

PUBLIC REVIEW DRAFT • AUGUST 2009

RIVER AVENUE STORM DRAIN IMPROVEMENTS

Initial Study/Mitigated Negative Declaration/
Environmental Assessment



Prepared For:
City of Long Beach

Prepared By:

RBF
CONSULTING

PUBLIC REVIEW DRAFT
**INITIAL STUDY/ MITIGATED NEGATIVE DECLARATION/
ENVIRONMENTAL ASSESSMENT**

River Avenue Storm Drain Improvements Project

LEAD AGENCY:

City of Long Beach
333 West Ocean Boulevard
Long Beach, California 90802
Contact: *Mr. Mark Christoffels*
562.570.6771

PREPARED BY:

RBF Consulting
14725 Alton Parkway
Irvine, California 92618
Contact: *Mr. Glenn Lajoie, AICP*
949.472.3505

August 3, 2009

JN 10-106837

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PART I

CEQA INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

**PUBLIC REVIEW DRAFT
PART I
INITIAL STUDY/ MITIGATED NEGATIVE DECLARATION**

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1.0 INTRODUCTION

The proposed River Avenue Storm Drain Improvements Project (herein referenced as the “project”) is located within the City of Long Beach (City) and involves improvements to the River Avenue storm drain system. The project generally extends from the intersection of Wardlow Road and River Avenue to the Southern California Edison (SCE) easement, located south of Arlington Street.

Following a preliminary review of the proposed project, the City of Long Beach determined that the improvements are subject to the guidelines and regulations of the California Environmental Quality Act (CEQA). The City has determined an Initial Study/Mitigated Negative Declaration (IS/MND) to be the appropriate level of environmental analysis under the provisions of CEQA. As the City is seeking project funding from the U.S. Department of Housing and Urban Development (HUD), the proposed project is also subject to environmental review under the National Environmental Policy Act (NEPA). Enclosed as Part 2 of this document is the Environmental Assessment (EA), which was prepared in compliance with the guidelines and regulations of NEPA.

1.1 STATUTORY AUTHORITY AND REQUIREMENTS

California Environmental Quality Act

In accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Sections 21000-21177) and pursuant to Section 15063 of Title 14 of the California Code of Regulations (CCR), the City of Long Beach, acting in the capacity of Lead Agency, is required to undertake the preparation of an Initial Study to determine whether the proposed project would have a significant environmental impact. If the Lead Agency finds that there is no evidence that the project, either as proposed or as modified to include the mitigation measures identified in the Initial Study, may cause a significant effect on the environment, the Lead Agency shall find that the proposed project would not have a significant effect on the environment and shall prepare a Negative Declaration (or Mitigated Negative Declaration) for that project. Such determination can be made only if “there is no substantial evidence in light of the whole record before the Lead Agency” that such impacts may occur (Section 21080(c), Public Resources Code).

The environmental documentation, which is ultimately approved and/or certified by the City in accordance with CEQA, is intended as an informational document undertaken to provide an environmental basis for subsequent discretionary actions upon the project. However, the resulting documentation is not a policy document, and its approval and/or certification neither presupposes nor mandates any actions on the part of those agencies from whom permits and other discretionary approvals would be required.

1.2 PURPOSE

Section 15063 of the CEQA Guidelines identifies specific disclosure requirements for inclusion in an Initial Study. This Initial Study addresses the direct, indirect, and



cumulative environmental effects of the project, as proposed, under CEQA. Pursuant to those requirements, an Initial Study shall include:

- A description of the project, including the location of the project;
- Identification of the environmental setting;
- Identification of environmental effects by use of a checklist, matrix, or other method, provided that entries on a checklist or other form are briefly explained to indicate that there is some evidence to support the entries;
- Discussion of ways to mitigate significant effects identified, if any;
- Examination of whether the project is compatible with existing zoning, plans, and other applicable land use controls; and
- The name(s) of the person(s) who prepared or participated in the preparation of the Initial Study.

1.3 INCORPORATION BY REFERENCE

The references outlined below were utilized during preparation of this Initial Study. The documents are available for review at the City of Long Beach Community Development Department, located at 333 West Ocean Boulevard, Long Beach, California 90802.

- *City of Long Beach General Plan*. The *City of Long Beach General Plan (General Plan)* is the long-range planning guide for growth and development for the City. The *General Plan* sets forth the goals, policies, and directions the City will take in managing its future. The *General Plan* is the citizens' blueprint for development; the guide to achieving the City's vision. It is a comprehensive document that addresses seven mandatory elements/issues in accordance with State law. These elements include Land Use, Housing, Circulation, Conservation, Open Space, Noise, and Safety. Other optional issues that affect the City, including Air Quality, Scenic Routes, Seismic Safety, and a Local Coastal Program, have also been addressed in the *General Plan*.

Each element of the *General Plan* was adopted as follows:

- Land Use Element (1989);
- Transportation Element (1991);
- Open Space and Recreation Element (2002);
- Public Safety Element (1975);
- Housing Element (2009);
- Noise Element (1975);
- Conservation Element (1973);
- Air Quality Element (1996);
- Scenic Routes Element (1975); and
- Local Coastal Program (1980).



The *General Plan* was utilized throughout this document as the fundamental planning document governing development on the project site. Background information and policy information from the *General Plan* is cited in several sections of this document.

- *City of Long Beach Municipal Code (enacted April 21, 2009)*. The *City of Long Beach Municipal Code (Municipal Code)*, enacted April 21, 2009, consists of regulatory, penal, and administrative ordinances of the City. It is the method the City uses to implement control of land uses, in accordance with *General Plan* goals and policies. The City Zoning Code, Title 21 of the *Municipal Code*, identifies land uses permitted and prohibited according to the zoning category of particular parcels. The Buildings and Construction Code (Title 18) specifies rules and regulations for construction, alteration, and building for uses of human habitation. Title 20, Subdivisions, is also regulated within the City's *Municipal Code*.



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2.0 PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The City of Long Beach (City) is located in the southern portion of Los Angeles County; refer to [Exhibit 2-1, *Regional Vicinity*](#). The River Avenue Storm Drain Project (herein referenced as the “project”) involves approximately 1,800 linear feet of improvements. The proposed improvements extend from the intersection of Wardlow Road and River Avenue to the Southern California Edison (SCE) easement, located to the south of Arlington Street; refer to [Exhibit 2-2, *Local Vicinity*](#).

2.2 ENVIRONMENTAL SETTING

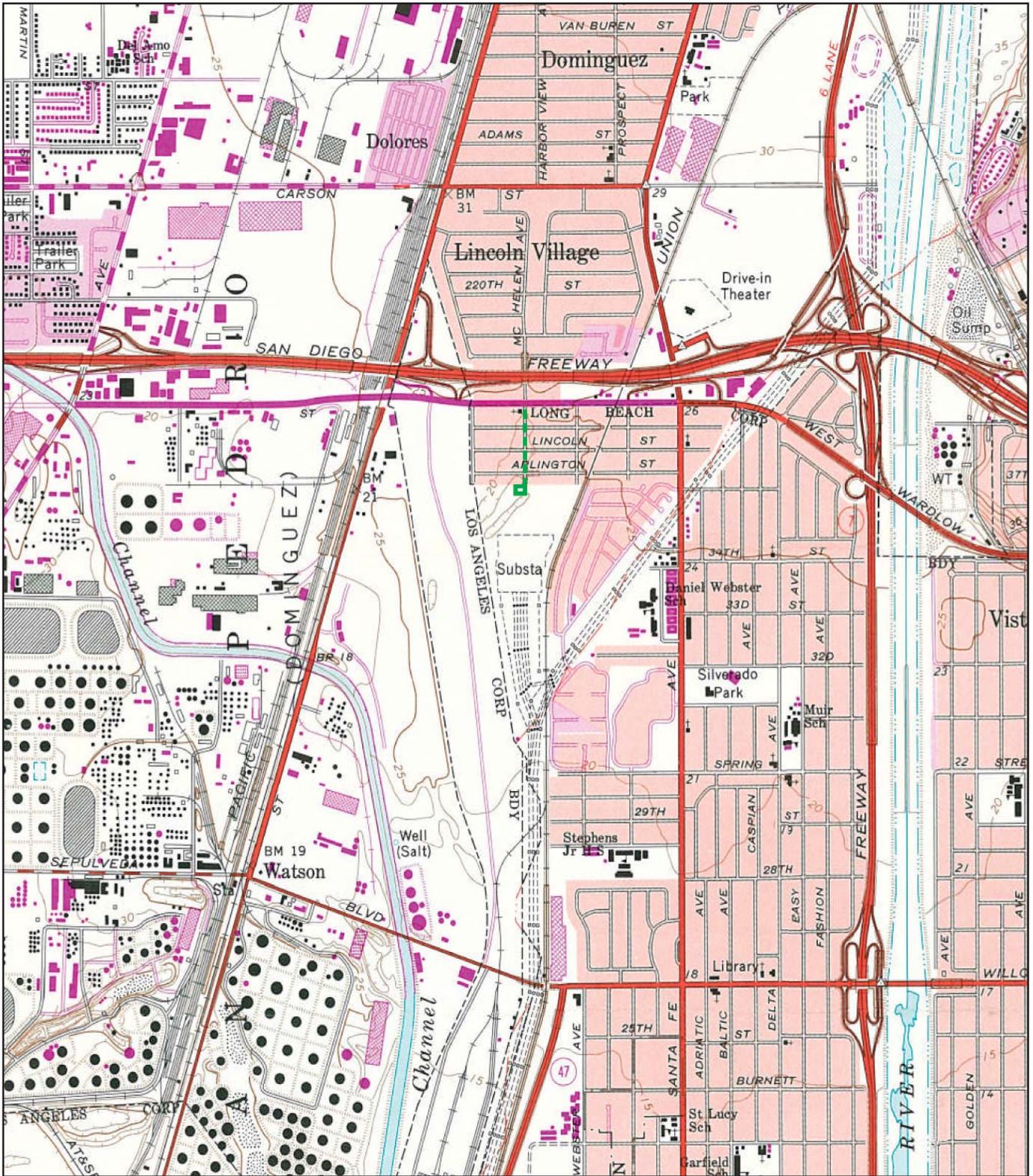
2.2.1 Existing Land Uses

An existing storm drain facility extends along River Avenue and continues in a south-southwestern direction, within the SCE property. The following describes conditions in the project area:

- North. Land uses to the north include single-family residential uses. Wardlow Road/223rd Street is located to the north and trends east/west. Interstate 405 (I-405) trends north of the project area.
- East. Single- and multi-family residential uses, institutional uses, and the Union Pacific Railroad (UPRR) are in proximity to the east.
- South. Land uses to the south include SCE property (with a substation facility). To the south of the project area is the Dominguez Channel, and Pacific Ocean.
- West. Land uses to the west include single-family residential, the Union Pacific Intermodal Transfer Container Facility, and UPRR.

2.2.2 Existing Storm Water Drainage System

The existing River Avenue Storm Drain system traverses the cities of Long Beach, Los Angeles, and Carson and includes approximately 5,700 linear feet of 42- to 60-inch reinforced concrete pipe (RCP). The system provides drainage for a 237-acre watershed from Carson Street, at the upstream end of the watershed area, to the Dominguez Channel (along McHelen Avenue, River Avenue, and the previous Orange County Nursery). The existing storm drain design was based on hydrology that was completed in 1957 and consists of the following components:



Source: USGS Map.
 --- Site Limits

NOT TO SCALE



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RIVER AVENUE STORM DRAIN IMPROVEMENTS
 INITIAL STUDY/MITIGATED NEGATIVE DECLARATION/ENVIRONMENTAL ASSESSMENT
Local Vicinity

Exhibit 2-2



- 5,700 feet of 42- to 60-inch RCP;
- Various lengths of 8- to 21-inch RCP connector pipes;
- Catch basin curb inlets located on Arlington Street and River Avenue; and
- A surface drain on the SCE property.

The 5-year flow rate for the mainline along River Avenue, upstream from Arlington Street, is 105 cubic feet per second (cfs). Based on 2005 hydrologic conditions, it was determined that the existing storm drain has a capacity of approximately 80 cfs at the intersection of Arlington Street and River Avenue. However, the catch basins along River Avenue are restricted and collect only 65 cfs. As the flow approaches the intersection of River Avenue and Arlington Street, the surface flow partially diverts toward the sump along Arlington Street (a 50 percent split occurs). The excess surface flow (approximately 40 cfs) that is not accommodated by the drainage system flows into a sump area on Arlington Street and onto adjacent properties (i.e., adjoining residential uses). The inadequate drainage system has resulted in several flooding occurrences.

2.3 BACKGROUND AND HISTORY

Residents in the low-lying 2300 block of Arlington Street (located in a sump) have experienced damage to homes and vehicles as a result of flooding events along the River Avenue storm drain segment. The sump is drained by two existing catch basins, and flows are conveyed through a 21-inch RCP connector pipe that outlets into the 60-inch RCP. The neighborhood has experienced flooding seven times in the last 22 years. The City has installed speed bumps at either end of Arlington Street in an attempt to divert storm water from the neighborhood and reduce the flooding severity and frequency. Other preventive measures and actions taken by the City to address Arlington Street flooding include the following:

- Improvements to existing catch basins to increase inlet capacity to 80 cfs;
- Clearing of the culvert on the SCE property;
- Removal of trees on the SCE property;
- Sandbags placed around the culvert;
- Public Works inspection of storm drains and debris removal;
- City inspection of storm drain outlets to the Dominguez Channel; and
- Public outreach meetings with City staff and residents regarding Arlington Street flooding.

Recurring flooding incidents have resulted in tens of thousands of dollars in home renovations and subsequent litigation. Flooding severity did increase when a retaining wall was built on the SCE property. Excess surface flows drained into the fields south of Arlington Street. However, the development to the south of Arlington Street has enclosed the neighborhood and restricted flows.

In 2007, the Los Angeles County Department of Public Works, Storm Drain Division, conducted a drainage study of the area for the City of Long Beach. The report concluded that the existing 60-inch storm drain pipe that collects storm water from the project area, as well as the adjoining SCE property and carries storm water flows



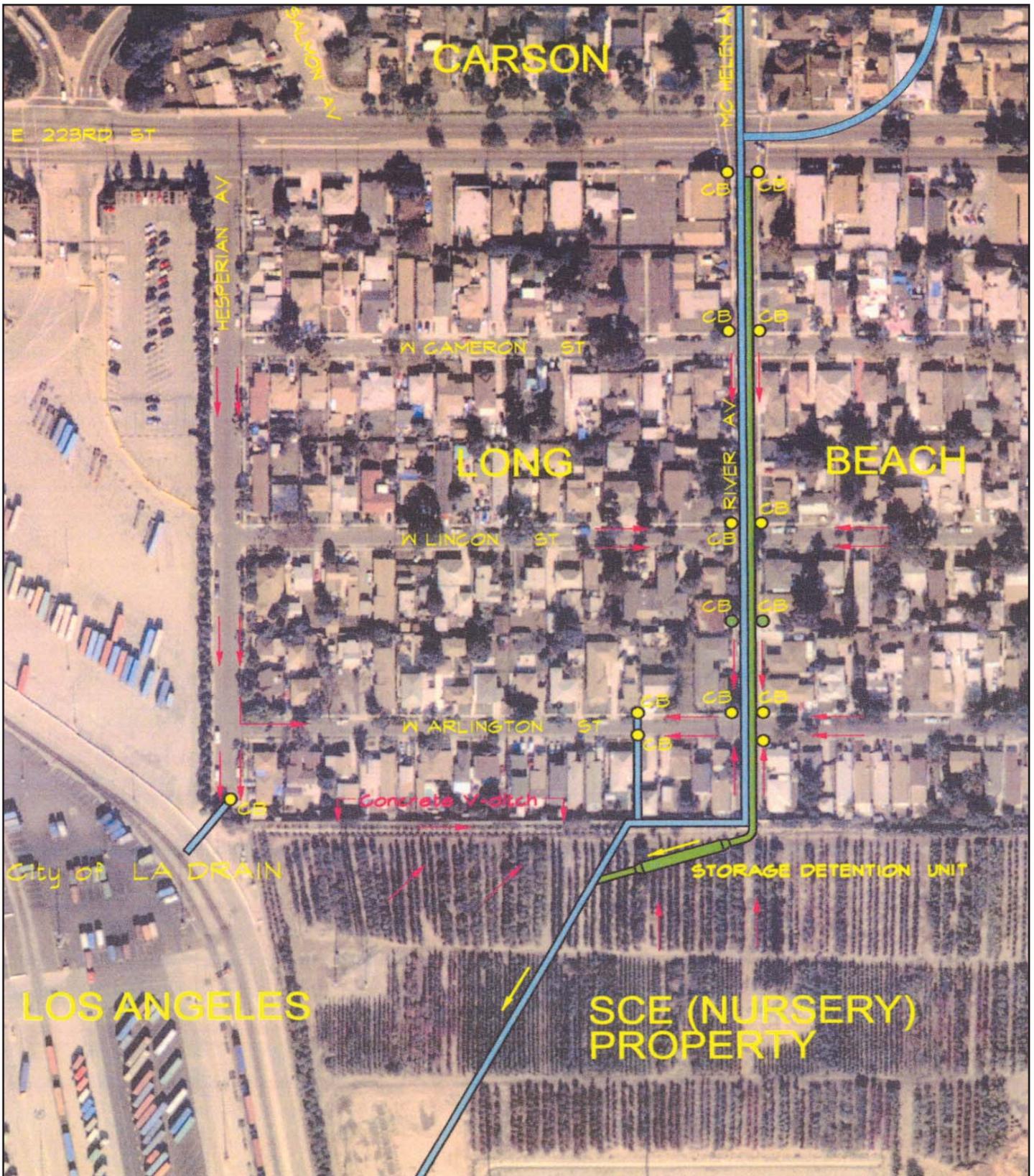
to the Dominguez Channel, is undersized, providing less than a five year protection level. The proposed project, the subject of this Initial Study, would increase flood protection in the Arlington Street neighborhood and alleviate current flooding hazards. The original project proposed a 5-year frequency storm protection system as part of the previous design concept. The excess flow rate of 40 cfs along River Avenue would be collected by two new upgraded catch basins constructed upstream of Arlington Street along River Avenue. The existing drain would capture 15 cfs and the remaining 25 cfs would be directed to a proposed retention system. Following subsequent analysis of the proposed 5-year frequency storm protection system, the proposed project has been revised to provide a 10-year protection level.

2.4 PROJECT CHARACTERISTICS

The inadequate River Avenue drainage system has resulted in flooding to adjacent residents. The project proposes to bring the flood protection in this area to a full 10 year protection level. The proposal involves construction of a parallel storm drain system along River Avenue (which is located from Wardlow Road/223rd Street to the north to an underground storage [detention] basin proposed on the SCE property). The detention basin would temporarily hold two acre-feet of storm water during heavy flows and then release the flows as the storm abates. The proposed detention basin would allow the downstream pipe to no longer flow full.

The existing storm drain system was analyzed to determine the level of flooding if a 10-year frequency storm occurred. The 10-year reported flow rate at the intersection of River Avenue and Arlington Street is 144 cfs. The proposed retention system combined with the existing drain system is anticipated to accept 105 cfs at the intersection. The excess surface runoff of 39 cfs would be above the property lines. In order to provide the desired 10-year frequency flood protection, a retention system consisting of 3,148 linear feet of 72-inch diameter RCP or high-density polyethylene (HDPE) and 317 linear feet of 30-inch diameter RCP or HDPE with seven additional catch basins would be necessary; refer to [Exhibit 2-3, Site Plan](#). The City has elected to proceed with the 10-year frequency flood level protection. The project consists of the following elements:

- Construction of 1,021 feet of 48-inch reinforced concrete pipe along River Avenue, from Wardlow Road to the SCE property.
- Modification of five street level catch basins along River Avenue including the installation of trash and bacteria filters.
- Construction of six new street level catch basins along River Avenue including the installation of trash and bacteria filters.
- Construction of a detention system consisting of five 84-inch corrugated metal pipes, each 430 feet in length to be located within a dedicated easement on property owned by SCE in order to retain two acre-feet of storm drain flows.



Source: Los Angeles County Public Works.

- - Surface Flow Direction
- Storm Drain
- - Catch Basin

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RIVER AVENUE STORM DRAIN IMPROVEMENTS
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Site Plan

Exhibit 2-3



- Modification of a surface inlet on the SCE property with a debris deflector.
- Construction of connecting pipes from the existing storm drain system to the detention system.
- Relocation of waterlines and gas lines along River Avenue.
- Preparation of a traffic control plan.

Construction equipment staging would be located on the SCE property. The proposed construction would consist of a 5-foot wide trench along River Avenue, from Wardlow Road to the SCE property, as well as 5-foot wide trenches on the SCE property, in order to accommodate the detention pipes. Approximately 1,250 square feet of asphalt would be hauled to an off-site location. Approximately 4,500 cubic yards of excavated soil would be deposited on the SCE property.

2.5 PROJECT PHASING

The project phasing would be as follows:

- Phase 1: Construction of the parallel drain on River Avenue
- Phase 2: Construction of the storm drain retention system

The project construction time frame would be as follows:

- Demolition – November 1, 2009 to December 15, 2009
- Trenching – November 1, 2009 to February 1, 2010
- Paving – December 30, 2009

2.6 AGREEMENTS, PERMITS, AND APPROVALS

The City and other applicable agency approvals required for development of the project would include the following, among others:

- California Environmental Quality Act clearance; and
- U.S. Department of Housing and Urban Development clearance.

The City would be acquiring a permanent drainage and temporary construction easement for the retention system from SCE.



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3.0 INITIAL STUDY CHECKLIST

3.1 BACKGROUND

1. Project Title:
River Avenue Storm Drain Improvements Project
2. Lead Agency Name and Address:
City of Long Beach 333 West Ocean Boulevard Long Beach, California 90802
3. Contact Person and Phone Number:
Mr. Mark Christoffels Deputy Director of Public Works/City Engineer 562.570.6771
4. Project Location:
The proposed project involves approximately 1,800 linear feet of pipeline infrastructure improvements, generally from the intersection of Wardlow Road and River Avenue to a Southern California Edison (SCE) easement, located to the south of Arlington Street; refer to <u>Exhibit 2-2, Local Vicinity</u> .
5. Project Sponsor's Name and Address:
Department of Public Works City of Long Beach 333 West Ocean Boulevard Long Beach, California 90802
6. General Plan Designation:
River Avenue is designated in the Transportation Element of the <i>General Plan</i> as a local roadway; the SCE easement is designated as Rights-of-Way.
7. Zoning Designation:
The portion of the project site located within River Avenue does not have a specific zoning designation; the portion of the project site within the SCE easement is zoned PR (Public Right-of-Way).
8. Description of the Project:
Refer to <u>Section 2.4, Project Characteristics</u> .
9. Surrounding Land Uses and Setting:
Refer to <u>Section 2.1 and 2.3.1, Project Location</u> and <u>Existing Land Uses</u> .
10. Other public agencies whose approval is required (e.g., permits, financing approval or participation agreement):
Refer to <u>Section 2.6, Agreements, Permits, and Approvals</u> .



3.2 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" or "Less Than Significant Impact With Mitigation Incorporated," as indicated by the checklist on the following pages.

	Aesthetics		Land Use and Planning
	Agriculture Resources		Mineral Resources
✓	Air Quality	✓	Noise
	Biological Resources		Population and Housing
✓	Cultural Resources		Public Services
✓	Geology and Soils		Recreation
✓	Hazards & Hazardous Materials		Transportation/Traffic
	Hydrology & Water Quality		Utilities & Service Systems
✓	Mandatory Findings of Significance		

3.3 LEAD AGENCY DETERMINATION

On the basis of this initial evaluation:

I find that the proposed use COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

I find that although the proposal could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described in Section 4.0, *Inventory of Mitigation Measures*, have been added. A MITIGATED NEGATIVE DECLARATION will be prepared.

_____ ✓ _____

I find that the proposal MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

I find that the proposal MAY have a significant effect(s) on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets, if the effect is a "potentially significant impact" or "potentially significant unless mitigated." An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

Signature

Advance Planning Officer
City of Long Beach

Agency

Jill Griffiths

Printed Name

July 31, 2009

Date



3.4 EVALUATION OF ENVIRONMENTAL IMPACTS

This section analyzes the potential environmental impacts associated with the proposed project. The issue areas evaluated in this Initial Study include:

- Aesthetics
- Agriculture Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation/Traffic
- Utilities and Service Systems

The environmental analysis in this section is patterned after the Initial Study Checklist recommended by the *CEQA Guidelines*, as amended, and used by the City of Long Beach in its environmental review process. For the preliminary environmental assessment undertaken as part of this Initial Study's preparation, a determination that there is a potential for significant effects indicates the need to more fully analyze the development's impacts and to identify mitigation.

For the evaluation of potential impacts, the questions in the Initial Study Checklist are stated and an answer is provided according to the analysis undertaken as part of the Initial Study. The analysis considers the long-term, direct, indirect, and cumulative impacts of the development. To each question, there are four possible responses:

- **No Impact.** The development will not have any measurable environmental impact on the environment.
- **Less Than Significant Impact.** The development will have the potential for impacting the environment, although this impact will be below established thresholds that are considered to be significant.
- **Less Than Significant With Mitigation Incorporated.** The development will have the potential to generate impacts, which may be considered as a significant effect on the environment, although mitigation measures or changes to the development's physical or operational characteristics can reduce these impacts to levels that are less than significant.
- **Potentially Significant Impact.** The development could have impacts, which may be considered significant, and therefore additional analysis is required to identify mitigation measures that could reduce potentially significant impacts to less than significant levels.

Where potential impacts are anticipated to be significant, mitigation measures will be required, so that impacts may be avoided or reduced to insignificant levels.



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4.0 ENVIRONMENTAL ANALYSIS

The project is being analyzed in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Sections 21000-21177) and pursuant to Section 15063 of Title 14 of the California Code of Regulations (CCR), the City of Long Beach (City), acting in the capacity of Lead Agency.

The following provides a discussion of the potential project impacts as identified in the Initial Study/Mitigated Negative Declaration (IS/MND). Explanations are provided within each corresponding impact category in this analysis. An Environmental Assessment (EA) has been prepared pursuant to the U.S. Department of Housing and Urban Development (HUD) National Environmental Policy Act (NEPA) guidelines, as HUD would be funding a portion of the proposed project. The EA contains an analysis of the potential environmental impacts that would result from implementation of the proposed project in compliance with NEPA. The analysis contained within the EA includes several references to the project IS/MND where similar impacts have been previously analyzed. The Environmental Assessment can be found in Part 2 of this document.



