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APPENDIX A:

COLORADO LAGOON RESTORATION PROJECT DRAFT TECHNICAL REPORT

DRAFT TECHNICAL REPORT

COLORADO LAGOON RESTORATION PROJECT

LONG BEACH, CALIFORNIA

Submitted to:

The City of Long Beach
and
The United States Army Corps of Engineers

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LSA Project No. CLB0803

LSA

May 2010

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1.0 INTRODUCTION

1.1 PROPOSED ACTION

The Colorado Lagoon (Lagoon) is located in the City of Long Beach (City), Los Angeles County (County), California. The Los Angeles District of the United States Army Corps of Engineers (Corps) proposes to perform dredging activities in the western arm and central portion of the Lagoon.

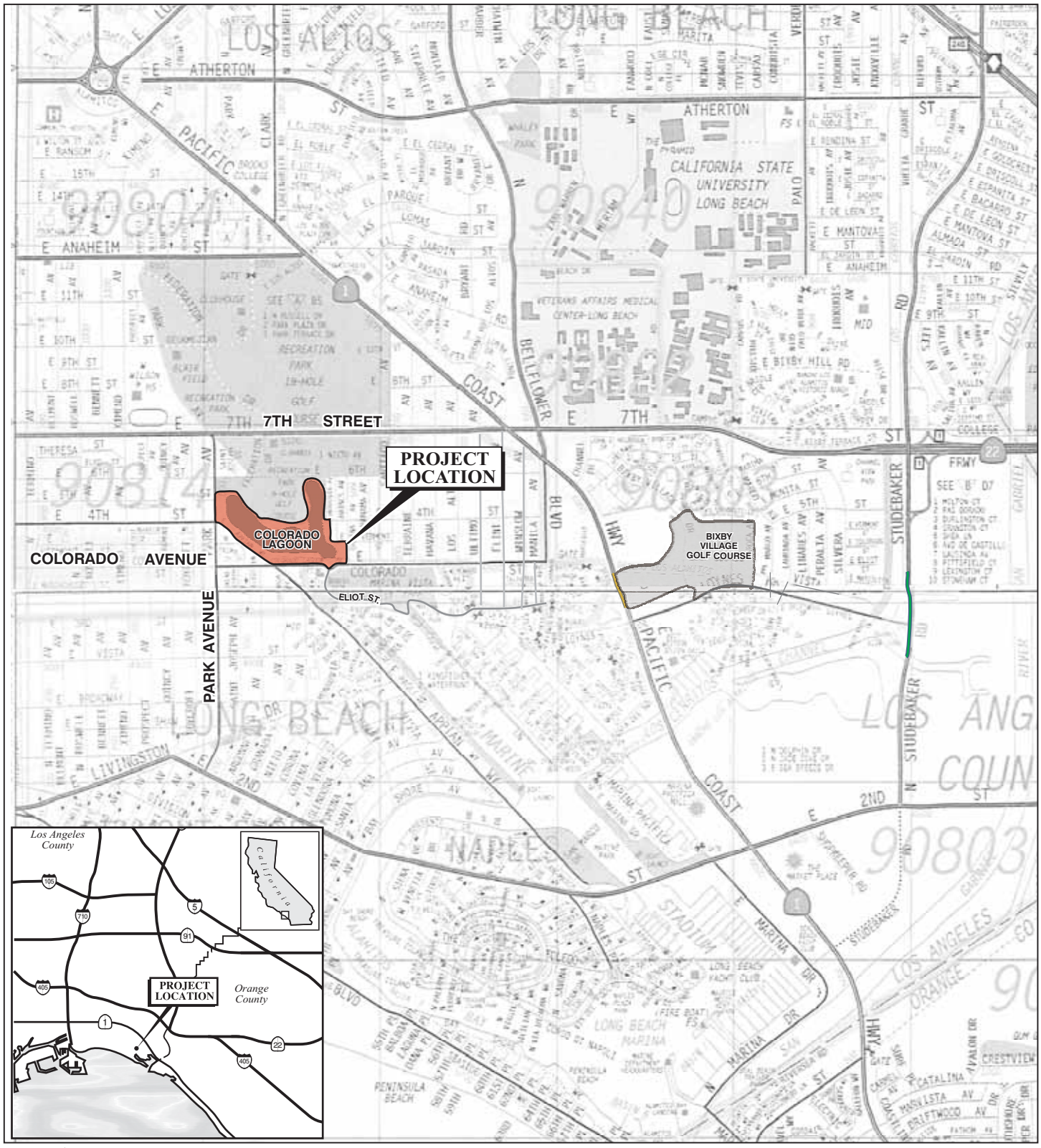
The proposed project includes the sediment removal of approximately 32,500 cubic yards (cy) from the Lagoon. Disposal of the dredge material would occur at a disposal site at the Port of Long Beach (POLB). The dredge disposal will be stabilized prior to transport with a cement stabilization process. Four dredging alternatives are proposed. The alternatives vary with regard to the type of equipment used and the method of transport of the dredge material to the POLB disposal site.

1.2 PROJECT LOCATION

The Lagoon is an approximately 11.7-acre (ac) tidal water body located in the City. The Lagoon is owned and maintained as a City park by the City Department of Parks, Recreation, and Marine. Regional access to the Lagoon is provided by Interstate 405 (I-405), Interstate 605 (I-605), and Interstate 710 (I-710) to the north and west (Figure 1). The Lagoon is primarily accessible from East Appian Way and East Colorado Street via Park Avenue from East 7th Street. However, many local streets provide access to the Lagoon and its surrounding areas. The Lagoon lies northwest of the mouth of the San Gabriel River and is north of Marine Stadium and Alamitos Bay. Connectivity of the Lagoon to Alamitos Bay and the Pacific Ocean is facilitated by a tidal culvert under Marina Vista Park that connects the Lagoon to Marine Stadium.

1.3 PROJECT HISTORY

The Lagoon was once a part of the historic Los Cerritos Wetlands. In 1923, the low-lying tidelands of Alamitos Bay were dredged to form the Lagoon and Marine Stadium, which were used for recreational rowing. The City then purchased the Lagoon area and Recreation Park in the 1920s through general revenue bond funding. The 1932 Los Angeles Olympic Committee chose the Lagoon for diving trials and Marine Stadium for rowing events. High diving was performed from a three-story structure that was floating in the Lagoon. To prepare for the diving trials, the Lagoon was separated from Marine Stadium by a tide gate, which was installed to maintain adequate diving depth. In 1968, the City remodeled Marine Stadium for the Olympic rowing and canoeing team trials. Also, in the late 1960s, the area between what is now the north end of Marine Stadium and the south end of the Lagoon was filled and the existing underground box culvert was constructed, thereby further separating the Lagoon from Marine Stadium. This was undertaken as part of the construction for the then-proposed Pacific Coast Freeway. This “filled” area is now Marina Vista Park.



LSA

FIGURE 1

Project Area

N

0 1000 2000

FEET

SOURCE: Thomas Guide, 2007

Colorado Lagoon Restoration Project

Project Location

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The deteriorated ecological health of the Lagoon has been established for the past several decades. In addition to tidal influence, the Lagoon receives inflow from 11 storm water drains. Since the Lagoon is a natural low point in the watershed, it accumulates pollutants deposited over the entire watershed that enter the storm drains by storm flows and dry weather runoff. Additionally, sediment deposition and marine growth have reduced the capacity of the culvert, resulting in a lack of tidal flushing at low tides and increased degradation of water quality.

The Lagoon's watershed is 1,172 ac and composed of 773 ac of residential, 125 ac of commercial, 55 ac of institutional (schools), and 219 ac of open-space land uses. Urban runoff contains many pollutants such as heavy metals, pesticides, petroleum, hydrocarbons, nutrients, and bacteria. As a result, the Lagoon is listed in the 2002 and 2006 Clean Water Act (CWA) Section 303(d) lists as an impaired water body for lead, zinc, sediment toxicity, chlordane, dichloro-diphenyl-trichloroethane (DDT), dieldrin, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and bacteria. Beach advisory postings due to elevated bacteria levels are frequent.

The County Department of Public Works (DPW) is replacing and rerouting the Termino Avenue Drain that currently drains to the Lagoon. The Termino Avenue Drain is a major outfall structure at the Lagoon that consists of two side-by-side storm water drainage lines. The County DPW project would extend and reroute the drain to empty into Marine Stadium, thereby bypassing the Lagoon. The Termino Avenue Drain Project (TADP) would also intercept three additional drainpipes that currently discharge into the Lagoon. While this project would benefit water quality within the Lagoon, additional measures, as included in the City's Colorado Lagoon Restoration Project, would provide more complete and long-term benefits to water quality, habitat restoration, and recreational enhancements.

The City certified an Environmental Impact Report (EIR) for the Colorado Lagoon Restoration Project in October 2008. Since that time, the City has obtained a Coastal Development Permit (CDP) from the California Coastal Commission (CCC) and a Water Quality Certification from the Regional Water Quality Control Board (RWQCB) for the project and continued to work with resource agencies toward the issuance of a Nationwide Permit and Letter of Permission from the Corps.

2.0 PROJECT PLAN

2.1 PROJECT DESCRIPTION

The proposed federal action under consideration by the Corps is the dredging of contaminated sediment in the western and central arms of the Lagoon.

The dredging activities proposed for the Lagoon are part of a multicomponent project known as the Colorado Lagoon Restoration Project. Phase 1 of the Colorado Lagoon Restoration Project includes improvements at the Lagoon and to the existing culvert that connects the Lagoon and Marine Stadium. Phase 2 involves improvements within Marina Vista Park, which includes developing an open channel or second underground culvert. The dredging activities would dredge material out of the western arm and central Lagoon areas.

The Lagoon is listed as impaired on California's 303(d) list of water quality limited segments due to lead, zinc, chlordane, and PAHs in the sediment; and chlordane, DDT, dieldrin, and PCBs in tissues of marine organisms. Additionally, the RWQCB has approved total maximum daily loads (TMDLs) for the Lagoon that require removal of contaminated sediments. It is estimated that the layer of contaminated sediment reaches 4–7 feet (ft) deep in portions of the western arm of the Lagoon and up to 3 ft deep in the central area. Sediment will be removed beyond these depths to provide a safeguard that only clean sediment remains. The depth of excavation at the deepest point would be down to 18 ft below the mean sea level point of 1929, or 15.4 ft below mean lower low water (MLLW). The width of the excavation footprint is intended to be as wide as possible to remove the maximum quantity of sediment while still providing for stable side slopes around the Lagoon perimeter. Slopes are to be dredged to create a smooth transition from the Lagoon bottom up the side slopes.

The proposed central Lagoon dredging activities would remove sediment and sand that has eroded and been deposited into the Lagoon waters over the years, creating a larger subtidal area. Contaminated sediments will also be removed from this area. Dredging activities would have a 4–6 month duration and would result in the removal of approximately 32,500 cy of sediment from the western arm and the central Lagoon. Dredging and placement of dredge material operations are expected to be performed by one or more of the following dredge types: hydraulic dredge; mechanical (i.e., clamshell or barge-based excavator) dredge; or a combination of the above listed dredges. The City is also investigating the feasibility of using electric excavators to dredge the Lagoon. All excavated material would be transported to POLB after being treated with cement to stabilize lead.

2.2 PROJECT PURPOSE AND NEED

The existing water and sediment quality within the Lagoon is degraded due to elevated levels of lead, zinc, chlordane, and PAHs in the sediment; and chlordane, DDT, dieldrin, and PCBs in fish and mussel tissue. In addition, testing confirmed the presence of PCBs, cadmium, copper, mercury, and silver as secondary contaminants of concern. The purpose of the proposed dredging of the Lagoon is to remove the contaminated sediment.

The objective of the Proposed Action is to support the City's efforts to restore the Lagoon by implementing an important component of the Colorado Lagoon Restoration Project. Primary benefits to be realized from the proposed dredging activities include improved sediment and water quality from the removal of existing sediment and establishing conditions that enable the City to implement biological restoration and recreation improvements at the Lagoon.

The purpose of this technical report is to address potential air quality, noise, and traffic impacts that may result from each of the dredging alternatives.

2.3 ALTERNATIVES

The purpose of analyzing four alternatives is to increase the number of options available for the contractor carrying out the dredging activities. The decision for the type of dredge to be used would be left to the discretion of the contractor or by funding requirements.

2.3.1 No Action Alternative

The "No Action" Alternative, or that of not dredging the Lagoon, would result in the continuance of existing conditions. If dredging did not occur, the contaminated sediment would continue to be present and untreated, and is expected to result in continued adverse impacts to the environment.

2.3.2 Alternative 1 (Mechanical Dredge and Truck Option Alternative)

The intention of this alternative is to dredge the central and western areas of the Lagoon using mechanical dredge/excavation equipment (barge-based clamshell/excavator or land-based excavator) and truck the dredge material to the Port of Long Beach. The City is also investigating the feasibility of using electric excavators to dredge the Lagoon. The dredge area would be isolated by a silt curtain, and closed "environmental" buckets would be used to maintain water quality. Clamshell/bucket-type dredging equipment would be used or temporary shore-perpendicular berms or piers would be built into the Lagoon to allow a land-based dredger to access depths not within reach from the Lagoon's shores. The dredge material would be temporarily stockpiled in the parking lot along the northern shore of the Lagoon until it was treated with cement and loaded onto trucks. Plastic tarps and containment structures would be placed under and around the stockpile areas to minimize runoff back into the Lagoon and surrounding areas.

The equipment that would be utilized for dredging activities is listed in Table A. The other equipment on site (bulldozer, loader, etc.) would be diesel fueled. The dredge material would be treated on site (at the Lagoon) through cement stabilization and solidification. The cement stabilization process would occur with a pug mill that would mix the dredge material with cement at an up to 20 percent mixture ratio. Once the cement stabilization process is complete, the treated dredge material would be loaded onto trucks and transported to the POLB disposal site (an approximately 24-mile [mi] roundtrip truck trip from the Lagoon). The trucked material would be put into the Slip 1 fill site at the POLB from dockside. The amount of dredge material is anticipated to be 32,500 cy (52,000 tons). Approximately 10,400 tons of cement would be required to maintain a 20 percent mixture ratio for

Table A: Proposed Dredging Equipment

Type of Equipment	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Barge-based excavator or clamshell dredge[1]	X	X		X
Non-electric hydraulic dredge			X	
Dredge pipeline booster pump (diesel fueled)			X	
Bulldozer	X	X	X	X
Small Track Loader	X	X	X	X
Excavator	X	X	X	X
Front-end Loader	X	X	X	X
Grader	X	X	X	X
Small Crane	X	X	X	X
Dewater Equipment/Pumps				X
Pug mill	X	X	X	X
Conveyor				
Generator (diesel fueled)	X	X	X	X
Barge		X	X	X
Tugboat		X	X	X
End-Dump Trucks	X	X		X
Cement Delivery Trucks	X	X	X	X

[1] Electric dredge equipment will be utilized if feasible.

the cement stabilization process. The cement that would be used for this process is anticipated to come from one of the several cement companies located at POLB. The total amount of treated dredge material is anticipated to be 39,000 cy (62,400 tons).

It is anticipated that this alternative would require a total of 2,275 truck trips (which includes trucks coming from POLB to the Lagoon for cement import activities and truck trips from the Lagoon to POLB to transport treated dredge material).

2.3.3 Alternative 2 (Non-Electric Mechanical Dredge Equipment Alternative)

This alternative involves dredging activity using non-electric mechanical dredge/excavation equipment (barge-based clamshell or land-based excavator). The dredge area would be isolated by a silt curtain, and closed "environmental" buckets would be used to maintain water quality. The dredge material would be treated on site through cement stabilization and solidification. Similar to Scenario 1, the cement stabilization process would occur using a pug mill to mix the dredge material with cement at an up to 20 percent mixture ratio.

Alternative 2 differs from Alternative 1 in the mode of transport to the disposal site at the POLB. For Alternative 2, once the cement stabilization process is complete, the treated dredge material would be loaded onto trucks and transported to Marine Stadium (an approximately 2 mi roundtrip truck trip from the Lagoon). The treated dredge material would be transferred from the trucks onto a barge/scow located at Marine Stadium. From there, the barge would transport treated dredge material to the POLB disposal site (an approximately 20 mi roundtrip barge trip from Marine Stadium).

It is anticipated that this alternative would require 325 truck trips from POLB to the Lagoon for cement import activities and 1,950 truck trips from the Lagoon to Marine Stadium for treated dredge

material transport activities. In addition to these truck trips, approximately 35 barge trips from the Marine Stadium loading dock to POLB would also occur (based on an average barge capacity of 1,200 cy and based on the assumption that the barge is propelled by tug boats).

2.3.4 Alternative 3 (Non-Electric Hydraulic Equipment Alternative)

This alternative would result in the dredging of the Lagoon using a non-electric hydraulic dredge equipment. Dredged material would be piped through an underground culvert to either the Marine Stadium barge or land-based treatment facility. It is anticipated that the piping of the dredge material would require the use of a diesel-fueled booster pump and that the pug mill operation would be powered with a diesel-fueled generator. Once the piped dredge material reaches the Marine Stadium barge or land-based treatment facility, the dredge material would be dewatered. This process may include a flocculation process, where a chemical reagent (e.g., coagulants or flocculants) is added to the dredge material and causes the separation of sediment and water to occur. Water resulting from the dewatering process would be treated prior to discharge into the Marine Stadium/Colorado Lagoon. Sediment resulting from the dewatering process would be treated through cement stabilization and loaded onto a barge located at the northwest end of Marine Stadium. From there, the barge would transport treated dredge material to the POLB disposal site (an approximately 20 mi roundtrip barge trip from Marine Stadium to POLB).

It is anticipated that this alternative would require 325 truck trips from POLB to the Lagoon for cement import activities. In addition to these truck trips, approximately 35 barge trips from the Marine Stadium loading dock to POLB would also occur (based on an average barge capacity of 1,200 cy and based on the specification that the barge is propelled by tug boats). It is anticipated that the barge location for this alternative would be adjacent to the treatment site, eliminating the need to truck material between the treatment at Marine Stadium and the Marine Stadium barge.

2.3.5 Alternative 4 (Dry Dredge Alternative)

This alternative would utilize the dry dredge method that would install a temporary coffer dam to isolate the west and central areas of the Lagoon. The dredge area would be drained of water, and the bottom sediment would be dewatered. An excavator would be used to remove the dry sediment, which would be temporarily stockpiled in the parking lot along the Lagoon's north shore and the southwest shore of the Lagoon. Plastic tarps and containment structures would be placed under and around the stockpile area to minimize runoff back into the Lagoon and surrounding areas.

Dredging activities would be carried out using a non-electric mechanical excavator. It is anticipated that the dewatering of the west arm and central Lagoon would require the use of diesel-fueled pumps to dewater groundwater. Similar to Alternatives 1 and 2, the dredge material would be treated on site through the cement stabilization process. This alternative specifies the use of a diesel generator at the treatment site. Once the cement stabilization process is complete, the treated dredge material would be loaded onto trucks and trucked to Marine Stadium, where it would be transferred from the trucks onto a barge/scow located at the northwest end of Marine Stadium and transported to the POLB disposal site.

It is anticipated that this alternative would require 325 truck trips from POLB to the Lagoon for cement import activities and 1,950 truck trips from the Lagoon to Marine Stadium. In addition to these truck trips, approximately 35 barge trips from the Marine Stadium loading dock to POLB would also occur (based on an average barge capacity of 1,200 cy and based on the specification that the barge is propelled by tug boats).

3.0 AFFECTED ENVIRONMENT

3.1 PHYSICAL ENVIRONMENT

The City is approximately 20 mi south of downtown Los Angeles and is adjacent to the Pacific Ocean. The Lagoon, Marina Vista Park, and Marine Stadium (which comprise the proposed project site) are located in the southeastern portion of the City. The Lagoon lies northwest of the mouth of the San Gabriel River and is north of Marine Stadium and Alamitos Bay. The Lagoon is primarily accessible from East Appian Way and East Colorado Street via Park Avenue from East 7th Street. However, many local streets provide access to the Lagoon and its surrounding areas. Regional access to the project site is provided by I-405, I-605, and I-710 to the north and west.

The project location is within the United States Geological Survey (USGS) *Long Beach, California* 7.5-minute quadrangle. The site lies within the southwestern block of the Los Angeles Basin, which is comprised of a low alluvial floodplain. The floodplain is bound by a line of elongated low hills, folds, and faults, which delineate the northwest-trending Newport-Inglewood Structural Zone.

Prior to extensive dredging of the Lagoon and Marine Stadium area in the 1920s, the site was a tidal mudflat that received alternating alluvial deposits of marine sands, organic silts and clays, and fluvial deposits. In the 1960s, the previously dredged area between what is now the north end of Marine Stadium and the south end of the Lagoon was filled and the existing underground box culvert constructed. This was undertaken as part of the construction for the then-proposed Pacific Coast Freeway. This “filled” area is now Marina Vista Park. Consistent with the project area’s history, the soil underlying the project site is characterized by predominately younger alluvial deposits and artificial fill. Younger alluvial deposits consist of Holocene alluvial soft clay, silt, silty sand, and sand.

Recreation Park is adjacent to the Lagoon on the north and includes a 9-hole and 18-hole golf course, a baseball stadium, a casting pond, picnic areas, a dog park, tennis courts, a community center, lawn bowling, and a playground. In addition, Marina Vista Park is located to the southeast of the Lagoon, on the south side of East Colorado Street. Marina Vista Park overlooks the water of Marine Stadium to the south and provides the following amenities: two soccer fields, tennis courts, a baseball diamond, play equipment, picnic areas, and restrooms.

The Colorado Lagoon Playgroup Preschool, which is a program for 3- to 5-year-old children, and a model boat shop are located on the south side of the Lagoon. Other on-site facilities at the Lagoon include the City’s Colorado Lagoon Marine Science Center, which is staffed by the City and Friends of the Colorado Lagoon (FOCL), restrooms, parking, a pedestrian bridge, a lifeguard station, sandy shoreline areas, play equipment, picnic areas, and grassy open-space areas.

The area surrounding the Lagoon is composed primarily of park and recreational area and existing residential neighborhoods, as described below.

- **North:** Recreation Park, which is a City park, is adjacent to the Lagoon on the north and includes 9-hole and 18-hole golf courses, a baseball stadium, a softball stadium, a casting pond, picnic areas, a dog park, tennis courts, a community center, lawn bowling, a bandshell, and a playground.
- **South:** Developed neighborhoods, which are largely composed of residential land uses, are located to the south. Small areas of commercial and institutional development are located to the south of the Lagoon and to the west of Marina Vista Park. In addition, Marine Stadium, which is a recreational water body, is located to the south of the project site.
- **East:** Developed residential land uses are located to the east of the project site.
- **West:** Developed residential land uses are located to the west of the project site.

3.2 AIR QUALITY

3.2.1 Meteorology

Climate in the South Coast Air Basin (SCAB) is determined by its terrain and geographical location. The SCAB is a coastal plain with connecting broad valleys and low hills. The Pacific Ocean forms the southwestern border, and high mountains surround the rest of the SCAB. The SCAB lies in the semipermanent high-pressure zone of the eastern Pacific; the resulting climate is mild and tempered by cool ocean breezes. This climatological pattern is rarely interrupted; however, periods of extremely hot weather, winter storms, or Santa Ana wind conditions do occur.

The annual average temperature varies little throughout the SCAB, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station closest to the site is the Long Beach Station.[1] The monthly average maximum temperature recorded at this station from April 1958 to August 2009 ranged from 66.9°F in January to 83.9°F in August, with an annual average maximum of 74.2°F. The monthly average minimum temperature recorded at this station ranged from 45.3°F in December to 64.9°F in August, with an annual average minimum of 54.8°F. January is typically the coldest month, and August is typically the warmest month in this area of the SCAB.

Most rainfall in the SCAB occurs between November and April. Summer rainfall is minimal and is generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern portion of the SCAB and along the coastal side of the mountains. The Long Beach Station monitored precipitation from April 1958 to August 2009. Average monthly rainfall during that period varied from 2.94 inches in February to 0.39 inch or less between May and October, with an annual total of 11.89 inches. Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

Although the SCAB has a semiarid climate, air near the surface is generally moist because of the presence of a shallow marine layer. With very low average wind speeds, there is a limited capacity to disperse air contaminants horizontally. The dominant daily wind pattern is an onshore 8- to 12-mile

[1] Western Regional Climate Center, http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca5085, website accessed March 18, 2010.

per hour (mph) daytime breeze and an offshore 3–5 mph nighttime breeze. The typical wind flow pattern fluctuates only with occasional winter storms or strong northeasterly (Santa Ana) winds from the mountains and deserts northeast of the SCAB. Summer wind flow patterns represent worst-case conditions because this is the period of higher temperatures and more sunlight, which results in ozone formation.

3.2.2 Air Quality

Many factors have a potential impact on air quality, including local climate, topography, and land use. The proposed project is located within the City, which is within the non-desert portion of the County. Los Angeles County is part of the SCAB and is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). Air quality is determined primarily by meteorological conditions, the type and amount of pollutants emitted, and their subsequent dispersion into the atmosphere. The combination of topography, low mixing height, abundant sunshine, and emissions from the second largest urban area in the United States gives the SCAB the worst air pollution problem in the nation.

During spring and early summer, pollution produced during any one day is typically blown out of the SCAB through mountain passes or lifted by warm, vertical currents adjacent to mountain slopes. Air contaminants can be transported 60 mi or more from the SCAB by ocean air during the afternoons. From early fall to winter, the transport is less pronounced because of slower average wind speed and the appearance of drainage winds earlier in the day. During stagnant wind conditions, offshore drainage winds may begin by late afternoon. Pollutants remaining in the SCAB are trapped and begin to accumulate during the night and the following morning. A low morning wind speed in pollutant source areas is an important indicator of air stagnation and the potential for buildup of primary air contaminants.

Inversions are generally lower in the nighttime when the ground is cool than during daylight hours when the sun warms the ground and, in turn, the surface air layer. As this heating process continues, the temperature of the surface air layer approaches the temperature of the inversion base, causing heating along its lower edge. If enough warming takes place, the inversion layer becomes weak and opens up to allow the surface air layers to mix upward. This can be seen in the middle to late afternoon on a hot summer day when the smog appears to clear up suddenly. Winter inversions typically break earlier in the day, preventing excessive contaminant buildup.

The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollutant concentrations are lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas are transported predominantly onshore into Riverside and San Bernardino Counties. In the winter, the greatest pollution problem is accumulation of carbon monoxide (CO) and oxides of nitrogen (NO_X) due to extremely low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and NO_X to form photochemical smog.

Pollutants of potential concerns include ozone (O_3), CO, nitrogen dioxide (NO_2), particulate matter (PM_{10}, $PM_{2.5}$), sulfur dioxide (SO_2), and lead. These chemicals, called criteria pollutants, are harmful to an individual's health, materials, and agriculture. The quality of surface air (air quality) is evaluated by measuring ambient concentrations of pollutants that are known to have harmful effects

on public health. The degree of air quality degradation is then compared to ambient air quality standards (AAQS) such as the California and National Ambient Air Quality Standards (CAAQS and NAAQS, respectively). The Federal Clean Air Act (CAA) (42 United States Code [USC] Sections 7401–7671q) requires the adoption of NAAQS to protect the public health and welfare from the effects of air pollution. The NAAQS have been updated on many occasions to adjust the criteria pollutants. Current standards are set for SO_2, CO, NO_2, O_3, PM_{10} and $PM_{2.5}$, and lead. The California Air Resources Board (ARB) has established additional standards that are generally more restrictive than the NAAQS.

The 1990 Federal CAA amendments, Section 176, requires the United States Environmental Protection Agency (EPA) to put into effect rules to ensure that federal actions conform to the appropriate State Implementation Plan (SIP). These rules, known together as the General Conformity Rule (40 Code of Federal Regulations [CFR] Sections 51.850–.860 and 40 CFR Sections 93.150-.160), require any federal agency responsible for an action in a non-attainment area, to determine that the action is either exempt from the General Conformity Rule's requirements or to positively determine that the action conforms to the applicable SIP. In addition to the roughly 30 presumptive exemptions established and available in the General Conformity Rule, an agency may establish that emission rates would be less than specified emission rate thresholds, known as *De Minimis* limits. An action is exempt from a conformity determination if an applicability analysis shows that the total direct and indirect emissions from the project will be below the applicable *De Minimis* thresholds and will not be regionally significant, which is defined as representing 10 percent or more of an area's emissions inventory or budget. Air quality in the United States is governed by the Federal CAA and is administered by the EPA. In addition to being subject to the requirements of the CAA, air quality in California is also governed by more stringent regulations under the California CAA. Table B summarizes the CAAQS and NAAQS for pollutants.

The SCAQMD is the agency responsible for attaining state and federal clean air standards in the SCAB that includes the Colorado Lagoon Dredging Project area. The SCAQMD is the regional agency charged with being primarily responsible for managing local air quality by regulating emissions from stationary sources of air pollution. Standards for motor vehicle emissions are set by the ARB and apply uniformly statewide. The SCAQMD Rules and Regulations are adopted by the SCAQMD and apply to the area and activities within the SCAB. The SCAQMD also is involved with the overall development and implementation of the SIP, as well as adopting and enforcing emissions from motor vehicles, fuels, and consumer products at the state level. The SCAQMD is also charged with updating the air quality management plan (AQMP) for the SCAB. The AQMP outlines the District's strategies to reduce ozone precursor emissions from a wide variety of stationary and mobile sources.

Air quality in the proposed Colorado Lagoon Dredging Project area is generally good. As noted above, however, standards for ozone are exceeded, most often in summer months. Although standards are exceeded only a few times annually in the coastal zone, they are exceeded more frequently inland due to pollutants carried by prevailing winds. The major source of air pollution in the project area is automobiles, followed by recreational facilities.

Table B: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O_3)	1-Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	--	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.07 ppm (137 µg/m^3)		0.075 ppm (147 µg/m^3)		
Respirable Particulate Matter (PM_{10})	24-Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		--		
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	No Separate State Standard		35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	15.0 µg/m^3		
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m^3)	None	Non-Dispersive Infrared Photometry (NDIR)
	1-Hour	20 ppm (23 mg/m^3)		35 ppm(40 mg/m^3)		
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	—
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m^3)	Same as Primary Standard	Gas Phase Chemiluminescence
	1-Hour	0.18 ppm (339 µg/m^3)		0.100 ppm (see footnote 8)	None	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	—	Ultraviolet Fluorescence	0.030 ppm (80 µg/m^3)	—	Spectrophotometry (Pararosaniline Method)
	24-Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (365 µg/m^3)	—	
	3-Hour	—		—	0.5 ppm (1300 µg/m^3)	
	1-Hour	0.25 ppm (655 µg/m^3)		—	—	
Lead[10]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High-Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3	Same as Primary Standard	
	Rolling 3-Month Average[9]	—		0.15 µg/m^3		
Visibility-Reducing Particles	8-Hour	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		**No Federal Standards**		
Sulfates	24-Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[9]	24-Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

Source: California Air Resources Board, February 16, 2010.

Table footnotes are provided on the following page.

Footnotes:

[1] California standards for ozone; carbon monoxide (except Lake Tahoe); sulfur dioxide (1- and 24-hour); nitrogen dioxide; suspended particulate matter - PM_{10}, $PM_{2.5}$ and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[2] National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth-highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the EPA for further clarification and current federal policies.

[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[4] Any equivalent procedure which can be shown to the satisfaction of ARB to give equivalent results at or near the level of the air quality standard may be used.

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

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

[7] Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.

[8] To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).

[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.

[10] National lead standard, rolling 3-month average: final rule signed October 15, 2008.

