24 hours	150 µg/m3	50 µg/m^3	74	63	72	66	78	0	0	0	0	0	5	4	4	4	5
	Annual	Revoked	20 µg/m^3	36	32	33	30	31	--	--	--	--	--	1	1	1	1	1
$PM_{2.5}$	24 hours	35 µg/m3	None	62.7	115.2	66.6	53.8	58.5	0	3	1	0	0	--	--	--	--	--
	Annual/AAM	15 µg/m3	12 µg/m3	19.5	18.0	17.8	16.0	*	1	1	1	1	1	1	1	1	1	*
SO_2	24 hours	.14 ppm	.04 ppm	0.008	0.008	0.013	0.010	0.010	0	0	0	0	0	0	0	0	0	0

Source: CARB 2007; SCAQMD 2007

Notes:

[1] Data are from the SCAQMD monitoring station located in North Long Beach.

[2] Concentration units for ozone, carbon monoxide, nitrogen dioxide, and sulfur dioxide are in parts per million (ppm). Concentration units for PM_{10} are in micrograms per cubic meter (µg/m^3).

[3] For PM_{10}, calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year. For annual standards, a 1 means the standard was exceeded.

[4] The federal 1-hour ozone standard was revoked in June 2005.

[5] The nitrogen dioxide ambient air quality standard was amended to lower the 1-hr standard to 0.18 ppm and establish a new annual standard of 0.030 ppm. These changes became effective March 20, 2008

na = data not available

"*" = there were insufficient data to determine the value

average CO standards have not been exceeded at the North Long Beach Monitoring Station in the last five years (see Table 3-7).

Nitrogen Dioxide (NO_2)

There are two oxides of nitrogen which are important in air pollution: Nitric Oxide (NO) and NO_2. NO, along with some NO_2, is emitted from motor vehicle engines, power plants, refineries, industrial boilers, ships, aircraft, and railroads. NO_2 is primarily formed when NO reacts with atmospheric oxygen in the presence of VOC and sunlight; the other product of this reaction is O_3. Nitrogen dioxide is the "whiskey brown" colored gas, more commonly known as smog, readily observed during periods of heavy air pollution. Concentrations of NO_2 are highest during the late fall and winter. NO_2 increases damage from respiratory disease and irritation, and may reduce resistance to certain infections. The state standards for NO_2 have not been exceeded in the last five years in North Long Beach (see Table 3-7).

Particulate Matter (PM)

PM is a complex mixture of extremely small particles and liquid droplets. PM is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. Natural sources of particulates include windblown dust and ocean spray.

The size of PM is directly linked to the potential for causing health problems. The USEPA is concerned about particles that are 10 micrometers in diameter or smaller because those are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. Health studies have shown a significant association between exposure to PM and premature death. Other important effects include aggravation of respiratory and cardiovascular disease, lung disease, decreased lung function, asthma attacks, and certain cardiovascular problems such as heart attacks and irregular heart beat (USEPA 2006). Individuals particularly sensitive to fine particle exposure include older adults, people with heart and lung disease, and children. The USEPA groups PM into two categories:

Fine Particulate Matter ($PM_{2.5}$)

Fine particles, such as those found in smoke and haze, are 2.5 micrometers in diameter and smaller. Sources of fine particles include all types of combustion activities (motor vehicles, power plants, wood burning, etc.) and certain industrial processes. $PM_{2.5}$ is the major cause of reduced visibility (haze) in California. Control of $PM_{2.5}$ is primarily achieved through the regulation of emission sources, such as the USEPA's Clean Air Interstate Rule and Clean Air Visibility Rule for stationary sources, and the 2004 Clean Air Nonroad Diesel Rule, the Tier 2 Vehicle Emission Standards, and Gasoline Sulfur Program; or the California Air Resources Board (CARB) Goods Movement reduction plan.

Coarse inhalable Particulate Matter (PM_{10})

Inhalable coarse particles, such as those found near roadways and dusty industries, are larger than 2.5 micrometers and smaller than 10 micrometers in diameter. Sources of coarse particles include crushing or grinding operations, and dust from paved or unpaved roads. The health effects of PM_{10} are similar to $PM_{2.5}$. Control of PM_{10} is primarily achieved through the control of dust at construction and industrial sites, the cleaning of paved roads, and the wetting or paving of frequently used unpaved roads.

Sulfur Dioxide (SO_2)

SO_2 is a combustion product, with the primary source being power plants and heavy industry that use coal or oil as fuel. SO_2 is also a product of diesel engine combustion. The health effects of SO_2 include lung disease and breathing problems for asthmatics. SO_2 in the atmosphere contributes to the formation of acid rain. In the South Coast Air Basin, there is relatively little use of coal and oil, and SO_2 is of lesser concern than in many other parts of the country. The federal and state standards for SO_2 have not been exceeded in the last five years in North Long Beach (see Table 3-7).

EXISTING AIR POLLUTION SOURCES

Air quality at the project site and in the City is affected by emissions from a variety of sources. These sources include: regional motor vehicle emissions; local motor vehicle traffic on nearby major arterial streets, such as Anaheim Street, 7th Street, and Pacific Coast Highway; and existing sources in the project area, including commercial and institutional uses. There are no known industrial sources are located within a one-mile radius of the project site.

SENSITIVE RECEPTORS

Some people are especially sensitive to air pollution emissions and should be given special consideration when evaluating air quality impacts from projects. These people include children, the elderly, persons with preexisting respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. Structures that house these persons or places where they gather to exercise are defined as sensitive receptors (SCAQMD 2005b).

Residential areas are considered to be sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public.

Air pollution-sensitive receptors in the immediate vicinity of the project site include Will Rogers Middle School, located immediately west of the termination of the alignment at Marine Stadium; Lowell Elementary School, located approximately 0.16 mile southwest of the termination of the alignment at Marine Stadium ; John C. Fremont Elementary School, located approximately ¼-mile southwest of the alignment's intersection with Ximeno Avenue; Woodrow Wilson High School; located approximately 0.2 mile northeast of alignment; Bryant Elementary School, located approximately 0.12 mile northeast of the termination of the Termino Avenue lateral at Anaheim Street; Jefferson Middle School, located approximately 0.12 mile southwest of the intersection of the main storm drain alignment and the Termino Avenue lateral; Willard Elementary School, located approximately 0.15 mile west of the termination of the alignment at Redondo Avenue and Anaheim Street; residences generally located adjacent to the project alignment; and recreational use areas including Recreation Park golf course, Blair Field Recreation Park, Colorado Lagoon, Marina Vista Park, and Marine Stadium. Other land uses immediately adjacent to the project site consist of office, commercial, and retail uses, which are the least sensitive to air pollution, as noted above.

3.3.2 REGULATORY SETTING

FEDERAL CLEAN AIR ACT

The federal Clean Air Act (42 U.S.C. §§ 7401-7671q) (CAA) was first enacted in 1955 and has been amended numerous times, most recently in 1990. The CAA established federal air quality standards, known as the National Ambient Air Quality Standards (NAAQS), for SO_2, CO, NO_2, O_3, PM_{10}, and lead (Pb) and specified future dates for achieving compliance with these standards. The NAAQS were amended in July 1997 to include an additional standard for O_3 and to adopt a NAAQS for $PM_{2.5}$. The CAA also mandates that each state submit and implement a State Implementation Plan (SIP) for local areas not meeting the NAAQS. SIPs must include pollution control measures that demonstrate how the NAAQS will be met.

The Transportation Project-Level Carbon Monoxide Protocol, UCD-ITS-97-21, University of California, Davis, December 1997, (Protocol) provides procedures and guidelines for use by agencies to evaluate the potential local level CO impacts of a transportation project. The Protocol provides a methodology for determining the level of analysis, if any, required on a project.

CALIFORNIA CLEAN AIR ACT

The California Clean Air Act (CCAA), signed into law in 1988, requires all areas of the state to achieve and maintain the California Ambient Air Quality Standards (CAAQS) by the earliest practical date. Standards for most of the criteria and other pollutants have been set by the State of California. The CAAQS tend to be more restrictive than the NAAQS and are based on even greater health and welfare concerns. California has also set CAAQS for sulfates, hydrogen sulfide, vinyl chloride and visibility-reducing particles. Federal and state standards are shown in Table 3-8.

TABLE 3-8 NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	NAAQS[1]		CAAQS[2]
		Primary[3]	Secondary[4]	Concentration[5]
Ozone (O_3)[6]	1-Hour	-	Same as Primary Standard	0.09 ppm (180 µg/m^3)
	8-Hour	0.075 ppm (157 µg/m^3)		0.070 ppm (137 µg/m^3) [9]
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m^3)	None	9.0 ppm (10 mg/m^3)
	1-Hour	35 ppm (40 mg/m^3)		20 ppm (23 mg/m^3)
Nitrogen Dioxide (NO_2)	Annual Average	0.053 ppm (100 µg/m^3)	Same as Primary Standard	-
	1-Hour	-		0.25 ppm (470 µg/m^3)
Sulfur Dioxide (SO_2)	Annual Average	0.03 ppm (80 µg/m^3)	-	-
	24-Hour	0.14 ppm (365 µg/m^3)	-	0.04 ppm (105 µg/m^3)
	3-Hour	-	0.5 ppm (1300 µg/m^3)	-
	1-Hour	-	-	0.25 ppm (655 µg/m^3)
Suspended Particulate Matter (PM_{10})[7]	24-Hour	150 µg/m^3	Same as Primary Standard	50 µg/m^3
	Annual Arithmetic Mean	Revoked		20 µg/m^3
Fine Particulate Matter ($PM_{2.5}$)[8]	24-Hour	35 µg/m^3	Same as Primary Standard	-
	Annual Arithmetic Mean	15 µg/m^3		12 µg/m^3
Lead (Pb)	30-Day Average	-	-	1.5 µg/m^3
	Calendar Quarter	1.5 µg/m^3	Same as Primary Standard	-
Hydrogen Sulfide (HS)	1-Hour	No Federal Standards		0.03 ppm (42 µg/m^3)
Sulfates (SO_4)	24-Hour			25 µg/m^3
Visibility Reducing Particles	8-Hour (10 am to 6 pm, Pacific Standard Time)			In sufficient amount to produce an extinction coefficient of 0.23 per km due to particles when the relative humidity is less than 70 percent.
Vinyl chloride[9]	24 Hour			0.01 ppm (26 µg/m^3)

[1] NAAQS (other than O_3, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when 99 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the USEPA for further clarification and current federal policies.

[2] California Ambient Air Quality Standards for O_3, CO (except Lake Tahoe), SO_2 (1- and 24-hour), NO_2, PM_{10}, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded.

[3] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[4] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[5] Concentration expressed first in units in which it was promulgated. Ppm in this table refers to ppm by volume or micromoles of pollutant per mole of gas.

[6] On June 15, 2005 the 1-hour ozone standard was revoked for all areas except the 8-hour ozone nonattainment Early Action Compact Areas (those areas do not yet have an effective date for their 8-hour designations). Additional information on federal ozone standards is available at http://www.epa.gov/oar/oaqps/greenbk/index.html.

[7] Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, the USEPA revoked the annual PM_{10} standard on December 17, 2006.

[8] Effective, December 17, 2006, the USEPA lowered the $PM_{2.5}$ 24-hour standard from 65 µg/m^3 to 35 µg/m^3.

[9] The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

ppm = parts per million; µg/m^3 = micrograms per cubic meter; mg/m^3 = milligrams per cubic meter

Reference: USEPA 2006 is National Ambient Air Quality Standards (NAAQS), available at http://www.epa.gov/oar/oaqps/greenbk/index.html.

Reference: CARB 2006 is California Ambient Air Quality Standards (CAAQS) available at http://www.epa.gov/oar/oaqps/greenbk/index.html.

REGIONAL AUTHORITY

In the Basin, the South Coast Air Quality Management District (SCAQMD) is the agency responsible for the administration of federal and state air quality laws, regulations, and policies. SCAQMD regulations require that any equipment that emits or controls air contaminants be permitted prior to construction,

installation, or operation (Permit to Construct or Permit to Operate). The SCAQMD is responsible for review of applications and for the approval and issuance of these permits.

Included in the SCAQMD's tasks are monitoring of air pollution, preparation of the Air Quality Management Plans (AQMP) and SIP for the Basin, and promulgation of its Rules and Regulations. The SIP includes strategies and tactics to be used to attain maintain the federal standards in the Los Angeles – South Coast Air Basin area and the AQMP addresses the state standards. Every three years, SCAQMD prepares the AQMP; each iteration of the plan is an update of the previous plan and has a 20 year horizon. The Final 2003 AQMP was adopted by the SCAQMD Governing Board on August 1, 2003 (SCAQMD 2005b). The Rules and Regulations include procedures and requirements to control the emission of pollutants and to prevent adverse impacts.

Areas are classified under the Federal Clean Air Act as either "attainment" or "non-attainment" areas for each criteria pollutant based on whether the NAAQS have been achieved or not. Attainment relative to the state standards is determined by the California Air Resources Board (CARB). If an area is redesignated from nonattainment to attainment, the Federal Clean Air Act (CAA) requires a revision to the SIP, a maintenance plan which demonstrates how the air quality standard will be maintained for at least 10 years. The project site is located in the Los Angeles County portion of the Basin; federal and state attainment designations are shown in Table 3-9.

TABLE 3-9 ATTAINMENT DESIGNATIONS FOR LOS ANGELES COUNTY

Pollutant	Attainment Status	
	Federal	**State**
O_3 (1[a]- and 8-hour)	Severe-17 nonattainment	Nonattainment
PM_{10}	Nonattainment Serious	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment/Maintenance	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
Pb	Attainment	Attainment

[a] Federal 1-hour O_3 repealed by law with implementation of the 8-hour standard.

Sources: EPA, *The Green Book Nonattainment Areas for Criteria Pollutants*, website http://www.epa.gov/air/oaqps/greenbk/, accessed February 5, 2008; ARB, Area Designations, 2007, website http://www.arb.ca.gov/desig/adm/adm.htm, accessed February 4, 2008.

In 1999, the California Air Resources Board (CARB) identified particulate emissions from diesel-fueled engines as a Toxic Air Contaminant (TAC). Once a substance is identified as a TAC, the CARB is required by law to determine if there is a need for further control. This is referred to as risk management. The process of further studies is ongoing at ARB, with committees meeting to analyze both stationary and mobile diesel engine sources, as well as many other aspects of the problem. No guidance has been issued on impact analysis or control measures. Therefore, other than recognition of CARB actions, no analysis can be made at this time for TAC impact from diesel engine exhaust.

3.3.3 ENVIRONMENTAL ANALYSIS

Project-related emissions were estimated by use of the URBEMIS 2007 software package, version 9.2.4 (Jones & Stokes 2008). The emission factors and calculation methodologies contained in the URBEMIS 2007 program have been approved for use by the CARB. URBEMIS is a calculation tool designed to estimate air emissions from land use development projects based on development type and size. The model contains data that are specific for each California air basin.

Air quality impacts associated with the proposed action are caused by emissions from construction activities. Construction may affect air quality as a result of (1) construction equipment emissions, including both on-site equipment and trucks operating off-site for the import of fill and building materials and the export of demolition and grading spoils; (2) fugitive dust from grading and earth-moving; (3) emissions from vehicles driven to/from the sites by construction workers; and (4) VOC from asphalt application.

The URBEMIS program considers a typical development project to have several sequential phases of construction including demolition, grading, building construction, paving etc. A pipeline installation project is not a typical development project, and it is probable that excavation, pipeline placement, backfill, and paving would all occur simultaneously during the project. The phases used for this project are coffer dam construction, pavement demolition, excavation, pipe construction and backfill and paving. The program elements are combined to evaluate reasonable worst-case conditions. Data relative to the proposed action are based on the description in Chapter 2 of this EIR and the following assumptions:

- Construction would begin in June 2009.
- The duration of construction would be 20 months, averaging 22 days per month. While inclement weather may extend the total duration, there would be the equivalent of 20 months of construction, or 396 days.
- Approximately 400 cubic yards of soil would be exported from the project site per day.
- Except for the initial and final phases, pavement demolition, excavation, pipe installation, form construction, concrete placement, backfill, and paving would often occur simultaneously, resulting in the reasonable worst-case day.

Changes in plan layouts and area or other factors are anticipated to be within the accuracy of the estimating methodology. URBEMIS data sheets are included in this EIR as Appendix B.

THRESHOLDS OF SIGNIFICANCE

The project would have a significant effect on air quality if it would result in one or more of the following:

- violate any air quality standard or contribute substantially to an existing or projected air quality violation. Air quality significance thresholds established by SCAQMD are listed in Table 3-10;

- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors); or

- expose sensitive receptors to substantial pollutant concentrations.

TABLE 3-10 SCAQMD AIR QUALITY SIGNIFICANCE THRESHOLDS[5]

Mass Daily Thresholds		
Pollutant	**Construction**	**Operation**
NO_X	100 lbs/day	55 lbs/day
ROC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_X	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Toxic Air Contaminants (TACs) and Odor Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality for Criteria Pollutants [a]		
NO_2	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards:	
1-hour average	0.25 ppm (state)	
annual average	0.053 ppm (federal)	
PM_{10} 24-hour average	10.4 µg/m^3 (construction) [b] & 2.5 µg/m^3 (operation)	
annual geometric average	1.0 µg/m^3	
annual arithmetic mean	20 µg/m^3	
$PM_{2.5}$ 24-hour average	10.4 µg/m^3 (construction) [b] & 2.5 µg/m^3 (operation)	
Sulfate 24-hour average	1 ug/m^3	
CO	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards:	
1-hour average	20 ppm (state)	
8-hour average	9.0 ppm (state/federal)	

lbs/day = pounds per day
ppm = parts per million
ug/m^3 = micrograms per cubic meter
≥ greater than or equal to
[a] Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated.
[b] Ambient air quality threshold based SCAQMD Rule 403.
Table revision date: December 2007
Source: SCAQMD, *Air Quality Analysis Guidance Handbook.* Available at http://www.aqmd.gov/ceqa/hdbk.html. Accessed March 19, 2008

5 SCAQMD, http://www.aqmd.gov/ceqa/hdbk.html

EFFECTS FOUND NOT TO BE SIGNIFICANT

The Initial Study prepared for the proposed project in May 2004 determined that three air quality issues were less than significant and did not need to be analyzed in the EIR. Specifically, the Initial Study determined that the project would not:

- conflict with or obstruct implementation of the applicable air quality plan;
- create or contribute to a non-stationary source "hot spot" (primarily carbon monoxide); or
- create objectionable odors affecting a substantial number of people.

As discussed in the Initial Study, operation of the storm drain system would be passive (it would not require the routine or daily use of machinery or personnel to operate), except for periodic cleaning of the storm drain catch basin screens, the operation of the pumps to divert flows collected north of 7th Street to the sanitary sewer system, and intermittent trips by maintenance personnel to check system facilities. Emissions from these activities would be negligible and would not trigger any of the applicable operations thresholds. Accordingly, there would be no air quality emissions impact from operations. For example, the project would not create or contribute to a non-stationary sources "hot spot" since no operational vehicle trips would occur. Likewise, the project would not conflict with or obstruct implementation of the applicable air quality management plan as no housing or job growth would occur and no long-term emissions would be attributed to the project. Accordingly, the following impact analysis discusses potential impacts associated with construction of the proposed project only. Additionally, the proposed project would not result in any construction or operational activities that would generate objectionable odors. Therefore, impacts associated with odors are not discussed further.

IMPACT ANALYSIS

AIR-1 *Construction of the proposed project would violate SCAQMD's air quality standards for NO_x and would contribute to an existing or projected air quality violation.*

Construction of the project has the potential to create air quality impacts through the use of heavy-duty construction equipment and through vehicle trips generated from construction workers traveling to and from the project site. In addition, fugitive dust emissions would result from site preparation and construction activities. Mobile source emissions, primarily NO_X, would result from the use of construction equipment such as bulldozers, wheeled loaders, and cranes. During the finishing phase, paving operations would release reactive organic compounds. The assessment of construction air quality impacts considers each of these potential sources. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation and, for dust, the prevailing weather conditions. The principal sources of pollutant emissions during construction are construction equipment engine exhaust and fugitive dust.

During construction, fugitive dust would be created during demolition activities, site clearing, excavation and grading; removal of pavement; vehicle travel on paved roads and unpaved areas; and material blown from unprotected graded areas and stockpiles. Fugitive dust includes PM_{10} and $PM_{2.5}$, which are potential health hazards and often contribute to visibility and nuisance impacts, which occur when dust from construction activities is deposited on homes, vehicles, and plants. In construction equipment exhaust, the principal pollutants of concern are NO_X and VOC, the primary constituents in the formation of O_3, which is a regional nonattainment pollutant for Los Angeles County.

Construction emissions provided in Table 3-11 were calculated in accordance with the methodology described above. The proposed project would be required to adhere to the requirements of SCAQMD Rule 403 for dust abatement as part of their construction permits. SCAQMD Rule 403 includes dust abatement requirements to ensure the inclusion of best management practices for addressing construction-related dust. However, as shown in the table, estimated emissions of NO_X for the maximum day of activity are 111 pounds, which would exceed the 100 pound per day threshold. Estimated emissions of the other four pollutants, VOC, CO, PM_{10}, and $PM_{2.5}$ would be less than the applicable thresholds. The exceedance of the NO_X emissions threshold would be a significant impact. However, mitigation measure AIR-A is included below to reduce impacts from NO_X below the SCAQMD CEQA significance thresholds.

TABLE 3-11 ESTIMATED REGIONAL CONSTRUCTION EMISSIONS – TERMINO AVENUE DRAIN[1]

Activity	Estimated Pollutant Emissions (lbs/day)					
	ROG	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Coffer Dam Construction	2	17	16	<1	1	1
Pavement Demolition[1]	1	4	5	<1	1	1
Excavation[2]	8	63	33	<1	58	15
Pipe Construction and Backfill[3]	5	50	21	<1	17	5
Paving	1	5	5	<1	<1	<1
Overlap: Coffer Dam Construction, Pavement Demolition, Excavation, Pipe Construction and Backfill	16	**134**	75	<1	77	21
Overlap: Pavement Demolition, Excavation, Pipe Construction and Backfill, Paving	14	**121**	64	<1	76	20
Daily Thresholds for Construction Emissions	*75*	*100*	*550*	*150*	*150*	*55*
Exceeds Threshold?	*No*	***Yes***	*No*	*No*	*No*	*No*

Bold = exceeds threshold

[1] Assumptions: 80 cubic feet of pavement demolition per day

[2] Assumptions: 400 cubic yards of cut/fill per day, 20 round trips per day, hauling distance = 20 miles

[3] Assumptions: 20 round trips per day for concrete hauling - distance 20 miles

AIR-2 *Construction of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.*

As discussed above, the Basin is designated nonattainment for state PM_{10}, $PM_{2.5}$, O_3, and CO standards, and federal PM_{10}, $PM_{2.5}$, O_3, and CO standards. Table 3-11 shows that the proposed project would not exceed thresholds established for PM_{10}, $PM_{2.5}$, O_3, or CO. Thresholds would only be exceeded for NO_X, which is not designated as non-attainment under federal or state standards. Impacts would be less than significant.

AIR-3 *Construction of the proposed project would not expose sensitive receptors to substantial pollutant concentrations.*

The SCAQMD has promulgated standards and methodology for calculation of impacts based on Localized Significance Thresholds (LST) (SCAQMD 2003). Calculation of LST is a voluntary procedure, but has more importance when sensitive receptors are close to sources of emissions. As residences are very close to the main storm drain work areas, the LST calculations are included in this air quality analysis.

An LST analysis is a localized air dispersion modeling analysis. Air dispersion modeling is a function of multi-variables, including local-specific meteorological conditions, site-specific air pollutant emission levels, and sensitive receptor distances to the modeling site. LST analyses utilize air dispersion modeling methodologies to predict maximum concentration levels of air pollutant emissions generated from a project site that could reach nearby sensitive receptors based on mathematic simulation of meteorological dispersion processes. The pollutants of concern are NO_x, CO, PM_{10}, and $PM_{2.5}$. The SCAQMD thresholds of significance for LST emissions are shown in Table 3-6.

In order to minimize efforts for detailed dispersion modeling, SCAQMD developed screening (lookup) tables to assist lead agencies with a simple tool for evaluating impacts from small typical projects. The use of LST lookup tables is limited to projects that are 5 acres or smaller in size, with operations during the day, limited to 8 hours of operations, and with emissions distributed evenly across the proposed site. Since the Termino Avenue Drain project would not have construction activities occurring on an area larger than 5 acres at a time, the look-up tables were used for analysis. The screening tables require the following information:

- **The area of the project site.** The lookup tables provide data for 1, 2, and 5-acre sites. Because the site is linear, and any single receptor would be exposed to construction activities on a limited duration when construction is in the immediate vicinity of the receptor, a 1-acre area was selected. This size would represent, for example, a work area 15 meters (50 feet) wide by 244 meters (800 feet) long.

- **Maximum daily emissions of CO, NO_X, PM_{10}, and $PM_{2.5}$, in pounds per day.** These data were calculated with the URBEMIS 2007, version 9.2.4 model, as described above. Unlike the regional emissions calculations, simultaneous construction activities would not occur in a 1-acre area near a receptor. The worst case scenario was examined: excavation would produce the greatest amount of CO, NO_X, PM_{10} and $PM_{2.5}$. In the LST analysis, only on-site emissions are considered; thus, off-site emissions, such as haul trucks and worker commuting are not included. The URBEMIS data sheets are included in Appendix B to this EIR.