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4.1 AESTHETICS

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?				✓
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				✓
c. Substantially degrade the existing visual character or quality of the site and its surroundings?			✓	
d. Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?			✓	

a) *Have a substantial adverse effect on a scenic vista?*

No Impact. According to the *City of Long Beach General Plan (General Plan)*, the City has multiple aesthetic visual assets. Visual assets include vistas of the ocean, port facilities, oil islands, Bixby Park, Bluff Park, and other vantage points. Additionally, views from Signal Hill are important visual assets to the City. No identified scenic vistas are located within the viewshed of the proposed project. Views are not afforded to the ocean, or any open space or park within the vicinity of the project site. Therefore, as no scenic vistas are located within the viewshed of the project, no impact would occur.

Mitigation Measures: No mitigation measures are required.

b) *Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?*

No Impact. Although there are no existing designated state scenic highways in the City or within the project area, the California Department of Transportation (Caltrans) has designated Pacific Coast Highway (PCH) as an eligible scenic highway in the southeastern portion of the City. PCH is located approximately five miles to the southeast and is not visible from the project site.

The City's *General Plan* identifies aesthetic assets for historic, cultural, and architectural uses. Historical assets range from two preserved ranches, Rancho Los Cerritos, and Rancho Los Alamitos, to the first oil well "Alamitos 1," located at Signal Hill. Cultural assets include the downtown Civic Center Complex, the Pacific Terrace Center, the Queen Mary, the California State University at Long Beach campus, and the Long Beach City College campuses. Architectural assets include the Villa Riviera, the Greene and Greene residence, the Los Alamitos Rancho adobe, the Art Museum. Although several aesthetic assets are identified in the *General Plan*, none of these resources are located in proximity to the project site or would be affected by the proposed project. Therefore, no impacts would result in this regard.

Mitigation Measures: No mitigation measures are required.



c) ***Substantially degrade the existing visual character or quality of the site and its surroundings?***

Less Than Significant Impact. During project construction activities, the existing visual character of the project site and local area may be temporarily altered. Construction-related activities would be visible from nearby residents. Trenching activities, construction equipment, and truck traffic would be visible. Equipment for construction activities would be staged on the SCE easement, and would not be visible to surrounding residents.

Although construction activities would be visible, the proposed areas of disturbance would remain within existing roadways and the SCE property. Construction activities along River Avenue would be short-term and would cease upon completion. Additionally, implementation of the required permits for the Regional Water Quality Control Board (RWQCB), such as the National Pollution Discharge Elimination System (NPDES), Storm Water Pollution Prevention Plan (SWPPP), as well as the required Best Management Practices (BMPs), would reduce potential impacts from visible dust and track out areas. Therefore, as construction-related activities are anticipated to be short-term, impacts are less than significant.

Upon project completion, views in the project area would remain similar to existing conditions, as the proposed improvements would be located underground. Therefore, long-term visual impacts would also be less than significant.

Mitigation Measures: No mitigation measures are required.

d) ***Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?***

Less Than Significant Impact. There are two primary sources of light: light emanating from building interiors that pass through windows and light from exterior sources (i.e., street lighting, parking lot lighting, building illumination, security lighting, and landscape lighting). Light introduction can be a nuisance to adjacent uses, and diminish the view of the night sky.

Currently, light and glare in the project vicinity is produced by vehicle headlights, street lighting, and lighting from the adjacent residential uses. Also, minimal security lighting associated with the SCE property is currently being emitted at the project site.

In accordance with Title 8, *Health and Safety*, of the City of Long Beach *Municipal Code (Municipal Code)*, the project's construction activities would be limited to the hours of 7:00 a.m. and 7:00 p.m. on weekdays and federal holidays, and between 9:00 a.m. and 6:00 p.m. on Saturdays. Also, construction activities are prohibited on Sundays. Therefore, as the construction activities would cease by 7:00 p.m. (6:00 p.m. on Saturdays), the construction-related light and glare effects would also cease by 7:00 p.m. (6:00 p.m. on Saturdays). Impacts in this regard would be less than significant with adherence to the City's *Municipal Code* requirements.



The proposed storm drain facilities would not create a new source of light or glare onto surrounding uses during operations, as improvements would be located underground. No impact would result in this regard

Mitigation Measures: No mitigation measures are required.



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4.2 AGRICULTURE RESOURCES

<i>In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:</i>	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				✓
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?				✓
c. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?				✓

- a) ***Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?***

No Impact. The project site and surrounding area are located in an urbanized area of the City. The project site is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as designated by the California Department of Conservation, which has designated the area as “Urban and Built Up Land.” The project site encompasses roadway uses (located within existing roadway rights-of-way) and an easement on the SCE property which was previously utilized as a plant nursery storage area. Thus, project implementation would not result in the conversion of farmland to non-agricultural use. No impacts would occur in this regard.

Mitigation Measures: No mitigation measures are required.

- b) ***Conflict with existing zoning for agricultural use, or a Williamson Act contract?***

No Impact. The project site is not designated for agricultural use or in a Williamson Act contract, as the project site consists of a roadway and an SCE easement. River Avenue does not have a specific zoning designation; the SCE easement is zoned PR (Public Right-of-Way) and is designated as Rights-of-Way on the City’s Land Use Map. Therefore, implementation of the project would not conflict with existing zoning for agricultural use or a Williamson Act contract, and no impacts would result in this regard.

Mitigation Measures: No mitigation measures are required.



- c) ***Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?***

No Impact. Refer to Response 4.2 (a) and (b). The project site or surrounding area are not used for agricultural production. Implementation of the proposed project would not result in environmental changes that would convert farmland to non-agricultural use.

Mitigation Measures: No mitigation measures are required.



4.3 AIR QUALITY

<i>Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:</i>	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?			✓	
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?		✓		
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?		✓		
d. Expose sensitive receptors to substantial pollutant concentrations?		✓		
e. Create objectionable odors affecting a substantial number of people?			✓	

The project site is located within the City of Long Beach, which is part of the South Coast Air Basin (Basin) and under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The SCAQMD is one of 35 air quality management districts that have prepared an *Air Quality Management Plan (AQMP)* to accomplish a five-percent annual reduction in emissions. The most recent AQMP was adopted in 2007.

Both the State of California and the Federal government have established health-based Ambient Air Quality Standards (AAQS) for criteria air pollutants. These pollutants include carbon monoxide (CO), ozone (O₃), nitrogen oxides (NO_x), sulfur oxides (SO_x), particulate matter up to 10 microns and 2.5 microns in diameter (PM₁₀ and PM_{2.5}, respectively), and lead (Pb). O₃ is formed by a photochemical reaction between NO_x and volatile organic compounds (VOCs). Thus, impacts from O₃ are assessed by evaluating impacts from NO_x and VOCs.

a) *Conflict with or obstruct implementation of the applicable air quality plan?*

Less Than Significant Impact. Consistency with the *2007 Air Quality Management Plan for the South Coast Air Basin (2007 AQMP)* means that a project is consistent with the goals, objectives, and assumptions in the respective plan to achieve the Federal and State air quality standards. Per the SCAQMD *CEQA Air Quality Handbook*, there are two main indicators of a project's consistency with the applicable Air Quality Management Plan:

- Whether the project would increase the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the *2007 AQMP*; and



- Whether the project would exceed the 2007 AQMP's assumptions for 2030 or yearly increments based on the year of project buildout and phasing.

As indicated in the operational analysis provided in Impact Statement 7(b), below, the proposed project would not exceed the SCAQMD's thresholds of significance. Therefore, the proposed project is consistent with the 2007 AQMP in this regard.

The project is consistent with the *General Plan* and zoning designations for the City of Long Beach. The project proposes storm drain improvements which would be located underground. Therefore, as no development is proposed that would result in long-term, operational emissions, the project is consistent with the 2007 AQMP and would, therefore, not result in any violations with the long-range plans for the Basin. No significant impacts are anticipated and no mitigation measures are required. The proposed project would also not induce substantial population growth either directly or indirectly. Therefore, the proposed project would be consistent with the 2007 AQMP employment and population forecasts and a less than significant impact would occur.

Mitigation Measures: No mitigation measures are required.

- b) ***Violate any air quality standard or contribute substantially to an existing or projected air quality violation?***

Less Than Significant Impact with Mitigation Incorporated.

Short-Term Construction Impacts

Short-term air quality impacts are anticipated during construction activities associated with implementation of the proposed project. Temporary air emissions would result from the following activities:

- Particulate (fugitive dust) emissions from earth moving activities; and
- Exhaust emissions from the construction equipment and the motor vehicles of the construction crew.

Construction activities entail demolition of existing asphalt, excavation of trenches, placement of pipelines, backfill and compaction, and re-paving the disturbed area. Demolition activities would include approximately 46.3 cubic yards of demolition debris (asphalt) and trenching activities would involve 4,500 cubic yards of soil to be deposited on the SCE property.

The URBEMIS 2007 computer model calculates criteria pollutants as part of construction activity emissions; refer to Table 4.3-1, Construction Air Emissions. PM₁₀ and PM_{2.5} emissions would primarily occur from construction equipment exhaust and not from fugitive dust. As depicted in Table 4.3-1, construction-related emissions would not exceed the established SCAQMD thresholds for criteria pollutants. Additionally, compliance with Mitigation Measures AQ-1 through AQ-4 would ensure compliance with SCAQMD standard regulations, resulting in a less than significant short-term construction impact for PM₁₀ and PM_{2.5}.



Construction Equipment and Worker Vehicle Exhaust

Exhaust emissions from construction activities include emissions associated with the transport of machinery and supplies to and from the project site, emissions produced on-site as the equipment is used, and emissions from trucks transporting materials to/from the site. As presented in Table 4.3-1, construction equipment and worker vehicle exhaust emissions would be below the established SCAQMD thresholds. Therefore, air quality impacts from equipment and vehicle exhaust emission would be less than significant.

**Table 4.3-1
 Construction Air Emissions**

Emissions Source	Pollutant (pounds/day) ^{1, 2}					
	ROG	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
2009						
Unmitigated Emissions	4.57	32.37	18.75	0.00	2.08	1.90
2010						
Unmitigated Emissions	2.09	17.75	9.26	0.00	0.89	0.81
<i>SCAQMD Thresholds</i>	<i>75</i>	<i>100</i>	<i>550</i>	<i>150</i>	<i>150</i>	<i>55</i>
<i>Is Threshold Exceeded?</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>
Notes:						
1. Emissions were calculated using the URBEMIS 2007 version 9.2.4 Computer Model, as recommended by the SCAQMD.						
2. Refer to <u>Appendix A, Air Quality Data</u> , for assumptions used in this analysis.						

Asbestos

Pursuant to guidance issued by the Governor’s Office of Planning and Research, State Clearinghouse, lead agencies are encouraged to analyze potential impacts related to naturally occurring asbestos (NOA). Asbestos is a term used for several types of naturally occurring fibrous minerals that are a human health hazard when airborne. The most common type of asbestos is chrysotile, but other types such as tremolite and actinolite are also found in California. Asbestos is classified as a known human carcinogen by State, Federal, and international agencies, and was identified as a toxic air contaminant by the California Air Resources Board (CARB) in 1986.

Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in the counties of the Sierra Nevada foothills, the Klamath Mountains, and Coast Ranges. According to the Department of Conservation Division of Mines and Geology, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Report* (dated August 2000), the proposed project is not located in an area where NOA is likely to be present. Therefore, no impacts are anticipated in this regard.



Long-Term Operational Impacts

The project proposes storm drain improvements that would not result in any permanent or long-term emissions. Additionally, the proposed improvements would not generate new traffic trips. Therefore, no significant long-term emissions are anticipated and no mitigation measures are required.

Mitigation Measures:

Construction Impacts

AQ-1 During clearing, grading, earth moving, or excavation operations, excessive fugitive dust emissions must be controlled by regular water or other dust preventive measures using the following procedures, as specified in the SCAQMD Rule 403.

- Limit on-site vehicle speed to 15 miles per hour.
- Water material excavated or graded sufficiently to prevent excessive amounts of dust. Water at least twice daily with complete coverage, preferably in the late morning and after work is done for the day.
- Water or securely cover material transported on-site or off-site sufficiently to prevent generating excessive amounts of dust.
- Minimize area disturbed by clearing, grading, earth moving, or excavation operations so as to prevent generating excessive amounts of dust.
- Indicate these control techniques in project specifications. Compliance with the measure will be subject to periodic site inspections by the City.
- Prevent visible dust from the project from emanating beyond the property line, to the maximum extent feasible.
- Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for ten days or more).
- Trucks transporting soil, sand, cut or fill materials, and/or construction debris to or from the site must be tarped from the point of origin.

AQ-2 Ozone precursor emissions from construction equipment vehicles must be controlled by maintaining equipment engines in good condition and in proper tune per manufacturer's specifications, to the satisfaction of the City Engineer. Compliance with this measure must be subject to periodic inspections of construction equipment vehicles by the City and included in construction bid documents.



- AQ-3 All trucks that are to haul material must comply with California Vehicle Code Section 23114, with special attention to Sections 23114(b)(F), (e)(2) and (e)(4) as amended, regarding the prevention of such material spilling onto public streets and roads. This provision must be provided in construction bid documents.
- AQ-4 Construction hours, allowable work days, and phone numbers of the job superintendent must be clearly posted at all construction entrances to allow for surrounding property owners and residents to contact the job superintendent. If the job superintendent receives a complaint, appropriate corrective actions must be implemented immediately and a report taken to the reporting party.
- AQ-5 Backup generators shall be used only for emergency operations. All backup generators shall be selected in consultation with the SCAQMD from their list of certified internal combustion engines.
- c) ***Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?***

Less Than Significant Impact with Mitigation Incorporated.

The SCAQMD neither recommends quantified analysis of cumulative construction or operational emissions, nor does it provide separate methodologies or thresholds of significance to be used to assess cumulative construction or operational impacts. However, if individual development projects generate operational emissions that exceed the SCAQMD recommended daily thresholds, project-specific impacts would also cause a cumulative considerable increase in emissions for those pollutants for which the Basin is in non-attainment.

Cumulative Construction Impacts

With respect to the proposed project's construction-period air quality emissions and cumulative Basin-wide conditions, the SCAQMD has developed strategies to reduce criteria pollutant emissions outlined in the 2007 AQMP pursuant to Federal Clean Air Act mandates. As such, the proposed project would comply with SCAQMD Rule 403 requirements, and implement all feasible mitigation measures. Rule 403 requires that fugitive dust be controlled with the best available control measures in order to reduce dust so that it does not remain visible in the atmosphere beyond the property line of the proposed project. In addition, the proposed project would comply with adopted 2007 AQMP emissions control measures. Per SCAQMD rules and mandates, as well as the CEQA requirement that significant impacts be mitigated to the extent feasible, these same requirements (i.e., Rule 403 compliance, the implementation of all feasible mitigation measures, and compliance with adopted Air Quality Management Plan emissions control measures) would also be imposed on construction projects throughout the Basin, which would include related projects.



Compliance with SCAQMD rules and regulations, as well as implementation of Mitigation Measures AQ-1 through AQ-5, would reduce the project's construction-related impacts to a less than significant level. Thus, it can be reasonably inferred that the project-related construction emissions, in combination with those from other projects in the area, would not substantially deteriorate the local air quality. Thus, a less than significant impact would occur in this regard.

Cumulative Long-Term Impacts

As discussed previously, the proposed storm drain improvement project would not result in long-term air quality impacts. Additionally, adherence to SCAQMD rules and regulations would alleviate potential impacts related to cumulative conditions on a project-by-project basis. Emission reduction technology, strategies, and plans are constantly being developed. As a result, the proposed project would not contribute a cumulatively considerable net increase of any nonattainment criteria pollutant. Therefore, no impacts to cumulative operational impacts associated with project operations would result.

Global Climate Change Impacts

California is a substantial contributor of global greenhouse gases, emitting over 400 million tons of CO₂ a year.¹ Climate studies indicate that California is likely to see an increase of three to four degrees Fahrenheit over the next century. Methane is also an important greenhouse gas that potentially contributes to global climate change. Greenhouse gases are global in their effect, which is to increase the earth's ability to absorb heat in the atmosphere. As primary greenhouse gases have a long lifetime in the atmosphere, accumulate over time, and are generally well-mixed, their impact on the atmosphere is mostly independent of the point of emission.

The impact of anthropogenic activities on global climate change is apparent in the observational record. Air trapped by ice has been extracted from core samples taken from polar ice sheets to determine the global atmospheric variation of CO₂, methane, and nitrous oxide from before the start of the industrialization (approximately 1750), to over 650,000 years ago. For that period, it was found that CO₂ concentrations ranged from 180 parts per million (ppm) to 300 ppm. For the period from approximately 1750 to the present, global CO₂ concentrations increased from a pre-industrialization period concentration of 280 ppm to 379 ppm in 2005, with the 2005 value far exceeding the upper end of the pre-industrial period range.

The Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of greenhouse gases needed to stabilize global temperatures and climate change impacts. It concluded that a stabilization of greenhouse gases at 400 to 450 ppm carbon dioxide-equivalent concentration is required to keep mean global warming below 2°C, which in turn is assumed to be necessary to avoid dangerous climate change.

¹ California Energy Commission, *Inventory of California Greenhouse Gas Emissions and Sinks:1990 to 2004*, 2006.



Regulations and Significance Criteria

California Governor Arnold Schwarzenegger issued Executive Order S-3-05 in June 2005, which established the following greenhouse gas emission reduction targets:

- 2010: Reduce greenhouse gas emissions to 2000 levels
- 2020: Reduce greenhouse gas emissions to 1990 levels
- 2050: Reduce greenhouse gas emissions to 80 percent below 1990 levels

AB-32 requires that the California Air Resources Board (CARB) determine what the statewide greenhouse gas emissions level was in 1990, and approve a statewide greenhouse gas emissions limit that is equivalent to that level, to be achieved by 2020. CARB has approved a 2020 emissions limit of 427 metric tons of CO₂ equivalents (MTCO₂eq).

A quantitative non-zero project specific threshold has been utilized which uses a methodology recommended by the California Air Pollution Control Officers Association (CAPCOA).² According to CAPCOA's *Threshold 2.3, CARB Reporting Threshold*, 10,000 metric tons of carbon dioxide equivalents³ per year (MTCO₂eq/yr) is recommended as a quantitative non-zero threshold.⁴ This threshold is being considered by the California Market Advisory Committee, whose mandate under the California Environmental Protection Agency is to develop market-based compliance mechanisms for reducing greenhouse gases. According to the CAPCOA White Paper; this threshold would be equivalent to 550 dwelling units, 400,000 square feet of office use, 120,000 square feet of retail, or 70,000 square feet of supermarket use. This approach is estimated to capture over half of the future residential and commercial development projects, and is designed to ensure the goals of Assembly Bill 32 are not hindered.

Greenhouse Gas Emissions Analysis

As shown below in Table 4.3-2, *Estimated Greenhouse Gas Emissions*, the proposed project would result in 81.1 MTCO₂eq/year in 2009, and 15.8 MTCO₂eq/year in 2010 of greenhouse gas emissions during the construction phase. Therefore, a less than significant impact would occur in this regard.

² California Air Pollution Control Officers Association, *CEQA & Climate Change White Paper*, January 2008.

³ Carbon dioxide equivalent is a quantity that describes, for a given mixture and amount of greenhouse gas, the amount of CO₂ that would have the same global warming potential, when measured over a specified timescale (generally 100 years).

⁴ It should be noted that CARB has also recommended 10,000 MTCO₂eq/yr as the "de minimus greenhouse gas emission threshold" in their *Climate Change Proposed Scoping Plan*, which was approved by CARB's Board on January 11, 2009.



**Table 4.3-2
Estimated Greenhouse Gas Emissions**

Source	CO ₂	N ₂ O		CH ₄	
	Metric tons/year	Metric tons/year	Metric tons of CO ₂ eq ²	Metric tons/year	Metric tons of CO ₂ eq ²
Construction Emissions¹					
• Year 2009	78.09	0.01	2.97	0.00	0.04
<i>2009 Total Project-Related Emissions (MTCO₂eq/year)³</i>			<i>81.1</i>		
<i>Greenhouse Gas Threshold (MTCO₂eq/year)</i>			<i>10,000</i>		
<i>Is Threshold Exceeded?</i>			<i>No</i>		
• Year 2010	15.02	0.00	0.77	0.00	0.01
<i>2010 Total Project-Related Emissions (MTCO₂eq/year)³</i>			<i>15.8</i>		
<i>Greenhouse Gas Threshold (MTCO₂eq/year)</i>			<i>10,000</i>		
<i>Is Threshold Exceeded?</i>			<i>No</i>		
Notes:					
1. Emissions calculated using the California Air Resources Board's Construction Equipment Emissions Table and the Road Construction Emissions Model, Version 6.3.1 output.					
2. CO ₂ Equivalent values calculated using the U.S. Environmental Protection Agency Website, <i>Greenhouse Gas Equivalencies Calculator</i> , http://www.epa.gov/cleanenergy/energy-resources/calculator.html , accessed July 2009.					
3. Totals may be slightly off due to rounding.					
4. Refer to Appendix A, <i>Air Quality Data</i> , for detailed model input/output data.					

Mitigation Measures: Refer to Mitigation Measures AQ-1 through AQ-5 to reduce the project's cumulative contribution of criteria pollutants. No additional mitigation measures are required.

d) Expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact with Mitigation Incorporated.

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis.

Sensitive receptors near the project site are the existing residences surrounding the project site to the east and west. In order to identify impacts to sensitive receptors, the SCAQMD recommends addressing localized significance thresholds for construction and operations impacts. A carbon monoxide hot-spot analysis was not performed in this analysis as the proposed project would not create a significant amount of traffic trips.



Localized Significance Thresholds (LST)

Localized Significance Thresholds (LST) were developed in response to SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the *Final Localized Significance Threshold Methodology* (dated June 2003) for guidance. The LST methodology assists lead agencies in analyzing localized impacts associated with project-specific level projects proposed. The SCAQMD provides the LST lookup tables for one, two and five acre projects emitting CO, NO_x, or PM₁₀. The LST methodology and associated mass rates are not designed to evaluate localized impacts from mobile sources. The SCAQMD recommends that any project over five acres should perform air quality dispersion modeling to assess impacts to nearby sensitive receptors.

The proposed project area includes less than one acre of land within the City; therefore, a Localized Significance Thresholds analysis was performed. The project is located within Sensitive Receptor Area (SRA) 4, South Coastal LA County.

The closest sensitive receptors to the project site are residential units located approximately six meters from the nearest improvements. These residential units may be potentially affected by air pollutant emissions generated during on-site construction activities. Since the nearest sensitive receptor is less than 25 meters away, the smallest localized significance threshold value of 25 meters was utilized as a threshold.

Table 4.3-3, *Summary of Localized Significance of Construction Emissions*, shows the construction-related emissions for NO_x, CO, PM₁₀, and PM_{2.5} compared to the localized significance thresholds for SRA 4, South Coastal LA County, at a distance of 25 meters for a one-acre site. As shown in Table 4.3-3, construction emissions would not exceed the localized significance thresholds. Additionally, compliance with Mitigation Measures AQ-1 through AQ-5 would further reduce potential construction emissions. Therefore, localized air quality impacts would be less than significant.

**Table 4.3-3
 Summary of Localized Significance of Construction Emissions**

Construction Phase	Pollutant (pounds/day)			
	NO _x	CO	PM ₁₀	PM _{2.5}
Total 2009 Emissions	32.37	18.75	2.08	1.90
Localized Significance Threshold	46	574	4	3
<i>Thresholds Exceeded?</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>
Total 2010 Emissions	17.75	9.26	0.89	0.81
Localized Significance Threshold	46	574	4	3
<i>Thresholds Exceeded?</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>
Note:				
1. The Localized Significance Threshold was determined using Appendix C of the SCAQMD Final Localized Significant Threshold Methodology guidance document for pollutants NO _x , CO, PM ₁₀ , and PM _{2.5} . The Localized Significance Threshold was based on the anticipated daily acreage disturbance (approximately 1 acre) and the source receptor area (SRA 4).				



Mitigation Measures: Refer to Mitigation Measures AQ-1 through AQ-5. No additional mitigation measures are required.

e) ***Create objectionable odors affecting a substantial number of people?***

Less Than Significant Impact. According to the SCAQMD *CEQA Air Quality Handbook*, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed project does not include any uses identified by the SCAQMD as being associated with odors.

Construction activities associated with the project may generate detectable odors from heavy-duty equipment exhaust. Construction-related odors would be short-term in nature and cease upon project completion. Any impacts to existing adjacent land uses would be short-term, as previously noted, and are less than significant.

Mitigation Measures: No mitigation measures are required.



4.4 BIOLOGICAL RESOURCES

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?			✓	
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?			✓	
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				✓
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				✓
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				✓
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				✓

- a) ***Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?***

Less Than Significant Impact. As a result of the urbanized and developed nature the project site and the lack of significant native habitats, the project site does not contain native plants and wildlife. The proposed detention unit would be located within the SCE easement, which has been utilized as a plant nursery. The nursery is currently in the process of ceasing operations on the SCE property. At the time of commencement of construction activities, the nursery will have vacated the site, and the SCE easement will be vacant.

The Conservation Element of the *General Plan* identifies the following habitats in the City:

- Riparian;
- Ponds and Lakes;
- Freshwater Streams and Rivers;
- Freshwater Marsh;
- Salt Marsh and Estuaries;



- Mudflat (Tidal);
- Rocky Coastal;
- Sandy Coastal;
- Open Sea;
- Open Space; and
- El Dorado Preserve and Nature Center.

The project site is not located within any habitat areas of the City according to Figure 5, Habitats, of the Conservation Element. The nearest habitat location is approximately 0.95 miles east within the Los Angeles River. The proposed areas for improvement have no potential to support State- or Federally-listed special status plant or wildlife species and no focused surveys for any special status species are required. Therefore, impacts in this regard would be less than significant.

Mitigation Measures: No mitigation measures are required.

- b) ***Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?***

Less Than Significant Impact. No riparian habitats or sensitive natural communities are present on-site. The proposed improvement area is located within existing roadways and/or areas that have already been previously disturbed. As a result of the developed nature of the project site and the lack of significant native habitats on-site, the project site is not considered a sensitive natural community.

Mitigation Measures: No mitigation measures are required.

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

No Impact. No wetlands, Waters of the United States, and other areas are located within the boundaries of the proposed improvements. The project site is not subject to the jurisdiction of the Army Corps of Engineers (ACOE), California Department of Fish and Game (CDFG), or the Regional Water Quality Control Board (RWQCB). Therefore, no impacts would occur in this regard.

Mitigation Measures: No mitigation measures are required.

- d) ***Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?***

No Impact. Refer to Response 4.4(a) above. The project site does not contain habitat to support any native resident or migratory fish or wildlife species. The proposed storm drainage improvements would not interfere with the movement of fish or wildlife. Therefore, no impacts would result in this regard.



Mitigation Measures: No mitigation measures are required.