°C = degrees Celsius
EPA = United States Environmental Protection Agency
$\mu g/m^3$ = micrograms per cubic meter
mg/m^3 = milligrams per cubic meter
ppm = parts per million

3.3 NOISE

Noise is generally defined as unwanted or objectionable sound. Noise levels are measured on a logarithmic scale because of physical characteristics of sound transmission and reception. Noise energy is typically reported in units of decibels (dB) in which a change of 10 units on the decibel scale reflects an increase of 10 times the noise energy and roughly translates to a doubling of perceived loudness. The human ear does not respond uniformly to sounds at all frequencies, being less sensitive to low and high frequencies than to medium frequencies, which correspond with human speech. In response to this, the A-weighted noise level (or scale) was developed. The A-weighted scale corresponds better with people's subjective judgment of sound levels than does the traditional decibel scale. The A-weighted sound level is called the "noise level" referenced in dBA. Noise is measured on a logarithmic scale; a doubling of sound energy results in a 3 dBA increase in noise levels. However, changes in noise levels of less than 3 dBA are not typically noticeable by the human ear. Changes from 3–5 dBA may be noticed by some individuals who are extremely sensitive to changes in noise. A 5.0 dBA increase is readily noticeable, while the human ear perceives a 10 dBA increase in sound level to be a doubling of sound.

Noise levels diminish (or attenuate) as distance to the source increases according to the inverse square rule, but the rate constant varies with type of sound source. Sound attenuation from point sources, such as industrial facilities, is approximately 6 dB per doubling of distance. Heavily traveled roads with few gaps in traffic behave as continuous line sources and attenuate at 3 dB per doubling of distance. Noise from more lightly traveled roads is attenuated at 4.5 dB per doubling of distance.

Community decibel levels are reported in different ways. The two most common reporting mechanisms used in environmental analysis of community noise levels are the Community Noise Equivalent Level (dBA, CNEL) and the Equivalent Noise Level (dBA, L_{eq}). The CNEL is a 24-hour weighted noise average, which assigns a 5 dB penalty to the noise levels (adds 5 dB to the measured noise level before computing the noise average) between the hours of 7:00 p.m. and 10:00 p.m. and a 10 dB penalty from 10:00 p.m. to 7:00 a.m. These penalties are intended to account for a greater sensitivity to noise, which occurs during quiet evening hours and overnight hours when people sleep.

The CNEL is therefore most appropriate for analysis of projects that are anticipated to generate substantial noise during nighttime and overnight hours, such as supermarkets, which experience predawn deliveries of goods (such as associated heavy truck noise and loading/unloading noise), other 24-hour retail uses, and certain industrial uses. Similar to the CNEL, the L_{eq} is also a type of noise average, but the L_{eq} does not assign a penalty or weighting to record noise levels as the CNEL does. Rather, the L_{eq} represents the average of the fluctuating noise levels recorded in any given time period, usually 1 hour, or $L_{eq\,(h)}$. The L_{dn} index, the average A-weighted noise level during a 24-hour day, obtained after addition of 10 dB to levels measured in the night between 10:00 p.m. and 7:00 a.m., penalizes nighttime noise the same as the CNEL index, but does not penalize evening noise.

People are subject to a multitude of sounds in the environment. Excessive noise cannot only be undesirable but may also cause physical and/or psychological damage. The amount of annoyance or damage caused by noise is dependent primarily upon three factors: the amount and nature of the noise, the amount of ambient noise present before the intruding noise, and the activity of the person working or living in the noise source area. The difficulty in relating noise exposure to public health and welfare is one of the major obstacles in determining appropriate maximum noise levels. Although

there is some dispute in the scientific community regarding the detrimental effects of noise, a number of general conclusions have been reached:

- Noise of sufficient intensity can cause irreversible hearing damage
- Noise can produce physiological changes in humans and animals
- Noise can interfere with speech and other communication
- Noise can be a major source of annoyance by disturbing sleep, rest, and relaxation

The City of Long Beach Noise Element contains noise standards for mobile noise sources. These standards address the impacts of noise from adjacent roadways and airports. The City specifies outdoor and indoor noise limits for residential uses, places of worship, educational facilities, hospitals, hotels/motels, and commercial and other land uses. The noise standard for exterior living areas is 65 dBA CNEL. The indoor noise standard is 45 dBA CNEL, which is consistent with the standard in the California Noise Insulation Standard.

In addition to the Noise Element of the General Plan, the City has adopted a quantitative Noise Control Ordinance, No. C-5371, Long Beach 1977 (Municipal Code, Chapter 8.80). The ordinance establishes maximum permissible hourly noise levels (L_{50}) for different districts throughout the City. Tables C and D list exterior noise and interior noise limits for various land uses. For the purposes of the proposed project, the exterior noise standard of 70 dBA L_{max} has been applied to all of the sensitive land uses, the residences, the preschool, and the open space located within the vicinity of the project dredging areas.

Table C: Exterior Noise Limits, L_N (dBA)

Receiving Land Use	Time Period	L_{50}	L_{25}	L_8	L_2	L_{max}
Residential (District One)	Night: 10:00 p.m.–7:00 a.m.	45	50	55	60	65
	Day: 7:00 a.m.–10:00 p.m.	50	55	60	65	70
Commercial (District Two)	Night: 10:00 p.m.–7:00 a.m.	55	60	65	70	75
	Day: 7:00 a.m.–10:00 p.m.	60	65	70	75	80
Industrial (District Three)	Anytime[1]	65	70	75	80	85
Industrial (District Four)	Anytime[1]	70	75	80	85	90

[1] For use at boundaries rather than for noise control within industrial districts.
dBA = A-weighted decibels
L_2 = A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 2% of a stated time period.
L_8 = A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 8% of a stated time period.
L_{25} = A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 25% of a stated time period.
L_{50} = A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 50% of a stated time period.
L_{max} = maximum sound level
L_N = percentile noise exceedance level

Table D: Maximum Interior Sound Levels, L_N (dBA)

Receiving Land Use	Time Interval	L_8	L_2	L_{max}
Residential	10:00 p.m.–7:00 a.m.	35	40	45
	7:00 a.m.–10:00 p.m.	45	50	55
School	7:00 a.m.–10:00 p.m. (while school is in session)	45	50	55
Hospital and other noise-sensitive zones	Anytime	40	45	50

dBA = A-weighted decibels
L_2 = A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 2% of a stated time period.
L_8 = A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 8% of a stated time period.
L_{max} = maximum sound level
L_N = percentile noise exceedance level

The City's Noise Control Ordinance (Section 8.80.202) governs the time of day that construction work can be performed. The Noise Ordinance prohibits construction, drilling, repair, remodeling, alteration, or demolition work between the hours of 7:00 p.m. and 7:00 a.m. on weekdays or federal holidays (considered a weekday) if the noise would create a disturbance across a residential or commercial property line or violate the quantitative provisions of the ordinance, except for emergency work authorized by the building official.

The Noise Ordinance prohibits construction, drilling, repair, remodeling, alteration, or demolition work between the hours of 7:00 p.m. on Friday and 9:00 a.m. on Saturday and after 6:00 p.m. on Saturday, except for emergency work authorized by the building official. No construction, drilling, repair, remodeling, alteration, or demolition work shall occur at anytime on Sundays, except for emergency work authorized by the building official.

The Colorado Lagoon is located in an area characterized primarily by residences, parks, and schools. Although noise measurements have not been taken, ambient noise levels are generally quiet. The primary existing noise sources in the project area are transportation facilities. Traffic on streets adjacent to the project site is the dominant source contributing to ambient noise levels in the project vicinity. Noise from motor vehicles is generated by engine vibrations, the interaction between the tires and the road, and the exhaust system. In addition, recreational facilities and activities contribute to the human-made ambient noise environment in the Lagoon. Noise levels tend to increase during summer months from heavy recreational activities.

3.4 TRAFFIC

The proposed project area is located in the southeastern portion of the City. The Lagoon and Marina Vista Park lie northwest of the mouth of the San Gabriel River and are north of Marine Stadium and Alamitos Bay. The closest major roadway to the project site is East 7th Street, which is a six-lane, east-west regional corridor located north of the project area. The proposed project area is bound by several local streets, including East 6th Street, Park Avenue, East Appian Way, East Colorado Street, East Eliot Street, Monrovia Avenue, Haines Avenue, and Orlena Avenue.

The City Traffic and Transportation Bureau of the Department of Public Works has estimated the following existing traffic volumes on the streets near the project site:

- East 7th Street currently carries approximately 45,000 vehicles a day between Pacific Coast Highway (PCH) and Park Avenue.
- The intersection of East 7th Street and PCH has an existing level of service (LOS) F in the a.m. and p.m. peak hours, which is below the City's established threshold of LOS D as the minimum operating level for roadway segments and intersections.[1]
- The portion of East Colorado Street adjacent to the Lagoon carries approximately 11,000 vehicles a day.
- Park Avenue carries approximately 15,000 vehicles a day north of East 4th Street and East Appian Way.
- Park Avenue carries approximately 10,500 vehicles a day south of East 4th Street and East Appian Way.
- East Appian Way carries approximately 9,000 vehicles a day.

The City does not have existing LOS information for the local streets serving the project area. However, the City Traffic Engineer has stated that existing traffic volumes on the local roads adjacent to the Lagoon area are higher than many residential/park areas due to the existing roadway network and other physical constraints such as the waters of Marine Stadium and Alamitos Bay and the bridges that cross Alamitos Bay. These physical constraints result in a somewhat discontinuous street network in the southeastern portion of Long Beach, and much of the traffic destined to or from Belmont Park, Belmont Shore, and portions of Belmont Heights utilize Park Avenue to access East 7th Street. East Appian Way also provides a secondary route to and from Belmont Park and Naples via a bridge over Alamitos Bay that connects to PCH.

[1] Long Beach Home Depot Traffic Impact Analysis, April 2005.

4.0 ENVIRONMENTAL EFFECTS

4.1 AIR QUALITY

Air quality impacts under any of the alternatives would be significant if emissions (including mobile and stationary sources) permanently exceed the following federal emission criteria pollutant thresholds:

- 10 tons per year (tons/yr) of ROC
- 10 tons/yr of NO_x
- 100 tons/yr of CO
- 100 tons/yr of SO_x
- 70 tons/yr of PM_{10}
- 100 tons/yr of $PM_{2.5}$

or the following South Coast Air Quality Management District (SCAQMD) thresholds:

- 70 pounds per day (lbs/day) of ROC
- 100 lbs/day of NO_x
- 550 lbs/day of CO
- 150 lbs/day of SO_x
- 150 lbs/day of PM_{10}
- 55 lbs/day of $PM_{2.5}$

4.1.1 No Action Alternative

This alternative would avoid all adverse effects to noise related to dredging activities; however, this alternative would not fulfill any of the project's objectives. The No Action Alternative would have a negative impact of not removing contaminated sediment from the Lagoon, and the environmental benefits to the project area would not be achieved. The water and sediment quality of the Lagoon would not be improved. There are no new sources of air emissions with implementation of this alternative.

4.1.2 Alternative 1 (Mechanical Dredge and Truck Option Alternative)

The proposed dredging activities under Alternative 1 would generate air emissions from heavy equipment emissions, and from emissions from vehicles used to transport dredge material from the Lagoon to POLB. Dredging activities under Alternative 1 would require the use of equipment identified previously in Table A. Dredge equipment could be electrically powered, in which case it would not result in on-site emissions. However, because the City has been unable to confirm the feasible availability of electric dredge equipment, diesel-powered dredge is assumed for purposes of air emission calculations and conformity determination. Emissions generated from the use of

equipment, transport of concrete and dredge material, and construction worker commutes are provided in Table E.

Table E: Alternative 1 Emissions

Type of Equipment[1]	Pollutants of Concern						
	CO	**ROC**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**
2 Loaders	5.0	1.0	5.1	0.0	0.8	0.7	1,068.9
1 Generator	2.5	0.5	5.8	0.0	0.5	0.4	322.0
1 Dozer	4.1	0.7	14.9	0.0	0.6	0.6	956.4
1 Grader	2.0	0.5	8.2	0.0	0.5	0.5	1,061.9
1 Crane	0.8	0.2	4.6	0.0	0.2	0.1	257.3
1 Pug Mill	1.1	0.4	7.4	0.0	0.4	0.3	1,088.0
1 Clamshell Dredge	8.0	1.4	29.2	0.0	1.3	1.2	1,872.0
Haul Trucks[2]	9.4	1.4	17.6	0.0	0.6	0.6	2,490.6
Worker Commute[3]	3.3	0.1	0.4	0.0	0.0	0.0	514.4
Total (lbs/day)	**36.2**	**6.3**	**93.1**	**0.1**	**4.8**	**4.4**	**9,631.6**
SCAQMD Threshold (lbs/day)	550	75	100	150	150	55	N/A
Exceeds SCAQMD thresholds?	**No**	**No**	**No**	**No**	**No**	**No**	**No**
Alternative Total (tons)	**1.8**	**0.3**	**4.7**	**0.0**	**0.2**	**0.2**	**481.6**
De Minimus Thresholds (tons/year)	100	10	10	100	70	100	N/A
Exceeds De Minimus thresholds?	**No**	**No**	**No**	**No**	**No**	**No**	**No**

[1] All off-road construction equipment is modeled using Tier 1 emission rates.
[2] Assumes that a total of 30 truck trips at 24 miles would be required per day.
[3] Assumes that a total of 20 trips at 40 miles would be required per day.

CO = carbon monoxide
CO_2 = carbon dioxide
lbs/day = pounds per day
NO_x = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
ROC = reactive organic compounds
SO_x = sulfur oxides

An action is presumed to conform and is exempt from a conformity determination if analysis shows that the total net direct and indirect emissions from the Proposed Action would be less than the applicable SCAQMD and *De Minimis* thresholds and if the project-related emissions are not regionally significant (would be less than 10 percent of the area emissions budget). The Proposed Action is dredging to remove contaminated sediment from the Lagoon and would result in emissions from the operation of equipment, the delivery of materials and equipment, removal of dredge material from the site, and construction worker commutes. The emissions from these sources represent the total net direct and indirect emissions from the Proposed Action. As shown in the table above, the emissions levels for this Alternative are less than the applicable SCAQMD and *De Minimis* thresholds.

The most recent EPA-approved SIP at the time of the release of the final general conformity determination is used for emission budget analyses. The 1997 AQMP together with supplemental information form the basis for the current, EPA-approved O3 SIP. The emissions inventories developed by SCAQMD and fully documented in the AQMPs are delineated by source types. The applicable source types for the proposed action include heavy-duty diesel truck, commercial boats, and mobile equipment. The emission budgets for these sources in the approved SIP are summarized in Table F.

Table F: Area Emission Budget (tons per day)

Source Category	TOG	VOC	CO	NO_X	SO_X	TSP	PM_{10}
Heavy-Duty Diesel Trucks	17.62	17.12	180.60	153.08	12.49	7.96	6.68
Commercial Boats	0.51	0.49	2.00	10.22	1.71	0.19	0.18
Mobile equipment	46.77	45.07	918.49	119.16	3.53	8.85	8.50
Total Applicable Source Categories	64.90	62.68	1,101.09	282.46	17.73	17.00	15.36

Source: 1997 AQMP
CO = carbon monoxide
NO_X = nitrogen oxide
PM_{10} = particulate matter less than 10 microns in diameter
SO_X = sulfur oxide
TOG =
TSP = total suspended solids
VOC = volatile organic compound

These daily source emission budgets were annualized (daily budget x 365) and compared to the annual emission generated by the project alternatives. The project-related emissions are substantially less than 10 percent of the area emissions budget (less than .01 percent) and therefore are not considered to be regionally significant.

Emissions from the dredge and other support equipment would result in minimal air impacts that are temporary and short term during dredging activity. Air quality would return to preproject conditions following completion of dredging. Therefore, the Corps has concluded that the air quality impacts generated by the proposed Colorado Lagoon Dredging Project would be temporary, short term, and minimal, and the Proposed Action will not have a significant adverse effect on air quality.

The Corps has concluded that the air conformity analyses described above, and the Environmental Commitments cited under Section 5 of this report adequately address impacts from the diesel operated dredge and supporting equipment during the proposed dredging of the Lagoon.

Heavy-duty equipment in the project area during construction would emit odors. These odors would be limited to the time that the equipment is operating during the period for the Proposed Action. Environmental Commitments identified in Section 5.0 of this report reduce impacts associated with objectionable odors from the operation of diesel-powered construction equipment.

The dredge material may be spread out on site to dry before being treated and hauled off site. It is anticipated that the dredged sediment will contain organic materials and that decomposition of the organic matter when exposed to air may generate unpleasant odors. The decaying marine vegetation that was not previously exposed may create unpleasant odors. Therefore, the dredge material may result in odor impacts at the adjacent and nearby sensitive land uses. If the dredge material remains exposed to the air before treatment, implementation of Environmental Commitments identified in Section 5.0 of this report would require the application of a mixture of Simple Green and water to the excavated sediment as part of an overall Soil Management Plan. Simple Green accelerates the decomposition process and will have the overall result of shortening the duration of odor emissions.

Alternative 1 would result in approximately 482 tons (or 437 metric tons) of carbon dioxide (CO_2) emissions during dredging activities. CO_2 is a greenhouse gas (GHG) that is considered to contribute

to global climate change (GCC). GCC describes alterations in weather features (e.g., temperature, wind patterns, precipitation, and storms) that occur across the Earth as a whole. GCC and GHG emissions are an emerging environmental concern being raised on statewide, national, and global levels.

The ARB has published draft preliminary guidance to agencies on how to establish interim significance thresholds for analyzing GHG emissions called *Recommended Approaches for Setting Interim Thresholds for Greenhouse Gases Under the California Environmental Quality Act* (October 2008). The ARB document supports identifying emissions up to 1,600 metric tons of CO_2 equivalent (CO_{2e}) per year or less as less than significant. The ARB report indicates that emissions under 1,600 metric tons would not interfere with achieving the State's emission reduction objectives in AB 32 (and EO S-03-05) and thus may be deemed categorically exempt from CEQA. Traffic and other equipment associated with Alternative 1 would emit approximately 437 metric tons of CO_2 per year, well below the screening threshold of 1,600 metric tons. Therefore, the proposed action would not result in significant global climate change impacts.

Based on the air quality analysis discussed above, the Corps has concluded that the proposed Colorado Lagoon Dredging Project will not have a significant adverse impact on air quality. The total emissions of each criteria pollutant under Alternative 1 meets or is below the SCAQMD thresholds and *De Minimus* levels identified for federal criteria pollutant thresholds. Therefore, Alternative 1 of the proposed Colorado Lagoon Dredging Project conforms to the CAA as amended (1990).

4.1.3 Alternative 2 (Non-Electric Mechanical Dredge Equipment Alternative)

The proposed dredging activities under Alternative 2 would generate air emissions from dredging, other heavy equipment, barges, ancillary vessels, and vehicles used to transport dredge material from the Lagoon to POLB. Dredging activities under Alternative 1 would require the use of equipment identified previously in Table A. Emissions generated from the use of equipment transport of concrete and dredge material and from construction worker commutes are provided in Table G.

As described above, a proposed action is presumed to conform and is exempt from a conformity determination if analysis shows that the total net direct and indirect emissions from the Proposed Action would be less than the applicable SCAQMD and *De Minimis* thresholds and if the project-related emissions are not regionally significant (would be less than 10 percent of the area emissions budget). The Proposed Action is dredging to remove contaminated sediment from the Lagoon and would result in emissions from the operation of equipment, the delivery of materials and equipment, removal of dredge material from the site, and construction worker commutes. The emissions from these sources represent the total net direct and indirect emissions from the Proposed Action. As shown in Table G, the emissions levels for this alternative are less than the applicable SCAQMD and *De Minimis* thresholds. Also, the daily source emission budgets for the area (Table F) were annualized and compared to the annual emission generated by the project alternatives. The project-related emissions are substantially less than 10 percent of the area emissions budget (less than .01 percent) and therefore are not considered to be regionally significant.

Emissions from the dredge and other support equipment would result in minimal air impacts that are temporary and short term during dredging activity. Air quality would return to preproject conditions following completion of dredging. Therefore, the Corps has concluded that the air impacts generated

Table G: Alternative 2 Emissions

Type of Equipment[1]	Pollutants of Concern						
	CO	**ROC**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**
2 Loaders	5.0	0.7	4.2	0.0	0.4	0.4	1,068.9
1 Generator	2.5	0.4	4.9	0.0	0.2	0.2	322.0
1 Dozer	3.4	0.5	10.7	0.0	0.4	0.4	956.4
1 Grader	2.0	0.5	5.9	0.0	0.3	0.3	1,061.9
1 Crane	0.6	0.1	3.3	0.0	0.1	0.1	257.3
1 Pug Mill	1.1	0.4	5.4	0.0	0.2	0.2	1,088.0
1 Clamshell Dredge	6.6	0.9	21.1	0.0	0.8	0.8	1,872.0
1 Tug Boat[2]	7.6	1.7	40.6	0.6	1.3	1.2	1,743.1
1 gas skiff	75.3	33.0	0.0	0.0	0.3	0.3	60.6
Haul Trucks (Cement)[3]	1.3	0.2	2.3	0.0	0.1	0.1	332.1
Haul Trucks (Stadium)[4]	0.7	0.1	1.2	0.0	0.0	0.0	173.0
Worker Commute[5]	3.3	0.1	0.4	0.0	0.0	0.0	514.4
Total (lbs/day)	**109.3**	**38.6**	**100.0**	**0.7**	**4.3**	**3.9**	**9,449.7**
SCAQMD Threshold (lbs/day)	550	75	100	150	150	55	N/A
Exceeds SCAQMD thresholds?	**No**	**No**	**No**	**No**	**No**	**No**	**No**
Alternative Total (tons)	**5.5**	**1.9**	**5.0**	**0.0**	**0.2**	**0.2**	**472.5**
De Minimus Thresholds (tons/year)	100	10	10	100	70	100	N/A
Exceeds De Minimus thresholds?	**No**	**No**	**No**	**No**	**No**	**No**	**No**

[1] All off-road construction equipment is modeled using Tier 2 emission rates.
[2] The diesel tug boat is modeled using Tier 2 emission rates.
[3] Assumes that a total of 4 truck trips at 24 miles would be required for cement import activities per day.
[4] Assumes that a total of 25 truck trips at 2 miles would be required for transfer of dredge material from the Lagoon to the Marine Stadium barge per day.
[5] Assumes that a total of 20 trips at 40 miles would be required.

CO = carbon monoxide
CO_2 = carbon dioxide
lbs/day = pounds per day
NO_x = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
ROC = reactive organic compounds
SO_x = sulfur oxides

by the proposed Colorado Lagoon Dredging Project would be temporary, short term, and minimal, and will not have a significant adverse effect on air quality.

The Corps has concluded that the air conformity analyses described above and the Environmental Commitments cited under Section 5 of this report adequately address impacts from the diesel-operated dredge and supporting equipment during the proposed dredging of the Lagoon.

Heavy-duty equipment in the project area during construction would emit odors. These odors would be limited to the time that the equipment is operating during the period for the Proposed Action. Environmental Commitments identified in Section 5.0 of this report reduce impacts associated with objectionable odors from the operation of diesel-powered construction equipment.

The dredge material may be spread out on site to dry before being treated and hauled off site. It is anticipated that the dredged sediment will contain organic materials and that decomposition of the organic matter when exposed to air may generate unpleasant odors. The decaying marine vegetation that was not previously exposed may create unpleasant odors. Therefore, the dredge material may result in odor impacts at the adjacent and nearby sensitive land uses. If the dredge material remains exposed to the air before treatment, implementation of Environmental Commitments identified in

Section 5.0 of this report would require the application of a mixture of Simple Green and water to the excavated sediment as part of an overall Soil Management Plan. Simple Green accelerates the decomposition process and will have the overall result of shortening the duration of odor emissions.

Alternative 2 would result in approximately 473 tons (or 429 metric tons) of CO_2 emissions during dredging activities. CO_2 is a GHG that is considered to contribute to global climate change (GCC). GCC describes alterations in weather features (e.g., temperature, wind patterns, precipitation, and storms) that occur across the Earth as a whole. GCC and GHG emissions are an emerging environmental concern being raised on statewide, national, and global levels.

The ARB has published draft preliminary guidance to agencies on how to establish interim significance thresholds for analyzing GHG emissions called *Recommended Approaches for Setting Interim Thresholds for Greenhouse Gases Under the California Environmental Quality Act* (October 2008). The ARB document supports identifying emissions up to 1,600 metric tons of CO_{2e} per year or less as less than significant. The ARB report indicates that emissions under 1,600 metric tons would not interfere with achieving the State's emission reduction objectives in AB 32 (and EO S-03-05) and thus may be deemed categorically exempt from CEQA. Traffic and other equipment associated with Alternative 2 would emit approximately 429 metric tons of CO_2 per year, well below the screening threshold of 1,600 metric tons. Therefore, the proposed action would not result in significant global climate change impacts.

Based on the air quality analysis discussed above, the Corps has concluded that the proposed Colorado Lagoon Dredging Project will not have a significant impact on air quality. The total emissions of each criteria pollutant under Alternative 2 meets or is below the SCAQMD thresholds and *De Minimus* levels identified for federal criteria pollutant thresholds. Therefore, Alternative 2 of the proposed Colorado Lagoon Dredging Project conforms to the CAA as amended (1990).

4.1.4 Alternative 3 (Non-Electric Hydraulic Equipment Alternative)

As described above, a proposed action is presumed to conform and is exempt from a conformity determination if analysis shows that the total net direct and indirect emissions from the Proposed Action would be less than the applicable SCAQMD and *De Minimis* thresholds and if the project-related emissions are not regionally significant (would be less than 10 percent of the area emissions budget). The Proposed Action is dredging to remove contaminated sediment from the Lagoon and would result in emissions from the operation of equipment, the delivery of materials and equipment, removal of dredge material from the site, and construction worker commutes. The emissions from these sources represent the total net direct and indirect emissions from the Proposed Action. As shown in Table H, the emissions levels for this alternative are less than the applicable SCAQMD and *De Minimis* thresholds. Also, the daily source emission budgets for the area (Table F) were annualized and compared to the annual emission generated by the project alternatives. The project-related emissions are substantially less than 10 percent of the area emissions budget (less than .01 percent) and therefore are not considered to be regionally significant.

Emissions from the dredge and other support equipment would result in minimal air impacts that are temporary and short term during dredging activity. Air quality would return to preproject conditions following completion of dredging. Therefore, the Corps has concluded that the air impacts generated

Table H: Alternative 3 Dredging Activity Emissions

Type of Equipment[1]	Pollutants of Concern						
	CO	ROC	NO_x	SO_x	PM_{10}	$PM_{2.5}$	CO_2
2 Loaders	5.0	0.7	4.2	0.0	0.4	0.4	1,068.9
1 Pump[2]	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1 Dozer	3.4	0.5	10.7	0.0	0.4	0.4	956.4
1 Grader	2.0	0.5	5.9	0.0	0.3	0.3	1,061.9
1 Crane	0.6	0.1	3.3	0.0	0.1	0.1	257.3
1 Pug Mill[2]	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1 Hydraulic Dredge	5.5	1.1	28.3	0.0	1.6	1.4	2,760.0
1 Tug Boat[3]	7.6	1.7	40.6	0.6	1.3	1.2	1,743.1
1 Gas Skiff	75.3	33.0	0.0	0.0	0.3	0.3	60.6
Haul Trucks (Cement) [4]	1.3	0.2	2.3	0.0	0.1	0.1	332.1
Worker Commute[5]	3.3	0.1	0.4	0.0	0.0	0.0	514.4
Total (lbs/day)	**104.0**	**37.9**	**95.8**	**0.7**	**4.5**	**4.1**	**8,754.8**
SCAQMD Threshold (lbs/day)	550	75	100	150	150	55	N/A
Exceeds SCAQMD thresholds?	**No**	**No**	**No**	**No**	**No**	**No**	**No**
Alternative Total (tons)	**5.2**	**1.9**	**4.8**	**0.0**	**0.2**	**0.2**	**437.7**
De Minimus Thresholds (tons/year)	100	10	10	100	70	100	N/A
Exceeds De Minimus thresholds?	**No**	**No**	**No**	**No**	**No**	**No**	**No**

[1] All off-road construction equipment is modeled using Tier 2 emission rates.
[2] The pug mill and pump will be electrically powered.
[3] The diesel tug boat is modeled using Tier 2 emission rates.
[4] Assumes that a total of 4 truck trips at 24 miles would be required for cement import activities per day.
[5] Assumes that a total of 20 trips at 40 miles would be required per day.

CO = carbon monoxide
CO_2 = carbon dioxide
lbs/day = pounds per day
NO_x = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
ROC = reactive organic compounds
SO_x = sulfur oxides

by the proposed Colorado Lagoon Dredging Project would be temporary, short term, and minimal, and will not have a significant adverse effect on air quality.

The Corps has concluded that the air conformity analyses described above and the Environmental Commitments cited under Section 5 of this report adequately address impacts from the diesel-operated dredge and supporting equipment during the proposed dredging of the Lagoon.

Heavy-duty equipment in the project area during construction would emit odors. These odors would be limited to the time that the equipment is operating during the period for the Proposed Action. Environmental Commitments identified in Section 5.0 of this report reduce impacts associated with objectionable odors from the operation of diesel-powered construction equipment.

It is anticipated that the dredged sediment will contain organic materials and that decomposition of the organic matter when exposed to air may generate unpleasant odors. The decaying marine vegetation that was not previously exposed may create unpleasant odors. Therefore, the dredge material may result in odor impacts at the adjacent and nearby sensitive land uses. If the dredge material remains exposed to the air before treatment, implementation of Environmental Commitments identified in Section 5.0 of this report would require the application of a mixture of Simple Green and water to the excavated sediment as part of an overall Soil Management Plan. Simple Green

accelerates the decomposition process and will have the overall result of shortening the duration of odor emissions.

Alternative 3 would result in approximately 438 tons (or 397 metric tons) of CO_2 emissions during dredging activities. CO_2 is a GHG that is considered to contribute to GCC. GCC describes alterations in weather features (e.g., temperature, wind patterns, precipitation, and storms) that occur across the Earth as a whole. GCC and GHG emissions are an emerging environmental concern being raised on statewide, national, and global levels.

The ARB has published draft preliminary guidance to agencies on how to establish interim significance thresholds for analyzing GHG emissions called *Recommended Approaches for Setting Interim Thresholds for Greenhouse Gases Under the California Environmental Quality Act* (October 2008). The ARB document supports identifying emissions up to 1,600 metric tons of CO_{2e} per year or less as less than significant. The ARB report indicates that emissions under 1,600 metric tons would not interfere with achieving the State's emission reduction objectives in AB 32 (and EO S-03-05) and thus may be deemed categorically exempt from CEQA. Traffic and other equipment associated with Alternative 3 would emit approximately 397 metric tons of CO_2 per year, well below the screening threshold of 1,600 metric tons. Therefore, the proposed action would not result in significant global climate change impacts.

Based on the air quality analysis discussed above, the Corps has concluded that the proposed Colorado Lagoon Dredging Project will not have a significant impact on air quality. The total emissions of each criteria pollutant under Alternative 3 meets or is below the SCAQMD thresholds *and De Minimus* levels identified for federal criteria pollutant thresholds. Therefore, Alternative 3 of the proposed Colorado Lagoon Dredging Project conforms to the CAA as amended (1990).

4.1.5 Alternative 4 (Dry Dredge Alternative)

The proposed dredging activities under Alternative 4 would generate air emissions from dredging, other heavy equipment emissions, barges, ancillary vessels, and vehicles used to transport dredge material from the Lagoon to POLB. As described above, a proposed action is presumed to conform and is exempt from a conformity determination if analysis shows that the total net direct and indirect emissions from the Proposed Action would be less than the applicable SCAQMD and *De Minimis* thresholds and if the project-related emissions are not regionally significant (would be less than 10 percent of the area emissions budget). As shown in Table I, the emissions levels for this alternative are less than the applicable SCAQMD and *De Minimis* thresholds. Also, the daily source emission budgets for the area (Table F) were annualized and compared to the annual emission generated by the project alternatives. The project-related emissions are substantially less than 10 percent of the area emissions budget (less than .01 percentage) and therefore are not considered to be regionally significant.