- **Distance from the boundary of the project to the nearest off-site receptor.** The look-up tables analyze distances of 25, 50, 100, 200, and 500 meters (82, 164, 328, 656, and 1,640 feet) from the boundary of the project to the nearest off-site receptor. The closest receptors to the project site are residences adjacent to the storm drain corridor, less than 25 meters (82 feet) away. The LST methodology states that projects with boundaries located closer than 25 meters (82 feet) from the nearest receptors should use the values for the distance of 25 meters (82 feet) away.

- **Geographic location of the construction site in terms of district source/receptor area (SRA).** These data are required because emissions thresholds are based on local pollutant measurements and meteorology. The proposed project is located in SRA 4 – South Coastal Los Angeles County.

Construction emissions for the LST analysis were calculated in accordance with the methodology described above. Results are shown in Table 3-6. According to the SCAQMD methodology, "if the calculated emissions for the proposed construction or operational activities are below the LST emission found on the LST lookup tables, then the proposed construction or operation activity is not significant" (SCAQMD 2005d).

TABLE 3-6 LOCAL PROJECT EMISSIONS

Pollutant		Maximum Daily Emissions[1] lbs/day	LST Threshold[2] lbs/day	Exceed threshold?
NO_X		48.55	126/100[3]	No
CO		24.05	449	No
PM_{10}	Unmitigated	57.57	4	Yes
	Mitigated	19.58		
$PM_{2.5}$	Unmitigated	14.06	3	Yes
	Mitigated	6.13		

[1] See URBEMIS data sheets, Appendix B; greatest values from the two scenarios described above.
[2] LST thresholds from SCAQMD 2005d.
[3] LST thresholds for NO_X are higher than SCAQMD mass emissions thresholds; therefore the lower numbers, which are the mass emissions thresholds, apply.

As shown in Table 3-6, PM_{10} and $PM_{2.5}$ emissions would exceed the LST thresholds. The mitigated PM emissions in Table 3-6 represent emissions after dust mitigation allowed by URBEMIS. As mentioned

above, the project would comply with SCAQMD Rule 403 for dust control. Not all measures included in Rule 403 can be quantified in URBEMIS; therefore, the emission reductions would likely be greater than those shown above. Additionally, excavation activities would not occur near a particular receptor for more than 1 to 2 days, before construction activities are completed. Thus, the LST analysis for the Termino Project is not representative of a construction project where receptors would be exposed to construction emissions for a longer period. Although impacts from local emissions of the proposed project to sensitive receptors would likely be less than indicated in the above table, because the daily emissions would exceed the LST thresholds, impacts would be significant and unavoidable.

3.3.4 MITIGATION MEASURES

Emissions of NO_X during project construction would exceed the CEQA significance thresholds set by SCAQMD, and would be significant. The principal source of NO_X emissions is diesel-engine driven construction equipment (i.e. off-road equipment). A secondary source is on-road diesel equipment, which is the trucks used to bring concrete and other materials to the site, and to transport demolition spoils from the site. The most effective means of NO_X emission reduction for diesel engines include cooled exhaust gas recirculation (EGR), diesel oxidation catalysts, lean NO_x catalysts, and low NO_x fuels. However, application of the above methods to all off-road and on-road diesel engine powered equipment on a large project would generally not be feasible due to the cost of implementation and the availability of these materials. Therefore, the mitigation strategy adopted by the Sacramento Metropolitan Air Quality Management District (SMAQMD) shall be applied to the project, as follows (SMAQMD 2005).

AIR-A The contractor shall provide a plan, for approval by the Los Angeles County Department of Public Works, demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 25 percent NO_X reduction compared to the most recent CARB fleet average at time of construction. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.

The construction contractor shall submit to the Los Angeles County Department of Public Works a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. The inventory shall include the horsepower rating, engine production year, and projected hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the construction contractor shall provide DPW

with the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman.

All property owners within 300 feet of the proposed storm drain construction zone shall be notified, in writing, of the proposed construction schedule. Contact information for questions or to report air quality violations shall be provided, including phone numbers for the County Department of Public Works inspector, area engineer, and office engineer. The notification, by standard mail, shall be delivered at least two weeks prior to the start of work.

AIR-B The construction contractor shall ensure that all excavation sites and excavated soil shall be watered to ensure that the soil is wet to minimize dust plumes. Haul trucks shall be covered when loaded with fill. Open storage piles shall have water applied once per hour or shall be covered to prevent fugitive dust plumes beyond the project boundary.

3.3.5 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

The application of mitigation measure AIR-A would reduce NO_X emissions below the SCAQMD CEQA significance thresholds. However, although implementation of Rule 403 and Mitigation Measure AIR-B would reduce LST impacts associated with PM_{10} and $PM_{2.5}$ emissions, they would still exceed the maximum daily emissions thresholds and impacts would remain significant and unavoidable.

3.4 IMPACT OVERVIEW

This chapter provides an overview of the environmental effects of the proposed project, including significant unavoidable adverse impacts, impacts not found to be significant, cumulative impacts, significant irreversible environmental changes, and growth-inducing impacts. Cross-references are made throughout this chapter to other sections in this EIR where more detailed discussions of impacts of the proposed project can be found.

3.4.1 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

This section is prepared in accordance with Section 15126.2(b) of the *CEQA Guidelines*, which requires the discussion of any significant environmental effects that cannot be avoided if a project is implemented. These include impacts that can be mitigated but cannot be reduced to a less than significant level. An analysis of environmental impacts caused by the proposed project has been conducted and is contained in this EIR. Eleven issue areas were analyzed in detail in Chapter 3. Two issues have been found to result in significant unavoidable adverse impacts – Air Quality (construction NO_x) and Noise (construction noise and vibration). The project would also result in significant unavoidable cumulative impacts related to air quality, as discussed in Section 3.4.3 below.

3.4.2 EFFECTS NOT FOUND TO BE SIGNIFICANT

Sections 15128 and 15143 of the *CEQA Guidelines* require the identification of impacts of a project that were determined not to be significant and that were not discussed in detail in the impact section of the EIR. For this project, it was determined that significant impacts would not occur in the following resource categories: Agricultural Resources, Mineral Resources, Population and Housing, Public Services, and Utilities and Service Systems. An Initial Study was prepared which outlines the reasons why these effects were found to be not significant. The following discussion summarizes these findings.

AGRICULTURAL RESOURCES

Based on farmland mapping provided by the Natural Resources Conservation Service, there is no designated farmland within the project area; therefore, no impacts to Prime, Unique, or Statewide Important Farmland would occur (DLRP 2004). There are also no Williamson Act contract lands in the project area. The project site is zoned as planned development, residential, parks and recreation, and commercial (City of Long Beach, Planning Bureau 2004). Therefore, the project would not conflict with any existing agricultural zoning, and no agricultural activities occur on-site. No impacts would occur.

MINERAL RESOURCES

There are no known mineral deposits of economic importance to the state or region underlying the project site. The project site is not located in any City-designated mineral resource or mineral resource extraction

zones (City of Long Beach, Planning Bureau 2004). The construction of the proposed project would not result in the loss of availability of any known mineral resource.

POPULATION AND HOUSING

The site of the proposed storm drain system is currently occupied by existing greenspace, roadway, parking lot, and sidewalk. No housing units or persons would be displaced as a result of the storm drain construction. The storm drain would not require new homes, nor would it encourage people to move to the project area. The new system would be intended to protect the existing drainage area, and would not provide infrastructure that would directly or indirectly result in population growth. No new jobs would be created upon completion of the project. Operation of the drainage system would therefore not induce employment growth or household formation. Therefore, the proposed project would not induce population growth in the project area.

PUBLIC SERVICES

Fire Protection

Fire protection in the project area is provided by the Long Beach Fire Department, which operates 23 stations grouped under 19 divisions within 4 bureaus. The nearest stations to the project site are Fire Station No. 4 (411 Loma Avenue), located approximately 0.5 mile northeast of the proposed project and Fire Station No. 14 (5200 Elliot Avenue), located immediately east of the proposed alignment. Construction activities and staging areas would not impact operation at the fire stations nor would operation of the proposed project require additional fire protective services. Adequate notification of lane closures would be provided to the Long Beach Fire Department. Impacts would be less than significant.

Police Protection

The project area is served by the Long Beach Police Department, East Division. The proposed improvements would not induce development resulting in increased response time or the need for additional staffing and equipment. Upon completion of the 18-month construction period, the alignment would be returned to its existing condition and no changes to vehicular or pedestrian access would occur. During construction, some lane closures would occur along Termino Avenue, 10th Street, 7th Street, Anaheim Street, Ximeno Avenue, and Apian Way would occur. This would result in temporary impacts as a result of vehicle traffic delay, slowing of vehicle speeds at the roadway approaches and intersections (deterioration of roadway and intersection LOS), and restricted access to adjacent properties during the period of construction. In addition, due to the slow speed of vehicles hauling construction equipment on local roadways, the risk of vehicle accidents would increase and response times for emergency vehicles would be reduced. However, since the majority of construction impacts would not occur on public roads and adequate notification of lane closures would be provided to the Long Beach Police Department, impacts to police protection services are not anticipated. In addition, implementation of mitigation

measures TRANS-A through TRANS-G (see Section 3.5, Transportation and Circulation) would further reduce the potential for impacts to police protection services.

Schools

The proposed project area is within the Long Beach Unified School District (LBUSD). There are six schools located within ¼ mile of the proposed alignment. Lowell Elementary School (5201 East Broadway), John C. Fremont Elementary School (4000 East 4th Street), Bryant Elementary School (4101 East Fountain Street), Will Rogers Middle School (365 Monrovia Avenue), Jefferson Middle School (750 Euclid Avenue), and Woodrow Wilson High School (4400 East 10th Street). Development of the proposed project would not generate additional students within LBUSD nor would it increase the demand for schools, as the project would not induce substantial population growth. Schools would not be impacted by the proposed project.

Parks

There are four parks located within a 1-mile radius of the proposed project: Will Rogers Mini Park, located east of the intersection of Appian Way and Nieto Avenue, immediately southwest of the proposed project; Marina Vista Park, located immediately east of the proposed project, between Colorado Street and Marine Stadium; Colorado Lagoon Park, located approximately 175 feet west of the proposed project; and Recreation Park, which included Blair Field, an 18-hole golf course, and a 9-hole golf course, approximately 0.25 mile west of the proposed project. Construction impacts would temporarily alter pedestrian access to some recreational areas due to lane closures, road construction, and PE right-of-way construction; however, alternative access would be provided during construction and all of the parks would still be available for use by the community. No operational impacts to parkland are expected to occur.

The proposed project would not increase the need for park facilities, nor would it reduce existing parks or recreational facilities. As the project would not induce substantial population growth or directly affect any parks, no adverse impacts would occur to existing parks. See Chapter 3.11, Recreation, for a more complete discussion of the impacts of the project on recreation.

Other Public Facilities

The nearest libraries to the project site are the Brewitt Library (4036 East Anaheim Street), located immediately to the east of the terminus of the lateral at Termino Avenue and Anaheim Street, and the Bay Shore Library (195 Bay Shore Avenue), approximately 0.6 mile south of the proposed project. Construction and operation of the proposed project would not restrict access or prevent residents from using these libraries, nor would it increase use of these libraries. The proposed project would not result in the need for additional library services; therefore, impacts to library services would not occur.

UTILITIES AND SERVICE SYSTEMS

The proposed project would use water only during construction for dust control and for personal use by construction personnel. The contractor would supply the water necessary to accommodate project construction. All required water and wastewater connections are currently constructed and in operation. The project would not require the need for expanded facilities, and therefore no impact would occur.

The project is exempt from wastewater treatment requirements of the RWQCB or NPDES regulations relating to wastewater discharge because no point source discharge of wastewater would occur. Approximately 80 gallons per minute of stormwater would be diverted to the County sanitary sewer line and treated. The County of Los Angeles Sanitation Department has indicated that there is adequate capacity to treat the stormwater. The project would not require additional drainage systems, nor would it result in the need for expanded off-site drainage facilities.

During construction, small quantities of debris and materials would be hauled to an approved solid waste disposal facility. Given the small quantity of material, the project would not substantially affect the capacity of existing land fills in the project area. Upon completion of construction, the project would not generate solid waste.

3.4.3 CUMULATIVE IMPACTS

According to Section 15355 of the *CEQA Guidelines*, cumulative impacts refer to:

> "Two or more individual effects which, when considered together, are considerable or which compound or increase other environmental effects. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time."

Sections 15130(a) and 15130(a)(3) of the *CEQA Guidelines* state that:

> "An EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable, as defined in section 15065(c). Where a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," a lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable.
>
> An EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus is not significant. A project's contribution is less than cumulatively considerable if the project is required to

> implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact. The lead agency shall identify facts and analysis supporting its conclusion that the contribution will be rendered less than cumulatively considerable."

According to Section 15130 (b)(1)(A) of the *CEQA Guidelines*, a list of past, present, and probable future projects producing related or cumulative impacts may be used as the basis of the cumulative impacts analysis. The "list" approach was used for the cumulative impacts discussion in this EIR. Table 2-4 provides a list of related projects in the City within one mile of the proposed alignment, based on information provided by the City of Long Beach Planning Department. Figure 3-6 shows the locations of the related projects within one mile of the project site. A radius of 1-mile was selected based on several factors, including:

Location: The project involves underground storm drain improvements in a highly urbanized area. The project would create short-term impacts along the proposed alignment during the construction phase; however, the most of the project components would not be visible after the project is constructed, since the new storm drain would be buried underground. Construction activities would primarily affect the immediate right-of-way; therefore, the 1-mile radius would capture all cumulative projects that would contribute to short-term construction-related impacts.

Project type: As discussed in this EIR, the project's operational impacts would be minimal, since the storm drain would be located underground, would require very limited maintenance, and would not create new land uses in the project area. Based on this project type, a 1-mile radius for cumulative projects was determined by DPW to adequately capture the past, present, and probable future projects that would potentially contribute to cumulative impacts.

LAND USE

The one-mile cumulative project radius adequately captures the past, present, and probable future projects that would potentially contribute to cumulative land use impacts. Upon completion, the storm drain would be buried underground and the proposed alignment would be returned to its pre-project condition. No land use patterns or land use designations would be altered as a result of the project. Development of other cumulative projects in the City of Long Beach would result in further urbanization and redevelopment in the surrounding metropolitan area. The proposed project would not change any land use or zoning designations or alter land use patterns in the City of Long Beach. Each cumulative project is subject to independent environmental review, which would include land use conformity analyses, to ensure that no significant cumulative impacts related to land use compatibility and consistency would occur. The proposed project would not contribute to cumulative land use impacts.

AESTHETICS, LIGHT AND GLARE

No projects are located within a one- to two-block radius of the project site which would create a cumulative aesthetic impact. Any project located at a greater distance than one or two blocks would not have a view of the proposed project site. Three of the five projects located within one-mile from the project area are residential developments that are consistent with the types of uses within their respective area and, therefore, are not anticipated to have the potential to combine with the proposed project to create a cumulative aesthetic impact. The fourth project, a 6,200 square-foot commercial expansion to an existing Ralph's Supermarket would also be consistent with the existing use of the area and is not expected to result in a cumulatively considerable aesthetic impact when considered conjunctively with the related projects. The fifth project, the Colorado Lagoon Restoration Project, consists of activities to improve water quality within Colorado Lagoon and would not result in visual impacts which would create a cumulative aesthetic impact when combined with the proposed project. As discussed in Chapter 3.2, Aesthetics, the majority of the project would be located underground and no visual impacts are anticipated.

BIOLOGICAL RESOURCES

The project site is situated in a heavily urbanized area and is not linked to any migration corridors, significant ecological areas, or other protected natural areas. The one-mile cumulative project radius adequately captures the past, present, and probable future projects that would potentially contribute to cumulative biological resource impacts. Related projects are unlikely to result in significant impacts to biological resources due to the disturbed and/or developed condition of the area. After construction of the project, the Pacific Electric (PE) right-of-way would be restored to its existing condition. Impacts to terrestrial habitats along the right-of-way would be mitigated to less than significant levels and no impacts to regionally significant resources would occur. The analysis in Chapter 3.3, Biological Resources, evaluates impacts to marine biological communities in Marine Stadium and Colorado Lagoon. Mitigation measures are also provided for the proposed project to replace the affected eelgrass habitat in Marine Stadium, as well as to prevent impacts to sea turtles, Pacific harbor seals, and California sea lions.

In addition, both the proposed project and the Colorado Lagoon project include the installation of catch basin screens and a low-flow diversion system to divert non-storm water flows to the County Sanitation District sewer line, which would improve water quality within Marine Stadium and Colorado Lagoon by reducing the amount of pollutants and trash they receive from dry weather runoff. The Colorado Lagoon Restoration Project would clean out the tidal culvert between Colorado Lagoon and Marine Stadium, improving tidal flushing. The improved water and sediment quality resulting from the low-flow diversion system and the removal of the bio-fouling from the culvert would potentially improve the biological resources within the Colorado Lagoon by attracting a more diverse invertebrate and fish community and supporting valuable species, including eelgrass (City of Long Beach 2004). As none of the other projects involve impacts to Marine Stadium and the Colorado Lagoon Restoration project would improve water quality by cleaning out the existing tidal culvert, no cumulative impacts would occur.

CULTURAL RESOURCES

The one-mile cumulative project radius adequately captures the past, present, and probable future projects that would potentially contribute to cumulative cultural resource impacts. The proposed project, in conjunction with other cumulative projects in the area, could result in the disturbance of archaeological and/or historic resources in the area. However, each cumulative project would be responsible for implementing the necessary measures to protect any existing cultural resources in the area. Mitigation measures are provided for the proposed project in the event that buried cultural resources are encountered during construction. Therefore, no significant cumulative impacts are anticipated to occur on these resources.

TRANSPORTATION/CIRCULATION

The proposed project, in conjunction with other cumulative projects in the area, would not add traffic to local intersections within a one-mile radius of the project site. As discussed in Chapter 3.5, Transportation and Circulation, traffic volumes under the operational conditions would not change from the existing conditions. During construction, a limited number of construction vehicles would travel to the site, as construction crews would number approximately 20 people per day. Four of the five related projects located near the project site are small residential or commercial developments and the fifth consists of water quality improvement measures which would have no impact on traffic. These projects, in addition to the proposed project, would not result in a cumulative traffic impact.

AIR QUALITY

The proposed project, in conjunction with other cumulative projects in the area, would generate short-term air pollutant emissions from construction. No long-term emissions would result from operation of the project. Each of the related projects would have construction emissions and would generate additional vehicle trips in the project vicinity, contributing to existing air quality violations. All projects would be required to comply with the SCAQMD's air pollution control measures and rules. Implementation of these measures would reduce air emissions; however, cumulative air quality impacts related to PM_{10} and $PM_{2.5}$ emissions from construction of the project and other cumulative projects in the area would be significant and unavoidable. Operation of the project would not contribute to cumulative air quality impacts.

Global Climate Change

As discussed in Section 3.6, Air Quality, climate change is a global problem, and GHGs are global pollutants, unlike criteria air pollutants and TACs, which are pollutants of regional and local concern, respectively. Human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for an enhancement of the Greenhouse Effect, which have led to a trend of unnatural warming of the Earth's climate, known as global warming or global climate change (Ahrens 2003). Emissions of

GHGs contributing to global climate change are attributable in large part to human activities associated with industrial/manufacturing, utility, transportation, residential, and agricultural sectors (California Energy Commission 2006). Because every nation is an emitter of GHGs, and therefore makes an incremental cumulative contribution to global climate change, cooperation on a global scale will be required to reduce the rate of GHG emissions to a level that can help slow or stop human-caused increase in average global temperatures and associated changes in climatic conditions. As such, this issue is discussed in a cumulative context only.

As discussed in Section 3.6, operation of the storm drain system would be passive (it would not require the routine or daily use of machinery or personnel to operate), except for periodic cleaning of the storm drain catch basin screens, the operation of the small electric pumps to divert flows collected north of 7th Street to the sanitary sewer system, and intermittent trips by maintenance personnel to check system facilities. Emissions from these activities would be minimal and would be similar to those required for the current storm drain system. As such, operational emissions would not trigger any of the applicable operations thresholds. Accordingly, GHG emissions associated with the proposed project are focused on the 18- to 24-month construction period. Additionally, completion of the Termino Avenue Drain project would allow the City to proceed with the planned greenbelt restoration project, which would result in the creation of new vegetation and trees in an area currently consisting of vacant dirt corridors. Using sunlight for energy, trees and other green plants take one of the dominant GHGs, carbon dioxide, out of the atmosphere and store the carbon safely while releasing oxygen in the process.

Short-term sources of project-generated GHG emissions would be the off-road construction equipment and on-road vehicles used for site preparation, grading, and construction of the site facilities. The combustion of gasoline and diesel fuel results in the generation of CO_2, methane, and nitrous oxide. As such, construction of the proposed project would generate emissions that would exceed existing levels and contribute to global warming impacts. Specifically, the project would generate 2,561 tons of CO_2 emissions. Implementation of mitigation measure AIR-A during construction would reduce the proposed project's contribution of GHG emissions. In addition, at least 50 percent of the site materials would be recycled or salvaged in accordance with AB 939 further reducing the proposed project's contribution to GHG emissions during construction activities.

On September 27 2006, Governor Arnold Schwarzenegger signed AB 32, which requires the CARB to monitor and reduce greenhouse gas emissions. Specifically, AB 32 requires the CARB to:

- Establish a statewide greenhouse gas emissions cap for 2020, based on 1990 emissions by January 1, 2008
- Adopt mandatory reporting rules for significant sources of greenhouse gases by January 1, 2008
- Adopt a plan by January 1, 2009 indicating how emission reductions will be achieved from significant greenhouse gas sources via regulations, market mechanisms and other actions

- Adopt regulations by January 1, 2011 to achieve the maximum technologically feasible and cost-effective reductions in greenhouse gases, including provisions for using both market mechanisms and alternative compliance mechanisms

- Convene an Environmental Justice Advisory Committee and an Economic and Technology Advancement Advisory Committee to advise CARB

- Ensure public notice and opportunity for comment for all CARB actions

- Prior to imposing any mandates or authorizing market mechanisms, requires CARB to evaluate several factors, including but not limited to: impacts on California's economy, the environment, and public health; equity between regulated entities; electricity reliability, conformance with other environmental laws, and to ensure that the rules do not disproportionately impact low-income communities

- Adopt a list of discrete, early action measures by July 1, 2007 that can be implemented before January 1, 2010 and adopt such measures.

As of this writing, there are no adopted Federal plans, policies, regulations or laws addressing global warming. Further, although the California Global Warming Solutions Act of 2006 provides new regulatory direction towards limiting GHG emissions, no air districts in California, including SCAQMD, have a recommended emission threshold for determining significance associated with GHGs from development projects. To date there is little guidance regarding thresholds for construction impacts and there are no local, regional, state, or federal regulations to establish a criterion for significance to determine the cumulative impacts of GHG emissions on global warming. Therefore, in the absence of defined regulation, DPW has conservatively determined that for the purposes of this EIR, the proposed project's contribution to GHG emissions would be significant. Mitigation measure AIR-A would reduce the project's contribution to global climate change; however, given the magnitude of the impact (2,561 tons of CO_2 emissions), the impacts would remain significant and unavoidable.

NOISE

Construction-related sound levels and groundborne noise and vibration attenuate rapidly from their source. Typically, noise produced by construction equipment is reduced at a rate of about 6 dB per doubling of distance. Accordingly, the one-mile cumulative project radius adequately captures the past, present, and probable future projects that would potentially contribute to cumulative noise impacts. The project would not contribute to long-term cumulative impacts due its limited maintenance and operational requirements. Short-term impacts would be limited to the immediate project area, since construction activities would generally be confined to the proposed construction corridor. The project would not contribute to cumulative noise impacts outside of the 1-mile radius.

Increased levels of traffic associated with cumulative development would result in increased noise on local roadways. As the proposed project would not generate traffic in operation, no cumulative operational impacts would occur. During construction, project impacts would be significant and unavoidable due to the proximity to sensitive receptors. Three of the five related projects are located more than two blocks away from the proposed alignment and would not contribute to cumulative noise effects during construction. However, a fourth project (the 29 unit condominium project at 4200 E. Anaheim Street) is located two blocks, approximately 2,500 feet, to the east and the fifth project is located adjacent to the project site within Colorado Lagoon. Since construction activities for the condominium units and Colorado Lagoon Restoration projects may occur at the same time as the proposed project and in the same vicinity, these project, when combined with the proposed project, would contribute to the already significant short-term noise impacts of the proposed project and such impacts would be cumulatively significant. The Colorado Lagoon Restoration Project would involve the installation of water quality improvement features and no long term operational impacts would be anticipated. While the condominium units project would result in an operational increase to noise from additional traffic, the increase would not be expected to be significant due to the relatively low number of units associated with the project.

GEOLOGY AND SOILS

The one-mile cumulative project radius adequately captures the past, present, and probable future projects that would potentially contribute to cumulative geologic impacts since construction activities would generally be confined to the proposed construction corridor. The project would not contribute to long-term cumulative impacts due its limited maintenance and operational requirements. Short-term impacts would be limited to the immediate project area. The project would not contribute to cumulative geology and soils impacts outside of the 1-mile radius.

The proposed project would not result in the exposure of new structures and people to seismic hazards. All new structures for related projects would incorporate the required seismic safety standards to reduce impacts associated with seismic hazards to less than significant levels. There are no cumulative geologic impacts anticipated as a result of the proposed project or the projects listed in Table 2-4.