- e) ***Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?***

No Impact. The project would comply with Chapter 14.28, *Trees and Shrubs*, of the City's *Municipal Code*, which contains regulations on tree and shrub planting, removal, and maintenance, including the protection of all trees located along the street, alley, court, or other public place during construction activities. No other local policies, ordinances, or plans protecting biological resources exist for the project site. No impacts would occur in this regard.

Mitigation Measures: No mitigation measures are required.

- f) ***Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?***

No Impact. Refer to Response 4.4(e), above. Implementation of the proposed project would not conflict with any adopted Habitat Conservation Plans, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plans. No impacts would result in this regard.

Mitigation Measures: No mitigation measures are required.



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4.5 CULTURAL RESOURCES

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines §15064.5?				✓
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines §15064.5?		✓		
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			✓	
d. Disturb any human remains, including those interred outside of formal cemeteries?			✓	

a) *Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines §15064.5?*

No Impact. The project site is located within a residential neighborhood and an SCE easement, and no identified historical resources are known to be present in the project area. Therefore, the project would not cause a substantial adverse change to any previously identified historical resources or historic properties. No impacts would result in this regard.

Mitigation Measures: No mitigation measures are required.

b) *Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines §15064.5?*

Less Than Significant With Mitigation Incorporated. Implementation of the proposed project would result in some ground disturbance associated with trenching activities along River Avenue and within the SCE easement. The project would include trenching activities within River Avenue (approximately five feet wide by 10 feet deep) as well as at the SCE easement (approximately 40 feet wide by 12 feet deep). Due to the urbanized nature of the project site, construction activities are not anticipated to impact any undocumented buried archaeological resources. However, construction excavation could disturb previously unidentified subsurface resources that lie beyond the disturbed sediments (both horizontally and vertically). In the event archaeological resources are unearthed or discovered during construction, activities, compliance with the recommended Mitigation Measure CUL-1 would reduce potential impacts to less than significant levels.

Mitigation Measures:

CUL-1 If cultural materials or archeological remains are encountered during the course of grading or construction activities, the project contractor shall cease any ground disturbing activities near the find. A qualified archaeologist, approved by the City of Long Beach, shall be retained to



evaluate significance of the resources and recommend appropriate treatment measures. Treatment measures may include avoidance, preservation, removal, data recovery, protection, or other measures developed in consultation with the City of Long Beach.

c) ***Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?***

Less Than Significant. The project site is located within a generally flat area of the City and not within the vicinity of a unique geologic feature. No paleontological sites are expected to exist in the project site or in the immediate vicinity. The majority of the project site lies within River Avenue, which has been previously disturbed. Additionally, the SCE property has been previously disturbed during the construction of the existing storm drain system. Trenching activities proposed within River Avenue would be approximately five feet wide by 10 feet deep and approximately 40 feet wide by 12 feet deep at the SCE easement. Therefore, impacts in this regard would be less than significant.

Mitigation Measures: No mitigation measures are required.

d) ***Disturb any human remains, including those interred outside of formal cemeteries?***

Less Than Significant. No on-site conditions exist that suggest human remains are likely to be found on the project site. However, in the unlikely event that human remains are encountered during construction activities, protocol in accordance with State of California Public Resources Health and Safety Code Section 7050.5-7055 would be required. Also, as required by State law, the requirements and procedures set forth in Section 5097.98 of the California Public Resources Code would be implemented, including notification of the County Coroner, notification of the Native American Heritage Commission, and consultation with the individual identified by the Native American Heritage Commission to be the "most likely descendent". Impacts in this regard would be reduced to less than significant levels.

Mitigation Measures: No mitigation measures are required.



4.6 GEOLOGY AND SOILS

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				✓
2) Strong seismic ground shaking?			✓	
3) Seismic-related ground failure, including liquefaction?		✓		
4) Landslides?				✓
b. Result in substantial soil erosion or the loss of topsoil?			✓	
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on-or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?		✓		
d. Be located on expansive soil, as defined in Table 18-1-B of the California Building Code (2004), creating substantial risks to life or property?			✓	
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				✓

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

1) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

No Impact. For the purposes of the Alquist-Priolo Earthquake Fault Zoning Act, the State of California defines active faults as those that have historically produced earthquakes or shown evidence of movement within the past 11,000 years (during the Holocene Epoch).¹ Based on the *Geotechnical Investigation* for the project, prepared by Kleinfelder on May 16, 2008 (refer to Appendix B, Geotechnical Investigation), the site is not included in the Earthquake Fault Zones established under the Alquist-Priolo Earthquake Fault Zoning Act. The closest mapped fault to the project site is the Newport-Inglewood Fault, located approximately 1.2 miles northeast of the project site. Also, the Palos Verdes Fault is located approximately six miles southwest of the project site.

¹ California Department of Conservation and California Geologic Survey. Potentially active faults have demonstrated displacement within the last 1.6 million years (during the Pleistocene Epoch), but do not displace Holocene Strata. Inactive faults do not exhibit displacement younger than 1.6 million years before the present.



Despite the project's proximity to the Newport-Inglewood Fault, no known active faults traverse the project site. Also, numerous controls would be imposed on the proposed project through the engineering review and permitting process. In general, the City regulates projects under the requirements of the California Building Code, the Alquist-Priolo Special Studies Zone Act, local land use policies, zoning, and the City's *Municipal Code*. Therefore, no impact would result due to rupture of a known earthquake fault. No impacts would occur in this regard.

Mitigation Measures: No mitigation measures are required.

2) ***Strong seismic ground shaking?***

Less Than Significant Impact. Although the project site is located greater than one mile from the Newport-Inglewood Fault, the potential exists for the project site to experience strong seismic ground shaking from the Newport-Inglewood Fault, as well as from other faults located off-site in the region. The intensity of ground shaking at the project site would depend upon the magnitude of the earthquake, distance to the epicenter, and geology of the area between the epicenter and the project site. Strong seismic ground shaking may result in damage to the proposed storm drain pipelines and detention unit.

The project is subject to compliance with the California Department of Conservation, California Geologic Survey Special Publications 117, *Guidelines for Evaluating and Mitigating Seismic Hazards in California* (1997), which provides guidance for evaluation and mitigation of earthquake-related hazards. In addition, the project is subject to compliance with Code Section 18.24, *Building Codes*, which specifies seismic design requirements. Adherence to standard engineering practices and Code requirements relative to seismic and geologic hazards would minimize potential impacts pertaining to potential damage to the proposed storm drain pipelines and detention unit. Also, the project does not include the construction or modification of habitable structures. Therefore, project implementation would result in less than significant impacts associated with the exposure of people or structures to potential substantial adverse effects involving strong seismic ground shaking.

Mitigation Measures: No mitigation measures are required.

3) ***Seismic-related ground failure, including liquefaction?***

Less Than Significant Impact With Mitigation Incorporated. Liquefaction of cohesionless soils can be caused by strong vibratory motion due to earthquakes. Liquefaction is characterized by a loss of shear strength in the affected soil layers, thereby causing the soils to behave as a viscous liquid. Susceptibility to liquefaction is based on geologic and geotechnical data. River-channels and flood-plains are considered most susceptible to liquefaction, while alluvial fans have a lower susceptibility. Depth to groundwater is another important element in the susceptibility to liquefaction. Groundwater shallower than 30 feet results in high to very high susceptibility to liquefaction, while deeper water results in low and very low susceptibility. According to the *Geotechnical Investigation*, groundwater was encountered at a depth of 25 feet.



Based on the *Geotechnical Investigation*, the project site is located within a seismic hazard zone for liquefaction potential, as designated by the State and County of Los Angeles. The *Geotechnical Investigation* estimates that the total and differential settlements due to liquefaction along the storm drain alignment may be approximately 1.5 inches and 0.75 inches, respectively. Due to the soil types and relative density encountered in the exploratory borings, the liquefaction potential along the project alignment is considered to be moderate.

As a result of to the City's geological, geotechnical, and groundwater conditions, the potential exists for the occurrence of liquefaction which could result in damage to the storm drain pipelines and detention unit. With implementation of Mitigation Measure GEO-1, recommended by the *Geotechnical Investigation*, the project would require a soils report to identify the potential for liquefaction, expansive soils, ground settlement, slope failure, and groundwater. Verification of potential liquefaction within proposed pipeline areas would be analyzed and recommendations to reduce these impacts would occur. Additionally, the proposed project, with implementation of Mitigation Measure GEO-1, would further strengthen the City's storm drainage system to withstand the occurrence of liquefaction compared to existing conditions. Therefore, with implementation of Mitigation Measure GEO-1, impacts would be reduced to less than significant levels.

Mitigation Measures:

GEO-1 Prior to grading operations, a soils report shall be prepared for the proposed improvements to identify the potential for liquefaction, expansive soils, ground settlement, and slope failure. The report shall also:

- Specify loose alluvium that shall be excavated and removed from the site, as it is considered unsuitable for reuse as structural fill.
- Specify remedial measures that could be feasibly implemented to minimize potential impact.
- Analyze the potential for groundwater within the study area and recommend measures to remediate associated conditions.
- Determine the need for dewatering of areas during construction to remove all water within the excavation perimeter and recommend appropriate method of dewatering.

4) Landslides?

No Impact. According to the *Geotechnical Investigation*, the project site is not located within a State or County designated hazard zone for landslides. The majority of the City consists of relatively flat topography, and the project does not propose any design slopes. Therefore, project implementation would not expose people or structures to potential substantial adverse effects involving landslide. No impact would occur in this regard.

Mitigation Measures: No mitigation measures are required.



b) *Result in substantial soil erosion or the loss of topsoil?*

Less Than Significant Impact. Soils throughout the project area are sensitive to disturbance during construction activities. Trenching activities for the construction of the storm drain improvements would expose soils to potential short-term erosion by wind and water. The project would be subject to compliance with the requirements set forth in the National Pollutant Discharge Elimination System (NPDES) Storm Water General Construction Permit for construction activities. Following compliance with the NPDES permit, project implementation would result in a less than significant impact regarding soil erosion.

Mitigation Measures: No mitigation measures are required.

c) *Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in an on-site or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?*

Less Than Significant Impact With Mitigation Incorporated. Refer to Response 4.6(a)(1), 4.6(a)(3), and 4.6(a)(4).

Mitigation Measures: Refer to Mitigation Measure GEO-1.

d) *Be located on expansive soil, as defined in Table 18-1-B of the California Building Code (2004), creating substantial risks to life or property?*

Less Than Significant Impact. Clayey loams are often classified as expansive soils, meaning they can have a moderate to high shrink-swell potential. According to the City's *General Plan*, the project site is located with soil profile "B", which are lowlying areas that represent channels that were cut deeply into the uplifted marine sediments by ancestral rivers. Over the last 17,000 years, the rivers have filled these channels to their present level with relatively unconsolidated sediments. The cohesionless soils consist generally of silty sand and sandy silt and are typically loose to medium dense. Although the project area may contain expansive soils, the proposed project would not pose substantial risk to people or property, as the project encompasses underground storm drain improvements and detention unit. Implementation of Mitigation Measure GEO-1 would reduce impacts associated with expansive soils to less than significant levels.

Mitigation Measures: Refer to Mitigation Measure GEO-1.

e) *Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?*

No Impact. The project involves improvements to the existing storm drain system along River Avenue and the construction of a detention unit within the SCE property. The project would not involve the use of septic tanks or alternative wastewater disposal systems. Therefore, no impact would occur in this regard.

Mitigation Measures: No mitigation measures are required.



4.7 HAZARDS AND HAZARDOUS MATERIALS

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			✓	
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?		✓		
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			✓	
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				✓
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				✓
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				✓
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			✓	
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				✓

a) *Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

Less Than Significant Impact. The proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. With the exception of utilizing gasoline and diesel fuels in the construction equipment, no other hazardous materials would be transported to or from the project site, or used in the construction process. Fuels and solvents would be stored and utilized pursuant to Best Management Practices. Also, long-term operations of the proposed project would encompass underground storm drain piping and an underground detention unit. Therefore, no impacts would occur in this regard.

Mitigation Measures: No mitigation measures are required.



- b) ***Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?***

Less Than Significant Impact With Mitigation Incorporated. The proposed project is unlikely to result in a release of hazardous materials into the environment. However, during the short-term period of project construction, there is a possibility of accidental release of hazardous substances such as petroleum-based fuels or hydraulic fluid used for construction equipment. The level of risk associated with the accidental release of hazardous substances is not considered significant due to the small volume and low concentration of hazardous materials utilized during construction. The construction contractor would be required to use standard construction controls and safety procedures that would avoid and minimize the potential for accidental release of such substances into the environment. Standard construction practices would be observed such that any materials released are appropriately contained and remediated as required by local, State, and Federal law. Impacts are less than significant in this regard.

The Phase I Environmental Site Assessment (Phase I ESA) prepared for the project by Kleinfelder on May 16, 2008 (refer to Appendix C, Phase I Environmental Site Assessment), identified the possibility of pesticide use at the nursery on the SCE property as a potential recognized environmental condition (REC). Additionally, the Phase I ESA also identified the possibility of a leak along a petroleum pipeline (along River Avenue and within the footprint of the proposed detention unit on the SCE property) as a potential REC.

Due to the identification of two potential RECs at the project site, mitigation has been recommended per the Phase I ESA. Mitigation Measure HAZ-1 recommends further investigation of the possibility of pesticide use at the SCE property, while Mitigation Measure HAZ-2 provides for the identification of the exact locations of the petroleum pipelines within the project site. With the implementation of Mitigation Measures HAZ-1 and HAZ-2, impacts in this regard would be less than significant.

Mitigation Measures:

HAZ-1 Prior to construction activities, an Environmental Professional shall conduct Phase II sampling on the Southern California Edison property within the area of disturbance to confirm or deny the presence of pesticides. Should sampling deny the presence of pesticides, sampling procedures would be deemed complete. Should sampling confirm the presence of pesticides, the Environmental Professional shall recommend further site characterization and/or remedial actions, if necessary.

HAZ-2 Prior to construction activities, the exact location of petroleum pipelines along River Avenue and within the footprint of the proposed detention unit on the Southern California Edison property shall be identified. The City of Long Beach shall confirm the locations with the following petroleum pipeline owners: ConcoPhillips, Defense Energy Support Center, Kinder Morgan, Pacific Pipeline System, and Paramount.



- c) ***Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?***

Less Than Significant Impact. The proposed project would not result in hazardous emissions or acutely hazardous materials that would pose a potential health hazard. The only emissions that would occur are those resulting from the use of heavy equipment required for construction. However, these emissions would be primarily composed of particulates and criteria air pollutants that do not pose a significant health risk (refer to Section 4.7, Air Quality). Also, no schools are located within one-quarter mile of the project site. The nearest school to the project site is Webster Elementary School, located approximately 0.42-miles to the southeast. No toxic or hazardous materials would be utilized within the vicinity of the school. Therefore, no significant impacts would occur as a result of project implementation.

Mitigation Measures: No mitigation measures are required.

- d) ***Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?***

No Impact. There are no habitable structures located within the project site. Therefore, as the proposed project is located within public rights-of-way, the project site is not listed in a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Additionally, according to the Phase I ESA, the project site was not listed in federal databases searched by Environmental Data Resources, Inc. Therefore, no impact would result in this regard.

Mitigation Measures: No mitigation measures are required.

- e) ***For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?***

No Impact. The nearest public airport (Long Beach Municipal Airport) is located greater than two miles east of the project site. Therefore, no safety hazard would result from project implementation. No impact would occur in this regard.

Mitigation Measures: No mitigation measures are required.

- f) ***For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?***

No Impact. The project site is not located within the vicinity of a private airstrip or related facilities. Therefore, no impacts would occur in this regard.

Mitigation Measures: No mitigation measures are required.



g) *Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

Less Than Significant Impact. The City's Natural Hazards Mitigation Plan (October, 2004) includes resources and information to assist residents and others interested in participating in planning for natural hazards. The plan provides a list of activities that may assist the City in reducing risk and preventing loss from future natural hazard events. The plan addresses multi-hazard issues, earthquakes, flooding, earth movement, windstorms, and tsunamis. The Long Beach Department of Emergency Preparedness is located approximately 4.4 miles east of the project site, at 4040 East Spring Street near the airport (location of the Emergency Operations Center [EOC]). This underground facility would serve as the command post for coordinating manpower, equipment, resources, and facilities. The nearest emergency shelter to the project site is located near the intersection of Santa Fe Avenue and West Willow Street (approximately 1.2 miles southeast of the project site).

Evacuation procedures, in the event of a disaster, would need to be coordinated through the Police Department. The City has not established evacuation routes, as the areas affected by disaster would vary. However, critical points throughout the City would be identified (including major arterials and traffic interchanges) and teams of police personnel would be assigned to patrol major evacuation points. The nearest major intersection to the project site is the Santa Fe Avenue/West Wardlow Road intersection, located approximately 0.40 miles east of the project site. It is anticipated that traffic flow along River Avenue would be temporarily impacted during construction of the proposed improvements. However, during construction of the proposed project would not obstruct emergency operations. Upon completion of construction, operation of the project would not obstruct traffic flow or emergency operations. Additionally, the project would be required to comply with all City and State Safety Codes, and project plans would be reviewed by the City's Public Works Department. Therefore, impacts associated with the Natural Hazards Mitigation Plan and emergency operations would be considered less than significant.

Mitigation Measures: No mitigation measures are required.

h) *Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?*

No Impact. The proposed project would not expose people or structures to fire hazards, as the project site is not in a high fire hazard area nor adjacent to any wildlands. According to the Public Safety Element of the *General Plan*, the project site is located in an area of the City categorized as a "least critical" fire hazard area. The nearest critical fire hazard area to the project site is approximately 0.50 miles south of the project site. Therefore, no impacts would occur in this regard.

Mitigation Measures: No mitigation measures are required.



4.8 HYDROLOGY AND WATER QUALITY

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements?			✓	
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?				✓
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?				✓
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?				✓
e. Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?				✓
f. Otherwise substantially degrade water quality?			✓	
g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				✓
h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?				✓
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				✓
j. Inundation by seiche, tsunami, or mudflow?				✓

a) *Violate any water quality standards or waste discharge requirements?*

Less Than Significant Impact. As authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Point sources are discrete conveyances such as pipes or man-made ditches. Individual homes that are connected to a municipal system, use a septic system, or do not have a surface discharge do not need an NPDES permit; however, industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters. The NPDES permit program is administered by the California Regional Water Quality Control Board (RWQCB). There are nine RWQCBs, which are responsible for development and enforcement of water quality objectives and implementation plans. The project site is located in the jurisdiction of the Los Angeles RWQCB.



Impacts related to water quality would range over three different periods: 1) during the earthwork and construction phase, when the potential for erosion, siltation, and sedimentation would be the greatest; 2) following construction, prior to the establishment of ground cover, when the erosion potential may remain relatively high; and 3) following completion of the project, when impacts related to sedimentation would decrease markedly, but those associated with urban runoff would increase.

Short-Term Construction

A Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP is required to contain a site map(s) that depicts the construction site perimeter, existing and proposed buildings, lots, roadways, storm water collection and discharge points, general topography both before and after construction, and drainage patterns across the project site. The SWPPP must list Best Management Practices (BMPs) the discharger would use to protect storm water runoff and the placement of those BMPs. BMPs for construction activities may include measures to control pollutants at particular sources, such as fueling areas, trash storage areas, outdoor materials storage areas, and outdoor work areas. BMPs are also used during treatment of the pollutants at these particular source areas.

In addition to the BMPs, the SWPPP must contain: a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Section A of the Construction General Permit describes the elements that must be contained in an SWPPP.

Construction activities associated with the proposed project have the potential to produce typical pollutants such as nutrients, heavy metals, toxic chemicals, waste materials including wash water, paints, wood, concrete, sanitary wastes, fuel, and lubricants. Impacts to storm water quality may occur from construction and associated earth moving, and increased pollutant loadings would occur immediately off-site.

The proposed project would require disturbance of 0.12-acres of land. However, should the proposed area of disturbance to be constructed at one time and over one acre of land is disturbed, coverage under the General Permit would be required.

With adherence to standard construction measures, the project would be required to obtain applicable permits from the RWQCB pertaining to waste discharge requirements and dewatering activities (if anticipated). At this time, the City would be required to submit a Notice of Intent (NOI) prior to construction activities, and then prepare, have on site, and conform to an SWPPP during construction. Following compliance with the applicable permits from the RWQCB, project implementation would not violate any water quality standards or waste discharge requirements associated with construction activities.



Long-Term Operations

The primary objectives of the municipal storm water program requirements are to effectively prohibit non-storm water discharges and to reduce the discharge of pollutants from the storm water conveyance system to the "Maximum Extent Practicable." The RWQCB has adopted a Water Quality Control Plan, which contains prohibitions, water quality standards, and policies for implementation of standards.

Major drainage channels in Long Beach drain into the Los Angeles River, San Gabriel River, and Long Beach Harbor. The project proposes improvements to the existing storm drain system. Operation of the project would not result in long-term water quality impacts. Therefore, no impacts would result in this regard.

Mitigation Measures: No mitigation measures are required.

- b) ***Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?***

No Impact. Project implementation would not create a demand for water in excess of available supplies, resulting in depletion of groundwater supplies. The project would not result in an increase of impervious surfaces from existing site conditions. Also, the project is not anticipated to impact groundwater. Therefore, project implementation would not deplete groundwater supplies or interfere with groundwater recharge.

Mitigation Measures: No mitigation measures are required.

- c) ***Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?***

No Impact. The proposed project would not alter the existing drainage pattern. The nearest water course to the project site is the Dominguez Channel, located approximately 0.63 miles to the southwest; also, the Los Angeles River is located approximately 0.95 miles to the east. Runoff in the project area would be similar to existing conditions, except during large storm events, in which case flooding would be alleviated. The River Avenue storm drain system outlets approximately 0.7 miles southwest of the project site into the Dominguez Channel. Upon completion of construction, the storm drain system's ultimate outlet would not change. Due to the paved nature of the project site, erosion or siltation on- or off-site would not occur. Erosion or siltation at the SCE property would remain similar to existing conditions. Therefore, no impact would result in this regard.

Mitigation Measures: No mitigation measures are required.



- d) ***Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?***

No Impact. Refer to Response 4.8(c). Also, project implementation would alleviate existing flooding within and surrounding the project site. Therefore, no impacts would result in this regard.

Mitigation Measures: No mitigation measures are required.

- e) ***Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?***

No Impact. The existing drainage system does not adequately accommodate the storm water flows of the project area. Based on 2005 hydrologic conditions, the catch basins along River Avenue are restricted and collect only 65 cubic feet per second (cfs); however, the flow rate for the mainline along River Avenue is 105 cfs. Therefore, the excess surface flow of approximately 40 cfs, that is not accommodated by the drainage system, flows onto adjacent residential properties, along Arlington Street.

The project proposes to bring the flood protection level in the area to a full 10 year protection level. To accommodate a 10 year protection level, the project proposes a new 48-inch RCP along River Avenue, modification of existing catch basins, construction of new catch basins, and construction of an underground detention unit within the SCE easement. The proposed improvements would adequately accommodate existing runoff and prevent future flooding. Therefore, no impacts would result in this regard.

Mitigation Measures: No mitigation measures are required.

- f) ***Otherwise substantially degrade water quality?***

Less Than Significant Impact. Implementation of the proposed project would not affect the water quality in the area, as the project would increase storm drainage capacity and not result in any new sources of runoff. The project may include dewatering activities during construction. Per applicable RWQCB permit(s), all of the water that would be pumped during construction would be treated prior to discharge. The project would not otherwise substantially degrade water quality. With implementation of standard construction measures, impacts in this regard are considered to be less than significant. Refer to Response 4.8(a) and 4.8(b) above.

Mitigation Measures: No mitigation measures are required.



- g) ***Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?***

No Impact. Project implementation would not place housing or habitable structures within a 100-year flood hazard area. According to the Public Safety Element of the *General Plan*, the project site is located within one of the 19 flood hazard areas within the City, based on a 10-year recurrence probability. Implementation of the proposed project would alleviate flooding hazards in the project area during a 10-year storm event. No impacts would result in this regard.

Mitigation Measures: No mitigation measures are required.

- h) ***Place within a 100-year flood hazard area structures which would impede or redirect flood flows?***

No Impact. As stated in Response 4.8(g), no structures are proposed within any designated 100-year flood hazard area as identified by FEMA or the by the City. The proposed storm drain improvements are intended to alleviate existing storm drain deficiencies and provide adequate storm runoff collection in the project area. Therefore, no impacts would result in this regard.

Mitigation Measures: No mitigation measures are required.

- i) ***Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?***

No Impact. Refer to Response 4.8(g) and 4.8(h). The proposed project does not involve permanent habitable structures. The proposed pipelines and detention unit would be located underground and would not expose people to significant risk. Project implementation would not expose people or structures to significant risk of loss, injury, or death involving flooding. Therefore, no impacts would result in this regard.

Mitigation Measures: No mitigation measures are required.

- j) ***Inundation by seiche, tsunami, or mudflow?***

No Impact. The project site is located approximately 0.63 miles northeast of the Dominguez Channel, approximately 0.95 miles west of the Los Angeles River, and approximately 4.5 miles north of the Long Beach Harbor. According to the Seismic Hazards Element of the *General Plan*, tsunami and seiche influence areas are concentrated along the coastline. Therefore, the chance of inundation by tsunami or seiche affecting the project site appears to be low. Also, the project site is not located down-slope from an area of potential mudflow. Therefore, no impacts would result in this regard.

Mitigation Measures: No mitigation measures are required.



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4.9 LAND USE AND PLANNING

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Physically divide an established community?				✓
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?			✓	
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?				✓

a) *Physically divide an established community?*

No Impact. The existing storm drain facilities are located underground within River Avenue and the SCE property. The proposed project involves improvements to the existing storm water facilities, including new pipelines and an underground detention unit within the SCE property, and does not propose any new development. As the project would not physically divide an established community, no impact would occur in this regard.

Mitigation Measures: No mitigation measures are required.

b) *Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?*

Less Than Significant Impact. Implementation of the proposed improvement activities would not conflict with the roadway designation of River Avenue or the land use designation of the SCE property. No impact would occur in this regard.

The project site is located within an existing roadway which is not applicable to zoning designations. The project site also consists of an SCE easement, which is zoned PR (Public Right-of-Way) and permits utility uses. As a result, the proposed project would not require zone changes and would not result in an impact in this regard.

Mitigation Measures: No mitigation measures are required.



c) ***Conflict with any applicable habitat conservation plan or natural community conservation plan?***

No Impact. The project site is not located within the jurisdiction of a habitat conservation plan or natural community conservation plan; refer also to Response 4.4(f). Therefore, project implementation would not conflict with any applicable habitat conservation plan or natural community conservation plan.

Mitigation Measures: No mitigation measures are required.