Heavy-duty equipment in the project area during construction would emit odors. These odors would be limited to the time that the equipment is operating during the period for the Proposed Action. Environmental Commitments identified in Section 5.0 of this report reduce impacts associated with objectionable odors from the operation of diesel-powered construction equipment.

Table I: Alternative 4 Emissions

Type of Equipment[1]	Pollutants of Concern						
	CO	**ROC**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**
2 Loaders	5.0	0.7	4.2	0.0	0.4	0.4	1,068.9
4 Pumps[2]	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1 Dozer	3.4	0.5	10.7	0.0	0.4	0.4	956.4
1 Grader	2.0	0.5	5.9	0.0	0.3	0.3	1,061.9
1 Crane	0.6	0.1	3.3	0.0	0.1	0.1	257.3
1 Pug Mill	1.1	0.4	7.4	0.0	0.4	0.3	1,088.0
1 Excavator	6.6	0.9	21.1	0.0	0.8	0.8	1,872.0
1 Tug Boat[3]	7.6	1.7	40.6	0.6	1.3	1.2	1,743.1
1 gas skiff	75.3	33.0	0.0	0.0	0.3	0.3	60.6
Haul Trucks (Cement)[4]	1.3	0.2	2.3	0.0	0.1	0.1	332.1
Haul Trucks (Stadium)[5]	0.7	0.1	1.2	0.0	0.0	0.0	173.0
Worker Commute[6]	3.3	0.1	0.4	0.0	0.0	0.0	514.4
Total (lbs/day)	**106.8**	**38.2**	**95.1**	**0.7**	**4.1**	**3.7**	**9,127.7**
SCAQMD Threshold (lbs/day)	550	75	100	150	150	55	N/A
Exceeds SCAQMD thresholds?	**No**	**No**	**No**	**No**	**No**	**No**	**No**
Alternative Total (tons)	**5.3**	**1.9**	**4.8**	**0.0**	**0.2**	**0.2**	**456.4**
De Minimus Thresholds (tons/year)	100	10	10	100	70	100	N/A
Exceeds De Minimus thresholds?	**No**	**No**	**No**	**No**	**No**	**No**	**No**

[1] All off-road construction equipment is modeled using Tier 2 emission rates.
[2] The pumps will be electrically powered.
[3] The diesel tug boat is modeled using Tier 2 emission rates.
[4] Assumes that a total of 4 truck trips at 24 miles would be required for cement import activities per day.
[5] Assumes that a total of 25 truck trips at 2 miles would be required for transfer of dredge material from the Lagoon to the Marine Stadium barge per day.
[6] Assumes that a total of 20 trips at 40 miles would be required per day.

CO = carbon monoxide
CO_2 = carbon dioxide
lbs/day = pounds per day
NO_x = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
ROC = reactive organic compounds
SO_x = sulfur oxides

As a result of the dry-dredge technique, areas that were previously submerged will become exposed during the new lower tide levels. The decaying marine vegetation that was not previously exposed may create unpleasant odors. It is anticipated that the dredged sediment will contain organic materials and that decomposition of the organic matter when exposed to air may generate unpleasant odors. Therefore, the proposed action may result in odor impacts at adjacent and nearby sensitive land uses. implementation of Environmental Commitments identified in Section 5.0 of this report require the application of a mixture of Simple Green and water to the excavated areas and sediment as part of an overall Soil Management Plan. Simple Green accelerates the decomposition process and will have the overall result of shortening the duration of odor emissions.

Alternative 4 would result in approximately 456 tons (or 414 metric tons) of CO_2 emissions during dredging activities. CO_2 is a GHG that is considered to contribute to GCC. GCC describes alterations in weather features (e.g., temperature, wind patterns, precipitation, and storms) that occur across the Earth as a whole. GCC and GHG emissions are an emerging environmental concern being raised on statewide, national, and global levels.

The ARB has published draft preliminary guidance to agencies on how to establish interim significance thresholds for analyzing GHG emissions called *Recommended Approaches for Setting Interim Thresholds for Greenhouse Gases Under the California Environmental Quality Act* (October 2008). The ARB document supports identifying emissions up to 1,600 metric tons of CO_{2e} per year or less as less than significant. The ARB report indicates that emissions under 1,600 metric tons would not interfere with achieving the State's emission reduction objectives in AB 32 (and EO S-03-05) and thus may be deemed categorically exempt from CEQA. Traffic and other equipment associated with Alternative 4 would emit approximately 414 metric tons of CO_2 per year, well below the screening threshold of 1,600 metric tons. Therefore, the proposed action would not result in significant global climate change impacts.

Based on the air quality analysis discussed above, the Corps has concluded that the proposed Colorado Lagoon Dredging Project will not have a significant impact on air quality. The total emissions of each criteria pollutant under Alternative 4 meets or is below the SCAQMD thresholds *and De Minimus* levels identified for federal criteria pollutant thresholds. Therefore, Alternative 4 of the proposed Colorado Lagoon Dredging Project conforms to the CAA as amended (1990).

4.2 NOISE

4.2.1 No Action

This alternative would avoid all adverse effects to noise related to dredging activities. However, this alternative would not fulfill any of the project's objectives. The No Action Alternative would have a negative impact of not removing contaminated sediment from the Colorado Lagoon, and the environmental benefits to the project area would not be achieved. The water and sediment quality of the Lagoon and habitat areas in and around the Lagoon would not be improved. There are no new sources of noise with implementation of this alternative.

4.2.2 Alternative 1 (Mechanical Dredge and Truck Option Alternative)

Noise impacts from construction activities of the proposed project are a function of the noise generated by construction equipment, the equipment location, the sensitivity of nearby land uses, and the timing and duration of the noise-generating activities.

The proposed dredging activities in the Lagoon are located in an area of established and varied noise sources that include automobiles and recreational facilities/activities. The project area already experiences some elevated noise levels from traffic along adjacent access roads.

Two types of short-term noise impacts would occur during the proposed dredging activities. The first is the increase in traffic flow on local streets associated with the transport of workers, equipment, and materials to and from the project site. The pieces of heavy equipment to be utilized during dredging will be moved to the site and remain for the duration of dredging activities. The increase in traffic flow on the surrounding roads due to construction traffic would not cause an increase in traffic that is substantial in relation to the existing traffic load of the street system. The associated increase in long-term traffic noise will not be perceptible. However, there will be short-term, intermittent, high-noise levels associated with trucks passing by from the project area.

The second type of short-term noise impact is related to the noise generated by heavy equipment operating within the project area. It is anticipated that the dredging activities under Alternative 1 would require the use of the following construction equipment:

- Electric barge-based excavator/clamshell dredge
- Bulldozer
- Small-track loader
- Excavator
- Front-end loader
- Grader
- Small crane
- Pug mill
- Generator (diesel fueled)
- End-dump trucks
- Cement delivery trucks

Table J lists typical construction equipment noise levels recommended for noise impact assessments, based on a distance of 50 ft between the equipment and a noise receptor.

Table J: Typical Construction Equipment Noise Levels

Type of Equipment	Range of Maximum Sound Levels Measured (dBA at 50 ft)	Suggested Maximum Sound Levels for Analysis (dBA at 50 ft)
Pile Drivers, 12,000 to 18,000 ft-lb/blow	81–96	93
Rock Drills	83–99	96
Jackhammers	75–85	82
Pneumatic Tools	78–88	85
Pumps	74–84	80
Scrapers	83–91	87
Haul Trucks	83–94	88
Cranes	79–86	82
Portable Generators	71–87	80
Rollers	75–82	80
Dozers	77–90	85
Tractors	77–82	80
Front-End Loaders	77–90	86
Hydraulic Backhoe	81–90	86
Hydraulic Excavators	81–90	86
Graders	79–89	86
Air Compressors	76–89	86
Trucks	81–87	86

Source: Noise Impact Analysis, May 2008.
dBA = A-weighted decibels
ft = feet
ft-lb/blow = foot-pounds per blow

As previously discussed, the decibel level decreases with distance from the sources, usually by a rate of 6 dB for every doubling of distance. Noise emissions vary from each piece of equipment utilized such that it is not possible to specifically quantify the exact project-related noise impact. However, as a worst-case scenario, it was determined that dredging noise is comparable to an earth scraper working in soft dirt (approximately 80 dBA at 50 ft away from the equipment). Other construction equipment used on site, such as loaders and backhoes, would generate up to 86 dBA L_{max} at a distance of 50 ft. Table K identifies the noise levels at various distances from an 80 dBA noise source.

Table K: Typical Noise Attenuation Levels

Distance (ft)	Resulting Noise level (dBA)
100	74
200	68
400	62
500	60
1,000	54
2,000	46
3,000	40

Source: Caltrans Noise Manual, 1980.
Note: Calculated using a point source spherical radiator equation
dBA = A-weighted decibel
ft = feet

Noise attenuation may reduce construction noise levels at the nearest sensitive land uses. The following sensitive land uses are located within the vicinity of the proposed dredging activities:

- **On-site Preschool.** The on-site preschool is located within the vicinity of the central Lagoon dredge area. Standard construction equipment that would generate noise levels up to 86 dBA L_{max} at a distance of 50 ft would be required for the central Lagoon dredging. Standard construction activities that occur within 315 ft of the preschool would generate noise levels in excess of the City's daytime exterior noise standard of 70 dBA L_{max}. This is an adverse noise effect. However, as identified in Environmental Commitments section, the preschool shall be closed whenever construction occurs within 315 ft.
- **Residential Developments.** The nearest residential developments are located approximately 100 ft from the proposed dredging activities. As a result, the proposed dredging activities would be exposed to dredging activity noise levels of up to 80 dBA L_{max}, which is above the City's daytime exterior noise standard of 70 dBA L_{max}.

Due to the distance between dredging activities and the existing sensitive receptors, project construction activities would result in an exceedence of the City's Noise Ordinance. However, noise associated with the dredging activities under this alternative are anticipated to be intermittent and temporary, with noise levels returning back to ambient conditions upon project completion. The City of Long Beach Municipal Code allows elevated construction-related noise levels as long as the construction activities are limited to the hours specified. Dredging activity noise impacts would result in adverse effects; however, adherence to the City's Noise Ordinance and adherence to measures identified in the Environmental Commitments section would reduce construction noise impacts to sensitive receptors.

4.2.3 Alternative 2 (Non-Electric Mechanical Dredge Equipment Alternative)

Under this alternative, the locations of the dredging activities and the treatment of the dredge material would remain the same as identified for Alternative 1. It is anticipated that the dredging activities under Alternative 2 would require the use of the following construction equipment:

- Non-electric barge-based excavator or clamshell dredge
- Bulldozer
- Small-track loader
- Excavator
- Front-end loader
- Grader
- Small crane
- Pug mill
- Generator (diesel fueled)
- Barge
- Tugboat
- End-dump trucks
- Cement delivery trucks

Non-electric mechanical dredge/excavation equipment would be utilized and treated dredge material would be trucked into Marine Stadium for barge loading. The barge would then transport the treated dredge material to the POLB disposal site. It is anticipated that the use of the dredging equipment would generate a similar level of noise at the nearest noise-sensitive receptor, as identified in Alternative 1 during the dredging activities.

For the loading of treated dredge material onto the barge at Marine Stadium, it is anticipated that the nearest noise sensitive receptors would be exposed to a noise level of 86 dBA L_{max}. This noise level would be above the City's daytime exterior noise standard of 70 dBA $L_{max.}$

Similar to what was identified for Alternative 1, due to the distance between dredging activities and the existing sensitive receptors, project construction activities would result in an exceedence of the City's Noise Ordinance. However, noise associated with the dredging activities under this alternative are anticipated to be intermittent and temporary, with noise levels returning back to ambient conditions upon project completion. The City of Long Beach Municipal Code allows elevated construction-related noise levels as long as the construction activities are limited to the hours specified. Dredging activity noise would result in adverse effects; however, adherence to the City's Noise Ordinance and adherence to measures identified in the Environmental Commitments section would reduce construction noise impacts to sensitive receptors.

4.2.4 Alternative 3 (Non-Electric Hydraulic Equipment Alternative)

Under this alternative, the locations of the dredging activities would remain the same as identified for Alternative 1. It is anticipated that the dredging activities under Alternative 3 would require the use of the following construction equipment:

- Non-electric hydraulic dredge
- Dredge pipeline booster pump (diesel fueled)
- Bulldozer
- Small track loader
- Excavator
- Front-end loader
- Grader
- Small crane
- Pug mill
- Generator (diesel fueled)
- Barge
- Tugboat
- Cement delivery trucks

Alternative 3 would utilize a non-electric hydraulic dredge machine that would dredge and pipe dredge material through the underground culvert to Marine Stadium. Once at Marine Stadium, the dredge material would be treated and loaded onto a barge headed to the POLB disposal site. It is anticipated that the use of the dredging equipment would generate a similar level of noise at the nearest noise sensitive as identified in Alternative 1 during dredging activities.

Under this alternative, there are four potential areas where treatment and loading of the dredge material could occur (Figure 2). The nearest noise-sensitive receptors would be existing residences along Boathouse Lane and Paoli Way, approximately 50 ft from the proposed treatment and loading areas. Ancillary construction equipment used for the treatment and the loading of the dredge material would generate up to 86 dBA L_{max} at a distance of 50 ft. This would be above the City's daytime exterior noise standard of 70 dBA $L_{max.}$ Dredging noise impacts would still result in adverse effects; however, adherence to the City's Noise Ordinance and to measures identified in the Environmental Commitments section would reduce construction noise impacts to sensitive receptors.

4.2.5 Alternative 4 (Dry Dredge Alternative)

Under this alternative, the locations of dredging activities and where the dredge material would be treated would remain the same as identified for Alternative 1. It is anticipated that the dredging activities under Alternative 4 would require the use of the following construction equipment:

- Non-electric barge-based excavator or clamshell dredge
- Bulldozer
- Small track loader
- Excavator
- Front-end loader
- Grader
- Small crane
- Dewater equipment/pumps
- Pug mill

LSA

FIGURE 2

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0 150 300

FEET

SOURCE: Google Earth

Colorado Lagoon Restoration Project

Potential Dredging Material Treatment Plant

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- Generator (diesel fueled)
- Barge
- Tugboat
- End-dump trucks
- Cement delivery trucks

Alternative 4 would utilize a non-electric barge-based excavator during dredging activities. The west arm and central Lagoon would be dewatered, and dredge material would be treated at the north shore parking lot. Treated materials would be trucked over to Marine Stadium. Once at Marine Stadium, the dredge material would be loaded onto a barge headed to the POLB disposal site. It is anticipated that the use of the dredging equipment would generate a similar level of noise at the nearest noise-sensitive receptor, as identified in Alternative 1 during dredging activities.

Similar to what was identified for Alternative 1, due to the distance between dredging activities and the existing sensitive receptors, project construction activities would result in an exceedence of the City's Noise Ordinance. Therefore, dredging activity noise would result in a temporary adverse change in the existing noise environment. However, once the project is completed, the existing ambient noise levels would return to baseline conditions. The City of Long Beach Municipal Code allows elevated construction-related noise levels as long as the construction activities are limited to the hours specified. Dredging activity noise would result in adverse effects; however, adherence to the City's noise regulations and adherence to measures identified in the Environmental Commitments section would reduce construction noise impacts to sensitive receptors.

4.3 TRAFFIC

4.3.1 No Action Alternative

This alternative would avoid all adverse effects to traffic related to dredging activities. However, this alternative would not fulfill any of the project's objectives. The No Action Alternative would have a negative impact of not removing contaminated sediment from the Lagoon, and the environmental benefits to the project area would not be achieved. The water and sediment quality of the Lagoon and habitat areas in and around the Lagoon would not be improved. There are no new sources of traffic with implementation of this alternative.

4.3.2 Alternative 1 (Mechanical Dredge and Truck Option Alternative)

Under this alternative, there would be trips associated with trucking the cement to the north shore parking lot for the cement stabilization process, trips associated with the transport of treated dredge material from the Lagoon to the POLB disposal site, and construction worker trips. As identified in the EIR for the Colorado Lagoon Restoration Program, during Phase 1 (which includes the dredging of the Lagoon), approximately 10 construction workers will be on site per day. These workers will add 20 daily passenger car trips (10 inbound in the morning and 10 outbound in the evening). Worker commute trips will not add a.m. peak-hour trips to construction traffic because the workers will arrive on site before the 7:00 a.m.–9:00 a.m. peak period. However, worker commute trips will add p.m. peak-hour trips because the workers will depart between 5:30 and 6:00 p.m. Other trips associated with cement importation and the trucking of treated dredge material are anticipated to occur

throughout the day. Table L provides a summary of trip generation that is associated with Alternative 1 dredging activities.

Table L: Alternative 1 Construction Trips by Component

Dredging Activity Components	Trips
Delivery of cement for cement stabilization process	325 truck trips
Removal of dredge material from the Lagoon to POLB disposal site	1,950 truck trips
Construction worker trips	1,600 car trips

Note: This table represents the total number of trips that would occur during all the dredging activities.
POLB = Port of Long Beach

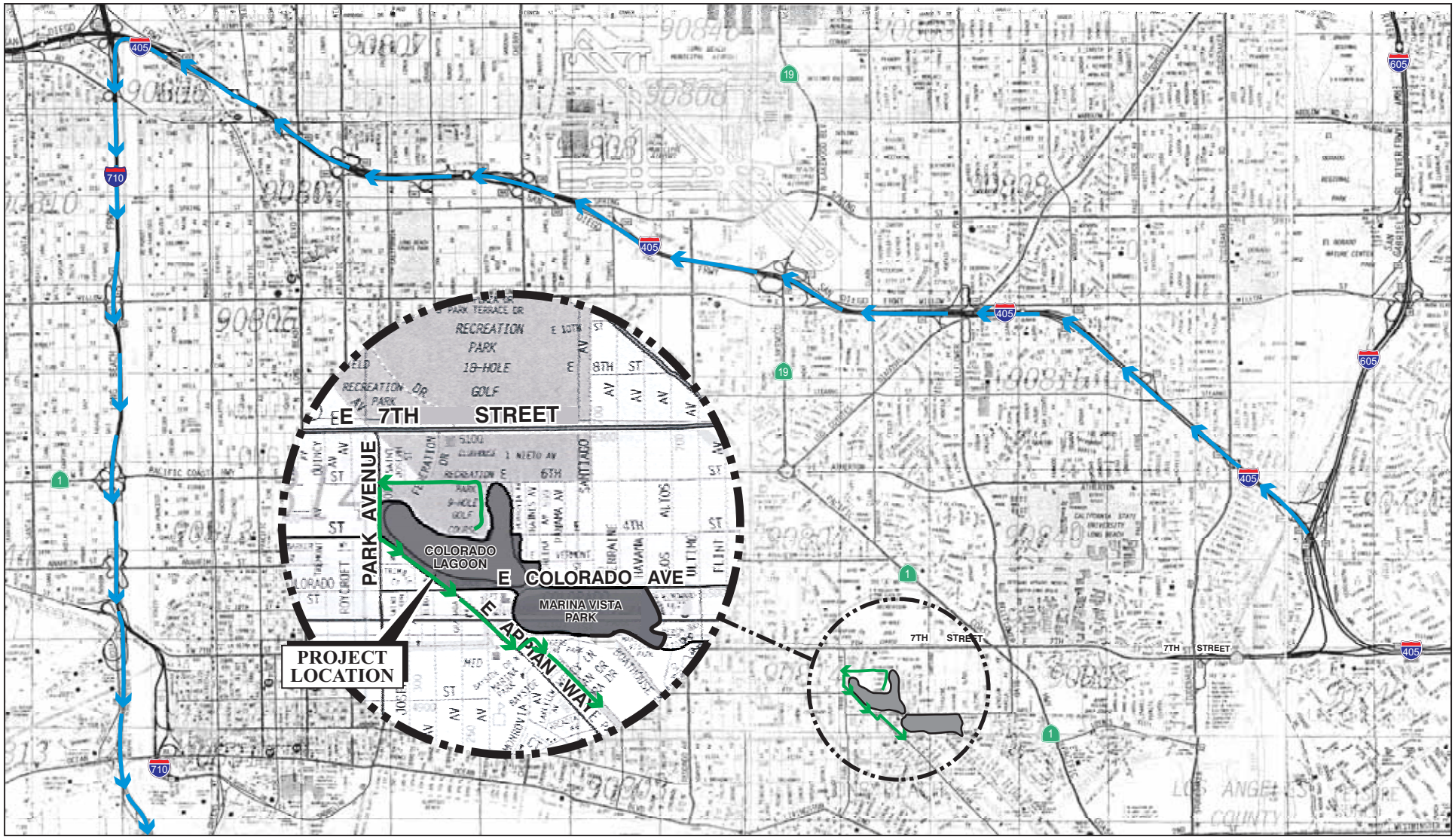
Trucks containing the treated dredge material and headed for the POLB disposal site would travel east on East 7th Street, north on I-405, and then south on I-710. The haul routes are illustrated in Figure 3.

As identified in the overall environmental documentation for the Colorado Lagoon Restoration Program, Phase 1 construction activity (which includes the dredging activities) is anticipated to add approximately 90 daily passenger car equivalent (PCE) trips, 28 a.m. peak-hour PCE trips, and 30 p.m. peak-hour PCE trips. All of the truck trips would travel on East 7th Street.

As described previously, East 7th Street is a four-lane roadway with an hourly capacity of 6,400 vehicles and an existing LOS F in the a.m. and p.m. peak hours at the intersection of East 7th Street and PCH. The addition of up to 28 p.m. peak-hour, construction-related, short-term trips would add less than 0.5 percent of the capacity of the roadway during the peak hour. In addition, most truck trips would occur during the day, when ambient traffic is less. Therefore, since the dredging activities are only a small portion of the overall Phase 1 construction of the Lagoon, the dredging activities would not cause an increase in traffic that is substantial in relation to the existing traffic load of the street system. In addition, construction traffic effects are temporary during the period of construction, and the number of construction workers and truck trips would vary depending on the specific construction activities. However, because the intersection of East 7th Street and PCH has an existing LOS of F in the a.m. and p.m. peak hours (which is below the City's established threshold of LOS D as the minimum operating level for roadway segments and intersections) and is located in the project vicinity and along the haul route, additional measures in the Environmental Commitments section, which require implementation of a Construction Traffic Management Plan, and timing considerations for dredge haul trips have been included to reduce the impact of construction traffic on the local circulation system.

4.3.3 Alternative 2 (Non-Electric Mechanical Dredge Equipment Alternative)

Trips associated with this alternative would come from trucking cement onto the site for the cement stabilization process, the trips associated with trucks transporting treated dredge material to Marine Stadium, barge trips of treated dredge material from Marine Stadium to the POLB disposal site, and construction worker trips. A trip summary associated with this alternative is provided in Table M.



LSA

LEGEND

- to PORT OF LONG BEACH
- to MARINE STADIUM

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SOURCE: Thomas Guide, 2007

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FIGURE 3

Colorado Lagoon Restoration Project

Construction Haul Routes

Table M: Alternative 2 Construction Trips by Component

Dredging Activity Components	Trips
Delivery of cement for cement stabilization process	325 truck trips
Removal of dredge material from the Lagoon to Marine Stadium	1,950 truck trips
Barge transport of treated dredge material from Marine Stadium to POLB disposal site	35 barge trips
Construction worker trips	1,600 car trips

Note: This table represents the total number of trips that would occur during all the dredging activities.
POLB = Port of Long Beach

It is expected that the barge dock would be located on the northwest side of Marine Stadium, with an anticipated route from the Lagoon to the barge dock as follows: from the Colorado Lagoon access road, left on 6th Street, left on Park Avenue, left on Appian Way, left on Nieto, and right onto the Marine Stadium access road.

The dredging activities would not cause an increase in traffic that is substantial in relation to the existing traffic load of the street system. Also, while Alternative 2 would result in the same number of haul trips for treated dredge material, the trips would be substantially shorter in length (2 mi rather than 12 mi) because the destination would be Marine Stadium rather than the POLB. In addition, construction traffic effects are temporary during the period of construction, and the number of construction workers and truck trips would vary depending on specific construction activities. However, because the intersection of East 7th Street and PCH has an existing LOS F in the a.m. and p.m. peak hours (which is below the City's established threshold of LOS D as the minimum operating level for roadway segments and intersections) and is located in the project vicinity and along the material and equipment delivery route, additional measures in the Environmental Commitments section, which require implementation of a Construction Traffic Management Plan, have been included to reduce the impact of construction traffic on the local circulation system.

4.3.4 Alternative 3 (Non-Electric Hydraulic Equipment Alternative)

Under this alternative, dredge material would be piped to Marine Stadium to be treated and loaded directly onto the Marine Stadium barge. Therefore, trips associated this alternative would be limited to truck trips to transport cement to the site for the cement stabilization process, barge trips of treated dredge material from Marine Stadium to the POLB disposal site, and construction worker trips. A trip summary associated with this alternative is provided in Table N.

Table N: Alternative 3 Construction Trips by Component

Dredging Activity Components	Trips
Delivery of cement for cement stabilization process	325 truck trips
Barge transport of treated dredge material from Marine Stadium to POLB disposal site	35 barge trips
Construction worker trips	1,600 car trips

Note: This table represents the total number of trips that would occur during all the dredging activities.
POLB = Port of Long Beach

The temporary increase in local traffic due to construction worker commutes, including hauls and construction equipment truck traffic to and from the site, would not add substantially to existing traffic in the project area. However, because the intersection of East 7th Street and PCH has an existing LOS F in the a.m. and p.m. peak hours (which is below the City's established threshold of LOS D as the minimum operating level for roadway segments and intersections) and is located in the project vicinity and along the haul route, additional measures in the Environmental Commitments section, which require implementation of a Construction Traffic Management Plan, and timing considerations for dredge haul trips have been included to reduce the impact of construction traffic on the local circulation system.

4.3.5 Alternative 4 (Dry Dredge Alternative)

Trips associated this alternative would come from the transport of cement to the site for the cement stabilization process, the trips associated with the haul of treated dredge material to Marine Stadium, barge trips of treated dredge material from Marine Stadium to the POLB disposal site, and construction worker trips. A trip summary associated with this alternative is provided in Table O.

Table O: Alternative 4 Construction Trips by Component

Dredging Activity Components	Trips
Delivery of cement for cement stabilization process	325 truck trips
Removal of dredge material from the Lagoon to Marine Stadium	1,950 truck trips
Barge transport of treated dredge material from Marine Stadium to POLB disposal site	35 barge trips
Construction worker trips	1,600 car trips

Note: This table represents the total number of trips that would occur during all the dredging activities.
POLB = Port of Long Beach

As identified in the overall environmental documentation for the Colorado Lagoon Restoration Program, Phase 1 construction activity (which includes the dredging activities) is anticipated to add approximately 90 daily PCE trips, 28 a.m. peak-hour PCE trips, and 30 p.m. peak-hour PCE trips. All of the truck trips would travel on East 7th Street.

The addition of up to 28 p.m. peak-hour, construction-related, short-term trips would add less than 0.5 percent of the capacity of the roadway during the peak hour. In addition, most truck trips would occur during the day, when ambient traffic is less. Therefore, since the dredging activities are only a small portion of the overall Phase 1 construction of the Lagoon, the dredging activities would not cause an increase in traffic that is substantial in relation to the existing traffic load of the street system. However, because the intersection of East 7th Street and PCH has an existing LOS F in the a.m. and p.m. peak hours (which is below the City's established threshold of LOS D as the minimum operating level for roadway segments and intersections) and is located in the project vicinity and along the haul route, additional measures in the Environmental Commitments section, which require implementation of a Construction Traffic Management Plan, and timing considerations for dredge haul trips have been included to reduce the impact of construction traffic on the local circulation system.

5.0 ENVIRONMENTAL COMMITMENTS

The Corps and contractors commit to avoiding or minimizing for adverse effects during the proposed Lagoon dredging and placement of dredge material activities. Based on the information available to the Los Angeles District Corps and recommendations of Resource Agencies, the following Environmental Commitments will be implemented to minimize potential environmental impacts. Applicable commitments will be incorporated into the project plans and contract specifications.

5.1 AIR QUALITY

- Haul trucks, dredges, and other construction equipment will be properly maintained in order to minimize release of diesel and hydrocarbon effluent into the atmosphere. The contractor will follow all air quality standards, including those regarding emissions, fuel use and fuel consumption. Appropriate measures will be taken to reduce fugitive dust caused by dredge operations. Vehicle speed will be kept at 15 miles per hour (mph) on all unpaved surfaces to avoid the formation of dust clouds. Water sprayers or other stabilization techniques should be proactively employed to prevent dust from occurring. Other dust minimization measures recommended include: reducing the amount of the disturbed area where possible; spraying dirt stockpile areas daily if needed; and coverings or maintenance of 2 ft of freeboard (in accordance with California Vehicle Code [CVC] Section 23114) for trucks hauling dirt, sand, soil, or other loose material.
- Dredging equipment and cranes are subject to permit requirements by the South Coast Air Quality Management District (SCAQMD) and/or statewide registration through the Air Resources Board (ARB) portable equipment registration program. The contractor shall obtain a permit from the SCAQMD if and as necessary, pay all associated fees, and follow all permit requirements. A list of all equipment to be operated in the project area will be submitted to the SCAQMD. Once permits have been received, the SCAQMD Enforcement Group will be notified prior to bringing the dredge equipment on site. For any dredge that is not currently permitted, coordination with SCAQMD staff is required to determine the most appropriate measures to satisfy Best Available Control Technology (BACT) requirements.
- A mixture of Simple Green and water (10:1) will be lightly applied to exposed excavated sediments/soils to control odor as needed.
- The Construction Contractor shall ensure that on-road construction trucks and other vehicles shall be shut off when not in use and shall not idle for more than 5 minutes.
- Construction equipment operating on site shall be equipped with two- to four-degree engine timing retard or precombustion chamber engines.
- All off-road diesel construction equipment and on-road heavy duty trucks shall be fueled using low-sulfur fuels.

5.2 NOISE

- Haul trucks and construction equipment will be properly maintained and scheduled in order to minimize unsafe and nuisance noise effects to sensitive biological resources, residential areas, and the socioeconomic environment. Sensitive receptors, such as schools and hospitals, will be avoided whenever possible.
- The City of Long Beach (City) Noise Control Officer shall ensure that the Construction Contractor limits construction activity that produces loud or unusual noise that annoys or disturbs a reasonable person of normal sensitivity to between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday and federal holidays, and between 9:00 a.m. and 6:00 p.m. on Saturdays, with no construction activities on Sundays in accordance with the City's Noise Ordinance.
- During all dredging activities, the Project Contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards, as documented in construction plans and verified by the City Building Official or the United States Army Corps of Engineers (Corps).
- The Project Contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site, as documented in construction plans and verified by the City Building Official or the United States Army Corps of Engineers (Corps).
- The Construction Contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction, as documented in construction plans and verified by the City Building Official or the United States Army Corps of Engineers (Corps).
- Prior to initiation of dredge activities, the Director of Parks, Recreation, and Marine shall hold a community preconstruction meeting, in concert with the Construction Contractor, to provide information regarding the construction schedule (which includes dredging activities). The construction schedule information shall include the duration, location, days, and frequency of the dredging activities.

5.3 TRAFFIC

- Prior to the issuance of a permit for dredging activities, the United States Army Corps of Engineers (Corps) and the City of Long Beach (City) shall, under the direction of the City Traffic Engineer, design and implement a Construction Traffic Management Plan. The plan shall be designed by a registered Traffic Engineer and shall address traffic control for any street closure, detour, or other disruption to traffic circulation and public transit routes. The plan shall identify the routes that construction vehicles will use to access the site, the hours of construction traffic, traffic controls and detours, and off-site vehicle staging areas. The plan shall also require the City to keep all haul routes clean and free of debris including, but not limited to, gravel and dirt.
- The Construction Contractor shall time the activities so as to not interfere with peak-hour traffic and minimize obstruction of through traffic lanes adjacent to the site. If necessary, a flagperson shall be retained to maintain safety adjacent to existing roadways.
- No truck trips for the hauling of dredge material will occur on Pacific Coast Highway or 7th Street during the 7:00–9:00 a.m. or 5:00–7:00 p.m. peak traffic periods.