HYDROLOGY AND WATER QUALITY

The one-mile cumulative project radius adequately captures the past, present, and probable future projects that would potentially contribute to cumulative hydrology and water quality impacts. Short-term impacts would be limited to the immediate project area, since construction activities would generally be confined to the proposed construction corridor and Marine Stadium outlet area. The project would not contribute to long-term cumulative impacts due its limited maintenance and operational requirements. The hydrology model evaluated the project's impacts to the entire Alamitos Bay system and it was determined that it would not contribute to cumulative hydrology and water quality impacts outside of the 1-mile radius.

The proposed project site would be restored to the existing conditions at the conclusion of construction. No substantial changes in absorption rates, surface and groundwater quality, groundwater flow and the quantity of groundwater are anticipated to occur as a result of implementation of the proposed project and other cumulative projects. The project would improve storm water runoff and flooding conditions in the project area, thereby improving the existing hydrologic conditions in the project area. Related projects would be required to comply with water quality and waste discharge requirements to ensure that no impacts to groundwater or surface water quality would occur. No cumulative hydrology impacts would occur.

In addition, the Colorado Lagoon Restoration Project would consist of activities that would improve hydrology and water quality. The related project would remove the biofouling and sediment within the culvert to improve tidal exchange between Colorado Lagoon and Marine Stadium, install bioswales along the golf course fence-line and at drain outlets to reduce the amount of pollutants entering the Lagoon, and install a low-flow diversion system to divert non-storm water flows to the sanitary sewer line, reducing the amount of pollutants entering the Lagoon. Removal of the biofouling and sediment from the tidal culvert would potentially improve the flow capacity of the tidal culvert, thereby reducing flood water elevations within Colorado Lagoon (City of Long Beach 2004) by allowing the Lagoon to drain more quickly during storm events. The proposed project would redirect a portion of the peak flood flow from the Lagoon to Marine Stadium, thereby reducing flood water elevations within the Lagoon. Therefore, the related project, when considered together with the proposed project, would reduce impacts to hydrology and water quality.

HAZARDS AND HAZARDOUS MATERIALS

The one-mile cumulative project radius adequately captures the past, present, and probable future projects that would potentially contribute to cumulative hazards and hazardous materials impacts since construction activities would generally be confined to the proposed construction corridor. The project would not contribute to long-term cumulative impacts due its limited maintenance and operational requirements. Short-term impacts would be limited to the immediate project area. The project would not contribute to cumulative hazards or hazardous materials impacts outside of the 1-mile radius.

The proposed project and other cumulative projects within one-mile of the project are not expected to use large quantities of hazardous materials that would create a potential risk to public health and safety. The cumulative projects may use small quantities of commonly used hazardous materials, such as cleaning solvents, paint, fertilizers, etc., which pose no unwarranted risks to public health and safety with proper handling and storage. When considered together, development of cumulative projects would not affect, interfere with, or alter the County's emergency evacuation routes. Therefore, no significant cumulative impacts to public health and safety are anticipated.

In addition, the proposed project, when considered together with the Colorado Lagoon Restoration project, would reduce human hazards related to flooding by improving the storm water drainage system

so that it is suitable to convey a 50-year flood event and lowering the flood level within the lagoon. Hazards related to exposure to contaminants through contact with water would also be cumulatively reduced through the improved water quality resulting from the installation of low-flow diversion systems with both projects and the installation of bioswales and cleaning of the tidal culvert as part of the related project. Accordingly, the proposed project, when considered together with the Colorado Lagoon Restoration project, would improve potential hazards in the project area.

RECREATION

The one-mile cumulative project radius adequately captures the past, present, and probable future projects that would potentially contribute to cumulative recreation impacts since construction activities would generally be confined to the proposed construction corridor. The project would not contribute to long-term cumulative impacts due its limited maintenance and operational requirements. Short-term impacts would be limited to the immediate project area. The project would not contribute to cumulative recreation impacts outside of the 1-mile radius.

The proposed project is within the boundaries of three parks: Colorado Lagoon, Marina Vista Park, and Marine Stadium Park. No construction activities would occur within the parks. All amenities would be available to park users during project construction and operation and would not affect the provision of recreational services in the area. Temporary indirect impacts to the golf course (i.e., increased dust and noise during construction) would occur as a result of the Colorado Lagoon Restoration project; however, these will be minor and would not be cumulatively significant. No cumulative impacts to recreation would occur as a result of the project.

3.4.4 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Section 21100(b)(2)(B) and Section 15126.2(c) of the *CEQA Guidelines* require that an EIR analyze the extent to which the proposed project's primary and secondary effects would impact the environment and commit nonrenewable resources to uses that future generations will not be able to reverse.

Construction of the proposed project would result in the irreversible commitment of nonrenewable resources, including fossil fuels; natural gas; water; and building materials such as lumber, concrete, and steel. However, the proposed project is not anticipated to consume substantial amounts of energy in a wasteful manner, and it is unlikely to result in significant impacts as a result of consumption of utilities. Operation of the proposed project would also consume small amounts of nonrenewable resources including energy to operate the diversion system pump, which would limit the availability of these resources for future generations or other uses during the life of the project. However, the small amounts of resources consumed during operation of the proposed project are considered to be negligible. Although irreversible environmental changes would result from the proposed project, such changes would not be considered significant.

3.4.5 GROWTH-INDUCING IMPACTS

According to Section 15126.2 (d) of the *CEQA Guidelines*, growth-inducing impacts of the proposed project shall be discussed in the EIR. Growth-inducing impacts are those effects of the proposed project that might foster economic or population growth or the construction of new housing, either directly or indirectly, in the surrounding environment. Means by which a project may induce growth include creating jobs that attract economic or population growth to the area, promoting the construction of homes that would bring new residents to the area, or removing an existing obstacle that impedes growth in the area. According to CEQA, increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects.

Induced growth is any growth that exceeds planned growth and results from new development that would not have taken place without implementation of the proposed project. The growth-inducing potential of a project would be considered significant if it results in growth or population concentration that exceeds those assumptions included in pertinent master plans, land use plans, or projections made by regional planning authorities. However, the creation of growth-inducing potential does not automatically lead to growth, whether it would be below or in exceedance of a projected level. Under CEQA, it must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

Any environmental effects of induced growth would be secondary or indirect impacts of the proposed project. Secondary effects of growth could result in significant, adverse environmental impacts, which could include increased demand on community or public services, increased traffic and noise, degradation of air and water quality, and conversion of agricultural land and open space to developed uses. If significant, indirect environmental effects of growth may occur, the final question is whether those effects have already been considered and mitigated, or overridden if unavoidable, in a completed CEQA process, or whether they instead need to be disclosed and analyzed in the proposed action's EIR. If the induced growth is consistent with an approved general plan or community plan for the area, and a CEQA document on that plan adequately addresses the effects of growth in the plan, the environmental effects of growth induced by the proposed action have already been evaluated. In this case, the EIR for the proposed action can refer to the completed CEQA document for the impact analysis and need not evaluate it in detail again. A project that would induce growth that is not consistent with general or community plans could indirectly cause additional significant environmental impacts beyond those evaluated in the earlier CEQA document on the plan. In this case, the EIR for the proposed action would need to disclose and evaluate potential additional significant effects and propose mitigation for those effects, if feasible.

Implementation of the proposed project would not directly induce growth, as it is an infrastructure project that would serve existing and planned development in the project area. In addition, the project site and its immediate vicinity are already developed with urban land uses, including planned development, commercial and residential uses, and public facilities. Upon completion of the underground storm drain project, the alignment would be returned to its existing condition. As discussed in Chapter 3.1 and in the

Initial Study, the project would be consistent with the Land Use Element of the City's General Plan, the City's Zoning Ordinance, and the Long Beach Local Coastal Program. No housing would be removed or created as a result of the project and no permanent jobs would be created. Construction activities would result in a temporary increase in jobs and population related to construction, which could increase demand for local services and housing. However, these temporary increases would be minimal, since the project would be expected to employ construction workers already living and working in the area. As such, the proposed project would not provide for or induce a population or job growth in the vicinity.

The project would not directly or indirectly introduce new uses inconsistent with the surrounding uses or create new housing or residential land uses which would cause an increase in population. No significant impacts would occur to public services or utilities which would require an increase in service or coverage which would require the employment of additional staff, and no increase in the use of adjacent areas would occur as a result of the construction or operation of the proposed project.

The proposed project could indirectly induce some growth within the City due to reduced flooding conditions; however, this growth would be limited, since the drainage area is already highly developed. Population growth would not occur as a result of the improved flooding conditions in this portion of Long Beach; therefore, the project is not expected to significantly induce growth in the City and surrounding communities. Secondary impacts associated with the construction and operation of the project would be less than significant.

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Appendix A
Biological Technical Report

BIOLOGICAL TECHNICAL REPORT
FOR THE
TERMINO AVENUE DRAIN PROJECT
LONG BEACH, CALIFORNIA

Prepared for:

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Alhambra, California 91803

Prepared by:

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March 2008

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CHAPTER 1.0
INTRODUCTION

The County of Los Angeles Department of Public Works (County) is proposing storm drain improvements in southeastern Long Beach (Figure 1). The project area is located in the southern portion of the San Gabriel River watershed, which has historically had flooding problems. The project would include the construction of a new underground storm drain system to provide increased flood protection within the project area. The proposed storm drain components are described further below.

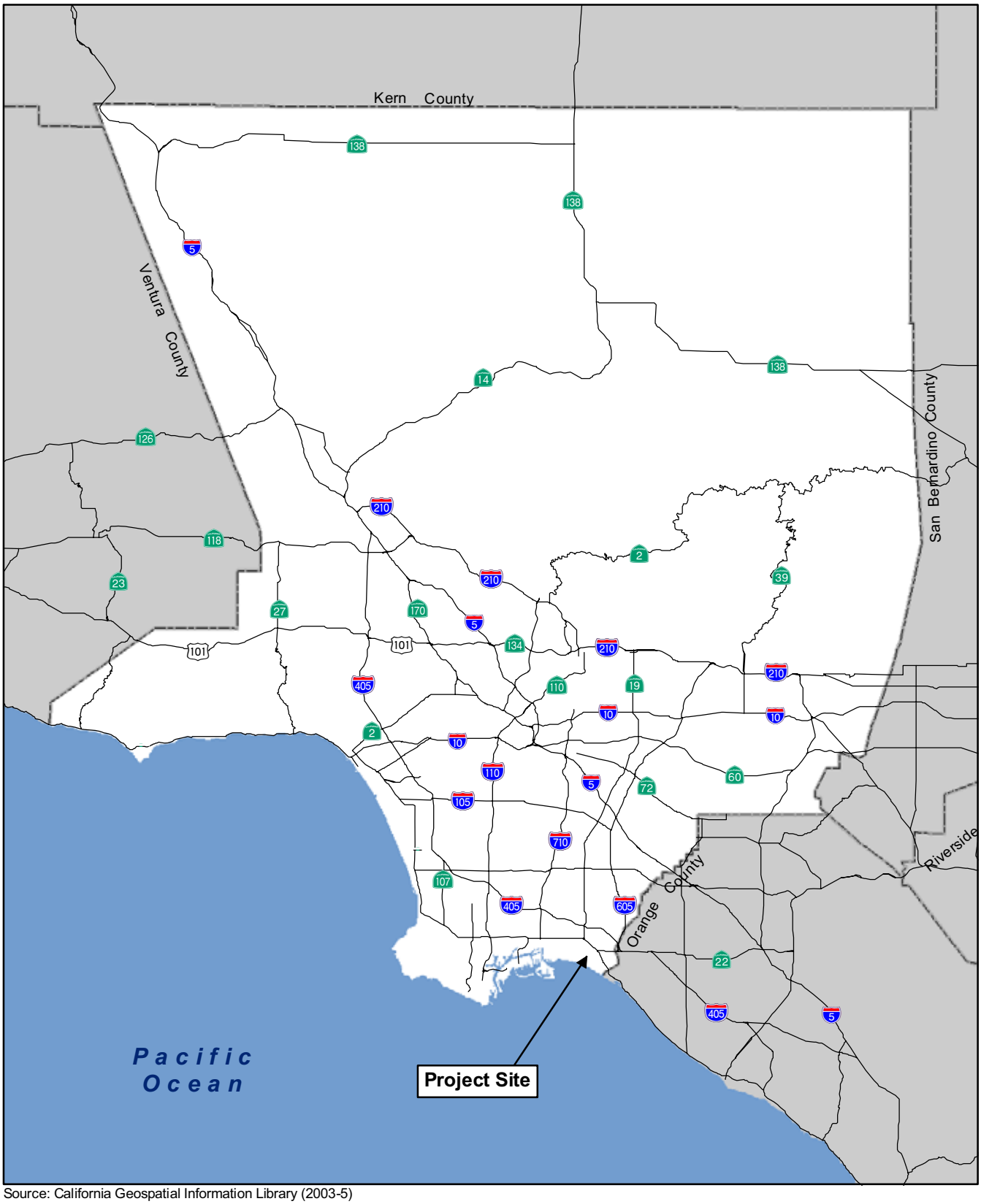
The purpose of this analysis is to characterize the current biological resources within the project area and determine whether development of the storm drain would result in significant impacts to biological resources. In addition, mitigation measures are recommended that would reduce potentially significant impacts.

PROJECT LOCATION AND DESCRIPTION

The proposed project is located in southern Los Angeles County within the City of Long Beach. The proposed storm drain alignment generally falls within existing roads and a former Pacific Electric (PE) Railway right-of-way (Figure 2). The mainline of the proposed project would run along Anaheim Street, southerly on Termino Avenue between 8th Street and 11th Street, along the PE right-of-way, across several streets, and along Appian Way, terminating at Marine Stadium. A lateral storm drain would extend from Termino Avenue along the PE right-of-way across several streets and terminate on Redondo Avenue just north of Anaheim Street. Other short lateral drains would connect to the mainline along 6th Street, 7th Street, and 8th Street. The project area is shown on the USGS-7.5 Minute Topographic Long Beach quadrangle.

The project addresses a 596-acre sub-watershed that drains into Colorado Lagoon. In 1995, severe flooding caused extensive property damage in this area, which has been designated as a special flood hazard area by the Federal Emergency Management Agency. The existing drainage system in this portion of the watershed is not sufficient to control the runoff that would occur in a 50-year flood event.

The project entails the construction of a new underground storm drain system, which would provide increased flood protection within the project area. The new drainage system would



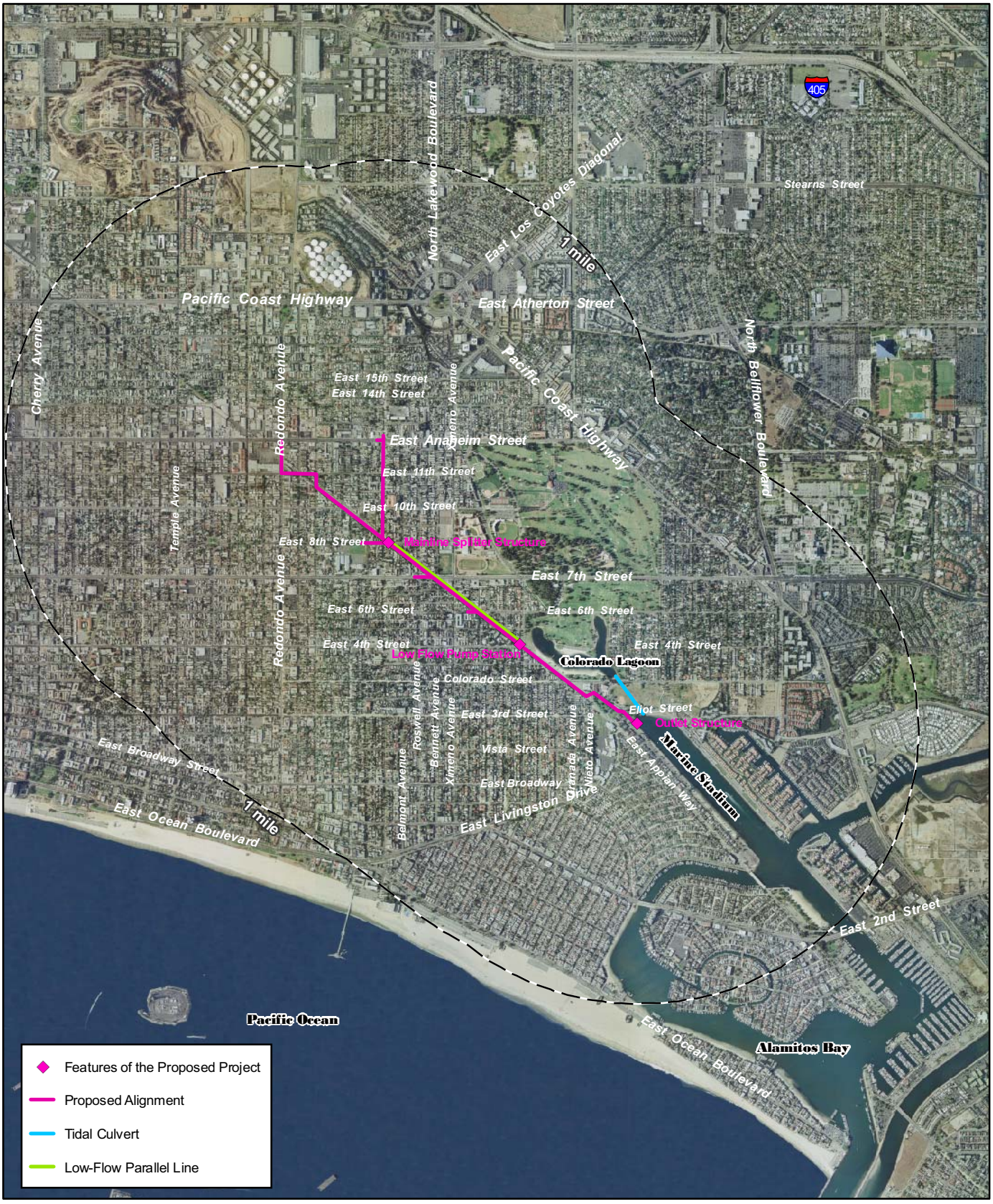
Source: California Geospatial Information Library (2003-5)

N

1 inch equals 12 miles

0 3 6 12 18 24 Miles

Figure 1
Regional Location Map



Source: City of Long Beach, 2004; California Geospatial Information Library (CalGIS), 2003-2005

N

1 inch equals 0.5 mile

0 0.25 0.5 1 Miles

Figure 2
Project Area Map

convey storm flows directly to Marine Stadium and would have the capacity to convey the 50-year frequency storm event. The mainline of the proposed drainage system would run along a former PE right-of-way and across several streets. A lateral storm drain would extend along Termino Avenue from the PE right-of-way to Anaheim Street. Aside from the new outlet structure at Marine Stadium, the proposed storm drain components would all be located underground. Upon completion of the project, the alignment would be returned to its existing condition. In particular, following the conclusion of construction, the planted native landscaping area in the PE right-of-way between 7th and 8th Streets, called the Long Beach Greenbelt, would be revegetated with native species appropriate to the site (occurring within the Los Angeles Basin and of local genetic stock). To the extent feasible, plants, soil, and woody material from the areas to be impacted would be made available for salvage and use in planting efforts. Only the portion of the PE right-of-way between 7th and 8th Streets would be replanted with the native upland scrub vegetation.

The project would improve water quality by eliminating an existing source of urban runoff into Colorado Lagoon. In addition, an in-line trash screening device and a low-flow treatment pumping station would be installed for water quality improvement. The in-line trash screening system would remove suspended solids and floatables from the urban runoff and light storm flows. The low-flow treatment would improve water quality by diverting non-rainy season low flows to the County's sewage treatment system.

The proposed new drainage system is currently surrounded by a mix of residential, commercial, and recreational land uses. The upstream portion of the alignment is predominantly characterized by residential and commercial development; whereas, the downstream portion of the alignment near Colorado Lagoon and Marine Stadium mostly includes open space and recreational uses. The project activity within Marine Stadium is limited to the outfall location.

METHODOLOGY

Background research for the project included a literature review, which included use of data collected during surveys previously conducted at Colorado Lagoon. These include *Colorado Lagoon Watershed Impacts Report, City of Long Beach, Colorado Lagoon Restoration Feasibility Study* (HDR and CGvL 2004); *Special Status Species Considerations for the Colorado Lagoon Restoration Feasibility Study for the City of Long Beach* (Chambers Group 2004a); and *Habitat Assessment for the Colorado Lagoon Restoration Feasibility Study for the City of Long Beach* (Chambers Group 2004b). In addition, EDAW biologists conducted

vegetation mapping, general wildlife surveys, and rare plant surveys according to the schedule in Table 1. No focused surveys were conducted.

Table 1
Biological Surveys Conducted for the Termino Avenue Drain Project

Survey Date	Survey Purpose	Field Personnel
July 2, 2003	Rare Plant Survey, Vegetation Mapping	EDAW
June 16 through August 27, 2004	California Least Tern and California Brown Pelican Surveys	Keane Biological Consulting
May 9, 2005	Eelgrass Survey	Coastal Resources Management
May 10, 2005	Eelgrass Survey	Coastal Resources Management
May 11, 2005	Eelgrass Survey	Coastal Resources Management
November 17, 2005	General Wildlife Survey, Vegetation Mapping, Rare Plant Survey	EDAW
August 2007	Jurisdictional Waters Assessment	EDAW

Terrestrial Vegetation Mapping

Vegetation mapping for the project site, including a 100-foot buffer, was conducted twice during the months of July and November. Separate communities were mapped onto an aerial of the project site and the results were subsequently transferred to geographic information system (GIS) data to calculate acreages.

Marine Data Collection

Eelgrass vegetation was mapped using a Global Position System (GPS) by a team of biologists consisting of a scuba-diving biologist, a surface support biologist, and a safety vessel. The scuba-diving biologist first located the beginning of an eelgrass bed and marked it with a yellow buoy. The surface support biologist working from a kayak then initiated tracking of the biologist diver using GPS technology as the diver swam the perimeter of the individual eelgrass bed. Once the diver returned to the beginning point, the GPS track was terminated. Eelgrass patches that were too small to survey or considered distinct growth centers were referenced as a GPS "patch" and a size of the eelgrass patch was estimated by the diver.

In addition, Everest International Consultants (2005) conducted hydrologic and water quality analyses, including salinity analysis, to determine potential impacts of the project on Colorado Lagoon and Marine Stadium.

Wetland Delineation

A federal wetland delineation was not conducted for the project, however, a focused assessment of potential jurisdictional waters was conducted throughout the entire study area in August 2007. It was determined that tidal waters regulated under both the U.S. Army Corps of Engineers (ACOE) and the California Coastal Commission (CCC) are present at Marine Stadium. Permits will be obtained from the ACOE, CCC, and the Regional Water Quality Control Board (RWQCB).

Sensitive Plant Surveys

The project site, including a 100-foot buffer, was surveyed for the presence of sensitive plant species during the months of July and November. This involved searching for target sensitive species expected in the region by walking meandering transects through all habitats on and immediately surrounding the site. Several of the potentially occurring sensitive plant species may not have been detectable during the November survey because it was outside of their blooming periods; however, the July survey was conducted during the appropriate time for blooming plants.

Wildlife Surveys

California Least Tern and California Brown Pelican Surveys

Surveys for California least tern and California brown pelican were conducted at the north end of Marine Stadium and Colorado Lagoon. Surveys were conducted by observing foraging areas over a period of 2 months.

General Wildlife Survey

The project site, including a 100-foot buffer, was surveyed for the presence of wildlife species in November 2005. This involved walking meandering transects throughout the project study area and recording observed or detected terrestrial species. Marine species were recorded during eelgrass surveys.

CHAPTER 2.0
EXISTING CONDITIONS

TOPOGRAPHY

Marine Stadium is an outlet to the Pacific Ocean and therefore is at sea level. The northern end of the project near Anaheim Street is at an elevation of 36 feet. A park and pedestrian walkway surround the stadium. The proposed storm drain alignment is located within an existing PE right-of-way and residential streets, which have relatively flat topography.

SALINITY

Hydrological and water quality testing were conducted in Colorado Lagoon and Marine Stadium by Everest International Consultants (2005). As part of the testing, the salinity of the water was recorded. The results of this study and an analysis of the potential effects to marine species are discussed in *Eelgrass (Zostera marina) Habitat Mapping Survey and Environmental Assessment for the County of Los Angeles Termino Avenue Storm Drain Outlet Study, Los Alamitos Bay (Long Beach), California* (CRM 2005a).

SOILS

The watershed consists of two similar types of soil series, the Ramona Series and the Tujunga Series (HDR/CGvL 2004). Typically, Ramona soils have brown, slightly acid and medium acid, sandy loam and fine sandy loam A horizons; reddish brown and yellowish-red, slightly acid, sandy clay loam B2t horizons; and strong brown, neutral, fine sandy loam C horizons. Ramona soils dominate the watershed. The Ramona Series is well-drained, slow to rapid runoff and has moderately slow permeability. The Tujunga Series consists of very deep, somewhat excessively drained soils formed in alluvium weathered mostly from granitic sources. Tujunga soils are on alluvial fans and floodplains and have slopes of 0 to 9 percent. Tujunga soils are found directly adjacent to Colorado Lagoon. They are somewhat excessively or excessively drained and have negligible or very low runoff and rapid permeability. Flooding is none to frequent.

VEGETATION COMMUNITIES AND OTHER COVER TYPES

Vegetation types or communities are assemblages of plant species that usually coexist in the same area. The classification of vegetation communities is based upon the life form of the dominant species within that community and plant physiognomy. Due to the urban and disturbed nature of the project area, minimal natural habitat is present on the site. Much of the project study area is developed and therefore unvegetated. Other unvegetated areas, e.g., the beach area of Colorado Lagoon, also coincides with the project study area. There are six vegetation communities and other cover types within the project study area.