4.10 MINERAL RESOURCES

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				✓
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				✓

a) *Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?*

No Impact. The project site currently consists of River Avenue and a portion of an SCE easement, and does not contain any known mineral resources. The land uses surrounding the project site consist of residential, utility, and industrial (i.e., railroad uses). According to the City's *General Plan*, oil deposits are abundant in the City tidelands area. Known mineral resources in the City are concentrated within the Wilmington Oil Field, located approximately 1.50 miles south of the project site. Therefore, project implementation would not result in the loss of availability of a known mineral resource of value. No impact would occur in this regard.

Mitigation Measures: No mitigation measures are required.

b) *Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?*

No Impact. Refer to Response 4.10(a).

Mitigation Measures: No mitigation measures are required.



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4.11 NOISE

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		✓		
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?		✓		
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			✓	
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?		✓		
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				✓
f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				✓

Noise is generally defined as unwanted or excessive sound, which can vary in intensity by over one million times within the range of human hearing; therefore, a logarithmic scale, known as the decibel scale (dB), is used to quantify sound intensity. Noise can be generated by a number of sources, including mobile sources such as automobiles, trucks, and airplanes, and stationary sources such as construction sites, machinery, and industrial operations.

Two of the primary factors that reduce levels of environmental sounds are increasing the distance between the sound source to the receiver and having intervening obstacles such as walls, buildings, or terrain features between the sound source and the receiver. Factors that act to increase the loudness of environmental sounds include moving the sound source closer to the receiver, sound enhancements caused by reflections, and focusing caused by various meteorological conditions.

U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency (Environmental Protection Agency) offers guidelines for community noise exposure in the publication *Noise Effects Handbook*. The guidelines consider occupational noise exposure as well as noise exposure in homes. The Environmental Protection Agency recognizes an exterior noise level of 55 decibels day-night level dBA L_{dn} as a general goal to protect the public from hearing loss, activity interference, sleep disturbance, and annoyance. The Environmental Protection Agency and other Federal agencies have adopted suggested land use compatibility guidelines that indicate that residential noise exposures of 55 dBA L_{dn} to 65 dBA L_{dn} are acceptable.



State of California

The State Office of Planning and Research *Noise Element Guidelines* include recommended exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The *Noise Element Guidelines* contain a land use compatibility table that describes the compatibility of various land uses with a range of environmental noise levels in terms of the Community Noise Equivalent Level (CNEL). A noise environment of 50 CNEL to 60 CNEL is considered to be of “normally acceptable” for residential uses. The Office of Planning and Research recommendations also note that, under certain conditions, more restrictive standards than the maximum levels cited may be appropriate. As an example, the standards for quiet suburban and rural communities may be reduced by 5 dBA CNEL to 10 dBA CNEL to reflect their lower existing outdoor noise levels in comparison with urban environments.

City of Long Beach

Chapter 8.80, *Noise*, of the City of Long Beach *Municipal Code* sets forth all noise regulations controlling unnecessary, excessive, and annoying noise and vibration in the City. As outlined in Chapter 8.80.150 of the *Municipal Code* and as indicated in Table 4.11-1, *Exterior Noise Limits*, maximum exterior noise levels are based on land use districts. The *Municipal Code*, Chapter 8.80, states the following:

- A. *The noise standards for the various land use districts identified by the noise control office as presented in Table A in Section 8.80.160 (Table 4.11-1) shall, unless otherwise specifically indicated, apply to all such property within a designated district.*
- B. *No person shall operate or cause to be operated any source of sound at any location within the incorporated limits of the city or allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, which causes the noise level when measured from any other property, either incorporated or unincorporated, to exceed:*
 1. *The noise standard for that land use district as specified in Table A in Section 8.80.160 (Table 4.11-1) for a cumulative period of more than thirty minutes in any hour; or*
 2. *The noise standard plus five decibels for a cumulative period of more than fifteen minutes in any hour; or*
 3. *The noise standard plus ten decibels for a cumulative period of more than five minutes in any hour; or*
 4. *The noise standard plus fifteen decibels for a cumulative period of more than one minute in any hour; or*
 5. *The noise standard plus twenty decibels or the maximum measured ambient, for any period of time.*
- C. *If the measured ambient level exceeds that permissible within any of the first four noise limit categories in subsection B of this section, the allowable noise exposure standard shall be increased in five decibels increments in each category as*



appropriate to encompass or reflect the ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category in subsection B of this section, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

**Table 4.11-1
Exterior Noise Standards**

Receiving Land Use District	Noise Level	Time Period
1 - Residential	50 db(A)	7:00 a.m. – 10:00 p.m.
	45 db(A)	10:00 p.m. – 7:00 a.m.
2 – Commercial Properties	60 db(A)	7:00 a.m. – 10:00 p.m.
	55 db(A)	10:00 p.m. – 7:00 a.m.
3 – Industrial Properties	65 db(A)	Any time
4 – Industrial Properties	70 db(A)	Any time
Source: City of Long Beach, <i>City of Long Beach Municipal Code</i> , April 2009.		

Additionally, the *Municipal Code*, Chapter 8.80.170, states the following regarding interior noise standards:

- A. *The interior noise standards for various land use districts as presented in table C (Table 4.11-2) shall apply, unless otherwise specifically indicated, within structures located in designated zones with windows in their normal seasonal configuration.*
- B. *No person shall operate, or cause to be operated, any source of sound indoors at any location within the incorporated limits of the city or allow the creation of any indoor noise which causes the noise level when measured inside the receiving dwelling unit to exceed:*
 - 1. *The noise standard for that land use district as specified in table C (Table 4.11-2) for a cumulative period of more than five (5) minutes in any hour; or*
 - 2. *The noise standard plus five decibels (5 dB) for a cumulative period of more than one minute in any hour; or*
 - 3. *The noise standard plus ten decibels (10 dB) or the maximum measured ambient, for any period of time.*
- C. *If the measured indoor ambient level exceeds that permissible within any of the first two (2) noise limit categories in this section, the allowable noise exposure standard shall be increased in five decibel (5 dB) increments in each category as appropriate to reflect the indoor ambient noise level. In the event the indoor ambient noise level exceeds the third noise limit category, the maximum allowable indoor noise level under said category shall be increased to reflect the maximum indoor ambient noise level.*



**Table 4.11-2
 Interior Noise Standards**

Land Use District	Noise Level	Time Period
All – residential	45 db(A)	7:00 a.m. – 10:00 p.m.
	35 db(A)	10:00 p.m. – 7:00 a.m.
All – school	45 db(A)	7:00 a.m. – 10:00 p.m.
Hospital, designated quiet zones, and noise sensitive areas	40 db(A)	Any time

Source: City of Long Beach, *City of Long Beach Municipal Code*, April 2009.

In addition, the City provides exemptions of the noise standards for street sales, animals and birds, stationary non-emergency signaling devices, emergency signaling devices, domestic power tools, air conditioning or air refrigerating equipment, and refuse collection vehicles. The City also includes an exemption in Section 8.80.330 of the *Municipal Code* for public health, safety, and welfare activities as follows:

The provisions of this chapter shall not apply to construction maintenance and repair operations conducted by public agencies and/or utility companies or their contractors which are deemed necessary to serve the best interests of the public and to protect the public health, welfare and safety, including, but not limited to, street sweeping, debris and limb removal, removal of downed wires, restoring electrical service, repairing traffic signals, unplugging sewers, vacuuming catchbasins, repairing of damaged poles, removal of abandoned vehicles, repairing of water hydrants and mains, gas lines, oil lines, sewers, storm drains, roads, sidewalks, etc.

Noise Measurements

In order to quantify existing ambient noise levels in the proposed project area, RBF Consulting conducted one ten-minute (12:53 p.m. to 1:03 p.m.) noise measurement within the residential uses along River Avenue near Lincoln Street on June 16, 2009. The measured noise level was 57.8 dBA. The complete result of the field measurement is included in Appendix E, Noise Data.

- a) ***Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?***

Less Than Significant Impact with Mitigation Incorporated. As stated above, Chapter 8.80, *Noise*, of the City’s *Municipal Code* sets forth all noise regulations controlling unnecessary, excessive, and annoying noise and vibration in the City. As outlined in *Municipal Code* Section 8.80.150, maximum exterior and interior noise levels are based on land use.

Short-Term Noise Impacts

Construction activities generally are temporary and have a short duration. Groundborne noise and other types of construction-related noise impacts would typically occur during the initial site preparation, which can create the highest levels



of noise. Generally, site preparation has the shortest duration of all construction phases. Activities that occur during this phase include earth moving and soils compaction. High groundborne noise levels and other miscellaneous noise levels can be created during this phase by the operation of heavy-duty equipment.

In addition to construction noise from the project site, increased noise would occur along access routes to the sites due to movement of equipment and workers. The project anticipates the construction of proposed improvements to take place over three months. Project construction activities entail demolition of roadway asphalt, excavation of trenches, placement of pipe, backfill and compaction, and re-paving the disturbed area. Temporary construction noise impacts vary because the acoustical intensity of the construction equipment ranges widely as a function of the equipment used and its activity level. The demolition and trenching sources are the noisiest with equipment noise typically ranging from 75 to 90 dB at 50 feet from the source. The loudest activities would occur for only a few days near any individual receiver because of the progressive nature of the project.

A reasonable worst-case assumption is that the three loudest pieces of equipment would operate simultaneously within a focused area and continuously over at least one hour. Table 4.11-3, *Maximum Noise Levels Generated By Construction Equipment*, identifies noise levels for each piece of equipment.

In order to estimate the “worst case” construction noise levels that may occur at an existing noise-sensitive receptor, the combined construction equipment noise levels have been calculated for the demolition, trenching, and paving phases. The demolition and trenching phases would include mostly site preparation activities. Construction equipment utilized during these phases would include tractors, loaders, concrete saw, bulldozer, and excavators. The paving phase would involve construction and asphalt laydown activities which would utilize cement mixers, backhoe, paver, and a roller.

**Table 4.11-3
 Maximum Noise Levels Generated by Construction Equipment**

Type of Equipment	Acoustical Use Factor ¹	L _{max} at 50 Feet (dBA)
Concrete Saw	20	90
Concrete Mixer Truck	40	79
Backhoe	40	78
Dozer	40	82
Excavator	40	81
Paver	50	77
Roller	20	80
Tractor	40	84
General Industrial Equipment	50	85
Note:		
1. Acoustical Use Factor (percent): Estimates the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.		
Source: Federal Highway Administration, <i>Roadway Construction Noise Model (FHWA-HEP-05-054)</i> , January 2006; refer to <u>Appendix E, Noise Data</u> .		



Operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. The primary sources of acoustical disturbance would be random incidents, which would last less than one minute, such as dropping large pieces of equipment or the hydraulic movement of machinery lifts. These estimations of noise levels take into account the distance to the receptor, attenuation from molecular absorption and anomalous excess attenuation.

Actual construction-related noise activities would be lower than these conservative rates and would cease upon completion of construction. The City's Noise Ordinance, of the *Municipal Code*, stipulates that noise generated from construction activities is exempted from the Noise Ordinance requirements between the hours of 7:00 a.m. and 7:00 p.m. on weekdays and between 9:00 a.m. and 6:00 p.m. on Saturdays. Construction is not permitted on Sundays. Additionally, Section 8.80.330 of the *Municipal Code* contains an exemption from the Noise Ordinance for public health, safety, and welfare activities. The project proposes improvements that would alleviate flooding hazards to surrounding residents within the Arlington neighborhood. Implementation of the recommended Mitigation Measure N-1 would ensure construction related noise impacts are minimized to the extent feasible. As such, with implementation of N-1 and compliance with the City's *Municipal Code*, Title 8, Health and Safety, construction noise impacts would be less than significant.

Mitigation Measures:

- N-1 Prior to site mobilization, a construction management plan shall be prepared which includes the following:
- All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers;
 - Construction noise reduction methods such as shutting off idling equipment, installing temporary acoustic barriers around stationary construction noise sources, maximizing the distance between construction equipment staging areas and occupied residential areas, and use of electric air compressors and similar power tools, rather than diesel equipment, shall be used where feasible;
 - During construction, stationary construction equipment shall be placed such that emitted noise is directed away from sensitive noise receivers;
 - During construction, stockpiling and vehicle staging areas shall be located as far as practical from noise sensitive receptors;
 - Operate earthmoving equipment on the construction site, as far away from vibration sensitive sites as possible; and
 - Property owners and occupants located within 100 feet of the project boundary shall be sent a notice, at least 15 days prior to commencement of construction of each phase, regarding the construction schedule of the proposed project. A sign, legible at a distance of 50 feet shall also be



posted at the project construction site. All notices and signs shall indicate the dates and duration of construction activities, as well as provide a contact name and a telephone number where residents can inquire about the construction process and register complaints.

b) *Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?*

Less Than Significant Impacts with Mitigation Incorporated.

Project construction can generate varying degrees of ground-borne vibration, depending on the construction procedure and the construction equipment used. Operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. The effect on buildings located in the vicinity of the construction site often varies depending on soil type, ground strata, and construction characteristics of the receiver building(s). The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. Ground-borne vibrations from construction activities rarely reach levels that damage structures.

The Federal Transit Administration (FTA) has published standard vibration velocities for construction equipment operations. In general, the FTA architectural damage criterion for continuous vibrations (i.e., 0.20 inch/second) appears to be conservative. The types of construction vibration impact include human annoyance and building damage. Human annoyance occurs when construction vibration rises significantly above the threshold of human perception for extended periods of time. Building damage can be cosmetic or structural. Typical vibration produced by construction equipment is illustrated in Table 4.11-4, Typical Vibration Levels for Construction Equipment.

**Table 4.11-4
Typical Vibration Levels for Construction Equipment**

<i>Equipment</i>	Approximate peak particle velocity at 25 feet (inches/second)	Approximate peak particle velocity at 75 feet (inches/second)
Loaded trucks	0.076	0.015
Small bulldozer	0.003	0.001
Jackhammer	0.035	0.007
Vibratory hammer	0.035	0.007
Notes:		
1. Peak particle ground velocity measured at 25 feet unless noted otherwise.		
2. Root mean square amplitude ground velocity in decibels (VdB) referenced to 1 micro-inch/second.		
Source: Federal Transit Administration, <i>Transit Noise and Vibration Impact Assessment Guidelines</i> , May 2006.		



Ground-borne vibration decreases rapidly with distance. As indicated in Table 4.11-4, based on the FTA data, vibration velocities from typical heavy construction equipment operations that would be used during project construction range from 0.003 to 0.076 inch-per-second peak particle velocity (PPV) at 25 feet from the source of activity. At 75 feet from the source of activity, vibration velocities range from 0.001 to 0.015 inch-per-second PPV. With regard to the proposed project, ground-borne vibration would be generated primarily during site clearing and demolition activities on-site and by off-site haul-truck travel.

The PPV from bulldozer and heavy truck operations is shown to be 0.089 inch-per-second PPV and 0.076 inch-per-second PPV, respectively, at a distance of 25 feet. Sensitive receptors in the project area range from approximately 12 to 100 feet from an active construction zone. Vibration from construction activities experienced at the nearest sensitive residential uses is expected to be below the 0.20 inch-per-second PPV significance threshold. Therefore, a less than significant impact would occur in this regard.

Mitigation Measures: Refer to Mitigation Measure N-1. No additional mitigation measures are required.

- c) ***A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?***

Less Than Significant Impact.

Long-Term Mobile Noise Impacts

The project proposes improvements to the storm drain system along River Avenue and the construction of an underground detention unit, which would not generate any new vehicular trips. Thus a less than significant impact would result in this regard.

Long-Term Stationary Noise Impacts

Upon project completion, noise in the project area would remain similar to existing noise levels. The proposed facilities would not involve any sources of stationary noise (i.e., pumps, generators, etc.). Therefore, no impact would result in this regard.

Mitigation Measures: No mitigation measures are required.

- d) ***A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?***

Less Than Significant Impact With Mitigation Incorporated. Refer to Responses 4.8(a) and 4.8(b).

Mitigation Measures: Refer to Mitigation Measures N-1. No additional mitigation measures are required.



- e) ***For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?***

No Impact. The project site is not located within an airport land use plan and not within two miles of a public airport or public-use airstrip. The Long Beach Municipal Airport is located approximately 3.4 miles east of the project site. According to the Noise Element of the *General Plan*, areas exposed to aircraft noise of CNEL 65 and higher are limited to within an approximate one mile radius of the airport. Implementation of the proposed project would not expose new residential or commercial uses to excessive noise levels associated with the operation of a public airport or private airstrip. Therefore, the proposed project would not expose people to excessive noise levels and no impact would occur in this regard.

Mitigation Measures: No mitigation measures are required.

- f) ***For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?***

No Impact. Refer to Response 4.11(e).

Mitigation Measures: No mitigation measures are required.



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4.12 POPULATION AND HOUSING

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				✓
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				✓
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				✓

- a) *Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?***

No Impact. Project implementation would only include the proposed infrastructure improvements along River Avenue, from Wardlow Avenue to the SCE easement. No residential or occupied structures are proposed. The proposed project is intended to alleviate current flooding hazards as a result of the existing deficient storm drainage system. The proposed project would not result in population growth within the City either directly or indirectly. Therefore, no impacts would result in this regard.

Mitigation Measures: No mitigation measures are required.

- b) *Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?***

No Impact. The project would not impact the existing structures in the project area or displace any existing housing in the area. Therefore, no impacts would occur in this regard.

Mitigation Measures: No mitigation measures are required.

- c) *Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?***

No Impact. Refer to Response 4.12(a) and 4.12(b).

Mitigation Measures: No mitigation measures are required.



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4.13 PUBLIC SERVICES

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
1) Fire protection?			✓	
2) Police protection?				✓
3) Schools?				✓
4) Parks?				✓
5) Other public facilities?				✓

a) ***Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:***

1) Fire protection?

Less Than Significant Impact. The Long Beach Fire Department (LBFD) provides fire protection and emergency response to the City. Twenty-five fire stations serve the City. LBFD headquarters is located at 3205 Lakewood Boulevard, approximately 4.8-miles east of the project site. The nearest is Fire Station 13 located at 2475 Adriatic Avenue, approximately 1.40-miles southeast of the project site. The project would not result in adverse impacts to fire services. During construction, access throughout the project area may be limited. However, LBFD would require standard conditions of approval, which would ensure that access to fire trucks is not impeded in the project vicinity.

Mitigation Measures: No mitigation measures are required.

2) Police protection?

No Impact. The City of Long Beach Police Department (LBPD) provides police protection to the City. The police station headquarters is located at 400 West Broadway, approximately 3.9-miles southeast of the project site. As the project consists of storm drain improvements, the proposed project does not include uses that would require additional police services or facilities. Therefore, no impacts would occur in this regard.



Mitigation Measures: No mitigation measures are required.

3) Schools?

No Impact. The project would not generate an increase in population or student generation, and would not result in impacts to school services.

Mitigation Measures: No mitigation measures are required.

4) Parks?

No Impact. Parks within the City would not be physically modified as part of the project. Therefore, project implementation would not result in substantial adverse physical impacts associated with parks or recreational facilities. No impact would occur in this regard.

Mitigation Measures: No mitigation measures are required.

5) Other public facilities?

No Impact. Project implementation would not increase the number of persons at the project site and would not result in an increase in the demand for other governmental agencies or facilities. Therefore, no impacts would result in this regard.

Mitigation Measures: No mitigation measures are required.



4.14 RECREATION

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				✓
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				✓

- a) ***Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?***

No Impact. There are 92 parks located within the City, encompassing 1,413 acres. The park nearest to the project site is Silverado Park, located approximately 0.60-miles to the southeast. The project improvements would not generate new residents within the City. Therefore, the project would not increase the use of existing neighborhood and regional parks or require the construction or expansion of recreational facilities. No impact would occur in this regard.

Mitigation Measures: No mitigation measures are required.

- b) ***Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?***

No Impact. Refer to Response 4.14(a).

Mitigation Measures: No mitigation measures are required.



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4.15 TRANSPORTATION/TRAFFIC

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?			✓	
b. Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?			✓	
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				✓
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				✓
e. Result in inadequate emergency access?			✓	
f. Result in inadequate parking capacity?			✓	
g. Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?				✓

- a) *Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?***

Less Than Significant Impact. The proposed project would only generate traffic trips during short-term construction activities. A minimal number of construction trips would be necessary for project implementation. Approximately 2.3 truck trips would be required for the hauling of demolished asphalt materials (approximately 46.3 cubic yards) to the disposal site. Also, approximately 4,500 cubic yards of soil would be excavated and deposited on the SCE property. This would require 225 truck trips to the adjacent SCE property. The remainder of construction trips would be construction worker trips to and from the project site each day of construction. Roadways would be partially blocked off during construction activities; however, they would remain accessible with standard traffic control devices. Long-term operation of the proposed project would not generate traffic trips, as the project consists of underground storm drain improvements. Therefore, impacts in this regard would be less than significant.

Mitigation Measures: No mitigation measures are required.

- b) *Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?***



Less Than Significant Impact. The proposed project would not create any new traffic trips other than the minimal number associated with the short-term construction period. The project would not increase the population within the City and would not cause a significant exceedance in the existing level of service. The Transportation Element of the *General Plan* establishes Level of Service (LOS) D as being the acceptable LOS standard. The *General Plan* identifies several roadways that are congested. However, none of these roadways traverse through the project limits. The proposed project would not result in additional traffic trips upon completion of construction and would not exceed an established LOS. Therefore, impacts in this regard are less than significant.

Mitigation Measures: No mitigation measures are required.

- c) ***Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?***

No Impact. The Long Beach Municipal Airport is located approximately 3.4 miles east of the project site. Construction or the operation of the project would not increase the frequency of air traffic or alter air traffic patterns. Therefore, no impacts would occur in this regard.

Mitigation Measures: No mitigation measures are required.

- d) ***Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?***

No Impact. The project would not alter the existing lane configurations or curb lines along River Avenue. All proposed improvements would be underground or within curb and gutter areas of River Avenue. In areas where trenching would occur, River Avenue would be rehabilitated to its pre-construction condition. Therefore, no impact would occur in this regard.

Mitigation Measures: No mitigation measures are required.

- e) ***Result in inadequate emergency access?***

Less Than Significant Impact. Traffic flow in the project area would be temporarily impacted during construction. However, construction of the proposed improvements would not obstruct emergency operations or access. Upon completion, operation of the project would not obstruct traffic flow or emergency operations. Additionally, the project would be required to comply with all City and State Safety Codes, and project plans would be reviewed by the City's Public Works Department. Additionally, refer to Response 4.7(g). Impacts in this regard are less than significant.

Mitigation Measures: No mitigation measures are necessary.

- f) ***Result in inadequate parking capacity?***

Less Than Significant Impact. The project would not generate an increase in population, and therefore would not cause a decrease in parking capacity. No additional parking would be necessary with implementation of the proposed project.



Street parking during short-term construction may be affected; however, this would be temporary and would cease upon completion of construction. Additionally, as stated in Section 2.4, *Project Description*, a traffic control plan would be prepared for the project which would include specifics on potential detours, flagmen, and temporary “no parking” areas. Impacts in this regard are less than significant.

Mitigation Measures: No mitigation measures are required.

g) *Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?*

No Impact. Transit services within the City are provided by Long Beach Transit (fixed-route bus service), Los Angeles County Metropolitan Transportation Authority (bus transit and the Metro Blue Line), Orange County Transportation Authority, Torrance Transit, and the Commuter Express operated by the City of Los Angeles Department of Transportation. The nearest transit stop to the project site is the Long Beach Transit Bus Routes 191 and 193 stop located at the intersection of Wardlow Road/223rd Street and McHelen Avenue (approximately 175 feet north of River Avenue). This transit stop is not located within an improvement area and would not be affected by short-term construction activities or long-term operations.

The City adopted the Bicycle Master Plan in December 2001. Bikeways within the City include Class I, Class II, and Class III bikeways. There are no bikeways located within the project site. The nearest bikeway to the project site is a Class I bikeway along the Los Angeles River, approximately 0.93 miles to the east. No bikeways within the City would be affected during short-term construction.

Long-term operation of the proposed project would not conflict with any policies, plans, or programs supporting alternative transportation. Construction activities would be short-term and would not affect transit routes or bikeways. Therefore, no impacts would result in this regard.

Mitigation Measures: No mitigation measures are required.



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4.16 UTILITIES AND SERVICE SYSTEMS

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				✓
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				✓
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				✓
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?			✓	
e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				✓
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			✓	
g. Comply with federal, state, and local statutes and regulations related to solid waste?			✓	

a) *Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?*

No Impact. The Los Angeles Regional Water Quality Control Board (RWQCB) protects ground and surface water quality within the project area. The RWQCB has adopted National Pollutant Discharge Elimination System (NPDES) Permits and Waste Discharge Requirements (WDRs), which regulate discharges into the City's water supply. The proposed project would be required to comply with the conditions of the NPDES permit, both during construction activities and during operations. The project would not include any development that would generate an increase in population causing an exceedance in wastewater treatment requirements. Therefore, no impact would occur in this regard.

Mitigation Measures: No mitigation measures are required.

b) *Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

No Impact. The proposed project would not require the construction of new water or wastewater treatment facilities. Therefore, no impact would result in this regard.

Mitigation Measures: No mitigation measures are required.



- c) ***Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?***

No Impact. The proposed project would involve improvements to the currently deficient storm water drainage system to bring the system to a full 10-year flood protection level. The project involves the construction of 1,021 feet of 48-inch RCP along River Avenue, modification of five catch basins, construction of six new catch basins, and construction of a detention system of five 84-inch (430 feet in length) underground pipelines. The ultimate outlet of the system would not be modified. The proposed improvements would alleviate current, and prevent future flooding hazards due to the heavy amount of storm water flow in the area, and would not result in increased sources of storm water. The project is located within a currently paved roadway with improved curbs and gutters. After project implementation, paved roadways, curbs, and gutters would remain. Improvements within the SCE property would remain unpaved. Therefore, no impact would occur.

Mitigation Measures: No mitigation measures are required.

- d) ***Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?***

Less Than Significant Impact. The proposed project would not create an increase in population, as the project would involve improvements to the existing storm drain system. Therefore, project operations would not require water supplies beyond those typically required during standard construction practices. Impacts in this regard are less than significant.

Mitigation Measures: No mitigation measures are required.

- e) ***Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?***

No Impact. Refer to Response 4.16(b).

Mitigation Measures: No mitigation measures are required.

- f) ***Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?***

Less Than Significant Impact. Solid waste from the project that cannot be recycled or reduced would be disposed of in two ways. Most trash in the City is taken to the Southeast Resource Recovery Center (SERRF) to be incinerated and converted to electricity. The residue from this process is taken to landfills to be used as road base. The remainder of the City's trash is taken to the Puente Hills Landfill in the City of Whittier. The Puente Hills Landfill has a total permitted capacity of 106.4 million cubic yards, of which 49.4 million cubic yards is the remaining capacity. The



landfill is anticipated to close in 2013.¹ Additionally, the City has implemented a Construction and Demolition Recycling program (Section 18.97 of the *Municipal Code*) that requires certain demolition and/or construction projects to divert at least 60 percent of waste from landfills through recycling, salvage, or deconstruction.