6.0 COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS

This proposed project complies with applicable environmental regulations as outlined in the following paragraphs.

6.1 NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 (NEPA)

The National Environmental Policy Act (NEPA) declares it a national policy to "encourage productive and enjoyable harmony between man and the environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; and to enrich the understanding of the ecological systems and natural resources important to the Nation" (42 USC 4321). The Act authorized and directed "that, to the fullest extent possible, the policies, regulations and public laws of the United States shall be interpreted and administered in accordance with the policies of the Act and imposes general and specific requirements on all Federal Agencies (42 USC 4332).

This technical report for dredging activities in the Lagoon was with prepared in compliance with NEPA. Alternatives to the Proposed Action have been included in this document. Full compliance will be completed upon preparation of the EA and the signing of the Finding of No Significant Impact (FONSI).

6.2 CLEAN AIR ACT AMENDMENTS OF 1970, AS AMENDED

Emissions generated by this project are expected to be temporary and insignificant. Furthermore, the contractor must obtain a permit from the SCAQMD or ARB prior to commencement of work. The Corps has determined, therefore, that the proposed dredge project is in compliance with the following sections of the Clean Air Act (CAA) Amendments of 1970, as amended (PL 95-95, H.R.6161, August 7, 1977):

- Title I Amendments relating primarily to stationary sources and Section 109 New Source Standards of Performance.
- Title II Amendments relating primarily to mobile sources and Section 204 emission standards from heavy duty vehicles or engines, and from certain other vehicles or engines.
- Title III Miscellaneous Amendments, Section 303 Delegation to Local Government under the Federal Plan, and Section 313 Air Quality Monitoring by the EPA.

Under Section 176(c) of the CAA of 1990, the Lead Agency is required to make a determination of whether the Proposed Action "conforms" with the SIP. Conformity is defined in Section 176(c) of the CAA as compliance with the SIP's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of such standards. However, if the total direct and indirect emissions from the Proposed Action are below the General Conformity Rule

De Minimis emission thresholds, the Proposed Action would be exempt from performing a comprehensive Air Quality Conformity Analysis and would be considered to be in conformity with the SIP.

APPENDIX B:

RESULTS OF THE CULTURAL RESOURCES ASSESSMENT FOR THE COLORADO LAGOON

LSA

LSA ASSOCIATES, INC.
20 EXECUTIVE PARK, SUITE 200
IRVINE, CALIFORNIA 92614
949.553.0666 TEL
949.553.8076 FAX

BERKELEY
CARLSBAD
FORT COLLINS
FRESNO
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROCKLIN
SAN LUIS OBISPO
S. SAN FRANCISCO

July 1, 2010

Mr. Eric Lopez
City of Long Beach Community Development Department
333 W. Ocean Boulevard, 3rd Floor
Long Beach, California 90802

Subject: Results of the Cultural Resources Assessment for the Colorado Lagoon, City of Long Beach, Los Angeles County, California (LSA Project No. CLB0803)

Dear Mr. Lopez:

LSA Associates, Inc. (LSA) is pleased to submit the results of the cultural resources assessment for the Colorado Lagoon (Lagoon) Restoration Project located in the City of Long Beach (City), Los Angeles County, California (attached Figure 1). In addition to other improvements, the City is proposing to perform dredging activities in the Lagoon that fall under the jurisdiction of the U.S. Army Corps of Engineers (USACE; see Figure 2). As such, this assessment was prepared in accordance with the Advisory Council on Historic Preservation regulations (revised January 11, 2001) for the identification of historic properties (prehistoric or historic sites, buildings, structures, objects, or districts listed in, or eligible for listing in, the National Register of Historic Places [National Register]) as required by 36 CFR Part 800, the regulations implementing Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA Section 106). This assessment also addresses the requirements of the California Environmental Quality Act (CEQA) (as amended January 1, 2007); Public Resources Code (PRC), Division 13 (Environmental Quality), Chapter 2.6 §21083.2 (Archaeological Resources) and §21084.1 (Historical Resources); and the Guidelines for CEQA (as amended July 11, 2006), California Code of Regulations (CCR) Title 14, Chapter 3, Article 5 §15064.5 (Determining the Significance of Impacts on Historical and Unique Archaeological Resources).

METHODS

Records Search

On September 27, 2007, a records search was conducted at the South Central Coastal Information Center (SCCIC) of the California Historical Resources Information System (CHRIS), located at California State University, Fullerton. It included a review of all recorded cultural resources located within a 0.25-mile radius of the project area, as well as a review of known cultural resource survey and excavation reports. In addition, the California Points of Historical Interest (PHI), California Historical Landmarks (CHL), California Register of Historical Resources (California Register), National Register, and California State Historic Resources Inventory (HRI) listings were reviewed. LSA also reviewed the following historical maps of the project area: the United States Geological Survey (USGS) *Downey, California* 15-minute topographic quadrangle (1896 and 1942) and the USGS *Long Beach, California* 6-minute topographic quadrangle (1932). Several historical aerials of the project location were also reviewed.

Survey

On November 8, 2007, and February 12, 2008, an archaeological survey was conducted by LSA archaeologist Natalie Lawson. She completed the survey by walking parallel transects spaced by 10 meters across the project area until the entire project area, including all open space around the Lagoon as well as all open space south of the Lagoon to Eliot Street, had been surveyed. Soil profiles and rodent backdirt were examined for evidence of cultural remains. Photographs were taken of the surveyed area as well as the surrounding areas, including the Long Beach Marine Stadium (Marine Stadium).

Native American Consultation

Native American consultation was conducted by the City as required by Senate Bill 18 (Burton, SB 18), following the guidelines of the California Office of Planning and Research (OPR, November 14, 2005). Written in 2004, SB 18 addresses the potential environmental impact of projects on California Native American Cultural Places. SB 18 requires planning agencies such as the City to consult with California Native American tribes during the preparation, updating, or amendment of General/Specific Plans. The purpose of the consultation is to identify and preserve specified places, features, and objects located within the City's jurisdiction that have a unique and significant meaning to California Native Americans.

Consultation was initiated in November 2007 by the City in a letter to the Native American Heritage Commission (NAHC). The letter requested a search of the Sacred Lands File (SLF) to determine whether cultural or traditional resources significant to a California Native American Tribe are present in the project area. In a letter response dated November 15, 2007, the NAHC stated that the results of the SLF search were negative. However, the NAHC recommended that seven groups be contacted that may have knowledge of cultural resources that could be affected by the project. The City contacted each group via certified letter dated December 10, 2007. At the request of the City, follow-up telephone calls were made by LSA to the seven groups to ensure that their input regarding the project would be included. Details of the consultation are provided in Attachment A.

RESULTS

Records Search

Five studies have been conducted within a 0.25-mile radius of the project area; however, none of these studies included any portion of the project area, and the project area has never been surveyed for cultural resources. Seven resources have been identified within the 0.25-mile radius of the project area, including six archaeological sites and one historical resource. None of the archaeological sites are located within the project area; however, one historical resource is located partially within the project area. This resource is Marine Stadium (CA-LAN-056). The stadium is listed in the California Register, the CHL (No. 1014), and the PHI (No. 19-186115). Marine Stadium was evaluated for historical significance and was determined to be a significant Point of Historical Interest in 1993.

The Lagoon and Marine Stadium are tidal water bodies located in the southwestern portion of the City. They lie northwest of the mouth of the San Gabriel River and north of Alamitos Bay. The Lagoon was once a part of the historic Los Cerritos Wetlands. In 1923, the low-lying tidelands of Alamitos Bay were dredged to form the Lagoon and Marine Stadium, which were used for

recreational rowing. A review of historical aerials of the project area revealed that extensive dredging occurred within the project area in the late 1920s. The City then purchased the Lagoon area and Recreation Park in the 1920s through general revenue bond funding. In 1932, the Los Angeles Olympic Committee chose the Lagoon for diving trials and Marine Stadium for rowing events. High diving was performed from a three-story structure that was floating in the Lagoon. To prepare for the diving trials, the Lagoon was separated from Marine Stadium by a tide gate, which was installed to maintain adequate diving depth. In 1968, the City remodeled Marine Stadium for the Olympic rowing and canoeing team trials. Also, in the late 1960s, the area between what is now the north end of Marine Stadium and the south end of the Lagoon was filled, and the existing underground box culvert was constructed. This was part of the construction for the then-proposed Pacific Coast Freeway and further separated Colorado Lagoon from Marine Stadium. This "filled" area is now Marina Vista Park.

Survey

No cultural resources were identified during the survey. Soil in the project area is loamy sand. Marine shell was observed over the majority of the project area and appears to be the result of extensive dredging and filling, which is consistent with the historical aerials. Although the Colorado Lagoon Restoration Project and several of the project alternatives involve developing infrastructure to improve the tidal flows between the Lagoon and Marine Stadium, a Point of Historical Interest, the proposed project will not adversely affect the historical significance or continued uses of the Stadium.

Native American Consultation

A letter response dated January 4, 2008, was received from Robert Dorame of the Gabrielino Tongva Indians of California Tribal Council. Mr. Dorame stated that the Tribe has information indicating the area is sensitive for cultural resources. He recommended Tribal involvement and monitoring during all phases of the project and that the City have a treatment plan in place should ancestral remains be encountered. No responses were received from any of the other Tribes contacted.

On behalf of the City, LSA made one round of follow-up telephone calls to the remaining six Tribes. Ron Andrade of the Los Angeles City/County Native American Indian Commission deferred comment to Anthony Morales of the Gabrieleno/Tongva San Gabriel Band of Mission Indians. Mr. Morales responded that the Tribe considers the area sensitive for cultural resources and recommends monitoring by an archaeologist and Native American during project construction. Roberta Cordero of the Coastal Band of the Chumash Nation recommended that Darlene Hall, the spokesperson for cultural resources, be contacted. Ms. Hall stated that the project is outside of the Tribe's traditional use area and deferred to the recommendations of local Tribes. Messages were left for Qun-tan Shup, Owl Clan; Cindi Alvitre, Ti'At Society; and John Tommy Rosas, Tongva Ancestral Territorial Tribal Nation, requesting that they return the call or contact the City should they have any concerns about the project impacting cultural resources.

The City received a letter dated January 27, 2008, from Qun-tan Shup, Owl Clan. The letter expressed concern for the Chumash sites in the area and requested involvement in any future meetings regarding the project, as well as a specific meeting with the City if no other meetings were formally scheduled. Per City direction, LSA attempted to contact Mr. Shup by telephone on February 8 and 14, 2008. Voice messages were left each time requesting that the tribe return the calls to elaborate on their

concerns, and so that more information could be provided about the current condition of the project area. To date, no response has been received.

For additional details regarding the Native American consultation please see Attachment A.

RECOMMENDATIONS

Based on the results of the record search and field survey, LSA recommends that no further cultural resources studies or monitoring by an archaeologist be performed. However, in the event that archaeological resources are encountered during construction-related ground-disturbing activities, a qualified archaeologist should be contacted to assess the find and determine appropriate mitigation measures. Recommendations by two Tribes for construction monitoring have also been made to the City as a result of the consultation detailed above. If human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be Native American, the County Coroner will notify the NAHC, which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

LSA is pleased to have been able to work with you on this project. If you have any questions or comments, please contact me at (949) 553-0666 or at terri.fulton@lsa-assoc.com.

Sincerely,

LSA ASSOCIATES, INC.

Terri Fulton
Senior Cultural Resources Manager

Attachments: Figures 1 and 2
A: Native American Consultation

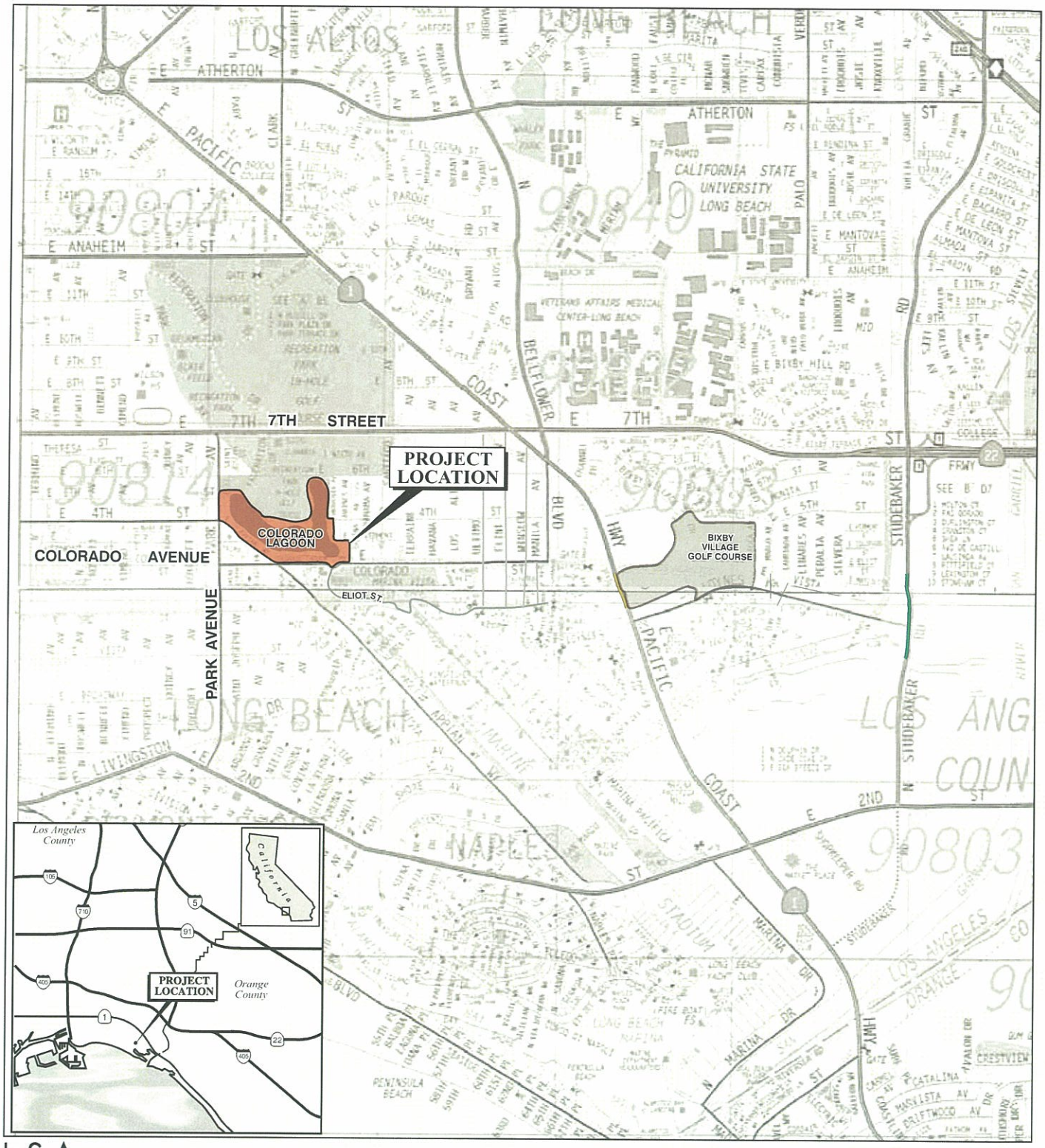

FIGURE 1

SOURCE: Thomas Guide, 2007

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Colorado Lagoon Restoration Project

Project Location

LSA

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Corps Area of Potential Effects

FIGURE 2

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SOURCE: Use Upper and Lower Case Fonts (MM/YY)

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Colorado Lagoon Restoration Project

Corps Area of Potential Effects

ATTACHMENT A:

NATIVE AMERICAN CONSULTATION

SENATE BILL 18 (Burton 2004) NATIVE AMERICAN CONSULTATION RECORD
Proposed Colorado Lagoon Restoration Project, City of Long Beach, Los Angeles County, California

Table A: Initial Consultation Based on Native American Heritage Commission List Dated November 15, 2007

Groups Contacted	Date City Sent Letter to Tribes	Date Response from Tribes Received by City	Date and Results of LSA Follow-up Telephone Calls
LA City/County Native American Indian Commission Ron Andrade, Director	12/10/07	No response received.	1/08/08: Mr. Andrade has reviewed the information sent by the City and will defer comment to Anthony Morales, Gabrieleno/Tongva San Gabriel Band of Mission Indians, Chairperson. Please see below.
Owl Clan Qun-tan Shup Chumash	12/10/07	1/27/08: A letter was received by the City. The letter stated that the Tribe has concerns regarding the Chumash sites in the project area, and requested involvement in any future meetings regarding the project. If no future meetings are scheduled, the tribe requested a specific meeting with the City. Please see attached letter.	1/08/08: A voice mail was left for Mr. Shup asking that he please respond to the City should the Tribe have concerns about cultural resources being impacted by this project. In response, a letter dated January 27, 2008 was received by the City from Mr. Shup. Please see information at left. 2/08/08 and 2/14/08: Per City direction, two attempts were made to contact Mr. Shup in response to the January 27, 2008 letter. Voice messages were left each time requesting that he return the calls to elaborate on the Tribe's concerns and so that more information could be provided about the current condition of the project area. To date, no response has been received.
Ti'At Society Cindi Alvitre Gabrielino	12/10/07	No response received.	1/08/08: A voice mail was left for Ms. Alvitre asking that she please respond to the City should the Tribe have concerns about cultural resources being impacted by this project. To date, to response has been received.
Tongva Ancestral Territorial Tribal Nation John Tommy Rosas, Tribal Administrator Gabrielino Tongva	12/10/07	No response received.	1/08/08: A voice mail was left for Mr. Rosas asking that he please respond to the City should the Tribe have concerns about cultural resources being impacted by this project. To date, no response has been received.
Gabrieleno/Tongva San Gabriel Band of Mission Indians Anthony Morales, Chairperson Gabrielino Tongva	12/10/07	No response received.	1/08/08: A voice mail was left for Mr. Morales asking that he please respond to the City should the Tribe have concerns about cultural resources being impacted by this project. 1/09/08: Mr. Morales returned the call to say that the Tribe considers the area to be sensitive for cultural resources, and recommends monitoring by a Native American and archaeologist during construction.

CITY OF LONG BEACH

DEPARTMENT OF PLANNING & BUILDING

333 W. Ocean Blvd, 5th Floor Long Beach, CA 90802 (562) 570-6357 FAX (562) 570 -6068

COMPREHENSIVE & ENVIRONMENTAL PLANNING

December 10, 2007

Ron Andrade, Director
LA City/County Native American Indian Commission
3175 West 6th Street
Room 403
Los Angeles, CA 90020

RE: Sacred Lands File Search for Colorado Lagoon Restoration Project Site, Long Beach, California

Dear Mr. Andrade:

Attached is a copy of the Notice of Preparation/Initial Study for the Colorado Lagoon Restoration Project. The City of Long Beach, as Lead Agency for this project, has initiated an environmental review process in accordance with the California Environmental Quality Act (CEQA). The project will involve sediment removal and construction of an open channel between the Lagoon and Marine Stadium. Please notify us of any Traditional Cultural Properties (TCPs), Traditional Tribal Cultural Sites (TTCSs) and/or any sacred site that may be impacted by this project.

Thank you very much for your assistance. If you have any questions or comments, please feel free to call me at (562) 570-6368.

Sincerely,

Craig Chalfant
Planner

Attachment: Notice of Preparation/Initial Study

CITY OF LONG BEACH

DEPARTMENT OF PLANNING & BUILDING

333 W. Ocean Blvd, 5th Floor Long Beach, CA 90802 (562) 570-6357 FAX (562) 570 -6068

COMPREHENSIVE & ENVIRONMENTAL PLANNING

December 10, 2007

Owl Clan
Qun-tan Shup
48825 Sapaque Road
Bradley, CA 93426

RE: Sacred Lands File Search for Colorado Lagoon Restoration Project Site, Long Beach, California

Dear Mr. Shup:

Attached is a copy of the Notice of Preparation/Initial Study for the Colorado Lagoon Restoration Project. The City of Long Beach, as Lead Agency for this project, has initiated an environmental review process in accordance with the California Environmental Quality Act (CEQA). The project will involve sediment removal and construction of an open channel between the Lagoon and Marine Stadium. Please notify us of any Traditional Cultural Properties (TCPs), Traditional Tribal Cultural Sites (TTCSs) and/or any sacred site that may be impacted by this project.

Thank you very much for your assistance. If you have any questions or comments, please feel free to call me at (562) 570-6368.

Sincerely,

Craig Chalfant
Planner

Attachment: Notice of Preparation/Initial Study

CITY OF LONG BEACH

DEPARTMENT OF PLANNING & BUILDING

333 W. Ocean Blvd, 5th Floor Long Beach, CA 90802 (562) 570-6357 FAX (562) 570 -6068

COMPREHENSIVE & ENVIRONMENTAL PLANNING

December 10, 2007

Cindi Alvitre
Ti'At Society
6515 E. Seaside Walk
Suite C
Long Beach, CA 90803

RE: Sacred Lands File Search for Colorado Lagoon Restoration Project Site, Long Beach, California

Dear Ms. Alvitre:

Attached is a copy of the Notice of Preparation/Initial Study for the Colorado Lagoon Restoration Project. The City of Long Beach, as Lead Agency for this project, has initiated an environmental review process in accordance with the California Environmental Quality Act (CEQA). The project will involve sediment removal and construction of an open channel between the Lagoon and Marine Stadium. Please notify us of any Traditional Cultural Properties (TCPs), Traditional Tribal Cultural Sites (TTCSs) and/or any sacred site that may be impacted by this project.

Thank you very much for your assistance. If you have any questions or comments, please feel free to call me at (562) 570-6368.

Sincerely,

Craig Chalfant
Planner

Attachment: Notice of Preparation/Initial Study

CITY OF LONG BEACH

DEPARTMENT OF PLANNING & BUILDING

333 W. Ocean Blvd, 5th Floor Long Beach, CA 90802 (562) 570-6357 FAX (562) 570 -6068

COMPREHENSIVE & ENVIRONMENTAL PLANNING

December 10, 2007

John Tommy Rosas
Tribal Administrator
Tongva Ancestral Territorial Tribal Nation
4712 Admiralty Way
Suite 172
Marina Del Rey, CA 90292

RE: Sacred Lands File Search for Colorado Lagoon Restoration Project Site, Long Beach, California

Dear Mr. Rosas:

Attached is a copy of the Notice of Preparation/Initial Study for the Colorado Lagoon Restoration Project. The City of Long Beach, as Lead Agency for this project, has initiated an environmental review process in accordance with the California Environmental Quality Act (CEQA). The project will involve sediment removal and construction of an open channel between the Lagoon and Marine Stadium. Please notify us of any Traditional Cultural Properties (TCPs), Traditional Tribal Cultural Sites (TTCSs) and/or any sacred site that may be impacted by this project.

Thank you very much for your assistance. If you have any questions or comments, please feel free to call me at (562) 570-6368.

Sincerely,

Craig Chalfant
Planner

Attachment: Notice of Preparation/Initial Study

CITY OF LONG BEACH

DEPARTMENT OF PLANNING & BUILDING

333 W. Ocean Blvd, 5th Floor Long Beach, CA 90802 (562) 570-6357 FAX (562) 570 -6068

COMPREHENSIVE & ENVIRONMENTAL PLANNING

December 10, 2007

Anthony Morales
Chairperson
Gabrieleno/Tongva San Gabriel Band of Mission Indians
P.O. Box 693
San Gabriel, CA 91778

RE: Sacred Lands File Search for Colorado Lagoon Restoration Project Site, Long Beach, California

Dear Mr. Morales:

Attached is a copy of the Notice of Preparation/Initial Study for the Colorado Lagoon Restoration Project. The City of Long Beach, as Lead Agency for this project, has initiated an environmental review process in accordance with the California Environmental Quality Act (CEQA). The project will involve sediment removal and construction of an open channel between the Lagoon and Marine Stadium. Please notify us of any Traditional Cultural Properties (TCPs), Traditional Tribal Cultural Sites (TTCSs) and/or any sacred site that may be impacted by this project.

Thank you very much for your assistance. If you have any questions or comments, please feel free to call me at (562) 570-6368.

Sincerely,

Craig Chalfant
Planner

Attachment: Notice of Preparation/Initial Study

CITY OF LONG BEACH

DEPARTMENT OF PLANNING & BUILDING

333 W. Ocean Blvd, 5th Floor Long Beach, CA 90802 (562) 570-6357 FAX (562) 570 -6068

COMPREHENSIVE & ENVIRONMENTAL PLANNING

December 10, 2007

Roberta Cordero
Coastal Band of Chumash Nation
4454 La Paloma Road
Santa Barbara, CA 93105

RE: Sacred Lands File Search for Colorado Lagoon Restoration Project Site, Long Beach, California

Dear Ms. Cordero:

Attached is a copy of the Notice of Preparation/Initial Study for the Colorado Lagoon Restoration Project. The City of Long Beach, as Lead Agency for this project, has initiated an environmental review process in accordance with the California Environmental Quality Act (CEQA). The project will involve sediment removal and construction of an open channel between the Lagoon and Marine Stadium. Please notify us of any Traditional Cultural Properties (TCPs), Traditional Tribal Cultural Sites (TTCSs) and/or any sacred site that may be impacted by this project.

Thank you very much for your assistance. If you have any questions or comments, please feel free to call me at (562) 570-6368.

Sincerely,

Craig Chalfant
Planner

Attachment: Notice of Preparation/Initial Study

CITY OF LONG BEACH

DEPARTMENT OF PLANNING & BUILDING

333 W. Ocean Blvd, 5th Floor Long Beach, CA 90802 (562) 570-6357 FAX (562) 570 -6068

COMPREHENSIVE & ENVIRONMENTAL PLANNING

December 10, 2007

Robert Dorame
Tribal Chair/Cultural Resources
Gabrielino Tongva Indians of California Tribal Council
5450 Slauson Avenue
Suite 151 PMB
Culver City, CA 90230

RE: Sacred Lands File Search for Colorado Lagoon Restoration Project Site, Long Beach, California

Dear Mr. Dorame:

Attached is a copy of the Notice of Preparation/Initial Study for the Colorado Lagoon Restoration Project. The City of Long Beach, as Lead Agency for this project, has initiated an environmental review process in accordance with the California Environmental Quality Act (CEQA). The project will involve sediment removal and construction of an open channel between the Lagoon and Marine Stadium. Please notify us of any Traditional Cultural Properties (TCPs), Traditional Tribal Cultural Sites (TTCSs) and/or any sacred site that may be impacted by this project.

Thank you very much for your assistance. If you have any questions or comments, please feel free to call me at (562) 570-6368.

Sincerely,

Craig Chalfant
Planner

Attachment: Notice of Preparation/Initial Study

Robert F. Dorame
Tribal Chair/Cultural Resources

Gabrielino Tongva
Indians of California
Tribal Council
5450 Slauson avenue
Suite 151 PMB
Culver City, CA 90230
562-761-6417
gtongva@verizon.net

January 4, 2008

Craig Chalfant
Planner
City of Long Beach
Department of Planning and Building
333 W. Ocean Blvd, 5th Floor
Long Beach, CA 90802

Dear Mr. Chalfant:

Thank you so much for forwarding a copy of the Initial Study for the Colorado Lagoon Restoration Project.

I have researched the site location and have verified the existence of an occupational site, LA 5869, within the boundaries of ½ mile that may be impacted by the project. In addition, I recently surveyed the golf course and surrounding land located due north of the proposed project site resulting in visible surface midden including pectin, cockle and oyster shells spread over a large area that are indicative of Indian habitation. As you probably know, estuaries were a typical source of reliable food for the early inhabitants along the California coastline.

We recommend that a member of our tribe participate in any survey work and provide monitoring services during any soil disturbances that may impact this site as well as any other as yet unknown sites that may be uncovered during the development of this project.

Further, as a Most Likely Descendant and a tribal elder with more than 30 years experience in cultural resources, I am concerned that the City be prepared to appropriately handle any ancestral remains that may be uncovered during this project. I have worked at many sites that did not become controversial because an appropriate treatment plan was in place from the beginning, thus avoiding problems due to our recommendations for re-internment with dignity.

Thank you again for the opportunity to comment on this project plan. If you have any questions or require further consultation, please contact me at 562-761-6417 or by email at gtongva@verizon.net.

Happy New Year.

Robert Dorame
Tribal Chair

OWL CLAN CONSULTANTS

805-472-9536
48825 Sapague Rd. Bradley Ca. 93426
MUPAKA@gmail.com

January 29, 2008

Angela Reynolds
Planning Officer
City of Long Beach
333 W. Ocean Boulevard, 5th floor
Long Beach, Ca. 90802

Subject: Colorado Lagoon Restoration Project

Dear Angela Reynolds,

This letter is in response to the public notice regarding the notice of intent to prepare a Draft Environmental Impact Report for the restoration project mentioned above.

Owl Clan Consultants are expressing concern for our Chumash Cultural sites, located in the proposed project area and up to a 5mile radius around the proposed project sites.

Please inform us of any meetings that occur in which we can formally discuss our concerns, or if no meetings are scheduled we can arrange to meet as soon as possible.

Thank you for your cooperation,

Owl Clan Consultants

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
e-mail: ds_nahc@pacbell.net

June 5, 2008

Mr. Craig Chalfant, Director, Department of Development Services
CITY OF LONG BEACH
333 W. Ocean Boulevard, 5th Floor
Long Beach, CA 90802

Re: SCH#2007111034; CEQA Notice of Completion; draft Environmental Impact Report (DEIR) for the Colorado Lagoon Restoration Project; City of Long Beach; Los Angeles County, California

Dear Mr. Chalfant:

The Native American Heritage Commission is the state agency designated to protect California's Native American Cultural Resources. The California Environmental Quality Act (CEQA) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per the California Code of Regulations §15064.5(b)(c (CEQA guidelines). Section 15382 of the 2007 CEQA Guidelines defines a significant impact on the environment as "a substantial, or potentially substantial, adverse change in any of physical conditions within an area affected by the proposed project, including ... objects of historic or aesthetic significance." In order to comply with this provision, the lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE)', and if so, to mitigate that effect. To adequately assess the project-related impacts on historical resources, the Commission recommends the following action:

√ Contact the appropriate California Historic Resources Information Center (CHRIS) for possible 'recorded sites' in locations where the development will or might occur.. Contact information for the Information Center nearest you is available from the State Office of Historic Preservation (916/653-7278)/ http://www.ohp.parks.ca.gov. The record search will determine:

- If a part or the entire APE has been previously surveyed for cultural resources.
- If any known cultural resources have already been recorded in or adjacent to the APE.
- If the probability is low, moderate, or high that cultural resources are located in the APE.
- If a survey is required to determine whether previously unrecorded cultural resources are present.

√ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.

- The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure.
- The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.

√ Contact the Native American Heritage Commission (NAHC) for:

* A Sacred Lands File (SLF) search of the project area and information on tribal contacts in the project vicinity that may have additional cultural resource information. Please provide this office with the following citation format to assist with the Sacred Lands File search request: USGS 7.5-minute quadrangle citation with name, township, range and section: .

- The NAHC advises the use of Native American Monitors whenever there is justification for utilizing the services of an archaeologist in orderto ensure proper identification and care given cultural resources that may be discovered. The NAHC recommends that contact be made with Native American Contacts on the attached list to get their input on potential project impact (APE). In some cases, the existence of a Native American cultural resources may be known only to a local tribe(s).

√ Lack of surface evidence of archeological resources does not preclude their subsurface existence.

- Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5 (f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
- A culturally-affiliated Native American tribe may be the only source of information about a Sacred Site/Native American cultural resource.
- Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.

√ Lead agencies should include provisions for discovery of Native American human remains or unmarked cemeteries in their mitigation plans.