- Marine
- Native Landscaping
- Disturbed Habitat
- Ornamental
- Developed
- Other

The biological resources that occur within the study area are depicted in Figures 3 and 4. Vegetation communities and other cover types are described below. Acreages provided below include the entire survey area, or project study area, boundary.

Marine

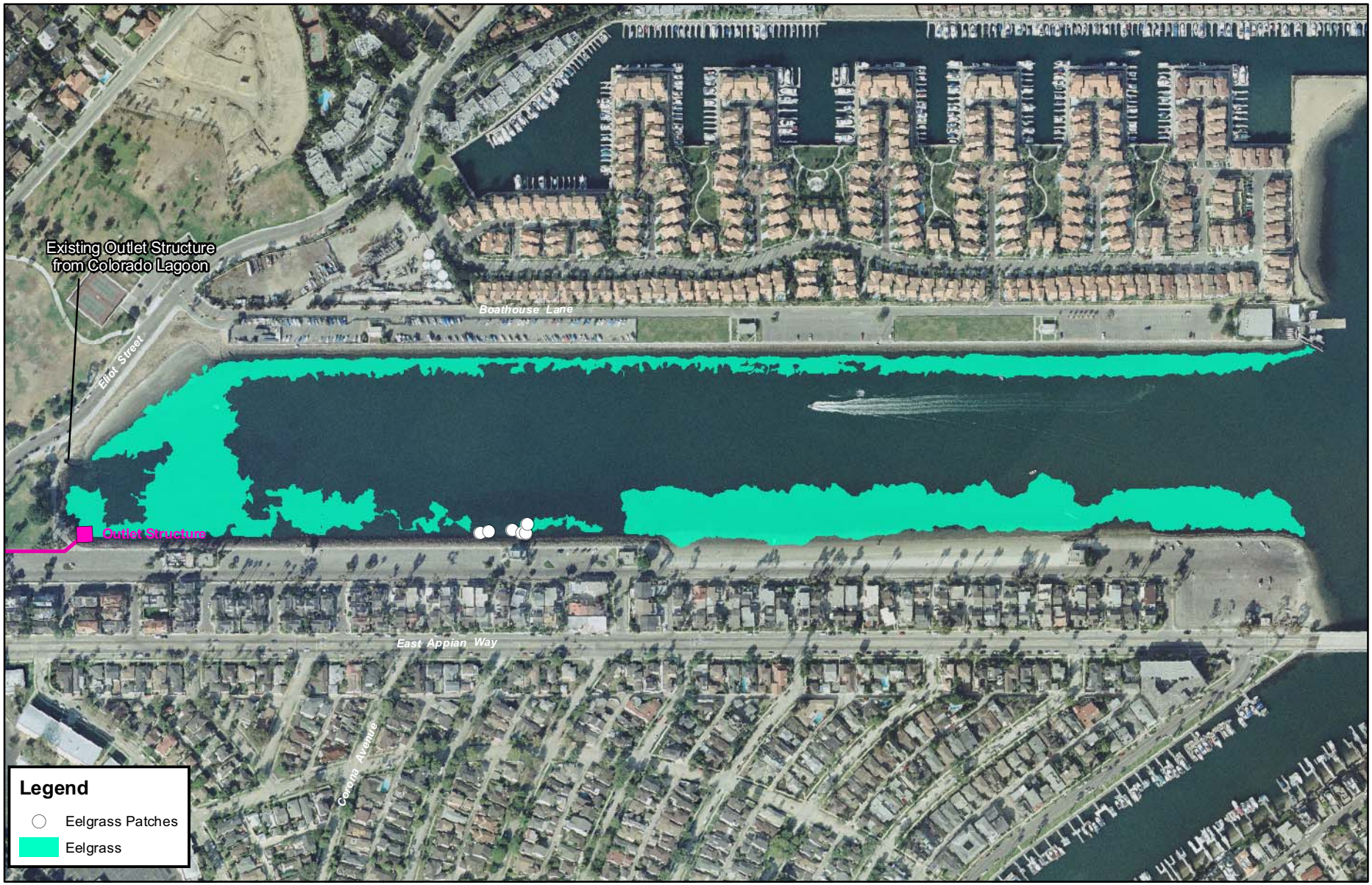
The marine portion of the study area is within Marine Stadium, which was used for the 1932 Olympic rowing competition and is now used for water skiing, high performance boat racing, crew competition, and outrigger canoe competition. Marine habitats in Marine Stadium include sand beach, mudflat, intertidal and subtidal rip rap, and subtidal soft bottom. The project area shoreline consists of protective quarry rock rip rap on the west side of Marine Stadium. A storm drain and a tidal culvert are located within this section of shoreline. This shoreline grades into a sandy beach (End Beach) on the east side of the tidal culvert, which was used as a mitigation site for eel grass. The entire length of the Marine Stadium's eastern shoreline is rock rip rap. This vegetation community and the associated acreage calculations do not include the shoreline and upland habitats of Marine Stadium, which are included below as 'Other'.

The subtidal soft bottom of Marine Stadium provides habitat for eelgrass (Zostera marina) beds. Eelgrass is a flowering marine plant that forms meadows in southern California embayments.

This species of seagrass grows in Alamitos Bay between the ocean entrance channel and Marine Stadium at depths between 0.0 feet MLLW and -12 feet MLLW. Figure 3 maps the existing eelgrass in Marine Stadium. Eelgrass vegetation was mapped using a Global Position System (GPS) and a team of biologists consisting of a scuba-diving biologist, a surface support biologist, and a safety vessel/safety diver (CRM 2005a). The eelgrass canopy (consisting of shoots and leaves approximately two to three feet long) attracts many marine invertebrates and fishes, and the added vegetation and the vertical relief it provides enhances the abundance and the diversity of the marine life compared to areas where the sediments are barren. The vegetation also serves a nursery function for many juvenile fishes, including species of commercial and/or sportsfish value (California halibut and barred sand bass). A diverse community of bottom-dwelling invertebrates (i.e., clams, crabs, and worms) lives within the soft sediments that cover the root and rhizome mass system. Eelgrass meadows are also critical foraging centers for seabirds (such as the endangered California least tern) that seek out baitfish (i.e., juvenile topsmelt) attracted to the eelgrass cover. Eelgrass is an important contributor to the detrital (decaying organic) food web of bays as the decaying plant material is consumed by many benthic invertebrates (such as polychaete worms) and reduced to primary nutrients by bacteria. Approximately 0.0189 acres of eelgrass habitat occur within the project study area. Marine habitat, including the eelgrass habitat and a 500-foot buffer around the outlet structure, occupies approximately 3.96 acres of the project area.

Native Landscaping

An area of native landscaping exists within the PE right-of-way, which includes California buckwheat (Eriogonum fasciculatum), California sagebrush (Artemisia californica), and various sage species (Salvia sp.) typical of southern California native scrublands. In addition to the above species, the area is dominated by species such as goldenbush (Isocoma menziesii var. vernonioides), coyote brush (Baccharis salicifolia), and big saltbush (Atriplex lentiformis ssp. lentiformis). The native landscaping area is not naturally occurring, and was planted, at least in part, in November of 2000. The plantings appear to be healthy and thriving. The native landscaping area is encroached upon by many escaped ornamental plants, has a significant cover of mulch, and experiences foot-traffic from recreational trail users. Approximately 2.54 acres of this habitat occur within the project area shown on Figure 4.



Source: Aerial base from City of Long Beach. Eelgrass survey by Coastal Resources Management, May 2005

Figure 3
Eelgrass Map

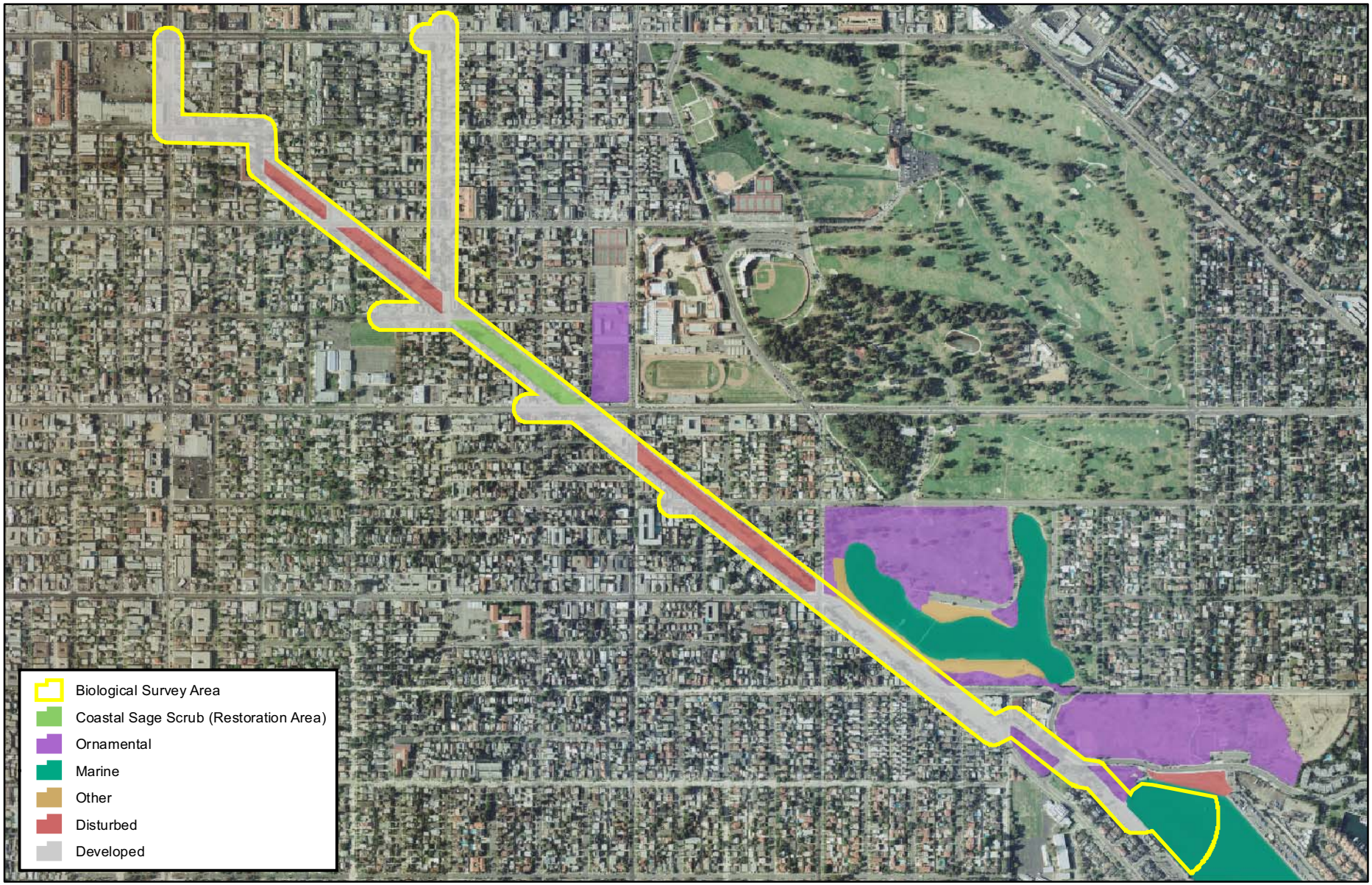


Figure 4
Vegetation Map

Disturbed Habitat

Disturbed habitat is any land that has been permanently altered by previous human activity, including grading, repeated clearing, intensive agriculture, vehicular damage, or dirt roads. Disturbed land is typically characterized by more than 50 percent bare ground and an absence of remnant native vegetation. In addition, the previous disturbance was severe enough to eliminate future potential biological value of the land without active restoration. Such areas can include dirt trails and cleared areas. Disturbed habitat in the project area is characterized by mowed, non-native species such as Bermuda grass (*Cynodon dactylon*) and wild radish (*Raphanus sativus*) and patches of bare ground. Approximately 7.27 acres of this habitat occur within the project study area.

Ornamental

Ornamental areas can be characterized as sites that are dominated by commercially available, exotic species, most of which were planted for aesthetic purposes. Ornamentals have been planted throughout the parks of the project area for aesthetic or landscaping purposes and to function as visual screens. Eucalyptus and Bermuda grass, both exotic species, are examples of common species within the ornamental areas. Approximately 1.66 acres of this habitat occur within the project study area.

Developed

Developed areas include roadways, residences, and commercial development. Ornamental landscaping associated with these facilities, if minimal in area, is also included in this category (more extensive areas of ornamental landscaping are mapped as ornamental, as described above). There are few or no native plant species in developed areas. The developed areas include invasive, exotic species such as eucalyptus (*Eucalyptus* sp.) and iceplant (*Carpobrotus edulisi*) that have been used as ornamentals and in some instances slope stabilization. Approximately 43.89 acres of developed areas occur within the project study area.

Other

A portion of the 100-foot buffer in the study area includes the unvegetated beach area of Colorado Lagoon. This beach sand area is an additional cover type. This area is heavily used for recreational purposes. Approximately 0.75 acre of this habitat occurs within the project study area.

FLORA

A total of 71 plant species, of which 18 species (approximately 25 percent) are native, were observed on the property. The more common species are listed in the descriptions of the vegetation communities in the preceding section. A complete floral species list is included as Appendix A.

FAUNA

The project study area includes a variety of urban terrestrial species as well as bird species at Colorado Lagoon and Marine Stadium. Several marine species frequent Marine Stadium near the outfall. During the general wildlife and eelgrass surveys, a total of 52 bird species, 2 terrestrial species, and 16 marine species were detected in the project area. A faunal inventory was compiled of species encountered or detected during the surveys and is included as Appendix B to this document.

SENSITIVE BIOLOGICAL RESOURCES

The property was evaluated for the extent, quality, and significance of existing sensitive biological resources. The surveys provide an update to the previous environmental studies conducted for the project site. Special status plant and wildlife species are species that are either legally protected under the federal and state Endangered Species Acts (ESAs) or other regulations, or species considered by the scientific community to be sufficiently rare to qualify for such listing. Special status species include species listed or proposed for listing as endangered or threatened under the federal ESA (USFWS 1999), the California ESA (CDFG 2005 a, b), or the California Native Plant Protection Act. Also included below are species that are of special concern to the California Department of Fish and Game (CDFG 2005c), species of special concern to the U.S. Fish and Wildlife Service (USFWS 2005), and species covered under the Migratory Bird Treaty Act (MBTA). For this report, all birds included in the sensitive species list are protected under the MBTA. Furthermore, it is mandatory that California Native Plant Society (CNPS) lists 1A, 1B, and 2 species be fully considered during the preparation of environmental documents relating to the California Environmental Quality Act (CNPS 2001) as they meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California ESA). Finally, species listed as sensitive by the Western Bat Working Group are considered below as well. All species identified through California Natural

Diversity Database (CNDDB) searches as known to occur or known to have occurred within the project vicinity are considered below.

Sensitive Vegetation Communities

Sensitive habitats are those considered rare within the region, support sensitive flora and/or fauna, or function as linkages for wildlife movement. Although the native landscaping within the PE right-of-way includes plants that are typically associated with southern California native scrublands, there are no naturally occurring sensitive habitats in the project area. Non-naturally occurring sensitive habitats in the project vicinity include southern coastal bluff scrub and southern coastal salt marsh.

Sensitive Plant Species

A CNDDB search of the Long Beach and seven adjacent quadrangles – Inglewood, South Gate, Whittier, Los Alamitos, Seal Beach, San Pedro, and Torrance – resulted in a total of 25 plant species known to occur in the general area of the project site (CDFG 2005d). All sensitive plant species that were determined to have a potential to occur on the property, their sensitivity status, and descriptions of their general habitat are listed below in Table 2. Only one sensitive species, the southern tarplant (*Centromadia parryi* ssp. *australis*), a CNPS 1B species, was observed near the project area during the 2003 biological survey; however, this species has since been replaced with ornamental vegetation and is outside of the 100-foot buffer. In addition, no sensitive plant species were observed in surveys undertaken in 2004 (Chambers Group 2004a).

Table 2
Sensitive Plant Species Known to Occur, or with the Potential to Occur, in the Vicinity of the Termino Avenue Drain Survey Area

Common Name (Scientific Name)	Sensitivity Status[1]	General Habitat Description	Potential for Occurrence
aphanisma *Aphanisma blitoides*	CNPS: 1B	Beach dunes, coastal bluffs, and coastal bluff scrub. Most of the existing populations located on the Channel Islands.	Low potential to occur due to lack of suitable habitat present.
Ventura marsh milk-vetch *Astragalus pycnostachyus* var. *lanosissimus*	USFWS: Endangered CDFG: Endangered CNPS: 1B	Found in coastal dunes and coastal scrub, as well as coastal marshes and swamps. Occurs almost always under natural conditions in wetlands.	Low potential to occur due to lack of suitable habitat present.

Common Name (Scientific Name)	Sensitivity Status[1]	General Habitat Description	Potential for Occurrence
coastal dunes milk-vetch *Astragalus tener* var. *titi*	USFWS: Endangered CDFG: Endangered CNPS: 1B	Sandy areas of coastal bluff scrub, coastal dunes, and mesic areas of coastal prairie. Known from only one occurrence on the Monterey Peninsula.	Low potential to occur due to lack of suitable habitat present.
south coast saltscale *Atriplex pacifica*	CNPS: 1B	Coastal bluff scrub, coastal dunes, coastal scrub, playas. Rare throughout its range.	Moderate potential to occur due to potentially suitable habitat. Nearest occurrence is on a beach in Torrance.
Parish's brittlescale *Atriplex parishii*	CNPS: 1B	Chenopod scrub, playas, and vernal pools. Known only from three occurrences in southern California.	Low potential to occur due to lack of suitable habitat present.
Davidson's saltscale *Atriplex serenana* var. *davidsonii*	CNPS: 1B	Coastal bluff scrub and alkaline areas of coastal scrub.	Low potential to occur due to lack of suitable habitat present.
Santa Barbara morning-glory *Calystegia sepium* ssp. *binghamiae*	CNPS: 1A	Coastal marshes and swamps. Probably extirpated.	Low potential to occur due to presumed extinction in California. Nearest historical occurrences were in Bolsa Chica and Cienega.
southern tarplant *Centromadia parryi* ssp. *australis*	CNPS: 1B	Marshes and swamps (margins), valley and foothill grassland, vernal pools. From southern California and Baja California. Often in disturbed sites near the coast; also in alkaline soils sometimes with saltgrass; also vernal pools.	Moderate potential to occur based on suitable habitat. This plant was formerly located in a patch between Marine Vista Park and Marine Stadium.
salt marsh bird's-beak *Cordylanthus maritimus* ssp. *maritimus*	USFWS: Endangered CDFG: Endangered CNPS: 1B	Coastal dunes and coastal salt areas of marshes and swamps. Higher reaches of coastal salt marshes to intertidal and brackish areas influenced by freshwater input.	Low potential to occur due to lack of suitable habitat present.
Catalina crossosoma *Crossosoma californicum*	CNPS: 1B	Chaparral and rocky areas of coastal scrub. Most known occurrences are on San Clemente Island.	Low potential to occur due to lack of suitable habitat present.
island green dudleya *Dudleya virens* ssp. *insularis*	CNPS: 1B	Coastal bluff scrub and rocky areas of coastal scrub.	Low potential to occur due to lack of suitable habitat present.
Mexican flannelbush *Fremontodendron mexicanum*	USFWS: Endangered CDFG: Rare CNPS: 1B	Closed-cone coniferous forest, chaparral, cismontane woodland. Gabbroic, metavolcanic, or serpentinite soils.	Low potential to occur within the survey area due to lack of suitable habitat.
Coulter's goldfields *Lasthenia glabrata* ssp. *coulteri*	CNPS: 1B	Marshes and swamps, playas, vernal pools.	Low potential to occur due to lack of suitable habitat present.
Santa Catalina Island desert-thorn *Lycium brevipes* var. *hassei*	CNPS: 1B	Coastal bluff scrub, coastal scrub (coastal salt).	Low potential to occur due to lack of suitable habitat present.

Common Name (Scientific Name)	Sensitivity Status[1]	General Habitat Description	Potential for Occurrence
mud nama *Nama stenocarpum*	CNPS: 2	Marshes and swamps (lake margins, riverbanks). Intermittently wet areas.	Moderate potential to occur based on potentially suitable habitat.
spreading navarretia *Navarretia fossalis*	USFWS: Threatened CNPS: 1B	Chenopod scrub, marshes and swamps (assorted shallow freshwater), playas, vernal pools.	Low potential to occur due to lack of suitable habitat present.
prostrate navarretia *Navarretia prostrata*	CNPS: 1B	Coastal scrub, meadows and seeps, alkaline areas of valley and foothill grassland, vernal pools and/or mesic areas.	Low potential to occur due to lack of suitable habitat present.
coast wooly-heads *Nemacaulis denudata* var. *denudata*	CNPS: 1B	Coastal dunes.	Low potential to occur due to lack of suitable habitat present.
California Orcutt grass *Orcuttia californica*	USFWS: Endangered CDFG: Endangered CNPS: 1B	Vernal pools. Known only from southern California and Baja.	Low potential to occur within the survey area due to sparse presence or lack of suitable habitat.
Lyon's pentachaeta *Pentachaeta lyonii*	USFWS: Endangered CDFG: Endangered CNPS: 1B	Chaparral, valley and foothill grassland. Edges of clearings in chaparral, usually at the ecotone between grassland and chaparral or edges of firebreaks.	Low potential to occur within the survey area due to sparse presence or lack of suitable habitat.
Brand's phacelia *Phacelia stellaris*	CNPS: 1B	Coastal dunes, coastal scrub.	Low potential to occur due to lack of suitable habitat present.
Sanford's arrowhead *Sagittaria sanfordii*	CNPS: 1B	Marshes and swamps (assorted shallow freshwater areas).	Low potential to occur due to lack of suitable habitat present.
salt spring checkerbloom *Sidalcea neomexicana*	CNPS: 2	Chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, playas / alkaline, mesic.	Low potential to occur due to lack of suitable habitat present.
estuary seablite *Suaeda esteroa*	CNPS: 1B	Marshes and swamps (coastal salt).	Low potential to occur due to lack of suitable habitat present.
San Bernardino aster *Symphyotrichum defoliatum*	CNPS: 1B	Meadows and seeps, marshes and swamps, coastal scrub, cismontane woodland, lower montane coniferous forest, valley and foothill grassland (vernally mesic) / near ditches, streams, springs.	Low potential to occur due to lack of suitable habitat present.

[1]Sensitivity Status Key

Federal U.S. Fish and Wildlife Service (USFWS)
State California Department of Fish and Game (CDFG)
Other California Native Plant Society (CNPS)
1A: Plants presumed extinct in California
1B: Plants rare, threatened, or endangered in California and elsewhere
2: Plants rare, threatened, or endangered in California, but more common elsewhere
3: Plants more information is needed for
4: Plants of limited distribution – a watch list

Detailed descriptions are provided below for the three non-listed, sensitive plant species that had a moderate potential to occur; none were detected on-site. All other listed and sensitive species were determined to have a low potential to occur on the site. See Table 2 for information on habitat affinities and notes on why these species were considered to have lower potentials to occur on the property.

South coast saltscale – *Atriplex pacifica*

USFWS Status:	None
CDFG Status:	None
CNPS rating:	List 1B
Natural History:	South coast saltscale is an annual plant of the goosefoot family (Chenopodiaceae). It has a mat-like form with prostrate to decumbent stems and ascending branches. Its leaves are elliptic to oblanceolate and are greenish above and gray to white-scaly below (Hickman 1993). This is a summer-blooming (March-October) annual plant.
Distribution:	The south coast saltscale is known from Ventura County south to Baja California, and including the Channel Islands. In Los Angeles County, the species is known from Redondo Beach and San Pedro (CNPS 2005).
Habitat:	South coast saltscale occurs on bluffs and shrubland at elevations of less than 300 feet (Hickman 1993). There is at least one known occurrence of this species in beach habitat.
Conservation Status:	Remaining populations are threatened by urbanization and recreation.
Status On-site:	This species was not detected during focused surveys. Habitat on-site may be suitable.

Southern tarplant – *Centromadia parryi* ssp. *australis*

USFWS status:	None
CDFG Status:	None
CNPS rating:	List 1B
Natural History:	Southern tarplant is a mildly scented annual plant of the sunflower family (Asteraceae). The plants are generally erect and are densely glandular, especially above (Hickman 1993). It is a summer-blooming (May-November) species. Its ray flowers are yellow, often becoming more orange with age, and its disk flowers have brown or black anthers (Hickman 1993).

Distribution: This species is distributed throughout the southern coast and northern Baja California (Hickman 1993). The nearest current location is in Seal Beach.

Habitat: Southern tarplant occurs in seasonally moist (saline) grassland at elevations of less than 650 feet (Hickman 1993).

Conservation Status: This species is threatened by development, urbanization, and foot traffic from recreational use.

Status On-site: Multiple southern tarplant were observed on the north end of Marine Stadium during the 2003 biological survey; however, it has since been replaced with ornamental vegetation. Habitat on-site remains suitable for the southern tarplant.

Mud nama – *Nama stenocarpum*

USFWS status: None

CDFG Status: None

CNPS rating: List 2

Natural History: Mud nama is a taprooted annual of the waterleaf family (Hydrophyllaceae). It is short-soft-silky-hairy and short-glandular-hairy with some stiff hairs at its base. It has a white to cream-colored funnel-shaped flower with bristly petals and its leaves have wavy margins. The mud nama blooms from approximately January to July (CNPS 2005).