Solid waste (including recycled materials) in the area is handled and transported by the City's Refuse Collection Division. The proposed project is anticipated to generate solid waste only during construction. Construction and demolition materials associated with asphalt removal would either be recycled or disposed of in the Puente Hills Landfill. The project would not significantly increase the amount of solid waste generated by the City. Therefore, a less than significant impact would occur in this regard.

Mitigation Measures: No mitigation measures are required.

g) *Comply with federal, state, and local statutes and regulations related to solid waste?*

Less Than Significant Impact. The proposed project would be in full compliance with Federal, State, and local regulations in regards to solid waste. As stated in Response 4.16(f), solid waste generated from construction of the proposed project would either be recycled, or disposed of in the Puente Hills Landfill (which is fully permitted to receive such solid waste). A less than significant impact would occur in this regard.

Mitigation Measures: No mitigation measures are required.

¹ Solid Waste Facility Listing: <http://www.ciwmb.ca.gov/Swis/search.aspx>, July 2009.



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4.17 MANDATORY FINDINGS OF SIGNIFICANCE

<i>Would the project:</i>	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?				✓
b. Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?			✓	
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?		✓		

- a) *Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?***

No Impact. The project site is not located within any habitat areas of the City according to Figure 5, Habitats, of the Conservation Element of the *General Plan*. The nearest habitat location is approximately 0.95 miles east within the Los Angeles River. The proposed areas for improvement have no potential to support State- or Federally-listed special status plant or wildlife species and no focused surveys for any special status species are required. Therefore, the proposed project would not degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory.

- b) *Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?***

Less Than Significant Impact. Due to the nature of the proposed project (i.e., storm drain improvements), implementation would not involve significant cumulative impacts. Project implementation would not result in an increased storm drain system



capacity other than what is needed to alleviate current flooding hazards. The proposed project would not result in substantial population growth within the City, either directly or indirectly. Although the project may incrementally affect other resources that were determined to be less than significant, the project's contribution to these effects is not considered "cumulatively considerable", in consideration of the relatively nominal impacts of the project and mitigation measures provided. Refer to Section 4.0, *Environmental Analysis*, for a detailed discussion of cumulative impacts per each respective issue area analyzed.

c) ***Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?***

Less Than Significant With Mitigation Incorporated. Previous sections of this Initial Study/Mitigated Negative Declaration reviewed the proposed project's potential impacts related to air pollution, noise, hazards and hazardous materials, and other issues. As concluded in these previous discussions, the proposed project would result in less than significant environmental impacts with implementation of the recommended mitigation measures. Therefore, the proposed project would not result in environmental impacts that would cause substantial adverse effects on human beings.



4.18 REFERENCES

The following references were utilized during preparation of this Initial Study. These documents are available for review at the City of Long Beach, 333 West Ocean Boulevard, Long Beach, California 90802 or accessed at the indicated web page.

1. California Air Resources Board, *Climate Change Proposed Scoping Plan*, October 2008, <http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm>.
2. California Air Pollution Control Officers Association, *CEQA and Climate Change*, January 2008, <http://www.capcoa.org/ceqa/CAPCOA%20White%20Paper.pdf>.
3. California Department of Conservation Division of Mines and Geology, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Report*, August 2000, <http://minerals.usgs.gov/minerals/pubs/state/980601mp.pdf>, accessed November 2008.
4. California Energy Commission, *Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2006*, 2006, http://www.energy.ca.gov/2006publications/CEC_600_2006_013/CEC_600_2006_013_SF.PDF.
5. California Environmental Quality Act, 1970, as amended, Public Resources Code Sections 21000-21178, <http://ceres.ca.gov/ceqa/>.
6. California State Office of Planning and Research, *Noise Element Guidelines*, October 2003, http://www.opr.ca.gov/planning/publications/General_Plan_Guidelines_2003.pdf.
7. City of Long Beach, *Air Quality Element*, dated December 1996.
8. City of Long Beach, *Bicycle Master Plan*, dated December 2001.
9. City of Long Beach, *Conservation Element*, dated April 1973.
10. City of Long Beach, *Housing Element*, dated May 2009.
11. City of Long Beach, *Land Use Element*, dated July 1989.
12. City of Long Beach, *Local Coastal Program*, dated February 1980.
13. City of Long Beach, *Noise Element*, dated March 1975.
14. City of Long Beach, *Open Space Element*, dated October 2002.
15. City of Long Beach, *Public Safety Element*, dated May 1975.
16. City of Long Beach, *Seismic Safety Element*, dated October 1988.
17. City of Long Beach, *Transportation Element*, dated December 1991.



18. City of Long Beach, *Natural Hazards Mitigation Plan*, dated October 19, 2004.
19. City of Long Beach, *Municipal Code*, enacted April 21, 2009.
20. County of Los Angeles, *River Avenue Storm Drain Retention System Project Design Concept*, August 17, 2006.
21. Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Guidelines*, May 2006, http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf.
22. Google Earth Maps, <http://maps.google.com>, accessed July 2009.
23. Kleinfelder, *Phase I Environmental Site Assessment – Proposed River Avenue Drain Phase II Project*, May 16, 2008.
24. Kleinfelder, *Report of Geotechnical Investigation – Proposed River Avenue Drain Phase II Project*, May 16, 2008.
25. Official Website of the City of Long Beach, <http://www.longbeach.gov/>, accessed July 2009.
26. *River Avenue Storm Drain Hydrology Report*, November 8, 2005.
27. South California Air Quality Management District, *Air Quality Management Plan for the South Coast Air Basin*, 2007, <http://www.aqmd.gov/aqmp/07aqmp/07AQMP.html>.
28. South Coast Air Quality Management District, *CEQA Air Quality Handbook*, November 1993, <http://www.aqmd.gov/ceqa/hdbk.html>.
29. South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology, Appendix C*, revised July 2008, <http://www.aqmd.gov/CEQA/handbook/LST/LST.html>.
30. United States Environmental Protection Agency, *Noise Effects Handbook – A Desk Reference to Health and Welfare Effects of Noise*, October 1979, revised July 1981, <http://www.nonoise.org/library/handbook/handbook.htm>.



4.19 REPORT PREPARATION PERSONNEL

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562.570.6771

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Ms. Angela Reynolds, Manager, Neighborhood Services Bureau
Ms. Jill Griffiths, Advance Planning Officer
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Mr. Glenn Lajoie, AICP, Vice President, Environmental Services
Mr. Eddie Torres, Project Director
Ms. Kristen Bogue, Project Manager/Environmental Analyst
Ms. Kelly Chiene, Environmental Analyst
Mr. Gary Gick, Word Processor
Ms. Linda Bo, Graphic Artist

Other Interested Parties

Southern California Edison Company
Corporate Real Estate
14799 Chestnut Street
Westminster, CA 92683

Ms. Christina Nuanez, Right of Way Agent



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5.0 INVENTORY OF MITIGATION MEASURES

Air Quality

AQ-1 During clearing, grading, earth moving, or excavation operations, excessive fugitive dust emissions must be controlled by regular water or other dust preventive measures using the following procedures, as specified in the SCAQMD Rule 403.

- Limit on-site vehicle speed to 15 miles per hour.
- Water material excavated or graded sufficiently to prevent excessive amounts of dust. Water at least twice daily with complete coverage, preferably in the late morning and after work is done for the day.
- Water or securely cover material transported on-site or off-site sufficiently to prevent generating excessive amounts of dust.
- Minimize area disturbed by clearing, grading, earth moving, or excavation operations so as to prevent generating excessive amounts of dust.
- Indicate these control techniques in project specifications. Compliance with the measure will be subject to periodic site inspections by the City.
- Prevent visible dust from the project from emanating beyond the property line, to the maximum extent feasible.
- Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for ten days or more).
- Trucks transporting soil, sand, cut or fill materials, and/or construction debris to or from the site must be tarped from the point of origin.

AQ-2 Ozone precursor emissions from construction equipment vehicles must be controlled by maintaining equipment engines in good condition and in proper tune per manufacturer's specifications, to the satisfaction of the City Engineer. Compliance with this measure must be subject to periodic inspections of construction equipment vehicles by the City and included in construction bid documents.

AQ-3 All trucks that are to haul material must comply with California Vehicle Code Section 23114, with special attention to Sections 23114(b)(F), (e)(2) and (e)(4) as amended, regarding the prevention of such material spilling onto public streets and roads. This provision must be provided in construction bid documents.



- AQ-4 Construction hours, allowable work days, and phone numbers of the job superintendent must be clearly posted at all construction entrances to allow for surrounding property owners and residents to contact the job superintendent. If the job superintendent receives a complaint, appropriate corrective actions must be implemented immediately and a report taken to the reporting party.
- AQ-5 Backup generators shall be used only for emergency operations. All backup generators shall be selected in consultation with the SCAQMD from their list of certified internal combustion engines.

Cultural Resources

- CUL-1 If cultural materials or archeological remains are encountered during the course of grading or construction activities, the project contractor shall cease any ground disturbing activities near the find. A qualified archaeologist, approved by the City of Long Beach, shall be retained to evaluate significance of the resources and recommend appropriate treatment measures. Treatment measures may include avoidance, preservation, removal, data recovery, protection, or other measures developed in consultation with the City of Long Beach.

Geology and Soils

- GEO-1 Prior to grading operations, a soils report shall be prepared for the proposed development to identify the potential for liquefaction, expansive soils, ground settlement, and slope failure. The report shall also:
- Specify loose alluvium that shall be excavated and removed from the site, as it is considered unsuitable for reuse as structural fill.
 - Specify remedial measures that could be feasibly implemented to minimize potential impact.
 - Analyze the potential for groundwater within the study area and recommend measures to remediate associated conditions.
 - Determine the need for dewatering of areas during construction to remove all water within the excavation perimeter and recommend appropriate method of dewatering.

Hazards and Hazardous Materials

- HAZ-1 Prior to construction activities, an Environmental Professional shall conduct Phase II sampling on the Southern California Edison property within the area of disturbance to confirm or deny the presence of pesticides. Should sampling deny the presence of pesticides, sampling procedures would be deemed complete. Should sampling confirm the presence of pesticides, the Environmental Professional shall recommend further site characterization and/or remedial actions, if necessary.



HAZ-2 Prior to construction activities, the exact location of petroleum pipelines along River Avenue and within the footprint of the proposed detention unit on the Southern California Edison property shall be identified. The City of Long Beach shall confirm the locations with the following petroleum pipeline owners: ConcoPhillips, Defense Energy Support Center, Kinder Morgan, Pacific Pipeline System, and Paramount.

Noise

N-1 Prior to site mobilization, a construction management plan shall be prepared which includes the following:

- All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers;
- Construction noise reduction methods such as shutting off idling equipment, installing temporary acoustic barriers around stationary construction noise sources, maximizing the distance between construction equipment staging areas and occupied residential areas, and use of electric air compressors and similar power tools, rather than diesel equipment, shall be used where feasible;
- During construction, stationary construction equipment shall be placed such that emitted noise is directed away from sensitive noise receivers;
- During construction, stockpiling and vehicle staging areas shall be located as far as practical from noise sensitive receptors;
- Operate earthmoving equipment on the construction site, as far away from vibration sensitive sites as possible; and
- Property owners and occupants located within 100 feet of the project boundary shall be sent a notice, at least 15 days prior to commencement of construction of each phase, regarding the construction schedule of the proposed project. A sign, legible at a distance of 50 feet shall also be posted at the project construction site. All notices and signs shall indicate the dates and duration of construction activities, as well as provide a contact name and a telephone number where residents can inquire about the construction process and register complaints.



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6.0 CONSULTANT RECOMMENDATION

Based on the information and environmental analysis contained in the Initial Study and Environmental Checklist, we recommend that the City of Long Beach prepare a Mitigated Negative Declaration for the River Avenue Storm Drain Improvements Project. We find that the proposed project could have a significant effect on a number of environmental issues, but that mitigation measures have been specified that would reduce such impacts to a less than significant level. We recommend that the second category be selected for the City of Long Beach's determination; refer to Section 3.3, Lead Agency Determination.

July 31, 2009
Date

A handwritten signature in black ink, appearing to read "Eddie Torres", written over a horizontal line.

Eddie Torres
Project Manager
Planning/Environmental Services
RBF Consulting



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APPENDICES

- A. Air Quality Data
- B. Geotechnical Investigation
- C. Phase I Environmental Site Assessment
- D. Hydrology Report
- E. Noise Data

APPENDIX A:
Air Quality Data

**Parenthetical URBEMIS2007 (Version 9.2.4) Assumptions
For: River Avenue Storm Drain Improvements Project
Date: July 2009**

LAND USES

Land Use Type	Unit Type	Trip Rate
Construction Activities	Worker Trips	20 trips/day

CONSTRUCTION SOURCES

Year	Duration (months)	Development
2009	2	Demolition, Trenching, and Paving
2010	1	Trenching

Phase 1 - Demolition:

Year	Total Volume (cubic feet):	Daily Volume (cubic feet):	Distance to Disposal Site
2009	1,250	40	10 Miles

Demolition Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
2	Tractor/Loaders/Backhoe	6
1	Concrete/Industrial Saw	8
1	Rubber Tired Dozer	1

Phase 2 - Trenching:

Year	Duration (months)
2009	2
2010	1

Trenching Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
2	Excavators	8
1	Other General Industrial Equipment	8

Phase 3 - Paving:

Year	Duration (days)	Acres
2009	1	.12

Equipment (URBEMIS2007 Default):

Quantity	Type	Hours of Daily Operation
4	Cement and Mortar Mixers	6
1	Paver	7
1	Roller	7

Sub- Phase 5 - Worker Commute

(URBEMIS2007 default all phases)

Construction Mitigation:

Refer to URBEMIS2007 file output.

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\River Avenue.urb924

Project Name: River Avenue

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2009 TOTALS (tons/year unmitigated)	0.07	0.56	0.31	0.00	0.00	0.03	0.03	0.00	0.03	0.03	54.97
2010 TOTALS (tons/year unmitigated)	0.02	0.20	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	20.23

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
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2009	0.07	0.56	0.31	0.00	0.00	0.03	0.03	0.00	0.03	0.03	54.97
Demolition 11/01/2009-12/15/2009	0.02	0.13	0.09	0.00	0.00	0.01	0.01	0.00	0.01	0.01	13.22
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.02	0.13	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	11.20
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
Demo Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99
Trenching 11/01/2009-02/01/2010	0.05	0.42	0.21	0.00	0.00	0.02	0.02	0.00	0.02	0.02	40.46
Trenching Off Road Diesel	0.05	0.42	0.18	0.00	0.00	0.02	0.02	0.00	0.02	0.02	37.72
Trenching Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.74
Asphalt 12/30/2009-12/31/2009	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.29
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
Paving Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
2010	0.02	0.20	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	20.23
Trenching 11/01/2009-02/01/2010	0.02	0.20	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	20.23
Trenching Off Road Diesel	0.02	0.19	0.09	0.00	0.00	0.01	0.01	0.00	0.01	0.01	18.86
Trenching Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37

Phase Assumptions

Phase: Demolition 11/1/2009 - 12/15/2009 - Default Demolition Description

Building Volume Total (cubic feet): 1250

Building Volume Daily (cubic feet): 40

On Road Truck Travel (VMT): 0.37

Off-Road Equipment:

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- 1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day
- 1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day
- 2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Trenching 11/1/2009 - 2/1/2010 - Default Trenching Description

Off-Road Equipment:

- 2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
- 1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day

Phase: Paving 12/30/2009 - 12/31/2009 - Default Paving Description

Acres to be Paved: 0.12

Off-Road Equipment:

- 4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
- 1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
- 1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\River Avenue.urb924

Project Name: River Avenue

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2009 TOTALS (lbs/day unmitigated)	4.57	32.37	18.75	0.00	0.03	2.06	2.08	0.01	1.89	1.90	3,127.34
2010 TOTALS (lbs/day unmitigated)	2.09	17.75	9.26	0.00	0.01	0.88	0.89	0.00	0.81	0.81	1,839.03

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
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7/16/2009 10:31:12 AM

Time Slice 11/2/2009-12/15/2009 Active Days: 32	3.49	27.20	15.37	0.00	0.03	1.58	1.61	0.01	1.45	1.46	2,665.37
Demolition 11/01/2009-12/15/2009	1.27	8.23	5.92	0.00	0.02	0.64	0.67	0.01	0.59	0.60	826.30
Fugitive Dust	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00
Demo Off Road Diesel	1.23	8.15	4.78	0.00	0.00	0.64	0.64	0.00	0.59	0.59	700.30
Demo On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57
Demo Worker Trips	0.04	0.07	1.13	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.43
Trenching 11/01/2009-02/01/2010	2.22	18.96	9.45	0.00	0.01	0.93	0.94	0.00	0.86	0.86	1,839.07
Trenching Off Road Diesel	2.18	18.90	8.32	0.00	0.00	0.93	0.93	0.00	0.86	0.86	1,714.64
Trenching Worker Trips	0.04	0.07	1.13	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.43
Time Slice 12/16/2009-12/29/2009 Active Days: 10	2.22	18.96	9.45	0.00	0.01	0.93	0.94	0.00	0.86	0.86	1,839.07
Trenching 11/01/2009-02/01/2010	2.22	18.96	9.45	0.00	0.01	0.93	0.94	0.00	0.86	0.86	1,839.07
Trenching Off Road Diesel	2.18	18.90	8.32	0.00	0.00	0.93	0.93	0.00	0.86	0.86	1,714.64
Trenching Worker Trips	0.04	0.07	1.13	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.43
Time Slice 12/30/2009-12/31/2009 Active Days: 2	4.57	32.37	18.75	0.00	0.02	2.06	2.08	0.01	1.89	1.90	3,127.34
Asphalt 12/30/2009-12/31/2009	2.36	13.41	9.30	0.00	0.01	1.12	1.14	0.00	1.03	1.04	1,288.27
Paving Off-Gas	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.08	12.55	7.05	0.00	0.00	1.09	1.09	0.00	1.00	1.00	979.23
Paving On Road Diesel	0.06	0.74	0.28	0.00	0.00	0.03	0.03	0.00	0.03	0.03	91.29
Paving Worker Trips	0.06	0.12	1.97	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.75
Trenching 11/01/2009-02/01/2010	2.22	18.96	9.45	0.00	0.01	0.93	0.94	0.00	0.86	0.86	1,839.07
Trenching Off Road Diesel	2.18	18.90	8.32	0.00	0.00	0.93	0.93	0.00	0.86	0.86	1,714.64
Trenching Worker Trips	0.04	0.07	1.13	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.43

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Time Slice 1/1/2010-2/1/2010 Active Days: 22	<u>2.09</u>	<u>17.75</u>	<u>9.26</u>	<u>0.00</u>	<u>0.01</u>	<u>0.88</u>	<u>0.89</u>	<u>0.00</u>	<u>0.81</u>	<u>0.81</u>	<u>1,839.03</u>
Trenching 11/01/2009-02/01/2010	2.09	17.75	9.26	0.00	0.01	0.88	0.89	0.00	0.81	0.81	1,839.03
Trenching Off Road Diesel	2.06	17.69	8.22	0.00	0.00	0.88	0.88	0.00	0.81	0.81	1,714.64
Trenching Worker Trips	0.03	0.06	1.05	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.39

Phase Assumptions

Phase: Demolition 11/1/2009 - 12/15/2009 - Default Demolition Description

Building Volume Total (cubic feet): 1250

Building Volume Daily (cubic feet): 40

On Road Truck Travel (VMT): 0.37

Off-Road Equipment:

- 1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day
- 1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day
- 2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Trenching 11/1/2009 - 2/1/2010 - Default Trenching Description

Off-Road Equipment:

- 2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
- 1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day

Phase: Paving 12/30/2009 - 12/31/2009 - Default Paving Description

Acres to be Paved: 0.12

Off-Road Equipment:

- 4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
- 1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
- 1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: I:\pdata\00000100\10P\WPWIN\EddieT\Programs\Air\URBEMIS\URBEMIS2007\River Avenue.urb924

Project Name: River Avenue

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2009 TOTALS (lbs/day unmitigated)	4.57	32.37	18.75	0.00	0.03	2.06	2.08	0.01	1.89	1.90	3,127.34
2010 TOTALS (lbs/day unmitigated)	2.09	17.75	9.26	0.00	0.01	0.88	0.89	0.00	0.81	0.81	1,839.03

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
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7/16/2009 10:31:33 AM

Time Slice 11/2/2009-12/15/2009 Active Days: 32	3.49	27.20	15.37	0.00	<u>0.03</u>	1.58	1.61	<u>0.01</u>	1.45	1.46	2,665.37
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Fugitive Dust	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00
Demo Off Road Diesel	1.23	8.15	4.78	0.00	0.00	0.64	0.64	0.00	0.59	0.59	700.30
Demo On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57
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Trenching 11/01/2009-02/01/2010	2.22	18.96	9.45	0.00	0.01	0.93	0.94	0.00	0.86	0.86	1,839.07
Trenching Off Road Diesel	2.18	18.90	8.32	0.00	0.00	0.93	0.93	0.00	0.86	0.86	1,714.64
Trenching Worker Trips	0.04	0.07	1.13	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.43
Time Slice 12/16/2009-12/29/2009 Active Days: 10	2.22	18.96	9.45	0.00	0.01	0.93	0.94	0.00	0.86	0.86	1,839.07
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Trenching Worker Trips	0.04	0.07	1.13	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.43
Time Slice 12/30/2009-12/31/2009 Active Days: 2	<u>4.57</u>	<u>32.37</u>	<u>18.75</u>	<u>0.00</u>	0.02	<u>2.06</u>	<u>2.08</u>	0.01	<u>1.89</u>	<u>1.90</u>	<u>3,127.34</u>
Asphalt 12/30/2009-12/31/2009	2.36	13.41	9.30	0.00	0.01	1.12	1.14	0.00	1.03	1.04	1,288.27
Paving Off-Gas	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.08	12.55	7.05	0.00	0.00	1.09	1.09	0.00	1.00	1.00	979.23
Paving On Road Diesel	0.06	0.74	0.28	0.00	0.00	0.03	0.03	0.00	0.03	0.03	91.29
Paving Worker Trips	0.06	0.12	1.97	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.75
Trenching 11/01/2009-02/01/2010	2.22	18.96	9.45	0.00	0.01	0.93	0.94	0.00	0.86	0.86	1,839.07
Trenching Off Road Diesel	2.18	18.90	8.32	0.00	0.00	0.93	0.93	0.00	0.86	0.86	1,714.64
Trenching Worker Trips	0.04	0.07	1.13	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.43

7/16/2009 10:31:33 AM

Time Slice 1/1/2010-2/1/2010 Active Days: 22	<u>2.09</u>	<u>17.75</u>	<u>9.26</u>	<u>0.00</u>	<u>0.01</u>	<u>0.88</u>	<u>0.89</u>	<u>0.00</u>	<u>0.81</u>	<u>0.81</u>	<u>1,839.03</u>
Trenching 11/01/2009-02/01/2010	2.09	17.75	9.26	0.00	0.01	0.88	0.89	0.00	0.81	0.81	1,839.03
Trenching Off Road Diesel	2.06	17.69	8.22	0.00	0.00	0.88	0.88	0.00	0.81	0.81	1,714.64
Trenching Worker Trips	0.03	0.06	1.05	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.39

Phase Assumptions

Phase: Demolition 11/1/2009 - 12/15/2009 - Default Demolition Description

Building Volume Total (cubic feet): 1250

Building Volume Daily (cubic feet): 40

On Road Truck Travel (VMT): 0.37

Off-Road Equipment:

- 1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day
- 1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day
- 2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Trenching 11/1/2009 - 2/1/2010 - Default Trenching Description

Off-Road Equipment:

- 2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
- 1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day

Phase: Paving 12/30/2009 - 12/31/2009 - Default Paving Description

Acres to be Paved: 0.12

Off-Road Equipment:

- 4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
- 1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
- 1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Construction Emissions

Year 2009

Demolition

Duration (days): 30

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO ₂	CH ₄	N ₂ O			CO ₂	CH ₄	N ₂ O	CO ₂	CH ₄	N ₂ O
Tractors/Loaders/Backhoes	66.8	0.0092	0.0017	6	2	133.6	0.0184	0.0034	12.0240	0.0017	0.0003
Concrete/Industrial Saws	58.5	0.0114	0.0015	8	1	58.5	0.0114	0.0015	7.0200	0.0014	0.0002
Rubber Tired Dozers	239.1	0.0305	0.0062	1	1	239.1	0.0305	0.0062	3.5865	0.0005	0.0001
Total Emissions for Demolition									22.6305	0.0035	0.0006

Trenching

Duration (days): 40

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO ₂	N ₂ O	CH ₄			CO ₂	N ₂ O	CH ₄	CO ₂	N ₂ O	CH ₄
Excavators	119.6	0.0134	0.0031	8	2	239.2	0.0268	0.0062	38.2720	0.0043	0.0010
Other General Industrial Equipment	152.2	0.0166	0.004	8	1	152.2	0.0166	0.0040	24.3520	0.0027	0.0006
Total Emissions for Trenching									62.6240	0.0069	0.0016

Paving

Duration (days): 1

Equipment	Emission Factors			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO ₂	N ₂ O	CH ₄			CO ₂	N ₂ O	CH ₄	CO ₂	N ₂ O	CH ₄
Cement and Mortar Mixers	7.2	0.0009	0.0002	6	4	28.8	0.0036	0.0008	0.0864	0.0000	0.0000
Pavers	77.9	0.016	0.002	7	1	77.9	0.0160	0.0020	0.2727	0.0001	0.0000
Rollers	67.1	0.0106	0.0018	7	1	67.1	0.0106	0.0018	0.2349	0.0000	0.0000
Tractors/Loaders/Backhoes	66.8	0.0092	0.0017	7	1	66.8	0.0092	0.0017	0.2338	0.0000	0.0000
Total Emissions for Paving									0.8277	0.0001	0.0000

Total Construction Emissions - Year 2009

<i>tons/year</i>	86.08	0.01	0.00
<i>metric tons/year</i>	78.09	0.01	0.00
<i>metric tons CO₂ eq/year</i>	78.09	2.97	0.04

Year 2010

Trenching

Duration (days): 20

Equipment	Emission Factors			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO ₂	N ₂ O	CH ₄			CO ₂	N ₂ O	CH ₄	CO ₂	N ₂ O	CH ₄
Cement and Mortar Mixers	7.2	0.0009	0.0002	6	4	28.8	0.0036	0.0008	1.7280	0.0002	0.0000
Pavers	77.9	0.016	0.002	7	1	77.9	0.0160	0.0020	5.4530	0.0011	0.0001
Rollers	67.1	0.0106	0.0018	7	1	67.1	0.0106	0.0018	4.6970	0.0007	0.0001
Tractors/Loaders/Backhoes	66.8	0.0092	0.0017	7	1	66.8	0.0092	0.0017	4.6760	0.0006	0.0001
Total Emissions for Building Construction									16.5540	0.0027	0.0004

Total Construction Emissions - Year 2010

<i>tons/year</i>	16.55	0.00	0.00
<i>metric tons/year</i>	15.02	0.00	0.00
<i>metric tons CO₂ eq/year</i>	15.02	0.77	0.01

Notes:

Construction Equipment Emission Factor Source: Provided by SCAQMD.