* CEQA Guidelines, Section 15064.5(d) requires the lead agency to work with the Native Americans identified by this Commission if the initial Study identifies the presence or likely presence of Native American human remains within the APE. CEQA Guidelines provide for agreements with Native American, identified by the NAHC, to assure the appropriate and dignified treatment of Native American human remains and any associated grave liens.

√ Health and Safety Code §7050.5, Public Resources Code §5097.98 and Sec. §15064.5 (d) of the California Code of Regulations (CEQA Guidelines) mandate procedures to be followed, including that construction or excavation be stopped in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery until the county coroner or medical examiner can determine whether the remains are those of a Native American. . Note that §7052 of the Health & Safety Code states that disturbance of Native American cemeteries is a felony.

√ Lead agencies should consider avoidance, as defined in §15370 of the California Code of Regulations (CEQA Guidelines), when significant cultural resources are discovered during the course of project planning and implementation

Please feel free to contact me at (916) 653-6251 if you have any questions.

Sincerely,

Dave Singleton
Program Analyst

Attachment: List of Native American Contacts

Cc: State Clearinghouse

Native American Contacts
Los Angeles County
June 5, 2008

LA City/County Native American Indian Comm
Ron Andrade, Director
3175 West 6th Street, Rm. 403
Los Angeles , CA 90020
(213) 351-5324
(213) 386-3995 FAX

Gabrielino Tongva Indians of California Tribal Council
Robert Dorame, Tribal Chair/Cultural Resources
5450 Slauson, Ave, Suite 151 PMB Gabrielino Tongva
Culver City , CA 90230
gtongva@verizon.net
562-761-6417 - voice
562-925-7989 - fax

Ti'At Society
Cindi Alvitre
6515 E. Seaside Walk, #C Gabrielino
Long Beach , CA 90803
calvitre@yahoo.com
(714) 504-2468 Cell

Gabrieleno/Tongva San Gabriel Band of Mission
Anthony Morales, Chairperson
PO Box 693 Gabrielino Tongva
San Gabriel , CA 91778
ChiefRBwife@aol.com
(626) 286-1632
(626) 286-1758 - Home
(626) 286-1262 Fax

Gabrielino/Tongva Council / Gabrielino Tongva Nation
Sam Dunlap, Tribal Secretary
761 Terminal Street; Bldg 1, 2nd floor Gabrielino Tongva
Los Angeles , CA 90021
office @tongvatribe.net
(213) 489-5001 - Office
(909) 262-9351 - cell
(213) 489-5002 Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the propose SCH#2007111034; CEQA Notice of Completion; draft Environmental Impact Report (DEIR) for the Colorado Lagoon Restoration Project; City of Long Beach; los Angeles County, California.

LSA

LSA ASSOCIATES, INC.
20 EXECUTIVE PARK, SUITE 200
IRVINE, CALIFORNIA 92614

949.553.0666 TEL
949.553.8076 FAX

BERKELEY
CARLSBAD
COLMA
FORT COLLINS
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROCKLIN
SAN LUIS OBISPO

June 10, 2008

Gabrielino/Tongva Council/Gabrielino Tongva Nation
Sam Dunlap, Tribal Secretary
761 Terminal Street, Building 1, 2nd Floor
Los Angeles, CA 90021

RE: Sacred Lands File Search for the Colorado Lagoon Restoration Project Site
City of Long Beach, Los Angeles County, California

Dear Mr. Dunlap:

LSA Associates, Inc. (LSA) is contacting you on behalf of the City of Long Beach (City), California, regarding the Colorado Lagoon Restoration Project. The project will involve sediment removal and construction of an open channel between the Lagoon and Marine Stadium. A map of the project area is attached.

The City of Long Beach, as the Lead Agency for the project, has initiated an environmental review process in accordance with the California Environmental Quality Act. Because the project will involve a change to the General Plan Amendment, the City is also initiating Native American consultation as required by Senate Bill 18 (Burton 2004). The Native American Heritage Commission has recommended you as someone who may know about the presence of cultural resources that may be impacted by this project.

If you are aware of any Traditional Cultural Properties (TCPs), Traditional Tribal Cultural Sites (TTCSs), sacred sites, or other sensitive areas that may be impacted by this project, please contact:

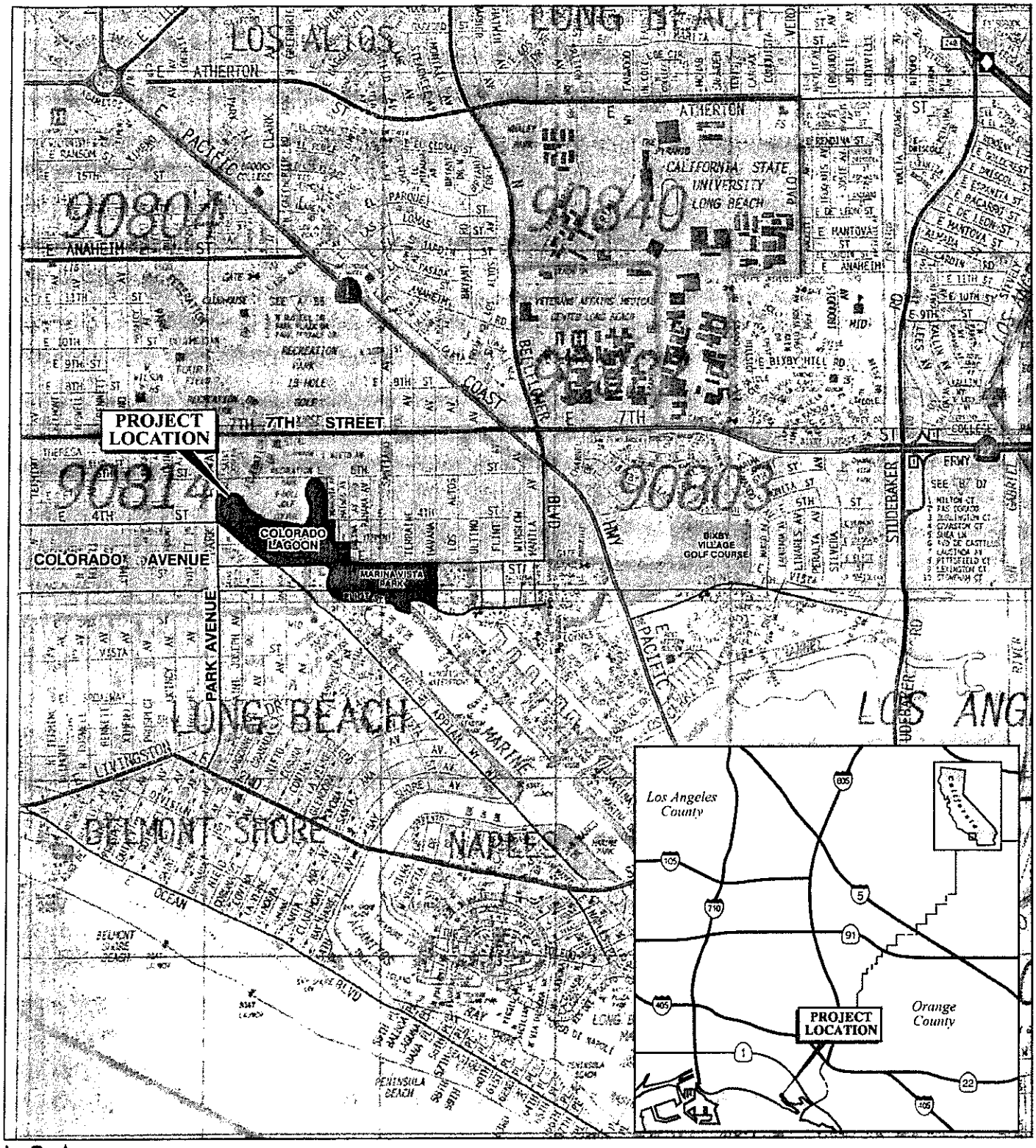
Craig Chalfant, Planner
City of Long Beach
Department of Planning and Building
333 W. Ocean Blvd. 5th Floor
Long Beach, CA 90802
Phone: (562) 570-6357
FAX: (562) 570-6068

You may also contact me at the number above with any questions. If we do not hear from you, I will call in the next several weeks to ensure that your input is received. On behalf of the City, thank you very much for your assistance in this process.

Best Regards,

LSA ASSOCIATES, INC.

Terri Fulton
Senior Cultural Resources Manager
Native American Consultation



LSA

FIGURE 1

Colorado Lagoon Restoration Project

Project Location

Terri Fulton

From: Terri Fulton
Sent: Tuesday, June 10, 2008 4:47 PM
To: sam dunlap
Cc: Terri Fulton
Subject: Consultation letter for City of Long Beach
Attachments: Sam Dunlap.pdf

Hi Sam,

Here is the letter I left you a voice mail about today. It's for the Colorado Lagoon project in Long Beach. I tried to fax it but the number for the Tribal office was disconnected. I'm also sending it certified mail to cover all bases. Please let me know if you have any questions and I'll be in touch soon.

Thanks,

Terri Fulton
Archaeologist/Senior Cultural Resources Manager
Native American Consultation

LSA Associates, Inc.
20 Executive Park, Suite 200
Irvine, CA 92614-4731
Phone (949) 553-0666
Fax (949) 553-8076
Wireless (949) 337-5454
terri.fulton@lsa-assoc.com

Terri Fulton

From: Terri Fulton
Sent: Tuesday, June 24, 2008 9:45 AM
To: 'sam dunlap'
Subject: FW: Scan from a Xerox WorkCentre Pro

Attachments: Scan001.PDF

Scan001.PDF (483 KB)

Hi Sam,

Here it is! Let me know your thoughts on this project. Thanks for your help.

T.

-----Original Message-----
From: CulturalXRX@lsa-assoc.com [mailto:CulturalXRX@lsa-assoc.com]
Sent: Tuesday, June 24, 2008 10:47 AM
To: Terri Fulton
Subject: Scan from a Xerox WorkCentre Pro

Please open the attached document. It was scanned and sent to you using a Xerox WorkCentre Pro.

Sent by: Guest [CulturalXRX@lsa-assoc.com] Number of Images: 2 Attachment File Type: PDF

WorkCentre Pro Location: Irvine, Cultural Device Name: CulturalXRX

For more information on Xerox products and solutions, please visit http://www.xerox.com

Terri Fulton

From: sam dunlap [samdunlap@earthlink.net]
Sent: Wednesday, June 25, 2008 5:05 PM
To: Terri Fulton
Subject: Re: FW: FW: Scan from a Xerox WorkCentre Pro

Thanks Terri for the added info. I am pleased to see the mitigation measures are in place.
Sam

-----Original Message-----
>From: Terri Fulton <Terri.Fulton@lsa-assoc.com>
>Sent: Jun 24, 2008 10:55 AM
>To: sam dunlap <samdunlap@earthlink.net>
>Subject: FW: FW: Scan from a Xerox WorkCentre Pro
>
>Hi Sam,
>
>Here is a little more information - please see Renee's response below.
>We have a mitigation for monitoring by both an archaeologist and Native
>American when/if construction goes into native soil, but apparently
>it's not expected to. Let me know if this changes anything.
>
>-----Original Message-----
>From: Renee Escario
>Sent: Tuesday, June 24, 2008 10:47 AM
>To: Terri Fulton; Mona Deleon
>Subject: RE: FW: Scan from a Xerox WorkCentre Pro
>
>Terri,
>
>We already have the monitoring mitigation measure in the document.
>However, the potential for impacting resources is NOT substantial. The
>project area is an area of dredge and fill. No native soils would be
>affected by the project.
>
>-----Original Message-----
>From: Terri Fulton
>Sent: Tuesday, June 24, 2008 10:32 AM
>To: Mona Deleon; Renee Escario
>Subject: FW: FW: Scan from a Xerox WorkCentre Pro
>
> Here is Sam's response. I think we can wrap this up now. I'll update
>everything and get the paperwork to you today.
>
>-----Original Message-----
>From: sam dunlap [mailto:samdunlap@earthlink.net]
>Sent: Tuesday, June 24, 2008 10:17 AM
>To: Terri Fulton
>Subject: Re: FW: Scan from a Xerox WorkCentre Pro
>
>Terri,
>After review of the information you sent to me on the Colorado Lagoon
>Project I would suspect that the potential for impacting cultural
>resorces of our tribe is somewhat substantial. My understanding is that
>there are several recorded prehistoric archaeological sites within a
>one mile radius of the proposed project. I will investigate a little
>further. My recommendation at this time would be that an archaeological
>monitoring component, as well as a Native American monitoring component
>from our tribal group, be included in the mitigation measures for this
>project.

>I will follow up with correspondence to the City of Long Beach,
>attention Craig Chalfant.
>
>Sam Dunlap
>Gabrielino Tongva Nation
>(909) 262-9351 cell
>
>-----Original Message-----
>>From: Terri Fulton <Terri.Fulton@lsa-assoc.com>
>>Sent: Jun 24, 2008 9:45 AM
>>To: sam dunlap <samdunlap@earthlink.net>
>>Subject: FW: Scan from a Xerox WorkCentre Pro
>>
>>Hi Sam,
>>
>>Here it is! Let me know your thoughts on this project. Thanks for your
>>help.
>>
>>T.
>>
>>-----Original Message-----
>>From: CulturalXRX@lsa-assoc.com [mailto:CulturalXRX@lsa-assoc.com]
>>Sent: Tuesday, June 24, 2008 10:47 AM
>>To: Terri Fulton
>>Subject: Scan from a Xerox WorkCentre Pro
>>
>>
>>
>>Please open the attached document. It was scanned and sent to you
>>using a Xerox WorkCentre Pro.
>>
>>Sent by: Guest [CulturalXRX@lsa-assoc.com] Number of Images: 2
>>Attachment File Type: PDF
>>
>>WorkCentre Pro Location: Irvine, Cultural Device Name: CulturalXRX
>>
>>
>>For more information on Xerox products and solutions, please visit
>>http://www.xerox.com
>

APPENDIX C:

DETERMINATION OF ELIGIBILITY – LONG BEACH MARINE STADIUM

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
P.O. BOX 2711
LOS ANGELES, CALIFORNIA 90053-2325

REPLY TO
ATTENTION OF

January 26, 1990

Office of the Chief
Environmental Resources Branch

Ms. Kathryn Gualtieri
State Historic Preservation Officer
Office of Historic Preservation
P.O. Box 942896
Sacramento, California 94296-0001

Dear Ms. Gualtieri:

The Los Angeles District Corps of Engineers (Corps) is reviewing a proposed Section 404 project at Marine Stadium in Long Beach, Los Angeles County. The proposed project consists of the construction of swimming beaches and a boat mooring dock. This would require the removal of existing armor rock, the importation of beach sand, and excavation of the site to configure it for construction of the beach (enclosure 1).

A field investigation of the area of potential effects was conducted by the Corps archeology staff (enclosure 2). In addition, we reviewed a National Register nomination form which was submitted to your office in 1985 (enclosure 3). This information revealed the presence of only one potentially National Register eligible property, the Marine Stadium. Prior to the field survey, the Marine Stadium was considered potentially eligible under criterion a. for its association with the 1932 Olympics.

Based on a review of the National Register nomination form and the results of the site visit by the Corps archeology staff we have determined that Marine Stadium is not eligible for the National Register of Historic Places as it lacks sufficient integrity. Therefore, the proposed project will not involve properties listed in, or eligible for, the NRHP.

Please review the enclosed information. If you agree with our determinations please transmit you concurrence. We would appreciate a response within thirty days.

If you have any questions on this project, please call Mr. Stephen Dibble, Project Archeologist, at (213) 894-0244.

Sincerely,

Charles M. Holt
Chief, Regulatory Branch

Enclosures

STATE OF CALIFORNIA — THE RESOURCES AGENCY

GEORGE DEUKMEJIAN, *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
POST OFFICE BOX 942896
SACRAMENTO, CALIFORNIA 94296-0001
(916) 445-8006

28 February 1990

Reply to: CoE 900129A

Charles M. Holt, Chief
Environmental Resources Branch
US Army Corps of Engineers
Los Angeles District
P.O. Box 2711
Los Angeles, CA 90053-2325

Subject: **Determination of Eligibility - Long Beach Marine Stadium**

Dear Mr. Holt:

Thank you for consulting with us in compliance with Section 106 of the National Historic Preservation Act.

Thank you for sending us the photos of what remains of the Long Beach marine Stafdium. We agree that very little remains of the facility that hosted the 1932 Olympics. You have applied the National Register Criteria and found the site under discussion to be ineligible for inclusion in the National Register. I agree with your finding.

Your evaluation efforts conducted in compliance with 36 CFR 800.4(c) were adequate to confirm that your project will not affect historic properties.

Please note, however, that your agency will have additional responsibilities under 36 CFR 800 under the following circumstances:

1. If any person requests that the Advisory Council on Historic Preservation review your determination in accordance with 36 CFR 800.6(e).

2. If the project changes in ways that could affect historic properties [36 CFR 800.5(c)].

3. If historic properties are discovered while carrying out the project [36 CFR 800.11].

Unless any of the above conditions apply, my concurrence completes Section 106 review.

Thank you for your concern for California's heritage resources. If you have any questions, please call staff archaeologist Nicholas Del Cioppo at (916) 322-4419.

Sincerely,

Kathryn Gualtieri
State Historic Preservation Officer

[photographs enclosed]

APPENDIX D:

TREATMENT OF COLORADO LAGOON SEDIMENTS

Treatment of Colorado Lagoon Sediments

June 2010

Prepared for:
City of Long Beach
and
Moffatt & Nichol

Prepared by:
Kinnetic Laboratories, Inc.
5225 Avenida Encinas
Carlsbad, CA 9200

KINNETIC LABORATORIES INCORPORATED

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Contents

Appendices Available Separately on CD

Figures

Tables

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1.0 EXECUTIVE SUMMARY

In October 2009, vibracore sampling was conducted in the western arm of Colorado Lagoon to address two primary objectives. The first objective was to assess the efficacy of cement for stabilizing sediments. Testing was to be conducted on sediments representative of three areas of the western arm. A series of laboratory bench tests were conducted in order to evaluate appropriate concentrations of Portland cement for reducing the soluble concentration of lead to a level below 2.5 mg/L (nonhazardous target level) and still meet geotechnical characteristics desired for material to be used as fill at the Port of Long Beach. The second objective was to provide improved resolution as to the vertical and horizontal distribution of lead in the western arm of Colorado Lagoon.

This study focuses on lead which is the main contaminant of concern and the only contaminant that was found to exceed California Title 22 criteria. In addition, earlier testing demonstrated that elevated levels of other contaminants of concern coincided with elevated concentrations of lead. When lead concentrations were measured at low levels, other anthropogenic contaminants were either not detected or present at levels below ecological benchmarks of concern.

Sediment contamination issues in the western arm of Colorado Lagoon were found to be largely limited to the top four feet of sediment and were most substantial in areas A and B (farthest from the walk bridge). Composites from areas A and B exceeded California Title 22 criteria for soluble lead, thus classifying the sediment as hazardous. Lead contamination is generally lower in area C (closer to the walk bridge).

Elevated levels of lead extend into the deeper sediments (four to six feet) in the vicinity of the two major storm drains which discharge into the Lagoon's west arm. Both storm drains are owned by Los Angeles County. The Termino Avenue Drain enters the Lagoon from the west along the former Pacific Electric Train right-of-way and Drain No. 452 enters at the extreme northern end of the western arm. Removal of the top four feet of sediment throughout the western arm of Colorado Lagoon and selective removal of deeper sediment in the vicinity of the major storm drains would be expected to result in sediments that meet the National Oceanographic and Atmospheric Administration's (NOAA) Effects Range Low (ERL) target levels. This action would also effectively remove all other sediment contaminants of concern in the Lagoon including other metals, chlordane, and polycyclic aromatic hydrocarbons (PAHs), dichloro-diphenyl-trichloroethane (DDT), dieldrin and polychlorinated biphenyls (PCBs).

Concentrations of contaminants in these sediments will require stabilization to address the soluble lead if they are to be used either as fill at a Port of Long Beach Confined Disposal Facility or disposed at a Class II or III landfill. Bench testing was used to evaluate the treatability of these sediments.

The first round of bench tests using three different concentrations of cement with sediment from each of the three composite areas failed to show any substantial improvements in soluble lead. In addition, treated sediment using even the lowest of the three cement concentrations (5%) exceeded (did not meet) a preliminary fill site unconfined compressive (UC) strength target of less than 10 psi. Screening tests with alternative treatment media (FS-100, FS-200, TSP, lime and cement) also failed to provide the desired chemical stabilization of the lead.

A final round of tests using a customized reagent mixture developed by ADT Environmental Solutions proved to be highly successful in reducing the solubility of lead in Colorado Lagoon sediments. Stabilizing reagents used by ADT consist of sulfates, sulfides, calcium compounds, and pH-adjusting materials in various combinations and at additive rates determined by the characteristics of the sediment. This treatment binds the lead in the sediment using a combination of mineral forms and hydroxyl anion fixation chemistry which lower the leachability of the lead and similar metals present in the sediments.

An initial screening test conducted with one concentration of ADT Synthetic Metals Mineralization System (SMMS) reagents demonstrated effective stabilization of the soluble lead. California Waste Extraction Tests (WET) conducted on the treated sediment indicated that soluble lead had been reduced to levels below the analytical detection limit of 0.025 mg/L.

Further testing was conducted with the ADT SMMS treatment to determine if sediments could be: 1) stabilized with lower quantities of reagents and 2) effectively dewatered. WET tests demonstrated that the SMMS reagents were still highly effective at stabilizing the lead even when treated at 50 percent of the initial test strength. The highest concentration of soluble lead associated with treatment of sediments from areas A and B was 0.14 mg/L. This compared to the target level of 2.5 mg/L which was selected to provide a conservative margin of safety below the California Title 22 criteria. The efficacy of the SMMS treatment at the lowest loading rates suggests that treatment may be achieved with even lower quantities of reagents which would further improve the overall cost effectiveness of this approach.

2.0 INTRODUCTION

Lead has been found to be the principal contaminant of concern with respect to disposal or reuse options of sediments from Colorado Lagoon (Kinnetic Laboratories/Moffatt & Nichol, 2006). In addition to being the principal contaminant of concern, lead was found to be an effective indicator of the presence of other anthropogenic contaminants of concern in the Lagoon. Sediments with elevated concentrations of lead also had elevated concentrations of other metals and various organochlorine pesticides. Correspondingly, sediments with low concentrations of lead were typified by low background levels of other metals and organic contaminants.

In 1993, the Bay Protection and Toxic Cleanup Program (BPTCP) reported a lead concentration of 510 mg/kg-dry weight in surface sediments (upper 10 cm) sampled in the western arm of the Lagoon. Seven years later, Tetra Tech (2000) sampled surficial sediments in the same region and reported a lead concentration of 390 mg/kg-dry weight.

Kinnetic Laboratories resampled in 2004 using a vibracore to obtain sediment cores of 2.5 to 4.5 feet in length. Three cores from the western arm were composited and analyzed for total lead. The composite sample contained lead at a concentration of 409 mg/kg-dry weight. A California WET extraction conducted on the composite indicated soluble lead was 11 mg/L which exceeded the Soluble Toxics Limit Concentration (STLC) of 5 mg/L and classified the material as hazardous per California Title 22 criteria.

The overall Colorado Lagoon restoration plan includes removal of the contaminated material in Colorado Lagoon. Treatment of the removed/dredged material to render it non-hazardous would allow for cost effective disposal of these sediments. In 2001, the U.S. Army Corps of Engineers

(USACE), Los Angeles District, initiated the Los Angeles County Regional Dredged Material Management Plan Pilot Studies to evaluate the feasibility of managing contaminated sediments in the Los Angeles County region through disposal or treatment (USACE 2002). The evaluated treatment methods were: a) Aquatic Capping, b) Cement Stabilization, c) Sediment Washing and d) Sediment Blending. Based on this USACE study, previous EPA studies (USEPA 1989), and experience with treatment of metal contaminants on other projects, cement stabilization was considered the most promising method for application on the Colorado Lagoon project. A bench scale study for cement stabilization treatment of Colorado Lagoon sediments was thus performed and is the subject of this report.

Large-scale stabilization of the sediments using Portland cement is one of the options to render the lead mostly inert. Portland cement has been found previously to undergo a physical-chemical change that will reduce the mobility of lead (USEPA 1989). Stabilization is the process of chemically changing hazardous sediments into a less soluble or less toxic form. Portland cement can typically accomplish this by raising the pH of the sediments. Lead has been found to have its lowest solubility at elevated pH levels and is therefore less likely to leach out (Kemron, 2008). Lead is also amphoteric such that solubility can increase under either extreme basic or acidic conditions.

Recent sediment testing at Colorado Lagoon was designed to address two objectives. The first objective was to assess the efficacy of adding varied portions of cement, using sediments representative of three areas of the western arm. A series of laboratory bench tests were conducted in order to evaluate appropriate concentrations of Portland cement for reducing the soluble concentration of lead to a level below 2.5 mg/L (nonhazardous target level) and still meet geotechnical characteristics desired for material to be used as fill at the Port of Long Beach. The second objective was to provide improved resolution as to the vertical and horizontal distribution of lead in the western arm (and other areas) of Colorado Lagoon. (The distribution for other areas of Colorado Lagoon, i.e. the central basin and north arm, are discussed in separate reports).

3.0 METHODS

This section identifies the specific locations and methods used to obtain, process, and analyze sediments from western arm of Colorado Lagoon.

3.1 SAMPLING

The western arm of Colorado Lagoon was divided into three areas as shown in Figure 1. Three sediment core samples, six foot in length, were taken from within each area, i.e. a total of nine cores. The use of six foot cores was based upon previous surveys in Colorado Lagoon that provided evidence that sediment contamination was limited to depths of less than six feet throughout the Lagoon and is representative of the non-native material depositional layer. A vibracore was used to obtain these samples. Each core was evaluated visually and logged based upon sediment type in accordance with the Standard or Unified Soil Classification System (ASTM D2488). Cores were then processed as outlined in Section 3.4.

3.2 SAMPLING LOCATIONS

Nine samples were collected from the western basin of Colorado Lagoon. The sampling sites extended from the north end of the western arm to the foot bridge. Two of the coring sites were relatively close to major storm drain inlets. Exact core locations are depicted on Figure 1 and sampling coordinates are presented in Table 1.

Table 1. Sampling Sites and Coordinates - Western Arm Colorado Lagoon

Core ID	NAD 83	
	Latitude	Longitude
A1	33.77251	118.13630
A2	33.77217	118.13637
A3	33.77229	118.13613
B1	33.77201	118.13590
B2	33.77166	118.13595
B3	33.77174	118.13558
C1	33.77131	118.13537
C2	33.77130	118.13501
C3	33.77102	118.13492

Figure 1. Composite Areas and Sampling Locations – Western Arm.

3.3 VIBRACORE SAMPLING

A KLI vibracore was used to collect the nine sediment cores. Vibracore sampling was carried out from a custom built, site assembled sampling platform (pontoon barge). This platform was equipped with fixed quadrapod rigging and a winch suitable for handling the coring equipment. The vibracore consists of a 4-inch diameter aluminum coring tube, a stainless-steel cutting tip, and a stainless-steel core catcher. Vibracore tubes were lined with FDA approved virgin-grade clear polyethylene core liners. The vibrating unit has two counter-rotating motors encased in a waterproof aluminum housing and is powered by a three-phase, 240 volt generator

Sample location and horizontal positioning was established with a Garmin 76 series Differential GPS navigation system. The barge was held stationary over the sampling sites using two diagonally positioned spuds. Once in position, the vibracore head and tube were lowered through a moon pool in the sampling platform from the quadrapod frame. The vibracore head was vibrated to a depth of six feet below the mud line. A check valve, located on top of the core tube was used to reduce the loss of sediment during extraction. Once on board, the core cutter and catcher were removed and the polyethylene-encased sediment cores were removed from the core tubing. The polyethylene-encased cores were then sealed and transported to a shore-side core processing facility.

With the exception of the core tube liners, all sampling surfaces and tools were stainless steel. The equipment was cleaned before and after sampling proceedures. The cleaning protocol consisted of a site water rinse followed by a Micro-90® soap wash, a de-ionized water triple rinse, a 2 N acid triple rinse, and a final triple rinse with de-ionized water.

3.4 CORE PROCESSING

The polyethylene-encased core samples were placed on pre-cleaned PVC core racks, and the polyethylene core tube liners were split lengthwise. Once the sediment was exposed, the material that comes in contact with the polyethylene core tube liners was removed with a protocol cleaned stainless steel spoon. Cores were measured, photographed, and detailed stratigraphic observations were noted and logged. Lithological descriptions were made in accordance with the Unified Soil Classification System (USCS) as outlined in ASTM Standard D-2488 (Visual-Manual Procedure).

Core processing included identification by lithology of recently accumulated sediments (i.e. those accumulated since the initial 1935 dredging of Colorado Lagoon) as well as presumably unaltered “virgin” sediments *in-situ* prior to the 1935 excavation of Colorado Lagoon. Prior to further processing, sediment subsamples were taken from the top two feet of each core and then for each subsequent two foot interval down to a maximum depth of six feet. The 27 samples (nine coring sites times three depth intervals) representing the two foot intervals were placed in certified pre-cleaned sampling containers for laboratory analysis of percent solids and total lead (Table 2).

The top part of each core (recently accumulated sediments) was separated for further analysis, while the bottom portion was discarded. A separate protocol cleaned compositing vessel was used to homogenize the top portion of each core prior to sub-sampling. All homogenization was performed manually with a protocol cleaned tool. Following homogenization, the nine core composite samples (Table 2) were transferred into appropriate certified pre-cleaned sample containers.

Additional material from the vertical core composites was composited into three area composites (each containing material from three cores) representing Areas A, B and C (Table 2). Subsamples were taken from each area composite sample and tested for total lead, percent solids, grain size, pH and soluble lead using the Cal WET protocol. These data provided baseline information for the bench tests being conducted for cement stabilization/solidification.

After the samples for baseline chemical analyses were removed, the remaining portions of the cores representing the depositional layer of sediments from each composite area were placed in polyethylene-lined protocol cleaned 3.5 gallon buckets and transported to KLI's Carlsbad facility for completion of the stabilization treatability tests.

All sediment samples for chemical analysis were placed on ice immediately following collection and maintained at 2 to 4ºC until analyzed.

Table 2. Summary of Sample Counts and Analyses Performed on Each Sample.

Sample ID	Type of Sample	Total Lead	Cal WET	% Moisture	Grain Size	pH	Unconfined Compressive Strength	Number of Samples
A(1-3),B(1-3), C(1-3)	Core 2 foot strata	27	-	27	-	-		**27**
A(1-3),B(1-3), C(1-3)	Core Vertical Composites[1]	9	-	9	-	-		**9**
A, B, C	Area Composites	3	3	3	3	3		**3**
A101,B201,C301	5% Cement Mix	3	3	3	3	3	3	**3**
A102,B202,C302	8% Cement Mix	3	3	3	3	3	3	**3**
A103,B203,C303	11% Cement Mix	3	3	3	3	3	3	**3**
D404	Blind Duplicate	1	1	1	1	1	1	**1**
	TOTAL ANALYSES	**49**	**13**	**49**	**13**	**13**	**10**	

1. Core vertical composites will represent the entire extent of sediments accumulated since initial excavation of the Lagoon. The delineation of these depositional sediments was assessed by evaluation of structure of each core.

3.5 DOCUMENTATION

All samples were handled under Chain of Custody documentation. Samples were marked with pre-printed, self-adhering labels containing unique alphanumeric identifications. Duplicate information was recorded on the Chain of Custody form, which also includes sampling information such as matrix, analysis; analytical methods and detection limits were included on separate pages and submitted to the analytical laboratories with the Chain of Custody forms. Completed Chain of Custody forms are included with analytical reports in the final report Appendices.

Detailed core logs were prepared for each core sampled. The following information is included on each log: date and time of boring, boring coordinates, core identification, depth penetrated, core length recovered, water depth at the sample site, sediment lithology, and sample intervals. Completed core logs for each sampling location are included in Appendix A.