Distribution: This species is distributed in southwestern California and Texas and Mexico (Hickman 1993). The nearest location to the project site is in Seal Beach.

Habitat: Mud nama occurs in intermittently wet areas at elevations of less than 1,700 feet (Hickman 1993). It occurs within muddy embankments at the edge of rivers and lakes.

Conservation Status: This species is threatened by development and recreational use.

Status On-site: This species was not detected on-site during focused surveys. Habitat on-site may be suitable. However, it has a low to moderate potential to occur on-site due to negative survey results during the appropriate survey period.

Sensitive Wildlife Species

A CNDDB search of the Long Beach and seven adjacent quadrangles resulted in a total of 36 sensitive animal species known to occur in the general project area. All sensitive wildlife species that were detected or have a potential to occur on the property are listed below in Table 3, including their sensitivity listings, habitat requirements, and probabilities for occurrence. Eight

sensitive species listed below have been observed directly in the project area (Table 3). Seven additional threatened or endangered wildlife species have a potential to occur within the project area based on the presence of suitable habitat and/or the proximity of known populations, including four with a moderate potential to occur, and three with a low potential to occur. Finally, an additional 19 sensitive wildlife species are known to occur in the project vicinity, but are not expected to occur on or near the project site due to a lack of suitable habitat.

Table 3
Sensitive Wildlife Species Known to Occur, or with the Potential to Occur, in the Vicinity of the Termino Avenue Drain Survey Area

Common Name (Scientific Name)	Sensitivity Status[1]	General Habitat Description	Potential for Occurrence
Invertebrates			
Palos Verdes blue butterfly *Glaucopsyche lygdamus palosverdesensis*	USFWS: Endangered	Shrubland and chaparral.	Low. No habitat exists in the project vicinity. Has been observed approximately 3 miles from the project site but adequate habitat does not occur on the project site.
Amphibians			
western spadefoot *Spea hammondii*	CDFG: Species of Special Concern	Temporary ponds, vernal pools, and backwaters of slow-flowing creeks. Also upland habitats such as grasslands and coastal sage scrub where burrows are constructed.	Moderate. Not observed during surveys; suitable habitat is present on-site.
Reptiles			
green sea turtle *Chelonia mydas*	USFWS: Threatened	Completely herbivorous marine reptile, feeds almost exclusively on seagrasses and marine algae. Generally found in shallow waters (except when migrating) inside reefs, bays and inlets. Strong nesting site fidelity; requires open, sloping beaches and minimal disturbance.	Low. Limited foraging/nesting habitat occurs within the project area but geographic distribution limits probability of occurrence.
southwestern pond turtle *Emys marmorata pallida*	CDFG: Species of Special Concern	Inhabits permanent or nearly permanent bodies of water in many habitat types; below 600 feet. Requires basking sites such as partially submerged logs, vegetation mats, or open mud banks; also needs suitable nesting areas.	Low. Habitat occurs within the project area but geographic distribution limits probability of occurrence.

Common Name (Scientific Name)	Sensitivity Status[1]	General Habitat Description	Potential for Occurrence
San Diego horned lizard *Phrynosoma coronatum blainvillei*	CDFG: Species of Special Concern	Suitable habitat consists of mixed chaparral and scrub habitats with rocky or sandy soils.	Moderate. Not observed during surveys; suitable habitat is present on-site.
Birds			
Cooper's hawk *Accipter cooperi*	CDFG: Species of Special Concern	Variety of mixed woodlands and urban areas.	Detected. Species observed during previous survey (Bonterra Consulting 2002).
sharp-shinned hawk *Accipter striatus*	CDFG: Species of Special Concern	Woodlands or streamside groves.	Moderate. Species may occur as migrant. Suitable roosting but no breeding habitat.
tricolored blackbird *Agelaius tricolor*	CDFG: Species of Special Concern	Suitable habitat for this species includes emergent wetland with dense cattails or dense riparian willow vegetation.	Moderate. Species may occur as migrant. Suitable roosting/foraging but no breeding habitat.
burrowing owl *Athene cunicularia*	CDFG: Species of Special Concern	(Burrow sites) open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, depends upon burrowing mammals, most notably, the California ground squirrel.	Low. No habitat exists due to the developed nature of the area. No recorded observations.
Rhinoceros auklet *Cerorhinca monocerata*	CDFG: Species of Special Concern	Common along west coast in winter in large numbers near shore.	Low. No habitat exists due to the developed nature of the area.
Vaux's swift *Chaetura vauxi*	CDFG: Species of Special Concern	Woodlands near water.	Moderate. Species may occur as migrant. Suitable roosting/foraging but no breeding habitat.
western snowy plover *Charadrius alexandrinus nivosus*	USFWS: Threatened CDFG: Species of Special Concern	Beaches with dry mud or sandflats, along sandy shores of rivers, lakes, and ponds. Nests on ground in open beaches with scattered clumps of vegetation.	Moderate. Species may occur as migrant. Suitable roosting/foraging but no breeding habitat.
western yellow warbler[2] *Dendroica petechia brewsteri*	CDFG: Species of Special Concern	Wet habitats, open woodlands, gardens, and orchards.	Detected. Species observed during current survey.
common loon *Gavia immer*	CDFG: Species of Special Concern	Nests on large lakes. Migrates over land. Winters in coastal waters or on ice-free inland lakes.	Moderate. Species may occur as migrant. Suitable roosting/foraging but no breeding habitat.
salt marsh yellowthroat *Geothlypis trichas sinuosa* (nesting)	CDFG: Species of Special Concern	Grassy fields, shrubs, marshes, reeds.	Moderate. Not observed during surveys; suitable habitat is present on-site.

Common Name (Scientific Name)	Sensitivity Status[1]	General Habitat Description	Potential for Occurrence
California horned lark *Eremophila alpestris actia*	CDFG: Species of Special Concern	Dirt fields, gravel ridges, and shores.	Moderate. Species may occur as migrant. Suitable roosting/foraging but no breeding habitat.
American peregrine falcon *Falco peregrinus anatum*	CDFG: Endangered	Open wetlands near cliffs; also nest on bridges and tall buildings.	Moderate. Not observed during surveys; suitable habitat is present on-site.
western least bittern *Ixobrychus exilis hesperis*	CDFG: Species of Special Concern	Reeds, wetlands.	Low. No habitat exists due to the developed nature of the area.
California gull *Larus californicus*	CDFG: Species of Special Concern	Beaches, coastal areas.	Detected. Species observed during current survey.
loggerhead shrike *Lanius ludovicianus*	CDFG: Species of Special Concern	Open or brushy areas.	Moderate. Species may occur as migrant. Suitable roosting/foraging but no breeding habitat.
long-billed curlew *Numenius americanus*	CDFG: Species of Special Concern	Nests in wet and dry uplands; during migration can be found in wetlands	Moderate. Species may occur as migrant. Suitable roosting/foraging but no breeding habitat.
osprey (nesting) *Pandion haliaetus*	CDFG: Species of Special Concern	Coastal lagoons, rivers, bays, reservoirs.	Detected. Species observed during recent survey (Chambers Group 2004b).
Belding's savannah sparrow *Passerculus sandwichensis beldingi*	CDFG: Endangered	Herbaceous wetlands and salt - marshes. Nests on ground in natural depressions primarily in pickleweed above highest reach of spring tides.	Moderate. Species may occur as migrant. Suitable roosting/foraging but no breeding habitat.
California brown pelican *Pelicanus occidentalis californicus*	USFWS: Endangered CDFG: Endangered	Coastal salt water lagoons, beaches, bays, marshes, and open ocean.	Detected. Species observed during current survey.
double-crested cormorant *Phalacrocorax auritus*	CDFG: Species of Special Concern	Coastal salt water lagoons, beaches, bays, marshes, and open ocean.	Detected. Species observed during current survey.
coastal California gnatcatcher *Polioptila californica californica*	USFWS: Threatened CDFG: Species of Special Concern	A permanent resident of coastal sage scrub in arid washes, mesas, and slopes.	Low. A small amount of habitat occurs in the revegetated area between 7th Street and 8th Street but is disconnected from contiguous habitat.
light-footed clapper rail *Rallus longirostris levipes*	USFWS: Endangered CDFG: Endangered	Herbaceous wetlands, cordgrass-pickleweed salt marshes. Nests in clumps of pickleweed or in cordgrass slightly above ground.	Moderate. Species may occur as migrant. Suitable roosting/foraging but no breeding habitat.

Common Name (Scientific Name)	Sensitivity Status[1]	General Habitat Description	Potential for Occurrence
black skimmer *Rynchops niger*	CDFG: Species of Special Concern	Primarily along coastal waters, bays, lakes, or estuaries. Nests on sandy beaches and shell banks.	Moderate. Species may occur as migrant. Suitable roosting/foraging but no breeding habitat.
California least tern *Sterna antillarum browni*	USFWS: Endangered CDFG: Endangered	Sand dunes, sea coasts, bays, estuaries, lagoons, lakes, and rivers. Nests on open flat beaches along lagoons or estuary marshes.	Detected. Species observed during previous survey (Keane Biological Consulting 2004). Suitable roosting and foraging but no breeding habitat.
elegant tern *Sterna elegans*	CDFG: Species of Special Concern	Sea coasts, bays, estuaries, lagoons.	Detected. Species observed during previous survey (Keane Biological Consulting 2004).
Mammals			
pallid bat *Antrozous pallidus*	CDFG: Species of Special Concern WBWG: H	Rock crevices, trees, shrubs, and grasslands	Moderate. Not observed during surveys; suitable habitat is present on-site.
western yellow bat *Lasiurus xanthinus*	WBWG: H	Roosts in trees, generally palms, but is also associated with riparian woodland.	Moderate. Not observed during surveys; suitable habitat is present on-site.
big free-tailed bat *Nyctinomops macrotis*	CDFG: Species of Special Concern WBWG: M	Bare rock/talus/scree, cliffs, desert, and hardwood woodlands.	Moderate. Not observed during surveys; suitable habitat is present on-site.
Pacific pocket mouse *Perognathus longimembris pacificus*	USFWS: Endangered	Burrows in loose soil, shrubland with firm sand or soil; coastal dunes, river alluviums, and coastal sage.	Low. No habitat exists due to the developed nature of the area.
southern California saltmarsh shrew *Sorex ornatus salicornicus*	CDFG: Species of Special Concern	Coastal marshes, specifically fallen logs and woody debris.	Low. No habitat exists due to the developed nature of the area.
American badger *Taxidea taxus*	CDFG: Species of Special Concern	Cropland/hedgerow, desert, chaparral, grassland/savana; burrows in loose soil.	Low. No habitat exists due to the developed nature of the area.

[1] **Sensitivity Status Key**
Federal U.S. Fish and Wildlife Service (USFWS)
State California Department of Fish and Game (CDFG)
WBWG Western Bat Working Group Conservation Priority (H) High, (M) Medium, and (L) Low

[2] The subspecies of yellow warbler considered a CDFG species of special concern is *brewsteri*. It has been determined by multiple sources (Unitt 2004) that the subspecies of yellow warbler nesting and migrating within California is *morcomi*. It is assumed that the CDFG status intends to cover subspecies of yellow warbler occurring within the state despite taxonomic arguments.

In addition, Marine Stadium is considered Essential Fish Habitat (EFH), defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 U.S.C. 1802(10)). The proposed project is located within an area designated as EFH for one

Fisheries Management Plan (FMP), the Coastal Pelagics Management Plan. Of the 86 species managed under all of the FMP, 4 are known to occur in the San Pedro Channel area, and potentially within Alamitos Bay (Table 4) (CRM 2005b).

Species accounts for those federally and state-listed species and other special status species detected on-site are provided below. Discussions of those species that have a moderate to high potential for occurring are also provided below.

Threatened and Endangered Wildlife Species Observed On-site

Two listed wildlife species have been observed on-site, the federal and state endangered California brown pelican and the California least tern. Species accounts for these species are included below. Seven additional threatened or endangered wildlife species have a potential to occur within the project area based on the presence of suitable habitat and/or the proximity of known populations, including four with a moderate potential to occur, and three with a low potential to occur (Table 3).

Table 4
Coastal Pelagic Management Plan Species Potentially Affected by the Termino Avenue Drain Project

Common Name	Scientific Name	Comment
Northern anchovy	*Engraulis mordax*	Common to abundant during each of 11 surveys between 1972 and 1997. Second most abundant species overall offshore. Adult and larvae present in area.[1,2,3]. Present to abundant in fish trawls in Alamitos Bay Marina.[4]
Pacific sardine	*Sardinops sagax*	Present during 6 of 11 surveys, low to moderate abundance; mid-ranked in abundance compared to other species. Mostly adults in the general area.[1,2] Not known within Alamitos Bay proper.
Pacific mackerel	*Scomber japonicus*	Incidental catch at depths shallower than 30 feet. Present in one survey (1997). Predominantly adults in project area.[1,2,3] Not known within Alamitos Bay proper.
Jack mackerel	*Trachurus symmetricus*	Incidental catch at depths shallower than 30 feet. Present during one survey (1994). Predominantly adults in project area.[1,2,3] Not known from within Alamitos Bay.

[1] MBC 1997
[2] MEC 1988
[3] MEC 1999
[4] Intersea Research Corporation 1981
Source: CRM 2005b

California brown pelican - *Pelecanus occidentalis californicus*

USFWS Status: Endangered

CDFG Status: Endangered

Other Status: MBTA covered

Listing Data: This species was federally listed as endangered on June 2, 1970, for all of the U.S. populations, and the southeastern U.S. population was later removed from endangered status (50 Federal Register 4938). The California population remains a federally listed endangered species. A recovery plan was published for the California brown pelican (USFWS 1983). Critical habitat has not been designated. The state of California listed the California brown pelican as endangered on June 27, 1971.

Distribution: The California brown pelican is found primarily within 12 miles of shore, but regularly up to 100 miles away from the coast. The pelicans are common along the coast throughout the year. The area extent of the foraging range of the brown pelican off the California coast is greatest in the South California Bight. This wide distribution is likely tied to the presence of several offshore islands that provide roosts and subsea topography that enhances thermal upwelling, which both support healthy populations of prey items.

Habitat: The brown pelican is found in estuarine, marine, subtidal, and marine pelagic waters. The brown pelican requires water, rocky cliffs, jetties, sandy beaches or mudflats for roosting, and open water for foraging. Nesting colonies occur on the Channel Islands and on the Coronado Islands (Garrett and Dunn 1981). Within California, nesting is restricted to these rocky islands, although onshore nesting has been noted to occur in Baja California. The brown pelican will rest on water or inaccessible rocks. It will not roost overnight on water (Briggs et al. 1981).

Natural History: The brown pelican is a yearlong diurnal species. It breeds from March to early August. The brown pelican forages mainly in early morning or late afternoon, or when the tide is rising. The species feeds almost entirely on fish, caught by diving from 6 to 12 meters in the air. The primary food item of the California brown pelican in southern California is northern anchovy (*Engraulis mordax*), although it also feeds on crustaceans, carrion, and other fish. The brown pelican builds a nest shaped as a small mound of sticks or debris on rocky, or low, bushy slopes of undisturbed islands (Cogswell 1977). The species usually nests on the ground, and less often in bushes (Palmer 1962). Clutch size is usually three eggs

(Granholm 2005a). Young are altricial and tended by both parents. Young are capable of breeding at approximately 2 to 3 years old. After breeding, individuals will leave the nesting colonies and disperse along the entire California coast. Gulls and vultures are typical nest predators.

Comments: The brown pelican population declined sharply in the 1960s due to the introduction of pesticides such as DDT into the food chain, although the population trend is currently increasing. Current threats include oil spills and entanglement in fishing tackle.

Status On-site: Observed on-site during wildlife surveys. California brown pelicans forage in the lagoon and were observed roosting on pedestrian bridges, beaches, and other areas of Colorado Lagoon.

California least tern - *Sterna antillarum browni*

USFWS Status: Endangered

CDFG Status: Endangered (nesting colony)

Other Status: MBTA covered

Listing Data: The California least tern was listed by the USFWS on October 13, 1970 (Federal Register 35 FR 16047). This listing status applies to the entire population of *S. a. browni*. Critical habitat has not been determined by the USFWS, although there is an approved recovery plan for the species. The state listed the subspecies as endangered on June 27, 1971.

Distribution: The California least tern is migratory in California. The species breeds from San Francisco Bay south to Baja California. Wintering areas are thought to be along the Pacific coast of South America.

Habitat: The species historically nested colonially on beaches that are undisturbed, sparsely vegetated, flat areas with loose, sandy substrate. Few beach nesting areas remain and least terns are now found in varied habitats ranging from mudflats to airports. Adults roost primarily on the ground. They typically forage in areas with water less than 60 feet in depth (Atwood and Minsky 1983).

Natural History: This small migratory tern begins nesting in mid-May and is present at nesting colonies from April through August. The species nests in loose colonies in areas relatively free of human or predatory disturbance. Nests are on barren to sparsely vegetated sites near water, usually with a sandy or gravelly substrate. Least terns lay from one to four eggs, which are incubated for 20 to 25 days by both adults. Young fledge 28 days after hatching and are fed by adults for an additional 2 weeks. The terns

abandon the nesting colonies by mid-August and generally migrate south by mid-September. Banding returns indicate that least terns exhibit fidelity to the site where they first bred successfully. Prey items include northern anchovy, topsmelt, killifish, mosquitofish, shiner, surfperch, and mudflat gobies. Significant predators include burrowing owls and American kestrels (Collins and Bailey 1980).

Comments: Human disturbance has displaced the least tern from much of its traditional nesting habitat. Accelerated silting in of lagoons has also eliminated some former nesting sites. Populations appear to have increased over the last quarter of the 20th century. However, development along the California coastline continues to threaten the species' survival as no alternatives to its current nesting sites remain.

Status On-site: Species was observed during Keane Biological Consulting surveys of Colorado Lagoon in 2004. Roosting and foraging habitat occurs on-site but nesting is not expected due to the highly developed nature of the area and high probability of human disturbance.

Non-listed, Sensitive Wildlife Species Detected On-site

Six additional sensitive species have been observed on-site during recent surveys: Cooper's hawk, western yellow warbler, California gull, osprey, double-breasted cormorant, and elegant tern. Species accounts for all six species are included below.

Cooper's Hawk - *Accipiter cooperii*

CDFG Status: Species of Special Concern (nesting)

Other Status: MBTA covered

Distribution: The Cooper's hawk is a breeding resident throughout wooded areas of California (Polite 2005a). The species ranges in elevation from sea level to above 8,850 feet. Outside of the breeding season, it disperses widely from southern Canada to northern Mexico. The species is sparser in the mountains than at lower elevations.

Habitat: Cooper's hawks nest primarily in oak woodlands but occasionally in willows or eucalyptus. The species most frequently prefers dense stands of live oak, riparian deciduous, or other forest habitat near water. The species usually nests and forages near open water or riparian vegetation.

Natural History: The Cooper's hawk is mostly a yearlong resident. Winter visitors occur in San Diego County from September to March. This species breeds from

January through June in the county. Cooper's hawks build nests high in trees but beneath the canopy. Sometimes they will nest in riparian willows, but oaks and eucalyptus trees are the species' most common nest sites (Asay 1987). The Cooper's hawk will catch small birds, especially young during nesting season, and small mammals. They will also take reptiles and amphibians. Cooper's hawks will catch their prey in the air, on the ground, and in vegetation. Cooper's hawks hunt in broken woodland and habitat edges. The average distance between Cooper's hawk nests ranges from approximately 0.5 to 2.5 miles apart (Asay 1987; Polite 2005a). Young are born altricial.

Comments: This species has declined as a breeding species in California because of destruction of riparian woodland, contamination with pesticides and shooting. Numbers appear to be increasing as the species adapts to the urban environment.

Status On-site: Cooper's hawk was observed in the vicinity of Colorado Lagoon during Bonterra Consulting surveys in 2002.

Yellow warbler - *Dendroica petechia morcomi*

USFWS Status: None

CDFG Status: Species of Special Concern (nesting)

Other Status: MBTA covered

Distribution: The yellow warbler is a common to uncommon summer visitor and a rare but regular winter visitor (in coastal areas) in California. In southern California, it is uncommon and localized as a breeding species, but common and widespread as a migrant. The species is also a common migrant on Channel and Farallon islands in spring and fall (DeSante and Ainley 1980; Garrett and Dunn 1981).

Habitat: This species nests in mature riparian woodland from coastal and desert lowlands up to 8,000 feet in the Sierra Nevada. Specifically, it prefers to nest in mature cottonwood, willow, alder, and ash trees. The yellow warbler will also breed in montane chaparral, and in open ponderosa pine and mixed conifer habitats with substantial amounts of brush. In general, the species frequents open to medium-density woodlands and forests with a heavy brush understory in breeding season. At low elevations the species is more confined to larger streams; in the foothills and mountains, it will inhabit narrow strips and patches of riparian trees. Migratory stopovers include a variety of dense woodland and forest habitats.

Natural History: The yellow warbler a nocturnal migrant. The species typically arrives in southern California during late March. Migration of populations heading farther north will occur later from April through June. Fall migration occurs from mid-August through mid-October. The species builds an open cup nest placed in upright forks of twigs in a deciduous sapling or shrub 2 to 35 feet above ground. Territories often include tall trees for singing and foraging and a heavy brush understory for nesting (Ficken and Ficken 1966). Territory size has been recorded as 0.08 acre to 0.9 acre. The species is known to drink from a water source regularly in desert environments (Smyth and Coulombe 1971). The yellow warbler feeds mostly on insects and spiders. It will glean and hover in the upper canopy of deciduous trees and shrubs. It will also occasionally pick insects from the air or eat berries (Bent 1953; Ehrlich et al. 1988). The yellow warbler breeds from mid-April through early August with peak activity occurring in June. Pairs breed solitarily. Typically, three to six eggs are laid and incubated by the female for approximately 11 days. Altricial young are tended by both parents until fledging at 9 to 12 days (Harrison 1978). Young will breed the following year.

Comments: Like least Bell's vireo, the yellow warbler is a frequent victim of the brown-headed cowbird (Rothstein et al. 1980; Verner and Ritter 1983; Airola 1986). The species is also subject to predation by small mammals, accipiters, corvids, and snakes. The numbers of breeding pairs have declined in recent decades in many lowland areas (southern coast, Colorado River, and San Joaquin and Sacramento valleys). The species is now considered rare to uncommon in many lowland areas where formerly common (McCaskie et al. 1979; Garrett and Dunn 1981). Declines are due to habitat destruction and fragmentation and pesticide use. Populations in the west have been shown to increase where reduction of grazing and cessation of herbicide spraying of willows have led to regrowth of riparian vegetation (Ehrlich et al. 1988).

Status On-site: Observed foraging during recent survey in ornamental trees between Colorado Lagoon and Marine Stadium.

California gull - *Larus californicus*

CDFG Status: Species of Special Concern (nesting colony)

Other Status: MBTA covered

Distribution: In the United States the California gull occurs along the Pacific coast. The northern extent of the range reaches northwestern Canada, and as far south as Baja California Sur. In southern California, the California gull is most concentrated along the coast during the winter.

Habitat: Wintering habitats include coasts, estuaries, lakes, and rivers. Individuals use shorelines and islands to roost. During the breeding season, the California gull migrates to inland prairie habitat, consisting of open annual grasslands with less than 5 percent woody cover. The species is also a fairly common nester at alkali and freshwater lacustrine habitats east of the Sierra Nevada and Cascades. The species needs undisturbed, isolated islands for nesting with food supplies nearby.

Natural History: The California gull is an opportunistic feeder, foraging on whatever is available. It frequently feeds in garbage dumps, ingests fruits, preys on small mammals, and is considered a major predator at waterfowl nesting areas. Adults roost in large concentrations. This colonial species breeds from mid-April through mid-August in low flat nests. Nesting California gulls will eat its neighbor's eggs whenever possible. Nests are scrape lined with grasses, feathers, or rubble, on sparsely vegetated portions of isolated islands. Clutch size is one to three eggs (Harrison 1978). The species has one brood per season and both parents incubate. Young are precocial (Smith and Diem 1972). It is a migratory species, departing for breeding grounds in April. After breeding, the California gull will move northwest to the coast as far north as British Columbia, and west and southwest to the coast of California.

Comments: Threats include receding waters at nesting sites, which allow mainland predators to access and destroy populations. Overall, population size appears to be increasing through the second half of the 20th century (Conover 1983; Shuford and Ryan 2000).

Status On-site: Observed during multiple recent surveys in Colorado Lagoon. Individuals utilize beach areas for roosting and forage in garbage cans, dumpsters, and other opportunistic scenarios.

Osprey - *Pandion haliaetus*

CDFG Status: Species of Special Concern (nesting)

Other Status: MBTA covered

Distribution: Ospreys breed throughout California around large bodies of water but are more common in northern California and along the coast. The species is

an uncommon year-round resident and more common winter migrant in southern California.

Habitat: Nests are generally built near water, often in large trees, snags, and dead-topped trees in open forest habitats for cover. The species requires clear, open waters for foraging.

Natural History: The osprey is a yearlong, diurnal species. It preys mostly on fish but will also take mammals, birds, reptiles, amphibians, and invertebrates. The osprey breeds from March through September. An average clutch size is one to four eggs (Polite 2005b). Colonial nesting is common. Ospreys will build large stick nests and often reuse them year after year (Unitt 2004). They will build nests on trees, cliffs, or man-made structures. Territories typically average from approximately 60 to 1,700 square feet (Polite 2005b). Young can breed when 3 years old. In California, the osprey migrates south along the coast and the western slope of the Sierra Nevada to Central America and South America in October. Ospreys will arrive on their nesting grounds mid-March to early April.