Refer to the URBEMIS 2007 assumptions and model output for construction equipment assumptions

APPENDIX B:
Geotechnical Investigation

**REPORT OF
GEOTECHNICAL INVESTIGATION
PROPOSED
RIVER AVENUE DRAIN PHASE II PROJECT
RIVER AVENUE AND MCHELEN AVENUE
LONG BEACH, CALIFORNIA**

MAY 16, 2008

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May 16, 2008
File No: 93788

Mr. Frank Sanchez P.E.
Civil Engineer
City of Long Beach
Department of Public Works
Bureau of Engineering/Project Management Division
333 West Ocean Boulevard, 9th Floor
Long Beach, California 90802

**Subject: Report of Geotechnical Investigation
Proposed River Avenue Drain Phase II Project
River Avenue and McHelen Avenue
Long Beach, California**

Dear Mr. Sanchez

Kleinfelder is pleased to present this report summarizing our geotechnical investigation conducted for the subject project.

The project alignment is located along River Avenue and McHelen Avenue, just north of the existing Edison property (south of Arlington Street) and terminating in the vicinity of the intersection of McHelen Avenue with 221st Street. The purpose of our investigation was to explore and evaluate the subsurface conditions along the project alignment and provide geotechnical recommendations for design and construction of the subject project.

The findings of our investigation and our conclusions and recommendations pertaining to this project are presented in the attached report.

We appreciate the opportunity to be of service on this project. If you have any questions or require additional information, please do not hesitate to contact the undersigned.

Respectfully submitted,

KLEINFELDER

M. Sieradzki
Mariusz P. Sieradzki, Ph.D., P.E.
Principal Engineer



Paul D. Guptill
Paul D. Guptill, P.G., C.E.G.
Senior Principal Engineering Geologist

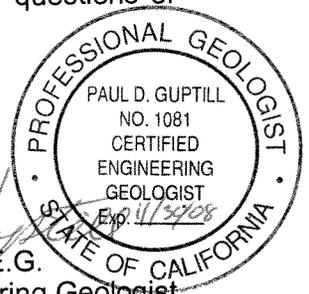


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- Appendix A Field Exploration
- Appendix B Laboratory Testing
- Appendix C Engineering Analyses

PLATES

- Plate 1 Site Location Map
- Plate 2 Boring Location Map

EXECUTIVE SUMMARY

This report presents the results of our geotechnical investigation for the proposed River Avenue Drain Phase II project located along River Avenue and McHelen Avenue, in Long Beach, California. The purposes of this investigation were to evaluate the general subsurface soil conditions, the nature and engineering properties of the subsurface soils, to assess developing the site for the intended purpose, and to provide recommendations for the design and construction of the proposed project. Phase I, Environmental Site Assessment along the project alignment is presented in a separate report prepared by Kleinfelder. This executive summary briefly summarizes results of our geotechnical investigation for the subject project and should be used only in conjunction with the findings and conclusions presented in the following report.

The site subsurface conditions were investigated by conducting a field exploration program and by performing laboratory testing on select samples from those boreholes. Six exploratory borings were advanced along the project alignment. The borings were advanced to depths ranging between 16 to 51 feet below the existing ground surface (bgs). Selected soil samples were tested in our laboratory to evaluate pertinent engineering properties.

The principal soil deposits encountered during our investigation generally consisted of loose to medium dense silty sand and sandy silt underlain by medium stiff to stiff sandy clay. In the deeper boring, layer of dense sand with silt was encountered below the depth of approximately 25 feet. Groundwater was encountered in one boring at depth of 25 feet at the time of drilling. The depth to historic high groundwater at the project alignment is reported to be approximately 20 feet below the existing grades (CDMG, 2001)

A review of selected geologic data indicates that no known active or potentially active faults cross the site. The closest mapped fault is the Newport Inglewood fault, located approximately 6,000 feet northeast of the project alignment. The project site is located within a State of California Hazard Zone for Liquefaction (CDMG, 1999).

Based on the results of our field and laboratory investigation, if our engineering considerations are addressed by the design, it is our opinion that design and construction of the projects is feasible from a geotechnical standpoint.

1. INTRODUCTION

1.1 GENERAL

Kleinfelder was retained by the City of Long Beach (City) to conduct a geotechnical investigation for the River Avenue Drain Phase II Project. The project alignment is located along River Avenue and McHelen Avenue, just north of the existing Edison Property (south of Arlington Street) and terminating in the vicinity of the intersection of McHelen Avenue and 221st Street. The location of the site is presented in Plate 1, Site Location Map. The scope of our services was presented in a proposal entitled, "Revised Proposal for Geotechnical Investigation and Environmental Site Assessment, Proposed River Avenue Drain Phase II Project, Long Beach California", dated February 13, 2008.

This report presents our geotechnical recommendations for the design and construction of the project. Phase I, Environmental Site Assessment is presented in a separate report prepared by Kleinfelder. Geotechnical conclusions and recommendations presented in this report are based on the subsurface conditions encountered at the locations of our explorations and the provisions and requirements outlined in the Additional Services and Limitations Sections of this report. Recommendations presented herein should not be extrapolated to other areas or be used for other projects without our prior review.

1.2 PURPOSE AND SCOPE

The purpose of this investigation was to explore and evaluate subsurface conditions at the site and to provide geotechnical recommendations for design and construction of the proposed project. A description of the scope of services performed is presented below.

- Review available existing geologic and geotechnical data.
- Collect geotechnical data (field and laboratory) to characterize the subsurface soil and groundwater conditions.
- Evaluate geologic hazards.
- Provide recommendation for temporary excavation, pipe bedding and trench backfill.
- Prepare a report with field test data, laboratory test results along with findings, conclusions and geotechnical recommendations for this project.

1.3 PROPOSED DEVELOPMENT AT THE SITE

Based on information provided by the City it is our understanding that the proposed project will consist of construction of a new storm drain along River Avenue and McHelen Avenue starting south from the existing Edison property (immediately south of Arlington Street) and terminating in the vicinity of the intersection of River Avenue with 221st Street. The total length of the proposed storm drain alignment will be approximately 1,800 feet. The pipeline will be reinforced concrete pipe (RCP) ranging in diameter from 48 to 54 inches. The invert depth will along the alignment from approximately 9 feet to 13 feet below the existing grades. In addition, a detention basin will be constructed within the Edison Property as a part of this project. Other details pertaining to this project were not available at the time of this report.

1.4 FIELD EXPLORATION

Six borings using a hollow-stem-auger drill rig provided by Cal Pac Drilling were advanced along the project alignment to depths ranging from approximately 26 to 51 feet below the existing grades. To reduce the likelihood of encountering buried utility lines at the site of drilling, geophysical survey was conducted to identify and delineate potential buried utility lines and other detectable subsurface obstructions in the vicinity of the boring locations. Modified California (MC) and Standard Penetration Test (SPT) samplers were used to obtain samples of the soil encountered. The MC and SPT samplers were driven using a 140-pound hammer falling 30 inches. The number of hammer blows required to drive the sampler the final 12 inches is termed the blow count (N-value) and is recorded on the boring logs. The blow counts recorded on the Logs of Borings are the recorded field blow counts, and have not been corrected for sampler types, rod length, overburden pressure, sampler's liner or hammer energy. The samples were classified in accordance to Unified Soil Classification System (USCS) procedure. All soil samples were screened for the presence of volatile organic components (VOC) in the field using a photo-ionization detector (PID). VOC readings of soil samples were recorded on boring logs. Selected samples were retrieved, sealed and transported to our laboratory for further evaluation. All borings were logged by a Registered Civil Engineer. Upon completion, all holes were backfilled with soil from cuttings. The top of each boring advanced across the any paved areas were covered with a cold asphalt patch.

A description of the field exploration, an explanation of the logs, and the logs of borings are presented in appendix A. The locations of the borings are shown on Plate 2, Boring Location Map.

1.5 LABORATORY TESTING

Laboratory tests were performed on selected soil samples to evaluate their physical characteristics and geotechnical engineering properties. Kleinfelder completed a portion of the laboratory in-house at our Long Beach and Diamond Bar laboratories. The remainder of the laboratory tests was subcontracted to AP Engineering and Testing, Inc. Laboratory in Pomona, California. Tests performed are evaluation of dry density and moisture content, grain size distribution, plasticity index, direct shear, corrosion potential and sand equivalent. Results of laboratory tests are presented in Appendix B.

2. SITE AND SUBSURFACE CONDITIONS

2.1 SITE DESCRIPTION

The site includes an approximately 1,800-foot length of River Avenue and McHelen Avenue, which are continuous asphalt-paved roadways, with mostly residential houses along the roadways. In addition, the southern portion of the Site consists of an approximately 100-foot by 250-foot area located within a parcel (Edison Property) presently used as a plant nursery by Orange County Nursery, Inc.

A number of above-ground power lines traverse the site. The site is relatively flat with elevations ranging from approximately 20 feet MSL at the southern end to approximately 22 feet MSL at the northern end.

2.2 SUBSURFACE SOILS

2.2.1 General

Soil deposits encountered during our investigation generally consist of alternating layers of loose to medium dense silty sand/sandy silt underlain by medium stiff to stiff sandy clay and by dense sand with silt.

Laboratory test results of samples obtained from the test borings indicate in situ dry densities varying from 92 to 108 pounds per cubic foot (pcf) with water content varying from 9.5 to 18.1 percent. Detailed descriptions of the subsurface conditions encountered during our field investigation are presented on the Logs of Borings in Appendix A. Laboratory test results are presented in Appendix B.

2.2.2 Corrosion Characteristics

Two samples of the soil were tested for potential corrosion to concrete and reinforcing steel. Samples were sent to AP Engineering and Testing, Inc., Pomona, California. The samples were tested in general accordance with California Test Methods 643, 422, and 417 for pH, resistivity, soluble chlorides, and soluble sulfates, respectively. The test results are presented in

Appendix B. This test is only an indicator of soil corrosivity for the sample tested. Other soils found on site may be more, less, or of a similar corrosive nature. Although Kleinfelder does not practice corrosion engineering, the corrosion values from the soil tested are normally considered low corrosive to concrete and moderate corrosive to ferrous metals.

2.4 GROUNDWATER

Groundwater was encountered at the time of drilling in one boring (B-1) at depth of approximately 25. According to the California Division of Mines and Geology (CDMG 2001) the historical high groundwater level is reported to be approximately 20 feet below the ground surface.

Fluctuations of the groundwater level, localized zones of perched water and increased soil moisture content should be anticipated during and following the rainy season. Irrigation of landscaped areas on or adjacent to the site or daily tidal changes can also cause a fluctuation of local groundwater levels.

3. GEOLOGIC CONDITIONS

3.1 REGIONAL SETTING

The alignment is located on the Central Plain of the southwestern Block of the Los Angeles Basin. The Los Angeles Basin, which lies within the Peninsular Ranges geomorphic province. Regionally, the area has been mapped as underlain by Holocene age surficial sediments, described as alluvial flood plain deposits of Dominguez Creek and the Los Angeles River (CDMG, 1962).

3.2 GEOLOGIC HAZARDS

Faulting

The site is not located within any State of California-Special Studies Zone, formerly Alquist-Priolo Earthquake Fault Zone (Hart and Bryant, 1997). The closest mapped fault to the site is the Newport-Inglewood fault, which is mapped approximately 6000 feet northeast of the alignment (CDMG, 1986).

Landslides

The site is not within a State or County designated hazard zone for landslides (CDMG, 1999; Los Angeles Co., 1990). Because the site is relatively flat, the risk of landslides at the site is considered very low.

Land Subsidence and Earth Fissures

Land subsidence occurs as a result of sediment consolidation subsequent to fluid (oil or water) withdrawal. The site is located north of documented occurrences of land subsidence and earth fissures resulting from oil withdrawal (Allen, 1973; Rutledge, et al, 2002). The risk of land subsidence and earth fissures due to oil withdrawal along the alignment is considered low.

Liquefaction

Liquefaction occurs when loose, coarse-grained or silty soils are subjected to strong shaking resulting from earthquake motions. The coarse-grained or silty soils typically lose a portion or all of their shear strength, and regain strength sometime after the shaking stops. Soil movements (both vertical and lateral) have been observed under these conditions due to consolidation of the liquefied soils. The project site is located within a State of California Hazard Zone for Liquefaction (CDMG, 1999). Due to the soil types and relative density encountered in the borings, the liquefaction potential along the project alignment is considered to be moderate.

Oil Wells, Oil Fields, and Methane Gas

There are no known oil wells along the alignment (Munger, 2001; DOGGR, 2008). Because of the location of this site relative to oil fields and oil wells, there is some potential for the presence of naturally occurring hydrocarbons and oil field gases within subsurface soils at the site.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 GENERAL

Based on our field exploration, laboratory testing and geotechnical analyses conducted for this study, it is our opinion that it is geotechnically feasible to construct the project as planned provided that the recommendations presented in this report are incorporated into project design and construction.

Based on the findings summarized in this report, it is our professional opinion that the proposed construction will not be subject to a hazard from settlement, slippage, or landslide, provided the recommendations of this report are incorporated into the proposed construction. It is also our opinion that the proposed construction will not adversely affect the geologic stability of the site or adjacent properties provided the recommendations contained in this report are incorporated into the proposed construction.

Kleinfelder's recommendations regarding the geotechnical aspects of project design and construction are presented in the following sections.

4.2 LIQUEFACTION POTENTIAL

The site is located within a seismic hazard zone for liquefaction potential, as designated by the State and County of Los Angeles. Results of our preliminary study indicated that there is a potential for liquefaction when subjected to ground shaking. We estimate that total and differential settlements due to liquefaction along the storm drain alignment may be on the order of 1.5 inches and 0.75 inch, respectively.

4.3 DESIGN STRENGTH PARAMETERS

Based on the soil types encountered in our exploratory borings and laboratory test results, we recommend using the following geotechnical strength parameters for the design of the proposed project:

Soil unit weight - γ : 120 pcf
Friction angle - Φ : 30 deg
Cohesion - c : 0 psf

4.4 GUIDELINES FOR TEMPORARY EXCAVATIONS

4.4.1 Temporary Excavations

All excavations must comply with applicable local, state, and federal safety regulations, including the current OSHA Excavation and Trench Safety Standards. Construction site safety is the sole responsibility of the Contractor, who shall also be solely responsible for the means, methods, and sequencing of construction operations. We are providing the information below solely as a service to our client. Under no circumstances should the information provided be interpreted to mean that Kleinfelder is assuming responsibility for construction site safety or the Contractor's activities; such responsibility is not being implied and should not be inferred.

Exploratory borings advanced at the site were completed with little to moderate effort through the existing on-site soils. Conventional earth moving equipment is expected to be capable of performing the excavations required for site development.

Construction guidelines for trench excavations should be in general accordance with the City of Long Beach Trench Width and Bedding Requirements Standard Plan No. 634. The following guidelines are also recommended for temporary trench excavations along the proposed storm drain.

4.4.2 Temporary Slopes

Stability of temporary excavations is a function of several factors. Some of these factors are: the duration of time the excavation is exposed, surface drainage and groundwater conditions, soil type and consistency, and contractor's operations. Near-surface soils encountered in our borings at the time of our investigation generally consisted of silty sand. In our opinion, this soil can be classified as a Type C soil with regard to the OSHA regulations. For this soil type, OSHA requires a maximum slope inclination of 1.5:1.0 (horizontal to vertical) or flatter. Subgrade soils excavated below groundwater level are likely prone to caving and/or sloughing, and could endanger personnel working within or adjacent to the excavation as well as nearby equipment, structures, or other existing improvements. Therefore, Kleinfelder recommends that any excavation extended below groundwater be shored immediately without any standup time, to reduce the potential for instability of excavated slopes and any existing nearby structures and/or improvements.

4.4.3 Shoring

Shoring will be required where space or other restrictions do not allow a sloped excavation. A braced or cantilevered shoring system may be used.

Braced excavations should be designed to resist a uniform horizontal soil pressure of $32H$ (in pounds per square foot, psf) where 'H' is the excavation depth in feet. A temporary cantilevered shoring system should be designed to resist an active earth pressure equivalent to a fluid weighing 40 pounds per cubic foot (pcf). The values provided above assume a level ground adjacent to the top of the shoring.

Fifty percent of a surcharge load placed adjacent to the shoring may be assumed to act as a uniform horizontal pressure against the shoring. Special cases such as combination of slopes and shoring or other surcharge loads (not specified above) may require an increase in the design values recommended above. These conditions should be evaluated by the project geotechnical engineer on a case-by-case basis.

Cantilevered shoring must extend to a sufficient depth below the excavation bottom to provide the required lateral resistance. Kleinfelder recommends required embedment depths be estimated using method for evaluating sheet pile walls and based on the principles of force and

moment equilibrium. For this method, the allowable passive pressure against shoring, which extends below the bottom of excavation, may be assumed to be equivalent to a fluid weighing 275 pcf.

Additionally, we recommend a factor of safety of 1.2 be applied to the calculated embedment depth and that passive pressure is limited to 2,000 psf.

The contractor should be responsible for the structural design and safety of all temporary shoring systems.

4.5 PIPE BEDDING AND TRENCH BACKFILL

4.5.1 Pipe Bedding

Coarse-grained soils (sands) are expected to be exposed at the storm drain invert elevation along most of the alignment. These materials should be easily worked and are suitable for bedding of the pipe. Layers of fine-grained material which may be encountered along the alignment are considered to be unsuitable for pipe bedding. Bedding materials should consist of sand, gravel, crushed aggregate on-site free-draining granular material with a maximum particle size of 3/4 inch and sand equivalent of at least 30. Bedding materials should also conform to the pipe manufacturer's specifications, if available.

Import of bedding materials may be necessary where porous, or other unsuitable materials are present at the invert elevation. In these areas, the trench should be excavated to a depth of at least 6 inches below the bottom of the pipe. The overexcavation should be replaced with suitable bedding materials and compacted to at least 85 percent relative compaction.

4.5.2 Pipe Zone Backfill

The pipe zone included the full width of the trench from the bottom to a horizontal level 12 inches above the top of the pipe. Soils generated from the trench excavations along the alignment should generally be suitable for use as pipe zone backfill provided the backfill has a maximum particle size of 3/4 inch and is free of vegetation, debris, organics and other deleterious material. Sufficient material suitable for use as pipe zone backfill should exist along the alignment; however, stockpiling and transportation of selected pipe zone backfill during trench excavation may be necessary.

4.5.3 Above Pipe Zone Backfill

The above pipe zone is the full width of the trench above the pipe zone to the street pavement section. Soils generated from trench excavations along the alignment are considered suitable for use as backfilling the above pipe zone, provided the backfill is less than 3 inches in maximum dimensions, and is free of vegetation, debris, organics and other deleterious materials.

4.5.4 Import Materials

If import material is used for pipe or above pipe zone backfill, we recommend it consist of fine-grained sand with a sand equivalent of at least 30. Import materials should be documented to be free of hazardous materials including petroleum or petroleum byproducts, chemicals, and harmful minerals. All import materials should be evaluated by the project geotechnical engineer prior to use.

4.5.5 Compaction Method

After moisture-conditioning, the on-site materials along the alignment will be suitable for placement and compaction using conventional mechanical methods. Jetting of pipe bedding or trench backfill materials should not be permitted.

Regardless of the method of compaction used, materials should be brought up at substantially the same rate on both sides of the pipe. Care should be taken so that the pipe is not floated or displaced before backfilling is completed.

Pipe zone and above pipe zone backfill should be moisture conditioned to near optimum moisture content and placed in horizontal lifts less than 12 inches in loose thickness and compacted to at least 90 percent of the maximum dry density based on ASTM Test Method D1557. Reduction of the lift thickness may be necessary to achieve the above recommended compaction. The upper 18 inches of backfill below street pavement section should be compacted to at least 95 percent relative compaction.

5. ADDITIONAL SERVICES

We recommend that all earthwork and materials for construction to be monitored by a representative from Kleinfelder, including site preparation, excavation, placement of all engineered fill and trench backfill. The purpose of these services would be to provide the opportunity to observe the soil conditions encountered during construction, evaluate the applicability of the recommendations presented in this report to the soil conditions encountered, and recommend appropriate changes in design or construction procedures if conditions differ from those described herein.

6. LIMITATIONS

Recommendations contained in this report are based on our field observations and subsurface explorations, limited laboratory tests, and our present knowledge of the proposed future construction. It is possible that soil conditions could vary between or beyond the points explored.

We have prepared this report in substantial accordance with the generally accepted geotechnical engineering practice as it exists in the site area at the time of our investigation. No warranty is expressed or implied. The recommendations provided in this report are based on the assumption that an adequate program of tests and observations will be conducted by Kleinfelder during the construction phase in order to evaluate compliance with our recommendations.

Any party other than the client who wishes to use this document shall notify Kleinfelder of such intended use. Non-compliance with these requirements will release Kleinfelder from any liability resulting from the use of this document by an authorized party.

This report may be used only by the client and only for the purposes stated, within a reasonable time from its issuance, but in no event later than 2 years from the date of the report. Land or facility use, on and off-site conditions, regulations, or other factors may change over time, and additional work may be required with the passage of time. Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party and client agrees to defend, indemnify, and hold harmless Kleinfelder from any claim or liability associated with such unauthorized use or non-compliance.

7. REFERENCES

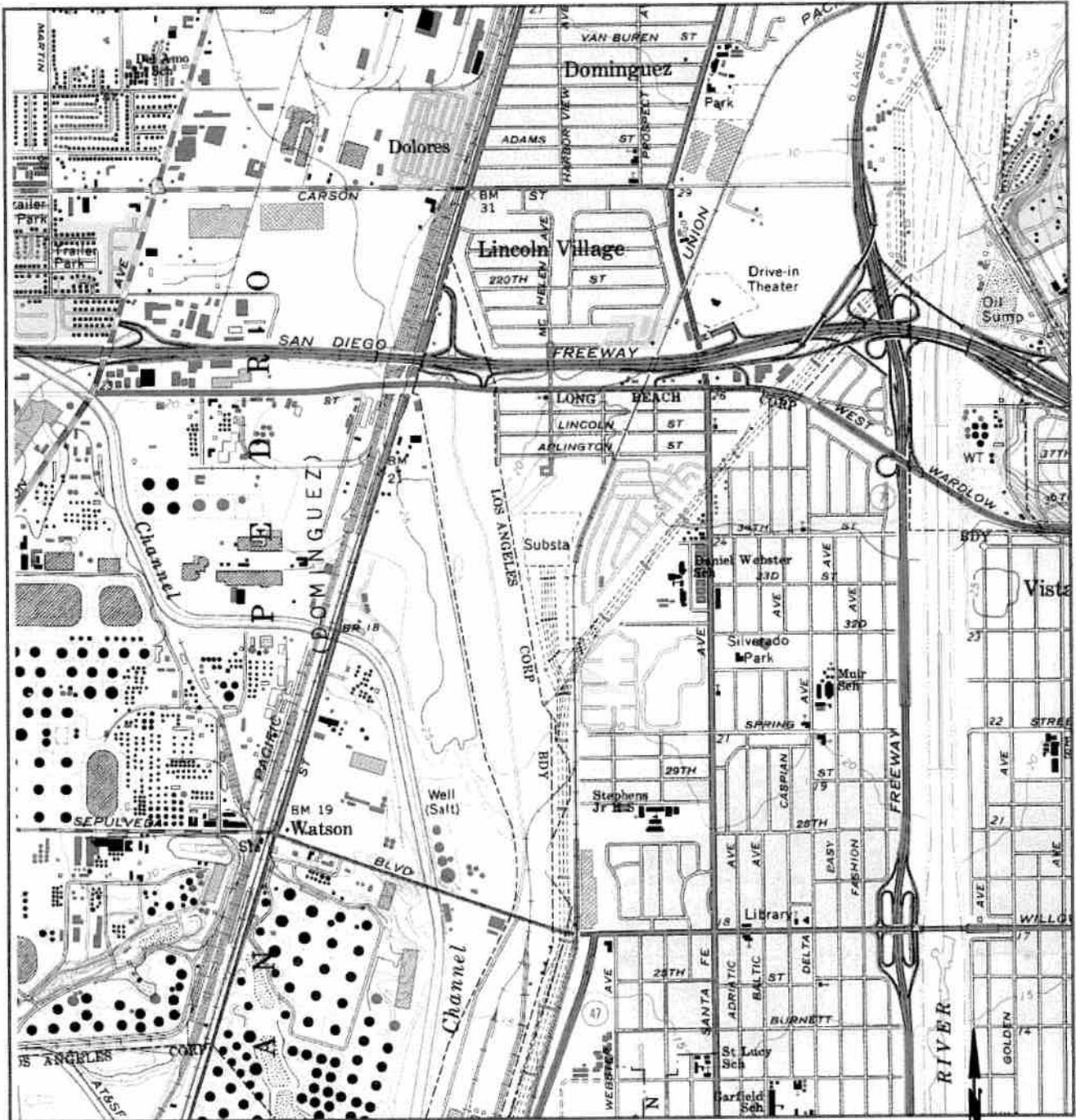
- Allen, D.R., 1973, Oil Field Subsidence: Susceptibility and Monitoring Techniques: Presented to American Association of Petroleum Geologists, Anaheim, California, May 1973.
- California Division of Mines and Geology (CDMG), 1986, State of California Special Studies Zones Map, Long Beach Quadrangle, Revised Official Map, released July 1, 1986.
- California Division of Mines and Geology, 1999, State of California Seismic Hazard Zones Map, Long Beach Quadrangle, Official Map, released March 25, 1999.
- California Division of Mines and Geology, 2000, Digital Images of Official Maps of Alquist-Priolo Earthquake Fault Zones of California, Southern Region, DMG CD 2000-003.
- California Division of Mines and Geology, 2001, Seismic Hazard Evaluation of the Long Beach 7.5 Minute Quadrangle, Los Angeles County, Seismic Hazard Zones Report 028, last revised January 13, 2006.
- California Division of Oil, Gas, and Geothermal Resources (DOGGR), 2008, Oil and Gas Map, District 1, Map W1-6, accessed on the World Wide Web, http://www.conservation.ca.gov/doggr/maps/Pages/index_map.aspx
- California Geologic Survey (CGS), 2003, The Revised 2002 California Probabilistic Seismic Hazard Maps, released June 2003.
- FEMA, 2008, Map Service Center, Map Panel 0601360010C, dated July 6, 1998 accessed on the World Wide Web, <http://store.msc.fema.gov>.
- Rutledge, D., Remondi, B., Koerner, R., and Henderson, C., 2002, GPS Monitors Oilfield Subsidence, GPS World, article located at www.gpsworld.com/gpsworld/content/printContentPopup.jsp?id=34931.