3.6 CHEMICAL ANALYSIS OF SEDIMENT

All chemical and physical analyses were performed by Soil Control Lab, Inc., (Cal-ELAP No. 1494). Soil Control Lab is State-Certified testing laboratory using USEPA, USACE, and CRWQCB approved methodologies.

Untreated sediments were analyzed for percent solids, particle size, pH, and lead using the methods listed in Table 3. Percent solids, particle size and pH were considered important ancillary data for interpretation of any differential effects of treatment. They were also considered important in assessing treatability of sediments in Colorado Lagoon that might be outside of the specific test area. Treated sediments were analyzed for these same parameters, as well as unconfined compressive strength (Table 2). All sampling and analysis was conducted in a manner consistent with guidelines for dredge material testing methods in the USEPA/USACE Inland Testing Manual (USEPA/USACE, 1998). Samples were extracted and analyzed within specified holding times. All sample analyses utilized method-specified Quality Control procedures.

The California Waste Extraction Test (WET) was only applied to samples that were to be used for the sediment stabilization/solidification bench tests. Bulk sediments with concentrations greater than the Title 22 Total Threshold Limiting Concentration (TTLC) criterion are automatically classified as hazardous waste if the material is to be removed. If bulk concentrations of a Title 22 constituent are greater than 10 times the STLC but less than the TTLC, further testing with WET procedure is used to determine if the constituent has the potential to solubilize. If this soluble fraction exceeds the STLC, the sediment would also be classified as hazardous waste.

The trigger value of 10 times the STLC is attributable to the fact that there is a 1:10 ratio of sediment to extractant in the WET test protocols. The 5 mg/L STLC criterion translates to a total lead value of greater or equal to 50 mg/kg-wet. This approach assumes that 100 percent of the constituent of concern would become soluble when subjected to the test conditions and that the density of the sediment is close to 1 kg/L. The WET involves extracting the material for 48 hours at a ratio of one part sediment to ten parts extractant. The extractant is a solution of 0.2 M sodium citrate adjusted to pH 5.0 +/- 0.1 with sodium hydroxide. These conditions were initially selected to simulate acid rain and the ability to mobilize contaminants within a landfill situation.

The sediments used in this study were assumed to meet the criteria of a Title 22, Type i solid waste that can pass a No. 10 (2 mm) standard sieve. This type of waste is defined by being comprised of a single, solid phase (i.e. water cannot be easily separated by filtration through a 0.45 micron filter). After extraction, the solution was filtered through a 0.45 micron filter prior to analysis. Analytical results are reported as milligrams of lead per liter of extractant.

Table 3. Target Analytes, Analytical Methods, Reporting Limits, Storage and Holding Times.

Analyte	Analytical Method	Reporting Limits	Container	Storage and Transport Temperature	Recommended Holding Time
Percent Solids	SM 2540	0.10%	500 ml HDPE	4° ± 2°C	14 days
Particle Size Distribution	SM 2560D	NA	500 ml HDPE	4° ± 2°C	6 months
Total Organic Carbon	EPA 9060	0.10%	500 ml HDPE	4° ± 2°C	28 days
pH	EPA 150.1	Range: 1-14 units Res.: 0.1 unit	500 ml HDPE	4° ± 2°C	ASAP
Metals -Lead	EPA 6020	0.1 mg/kg wet	500 ml HDPE	4° ± 2°C	6 months

3.7 SEDIMENT STABILIZATION BENCH TESTS

Several rounds of testing were necessary to determine appropriate protocol for stabilizing the soluble lead present in sediment from the western arm of the Lagoon. Initial testing was conducted with cement as outlined in the initial scope of work. Two additional rounds of testing were conducted with a range of stabilization methods to investigate alternatives that would be more effective for Colorado Lagoon sediments.

3.7.1 INITIAL CEMENT STABILIZATION TESTING – ROUND ONE

Initial testing was conducted using Portland cement as a stabilizing agent for sediments, using composite samples A, B, and C. Each composite sample was tested with three different cement mixture ratios (Table 4) to help determine the most appropriate ratio of cement to sediment for both reducing soluble lead concentrations to less than or equal to the target value and still meet geotechnical guidelines goals. Use of higher cement concentrations would likely result in sediment not meeting the goal of having a maximum unconfined compressive strength of 10 psi, as well as it would be more expensive for full-scale application. The target level for soluble lead in treated sediment was set at 2.5 mg/L, (50% of the Title 22 STLC criterion of 5.0 mg/L.

Table 4. Cement Treatments for each Composite Sample.

Composite Sample	Cement Concentration (%)
A	5.0
A	8.0
A	11.0
B	5.0
B	8.0
B	11.0
C	5.0
C	8.0
C	11.0

Percentages based on total weight of sediment to weight of cement.

Cement/sediment mixtures were prepared by manually mixing cement and sediment until samples were fully blended. Mixtures were formed on a cement dry weight to sediment dry weight basis. Once mixed, each of the samples was placed into a sample container and sent to the laboratory. Samples were then tested for total lead, percent moisture, pH and soluble lead using the Cal WET protocol. Large volumes of excess sediment from each composite area were maintained under refrigeration to allow bench tests to be repeated or conducted with extended ranges of test mixtures.

3.7.2 SEDIMENT STABILIZATION TESTING - ROUND TWO.

Based upon the initial results, a second round of testing was performed using alternative media to solidify and stabilize the sediment. Sediment from area composite B was selected for this screening round since concentrations of lead in this region were the highest encountered in Colorado Lagoon.

Screening was conducted using six different treatments. These included two products: Free Flow-100 and Free Flow 200, formulated and provided by Free Flow Technologies in Machesney Park, Illinois. Other treatments utilized Triple Super Phosphate (two treatment tests), hydrated lime, and a retest with cement. These treatment products were selected based on a literature review and inputs from various experts in soil and sediment remediation. Details of each treatment are discussed further below.

- **Free Flow-100 (FF-100)**

  FF-100 is a stabilizing reagent that fixates heavy metals in sediment across a wide range of pH values using a combination of sulfate, phosphate, and hydroxide fixation chemistry. This material was expected to ultimately convert the lead into insoluble salt of phosphate. It was also expected to have a moderate dewatering effect on the sediment.

This material was tested at a concentration equivalent to five percent of the sediment on a dry weight basis.

- **Free Flow-200 (FF-200)**

  FF-200 is another stabilizing reagent primarily comprised of lime, sulfur, aluminum oxide and iron oxide. This treatment was expected to bind the lead in the sediment using a combination of sulfate and hydroxyl anion fixation chemistry. As with the FF-100 reagent, testing was conducted using a five percent concentration on a dry weight basis. This material was also expected have a moderate dewatering effect due to the lime.

- **Triple Super Phosphate 0-45-0 (TSP) $Ca(H_2PO_4)_2 \cdot H2O$**

  This is a common fertilizer for both commercial and private use. The phosphate was expected to convert the lead to a more stable lead phosphate mineral which should not be affected by acid leaching. Unlike the first two products, this material was not expected to a have a dewatering effect. Cement was needed to assist in dewatering the sediment. TSP was used for two tests. Both utilized a five percent concentration on a dry weight basis. The first test added cement 24 hours after first mixing the sediment and TSP. The second test incorporated cement together with the TSP at the same time. Both treatments used a cement concentration of two percent dry-weight.

- **Hydrated Lime**

  Hydrated lime was used as the fifth treatment. Lime was expected to bind the lead in the sediment in a manner similar to the cement. Lime, however, was expected to react directly with organic compounds in the sediment in contrast to the cement which needs components present within the cement formulation to bind material. This product was expected to have a substantial dewatering effect on the sediment. As with the other treatments, lime was added at a five percent concentration.

- **Cement**

  Cement was used as the sixth treatment to provide a control and comparison with the first round of testing. Cement was used at a five percent concentration which was the lowest concentration used during the initial tests.

3.7.3 SEDIMENT STABILIZATION TESTING - ROUND THREE.

Due to results from the first two rounds, it became necessary to explore further alternatives. ADT Environmental Solutions, a remediation firm located in Canby, Oregon was recommended by several other contacts on the basis of their past work with recalcitrant materials. This firm specializes in the development and application of custom formulations for remediation of metal contamination. They use a number of alternative treatment technologies for stabilizing toxic heavy metals in soils and production waste streams. Their proprietary stabilization systems have been effective in rendering high levels of lead and other heavy metals into safe, non-leachable forms suitable for on-site disposition, off-site disposal in Class II or III landfills. ADT Environmental Solutions offered to conduct further bench tests with sediments from Colorado Lagoon.

ADT's sediment stabilization approach is referred to as the Synthetic Metals Mineralization System (SMMS). ADT's SMMS stabilizing reagents are generally comprised of sulfates, sulfides, calcium compounds, and pH-adjusting materials in various combinations and additive rates depending upon the characteristics of the sediment. This treatment binds the lead in the sediment using a combination of mineral forms and hydroxyl anion fixation chemistry which lowers the leachability of the lead and similar metals present in the sediments. Reagent testing was conducted using various percent concentrations on a wet weight basis. Without introducing cement or hydrated lime to the mix, the SMMS reagents were not expected to a have a substantial dewatering effect.

After reviewing results from the first two rounds of testing, ADT Environmental Solutions conducted preliminary tests with a suite of alternative formulations. ADT conducted two rounds of preliminary tests designed to screen for formulations that warranted further investigation. ADT initially had the original (untreated) and treated sediments analyzed locally by an Oregon lab, Specialty Analytical. Analyses provided by Specialty Analytical were simply used as guidance for a rough assessment of the initial formulations. One formulation associated with the second round of ADT testing showed promise of being effective. In order to verify this, samples of both the original untreated sediment and the treated sediment were sent to Soil Control Lab (California lab used for previous test rounds) for analysis of pH, total lead, and soluble lead using the Waste Extraction Test. Based upon very positive results from this treatment, additional testing was implemented to confirm the initial ADT test, refine estimates of the quantities of reagents necessary to achieve the desired end result, and, finally, verify geotechnical characteristics of the end product.

Sediment from both composite areas A and B had soluble lead concentrations exceeding the STLC. Therefore composite sediments from both areas were used for this additional ADT testing (Table 5). The untreated, baseline sediments were once again tested for STLC lead, total lead and pH. All treated sediments from each composite area were analyzed for STLC lead, total lead, pH and the paint filter test. The paint filter test was added to the suite of tests to address the need for the material to be solid enough for transport.

Table 5. Summary Testing using ADT Environmental Solutions Treatment

	Sample Treatments[2]	STLC Lead	Total Lead	pH	Grain Size	Paint Filter	Sample # A&B
1	Untreated	X	X	X			2
2	Initial Treatment (~6% SMMS)	X	X	X	X	X	2
3	~4% SMMS	X	X	X	X	X	2
4	~2% SMMS	X	X	X	X	X	2
5	~2% SMMS with 9% hydrated lime[1]	X	X	X	X	X	2
6	~2% SMMS with 9% hydrated lime[1]	X	X	X	X	X	2
	Total						12

1. Quantities of hydrated lime were based upon best professional judgment. Additives were reported on a dry weight-basis relative to the wet weight of the sediment.

4.0 RESULTS AND DISCUSSION

4.1 SAMPLING DATA - CORE DEPTHS AND SEGMENT INTERVALS

Complete documentation of core lengths and lithology is provided on boring logs in Appendix A. A summary of penetration depths and sampling intervals is provided in Table 6 below.

Table 6. Core Penetration and Recovery

Sampling Area/Core	Core Penetration Depth (ft)	Core Recovery Depth (ft)
A1	8.0	7.4
A2	8.0	6.6
A3	8.0	7.4
B1	8.0	6.0
B2	8.0	6.6
B3	8.0	6.0
C1	8.0	6.0
C2	8.0	5.4
C3	8.0	6.7

Cores were taken to a depth of eight feet to ensure recovery of at least six feet of sediment. The upper six feet of each core was divided into three two foot depth intervals corresponding to the top, middle and bottom. In addition, samples were taken that represented the full depth of recently deposited sediment as determined from visual examination of the cores. Details of the core processing are provided in Section 3.4.

4.2 DISTRIBUTION AND CHARACTERIZATION OF CONTAMINANTS

The results of sediment testing are reported both on a wet and dry weight basis. Analytical results reported on a wet weight basis are used to assess whether the sediments would be considered as hazardous waste under California's Title 22 criteria. Analytical results reported on a dry weight basis are used to provide comparisons with various ecological criteria as well as with previous testing conducted in Colorado Lagoon.

4.2.1 COMPARISON TO TITLE 22 CRITERIA

Title 22 criteria were used to determine if any of the sediments sampled from Colorado Lagoon contained contaminants at concentrations that were high enough to be considered hazardous waste. For this purpose, the results of all lead analyses (mg/kg-wet weight) are compared with the Total Threshold Limit Concentrations (TTLC – 1000 mg/kg -wet) and based on the Waste Extraction Test cited in Title 22.

Chemical bulk testing was performed on each of the interval segments within each of the cores (Table 7) and each of the nine core composites (Table 8). Results of this testing indicate that

none of the cores exceeded the TTLC for lead. However, many of the sediment samples exceeded levels that require further testing for soluble lead. This survey was not intended to evaluate small scale differences in soluble lead. Previous testing conducted in Colorado Lagoon, however, suggests that soluble lead limits would not be exceeded unless concentrations of total lead were in the range of 100 mg/kg – wet or greater.

Higher concentrations of lead were generally limited to the upper four feet of sediment, however, cores that were closest to the County No. 452 and Termino Avenue storm drains (cores A1 and B2) had elevated concentrations of lead extending into the four to six foot (deeper) segment as well. There was also a greater depth of recently deposited sediments at these two sites than at the other sites in the western arm, (Table 8), further indicating that these sites are impacted by storm drain discharges. Accumulated sediment at these two sites ranged from 4.5 to 4.8 feet while all other coring sites had 2.7 to 3.8 feet of recently deposited sediment.

The three area composites (bottom of Table 8) were subjected to further testing with the California Waste Extraction Test (WET) since these composited sediments were to be used for the pilot cement stabilization bench tests. These area composites also triggered the general guidance of 10 times the STLC criteria for performing a WET. The results of these tests (Table 9) indicated that soluble lead exceeded the STLC of 5 mg/L in composite sediment from both areas A (17 mg/L) and B (15 mg/L). WET results for depositional sediments from composite area C (4.1 mg/L) indicated that soluble lead was below the STLC. Sediment in area C exhibited substantial variability with highest total lead concentrations found in the deepest layer at C1 and top layer at C3. Core C2 had low levels of lead in all layers.

Table 7. Concentrations of Lead Compared to Title 22 Criteria.

COLORADO LAGOON SEDIMENT RESULTS			
SITE	**SEGMENT**	**PERCENT SOLIDS**	**LEAD[1] (mg/kg – wet wt)**
A1	Top (0-2 feet)	31	**64**
	Middle (2-4 feet)	48	**390**
	Bottom (4-6 feet)	72	**110**
A2	Top (0-2 feet)	49	**350**
	Middle (2-4 feet)	58	43
	Bottom (4-6 feet)	71	6
A3	Top (0-2 feet)	47	**440**
	Middle (2-4 feet)	59	**73**
	Bottom (4-6 feet)	68	9
B1	Top (0-2 feet)	52	**450**
	Middle (2-4 feet)	57	**160**
	Bottom (4-6 feet)	62	8
B2	Top (0-2 feet)	41	**420**
	Middle (2-4 feet)	59	**720**
	Bottom (4-6 feet)	61	**370**
B3	Top (0-2 feet)	53	**520**
	Middle (2-4 feet)	57	**51**
	Bottom (4-6 feet)	59	9
C1	Top (0-2 feet)	80	16
	Middle (2-4 feet)	83	19
	Bottom (4-6 feet)	76	**160**
C2	Top (0-2 feet)	79	37
	Middle (2-4 feet)	81	**52**
	Bottom (4-6 feet)	61	49
C3	Top (0-2 feet)	54	**200**
	Middle (2-4 feet)	60	16
	Bottom (4-6 feet)	58	12

Title 22 Criteria[2]		
Analyte	**TTLC (mg/kg)**	**STLC[1] (mg/L)**
Lead	1000	5

1. Bold, shaded values indicate lead concentrations exceeding 50 mg/kg on a wet weight basis. Values exceeding this concentration are considered to have potential to exceed the STLC threshold of 5 mg/L. This is based upon application of the 1:10 dilution associated with the Waste Extraction Test as well as assumptions that sediment density is equivalent to 1 kg/L and 100% of the lead is soluble.
2. TTLC = Total Threshold Limiting Concentration; STLC = Soluble Threshold Limiting Concentration

Table 8. Concentrations of Lead in Full Depositional Layers of Each Core and Area Composites.

COLORADO LAGOON SEDIMENT TEST RESULTS			
SITE	DEPOSITION ALLAYER	PERCENT SOLIDS	LEAD[1] (mg/kg wet wt)
A1	0.0-4.8 ft	50	**530**
A2	0.0-3.0 ft	53	**240**
A3	0.0-3.3 ft	49	**370**
B1	0.0-3.8 ft	52	**300**
B2	0.0-4.5 ft	49	**460**
B3	0.0-3.2 ft	54	**320**
C1	0.0-3.9 ft	81	24
C2	0.0-3.8 ft	80	**200**
C3	0.0-2.7 ft	54	**170**
Area A Composite		49	**300**
Area B Composite		53	**340**
Area C Composite		77	**60**

Title 22 Criteria		
Analytes	TTLC (mg/kg)	STLC[1] (mg/L)
Lead	1000	5

1. Bold, shaded values indicate concentrations of lead exceeding 50 mg/kg on a wet weight basis which are considered to have the potential to exceed the STLC threshold of 5 mg/L. This is based upon application of the 1:10 dilution associated with the Waste Extraction Test (WET) as well as assumptions that sediment density is equivalent to 1 kg/L and 100% of the lead is soluble.
2. TTLC = Total Threshold Limiting Concentration; STLC = Soluble Threshold Limiting Concentration

Table 9. Results and Comparison of Waste Extraction Test (WET) Lead Elutriates with Title 22 Criteria.

TEST RESULTS	
COMPOSITE AREA	Soluble Lead[1] (mg/L)
A	**17**
B	**15**
C	4.1

Title 22 Criterion	
Analyte	STLC (mg/L)
Lead	5.0

1. Concentrations of soluble lead measured by use of the California Waste Extraction Test. Bold, shaded values indicate concentrations exceeding the Soluble Threshold Limiting Concentration (STLC) for dissolved lead.

4.2.2 COMPARISON TO NOAA CRITERIA

To further aid in the evaluation of sediment test data, chemical concentrations of contaminants found within the sediments were compared to sediment quality guidelines (Long et. al., 1995) developed by NOAA (Table 10). These guidelines were used to screen sediments for contaminant concentrations that might be expected to cause biological effects and to identify sediments for further toxicity testing. For any given contaminant, the Effects Range Low (ERL)

guideline represents the 10th percentile concentration value in the NOAA database that might be expected to cause adverse biological effects and the Effects Range Medium (ERM) reflects the 50th percentile value in the database.

The core interval segments comparison to ERL and ERM criteria is shown in Table 10 and Figure 2. Seven of the nine sites had ERM exceedances. The other two sites both exceeded ERL criteria. With one exception, exceedances of the ERM for lead were restricted to the upper four feet of the cores (Figure 4). As discussed in the previous section, cores taken in the vicinity of storm drains tended to have elevated concentrations of lead extending into the four to six foot depth range. Deeper sediments associated with B2 were the only sediments from this depth range that exceeded the ERM but lead was also elevated in the deeper layer of the A1 core. The C1 core is notable because the upper four feet of sediment were clean (below ERL), but the 4-6 foot segment exceeded ERL.

The data generally suggest that removal of material from the upper four feet of the western arm would mostly result in a new sediment surface that would be less than the ERL. Exceptions would include portions of the western arm located near major storm drains (A1 and B2) and the sites C1 and C2). Lead contamination in sediments from the vicinity of composite area C is highly variable (Figure 2 and Figure 3; Table 10 and Table 11) but data still indicate that removal of the upper four feet may improve conditions. Concentrations of lead in the core vertical composites taken at C2 (0 to 3.8 feet) and C3 (0 to 2.7 feet) both exceeded the ERM. The influence of imported beach sand was evident in both the reduced concentrations of lead and coarser grain sizes found in this area (Table 12; Section 4.3.1). Mixing of clean beach sands with finer sediments had a dilution-effect on concentrations of contaminants.

Table 11 and Figure 3 show the ERL and ERM comparisons for vertical sediment composites sampled at each of the nine core sites. These composites represent sediments deposited since the original dredging of the Lagoon in 1935. The depth of the depositional layer within each core was determined by visual examination and classification of each core. The full vertical composites of depositional sediment from all sites, except C1, exceeded the lead ERM.

Table 10. Concentrations of Lead in each Two-Foot Strata compared to NOAA ERL and ERM.

COLORADO LAGOON TEST RESULTS		
SITE	SEGMENT	LEAD (mg/kg dry)
A1	Top (0-2 feet)	206
	Middle (2-4 feet)	813
	Bottom (4-6 feet)	153
A2	Top (0-2 feet)	714
	Middle (2-4 feet)	74
	Bottom (4-6 feet)	9
A3	Top (0-2 feet)	936
	Middle (2-4 feet)	124
	Bottom (4-6 feet)	13
B1	Top (0-2 feet)	865
	Middle (2-4 feet)	281
	Bottom (4-6 feet)	13
B2	Top (0-2 feet)	1024
	Middle (2-4 feet)	1220
	Bottom (4-6 feet)	607
B3	Top (0-2 feet)	981
	Middle (2-4 feet)	89
	Bottom (4-6 feet)	16
C1	Top (0-2 feet)	20
	Middle (2-4 feet)	23
	Bottom (4-6 feet)	211
C2	Top (0-2 feet)	47
	Middle (2-4 feet)	64
	Bottom (4-6 feet)	80
C3	Top (0-2 feet)	370
	Middle (2-4 feet)	27
	Bottom (4-6 feet)	21

NOAA TARGET LEVELS		
Analyte	ERL	ERM
Lead (mg/kg dry)	47	218

Red values indicate ERM exceedances. **Blue** values indicate ERL exceedances.

Table 11. Concentrations of Lead Measured in the Full Depositional Layer[1] of each Core Compared with NOAA ERL and ERM Guidelines.

COLORADO LAGOON TEST RESULTS		
SITE	DEPOSITIONAL LAYER	LEAD (mg/kg dry)
A1	0.0-4.8 ft	1060
A2	0.0-3.0 ft	453
A3	0.0-3.3 ft	755
B1	0.0-3.8 ft	577
B2	0.0-4.5 ft	939
B3	0.0-3.2 ft	593
C1	0.0-3.9 ft	30
C2	0.0-3.8 ft	250
C3	0.0-2.7 ft	315

NOAA TARGET LEVELS		
Analyte	ERL	ERM
Lead (mg/kg dry)	47	218

Red values indicate ERM exceedances. **Blue** values indicate ERL exceedances.

1. Full Depositional Layer was defined as sediment deposited since the original excavation of the Lagoon in 1935. The lower limit of this layer was determined by visual examination and characterization of cores to identify stratigraphic changes at the interface with the the underlying native material.

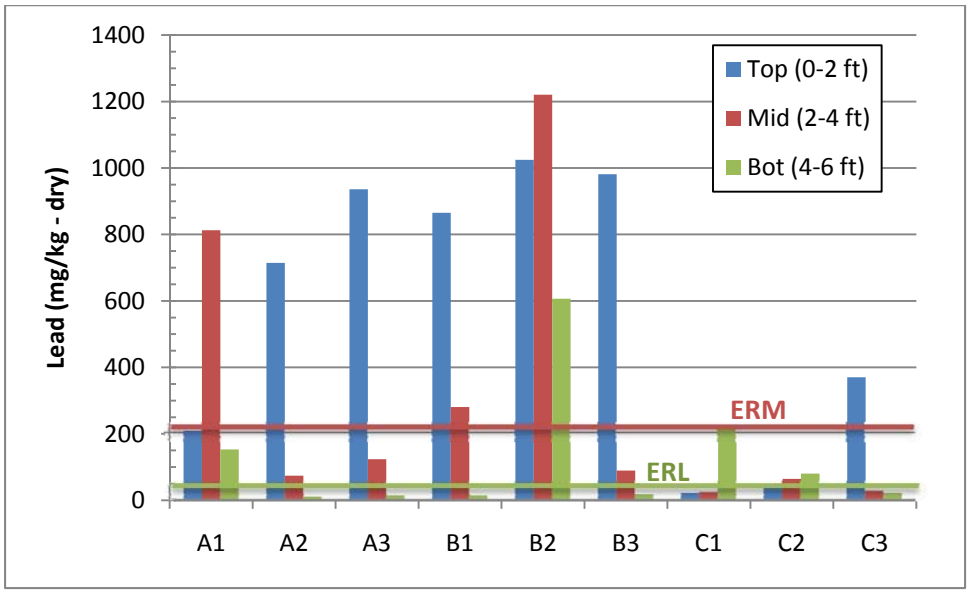
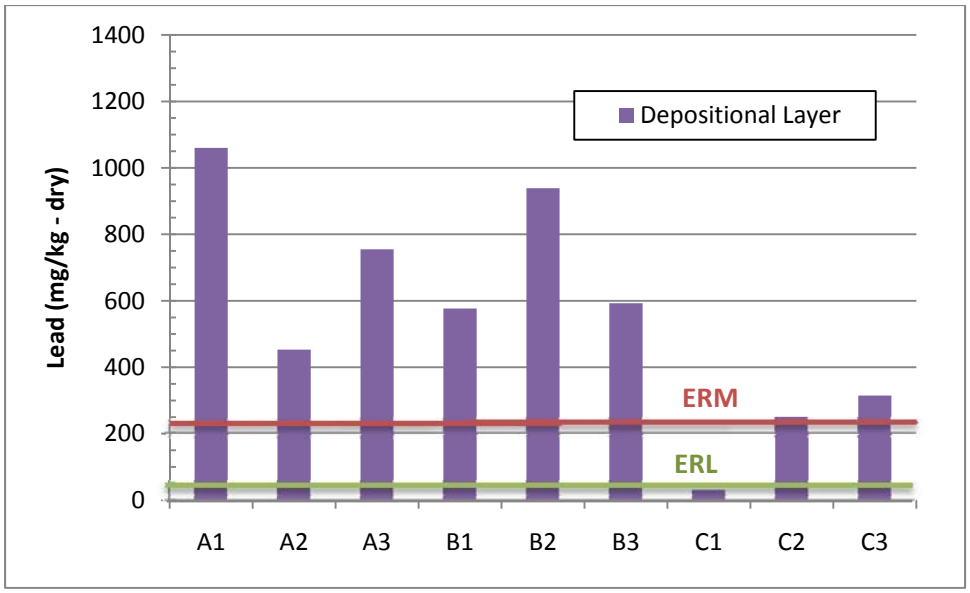


Figure 2. Vertical Distribution of Total Lead Compared with NOAA ERL and ERM Guidelines.



Full Depositional Layer was defined by visual examination and characterization of cores to determine the boundary between sediments deposited since the initial dredging of the Lagoon and the underlying native material.

Figure 3. Concentrations of Lead Measured in the Depositional Layer of each Core.

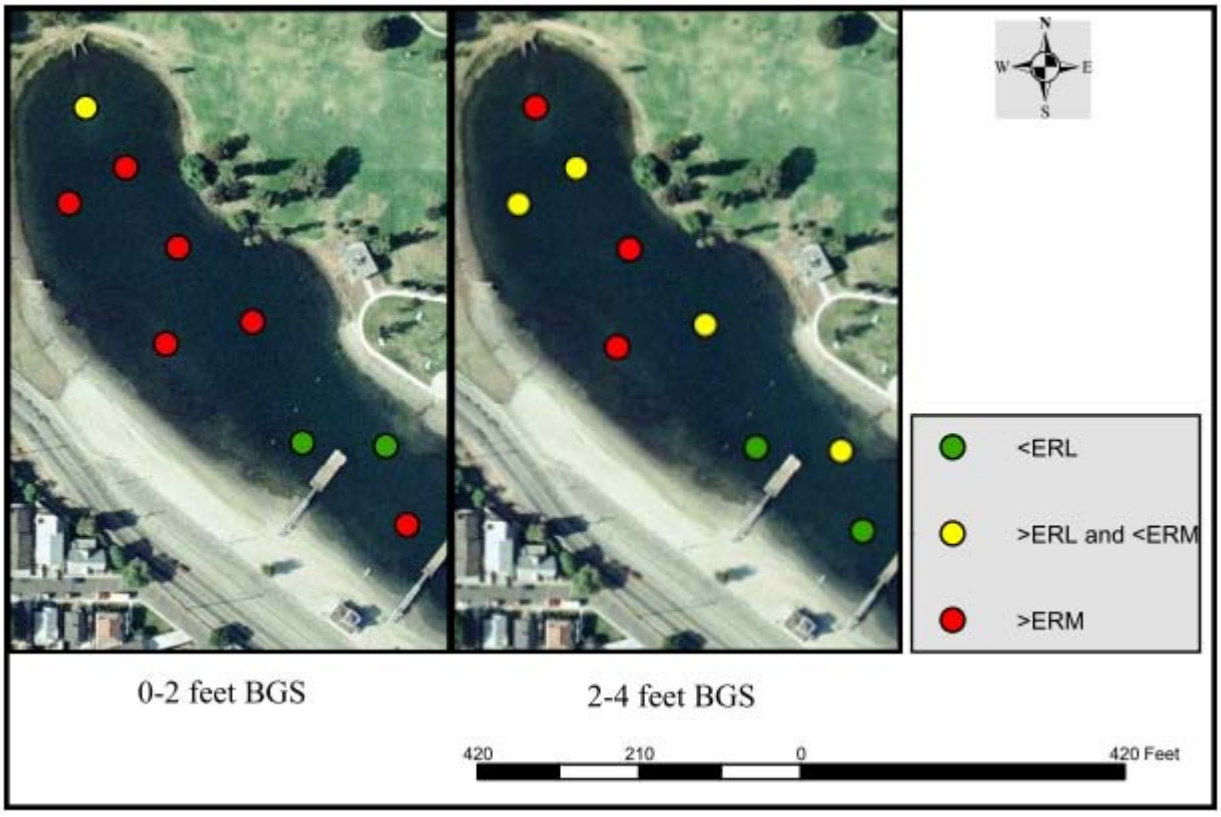


Figure 4. Lead Concentrations in the 0-2 and 2-4 Feet Depth Intervals with Respect to NOAA ERLs and ERMs.

4.3 SEDIMENT STABILIZATION TESTS – ROUND ONE

Initial bench-scale testing was performed with three mixtures of cement in accordance with the work plan. This section provides a summary of the physical and chemical characteristics of both the baseline (untreated) and treated sediments.

4.3.1 PHYSICAL CHARACTERIZATION - GRAIN SIZE

Particle size composition was analyzed in each area composite sample to establish a baseline for the bench tests (Table 12). Particle size was then analyzed for each of the three cement mixture ratios applied to this material (Figure 5). Sediments from both composite areas A and B contained high percentages (68.8 to 71.5 %) of fines. The percentage of fines in the composite sediment from area C was only 18.4%. This segment of the Lagoon and the area just east of the footbridge appear to be strongly influenced by sand that has been imported to provide a more suitable beach substrate. Sloughing of this imported material into the Lagoon tends to create layers of sand and finer material in deeper waters.

None of the cement stabilization treatments had significant impacts on the ultimate particle size composition of the treated products (Figure 5). The amount of cement added also seemed to have little impact on the final particle size composition. The percent sand and silt/clay in the samples remained relatively unchanged with increasing amounts of added cement.

Table 12. Particle Size Composition (% sand and % silt/clay) of Area Composites used for Stabilization/Solidification Bench Tests.