Comments: Pesticides have caused reproductive failure in the past (Garber 1972). However reproductive success appears to be increasing since the early 1970s (Airola and Shubert 1981; Unitt 2004).

Status On-site: Osprey were observed in the vicinity of Colorado Lagoon by Chambers Group during surveys in 2004.

Double-crested cormorant - *Phalacrocorax auritus*

CDFG Status: Species of Special Concern (rookery site)

Other Status: MBTA covered

Distribution: The double-crested cormorant is a yearlong resident along the entire coast of California and on inland lakes. It occurs year-round but is far more abundant in fall and winter. The established nesting sites closest to the project site include the Channel and Coronado islands and the Salton Sea.

Habitat: Double-crested cormorants are common in the coastal waters, bays, and inland ponds and lakes of southern California. The species requires undisturbed nesting sites next to water on offshore rocks, islands, steep cliffs, dead branches of trees, wharfs, or jetties. Perching sites include unvegetated areas.

Natural History: The double-crested cormorant feeds mainly on fish (Cogswell 1977; Robertson 1974). It will also feed on crustaceans and amphibians. The species will dive from the water surface to pursue prey underwater,

typically remaining submerged for approximately 30 seconds. The species will sometimes feed cooperatively in flocks. The species must visit perching sites daily to dry plumage. It will rest or sleep on water in the daytime. The double-crested cormorant will migrate during day and night. The species breeds from April through August. Pairs are monogamous. Cormorants will nest in colonies of a few to thousands of pairs. Clutch size is usually three to four eggs (Granholm 2005b). Young are born altricial and are tended by both parents. Approximately 25 percent of adults at breeding colonies are prebreeders (Mendall 1936). The species builds a nest of bulky sticks and debris, placing it usually in a tree surrounded by water or on the ground.

Comments: The species is declining in numbers primarily as a result of habitat destruction, boating, and fishing activities. It is also susceptible to reduced nesting success from pesticides in the water. Human disturbance can cause nest abandonment and increased predation by gulls on eggs and young (Ellison and Cleary 1978). In the last quarter of the 20th century, the population over much of North America increased (Hatch and Weseloh 1999), potentially due to adaptation to artificial nesting sites and the building and fish-stocking of reservoirs.

Status On-site: Double-crested cormorants have been observed during multiple recent wildlife surveys in Colorado Lagoon, foraging and roosting on beaches, bridges, and man-made floating structures.

Elegant tern - *Sterna elegans*

CDFG Status: Species of Special Concern (nesting colony)

Other Status: MBTA covered

Distribution: The elegant tern is common to southern California and rare in northern California. It breeds from San Diego Bay south to central Baja California. The species is a common spring and winter visitor to San Diego County. A single nesting colony is known from the south end of San Diego Bay (Unitt 1984).

Habitat: This species prefers to inhabit coastal mudflats, lagoons, and bays. The elegant tern nests on undisturbed island beaches and on dikes. It feeds primarily in shallow ocean waters beyond the turbulent breaker zone but also may forage in protected bays and lagoons (Cogswell 1977). The elegant tern will congregate on beaches and tideflats when not feeding.

Natural History: Elegant terns nest in tight clusters, often in association with Caspian terns, on the bare dirt on top of dikes. Within each subcolony, egg laying is usually synchronous, after the Caspians begin (Kirven 1969). Nests are shallow scrapes in the sand about 18 meters from the surfline (Bent 1921). Clutch size is one egg, occasionally two eggs. After hatching, the young cluster into crèches. Elegant terns begin returning to southern California typically during mid-March. Postbreeding dispersal from Mexico may begin as early as late May (Burness et al. 1999). The species feeds primarily on fish.

Comments: Tropical storms pose a threat to colonies on low-lying Mexican islands (Dawson 1923). Because the species nests very gregariously at few sites, it is vulnerable. Disturbance caused by humans and domestic animals has affected populations. Population numbers have been increasing since the 1950s. The species' numbers and nesting success in San Diego Bay are linked to the abundance of the northern anchovy offshore, thereby suggesting that the tern could be affected by overfishing or other effects to the anchovy (Schaffner 1986).

Status On-site: Species was observed during Keane Biological Consulting surveys of Colorado Lagoon in 2004. Roosting and foraging habitat occurs on-site but nesting is not expected due to the highly developed nature of the area and high probability of human disturbance.

Listed Wildlife Species with Potential to Occur On-site

No other state or federally listed wildlife species were determined to have a high potential to occur on the site; however, as noted previously, four listed species have a moderate potential to occur on the project site. These species and the green sea turtle are discussed further below. Information about those other species that were determined to have a low potential to occur on the site is provided only in Table 3.

Western snowy plovers nest between March and September on marine and estuarine beaches. Outside of the plover's breeding season, individuals may be observed throughout the southern California coast. Human disturbance and development have led to a decrease in the plover's population. Snowy plovers have not been observed in Colorado Lagoon during recent surveys but ample foraging habitat is available for winter visitors.

Belding's savannah sparrow exists in coastal marsh habitats of southern California and northern Baja; this species breeds in pickleweed *(Salicornia* sp.*)* habitat. Limited breeding habitat occurs in Colorado Lagoon; however, Belding's savannah sparrow could forage in the area outside of breeding season.

Light-footed clapper rail, which occurs in reeds and grassy marshes, may occur on-site to forage or roost, but breeding habitat does not exist in the project vicinity due to its developed state.

American peregrine falcon may occur on-site but has not been observed in recent surveys. The American peregrine falcon population was decimated during the middle 1900s by the use of DDT, a pesticide that weakened the species' egg strength. Since DDT was banned from use in the United States, the species numbers have increased but have not reached historical levels. This raptor inhabits wetlands near cliffs and has adapted to urban settings, nesting on bridges and tall buildings. Foraging areas include tidal flats where shorebirds congregate. The species was considered to have a moderate potential to occur on-site due to the urban habitat and possible foraging opportunity, but has not been observed on-site.

Green sea turtles have occasionally been found offshore of Orange County and Los Angeles County, north of their more common southerly range due to warmer water temperatures during El Nino periods. Green sea turtles have been reported in the San Gabriel River where they encounter the warmer, discharged waters of the power generating facilities located farther up the River. According to the Long Beach Lifeguards and Marine Bureau staff, green sea turtles have been seen in Alamitos Bay and appear to be curious (Vivian Cook, Marine Bureau; Allen Powder, Long Beach Lifeguards pers. Com with R. Ware 27 July 2007). However, no records are kept as to where they have been seen, the time of year of occurrence, or the numbers observed. There is no evidence that these species breed in the project area.
On July 30, 2007, EDAW contacted Christina Fahy at the National Marine Fisheries Service for additional documentation regarding the presence of green sea turtles in Alamitos Bay. The following information was provided:

> Green sea turtles have stranded in the Long Beach area; for example, in October, 2004, three green sea turtles stranded in the Belmont Shore area and one green sea turtle stranded in the Treasure Island Marina area. In addition, over the years, our office has received numerous reports of sightings of sea turtles in the area. Lastly, in October, 2006, the Long Beach Aquarium attached a satellite transmitter to a green sea turtle that had live-stranded in Long Beach. The turtle was tracked south to the San Clemente area and then turned around and headed back north to

the Long Beach area, where it remained for several weeks, presumably foraging on eel grass or algae in the area.

The green sea turtle strandings described above occurred within two miles of the Marine Stadium. The nearest recorded sighting was documented using the satellite transmitter described above. Based on this data, the sea turtle was present within Alamitos Bay in October and December 2006, residing most frequently in the Long Beach Marina area. The turtle appears to have entered the Marine Stadium area on multiple occasions. Although individual sightings have occurred, no resident groups have been observed within Alamitos Bay.

Although occasional green sea turtles have been observed in Alamitos Bay, the likelihood of encountering this species in the northern extreme northeast limit of the bay is relatively low. Green sea turtles' north Pacific range extends from Baja California to southern Alaska; however, turtles within this range most commonly occur south of San Diego. Juvenile turtles are rarely seen as they spend the first several years of their lives swimming in the open ocean. As juveniles, they eat plants and other organisms such as jellyfish, crabs, sponges, snails, and worms. Adult green sea turtles are mostly herbivorous and spend most of their time feeding on algae in the sea and the grass that grow in shallow waters inside reefs, bays, and inlets.

Sea turtles are not known to nest along the west coast of the US; the closest known nesting grounds occur along the Pacific coast of Mexico and in the Hawaiian Islands, particularly the French Frigate Shoals, approximately 1,280 miles southeast and 2,500 miles west of the project area, respectively. This species demonstrates strong selectivity and fidelity for both nesting and feeding sites; they have been known to migrate between the same feeding and nesting sites for many generations.

Other Non-listed, Sensitive Wildlife Species with Potential to Occur On-site

Western spadefoot toad and San Diego horned lizard have a moderate but limited chance to occur on-site. Habitat occurs in the vicinity of the site, though urbanization and development decrease the chance of geographic distribution from other natural populations.

Sharp-shinned hawk has a moderate potential to occur in the project vicinity given the similar foraging and roosting patterns of Cooper's hawk, which has been observed on-site.

Species that utilize wetland or tall grass habitats, including tricolored blackbird, salt marsh yellowthroat, and long-billed curlew, have a moderate potential to occur on-site, though none

have been observed. Common loon and black skimmer could both forage in wetland areas but are not expected to nest on-site.

Loggerhead shrike, Vaux's swift, and California horned lark have a moderate chance of occurring in the tree, beach, and water interface as they migrate and forage through the project site.

Three species of bats have a moderate potential to occur on-site: pallid bat, western yellow bat, and big free-tailed bat. The trees, shrubs, and urban buildings adjacent to water could serve as habitat for foraging, roosting, or breeding.

In general, California sea lions inhabit rocky or sandy beaches, and prefer sandy beaches to breed. They are not known to breed in man-made structures such as Marine Stadium. Outside of the breeding season they will often gather at man-made environments such as piers and buoys for protection from predators. The construction zone, however, contains no surfaces for the animals to haul out during low tide to rest and absorb heat from the sun.

Harbor seals spend their time equally between land and water. They are wary of humans and will leave if they are approached too closely. The open water of Marine Stadium hosts swimmers, rowers, and water skiers daily, and its beaches are used for picnicking and special events. The large amount of human activity in the area makes it unlikely that harbor seals would inhabit the project area. The construction zone also contains no surfaces for the animals to haul out during low tide to rest and absorb heat from the sun.

Wildlife Corridors

In an urban context, a wildlife migration corridor can be defined as a linear landscape feature of sufficient width and buffer to allow animal movement between two patches of comparatively undisturbed habitat, or between a patch of habitat and some vital resources. Regional corridors are defined as those linking two or more large areas of natural open space, and local corridors are defined as those allowing resident animals to access critical resources (food, cover, and water) in a smaller area that might otherwise be isolated by urban development.

Wildlife migration corridors are essential in geographically diverse settings, and especially in urban settings, for the sustenance of healthy and genetically diverse animal communities. At a minimum, they promote colonization of habitat and genetic variability by connecting fragments

of like habitat and they help sustain individual species distributed in and among habitat fragments. Habitat fragments, by definition, are separated by otherwise foreign or inhospitable habitats, such as urban/suburban tracts. Isolation of populations can have many harmful effects and may contribute significantly to local species extinction.

A viable wildlife migration corridor consists of more than a path between habitat areas. To provide food and cover from predators for transient species as well as resident populations of less mobile animals, topography and vegetative cover are important site-specific factors. They should direct animals to areas of contiguous open space or resources and away from humans and development. The corridor should be buffered from human encroachment and other disturbances (e.g., light, loud noises, domestic animals) associated with developed areas.

The project site north of Colorado Lagoon is heavily disturbed and urban, and surrounded by residential and commercial development. The existing abandoned railway may serve as a corridor for urban-adapted species that are accustomed to constant disturbance. As such, this portion of the site does not serve as a high-quality wildlife corridor. Colorado Lagoon provides habitat for bird species, which likely also forage over Marine Stadium. There is no area between these two water bodies that serves as a wildlife corridor for terrestrial species.

REGULATORY REQUIREMENTS

The following provides a general description of the applicable permitting requirements for the project. Since the project will not result in the direct take of federally regulated species, USFWS consultation is not expected to occur. However, for purposes of disclosure, information regarding the Section 7 consultation process is included below. In addition, because the project would not substantially divert or obstruct the natural flow of, or substantially change (remove or deposit material into), the bed, channel, or bank of any river, stream, or lake, authorization under Sections 1600-1616 of the California Fish and Game Code would not apply. Regulatory requirements related to impacts to "waters of the U.S" (Section 404 and 401 of the Clean Water Act [CWA]) are included for potential impacts to Colorado Lagoon and Marine Stadium. In addition, the California Coastal Act regulates activities within the coastal zone.

Federal Endangered Species Act

Under the federal ESA, *take* (defined as *hunt, pursue, catch, capture, or kill; or attempt to hunt, pursue, catch, capture, or kill*) of listed species is prohibited unless authorized by the USFWS. This process involves consultation with the USFWS, pursuant to Section 7 of the federal ESA, to

determine if a project will jeopardize the continued existence of any of these federally regulated species. As part of the Section 7 consultation process, a Biological Assessment is required to be submitted to the USFWS outlining the potential impacts to federally listed, proposed, and candidate species and will also suggest mitigation measures for unavoidable impacts to these species. The USFWS issues a Biological Opinion (BO) to document the effects of the proposed project on the long-term viability of the species affected and any incidental *take* provisions. The BO *take* statement is referred to as the "incidental *take* permit."

Migratory Bird Treaty Act

The MBTA restricts the killing, taking, collecting, and selling or purchasing of native bird species or their parts, nests, or eggs. Certain gamebird species are allowed to be hunted for specific periods determined by federal and state governments. The intent of the MBTA is to eliminate any commercial market for migratory birds, feathers, or bird parts, especially for eagles and other birds of prey. Although no permit is issued under the MBTA, if vegetation removal within the project area occurs during the breeding season for raptors and migratory birds (February 15 through September 15), the USFWS requires that surveys be conducted to locate active nests within the construction area. If active raptor or migratory bird nests are detected, project activities may be temporarily curtailed or halted.

Section 404 and 401 of the Clean Water Act

The CWA governs pollution control and water quality of waterways throughout the United States. Its intent, in part, is to restore and maintain the biological integrity of the nation's waters. The goals and standards of the CWA are enforced through permit provisions. Sections 401 and 404 of the CWA pertain directly to the proposed project. Section 401 requires certification from the RWQCB that the proposed project is in compliance with established water quality standards. Section 404 of the CWA requires an individual or nationwide permit from the ACOE for discharge into "waters of the U.S."

California Coastal Act of 1976

At the state level, the California Coastal Act of 1976 (Cal. Code Regs. Title 14 § 30000) requires each local jurisdiction along the coast to prepare and submit for state certification a Local Coastal Program (LCP) for that portion of its area located within a specified Coastal Zone. An LCP is defined as "a local government's land use plans, zoning ordinances, zoning district maps, and, within sensitive coastal resources areas, other implementing actions, which, when taken

together, meet the requirements of, and implement the provisions and policies of [the Coastal Act] at the local level" (PRC Section 30108.6).

The City of Long Beach LCP was certified by the California Coastal Commission in 1980. The LCP represents the commitment of Long Beach to provide continuing protection and enhancement of its coastal resources. The LCP provides general policies for areas within the Coastal Zone and categorizes the coastal zone in Long Beach into eight community plans. The proposed project is within the Waterland Communities subarea, specifically Area C (Belmont Heights/Belmont Park). The LCP provides an implementation plan and a policy plan summary for the following categories: shoreline access; recreation and visitor serving facilities; locating and planning new development; historic preservation; and hazards.

Magnuson-Stevens Fishery Management and Conservation Act

An EFH Assessment for the project has been provided in conformance with the 1996 amendments to the Magnuson-Stevens Fishery Management and Conservation Act (FR 62, 244, December 19, 1997). The 1996 amendments set forth a number of new mandates for the NMFS, eight regional fishery management councils, and other federal agencies to identify and protect important marine and anadromous fish habitat. The councils, with the assistance from NMFS are required to delineate EFH for all managed species. Federal action agencies that fund, permit, or carry out activities that may adversely impact EFH are required to consult with NMFS regarding the potential effects of their actions on EFH, and respond in writing to the NMFS recommendations.

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CHAPTER 3.0
POTENTIAL EFFECTS

Development of the Termino Avenue Drain would result in both direct and indirect impacts to biological resources. Biological resources may be either directly or indirectly impacted. Direct and indirect impacts may furthermore be either permanent or temporary in nature. These impacts are defined below.

Direct: Any alteration, disturbance, or destruction of biological resources that would result from project-related activities is considered a direct impact. Examples include clearing vegetation, encroaching into wetlands, diverting surface water flows, and the loss of individual species and/or their habitats.

Indirect: As a result of project-related activities, biological resources may also be affected in a manner that is not direct. Examples include elevated noise and dust levels, soil compaction, increased human activity, decreased water quality, and the introduction of invasive wildlife (domestic cats and dogs) and plants.

Permanent: All impacts that result in the irreversible removal of biological resources are considered permanent. Examples include constructing a building or permanent road on an area containing biological resources.

Temporary: Any impacts considered to have reversible effects on biological resources can be viewed as temporary. Examples include the generation of fugitive dust during construction, or removal of vegetation for underground pipeline trenching activities and allowing the natural vegetation to recolonize the impact area.

SALINITY CRITERIA

The salinity criteria consist of two conditions during a 10-year flood event such that no significant impacts would likely occur to marine species (Table 5). The first criterion (Criterion 1) states that the salinity concentration should not fall below 30 percent of normal seawater or 10 parts per thousand (ppt) for more than 1 hour. This criterion was established to protect the less mobile marine invertebrates that are susceptible to low salinity levels. The second criterion (Criterion 2) states that the salinity concentration should recover to greater than 75 percent of

normal seawater or 25 ppt within 10 hours from when the salinity concentration falls below 25 ppt. This criterion was established to protect marine fish species that prefer normal ocean water salinity concentrations (e.g., juvenile halibut).

Table 5
Marine Species Salinity Criteria

Criterion	Salinity Concentration	Duration
1	Should not fall below 30% of normal seawater concentration or 10 ppt	Greater than 1 hour
2	Must recover to greater than 75% of normal seawater concentration or 25 ppt	Within 10 hours starting when salinity concentration falls below 25 ppt

Source: Chambers Group 2000

Significant biological impacts include, but are not restricted to:

- Impacts to water quality and turbidity that have the potential to affect marine species
- Impacts to EFH
- All impacts to federally or state listed species or sensitive habitats
- All impacts to federally or state regulated habitats
- Impacts to high-quality or undisturbed biological communities and vegetation associations that are restricted on a regional basis or serve as wildlife corridors
- Impacts to habitats that serve as breeding, foraging, nesting, or migrating grounds that are limited in availability or serve as core habitats for regional plant and wildlife populations.
- Impacts to migratory birds
- Impacts to local policies or ordinances protecting biological resources or adopted Habitat Conservation Plans

Adverse but not significant impacts would include:

- Impacts that adversely affect biological resources but would not significantly change or stress the resources on a long-term basis

- Impacts to biological resources that are already disturbed or lack importance in the preservation of local or regional native biological diversity and productivity

The following sections discuss the potential effects development of this project will have on the biological resources along the proposed alignment.

DIRECT IMPACTS

Salinity

The locations of Marine Stadium salinity analyses stations include Station E (near the outfall structure), Station F (midpoint of the length of Marine Stadium), and Station G (Intersection of Cerritos Channel/Marine Stadium, south end entrance to Marine Stadium). In Marine Stadium, all three locations meet Criterion 1 under the existing conditions. Criterion 2 is not met at Location E but is satisfied at Locations F and G.

Under the project, the results of the salinity modeling showed that salinity levels within Colorado Lagoon would remain higher than existing conditions, thereby suggesting an improvement in salinity levels (i.e., more stable salinity levels). However, salinity levels in Marine Stadium would drop suggesting a degradation of salinity levels compared to existing conditions. Criterion 1 is satisfied at all three locations in Marine Stadium, and Criterion 2 is satisfied at only Location G. Criterion 2 also failed under existing conditions in Marine Stadium, which indicates no overall change in this criterion under the project, and the only major failure in criteria passing is at Station F.

The significance of the decreased salinity in Marine Stadium, as reported in Everest International Consultants (2005), relative to impacts on eelgrass and other species, is based upon species' tolerances to low salinity, and the time in which recovery to ambient salinity occurs. Eelgrass can survive in a wide range of water salinities, including the range of salinities in Marine Stadium. Therefore, it is likely to be able to withstand periodic flooding events that reduce salinities in Marine Stadium below 25 ppt for a maximum of 48 hours. In addition, eelgrass growth is generally dormant through the winter months, with most growth occurring during spring and summer (Phillips and Watson 1984). Therefore, most storm-related events occur when eelgrass is within its dormant growing phase, which reduces the potential for impacts to eelgrass. Impacts to eelgrass from a change in salinity levels would be less than significant.

Many benthic bay invertebrates tend to be introduced euryhaline species. In the sediments around the outlets, some species respond by burrowing deeper into the sediments where salinity is less affected. Those invertebrates that cannot escape the effects of lowered salinity and that may not be as tolerant of initial low salinities, such as species living on eelgrass blades (gammarid and caprellid amphipods, polyclad worms, polychaete worms), will be killed; however, invertebrate recolonization will begin to occur as soon as salinity returns to ambient conditions—within approximately 48 hours. Fishes, such as surfperch, topsmelt, and halibut, will temporarily move away from low-salinity areas of Marine Stadium and then return to the areas near the outlets when salinity reaches ambient levels. Again, this would likely occur within 48 hours of the flood event, or when prey items for fishes again become prevalent.

The overall results indicate that only a small area near the outlet would be affected by reduced salinity, and that, overall, average salinity would be higher in both Colorado Lagoon and Marine Stadium. Impacts to marine life from a change in salinity levels would be less than significant.

Water Quality

Construction of the outlet structure in Marine Stadium would involve constructing a coffer dam around the proposed construction zone, removing and replacing riprap along the shoreline, and recontouring the riprap shoreline to depths of –5 feet MLLW around the opening of the outlet structure. These impacts would have a short-term adverse impact on water quality when the coffer dam is constructed, related to an increase in suspended sediment loads, and an increase of water turbidity. Resuspension of bottom sediments also has a potential to release sediment-bound contaminants back into the water column that can become available to water column and bottom-dwelling filter feeders. Water quality conditions would return to ambient when construction activity is completed.

Impacts to marine organisms during construction would result in an initial mortality of algae and benthic invertebrates living on the riprap (e.g., green and red algae, mussels, sponges, limpets, barnacles, shore crabs) and on the bayfloor (e.g., green and red algae, polychaete worms, amphipods, isopods, clams, snails, octopus, hydroids) and resident benthic fishes (e.g., gobies) within the construction easement zones and within the areas where the coffer dam is constructed. There will be a permanent loss of benthic invertebrate biomass and goby biomass within the footprint of the outlet. Water column fishes such as topsmelt, black surf perch, and bottom fish such as California halibut, round sting ray, and barred sand bass will swim away from the zone of construction and will likely avoid any significant mortality to their populations. The restoration of intertidal and subtidal riprap, unvegetated bay soft bottom habitat, and bayfloor

eelgrass habitat in the months following the completion of the outfall will allow the establishment of basic habitat requirements for other marine organisms to recolonize these areas. Once the zone within the coffer dam is restored to tidal action, algae, eelgrass, benthic invertebrates, and benthic-dwelling gobies will recolonize the substrate, beginning immediately after construction is completed and possibly taking 1 to 5 years for full recolonization. Implementation of mitigation measures would ensure that impacts would be less than significant.

Essential Fish Habitat

Project activities that would affect identified FMP species (northern anchovy) include increased water turbidity caused by the construction of the outlet structure, and potential temporary resuspension of any contaminants in the immediate area of the outlet during flood periods. These impacts could result in northern anchovy temporarily avoiding the project area, and a minimal potential for mortality of larval anchovy. An increase in the suspended sediment load would temporarily increase the exposure of these species to potentially harmful levels of contaminants (CRM 2005b).

All four FMP species are pelagic schooling species that utilize large expanses of San Pedro Bay. Of the four species, only the northern anchovy is expected to be in Alamitos Bay, but numbers within the Marine Stadium and the Colorado Lagoon portion of Alamitos Bay are not expected to be a major part of the northern anchovy population. The majority of the anchovy population is expected to occur nearshore, outside of Alamitos Bay, at depths greater than 12 feet deep.

Based upon these determinations, the proposed project is unlikely to have adverse effects on populations of the four identified FMP species. However, mitigation should be provided to ensure minimal turbidity and water quality impacts.

Vegetation Communities

Construction of the proposed project is scheduled to take approximately 18 to 24 months, contingent on weather conditions suitable for construction. All cut and fill would be balanced on-site. Staging of construction equipment would occur in areas that are disturbed and developed. These areas are already flat and in some areas paved in concrete. No existing terrestrial plant communities would be removed for construction staging. Table 6 shows the temporary and permanent impacts that would occur as a result of the project.

Table 6
Permanent and Temporary Vegetation and Other Land Cover Impacts

Vegetation/Cover Type	Permanent/Direct Impacts[1] (acres)	Temporary Impacts[1] (acres)
Marine/Eelgrass	0/0.0008	3.96/0.0189[2]
Native Landscaping	0	2.54
Disturbed	0	7.27
Developed	0	43.89
Ornamental	0	1.66
Other	0	0.75
Total Impacts	*0.0008*	*60.09*

[1] Impact calculations include a 100-foot buffer around the proposed alignment.
[2] "Marine" includes a 500-foot buffer from the outlet structure, as shown in Figure 4; "Eelgrass" includes only eelgrass patches, as shown in Figure 3.