PLATES

ATTACHED IMAGES: image1.jpg
 ATTACHED XREFS:

CAD FILE: U:\MGriffin\CADD\2008\93788\Geological LAYOUT: Layout1

PLOTTED: 19 May 2008, 2:10pm, dfahmey



EXPLANATION

--- SITE LIMITS

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SOURCE: U.S.G.S. 7.5' topographic series, Long Beach, California quadrangle dated 1964, photo revised 1981.



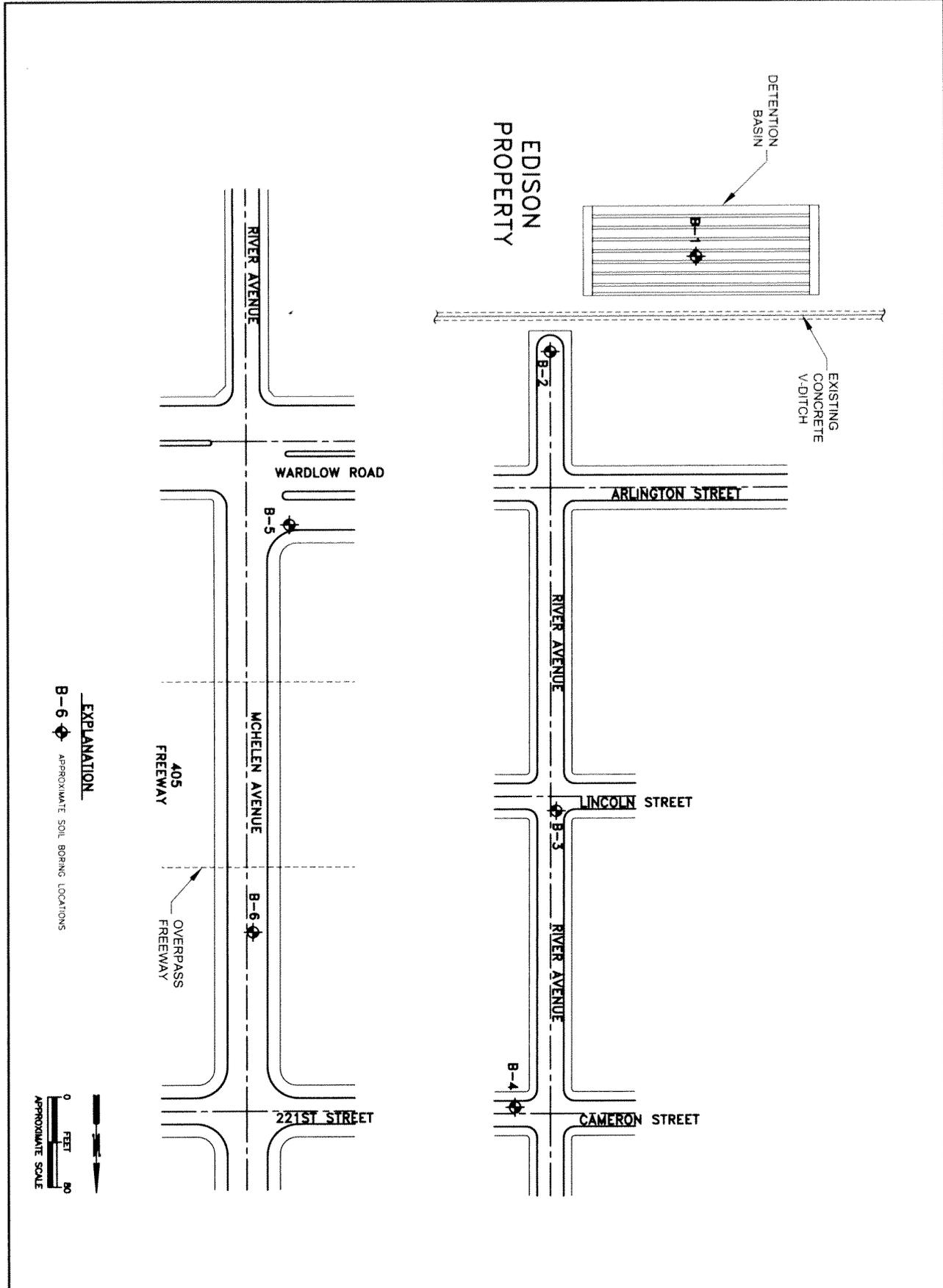
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DRAWN:	05/14/08
DRAWN BY:	MG
CHECKED BY:	PD
FILE NAME:	93788p1_Geo.dwg

SITE LOCATION MAP

PROPOSED RIVER AVENUE
 DRAIN PHASE II PROJECT
 LONG BEACH, CALIFORNIA

PLATE

1



EXPLANATION
 B-6 APPROXIMATE SOIL BORING LOCATIONS



PROJECT NO.	93788
DRAWN:	05/14/08
DRAWN BY:	M. GRIFFIN
CHECKED BY:	M.S.
FILE NAME:	93788p2_Geo.dwg

BORING LOCATION MAP	
PROPOSED RIVER AVENUE DRAIN PHASE II PROJECT LONG BEACH, CALIFORNIA	

PLATE	2
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APPENDIX A
FIELD EXPLORATION

APPENDIX A FIELD EXPLORATION

The subsurface exploration program consisted of the excavation and logging 6 hollow-stem auger borings. The borings ranged in depth from approximately 16 to 51 feet below existing grades. Plate 2 shows approximate locations of the exploratory points.

The Logs of Borings are presented as Plates A-2 through A-7. A legend to the logs is presented as Plate A-1. The Logs of Borings describe the earth materials encountered, samples obtained and show field and laboratory tests performed. The logs also show the location, boring number, drilling date and the name of the logger and drilling subcontractor. The borings were logged by an engineer using the Unified Soil Classification System. The boundaries between soil types shown on the logs are approximate because the transition between different soil layers may be gradual. Bulk and drive samples of representative earth materials were obtained from the borings at maximum intervals of about 5 feet.

The exploratory borings were advanced using a truck-mounted drill rig equipped with 8-inch augers provided by Cal Pac Drilling of Calimesa, California. All borings were backfilled using soil from cuttings. Top of each borehole in paved areas was covered with a cold asphalt patch.

A California sampler was used to obtain drive samples of the soil encountered. This sampler consisted of a 3-inch O.D., 2.4-inch I.D. split barrel shaft that is driven a total of 12-inches into the soil at the bottom of the boring. The soil was retained in two 6-inch sets of 1-inch brass rings for laboratory testing. An additional 2-inch of soil from each drive remained in the cutting shoe and was discarded after visually classifying the soil. The sampler was driven using a 140-pound hammer falling 30-inches. The total number of hammer blows required to drive the sampler the 12-inches is termed the blow count and is recorded on the Logs of Borings. Bulk samples of the surface soils were retrieved directly from the auger blades.

Date Drilled:
 Drilled By:
 Drilling Method:
 Logged By:

Water Depth:
 Date Measured:
 Reference Elevation:
 Datum:

Elevation (feet) Depth	Sample	Sample No.	Blow Count (Blows/ft.)	Graphic Log	GEOTECHNICAL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
5		1	6			108	10	DS, SE
		2	12					GS
	(1)	(2)	(3)	(4)	(5)	(6)	(6)	(7)

NOTES ON FIELD INVESTIGATION

- SAMPLE** - Graphical representation of sample type as shown below.

 - Split Spoon - Standard Penetration Test Sample (SPT)
 - Drive Sample - California Sample (Cal)
 - Bulk Sample - Obtained by collecting cuttings in a plastic bag
 - Tube Sample - Shelby/Pitcher Tube Sample
- SAMPLE NO.** - Sample Number
- BLOWS/FT** - Number of blows required to advance sampler 1 foot (unless a lesser distance is specified). Samplers in general were driven into the soil at the bottom of the hole with a standard (140 lb) hammer dropping a standard 30 inches. Drive samples collected in bucket auger borings may be obtained by dropping non-standard weight from variable heights. When a SPT sampler is used the blow count conforms to ASTM D-1586.

SCR/RQD - Sample Core Recovery (SCR) in percent (%) and Rock Quality Designation (RQD) in percent (%). RQD is defined as the percentage of core in each run which the spacing between natural fractures is greater than 4 inches. Mechanical breaks of the core are not considered.
- GRAPHIC LOG** - Standard symbols for soil and rock types, as shown on plate A-1b.
- GEOTECHNICAL DESCRIPTION**

Soil - Soil classifications are based on the Unified Soil Classification System per ASTM D-2487, and designations include consistency, moisture, color and other modifiers. Field descriptions have been modified to reflect results of laboratory analyses where deemed appropriate.

Rock - Rock classifications generally include a rock type, color, moisture, mineral constituents, degree of weathering, alteration, and the mechanical properties of the rock. Fabric, lineations, bedding spacing, foliations, and degree of cementation are also presented where appropriate.

Description of soil origin or rock formation is placed in brackets at the beginning of the description where applicable, for example, Residual Soil.
- DRY DENSITY, MOISTURE CONTENT:** As estimated by laboratory or field testing.
- ADDITIONAL TESTS** - (Indicates sample tested for properties other than the above):

MAX - Maximum Dry Density	SG - Specific Gravity	PP - Pocket Penetrometer
GS - Grain Size Distribution	HA - Hydrometer Analysis	WA - Wash Analysis
SE - Sand Equivalent	AL - Atterberg Limits	DS - Direct Shear
EI - Expansion Index	RV - R-Value	CP - Collapse Potential
CHEM - Sulfate and Chloride Content, pH, Resistivity	CN - Consolidation	UC - Unconfined Compression
PM - Permeability	CU - Consolidation Undrained Triaxial	T - Torvane
UU - Unconsolidated Undrained Triaxial	CD - Consolidated Drained Triaxial	
- ATTITUDES** - Orientation of rock discontinuity observed in bucket auger boring or rock core, expressed in strike/dip and dip angle. respectively, preceded by a one-letter symbol denoting nature of discontinuity as shown below.

B: Bedding Plane J: Jointing C: Contact F: Fault S: Shear

EXPLANATION OF LOGS

PLATE
A-1a



UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D-2487)

PRIMARY DIVISIONS			GROUP SYMBOLS	SECONDARY DIVISIONS	
COURSE GRAINED SOILS MORE THAN HALF OF MATERIALS IS LARGER THAN #200 SIEVE SIZE	GRAVELS MORE THAN HALF OF COURSE FRACTION IS LARGER THAN #4 SIEVE	CLEAN GRAVELS (LESS THAN 5% FINES)	GW		WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVEL WITH FINES	GP		POORLY GRADED GRAVELS OR GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		CLEAN SANDS (LESS THAN 5% FINES)	GM		SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
		GRAVEL WITH FINES	GC		CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SANDS MORE THAN HALF OF COURSE FRACTION IS SMALLER THAN #4 SIEVE	CLEAN SANDS (LESS THAN 5% FINES)	SW		WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES	SP		POORLY GRADED SANDS OR GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES	SM		SILTY SANDS, SAND-SILT MIXTURES
		SANDS WITH FINES	SC		CLAYEY SANDS, SAND-CLAY MIXTURES
		SANDS WITH FINES	ML		INORGANIC SILTS, VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS
		SANDS WITH FINES	CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
FINE GRAINED SOILS MORE THAN HALF OF MATERIALS IS SMALLER THAN #200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT IS LESS THAN 50	SILTS AND CLAYS	OL		ORGANIC SILTS AND ORGANIC SILT-CLAYS OF LOW PLASTICITY
		SILTS AND CLAYS	MH		INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDS OR SILTS, ELASTIC SILTS
		SILTS AND CLAYS	CH		INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
	SILTS AND CLAYS LIQUID LIMIT IS GREATER THAN 50	SILTS AND CLAYS	OH		ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
		SILTS AND CLAYS	PT		PEAT, MUCK AND OTHER HIGHLY ORGANIC SOILS
		SILTS AND CLAYS	SS		SANDSTONES
TYPICAL FORMATIONAL MATERIALS	SANDSTONES	SH		SILTSTONES	
	SILTSTONES	CS		CLAYSTONES	
	CLAYSTONES	LS		LIMESTONES	
	LIMESTONES	SL		SHALE	
	SHALE	SL			

CONSISTENCY CRITERIA BASED ON FIELD TESTS

RELATIVE DENSITY - COARSE - GRAIN SOIL			CONSISTENCY - FINE-GRAIN SOIL		TORVANE	POCKET ** PENETROMETER
RELATIVE DENSITY	SPT * (blows/ft)	RELATIVE DENSITY (%)	CONSISTENCY	SPT (blows/ft)	UNDRAINED SHEAR STRENGTH (tsf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)
Very Loose	<4	0 - 15	Very Soft	<2	<0.13	<0.25
Loose	4 - 10	15 - 35	Soft	2 - 4	0.13 - 0.25	0.25 - 0.5
Medium Dense	10 - 30	35 - 65	Medium Stiff	4 - 8	0.25 - 0.5	0.5 - 1.0
Dense	30 - 50	65 - 85	Stiff	8 - 15	0.5 - 1.0	1.0 - 2.0
Very Dense	>50	85 - 100	Very Stiff	15 - 30	1.0 - 2.0	2.0 - 4.0
			Hard	>30	>2.0	>4.0

* NUMBER OF BLOWS OF 140 POUND HAMMER FALLING 30 INCHES TO DRIVE A 2 INCH O.D. (1 3/8 INCH I.D.) SPLIT BARREL SAMPLER (ASTM-1586 STANDARD PENETRATION TEST)

** UNCONFINED COMPRESSIVE STRENGTH IN TONS/SQ.FT. READ FROM POCKET PENETROMETER

MOISTURE CONTENT

DESCRIPTION	FIELD TEST
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

CEMENTATION

DESCRIPTION	FIELD TEST
Weakly	Crumbles or breaks with handling or slight finger pressure
Moderately	Crumbles or breaks with considerable finger pressure
Strongly	Will not crumble or break with finger pressure

EXPLANATION OF LOGS

PLATE
A-1b

Date Drilled: 4/24/08 Water Depth: 25 feet
 Drilled By: CalPac Date Measured: 4/24/08
 Drilling Method: HSA Elevation: 20 feet (approx.)
 Logged By: YZ Datum: MSL

Elevation (feet) Depth	Sample Type Sample Number	Blows per Foot	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
15	5	13		SILTY SAND (SM) , gray, moist, fine- grained.	97	12.2	PID=27 ppm PI
				SANDY SILT (ML) , gray brown, moist, loose, fine- grained, trace of clay.			
10	10	12		SILTY SAND (SM) , gray, moist, loose, fine- grained.	95	11.7	PID=35 ppm SHEAR
5	15	15		SILTY SAND (SM) , gray, moist, loose, fine- grained.	98	13.6	PID=18 ppm
0	20	19		medium dense.			
-5	25	36		SAND WITH SILT (SP-SM) , gray brown, moist, dense, fine- to medium- grained. wet below 25 feet.	PID=30 ppm	PID=10 ppm	PID=11 ppm WASH, SE
-10	30	37		fine- to coarse- grained.			
-15	35	39		SAND WITH SILT (SP-SM) , gray brown, moist, dense, fine- to medium- grained. wet below 25 feet.			
-20	40	44		SAND WITH SILT (SP-SM) , gray brown, moist, dense, fine- to medium- grained. wet below 25 feet.	PID=16 ppm	PID=18 ppm WASH	PID=19 ppm
-25	45	43		fine- grained.			
-30	50	46		SAND WITH SILT (SP-SM) , gray brown, moist, dense, fine- to medium- grained. wet below 25 feet.	PID=8 ppm	PID=8 ppm	PID=8 ppm
				SAND WITH SILT (SP-SM) , gray brown, moist, dense, fine- to medium- grained. wet below 25 feet.			
				Boring terminated at 51.5 feet. Groundwater was encountered at depth of 25 feet. Hole backfilled with soil from cuttings.			

GEO TECH DB STORM DRAIN, GPEI KA RDLND, GDT 5 15 08



River Avenue Drain Phase II
River Avenue and McHelen Avenue
Long Beach, California

PLATE
A-2

PROJECT NO. 93788

LOG OF BORING B-1

Drafted By: _____ Reviewed By: _____ Legend To Logs On Plate A-1
 Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

Date Drilled: 4/24/08 Water Depth: >26.5
 Drilled By: CalPac Date Measured: 4/24/08
 Drilling Method: HSA Elevation: 19 feet (approx.)
 Logged By: YZ Datum: MSL

Elevation (feet) / Depth	Sample Type / Sample Number	Blows per Foot	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
0				Asphalt Concrete, 3-inch thick Aggregate Base, 3-inch thick			PID=1 ppm MAX
15	1			SILTY SAND (SM), gray, moist, fine-grained			
5	2	8		loose, interbedded with sandy clay	92	10.6	PID=57 ppm CHEM
10	3	21		medium dense			PID=25 ppm SE
5	4	26			108	14.5	PID=31 ppm
0	5	14		SANDY SILT (ML), gray, moist, loose	101	18.1	PID=30 ppm WASH
-5	6	6		very moist			PID=12 ppm PI
				Boring terminated at 26.5 feet. Groundwater was not encountered. Hole backfilled with soil from cuttings. Top 6 inches covered with cold asphalt patch.			

GEO/TECH/DB, STORM DRAIN, G.P.J. K.A. RDI/ND/GDT, 5.15.08



River Avenue Drain Phase II
 River Avenue and McHelen Avenue
 Long Beach, California

PLATE

A-3

PROJECT NO. 93788

LOG OF BORING B-2

Drafted By: _____ Reviewed By: _____ Legend To Logs On Plate A-1

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

Date Drilled: 4/24/08 Water Depth: >26.5
 Drilled By: CalPac Date Measured: 4/24/08
 Drilling Method: HSA Elevation: 19 feet (approx.)
 Logged By: YZ Datum: MSL

Elevation (feet) Depth	Sample Type Sample Number	Blows per Foot	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
0 to 5	1	8		Asphalt Concrete, 3-inch thick Aggregate Base, 5-inch thick SANDY SILT (ML), gray, moist, some sandy clay			
5 to 10	2	16		loose SILTY SAND (SM), gray brown, moist, loose to medium dense, fine- to coarse- grained.	92	13.9	PID=20 ppm SHEAR
10 to 15	3	15					
15 to 20	4	8					PID=18 ppm
20 to 25	5	10		SANDY CLAY (CL), gray, moist, stiff, fine- grained sand			PID=13 ppm
25 to 26.5							PID=20 ppm PI
<p>Boring terminated at 26.5 feet. Groundwater was not encountered. Hole backfilled with soil from cuttings. Top of 8 inches covered with cold asphalt patch.</p>							

GEO TECH DB - STORM DRAIN GPI KA RDI ND.GDT - 5-15-08



River Avenue Drain Phase II
 River Avenue and McHelen Avenue
 Long Beach, California

PLATE
 A-4

PROJECT NO. 93788

LOG OF BORING B-3

Drafted By: Reviewed By: Legend To Logs On Plate A-1
 Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

Date Drilled: 4/24/08 Water Depth: >26.5
 Drilled By: CalPac Date Measured: 4/24/08
 Drilling Method: HSA Elevation: 20 feet (approx.)
 Logged By: YZ Datum: MSL

Elevation (feet) / Depth	Sample Type / Sample Number	Blows per Foot	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
0	1			Asphalt Concrete , 3 -inches thick			PID=1 ppm
0	1			Aggregate Base , 4-inches thick			
5	2	9		SILTY SAND (SM) , gray, moist, fine- grained			
15	2	9		SANDY CLAY (CL) , gray, moist, medium stiff	92	15.3	PID=105 ppm PI
10	3	13		SILTY SAND (SM) , gray to gray brown, moist, loose, fine- to medium- grained	94	10.4	PID=37 ppm SE
5	4	11					PID=20 ppm
0	5	12		medium dense.			PID=24 ppm WASH
-5	6	10		SANDY CLAY , gray, moist, stiff			PID=20 ppm
				Boring terminated at 26.5 feet. Groundwater was not encountered. Hole backfilled with soil from cuttings. Top of hole covered with cold asphalt patch.			

MIN.GPI_KA_RDEND.GDT_5_15_08



River Avenue Drain Phase II
 River Avenue and McHelen Avenue
 Long Beach, California

PLATE

A-5

GEO1

PROJECT NO. 93788

LOG OF BORING B-4

Drafted By: Reviewed By: Legend To Logs On Plate A-1

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

Date Drilled:	4/24/08	Water Depth:	>26.5
Drilled By:	CalPac	Date Measured:	4/24/08
Drilling Method:	HSA	Elevation:	21 feet (approx.)
Logged By:	YZ	Datum:	MSL

Elevation (feet) Depth	Sample Type Sample Number	Blows per Foot	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
20	1			Asphalt Concrete , 3-inches thick			PID=2 ppm
				Aggregate Base , 6-inches thick			
				SILTY SAND (SM) , gray, moist, fine-grained			
15	2	7		loose, interbedded with sandy clay between 5 and 7 feet	92	9.5	PID=8 ppm WASH
10	3	14					PID=48 ppm
5	4	14		fine- to medium- grained	95	12.6	PID=33 ppm SHEAR
0	5	9					PID=52 ppm
-5	6	5		SANDY CLAY (CL) , gray, moist, medium stiff, fine- grained sand			PID=17 ppm
				Boring terminated at 26.5 feet Groundwater was not encountered. Hole backfilled with soil from cuttings. Top 10 inches of hole covered with cold asphalt patch.			

GEO TECH DR. STORM DRAIN.GPJ KA RDI.ND.GDT 5 15 08



River Avenue Drain Phase II
River Avenue and McHelen Avenue
Long Beach, California

PLATE

A-6

PROJECT NO. 93788

LOG OF BORING B-5

Drafted By: _____ Reviewed By: _____ Legend To Logs On Plate A-1
 Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

Date Drilled: 4/24/08
 Drilled By: CalPac
 Drilling Method: HSA
 Logged By: YZ

Water Depth: >26.5
 Date Measured: 4/24/08
 Elevation: 22 feet (approx.)
 Datum: MSL

Elevation (feet)	Depth	Sample Type	Sample Number	Blows per Foot	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
20			1			Asphalt Concrete 5-inches thick Aggregate Base 4-inches thick			PID=1 ppm MAX
	5		2	9		SANDY SILT (ML), gray to light gray, moist, fine- grained sand			
	15					SILTY SAND (SM), gray, moist, loose, fine- grained	93	10.8	PID=23 ppm
	10		3	14			97	13.1	PID=31 ppm CHEM, SE
	15		4	24		medium dense			PID=20 ppm WASH
	20		5	7		SANDY CLAY (CL), gray, moist, medium stiff, fine- grained sand			PID=15 ppm PI
	25		6	22		SILTY SAND (SM), gray, moist to very moist, medium dense, fine- to medium- grained			PID=19 ppm
Boring terminated at 26.5 feet. Groundwater was not encountered. Hole backfilled with soil from cuttings. Top 10 inches of hole covered with cold asphalt patch.									

GEOI\CHUB STORM DRAIN\GPI KA RD\IND\GDT_5 15 08



River Avenue Drain Phase II
 River Avenue and McHelen Avenue
 Long Beach, California

PLATE
 A-7

PROJECT NO. 93788

LOG OF BORING B-6

Drafted By: _____ Reviewed By: _____ Legend To Logs On Plate A-1
 Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

APPENDIX B
LABORATORY TESTING

APPENDIX B

LABORATORY TESTING

Laboratory tests were performed on representative drive and bulk soil samples to estimate engineering characteristics of the various earth materials encountered. Testing was performed in accordance with one of the following references:

- 1) Lambe, T. William, Soil Testing for Engineers, Wiley, New York, 1951.
- 2) Laboratory Soils Testing, U.S. Army, Office of the Chief of Engineers, Engineering Manual No. 1110-2-1906, November 30, 1970.
- 3) ASTM Standards for Soil Testing, latest revisions.
- 4) State of California Department of Transportation, Standard Test Methods, latest revisions.

LABORATORY MOISTURE AND DENSITY DETERMINATIONS

Natural moisture content and dry density test were performed on samples collected from the borings. Moisture content was evaluated in general accordance with ASTM Test Method D 2216; dry unit weight was evaluated using procedures similar to ASTM Test Method D 2937. The result are presented on the Logs of Borings and Test Pits and summarized in Table B-1.

GRAIN SIZE DISTRIBUTION

The grain size distribution of selected soil samples was performed by wash sieving in general accordance with ASTM Standard Test Method D422-63. The test results are presented in Table B-2.

PLASTICITY INDEX

Plasticity index tests were performed on selected samples to aid in soil classification and to evaluate the plasticity characteristics of the material. Testing was performed in general accordance with ASTM Test Method D 4318. The results are presented on Plate B-1.

DIRECT SHEAR TEST

Direct shear test was performed on three selected samples to evaluate the drained shear strength of the soils. The samples were soaked and tested in a near-saturated condition in accordance with ASTM Test Method D-3080 (consolidated, drained). The results are presented on Plates

B-2, B-3, and B-4.

SAND EQUIVALENT

Sand equivalent test were performed on selected samples in general accordance with California Test 217. The results of these tests are summarized in Table B-3, Sand Equivalent.

CORROSION TEST

Two selected sample of the on-site soils were tested for pH, resistivity, soluble chlorides and soluble sulfates in general accordance with California Test Method 643, 422, and 417, respectively. The test results are presented in Table B-4.

MAXIMUM DENSITY/OPTIMUM MOISTURE TEST

Two maximum density/optimum moisture tests were performed on selected bulk samples of the on-site soils to determine compaction characteristics. The tests were performed in accordance with ASTM Standard Test Method D-1557. The test results are presented in Table B-5.