AREA COMPOSITES	Sand >0.063 mm	Silt/Clay <0.063 mm
A	28.5	71.5
B	31.2	68.8
C	81.6	18.4

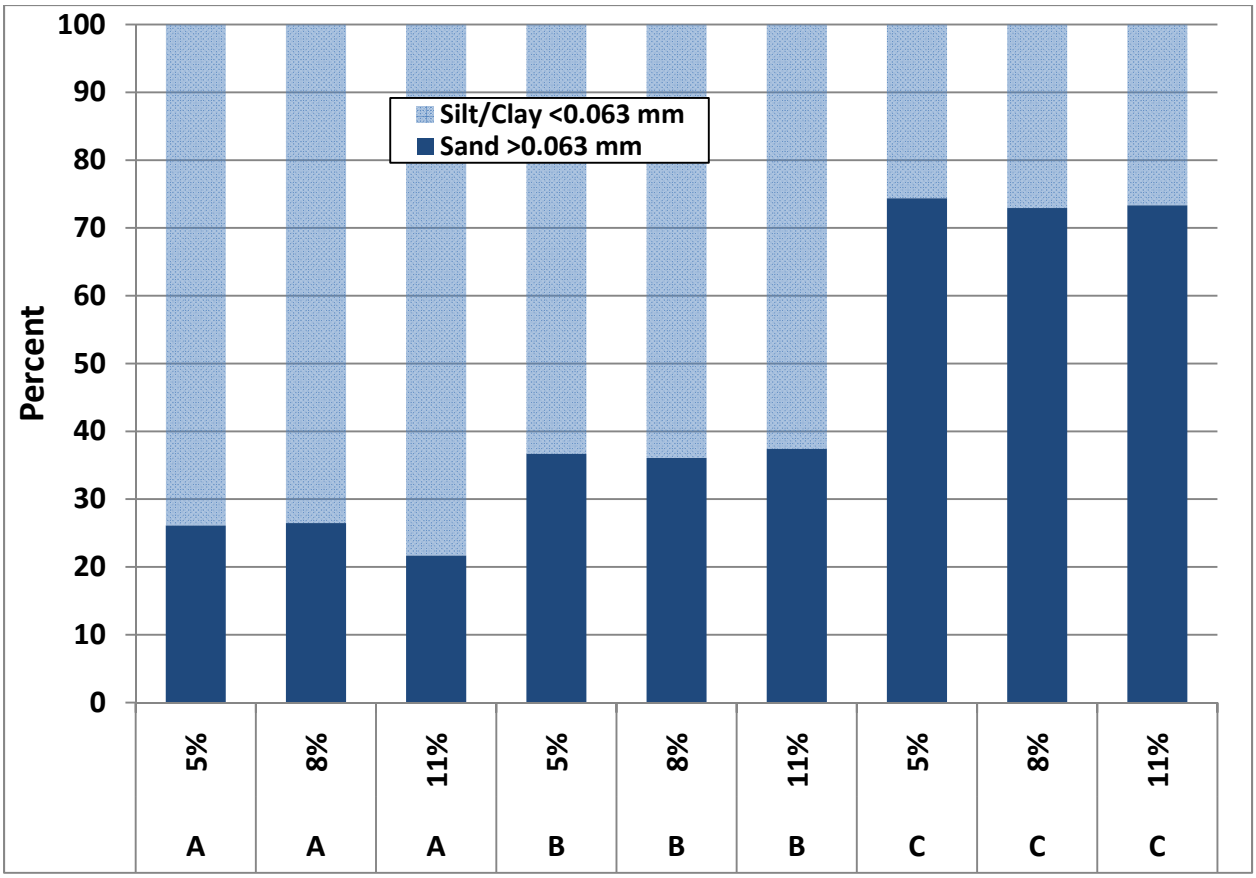


Figure 5. Comparison of Sand and Silt/Clay Fractions after Treatment with Three Different Concentrations of Cement.

4.3.2 PHYSICAL CHARACTERIZATION – COMPRESSIVE STRENGTH

A 28-day unconfined compressive (UC) strength test (ASTM D 2166) was conducted on each combination of sediment and cement used for the bench tests (Table 13; Figure 6). Data were compared against a preliminary goal of less than 10 psi (1,440 psf) for the sediment/cement mixed material.

All mixtures were found to exceed (did not meet) the 10 psi goal, even with the lowest cement concentration. The impact of adding cement was notably greater in the coarser sediment from area C. Area C sediments were comprised of less than 20 percent fine material. Sediments from areas A and B contained roughly 70 percent fines. Sediment from areas A and B that were treated with 5% cement came closest to meeting the UC strength goals. Based upon the results, meeting the preliminary goal at all sites would likely limit the amount of cement used to treat the sediments to less than three percent.

Table 13. Unconfined Compression Test Results

Area Composite	Cement Content (%)	Unconfined Compressive Strength (ksf)	Unconfined Compressive Strength (psi)	Dry Density (pcf)	Moisture Content (%)
A	5	2.08	14.4	54.9	52.5
A	8	3.39	23.5	54.4	52.1
A	11	4.95	34.4	61.5	61.5
B	5	2.42	16.8	52.5	66.1
B	8	5.14	35.7	54.1	56.9
B	11	5.89	40.9	58.8	47.5
C	5	4.41	30.6	84.3	25.0
C	8	7.90	54.9	85.1	23.9
C	11	16.76	116.4	88.4	21.7

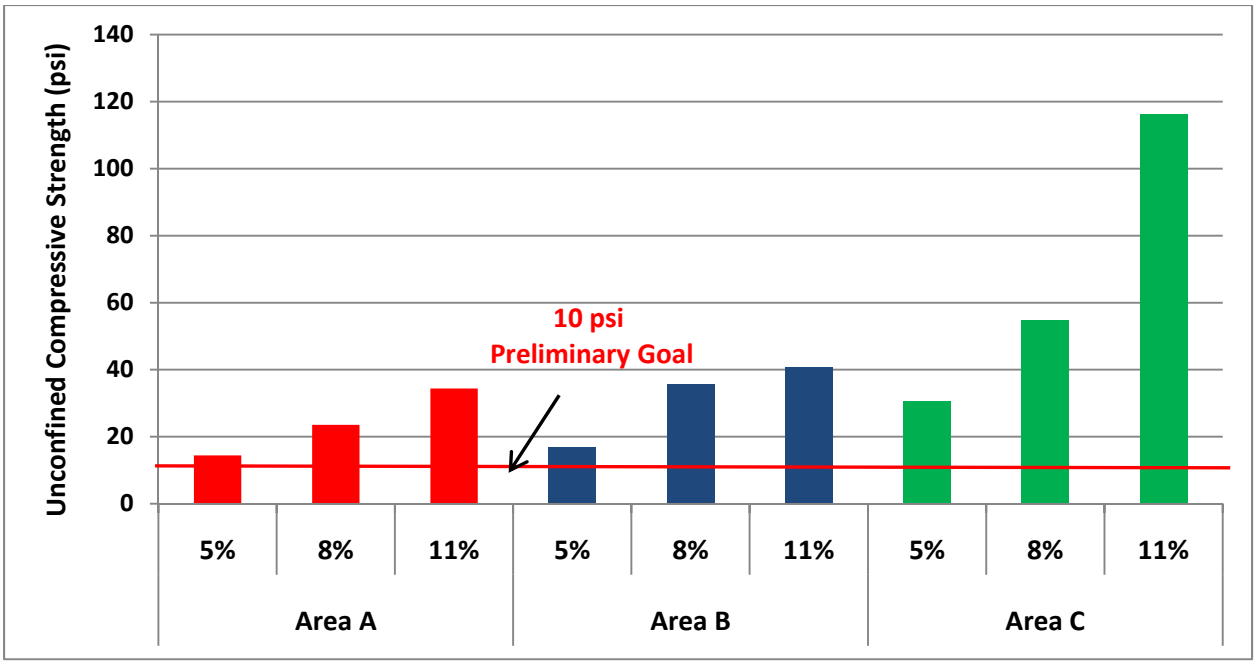


Figure 6. Unconfined Compressive Strength of Colorado Lagoon Sediments Treated with Three Concentrations of Cement.

4.3.3 Cement Stabilization Waste Extraction Test (WET) Results

The results of the initial sediment stabilization tests using cement are summarized in Table 14 and Figure 7. The "baseline" is the untreated sediment from the same composite batch used for the treated sediment. Treatment with varied concentrations of cement had the desired impact of increasing the pH. As more cement was added, the pH of the final product increased to levels between 12 and 12.5 with the strongest impact on pH occurring in association with the coarser sediment from area C. However, none of the treatments caused significant reductions in soluble lead. Subsequent testing suggests that sediments were not well buffered, sediment pH changed rapidly with addition of stabilization material, despite coming from a marine environment, which typically would be well buffered.

Table 14. Summary of Cement Stabilization Test Results.

Sample	% Solids	pH	Total Lead (mg/Kg-wet)	WET Lead (mg/L)
Area A Baseline	**49**	**7.6**	**300**	**17.0**
5% cement	51	10.8	290	17.8
8% cement	51	11.3	310	17.4
8% cement (blind dup)	51	11.3	290	17.0
11% cement	52	12.0	270	15.3
Area B Baseline	**53**	**8.0**	**340**	**15.0**
5% cement	55	10.9	340	18.7
8% cement	56	11.5	320	19.0
11% cement	57	12.1	310	20.1
Area C Baseline	**77**	**7.3**	**60**	**4.1**
5% cement	74	12.3	65	2.0
8% cement	75	12.4	61	4.1
11% cement	76	12.5	60	3.2

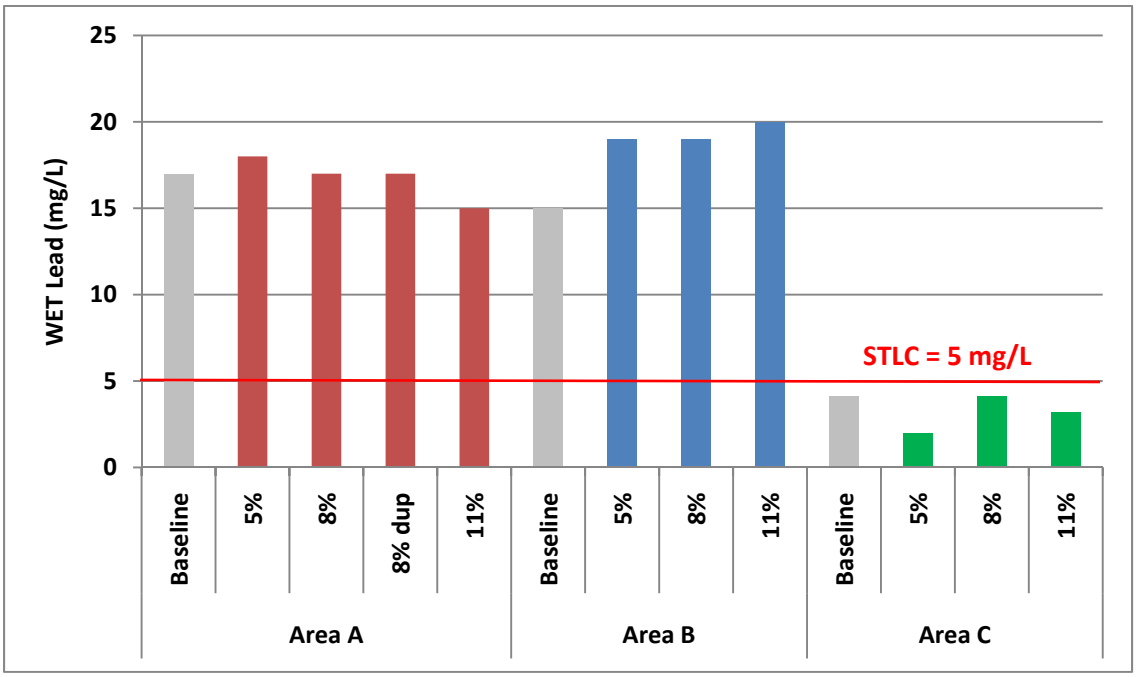


Figure 7. WET Lead Results of Baseline and Cement Treatments.

4.4 SEDIMENT STABILIZATION TESTS – ROUND TWO

The second round of testing emphasized chemical binding and elimination of potential factors that might inhibit stabilization such as the chemical nature of the lead found in Colorado Lagoon. The six selected treatments were compared to the initial baseline measurement associated with area B. All six treatments failed to reduce the soluble lead content below the target of 2.5 mg lead/L (Figure 8, Table 15). Although the pH levels varied for each of the treated samples, the WET results were generally the same for all treatments, possibly indicating that pH was not adequately buffered in these treatments.

Table 15. Summary of WET Results using Alternative Sediment Stabilization Strategies.

Sample	% Solids	pH	WET Lead (mg/L)
Area B Baseline	**53**	**8.0**	**15.0**
FF-100		9.6	19
FF-200		10.3	19
TSP/24 cement		7.5	19
TSP/cement		7.5	19
Lime (5%)		12.2	18
Cement (5%)		10.5	19

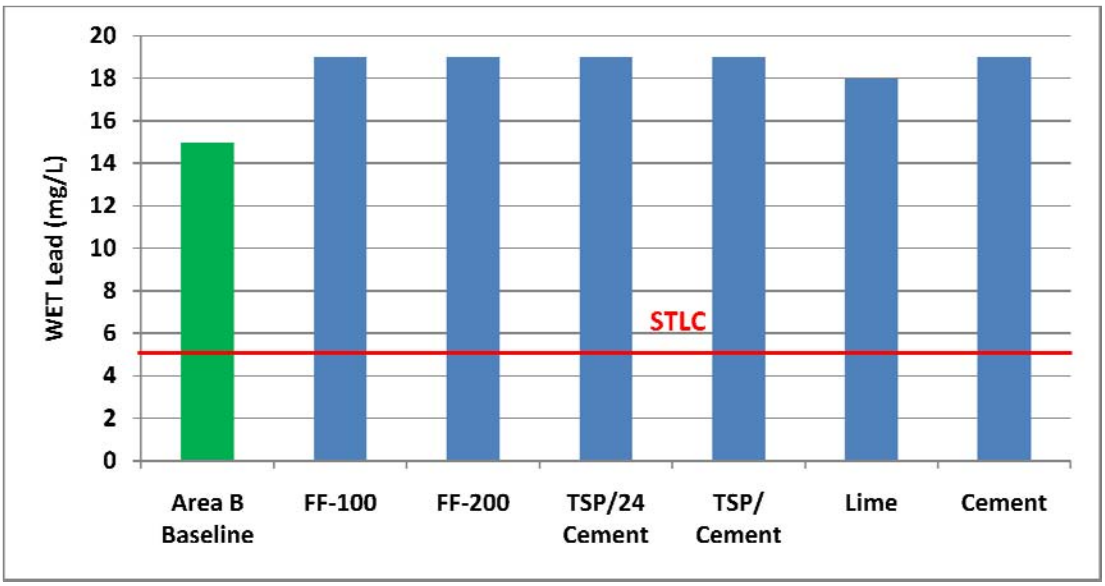


Figure 8. Concentrations of Lead in WET Elutriates Developed from Alternative Stabilization Tests.

4.5 SEDIMENT STABILIZATION TESTS – ROUND THREE

A final round of testing was initiated to evaluate treatment options available from ADT Environmental Solutions. Sediment from composite area B was sent to ADT's facility in Oregon. Since testing was being conducted over an extended period of time, additional tests were conducted to re-analyze the untreated baseline sediment. The following sections summarize the results of repeated tests of the composite sediments and results of WET tests on sediment treated by ADT.

4.5.1 INTER-LABORATORY COMPARISON

Soil Control Laboratory (SCL) in California was the primary analytical laboratory used to analyze the baseline (untreated) and treated sediment. The original sample from Area A was tested on three different occasions and the original sample from Area B was tested four times. One set of samples from both composite areas A and B were sent blind to both SCL and Enviromatrix Laboratories (EML) in California. Both laboratories routinely analyze sediments/soil for evaluation against California's Title 22 criteria for assessment of hazardous waste. A third laboratory, Specialty Analytical (SA) in Oregon, was initially used by ADT to assist in determining whether various treatments were effective. Although this laboratory routinely uses the federal TCLP test procedures, they had not previously used the California WET procedure.

Results of testing conducted on baseline sediment composites from areas A and B are summarized in Table 16. Substantial variability was evident in analytical results reported by the three laboratories. The two samples analyzed by EML were reported to have substantially lower concentrations of total lead and WET lead than reported by SCL. The results of the WET tests provided by SA were not considered valid due to both the variability in the two runs and recognized lack of experience performing the test. However, total lead measured in the samples was found to be very consistent with concentrations reported in repeated, blind measurements by SCL.

Although the variability between laboratories is concerning, the consistency of data provided by SCL on blind samples provides evidence of both precision in the measurements and chemical stability of the sediments. When combined with sound quality control data provided by SCL, there is a high level of confidence in the test data.

Table 16. Repeated Measurements of pH, Total Lead, and WET on the Same Sample.

		Area A			Area B		
Lab	Date	pH	Total Lead (mg/kg-wet)	WET Lead (mg/L)	pH	Total Lead (mg/kg-wet)	WET Lead (mg/L)
SCL[2]	3-Nov-09	7.6	300	17	8.0	340	15
SCL	23-Feb-10	7.4	280	14	7.6	370	16
SCL	10-Mar-10	-	-	-	7.1	340	12
SCL	20-Apr-10	7.4	320	16	7.6	370	18
SA[3]	3-Feb-10	-	-	-	8.3	380	3.0[1]
SA	12-Feb-10	-	-	-	8.4	340	0.16[1]
EML[3]	22-Feb-10	8.2	209	5.3	8.1	285	7.0

1. WET results were not considered valid due to the lack of experience and varied results.
2. SCL = Soil Control Laboratories.
3. SA = Specialty Analytical Laboratories
4. EML = Enviromatrix Laboratories

4.5.2 ADT Environmental Solutions Media Tests

Preliminary testing by ADT provided indications that one reagent mixture was capable of binding chemically stabilizing lead in the test sediments. This initial dry reagent mixture was added at a rate of six percent of the wet weight of the sediment. Samples of both the untreated sediment and the treated sediment were sent to Soil Control Lab for verification. Laboratory results (Table 18) verified that the initial mixture was highly effective at stabilizing the lead. WET tests conducted with the untreated sediment from area B yielded 12 mg/L soluble lead. After the addition of the six percent reagent mix, additional WET tests indicated that concentration of soluble lead was below detection limits (<0.025 mg/L).

Subsequent testing was conducted to determine if sediments could be: 1) stabilized with lower quantities of reagents and 2) effectively dewatered. Five treatments were used with reagent additions ranging from two to eleven percent of the wet weight of the sediment. Table 17 provides a summary of the quantities of reagents added to each sediment sample and converts the treatments to dry weight to dry weight basis for direct comparison with previous rounds of testing.

All five treatments (Table 18, Figure 9) effectively stabilized the lead in area composites A and B. The initial treatment (15-Mar-10) resulted in no detectable soluble lead. Minimal concentrations of soluble lead were measured in sediments treated with each of the four other treatments. Differences in the effectiveness of these four treatments were, for all practical purposes, inconsequential. Measured concentrations of total lead in baseline and treated sediment from each area were also consistent (Table 18, Figure 10). The six treatments also resulted in similar elevation of pH. Treatment 3, which used the least amount of reagents, resulted in pH values of 11 in sediments from both composite areas A and B. All other treatments were measured at a pH of 12.

Despite water content as high as 50%, none of the treatments failed the Paint Filter Test. This test determines if there is any free standing water in the material which would require special handling procedures when transporting the sediments. Various methods of removing sediment from the Lagoon may result in very different water content that may require varying quantities of

dewatering agents (cement or hydrated lime) to be added. Fortunately, the treatment tests indicated that increasing amounts of dewatering agents did not influence chemical stabilization of the lead. Hydrated lime was selected for the dewatering agent during ADT testing because cement has shown to increase UC strength over the initial goal of being less than10 psi.

Table 17. Percentages of Reagents used in each Sediment Treatment

Treatment	Sediment Composite	Percent Reagent (dry wt. / wet wt.)	Percent Reagent (dry wt. / dry wt.)
1	A	6	11.3
	B	6	10.0
2	A	4	7.7
	B	4	6.9
3	A	2	4.0
	B	2	3.5
4	A	11	20.8
	B	11	18.6
5	A	6	11.3
	B	6	10.3

1. Treatment based upon dry weight of reagents to wet weight of sediment
2. Treatment converted to a dry weight of reagents to dry weight of sediment

Table 18. Summary of Testing with ADT SMMS[1] Reagents.

Sample	% Solids	pH	Total Lead (mg/kg-wet)	WET Lead (mg/L)	Paint Filter Test
15 – Mar-10					
Area B Baseline	**55**	**7.1**	**340**	**12**	
ADT – 6%	59	12	350	ND[2]	
8-Apr-10					
Area A Baseline	48	7.4	320	16	NA[2]
Treatments					
1. ADT – 6%	53	12	280	ND[2]	No Free Liquid
2. ADT – 4%	52	12	290	0.076	No Free Liquid
3. ADT – 2%	50	11	290	0.070	No Free Liquid
4. ADT – 2%+9% hydrated lime	53	12	300	0.072	No Free Liquid
5. ADT – 2%+4% Hydrated lime	53	12	300	0.055	No Free Liquid
Area B Baseline	53	7.6	370	18	NA[2]
Treatments					
1. ADT – 6%	60	12	350	ND[2]	No Free Liquid
2. ADT – 4%	58	12	330	0.077	No Free Liquid
3. ADT – 2%	57	11	340	0.054	No Free Liquid
4. ADT – 2%+9% hydrated lime	59	12	360	0.140	No Free Liquid
5. ADT – 2%+4% hydrated lime	58	12	350	0.078	No Free Liquid

1. SMMS - Synthetic Metals Mineralization System
2. Not Detected – Detection Limit = 0.025 mg/L

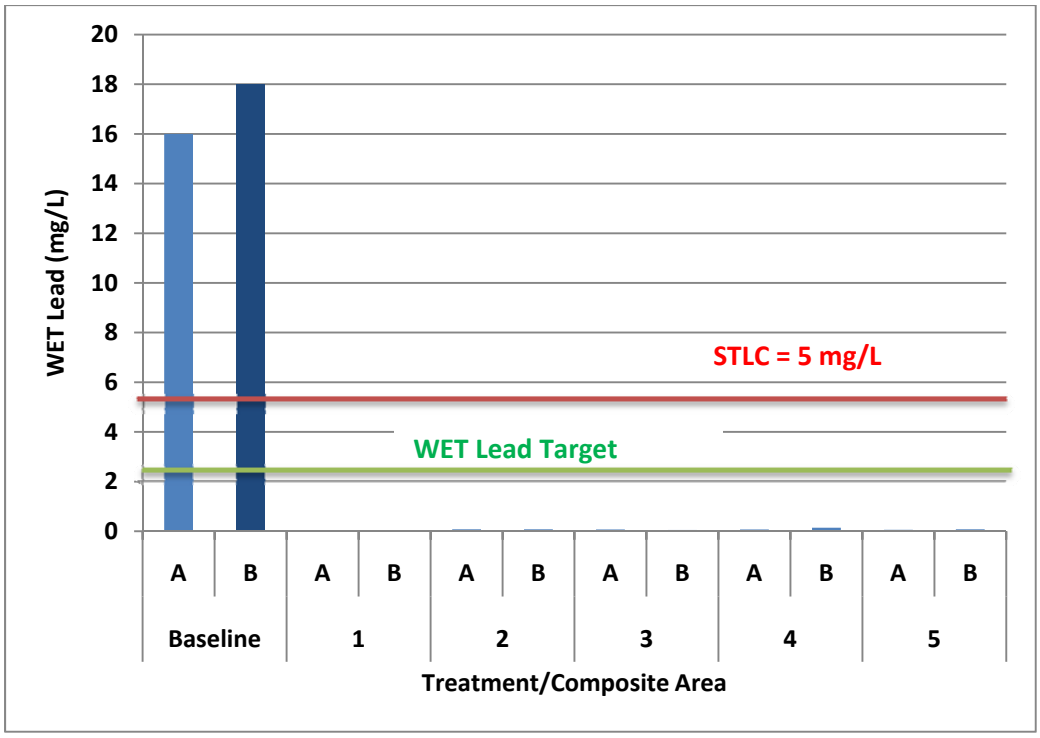


Figure 9. Summary of WET Test Results with Baseline and Treated Sediment.

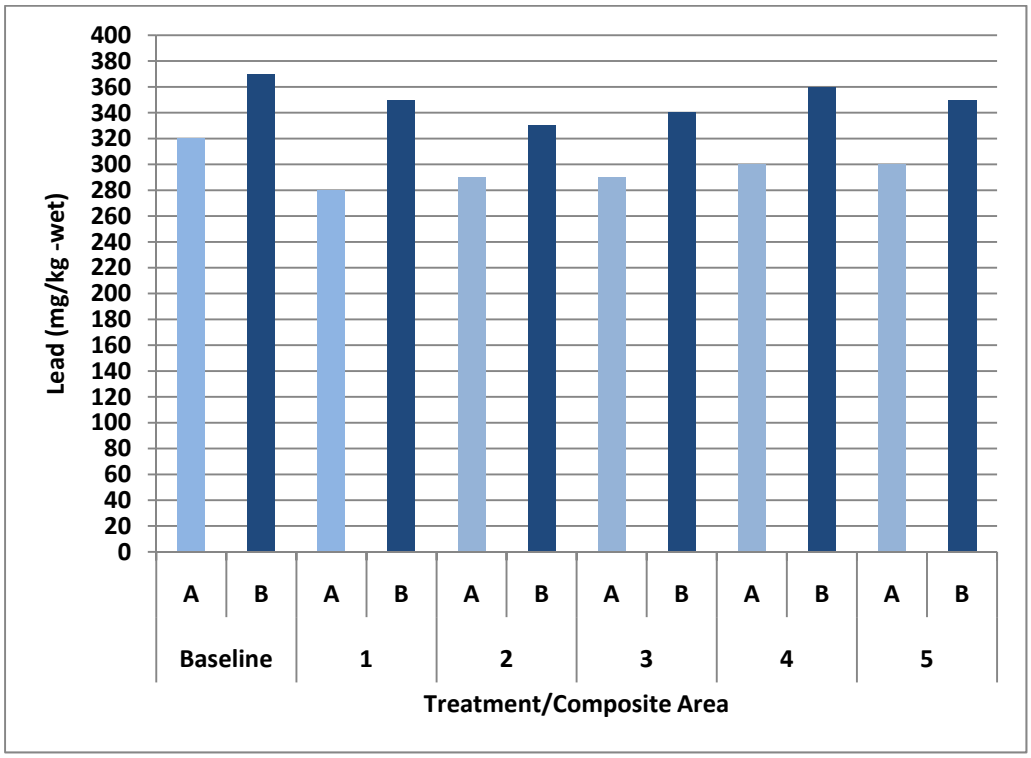


Figure 10. Summary of Total Lead Measured in Baseline and Treated Sediments.

5.0 CONCLUSIONS

Sediment contamination issues in the western arm of Colorado Lagoon are largely limited to the top four feet of sediment and are most substantial in areas A and B (farthest from the walk bridge). Composites from areas A and B exceeded California Title 22 criteria, thus classifying the sediment as hazardous. Lead contamination is generally lower in area C (closer to the walk bridge), but area C also exhibited more vertical variability and inconsistent spatial patterns. Top sediments in area C also have higher sand content which would correlate with the lower lead levels.

Elevated levels of lead extend into the deeper sediments (four to six feet) in the vicinity of the two major storm drains which discharge into the Lagoon's west arm. Removal of the top four feet of sediment throughout the western arm of Colorado Lagoon and selective removal of deeper sediment in the vicinity of the major storm drains would be expected to result in sediments that meet ERL levels.

Bench tests using three different concentrations of cement with sediment from each of the three composite areas failed to show any substantial improvements in soluble lead. In addition, sediment treated with the lowest of the three cement concentrations (5%) did not meet preliminary goals for unconfined compressive (UC) strength of less than 10 psi. Area composite samples A and B would also exceed the goal of containing less than 50% fines, but with area C (low fines content) included may result in an average value which approaches the 50% goal. Screening tests with alternative treatment media (FS-100, FS-200, TSP, lime and cement) also failed to provide the desired chemical stabilization of the lead.

Final tests using a customized reagent mixture developed by ADT proved to be highly successful in reducing the solubility of lead to non-hazardous levels. The initial ADT screening test indicated that the SMMS treatment effectively stabilized the lead. WET tests conducted on the treated sediment indicated that soluble lead had been reduced to levels below the analytical detection limit of 0.025 mg/L.

Further testing was conducted with the SMMS treatment to determine if sediments could be: 1) stabilized with lower quantities of reagents and 2) effectively dewatered. WET tests demonstrated that the SMMS reagents were still highly effective at stabilizing the lead even when treated at 50 percent of the initial strength. The highest concentration of soluble lead associated with treatment of sediments from areas A and B was 0.14 mg/L. This compared to the target level of 2.5 mg/L that was selected to provide a conservative margin of safety. The efficacy of the SMMS treatment at the lowest loading rates suggests that treatment with even lower quantities of reagents may be possible to improve the overall cost effectiveness of this approach.

The conclusion of this study is that the SMMS treatment, or similar treatments that provide suitable reagents and pH-control, would allow for disposal of Colorado Lagoon dredge sediment at a confined disposal facility or at an upland Class II or III landfill such as either the Olinda Alpha Landfill in Brea, California or the Puente Hills Landfill in the City of Industry.

6.0 REFERENCES

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APPENDIX E:

CORRESPONDENCE AND RESPONSES TO COMMENTS

PUBLIC REVIEW
DRAFT EA COMMENTS/RESPONSES

LONG BEACH UNIFIED SCHOOL DISTRICT (LBUSD)

Comment #1: This comment introduces the Long Beach Unified School District's (LBUSD) comments and includes a description of the Army Corps of Engineer's (USACE) proposed federal action under consideration, including the dredge, treatment, transport, and disposal of approximately 32,500 cubic yards of sediment from the Colorado Lagoon.

Response: This comment is introductory to comments that follow. The comment is incorrect, however, in stating that the federal actions include the dredge of approximately 32,500 cubic yards of sediment. The federal action under consideration is limited to the transport and disposal of dredge material only. Please see clarifications included in Final Environmental Assessment (EA) sections 1.1, 1.4, and 2.1.

Comment #2: LBUSD requests that the Final EA evaluate potential impacts of the federal action on LBUSD facilities, including Will Rogers Middle School, Lowell Elementary School, and Wilson High School.

Response: Will Rogers Middle School and Lowell Elementary School are located approximately **960** and **1,620** feet from the Lagoon, and approximately **320** and **925** feet from the possible dredge treatment/loading areas within Marine Stadium. Wilson High School is located approximately **1,175** feet from the Lagoon, and approximately **2,940** feet from the possible dredge treatment/loading areas within Marine Stadium.

Please see the discussion below for more information regarding potential noise and traffic effects of the proposed federal action on nearby schools.

Comment #3: LBUSD requests that the noise analysis and mitigation measures in the Final EA consider school hours of operation, which are Monday through Friday 7:00 a.m. to 4:00 p.m. and testing periods (specific dates to be identified) during the school year, to avoid noise and vibration impacts during these time periods.

Response: The potential construction noise impacts on the sensitive land uses adjacent to the proposed construction areas have been evaluated for both the dredge activity proposed to be funded by the USACE, and for the full project build out to be implemented by the City of Long Beach (City).

Noise from the USACE proposed action, the transport and disposal of dredge material, would include noise from the operation of loaders at the Lagoon should the material be loaded on trucks for transport, and/or the operation of loading equipment at Marine Stadium, should the material be transported via barge to the Port of Long Beach (POLB). The Implementation of Environmental Commitments, listed in Section 8.4 of the EA and copied below, would reduce the noise from these sources.