A total of 0.0189 acre of eelgrass is located within the outlet structure construction easement zone (Figure 5). Initially, all will be removed once the coffer dam is constructed, the area is dredged, and the waters are pumped out of the coffer dam. Once the outlet is constructed, and the coffer dam is removed, a total of 0.0008 acre will be permanently lost in the footprint of the outlet structure or by riprap placed along side and in front of the structure to depths of -6 feet MLLW. The remaining 0.0181 acre of removed eelgrass habitat within the coffer dam will be available for on-site eelgrass mitigation once the bayfloor is restored to tidal action.

The loss of 0.0189 acre of eelgrass is considered a localized, significant impact that can be mitigated to a less than significant level with the successful transplantation of eelgrass within Alamitos Bay. Further details are provided below.

Eelgrass beds located near the construction zone will be potentially affected by short-term increases in turbidity when the coffer dam is constructed. This may result in the deposition of fine sediments on eelgrass blades and may reduce underwater light levels that will temporarily reduce eelgrass primary productivity. However, with the implementation of water quality BMPs and mitigation measures to reduce the spread of any turbidity plume, there should be no significant impacts to eelgrass bed resources outside of the localized construction zone. Mitigation is further discussed below.

Source: Aerial base from City of Long Beach. Eelgrass survey by Coastal Resources Management, May 2005

N

0 50 100 Feet

Figure 5
Direct and Temporary Impacts to Eelgrass

On-land construction activities would primarily affect developed and disturbed areas. All of the Long Beach Greenbelt restoration area within the PE right-of-way (2.54 acres) would be removed for construction of the proposed project, including planted oak trees. As part of the proposed project, at the conclusion of project construction, all impacted areas would be restored to their existing condition, including the Long Beach Greenbelt. The replanting would include native species appropriate to the site. Therefore, the impacts to the planted restoration area would be temporary. The remainder of the Long Beach Greenbelt project remains ruderal and disturbed; therefore, no significant impacts to these areas would occur.

Project impacts to the disturbed, ruderal, and ornamental portions of the impact area would not result in significant impacts to biological resources. However, removal of ornamental plants may have an adverse impact to the aesthetics of the area. Mitigation should be provided to reduce these impacts to a less than significant level.

Sensitive Plant Species

No sensitive plant species were found during the focused botanical surveys during the appropriate survey windows for the potentially occurring species (Table 2). The area that previously had southern tarplant is outside of the project impact area. The proposed project would not affect future growth of southern tarplant in this area. No federally or state-listed species are expected to occur within or adjacent to the potential area of impact based on survey results and habitat suitability; therefore, no impacts to sensitive plants are expected to occur as a result of the project.

Sensitive Wildlife Species and Wildlife Corridors

The project would not result in impacts to species that are federally or state-listed as threatened or endangered. Foraging behavior by California least terns is rare at Colorado Lagoon and occasional at Marine Stadium, and foraging and roosting behavior by California brown pelicans is rare at both locations. The California brown pelican and California least tern that use Colorado Lagoon and Marine Stadium would not be affected by project construction or operation (Keane Biological Consulting 2004). Impacts to marine species are discussed above in *Salinity*.

The project has the potential to directly affect individuals of Cooper's hawk, western yellow warbler, California gull, osprey, double-crested cormorant, and elegant tern, as well as numerous other bird species that are protected under the MBTA. Removal of habitat, including ornamental trees, within the 60.09 acres that would be temporarily affected by the project has the potential to

directly affect bird species that may be nesting within the impact area. However, if the habitat or individual trees are removed outside of the breeding/nesting season no impact would occur. The breeding/nesting season for raptors is February 1 through August 30. This period also encompasses the breeding/nesting season for non-raptor bird species.

Direct impacts to wildlife corridors would not occur from the proposed project. Urban adapted species may use the abandoned railway as a corridor; however, these species are not sensitive and are adapted to the urban environment. In addition, at the conclusion of construction, the project area would be restored to the existing conditions, and any current use by urban wildlife would resume. The project site does not serve as a high-quality wildlife corridor, and as such, the project would not result in significant impacts.

INDIRECT IMPACTS

Sensitive Vegetation Communities

As there are no sensitive vegetation communities in the project study area, indirect impacts would not occur. However, indirect impacts could occur to the nearby Colorado Lagoon. Indirect impacts would include fugitive dust deposition on the native vegetation during construction and increased runoff into the lagoon. These potential indirect impacts may be significant depending upon their extent and intensity.

Indirect impacts to sensitive habitats will be avoided or minimized through the use of appropriate BMPs and implementation of the project environmental commitments listed in the Project Description. These measures will reduce potential indirect impacts to below levels of significance.

Sensitive Plant Species

No indirect impacts are expected to occur to sensitive plant species.

Sensitive Wildlife Species and Wildlife Corridors

As discussed above, the potential for green sea turtles to occur in the project area is relatively low. Green turtles are mostly herbivorous and spend most of their time feeding on algae in the sea and the grass that grow in shallow waters. As juveniles, they eat plants and other organisms such as: jellyfish, crabs, sponges, snails, and worms. As adults, they are strictly herbivorous.

Because Alamitos Bay has a productive eelgrass system, green sea turtles may be utilizing the eelgrass beds located throughout the bay as one source of their nutritional requirements. Alamitos Bay is north of this species' typical range, so the occurrence of individuals in the Long Beach area is likely to remain low. The project area within Marine Stadium is approximately 2.5 miles from the mouth of the Bay, further decreasing the chance that this species will occur within the project area.

If, however, a green sea turtle were to be present during the one- to two-week installation period of the sheet piling for the cofferdam or the one-week removal period, it could potentially result in a behavioral modification to this species that would include a likely change in swimming behavior to avoid excessive noise or turbidity. Once the cofferdam is installed, the potential for impacts would be reduced, since the construction area would be physically separated from the marine environment. No mortality or other adverse impacts would be expected to occur as a result of any project-related activities. Furthermore, mitigation measures have been recommended by the US National Marine Fisheries Service (NMFS) to reduce the potential for impacts to sea turtles in the unlikely event that one is present in the project area during the three-month outlet structure construction process (Appendix C). These measures have been incorporated into Chapter 4 of this report. Accordingly, no significant impacts to green sea turtles would occur during construction.

Similarly, the proposed project would not have a substantial adverse effect, either directly or indirectly, on California sea lions or Pacific harbor seals due to the low potential for these species to occur in the project area and because in the event that either of these species is sighted within 500 meters (1,640 feet) of the construction zone, mitigation measures are identified to reduce potential impacts to a less than significant level. Accordingly, the proposed project would not have a substantial adverse effect on California sea lions or Pacific harbor seals.

No operational impacts to green sea turtles, California sea lions, or Pacific harbor seals would occur as a result of the project. In addition, the low-flow diversion system and catch basin screens that are included in the proposed project would improve overall water quality and flooding conditions in Colorado Lagoon and Marine Stadium compared to existing conditions.

No further indirect impacts are expected to occur to sensitive wildlife species or wildlife corridors.

CHAPTER 4.0
MITIGATION

WATER QUALITY

The following mitigation measures would reduce impacts to water quality to a less than significant level:

- No construction materials, equipment, debris, or waste shall be place or stored where it may be subject to tidal erosion and dispersion. Construction materials shall not be stored in contact with the soil. Any construction debris within the temporary cofferdam area shall be removed from the site at the end of each construction day.
- During construction of the Marine Stadium outlet structure, floating booms shall be used to assist in containing debris discharged into Marine Stadium, and any debris discharged shall be removed as soon as possible but no later than the end of each day.
- A silt curtain shall be utilized to assist in controlling turbidity during construction of the cofferdam at Marine Stadium. The County of Los Angeles shall limit, to the greatest extent possible, the suspension of benthic sediments into the water column.
- Reasonable and prudent measures shall be taken to prevent all discharge of fuel or oily waste from heavy machinery or construction equipment or power tools into Marine Stadium. Such measures include deployed oil booms and a silt curtain around the proposed construction zone at all times to minimize the spread of any accidental fuel spills, turbid construction-related water discharge, and debris. Other measures include training construction workers on emergency spill notification procedures, proper storage of fuels and lubricants, and provisions for on-site spill response kits.
- A qualified marine biologist shall monitor the construction process on a weekly basis to ensure that all water quality Best Management Practices (BMPs) are implemented, and to assist the project engineer in avoiding and minimizing environmental effects to benthic communities, including eelgrass. Within thirty days after the project is completed, a post-construction marine biological survey shall be conducted to determine the extent of any construction impacts on eelgrass habitat. The survey report will be completed within 30 days and shall be submitted to the California Coastal Commission and the U.S. Army Corps of Engineers.

SENSITIVE VEGETATION COMMUNITIES

The preferable mitigation is the avoidance of impacts to sensitive resources by project design. If avoidance is not possible, all possible mitigation measures should be incorporated into the project such that the minimal environmental damage occurs. Mitigation for impacts to biological resources will be accomplished through the replacement of sensitive plant communities affected by development. No mitigation is required for impacts to the native landscaping area, as this area will be replanted as noted in the project description. Table 7 summarizes the mitigation requirements for the vegetation communities for the proposed project.

Table 7
Direct Impacts to Vegetation Communities and Mitigation Requirements

Vegetation Community Type	Total Permanent Impacts	Total Temporary Impacts	Mitigation Ratios for Permanent Impacts	Mitigation Ratios for Temporary Impacts	Total Mitigation Acreage
Marine/Eelgrass	0/0.0008	3.96/0.181[2]	1.2:1	1.2:1	0.0227
Native Landscaping	--	2.54	--	--	0[1]
Disturbed	--	7.27	--	--	0
Developed	--	43.89	--	--	0
Ornamental	--	1.66	--	--	0
Other	--	0.75	--	--	0
Total Acreages	***0.0008***	***60.25***	--	--	***0.0227***

[1] As part of the project, the area of native landscaping affected by construction will be replanted in place. No addition mitigation is required.

[2] "Marine" includes a 500 foot buffer from the outlet structure, as shown in Figure 4, "Eelgrass" includes only eelgrass patches, as shown in Figure 3.

Direct permanent and temporary impacts to marine sea grasses at a mitigation ratio of 1.2:1 are required in accordance with the Southern California Eelgrass Mitigation Policy (National Marine Fisheries Service 1991). Part of this total may be replanted on-site when sediment conditions stabilize following the completion of outlet construction. Mitigation of 1.2:1 for temporary impacts is required, as the eelgrass removed during construction is not guaranteed to reestablish in this area. In addition, the following mitigation measures should be implemented to reduce impacts to eelgrass beds:

- A qualified marine biologist shall resurvey the extent of eelgrass coincident with the construction easement to confirm the extent of eelgrass within the permanent and temporary impact areas. Based on 2005 surveys, the direct permanent and temporary impacts to marine sea grasses in Marine Stadium (i.e., 0.0189 acre total) shall be

mitigated at a ratio of 1.2:1, in accordance with the Southern California Eelgrass Mitigation Policy. A total of 0.0227 acres of eelgrass will be replanted by DPW, including at least 0.0189 acres in the temporary impact area when sediment conditions stabilize following the completion of outlet construction. The remaining 0.0046 acres of eelgrass shall be planted within Marine Stadium or elsewhere within Alamitos Bay in a location determined by a qualified biologist. The location of eelgrass transplant mitigation shall be in areas similar to proposed outlet structure location. Factors such as, distance from project, depth, sediment type, distance from ocean connection, water quality, and currents are among those that shall be considered in evaluating potential sites. Monitoring the success of eelgrass mitigation shall be required for a period of five years in accordance with the Southern California Eelgrass Mitigation Policy.

- A wetland eelgrass mitigation plan shall be prepared to discuss the methods and schedule for planting eelgrass at the Marine Stadium and Alamitos Bay locations, and post-planting monitoring. In accordance with the California Coastal Commission's (CCC's) Procedural Guidance for the Review of Wetland Projects in California's Coastal Zone, the mitigation plan shall include the following information, as relevant to the eelgrass mitigation sites:

  1) Clearly stated objectives and goals consistent with regional habitat goals. These regional goals must identify functions and or habitats most in need of enhancement or restoration and must be as specific as possible. If the regional goals have not been identified, then the applicant and CCC staff should work with relevant federal, State, or local agencies to determine if the proposed plan is consistent with the ecology and natural resource composition of the area.

  2) Adequate baseline data regarding the biological, physical, and chemical criteria for the mitigation area.

  3) Documentation that the project will continue to function as a viable wetland over the long term.

  4) Sufficient technical detail in the project design including, at a minimum, an engineered grading plan and water control structures, methods for conserving or stockpiling topsoil, a planting program including removal of exotic species, a list of all species to be planted, sources of seeds and/or plants, timing of planting, plant locations and elevations on the mitigation site base map, and maintenance techniques.

  5) Documentation of performance standards, which provide a mechanism for making adjustments to the mitigation site when it is determined through monitoring, or other means that the enhancement or restoration techniques are not working.

6) Documentation of the necessary management and maintenance requirements, and provisions for remediation should the need arise.

7) An implementation plan that demonstrates there is sufficient scientific expertise, supervision, and financial resources to carry out the proposed activities.

8) A five-year monitoring program.

- A project marine biologist shall mark the positions of eelgrass beds with buoys prior to the initiation of any construction to minimize damage to eelgrass beds outside the construction zone.
- The project marine biologist shall meet with the construction crews prior to dredging to review areas of eelgrass to avoid and to review proper construction techniques.
- If barges and work vessels are used during construction, measures shall be taken to ensure that eelgrass beds are not impacted through grounding, propeller damage, or other activities that may disturb the sea floor. Such measures shall include speed restrictions, establishment of off-limit areas, and use of shallow draft vessels.

SENSITIVE WILDLIFE SPECIES

Should tree removal or removal of the Long Beach Greenbelt restoration area occur during the breeding season for migratory non-game native bird species (generally March 1-September 1, as early as February 1 for raptors), weekly bird surveys would be performed to detect any protected native birds in the trees to be removed and other suitable nesting habitat within 300 feet of the construction work area (500 feet for raptors). The surveys would be conducted 30 days prior to the disturbance of suitable nesting habitat by a qualified biologist with experience in conducting nesting bird surveys. The surveys would continue on a weekly basis with the last survey being conducted no more than 3 days prior to the initiation of clearance/construction work. If a protected native bird is found, DPW would delay all clearance/construction disturbance activities in suitable nesting habitat or within 300 feet of nesting habitat (within 500 feet for raptor nesting habitat) until August 31 or continue the surveys in order to locate any nests. If an active nest is located, clearing and construction with 300 feet of the nest (within 500 feet for raptor nests) shall be postponed until the nest is vacated and juveniles have fledged and when there is no evidence of a second attempt at nesting. Limits of construction to avoid a nest should be established in the field with flagging and stakes or construction fencing. Construction personnel shall be instructed on the sensitivity of the area. The results of this measure would be recorded to document compliance with applicable State and Federal laws pertaining to the protection of native birds.

No direct impacts to the California brown pelican and California least tern or habitat potentially occupied by these species would result from the project and no mitigation measures are required. The following mitigation would address potential impacts to green sea turtles:

- A qualified marine biologist shall be on site during the construction period to monitor the potential presence of green sea turtles. The onsite biological monitor shall have the authority to halt construction operations and shall determine when construction operations can proceed.
- Construction crews and work vessel crews shall be briefed on potential for this species to be present and will be provided with identification characteristics of sea turtles, since they may occasionally be mistaken for seals or sea lions.
- In the event that a sea turtle is sighted within 500 meters (1,640 feet) of the construction zone, all construction activity shall be temporarily stopped until the sea turtle(s) is safely outside the outer perimeter of construction. The onsite biological monitor shall have the authority to halt construction operation and shall determine when construction operations can proceed.
- The biological monitor shall prepare an incident report of any green sea turtle activity in the project area and shall inform the construction manager to have his crews aware of the potential for additional sightings. The report shall be provided within 24 hrs to the California Department of Fish and Game and the National Marine Fisheries Service.
- In the event that a California sea lion or a Pacific harbor seal is sighted within 1,640 feet of the construction zone, all construction activity shall be temporarily stopped until the sea lion(s) or seal(s) is safely outside the outer perimeter of construction. The onsite biological monitor shall have the authority to halt construction operation and shall determine when construction operations can proceed.

NATIVE LANDSCAPING

The Pacific Electric (PE) right-of-way between 7th and 8th Streets shall be replanted with native vegetation at a 1:1 ratio. A restoration and monitoring plan for the site shall be prepared and implemented at the conclusion of construction. The restoration plan shall, at minimum, include the following components:

- Prior to construction, a qualified horticulturist with experience in native plant cultivation shall supervise salvage of plants, soil, and other materials as appropriate from the Long Beach Greenbelt area in the PE right-of-way between 7th and 8th Streets. Salvaged

materials shall be maintained and used in replanting of the site. Supplemental native species appropriate to the site (occurring within the Los Angeles Basin and of local genetic stock) shall be used as necessary.

- Following implementation, the restoration area shall be monitored quarterly for the first two years and biannually for three more years. Success shall be defined as 80 percent survival of container plants after two years and 100 percent survival thereafter.

CHAPTER 5.0
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APPENDIX A

FLORAL SPECIES LIST

Appendix A
Plant Species Observed within the Termino Avenue Drain Project Study Area

Scientific Name	Common Name
Dicotyledoneae	
Agavaceae Family – Agave Family	
Yucca whipplei	Our Lord's candle†
Aizoaceae Family – Fig-Marigold Family	
Carpobrotus edulis	iceplant
Anacardiaceae Family – Laurel Family	
Rhus integrifolia	lemonadeberry*
Rhus ovata	sugar bush*
Schinus molle	pepper tree†
Shinus terebinthifolius	pepper tree†
Apiaceae – Carrot Family	
Foeniculum vulgare	fennel
Apocynaceae– Periwinkle Family	
Nerium oleander	oleander†
Araliaceae– Ginseng Family	
Hedera helix	English ivy
Arecaceae– Palm Family	
Washingtonia robusta	Mexican fan palm†
Asteraceae - Sunflower Family	
Ambrosia artemisifolia	common ragweed†
Artemisia californica	California sagebrush*
Artemisia douglasiana	mugwort*
Baccharis pilularis	coyotebrush *
Encelia californica	California sunflower*
Isocoma menziesii var. *vernonioides*	Goldenbush*
Osteospermum fruticosum	freeway daisy
Sonchus sp.	sow thistle†
Taraxacum officinale	dandelion†
Auraucariaceae– Monkey Puzzle Family	
Araucaria bidwillii	monkey puzzle tree†
Bignoniaceae– Trumpet Creeper Family	
Jacaranda mimosifolia	jacaranda†
Brassicaceae - Mustard Family	
Brassica nigra	black mustard
Hirschfeldia incana	mustard
Lepidium nitidum var. *nitidium*	peppergrass
Raphanus sativus	radish†
Caprifoliaceae Family – Honeysuckle Family	
Sambucus mexicana	Mexican elderberry*
Chenopodiaceae- Goosefoot Family	
Atriplex lentiformis ssp. *lentiformis*	big saltbush*
Crassulaceae- Stonecrop Family	

Scientific Name	Common Name
Crassula ovata	jade plant
Cycadaceae Family – Sago Palm Family	
Cycas sp.	cycad†
Euphorbiaceae Family – Spurge Family	
Chamaesce maculate	spotted spurge
Fabaceae – Pea Family	
Eythrina sp. (probably *caffra*)	coral tree†
Melilotus alba	white sweetclover †
Trifolium repens	white clover†
Fagaceae Family – Oak Family	
Quercus agrifolia	coast live oak*
Quercus ilex	evergreen oak†
Geraniaceae Family – Geranium Family	
Erodium cicutarium	filaree
Erodium moschatum	filaree
Pelargonium x hortorum	geranium
Juglandaceae Family – Walnut Family	
Juglans californica	California walnut*
Lamiaceae Family – Mint Family	
Rosemarinus officinalis	rosemary†
Salvia apiana	white sage*
Salvia mellifera	black sage*
Magnoliaceae- Magnolia Family	
Magnolia grandiflora	southern magnolia†
Malvaceae Family – Mallow Family	
Lavatera assurgentifolia	malva rosa*†
Malva parviflora	cheeseweed†
Moraceae Family – Fig Family	
Ficus carica	common fig
Myrtaceae Family – Myrtle Family	
Callistemon sp.	bottlebrush†
Eucalyptus sp.	eucalyptus†
Nyctaginaceae- Four O'clock Family	
Bougainvillea sp.	bougainvillea†
Papaveraceae- Poppy Family	
Escholzia californica	Californa poppy*
Pinaceae Family – Pine Family	
Pinus canariensis	Canary Island pine†
Pinus sp.	pine†
Pittosporaceae– Pittosporum Family	
Pittosporum sp. (possibly *tobira*)	pittosporum†
Plataganaceae Family – Plantain Family	
Plantago lanceolata	English plantain
Plumbaginaceae Family – Leadwort Family	
Limonium sp.	statice†

Scientific Name	Common Name
Podocarpaceae Family – Podocarp Family	
Podocarpus gracilior	fern pine†
Polygonaceae Family – Buckwheat Family	
Eriogonum fasciculatum	California buckwheat*
Primulaceae Family – Primrose Family	
Anagallis arvensis	scarlet pimpernel
Rosaceae Family – Rose Family	
Heteromeles arbutifolia	toyon*
Prunus ilicifolia	holly-leafed cherry*
Rhaphiolepis indica	Indian hawthorn†
Solanaceae - Nightshade Family	
Solanum rantonnetti	blue potato bush
Tropaeolaceae - Nasturtium Family	
Tropaeolum majus	garden nasturtium†
Verbenaceae - Verbena Family	
Lantana sp.	lantana
Monocotyledoneae	
Poaceae - Grass Family	
Arundo donax	giant reed
Cynodon dactylon	Bermuda grass†
Pennisetum setaceum	red fountain grass
Poa annua	annual bluegrass†
--	unknown bunch grass
Strelitziaceae – Bird of Paradise Family	
Strelitzia nicolai	giant bird of paradise†
Strelitzia reginae	bird of paradise†
Marine Species	
Gracilariopsis	
Gracilariopsis sp.	red algae
Ulvaceae – Sea-Lettuce Family	
Ulva californica	sea-lettuce*
Enteromorpha sp.	enteromorpha

*Denotes native plant

†Denotes ornamental plant

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APPENDIX B

FAUNAL SPECIES LIST

Appendix B
Faunal Species Observed On-site

Scientific Names	Common Names
Birds	
Order Anseriformes	Ducks, Geese, and Swans
Famiy Anatidae	
Anas platyrhynchos	mallard
Anas sp.	domestic duck
Mergus serrator	red-breasted merganser
Oxyura jamaicensis	ruddy duck
Order Apodiformes	Swifts and Hummingbirds
Family Apodidae	
Calypte anna	Anna's hummingbird
Order Charadriiformes	Shorebirds
Family Charadriidae	
Charadrius vociferus	killdeer
Pluvialis squatarola	black-bellied Plover
Family Laridae	
Larus heermanni	California gull
Larus delawarensis	ring-billed gull
Larus heermanni	Heermann's gull
Larus occidentalis	western gull
Sterna antillarum	least tern
Sterna caspia	Caspian tern
Sterna elegans	elegant tern
Sterna forsteri	Foster's tern
Family Scolopacidae	
Actitis macularia	spotted sandpiper
Calidris mauri	western sandpiper
Calidris minutilla	least sandpiper
Catoptrophorus semipalmatus	willet
Heteroscelus incanus	wandering tattler
Limosa fedoa	marbled godwit
Numenius americanus	long-billed curlew
Numenius phaeopus	whimbrel
Order Ciconiiformes	Storks and Relatives
Family Ardeidae	
Ardea herodias	great blue heron
Butorides virescens	green heron
Casmerodius albus	great egret

Scientific Names	Common Names
Egretta thula	snowy egret
Nycticorax nycticorax	black-crowned night-heron
Order Columbiformes	Doves and Pigeons
Family Columbridae	
Columba livia	rock dove
Streptopelia chinensis	spotted dove
Zenaida macroura	mourning dove
Order Coraciiformes	Kingfishers
Family Alcedinidae	
Ceryle alcyon	belted kingfisher
Order Gruiformes	Coots, Cranes, and Rails
Family Rallidae	
Fulica Americana	American coot
Order Falconiformes	Vultures, Hawks and Falcons
Family Acciptridae	
Buteo lineatus	red-shouldered hawk
Family Falconidae	
Falco sparverius	American kestrel
Order Passeriformes	Perching Birds
Family Corvidae	
Corvus brachyrhynchos	American crow
Family Emberzidae	
Dendroica coronata	yellow-rumped warbler
Dendorica petechia	yellow warbler
Family Fringillidae	
Carduelis psaltria	lesser goldfinch
Carpodacus mexicanus	house finch
Family Hirundinidae	
Hirundo pyrrhonota	cliff swallow
Hirundo rustica	bank swallow
Family Mimidae	
Mimus polyglottos	northern mockingbird
Toxostoma redivivum	California thrasher
Family Passeridae	
Passer domesticus	house sparrow
Family Sturnidae	
Sturnus vulgaris	European starling
Family Tyrannidae	
Sayornis nigricans	black phoebe

Scientific Names	Common Names
Order Pelecaniformes	Pelicans and Relatives
Family Pelecanidae	
Pelecanus occidentalis	brown pelican
Family Phalacrocoracidae	
Phalacrocorax auritus	double-crested cormorant
Order Podicipediformes	Grebes
Family Podicipedidae	
Aechmophorus occidentalis	western grebe
Podilymbus podiceps	pied-billed grebe
Mammals	
Order Rodentia, Suborder Sciurognathi	Rodents—gophers, mice, rats, squirrels
Family Sciuridae	
Sciurus sp.	common squirrel
Invertebrates	
Order Lepidoptera, Suborder Macrolepidoptera	Butterflies and Moths
Family Nymphalidae	
Vanessa cardui	painted lady
Marine Species	
Order Amphipoda, Suborder Gammaridea	Amphipods, Gammarid Amphipods
Family Corophiidae	
Grandidierella japonica	amphipod
Order Atheriniformes, Suborder Atherinoidei	Rainbow Fishes and Silversides
Family Atherinidae	
Atherinops affinis	topsmelt
Order Cephalaspidea	Cephalaspids
Family Aglajidae	
Navanax inermis	California aglaja
Family Bullidae	
Bulla gouldiana	California bubble
Order Ceriantharia	Tube Dwelling Anenomes
Family Cerianthidae	
Pachycerianthus fimbriatus	cerianthid tube anemones
Order Hydroida, Suborder Anthomedusae	Medusae, Athecate Hydroids
Family Corymorphidae	
Corymorpha palma	fairy palm hydroid
Order Neogastropoda	Neogasropods
Family Columbellidae	
Alia carinata	carinate dovesnail

Scientific Names	Common Names
Order Perciformes, Suborder Labroidei	Perch-Like Fishes and Perchlike Fishes
Family Embiotocidae	
Embiotoca jacksoni	black perch
Cymatogaster aggregata	shiner perch
Order Perciformes, Suborder Gobioidei	Perch-Like Fishes and Perchlike Fishes
Family Gobiidae	
--	unidentified gobies
Order Perciformes, Suborder Percoidei	Perch-Like Fishes and Perchlike Fishes, Groupers and Seabasses
Family Serranidae	
Paralabrax nebulifer	barred sand bass
Order Pleuronectiformes, Suborder Pleuronectoidei	Dabs, Halibuts, Righteye Flounders
Family Paralichthyidae	California halibut
Paralichthys californicus	unidentified flatfish
Family Pleuronectidae	
--	unidentified flatfish
Order Rajiformes, Suborder Rajoidei	Rays, Sawfishes, and Skates
Family Urolophidae	
Urolophus halleri	round sting ray
Order Scorpaeniformes, Suborder Cottoidei	Scorpion Fishes and Sculpins
Family Cottidae	
Leptocottus armatus	Pacific staghorn sculpin

APPENDIX C

LETTER FROM NATIONAL MARINE FISHERIES SERVICE

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802- 4213

SEP -5 2007

In response, refer to:
10014SWR2007PR000387

Ms. Shari Afshari
Assistant Deputy Director
Programs Development Division
Department of Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

Dear Ms. Afshari:

This letter responds to your letter, dated August 16, 2007, requesting NOAA's National Marine Fisheries Service (NMFS) to concur with the Los Angeles County Department of Public Work's (LACDPW) determination that the Termino Avenue Drain project is not likely to adversely affect the green sea turtle (*Chelonia mydas*). In response to our April 16, 2007, letter, which provided comments on the Draft Environmental Impact Report (DEIR), your letter is accompanied by an August 7, 2007, memo to my staff analyzing the effects of the project on green turtles, given proposed mitigation measures to reduce potential impacts.