- Haul trucks and construction equipment will be properly maintained and scheduled in order to minimize unsafe and nuisance noise effects to sensitive biological resources, residential areas, and the socioeconomic environment.
- The City Noise Control Officer shall ensure that the Construction Contractor limits construction activity that produces loud or unusual noise that annoys or disturbs a reasonable person of normal sensitivity to between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday and federal holidays, and between 9:00 a.m. and 6:00 p.m. on Saturdays, with no construction activities on Sundays in accordance with the City's Noise Ordinance.
- During all dredging activities, the Project Contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.
- The Project Contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.
- The Construction Contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.
- Prior to initiation of dredge activities, the Director of Parks, Recreation, and Marine shall hold a community pre-construction meeting, in concert with the Construction Contractor, to provide information regarding the construction schedule (which includes dredging activities). The construction schedule information shall include the duration, location, days, and frequency of the dredging activities.
- Noise Coordinator will be available to respond to public complaints about noise. Signs shall be posted at the construction site with the Noise Coordinator's name and a telephone number for individuals to report noise complaints.

There are four dredging options: three wet methods and one dry method. Three of the four options would require that material be hauled to Marine Stadium where it would be treated and loaded onto barges for transport. These options would require the use of heavy construction equipment at Marine Stadium. Sensitive receptors include those residences and schools that may be located within 315 feet of the equipment within Marine Stadium. Sensitive receptors within 315 feet would be exposed to noise levels in excess of the City's daytime exterior noise standard of 70 dBA Lmax. The City of Long Beach Municipal Code allows elevated construction-related noise levels as long as the construction activities are limited to the hours specified in the Noise Ordinance. Rogers Middle and Lowell Elementary Schools are estimated to be approximately **320** and **925** feet from the closest possible dredge treatment/loading areas within Marine Stadium, and would therefore not experience nose levels in excess of the City's daytime exterior noise standard.

The USACE and the City are not able to commit to a construction schedule that excludes construction activity during the school year because of specific environmental scheduling factors (for example, the dredging of the Lagoon and the excavation of the channel would need to be coordinated with the dry weather months and spring tides). However, the USACE and the City are committed to providing the LBUSD advance notice of construction activities. See response to Comment #5 below for more information.

Comment #4: LBUSD requests advanced notice, and an opportunity for input, prior to the USACE preparation of the Construction Traffic Management Plan (CTMP) for the project. The comment further states that the project will result in thousands of truck trips close to schools, which will generate high levels of noise in addition to impacts on the local circulation system. The CTMP must be prepared prior to the start of dredging activities.

Response: It is both the USACE's and the City's intention to include the LBUSD in the pre-construction meeting described in Section 8.4 of the EA, and to provide the LBUSD with formal advanced notice of construction schedules and construction traffic plans. Please see response to Comment #5 below for more information.

The comment notes that there will be a large number of truck trips associated with the USACE action. The haul routes are depicted in Figure 4.4-1 in the EA. The haul routes are near the existing schools. If trucks haul the dredge, they will go north on Park Avenue and make a right turn to go east on 7th Street, at the southeast corner of the Wilson High School site. If trucks (instead of hydraulic methods) are used to convey the dredge from the Lagoon to a barge in Marine Stadium, the trucks will pass by Rogers Middle School on Appian Way. The number of truck trips generally averages approximately 12 trips per day during the dredging activity. To put this number in context, there are currently approximately 15,000 vehicles of average daily traffic (ADT) on Park Avenue and approximately 10,000 ADT on Appian Way. The additional traffic as a result of the dredge activity is less than 1 percent of the total traffic on these roads and will not result in a substantive increase in traffic noise compared to existing conditions.

Comment #5: LBUSD requests formal advanced notice of construction schedules, traffic plan, and public meetings regarding the project.

Response: It is both the USACE's and the City's intention to include LBUSD in the pre-construction meeting described in Section 8.4 of the EA, and to provide the LBUSD with formal advanced notice of construction schedules and construction traffic plans. The USACE and the City are committed to providing the LBUSD advance notice of construction activities. Specifically, the USACE Project Manager and the City Director of Parks and Recreation (or designee) will work with LBUSD staff to inform the LBUSD of construction traffic plans and schedules for the transport of dredge material. The City of Long Beach will manage future public meetings regarding the project implementation.

Comment #6: LBUSD expresses appreciation for the opportunity to participate in the process and a desire to work collaboratively with the USACE and the City.

Response: The USACE looks forward to ongoing coordination with LBUSD, working through the City, with regard to schedules for the transport of dredge material as described in responses above.

long beach unified school district

BUSINESS DEPARTMENT - Business Services
Facilities Development & Planning Branch
Donald K. Allen Building Services Facility
2425 Webster Ave., Long Beach, CA 90810
(562) 997-7550 Fax (562) 595-8644

September 20, 2010

ViaUS Mail and Email
Julian.E.Serafin@usace.army.mil

Josephine R. Axt, Ph.D.
Chief, Planning Division
U.S. Army Corps of Engineers
Los Angeles District
Attention: Julian Serafin (CESPL-PD-RL)
P.O. Box 532711
Los Angeles, California 90053-2325

Re: Comments on U.S. Army Corps of Engineers Draft Environmental Assessment for the Colorado Lagoon Estuary Restoration Project

Dear Ms. Axt,

The Long Beach Unified School District (LBUSD or District) appreciates the opportunity to comment on the Draft Environmental Assessment (DEA) prepared by the U.S. Army Corps of Engineers (USACE) for the Colorado Lagoon Estuary Restoration Project. (Project).

PROJECT DESCRIPTION

According to the USACE Public Notice, dated August 27, 2010, the proposed federal action (Project) under consideration is to dredge, treat, transport and dispose of approximately 32,500 cubic yards of contaminated sediment from the Colorado Lagoon as part of a multi-component project by the City of Long Beach known as the Colorado Lagoon Restoration Project. Disposal of the dredged material would occur at a disposal site within Slip 1 at the Port of Long Beach (POLB). Four alternative methods of dredging and transport are proposed. 1

COMMENTS

Proximity to Schools: The LBUSD requests that the Final Environmental Assessment (EA) evaluate potential impacts of the Project on LBUSD facilities, including the following schools:

1. Will Rogers Middle School, 356 Monrovia Avenue, Long Beach CA
2. Lowell Elementary School, 5201 East Broadway, Long Beach, CA
3. Wilson High School, 4400 East 10'h Street, Long Beach, CA

2

These three school sites are located within one-quarter mile of proposed Project activities, which include dredging, stockpiling and transport of contaminated sediment. Project activities have potential to impact sensitive receptors at the nearby schools via air/odor emissions and releases of hazardous constituents from the contaminated sediment, as well as from truck traffic congestion and associated construction noise.

Noise Impacts: The District requests that the noise analysis and mitigation measures in the Final EA consider school hours of operation, which are Monday through Friday 7:00 am to 4:00 pm, and testing periods (specific dates to be identified) during the school year, to avoid noise and vibration impacts during these time periods

3

Traffic Impacts: The District requests advanced notice, and an opportunity for input, prior to the USACOE's preparation of the Construction Traffic Management Plan (CTMP) for the Project.

The Project will result in thousands of truck trips close to LBUSD schools. The DEA indicates these trucks will generate high levels of noise, in addition to impacts on the local circulation system. In response to these impacts, the USACE is required to prepare a CTMP to identify construction traffic routes, hours, controls, and detours – prior to the start of dredging activities.

4

Advanced Notice of Construction Activities: The District hereby requests formal advanced notice of construction schedules, traffic plans, or public meetings regarding the Project.

Based on our review of the proposed alternatives and the DEA analysis, the District is concerned that our ability to fully understand impacts to schools is limited by the absence of definitive information regarding the nature and timing of future construction activities. In particular, we have concerns regarding truck traffic routes and schedules, and the schedule for other noise generating activities during the hours of school operation. The District would like the opportunity to discuss ways to minimize traffic, noise and other impacts to our schools from Project activities.

5

CONCLUSION

The LBUSD appreciates the opportunity to participate in this environmental review process. We look forward to working with the USACE and the City to resolve any concerns in a collaborative manner. If you have any questions please feel free to contact me at (562) 997-7550.

6

Sincerely,

Carri M. Matsumoto
Executive Director
Facilities Development & Planning Branch
Long Beach Unified School District

CM:khr,sa

cc: Chris Steinhauser – LBUSD Superintendent of Schools
Kim Stallings – LBUSD Chief Business & Financial Officer
Karl Rodenbaugh- Planning Center
File

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)

Comment #1: Mention of California sea lions (*Zalophus californianus*) and Pacific harbor seals (*Phoca vitulina*) is only referenced on page 116 of the EA. NOAA requests that additional text describing the nature of the potential impacts to these species be added to the EA or reference to the species be removed from the EA if no adverse impacts are anticipated.

Response: Comment noted. All discussion related to marine mammal species in this document will be deleted. Marine mammals are not present at the site; therefore, they will not be impacted by the proposed project.

Comment #2: Page 23 the EA identifies that the California least tern (*Sterna antillarum browni*) ay be present on the site. This language needs to be consistent with the language provided on page 124 of the EA regarding presence of threatened and endangered species on the site.

Response: Comment noted. Text in the Final EA was revised so that the two sections are consistent. Section 10.4 Federal Endangered Species Act of 1972, Section 7(c), was correct to clearly state: "The only threatened and endangered species which may occur at the Colorado Lagoon during construction activities is the California lest tern (*Sterna antillarum browni*). However, based on the results of the study conducted by Keane, the Lagoon is considered to rarely support foraging least turns (Keane, 2004). Additionally, construction activities for the federal project (transportation and disposal of treated sediments) would have no effect on foraging by the California least tern at the Colorado Lagoon. The USACE has determined that no listed species will be adversely affected by this project. Therefore, consultation with USFWS pursuant to Section 7(c) of the FESA is not required.

The Los Angeles County Department of Public Works is proposing to replace and reroute the TAD that currently drains to the Lagoon. 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 proposed TADP would contain two key components: the storm drain to Marine Stadium and the diversion system to the County Sanitation District sewer line. The construction was initiated in the fall of 2009 and will continue over a period of approximately 26 months. The TAD is a major outfall structure that consists of two side-by-side storm water drainage lines. The project is extending and rerouting the drain to empty into Marine Stadium, thereby bypassing the Lagoon. The TAD has been identified as a primary source of the contamination detected in the Lagoon. The TADP would also intercept three additional drain pipes that currently discharge into the Lagoon. The combined effects of these projects would benefit water quality within the Lagoon. The additional measures included within this proposed project would provide long-term benefits to water quality, habitat restoration, and recreation.

The USACE concludes that the project will not result in any operational/long-term cumulative impacts. All cumulative impacts associated with the project will be temporary/short-term and associated with construction activities.

The following is a discussion of short-term cumulative project impacts:

- **Air Quality:** Construction of the project would contribute cumulatively to the local and regional air pollutants, together with other projects under construction. The project would result in short-term construction-related air quality impacts pertaining to NO_X emissions. Thus, it is anticipated that these additional NO_X emissions would result in short-term cumulative air quality impacts. The proposed action would also contribute to adverse cumulative air quality impacts because construction activity would result in additional emissions of pollutants, which may exacerbate ambient levels currently in excess of applicable NAAQS or CAAQS for O_3.
- **Biological Resources:** Short-term impacts to biological resources resulting from the construction phase of the TADP include potential impacts to nesting birds as a result of tree removal, potential impacts to eelgrass in Marine Stadium as a result of permanent removal and turbidity related to construction, potential impacts to native landscaping, potential impacts to intertidal and benthic invertebrate species due to turbidity and sediment loading, permanent loss of benthic invertebrate biomass and goby biomass within the footprint of the outlet structure, and potential impacts to California sea lions (*Zalophus californianus*) and Pacific harbor seals (*Phoca vitulina*). The TADP recirculated Draft EIR (County of Los Angeles 2008) has determined that the TADP will not have any cumulative impacts associated with biological resources. Therefore, cumulatively, the projects will not have an adverse effect on biological resources.

  Impacts to wildlife and plant species will not result in significant contributions to cumulative impacts on any species. Impacts to species and habitats as a result of project

Comment [sll1]: This is the only mention of these marine mammal species in this document. It may be helpful to add some text describing the nature of any potential impacts, which may be de minimus, or to delete mention of these species in this section if there are not any expected adverse impacts.

to the Port of Long Beach. That permit action contains a Section 404(b)(1) Evaluation which covers the discharge portion of this project. As such, the project is in full compliance with the provisions of the CWA.

10.3 COASTAL ZONE MANAGEMENT ACT OF 1976 (PL 92-583; 16 USC 1456 ET SEQ.)

As a Federal agency, the Los Angeles District USACE is responsible for ensuring project compliance with the Federal Coastal Zone Management Act of 1972 (CZMA). Section 307 of the CZMA [Title 16, U.S. Code Section 1456(c)] states that Federal Actions must be consistent with approved state coastal management programs to the maximum extent practicable. The California Coastal Act (CCA) is California's approved coastal management program applicable to the Proposed Action.

The USACE has completed an Environmental Assessment that (1) identifies and discusses the purpose and needs related to this action, (2) evaluates alternatives, and (3) addresses the impacts of the proposed project and alternatives as part of the decision process. The determination of consistency with the CCA is based on the analysis performed for this EA. This EA was prepared in compliance with the Council on Environmental Quality (CEQ) Regulations (40 CFR 1500–1508) and the procedural provisions of Section 102(2) (c) of NEPA, 42 USC 4321, as amended.

The CCA establishes CCC as having jurisdiction over California's Coastal Zone. The CCC issued Coastal Development Permit (CDP) 5-09-071 on August 20, 2009, finding that the City's Lagoon Restoration Project, including the proposed dredging action to be funded by the USACE, is consistent with the CCA because it would improve the biological, water quality, and recreation conditions of the Lagoon, a coastal resource. The Los Angeles District has determined that the proposed action is consistent to the maximum extent practicable with the CZMA.

10.4 FEDERAL ENDANGERED SPECIES ACT OF 1972, SECTION 7(C)

Section 7 of the FESA requires that any federal agency authorizing, funding, or carrying out an action that "may affect" a federally listed threatened or endangered species or its designated critical habitat consult with the USFWS prior to commencing with the federal action. Consultation culminates either with a concurrence from the USFWS that the action is not likely to adversely affect the species and/or designated critical habitat, or with a Biological Opinion if the action is likely to result in adverse effects.

Based on surveys conducted in August 2009, no federally listed T&E species are present at the site. No listed species will be adversely affected by this project. Therefore, consultation with USFWS pursuant to Section 7(c) of the FESA is not required. Coordination and

2

Comment [sll3]: On page 23 the document states that California least terns may be present in the site. The language in this section should be edited to be consistent with the language on p. 34

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT CORPS OF ENGINEERS
P.O. BOX 532711
LOS ANGELES, CALIFORNIA 90053-2325

REPLY TO
ATTENTION OF

August 27, 2010

Office of the Chief
Planning Division

Mr. Peter Douglas
Executive Director
California Coastal Commission
45 Fremont, Suite 2000
Attention: Mr. Larry Simon
45 Fremont, Suite 2000
San Francisco, California 94105-2219

Dear Mr. Douglas:

Enclosed for your review and comment is a copy of the Draft Environmental Assessment (Draft EA) for the Colorado Lagoon Estuary Restoration Project, located in the City of Long Beach, Los Angeles County, California. The proposed federal action under consideration by the U.S. Army Corps of Engineers (Corps) is to transport and dispose approximately 32,500 cubic yards of dredged material. The dredging activities proposed for the Lagoon are part of a multicomponent project by the City of Long Beach known as the Colorado Lagoon Restoration Project. The quantity above is associated with the dredging and treatment of the contaminated sediment found in the western and central arms of the Lagoon. Disposal of the dredged material would occur at a disposal site within Slip 1 at the Port of Long Beach (POLB). All excavated material will be treated prior to disposal at the proposed facility.

The Corps is requesting Commission staff concurrence that this letter with its enclosed Draft EA, is intended to serve as the Corps' Consistency Determination. The Corps has determined that the proposed project is consistent, to the maximum extent practicable with the Coastal Zone Management Act of 1976. No federally listed species will be affected nor will their continued existence be jeopardized by project implementation. Formal consultation with the U. S. Fish and Wildlife Service and/or National Marine Fisheries Service is not required.

Please respond with comments on the Draft SEA and staff findings by September 17, 2010. Correspondence may be sent to:

Josephine R. Axt, Ph.D.
Chief, Planning Division
U.S. Army Corps of Engineers
Los Angeles District
P.O. Box 532711
Attention: Julian Serafin (CESPL-PD-RL)
Los Angeles, California 90053-2325

If you have any questions regarding the project, please contact Julian Serafin, Project Environmental Coordinator, at (213) 452-3811.

Thank you for your attention to this document.

Sincerely,

Josephine R. Axt, Ph.D.
Chief, Planning Division

Enclosure

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT CORPS OF ENGINEERS
P.O. BOX 532711
LOS ANGELES, CALIFORNIA 90053-2325

REPLY TO
ATTENTION OF

Office of the Chief
Planning Division

September 17, 2010

Mr. Peter Douglas
Executive Director
California Coastal Commission
Attn: Mr. Mark Delaplaine
45 Fremont, Suite 2000
San Francisco, California 94105

Dear Mr. Douglas:

The U.S. Army Corps of Engineers (Corps) is submitting a Negative Determination (ND) for the Colorado Lagoon Estuary Restoration Project, located in the City of Long Beach, Los Angeles County, California. A cover letter (dated August 27th, 2010) and the Draft Environmental Assessment (DEA) for this project were received by your staff on September 7th, 2010. The Corps requested Commission staff concurrence that this letter with its enclosed DEA, serve as the Corps' Consistency Determination.

Per coordination and discussion with Mr. Mark Delaplaine of your staff on September 13th, 2010, the proposed federal activities for the Colorado Lagoon Estuary Restoration Project meet the criteria for issuance of a ND. The enclosed ND describes the federal action, commits to Coastal Development Permit (5-09-071) conditions applicable to transport and disposal; establishes project consistency with the Coastal Zone Management Act of 1976; identifies adoption of the EA by NOAA/NMFS; and, states that similar activities have been authorized by the Commission in the past.

Your concurrence on this Statement of Negative Determination is appreciated. If you have any questions, please contact Julian Serafin, Project Environmental Coordinator, at 213-452-3811 or julian.e.serafin@usace.army.mil.

Thank you for your consideration in this matter.

Sincerely,

Josephine R. Axt, Ph.D.
Chief, Planning Division

Enclosure

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT CORPS OF ENGINEERS
P.O. BOX 532711
LOS ANGELES, CALIFORNIA 90053-2325

REPLY TO
ATTENTION OF

August 27, 2010

Office of the Chief
Planning Division

DEAR INTERESTED PARTY:

This is to notify you that a Draft Environmental Assessment (DEA) has been completed for the Colorado Lagoon Estuary Restoration Project, located in the City of Long Beach, Los Angeles County, California. The DEA addresses impacts to environmental resources as a result of project implementation.

The proposed federal action under consideration by the U.S. Army Corps of Engineers is to transport and dispose approximately 32,500 cubic yards of dredged material. The dredging activities proposed for the Lagoon are part of a multicomponent project by the City of Long Beach known as the Colorado Lagoon Restoration Project. The quantity above is associated with the dredging and treatment of the contaminated sediment found in the western and central arms of the Lagoon. Disposal of the dredged material would occur at a disposal site within Slip 1 at the Port of Long Beach (POLB). All excavated material will be treated prior to disposal at the proposed facility.

Copies of this document are available for your review at the following public libraries: Long Beach Public Library, Main Library, 101 Pacific Avenue; Brewitt Neighborhood Library, 4036 E. Anaheim Street; and, Bay Shore Neighborhood Library, 195 Bay Shore Avenue, Long Beach. If you have comments on the proposed project, please forward them by **September 17, 2010** to:

Josephine R. Axt, Ph.D.
Chief, Planning Division
U.S. Army Corps of Engineers
Los Angeles District
P.O. Box 532711
Attention: Julian Serafin (CESPL-PD-RL)
Los Angeles, California 90053-2325

If you have any questions regarding the project, or would like to request a copy of the DEA, please contact Julian Serafin, Project Environmental Coordinator, at (213) 452-3811.

Thank you for your attention to this document.

Sincerely,

Josephine R. Axt, Ph.D.
Chief, Planning Division

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT CORPS OF ENGINEERS
P.O. BOX 532711
LOS ANGELES, CALIFORNIA 90053-2325

REPLY TO
ATTENTION OF

August 27, 2010

Office of the Chief
Planning Division

Mr. Michael Lyons
California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, California 90013

Dear Mr. Lyons:

Enclosed for your review and comment is a copy of the Draft Environmental Assessment (Draft EA) for the Colorado Lagoon Estuary Restoration Project, located in the City of Long Beach, Los Angeles County, California. The proposed federal action under consideration by the U.S. Army Corps of Engineers (Corps) is to transport and dispose approximately 32,500 cubic yards of dredged material. The dredging activities proposed for the Lagoon are part of a multicomponent project by the City of Long Beach known as the Colorado Lagoon Restoration Project. The quantity above is associated with the dredging and treatment of the contaminated sediment found in the western and central arms of the Lagoon. Disposal of the dredged material would occur at a disposal site within Slip 1 at the Port of Long Beach (POLB). All excavated material will be treated prior to disposal at the proposed facility.

This letter is to request your review and, if necessary, written approval for this project. This letter, and the enclosed Draft EA, also satisfy the requirements of the Clean Water Act to request Section 401 Certification, pursuant to 33 CFR 336.1(a)(1).

Please respond with comments on the Draft EA by September 17, 2010. If substantive comments have not been received by October 18, 2010, the Corps will assume a waiver of 401 Certification and proceed with the project. Correspondence may be sent to:

Josephine R. Axt, Ph.D.
Chief, Planning Division
U.S. Army Corps of Engineers
Los Angeles District
P.O. Box 532711
Attention: Julian Serafin (CESPL-PD-RL)
P.O. Box 532711
Los Angeles, California 90053-2325

If you have any questions regarding the project, please contact Julian Serafin, Project Environmental Coordinator, at (213) 452-3811.

Thank you for your attention to this document.

Sincerely,

Josephine R. Axt, Ph.D.
Chief, Planning Division

Enclosure

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT CORPS OF ENGINEERS
P.O. BOX 532711
LOS ANGELES, CALIFORNIA 90053-2325

REPLY TO
ATTENTION OF

August 27, 2010

Office of the Chief
Planning Division

Mr. Rodney R. McInnis
Acting Regional Administrator
National Marine Fisheries Service
501 West Ocean Blvd., Suite 4200
Attention: Bryant Chesney
Long Beach, California 90802-4221

Dear Mr. McInnis:

Enclosed for your review and comment is a copy of the Draft Environmental Assessment (Draft EA) for the Colorado Lagoon Estuary Restoration Project, located in the City of Long Beach, Los Angeles County, California. The proposed federal action under consideration by the U.S. Army Corps of Engineers is to transport and dispose approximately 32,500 cubic yards of dredged material. The dredging activities proposed for the Lagoon are part of a multicomponent project by the City of Long Beach known as the Colorado Lagoon Restoration Project. The quantity above is associated with the dredging and treatment of the contaminated sediment found in the western and central arms of the Lagoon. Disposal of the dredged material would occur at a disposal site within Slip 1 at the Port of Long Beach (POLB). All excavated material will be treated prior to disposal at the proposed facility.

Please review the enclosed Draft EA. This letter also requests your review and written comments for this project, pursuant to the Magnuson-Stevens Fishery Conservation and Management Act, as amended.

Please respond with comments on the Draft EA and staff findings by September 17, 2010. Correspondence may be sent to:

Josephine R. Axt, Ph.D.
Chief, Planning Division
U.S. Army Corps of Engineers
Los Angeles District
P.O. Box 532711
Attention: Julian Serafin (CESPL-PD-RL)
Los Angeles, California 90053-2325

If you have any questions regarding the project, please contact Julian Serafin, Project Environmental Coordinator, at (213) 452-3811.

Thank you for your attention to this document.

Sincerely,

Josephine R. Axt, Ph.D.
Chief, Planning Division

Enclosure

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT CORPS OF ENGINEERS
P.O. BOX 532711
LOS ANGELES, CALIFORNIA 90053-2325

REPLY TO
ATTENTION OF

August 27, 2010

Office of the Chief
Planning Division

DEAR INTERESTED PARTY:

This is to notify you that a Draft Environmental Assessment (DEA) has been completed for the Colorado Lagoon Estuary Restoration Project, located in the City of Long Beach, Los Angeles County, California. The DEA addresses impacts to environmental resources as a result of project implementation.

The proposed federal action under consideration by the U.S. Army Corps of Engineers is to transport and dispose approximately 32,500 cubic yards of dredged material. The dredging activities proposed for the Lagoon are part of a multicomponent project by the City of Long Beach known as the Colorado Lagoon Restoration Project. The quantity above is associated with the dredging and treatment of the contaminated sediment found in the western and central arms of the Lagoon. Disposal of the dredged material would occur at a disposal site within Slip 1 at the Port of Long Beach (POLB). All excavated material will be treated prior to disposal at the proposed facility.

Copies of this document are available for your review at the following public libraries: Long Beach Public Library, Main Library, 101 Pacific Avenue; Brewitt Neighborhood Library, 4036 E. Anaheim Street; and, Bay Shore Neighborhood Library, 195 Bay Shore Avenue, Long Beach. If you have comments on the proposed project, please forward them by **September 17, 2010** to:

Josephine R. Axt, Ph.D.
Chief, Planning Division
U.S. Army Corps of Engineers
Los Angeles District
P.O. Box 532711
Attention: Julian Serafin (CESPL-PD-RL)
Los Angeles, California 90053-2325

If you have any questions regarding the project, or would like to request a copy of the DEA, please contact Julian Serafin, Project Environmental Coordinator, at (213) 452-3811.

Thank you for your attention to this document.

Sincerely,

Josephine R. Axt, Ph.D.
Chief, Planning Division

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT CORPS OF ENGINEERS
P.O. BOX 532711
LOS ANGELES, CALIFORNIA 90053-2325

REPLY TO
ATTENTION OF

August 27, 2010

Office of the Chief
Planning Division

Mr. William Miller
U.S. Department of the Interior
Fish and Wildlife Service
2730 Loker Avenue West
Carlsbad, California 92008

Dear Mr. Miller:

Enclosed for your review and comment is a copy of the Draft Environmental Assessment (Draft EA) for the Colorado Lagoon Estuary Restoration Project, located in the City of Long Beach, Los Angeles County, California. The proposed federal action under consideration by the U.S. Army Corps of Engineers is to transport and dispose approximately 32,500 cubic yards of dredged material. The dredging activities proposed for the Lagoon are part of a multicomponent project by the City of Long Beach known as the Colorado Lagoon Restoration Project. The quantity above is associated with the dredging and treatment of the contaminated sediment found in the western and central arms of the Lagoon. Disposal of the dredged material would occur at a disposal site within Slip 1 at the Port of Long Beach (POLB). All excavated material will be treated prior to disposal at the proposed facility.

This letter requests your review and written comments for this Draft EA. Comments should be forwarded by September 17, 2010 and should be sent to:

Josephine R. Axt, Ph.D.
Chief, Planning Division
U.S. Army Corps of Engineers
Los Angeles District
P.O. Box 532711
Attention: Julian Serafin (CESPL-PD-RL)
Los Angeles, California 90053-2325

If you have any questions regarding the project, please contact Julian Serafin, Project Environmental Coordinator, at (213) 452-3811.

Thank you for your attention to this document.

Sincerely,

Josephine R. Axt

Josephine Axt
Chief, Planning Division

Enclosure

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse and Planning Unit

Arnold Schwarzenegger
Governor

Cathleen Cox
Acting Director

September 21, 2010

Julian Serafin
U.S. Army Corps of Engineers
915 Wilshire Boulevard
Los Angeles, CA 90017

Subject: Colorado Lagoon Estuary Restoration Project
SCH#: 2010094001

Dear Julian Serafin:

The State Clearinghouse submitted the above named Environmental Assessment to selected state agencies for review. The review period closed on September 20, 2010, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Scott Morgan
Director, State Clearinghouse

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL (916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH# 2010094001
Project Title Colorado Lagoon Estuary Restoration Project
Lead Agency U.S. Army Corps of Engineers

Type EA Environmental Assessment
Description NOTES: Review per Lead/ Ref. SCH# 2007111034

The proposed federal action under consideration by the US Army Corps of Engineers is to transport and dispose approximately 32,500 cubic yards of dredged material. The dredging activities proposed for the Lagoon are part of a multi-component project by the City of Long Beach known as the Colorado Lagoon Restoration Project. The quantity above is associated with the dredging and treatment of the contaminated sediment found in the western and central arms of the Lagoon.

Lead Agency Contact

Name Julian Serafin
Agency U.S. Army Corps of Engineers
Phone (213) 452-3811 **Fax**
email
Address 915 Wilshire Boulevard
City Los Angeles **State** CA **Zip** 90017

Project Location

County Los Angeles
City Long Beach
Region
Lat / Long
Cross Streets Appian Way & Park Ave
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways
Airports
Railways
Waterways Pacific Ocean
Schools
Land Use Recreational Site

Project Issues Aesthetic/Visual; Air Quality; Archaeologic-Historic; Noise; Recreation/Parks; Traffic/Circulation; Vegetation; Water Quality; Wildlife; Landuse; Cumulative Effects; Other Issues

Reviewing Agencies Resources Agency; California Coastal Commission; Department of Fish and Game, Region 5; Department of Parks and Recreation; Department of Water Resources; Resources, Recycling and Recovery; California Highway Patrol; Caltrans, District 7; Regional Water Quality Control Board, Region 4; Department of Toxic Substances Control; Native American Heritage Commission; State Lands Commission

Date Received 09/03/2010 **Start of Review** 09/03/2010 **End of Review** 09/20/2010

Note: Blanks in data fields result from insufficient information provided by lead agency.

STATE OF CALIFORNIA -- NATURAL RESOURCES AGENCY ARNOLD SCHWARZENEGGER, *Governor*

CALIFORNIA COASTAL COMMISSION
45 FREMONT STREET, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE AND TDD (415) 904-5200

October 5, 2010

Josephine R. Axt, Ph.D.
Chief, Planning Division
U.S. Army Corps of Engineers
ATTN: Julian Serafin
P.O. Box 532711
Los Angeles, CA 90053-2325

Re: **ND-049-10,** Negative Determination, Army Corps of Engineers, Colorado Lagoon Estuary Restoration, Long Beach, Los Angeles Co.

Dear Ms. Axt:

The Coastal Commission staff has reviewed the above-referenced negative determination for the Army Corps' participation in the Colorado Lagoon Estuary Restoration Project. The activity is being carried out primarily by the City of Long Beach, which has received a Commission-issued coastal development permit for the activity. The Army Corps is providing funding and carrying out certain aspects of the restoration project, including transporting and disposing approximately 32,500 cu. yds. of material being dredged from the western and central arms of the lagoon. The Corps will dispose of the material in Slip 1 in the Port of Long Beach. The coastal impacts have been addressed in the Commission-issued coastal development permit for the activity (CDP 5-09-071), and the Corps has agreed in its negative determination to comply with all of the Commission's conditions that are applicable to the work the Corps is carrying out, including those relating to water quality monitoring.

Under the federal consistency regulations, a negative determination can be submitted for an activity "which is the same as or similar to activities for which consistency determinations have been prepared in the past." The Commission staff **agrees** with the Corps that the Corps-proposed activities are the same those analyzed in the above-referenced CDP 5-09-071. While technically not a consistency determination, under the California Coastal Management Program, a Commission-issued CDP can serve as and be the equivalent of a consistency determination. We therefore **concur** with your negative determination made pursuant to 15 CFR Section 930.35 of the NOAA implementing regulations. Please contact Mark Delaplaine of the Commission staff at (415) 904-5289 if you have any questions regarding this matter.

Sincerely,

(for) PETER M. DOUGLAS
Executive Director

cc: Long Beach District Office
City of Long Beach (Eric Lopez)