Green turtles are the only species listed under the Endangered Species Act (ESA) and under NMFS' jurisdiction that may be affected by this project. Section 7(a)(2) of the ESA directs federal agencies to consult with NMFS to ensure that any action authorized (in this case) by such agency is not likely to jeopardize the continued existence of any endangered or threatened species. Because the Army Corps of Engineers is the federal agency permitting this activity, they should consult with NMFS if the determination has been made that the action may affect green turtles. Therefore, this letter does not constitute ESA section 7 consultation on the proposed action.

Proposed project and mitigation

In order to alleviate existing and potential flooding problems, the LACDPW is proposing to construct a storm drain mainline, six lateral drains, a low flow treatment pump station, catch basin screens, and an outlet to Marine Stadium, a mile-long inlet within Alamitos Bay, in the City of Long Beach, California. Construction of the outlet structure in Marine Stadium would involve constructing a temporary cofferdam around the proposed construction zone, removing and replacing rip rap along the shoreline, recontouring the rip rap shoreline and dredging approximately 250 cubic yards of bay floor. According to your consultants, construction may involve pile driving using either a hydraulic or vibratory hammer.

The August 7, 2007, memorandum reiterates the nine mitigation measures contained in the Termino Avenue Drain DEIR and proposes four additional procedures to minimize effects on green turtles, including the establishment and monitoring of a 100 meter "safety zone" surrounding the construction area. In the event that any sea turtle is sighted within 100 meters of the construction zone, all construction activity shall be temporarily stopped until the sea turtle(s) is safely outside the outer perimeter of construction.

Effects on marine mammals

California sea lions (*Zalophus californianus*) and Pacific harbor seals (*Phoca vitulina richardsi*) may also be found within the project area. These pinnipeds are protected under the Marine Mammal Protection Act (MMPA) and are under the jurisdiction of NMFS. Under the MMPA, it is illegal to "take" a marine mammal without prior authorization from NMFS. "Take" is defined as harassing, hunting, capturing, or killing, or attempting to harass, hunt, capture, or kill any marine mammal. "Harassment" is defined as any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal in the wild, or has the potential to disturb a marine mammal in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.

Concern has arisen that sounds introduced into the sea by man-made devices (e.g. pile-driving) could have a deleterious effect on marine mammals or sea turtles by causing stress, interfering with communication and predator/prey detection, and changing behavior. More significantly, acoustic overexposure to loud sounds can lead to a temporary or permanent loss of hearing (termed a temporary (TTS) or permanent (PTS) threshold shift). NMFS is currently in the process of determining safety criteria for marine species exposed to underwater sound. Based on past projects involving pile driving, consultations with experts, and on published studies, we have preliminarily determined that pinnipeds can be safely exposed to impulse sound pressure levels not greater than 190 dB re 1 microPa (μPa) root mean squared (RMS). However, marine mammals have also shown behavioral changes when exposed to impulse sound pressure levels of 160 dB re 1 μPa_{RMS}. In order to avoid the potential for "take, NMFS has recommended monitoring a 500-meter "safety zone" around pile driving activities for past projects involving pile driving where marine mammals may be present. If any marine mammal is observed within this safety zone, the contractor should cease pile driving until the animal has left the safety zone area. We have also recommended that the contractor ramp up pile driving, so that noise is introduced into the marine environment slowly and gradually increased, so marine species can be alerted to the activity.

Effects on green turtles

Based on past pile-driving projects, the establishment of a "safety zone" with a 500-meter radius around the pile driving operation appeared to be sufficient to reduce any impacts to marine mammals. While there is a lack of published studies on the impacts of pile driving on sea turtles, because sea turtles have higher hearing thresholds than most marine mammals at the frequencies where construction sound is concentrated, we believe that the 500-meter safety zone established for marine mammals should provide sufficient protection for sea turtles. Based on conversations with your consultants, we recommended, and they verbally agreed, to extend the 100-meter safety zone to 500 meters during pile-driving activities to ensure protection to sea turtles.

After reviewing the information provided in the August 7, 2007, memorandum, NMFS expects that, with all mitigation measures in place, in addition to the implementation of the recommendation outlined above to ensure safety to green turtles during pile driving, this project will not have a significant effect on sea turtles.

Lastly, in the unlikely event of an injury to or a collision with a marine mammal or sea turtle, officials must immediately contact the NMFS Stranding Coordinator, Joseph Cordaro at (562) 980-4017 or Joe.Cordaro@noaa.gov.

Thank you for coordinating with our agency to ensure protection to marine species. Questions regarding the ESA or MMPA may be directed to Christina Fahy at (562) 980-4023 or Christina.Fahy@noaa.gov.

Sincerely,

for Rodney R. McInnis
Regional Administrator

Appendix B
URBEMIS Data Sheets

3/31/2008 09:24:17 AM

Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name: C:\Documents and Settings\boparaip\Desktop\Work\Termino Drain\Urbemis\Termino Small Equipment Included.urb924

Project Name: Termino Pavement Demolition

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009 TOTALS (lbs/day unmitigated)	15.53	133.66	75.35	0.06	69.96	6.85	76.81	14.64	6.29	20.94	15,549.70
2009 TOTALS (lbs/day mitigated)	15.53	133.66	75.35	0.06	31.98	6.85	38.82	6.71	6.29	13.00	15,549.70
2010 TOTALS (lbs/day unmitigated)	13.26	113.19	61.08	0.04	69.90	5.80	75.71	14.62	5.33	19.96	13,444.72
2010 TOTALS (lbs/day mitigated)	13.26	113.19	61.08	0.04	31.92	5.80	37.72	6.69	5.33	12.02	13,444.72
2011 TOTALS (lbs/day unmitigated)	12.26	104.82	58.10	0.04	69.90	5.40	75.31	14.62	4.97	19.59	13,444.47
2011 TOTALS (lbs/day mitigated)	12.26	104.82	58.10	0.04	31.92	5.40	37.32	6.69	4.97	11.65	13,444.47

3/31/2008 09:23:46 AM

Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\boparaip\Desktop\Work\Termino Drain\Urbemis\Termino Small Equipment Included.urb924

Project Name: Termino Pavement Demolition

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 6/1/2009-7/14/2009 Active Days: 32	2.08	17.20	16.00	0.02	0.07	0.95	1.02	0.02	0.87	0.90	2,711.29
Building 06/01/2009-08/31/2009	2.08	17.20	16.00	0.02	0.07	0.95	1.02	0.02	0.87	0.90	2,711.29
Building Off Road Diesel	1.30	9.79	4.94	0.00	0.00	0.63	0.63	0.00	0.58	0.58	893.39
Building Vendor Trips	0.59	7.04	4.87	0.01	0.04	0.30	0.34	0.01	0.27	0.29	1,134.96
Building Worker Trips	0.20	0.37	6.19	0.01	0.03	0.02	0.05	0.01	0.02	0.03	682.95
Time Slice 7/15/2009-7/31/2009 Active Days: 13	2.88	21.03	21.00	0.02	0.12	1.28	1.40	0.04	1.17	1.21	3,330.48
Building 06/01/2009-08/31/2009	2.08	17.20	16.00	0.02	0.07	0.95	1.02	0.02	0.87	0.90	2,711.29
Building Off Road Diesel	1.30	9.79	4.94	0.00	0.00	0.63	0.63	0.00	0.58	0.58	893.39
Building Vendor Trips	0.59	7.04	4.87	0.01	0.04	0.30	0.34	0.01	0.27	0.29	1,134.96
Building Worker Trips	0.20	0.37	6.19	0.01	0.03	0.02	0.05	0.01	0.02	0.03	682.95
Demolition 07/15/2009-03/15/2011	0.80	3.83	5.00	0.00	0.05	0.33	0.38	0.01	0.30	0.32	619.18
Fugitive Dust	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.01	0.00	0.01	0.00
Demo Off Road Diesel	0.72	3.64	2.45	0.00	0.00	0.32	0.32	0.00	0.30	0.30	334.50
Demo On Road Diesel	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.71
Demo Worker Trips	0.08	0.15	2.54	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.97
Time Slice 8/3/2009-8/14/2009 Active Days: 10	10.66	83.96	54.42	0.04	54.90	4.75	59.65	11.49	4.36	15.85	10,015.21
Building 06/01/2009-08/31/2009	2.08	17.20	16.00	0.02	0.07	0.95	1.02	0.02	0.87	0.90	2,711.29
Building Off Road Diesel	1.30	9.79	4.94	0.00	0.00	0.63	0.63	0.00	0.58	0.58	893.39
Building Vendor Trips	0.59	7.04	4.87	0.01	0.04	0.30	0.34	0.01	0.27	0.29	1,134.96
Building Worker Trips	0.20	0.37	6.19	0.01	0.03	0.02	0.05	0.01	0.02	0.03	682.95
Demolition 07/15/2009-03/15/2011	0.80	3.83	5.00	0.00	0.05	0.33	0.38	0.01	0.30	0.32	619.18
Fugitive Dust	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.01	0.00	0.01	0.00
Demo Off Road Diesel	0.72	3.64	2.45	0.00	0.00	0.32	0.32	0.00	0.30	0.30	334.50
Demo On Road Diesel	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.71
Demo Worker Trips	0.08	0.15	2.54	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.97
Mass Grading 08/01/2009-03/15/2011	7.78	62.93	33.42	0.02	54.78	3.47	58.25	11.45	3.19	14.64	6,684.74
Mass Grading Dust	0.00	0.00	0.00	0.00	54.70	0.00	54.70	11.42	0.00	11.42	0.00
Mass Grading Off Road Diesel	6.59	48.55	24.05	0.00	0.00	2.87	2.87	0.00	2.64	2.64	4,495.75
Mass Grading On Road Diesel	1.06	14.15	5.43	0.02	0.06	0.59	0.65	0.02	0.54	0.56	1,753.48
Mass Grading Worker Trips	0.13	0.24	3.95	0.00	0.02	0.01	0.03	0.01	0.01	0.02	435.51
Time Slice 8/17/2009-8/31/2009 Active Days: 11	**15.53**	**133.66**	**75.35**	**0.06**	**69.96**	**6.85**	**76.81**	14.64	**6.29**	**20.94**	**15,549.70**
Building 06/01/2009-08/31/2009	2.08	17.20	16.00	0.02	0.07	0.95	1.02	0.02	0.87	0.90	2,711.29
Building Off Road Diesel	1.30	9.79	4.94	0.00	0.00	0.63	0.63	0.00	0.58	0.58	893.39

Building Vendor Trips	0.59	7.04	4.87	0.01	0.04	0.30	0.34	0.01	0.27	0.29	1,134.96
Building Worker Trips	0.20	0.37	6.19	0.01	0.03	0.02	0.05	0.01	0.02	0.03	682.95
Demolition 07/15/2009-03/15/2011	0.80	3.83	5.00	0.00	0.05	0.33	0.38	0.01	0.30	0.32	619.18
Fugitive Dust	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.01	0.00	0.01	0.00
Demo Off Road Diesel	0.72	3.64	2.45	0.00	0.00	0.32	0.32	0.00	0.30	0.30	334.50
Demo On Road Diesel	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.71
Demo Worker Trips	0.08	0.15	2.54	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.97
Mass Grading 08/01/2009-03/15/2011	7.78	62.93	33.42	0.02	54.78	3.47	58.25	11.45	3.19	14.64	6,684.74
Mass Grading Dust	0.00	0.00	0.00	0.00	54.70	0.00	54.70	11.42	0.00	11.42	0.00
Mass Grading Off Road Diesel	6.59	48.55	24.05	0.00	0.00	2.87	2.87	0.00	2.64	2.64	4,495.75
Mass Grading On Road Diesel	1.06	14.15	5.43	0.02	0.06	0.59	0.65	0.02	0.54	0.56	1,753.48
Mass Grading Worker Trips	0.13	0.24	3.95	0.00	0.02	0.01	0.03	0.01	0.01	0.02	435.51
Mass Grading 08/15/2009-03/15/2011	4.87	49.70	20.93	0.02	15.07	2.10	17.16	3.15	1.93	5.08	5,534.49
Mass Grading Dust	0.00	0.00	0.00	0.00	15.00	0.00	15.00	3.13	0.00	3.13	0.00
Mass Grading Off Road Diesel	3.76	35.52	13.84	0.00	0.00	1.50	1.50	0.00	1.38	1.38	3,603.22
Mass Grading On Road Diesel	1.06	14.07	5.40	0.02	0.06	0.59	0.65	0.02	0.54	0.56	1,744.62
Mass Grading Worker Trips	0.05	0.10	1.69	0.00	0.01	0.01	0.01	0.00	0.00	0.01	186.65
Time Slice 9/1/2009-12/31/2009 Active Days: 88	14.28	121.12	64.11	0.04	69.90	6.28	76.19	14.62	5.78	20.40	13,445.06
Asphalt 09/01/2009-03/15/2011	0.83	4.67	4.76	0.00	0.01	0.39	0.40	0.00	0.35	0.36	606.65
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.73	4.44	2.47	0.00	0.00	0.38	0.38	0.00	0.35	0.35	346.41
Paving On Road Diesel	0.01	0.09	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.38
Paving Worker Trips	0.07	0.14	2.25	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.86
Demolition 07/15/2009-03/15/2011	0.80	3.83	5.00	0.00	0.05	0.33	0.38	0.01	0.30	0.32	619.18
Fugitive Dust	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.01	0.00	0.01	0.00
Demo Off Road Diesel	0.72	3.64	2.45	0.00	0.00	0.32	0.32	0.00	0.30	0.30	334.50
Demo On Road Diesel	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.71
Demo Worker Trips	0.08	0.15	2.54	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.97
Mass Grading 08/01/2009-03/15/2011	7.78	62.93	33.42	0.02	54.78	3.47	58.25	11.45	3.19	14.64	6,684.74
Mass Grading Dust	0.00	0.00	0.00	0.00	54.70	0.00	54.70	11.42	0.00	11.42	0.00
Mass Grading Off Road Diesel	6.59	48.55	24.05	0.00	0.00	2.87	2.87	0.00	2.64	2.64	4,495.75
Mass Grading On Road Diesel	1.06	14.15	5.43	0.02	0.06	0.59	0.65	0.02	0.54	0.56	1,753.48
Mass Grading Worker Trips	0.13	0.24	3.95	0.00	0.02	0.01	0.03	0.01	0.01	0.02	435.51
Mass Grading 08/15/2009-03/15/2011	4.87	49.70	20.93	0.02	15.07	2.10	17.16	3.15	1.93	5.08	5,534.49
Mass Grading Dust	0.00	0.00	0.00	0.00	15.00	0.00	15.00	3.13	0.00	3.13	0.00
Mass Grading Off Road Diesel	3.76	35.52	13.84	0.00	0.00	1.50	1.50	0.00	1.38	1.38	3,603.22
Mass Grading On Road Diesel	1.06	14.07	5.40	0.02	0.06	0.59	0.65	0.02	0.54	0.56	1,744.62
Mass Grading Worker Trips	0.05	0.10	1.69	0.00	0.01	0.01	0.01	0.00	0.00	0.01	186.65
Time Slice 1/1/2010-12/31/2010 Active Days: 261	13.26	113.19	61.08	0.04	69.90	5.80	75.71	14.62	5.33	19.96	13,444.72
Asphalt 09/01/2009-03/15/2011	0.78	4.42	4.57	0.00	0.01	0.37	0.38	0.00	0.34	0.34	606.58
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.68	4.21	2.44	0.00	0.00	0.36	0.36	0.00	0.33	0.33	346.41
Paving On Road Diesel	0.01	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.38
Paving Worker Trips	0.07	0.12	2.10	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.79
Demolition 07/15/2009-03/15/2011	0.73	3.62	4.78	0.00	0.05	0.31	0.35	0.01	0.28	0.29	619.10
Fugitive Dust	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.01	0.00	0.01	0.00

Demo Off Road Diesel	0.65	3.45	2.41	0.00	0.00	0.30	0.30	0.00	0.27	0.27	334.50
Demo On Road Diesel	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.71
Demo Worker Trips	0.07	0.14	2.36	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.89
Mass Grading 08/01/2009-03/15/2011	7.29	58.66	32.05	0.02	54.78	3.20	57.98	11.45	2.94	14.39	6,684.61
Mass Grading Dust	0.00	0.00	0.00	0.00	54.70	0.00	54.70	11.42	0.00	11.42	0.00
Mass Grading Off Road Diesel	6.19	45.56	23.43	0.00	0.00	2.66	2.66	0.00	2.44	2.44	4,495.75
Mass Grading On Road Diesel	0.99	12.89	4.95	0.02	0.06	0.53	0.59	0.02	0.49	0.50	1,753.48
Mass Grading Worker Trips	0.12	0.22	3.67	0.00	0.02	0.01	0.03	0.01	0.01	0.02	435.38
Mass Grading 08/15/2009-03/15/2011	4.46	46.49	19.68	0.02	15.07	1.93	17.00	3.15	1.78	4.93	5,534.43
Mass Grading Dust	0.00	0.00	0.00	0.00	15.00	0.00	15.00	3.13	0.00	3.13	0.00
Mass Grading Off Road Diesel	3.43	33.57	13.19	0.00	0.00	1.40	1.40	0.00	1.29	1.29	3,603.22
Mass Grading On Road Diesel	0.98	12.82	4.92	0.02	0.06	0.52	0.58	0.02	0.48	0.50	1,744.62
Mass Grading Worker Trips	0.05	0.09	1.57	0.00	0.01	0.01	0.01	0.00	0.00	0.01	186.59
Time Slice 1/3/2011-3/15/2011 Active Days: 52	12.26	104.82	58.10	0.04	69.90	5.40	75.31	14.62	4.97	19.59	13,444.47
Asphalt 09/01/2009-03/15/2011	0.73	4.18	4.40	0.00	0.01	0.35	0.36	0.00	0.32	0.33	606.52
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.64	3.99	2.42	0.00	0.00	0.34	0.34	0.00	0.31	0.31	346.41
Paving On Road Diesel	0.01	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.38
Paving Worker Trips	0.06	0.11	1.95	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.74
Demolition 07/15/2009-03/15/2011	0.66	3.43	4.58	0.00	0.05	0.28	0.33	0.01	0.26	0.27	619.04
Fugitive Dust	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.01	0.00	0.01	0.00
Demo Off Road Diesel	0.59	3.27	2.37	0.00	0.00	0.27	0.27	0.00	0.25	0.25	334.50
Demo On Road Diesel	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.71
Demo Worker Trips	0.07	0.13	2.20	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.83
Mass Grading 08/01/2009-03/15/2011	6.76	54.25	30.66	0.02	54.78	3.01	57.79	11.45	2.77	14.22	6,684.52
Mass Grading Dust	0.00	0.00	0.00	0.00	54.70	0.00	54.70	11.42	0.00	11.42	0.00
Mass Grading Off Road Diesel	5.75	42.46	22.78	0.00	0.00	2.53	2.53	0.00	2.33	2.33	4,495.75
Mass Grading On Road Diesel	0.91	11.59	4.46	0.02	0.06	0.47	0.52	0.02	0.43	0.45	1,753.48
Mass Grading Worker Trips	0.11	0.20	3.41	0.00	0.02	0.01	0.03	0.01	0.01	0.02	435.29
Mass Grading 08/15/2009-03/15/2011	4.11	42.96	18.47	0.02	15.07	1.76	16.83	3.15	1.62	4.77	5,534.39
Mass Grading Dust	0.00	0.00	0.00	0.00	15.00	0.00	15.00	3.13	0.00	3.13	0.00
Mass Grading Off Road Diesel	3.16	31.34	12.57	0.00	0.00	1.29	1.29	0.00	1.19	1.19	3,603.22
Mass Grading On Road Diesel	0.91	11.54	4.44	0.02	0.06	0.46	0.52	0.02	0.43	0.45	1,744.62
Mass Grading Worker Trips	0.05	0.08	1.46	0.00	0.01	0.01	0.01	0.00	0.00	0.01	186.55

Phase Assumptions

Phase: Demolition 7/15/2009 - 3/15/2011 - Pavement Demolition

Building Volume Total (cubic feet): 32400

Building Volume Daily (cubic feet): 80

On Road Truck Travel (VMT): 1.11

Off-Road Equipment:

4 Concrete/Industrial Saws (6.5 hp) operating at a 0.73 load factor for 2 hours per day

1 Other Equipment (72 hp) operating at a 0.62 load factor for 2 hours per day

2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 2 hours per day

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2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 2 hours per day

Phase: Mass Grading 8/1/2009 - 3/15/2011 - Excavation
Total Acres Disturbed: 3
Maximum Daily Acreage Disturbed: 0.75
Fugitive Dust Level of Detail: Low
Onsite Cut/Fill: 400 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day
On Road Truck Travel (VMT): 413.71
Off-Road Equipment:
1 Air Compressors (49 hp) operating at a 0.48 load factor for 8 hours per day
1 Concrete/Industrial Saws (6.5 hp) operating at a 0.73 load factor for 8 hours per day
2 Cranes (399 hp) operating at a 0.43 load factor for 8 hours per day
2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
3 Generator Sets (6.5 hp) operating at a 0.74 load factor for 8 hours per day
2 Other Equipment (72 hp) operating at a 0.62 load factor for 8 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 8/15/2009 - 3/15/2011 - Pipe Construction and Backfill
Total Acres Disturbed: 3
Maximum Daily Acreage Disturbed: 0.75
Fugitive Dust Level of Detail: Default
20 lbs per acre-day
On Road Truck Travel (VMT): 411.62
Off-Road Equipment:
1 Generator Sets (403 hp) operating at a 0.74 load factor for 9 hours per day
1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
1 Other Equipment (72 hp) operating at a 0.62 load factor for 8 hours per day
1 Plate Compactors (8 hp) operating at a 0.43 load factor for 8 hours per day
1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 3 hours per day

Phase: Paving 9/1/2009 - 3/15/2011 - Paving
Acres to be Paved: 3
Off-Road Equipment:
4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 2 hours per day
1 Other Equipment (72 hp) operating at a 0.62 load factor for 2 hours per day
1 Pavers (100 hp) operating at a 0.62 load factor for 2 hours per day
2 Rollers (95 hp) operating at a 0.56 load factor for 2 hours per day

Phase: Building Construction 6/1/2009 - 8/31/2009 - Coffer Dam Construction

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Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day