TABLE B-1 MOISTURE CONTENT/DRY DENSITY TEST RESULTS

PROJECT: River Avenue Drain Phase II

SAMPLED BY: YZ

DATE: 4/24/2008

PROJECT #: 93788

TESTED BY: AT

DATE: 5/1/2008

REMARKS: _____

CHECKED BY: MPS

DATE: 5/14/2008

Boring	Depth (ft)	Mositure Content (%)	Dry Density (pcf)
B-1	5	12.2	97
B-1	10	11.7	95
B-1	15	13.6	98
B-2	5	10.6	92
B-2	15	14.5	108
B-2	20	18.1	101
B-3	5	13.9	92
B-3	10	13.6	95
B-4	5	15.3	92
B-4	10	10.4	94
B-5	5	9.5	95
B-5	15	12.6	97
B-6	5	10.8	93
B-6	10	13.1	99



TABLE B-2 PERCENT PASSING #200 SIEVE TEST RESULTS

PROJECT: River Avenue Drain Phase II SAMPLED BY: YZ DATE: 4/24/2008

PROJECT #: 93788 TESTED BY: AP DATE: 5/12/2008

REMARKS: _____ CHECKED BY: MPS DATE: 5/14/2008

SAMPLE LOCATION	SAMPLE DEPTH (FT)	DESCRIPTION	PERCENT PASSING NO. 4	PERCENT PASSING NO. 200	USCS (TOTAL SAMPLE)
B-1	20	SILTY SAND	100	26	SM
B-1	40	SAND with SILT	100	5	SP-SM
B-2	40	SANDY SILT	100	58	ML
B-3	10	SILTY SAND	100	32	SM
B-4	20	SILTY SAND	100	28	SM
B-6	15	SILTY SAND	100	37	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 1140



TABLE B-3 SAND EQUIVALENT TEST RESULTS

PROJECT: River Avenue Drain Phase II SAMPLED BY: YZ DATE: 4/24/2008
PROJECT #: 93788 TESTED BY: AT DATE: 5/8/2008
REMARKS: _____ CHECKED BY: MPS DATE: 5/14/2008

Boring	Depth (ft)	Sand Equivalent
B-1	20	24
B-2	10	28
B-4	10	25
B-6	10	23



PRJECT: River Avenue Drain Phase II

PROJECT #: 93788

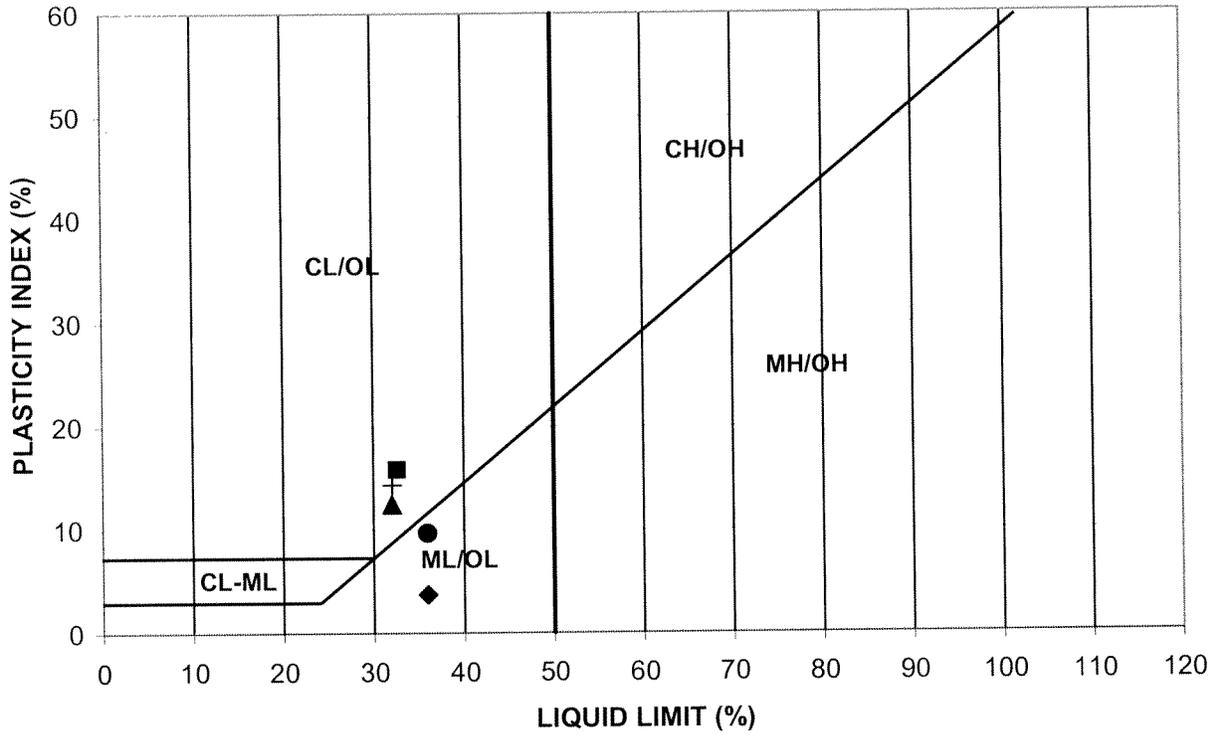
TABLE B-4 CORROSION TEST Results

Boring	Depth (ft)	pH	Sulfate (ppm)	Chloride (ppm)	Resistivity (ohm-cm)
B-2	4 – 6	8.57	36	82	4,900
B-6	10 - 11	8.20	75	124	5,100

TABLE B-5 MAXIMUM DENSITY/OPTIMUM MOISTURE CONTENT TEST RESULTS

Boring	Depth (ft)	Optimum Moisture Content (%)	Maximum Dry Density (pcf)
B-2	1 – 5	8.0	120
B-6	1 – 5	8.5	122

PLASTICITY CHART



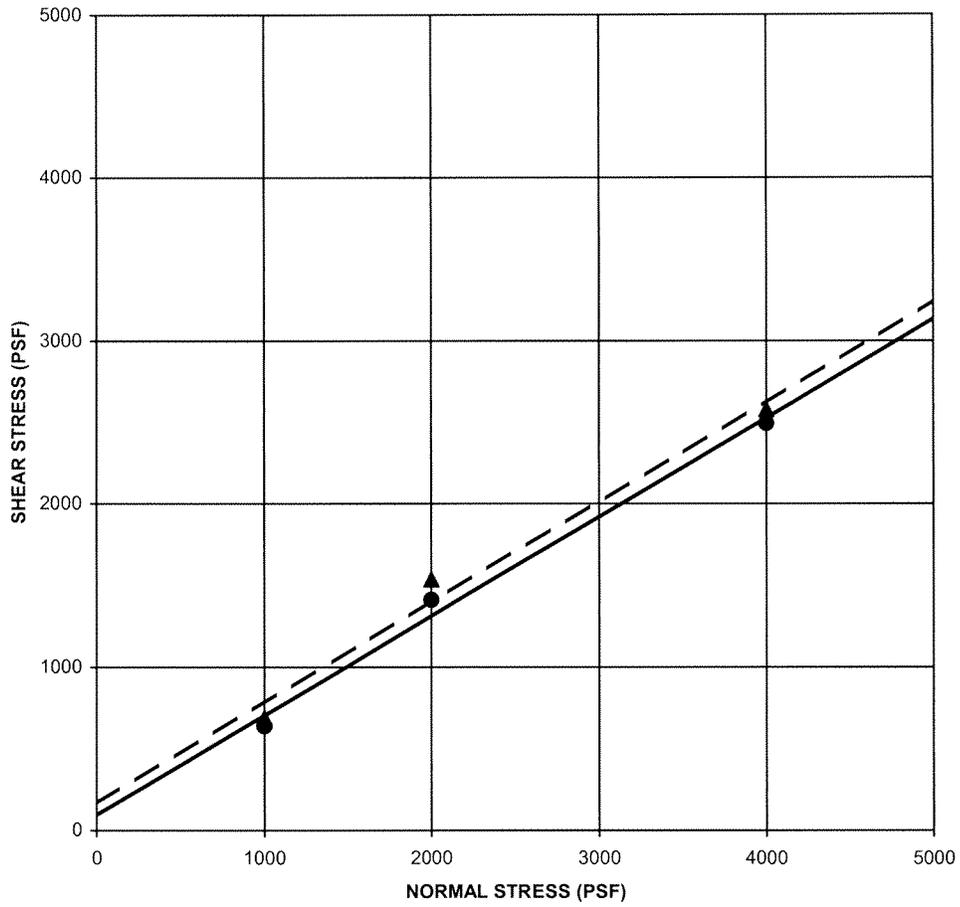
SYMBOL	SAMPLE IDENTIFICATION			ATTERBERG LIMITS			SOIL CLASSIFICATION	USCS TOTAL SAMPLE
	BORING NO.	SAMPLE NO.	DEPTH (ft)	LL	PL	PI		
◆	B-1	1	5	36	32	4	SANDY SILT	ML
●	B-2	6	25	36	26	10	SANDY SILT	ML
▲	B-3	5	25	32	20	12	SANDY CLAY	CL
+	B-4	2	5	32	18	14	SANDY CLAY	CL
■	B-6	5	20	33	17	16	SANDY CLAY	CL



PROJECT NO. 93788

River Avenue Drain Phase II Project
 River Avenue and McHelen Avenue
 Long Beach, California
PLASTICITY INDEX TEST

PLATE
B-1



SYMBOL		BORING NO.	SAMPLE NO.	DEPTH (ft)	COHESION (psf)	FRICTION ANGLE (deg)	SOIL CLASSIFICATION	USCS TOTAL SAMPLE
PEAK	●	B-1	2	10	100	31	Silty Sand	SM
ULTIMATE	▲	B-1	2	10	170	32	Silty Sand	SM

INITIAL MOISTURE(%): 12.2

INITIAL DRY DENSTY(PCF): 97

FINAL MOISTURE(%): 15.9

Normal Stress (psf)	1000	2000	4000
Peak Stress (psf)	640	1410	2495
Ultimate Stress (psf)	690	1535	2580

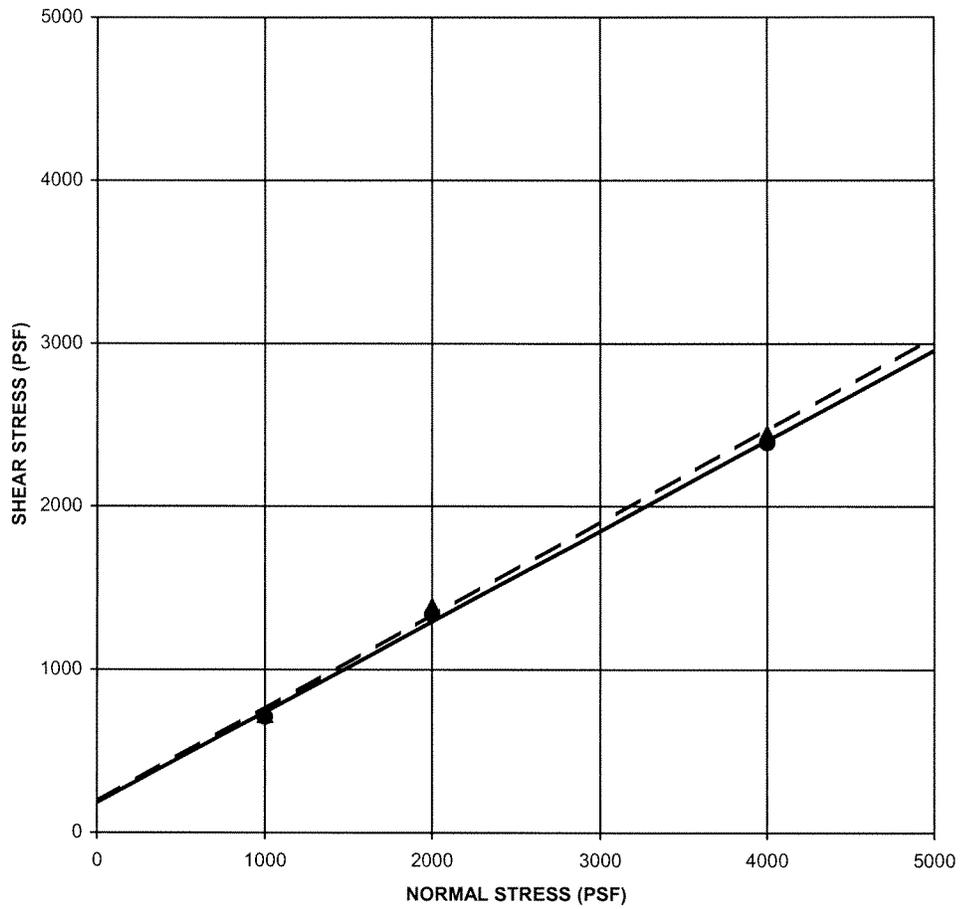


PROJECT NO. 93788

River Avenue Storm Drain Phase II
 River Avenue and McHelen Avenue
 Long Beach, California
DIRECT SHEAR TEST

PLATE

B-2



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (ft)	COHESION (psf)	FRICTION ANGLE (deg)	SOIL CLASSIFICATION	USCS TOTAL SAMPLE
PEAK ●	B-3	1	5	190	29	Sandy Silt	ML
ULTIMATE ▲	B-3	1	5	190	30	Sandy Silt	ML

INITIAL MOISTURE(%): 13.9
 INITIAL DRY DENSTIY(PCF): 92
 FINAL MOISTURE(%): 16.8

Normal Stress (psf)	1000	2000	4000
Peak Stress (psf)	710	1340	2390
Ultimate Stress (psf)	720	1390	2450

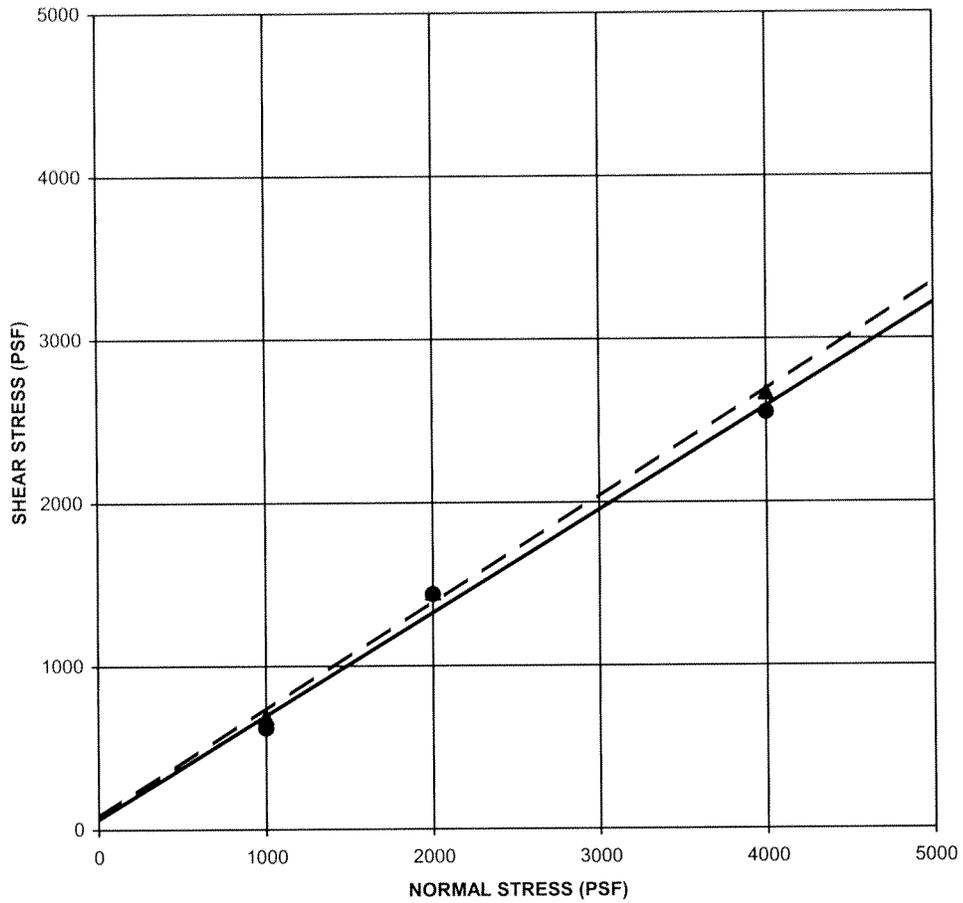


PROJECT NO. 93788

River Avenue Storm Drain Phase II
 River Avenue and McHelen Avenue
 Long Beach, California
DIRECT SHEAR TEST

PLATE

B-3



SYMBOL	BORING NO.	SAMPLE NO.	DEPTH (ft)	COHESION (psf)	FRICTION ANGLE (deg)	SOIL CLASSIFICATION	USCS TOTAL SAMPLE
PEAK ●	B-5	4	15	60	32	Silty Sand	SM
ULTIMATE ▲	B-5	4	15	80	33	Silty Sand	SM

INITIAL MOISTURE(%): 12.6
 INITIAL DRY DENSITY(PCF): 95
 FINAL MOISTURE(%): 14.1

Normal Stress (psf)	1000	2000	4000
Peak Stress (psf)	620	1440	2550
Ultimate Stress (psf)	690	1450	2670



PROJECT NO. 93788

River Avenue Storm Drain Phase II
 River Avenue and McHelen Avenue
 Long Beach, California
DIRECT SHEAR TEST

PLATE
B-4

APPENDIX C
ENGINEERING ANALYSIS

EVALUATION OF LIQUEFACTION POTENTIAL AND EARTHQUAKE-INDUCED SETTLEMENTS USING SPT DATA

PROJECT INFORMATION
 Project Name: River Avenue Storm Drain Phase II
 Project No.: 017588
 Location: River Avenue & McJannet Avenue, Long Beach, CA
 Explanation No.: 101

GENERAL INPUT DATA
 Ground Surf. Elev. During Test: 100.00 ft
 GMT Elev. During Test: 75.00 ft
 GMT Elev. For Design: 80.00 ft
 Total Soil Unit Weight: 110.00 pcf
 Earthquake Magnitude, M_w : 7.0
 Peak Ground Acceleration, A_{max} : 0.5g
 Required Factor of Safety: 1.10

SPT CORRECTION FACTORS
 For Hammer Energy Ratio, C_1 : 1.00
 For Borehole Diameter, C_2 : 1.15
 For Rod Length, C_3 : 0.85
 For Sampling Method, C_4 : 1.00

REFERENCES
 * Liquefaction Resistance of Soils: Summary Report From the 1986 NCEER and 1998 NCEER/NSF Workshops Edited by: T.L. Youd and L.M. Idriss, 2001.
 ** Combined correction factor for hammer energy ratio (C_1), borehole diameter (C_2), rod length (C_3), and sampling method (C_4) = $C_1 C_2 C_3 C_4$.
 *** $CSR = (k_s A_{max} / \sigma'_{v0})^{0.5}$
 ** FS = $(CRR / MSF) K_1 K_2$, where $K_1 = 1.0$ and $MSF = 1.19$
 ** Residual strength values of liquefied soils are evaluated using the median curve by Seed & Harder (1990).
 *** Ground settlements are evaluated using the method developed by Tokimatsu and Seed (1987).
 Note: This analysis assumes level of ground condition and depth of liquefiable soils does not change.

SOIL LIQUEFACTION POTENTIAL ANALYSIS (1996 NCEER & 1998 NCEER/NSF WORKSHOPS)

Bottom of Layer Elevation (ft)	Total Vert. Stress (σ_v) (psf)	Effective Vert. Stress (Design) (σ'_v) (psf)	Effective Vert. Stress (Test) (σ'_v) (psf)	SPT Stress Correction Factor* (C_s)	Corrected SPT Blow Count ($N_{1,60}$)	Fines Content (%)	Cyclic Stress Ratio** CSR	Cyclic Res. Ratio CRR _s	Factor of Safety Against Liquefaction*	Liquefied?	SPT Blow Count Correction	Corrected SPT Blow Count ($N_{1,60}$)	Flaws Corrected	Residual Shear Strength S_r (psf)	Cyclic Shear Strain** γ_r (%)	Vol. Strain** ϵ_v (%)	Layer Settlement** $S_{(in.)}$	Cumulative Profile (in.)
75.0	2500	2090	2090	0.978	8.1	14.0	0.140	0.140	N/A	NO	N/A	N/A	N/A	N/A	0.140	0.384	0.88	0.88
69.4	3060	2543	2543	0.889	18.3	14.0	0.140	0.140	0.988	YES	2.1	20.3	20.3	3.891	N/A	0.135	0.17	1.24
64.5	3530	2819	2819	0.799	28.9	14.0	0.140	0.140	1.277	NO	N/A	N/A	N/A	N/A	N/A	0.098	0.09	1.38
59.5	4180	3157	3157	0.731	39.4	14.0	0.140	0.140	1.114	NO	N/A	N/A	N/A	N/A	N/A	0.148	0.09	1.47
54.5	4730	3295	3295	0.745	32.0	14.0	0.140	0.140	1.024	NO	N/A	N/A	N/A	N/A	N/A	0.139	0.08	1.55
49.5	5280	3353	3353	0.824	30.3	14.0	0.140	0.140	1.080	NO	N/A	N/A	N/A	N/A	N/A	0.094	0.05	1.60
47.5	5610	3676	3676	0.768	31.2	14.0	0.140	0.140	1.076	NO	N/A	N/A	N/A	N/A	N/A	0.087	0.06	1.66

***** SUMMARY OF RESULTS *****
 Total Thickness of Liquefiable Soils = 4.30 feet
 Earthquake-Induced Settlements = 1.54 inches ← Saturated Sands
 Liquefaction-Induced Settlement = 0.88 inches ← Dry or Unsaturated Sands
 Seismic Compaction Settlement = 0.22 inches
 Total: 2.64 inches

INPUT SOIL PROFILE (BORING DATA)

Soil Depth During Test Z (ft)	Layer Thickness H (ft)	USCS Soil Type	Equivalent SPT Blow Count N (blows/ft)	Fines Content FC (%)
19.0	3.0	SM	9.0	26.0
21.0	2.0	SM	21.0	26.0
23.0	2.0	SP-SM	36.0	5.0
25.0	2.0	SP-SM	37.0	5.0
27.0	2.0	SP-SM	39.0	5.0
29.0	2.0	SP-SM	44.0	5.0
31.0	2.0	SP-SM	43.0	5.0
33.0	2.0	SP-SM	45.0	5.0

PROJECT RIVER AVE DRAIN PROJECT NO. 93788
 SUBJECT EARTH PRESSURES BY MPS DATE 5/14/08
 REVIEWED BY _____ DATE _____

1/ Rigid System - Active

$$P_a = 0.8 * K_a * \gamma * H$$

$$K_a = \tan^2(45 - \phi/2)$$

For $\phi = 30^\circ$, $\gamma = 120 \text{ pcf}$

$$P_a = 0.8 * 0.33 * 120 * H = 31.7 H$$

$$\text{Use } P_a = 32 H \text{ (psf)}$$

2/ Flexible System (cantilevered) - Active

$$P_a = \underbrace{0.33}_{K_a} * \underbrace{120}_{\gamma} * H = 40 H \text{ (psf)}$$

Passive Pressure

$$P_p = K_p * \gamma * Z$$

$$K_p = \tan^2(45 + \phi/2) \rightarrow \text{for } \phi = 30^\circ \rightarrow K_p = 3$$

$$P_p = 3 * 120 * Z = 360 Z \text{ (ultimate)}$$

Use Factor of safety 1.3 (temporary shoring)

$$P_p = \frac{360}{1.3} * Z = 277 * Z$$

$$\text{say } P_p = 275 * Z \text{ (psf)}$$

APPENDIX C:
Phase I Environmental Site Assessment



620 West 16th Street, Unit F
Long Beach, CA
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May 16, 2008
File No. 93788/1

Mr. Frank Sanchez, P.E.
City of Long Beach
Department of Public Works
Bureau of Engineering/Project Management Division
333 West Ocean Boulevard, 9th Floor
Long Beach, California 90802

**Subject: Phase I Environmental Site Assessment
Proposed River Avenue Drain Phase II Project
Long Beach, California**

Dear Mr. Sanchez:

Enclosed is the Phase I Environmental Site Assessment (ESA) report for the above-referenced property. We trust the information presented in this report meets your need at this time.

An executive summary is provided; however, we recommend that the report be read in its entirety for a comprehensive understanding of the items contained therein.

We appreciate the opportunity to provide these services for the City of Long Beach. Should you require additional information, or have questions regarding this report, please contact the undersigned at (562) 432-1696.

Respectfully submitted,

KLEINFELDER

Paolo M. Dizon, REA
Environmental Scientist

Herbert "Bert" A. Vogler III, PG
Senior Hydrogeologist

**PHASE I ENVIRONMENTAL
SITE ASSESSMENT
PROPOSED RIVER AVENUE DRAIN
PHASE II PROJECT
LONG BEACH, CALIFORNIA**

May 16, 2008

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A Report Prepared for:

City of Long Beach
Department of Public Works
Bureau of Engineering/Project Management Division
333 West Ocean Boulevard, 9th Floor
Long Beach, California 90802

**PHASE I ENVIRONMENTAL SITE ASSESSMENT
PROPOSED RIVER AVENUE DRAIN PHASE II PROJECT
LONG BEACH, CALIFORNIA**

Kleinfelder Job No. 93788/1

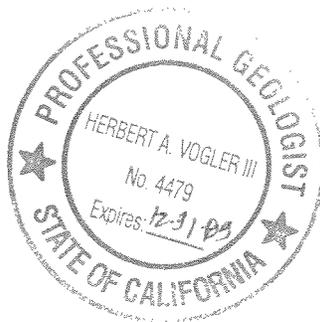
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Senior Hydrogeologist



KLEINFELDER
620 West 16th Street, Unit F
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May 16, 2008

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1.0 EXECUTIVE SUMMARY

A Phase I Environmental Site Assessment (ESA) was performed for the City of Long Beach (Client) of the property referred to as the Proposed River Avenue Drain Phase II Project (Site; see Plate 1, Site Location Map), in the City of Long Beach, California. This report was prepared using the American Society for Testing and Materials (ASTM) Standard E 1527-05, "*Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*" (the ASTM Standard). The Phase I ESA findings include:

- The Site includes an approximately 1,800-foot length of River Avenue and McHelen Avenue, which are contiguous asphalt-paved roadways. In addition, the southern portion of the Site, beyond the terminus of River Avenue, consists of an approximately 100-foot by 250-foot area located within a parcel presently used as a plant nursery by Orange County Nursery, Inc.
- A review of available historical information indicates that River Avenue, from the intersection of River Avenue and West Wardlow Road to its southern terminus, was paved from at least 1928. McHelen Avenue was paved from at least 1947. The portion of the Site located within the parcel occupied by Orange County Nursery, Inc. remained undeveloped up to at least 1994, prior to its subsequent development as a plant nursery.
- No obvious indications were observed during the Site reconnaissance that a release of hazardous materials/wastes or petroleum products has occurred at the Site.
- Kleinfelder identified no indication that pesticide application was performed on the portion of the Site located within the plant nursery, but the possibility of the use of pesticides at the Site cannot be ruled out. It is Kleinfelder's opinion that the plant nursery at the Site represents a potential recognized environmental condition (REC) to the Site.
- There are several petroleum pipelines reported to be located in the Site vicinity. Kleinfelder requested information concerning these pipelines from the owners, but has not received replies. The exact locations of these pipelines have therefore not been identified by Kleinfelder, but if they are located within or

immediately adjoining the Site and leaks have occurred, they would represent a REC.

- No current or historic off-Site facilities constituting RECs to the Site were identified during this Phase I ESA.

Kleinfelder's Phase I ESA did not reveal evidence of identified RECs, historical environmental conditions, or *de minimus* conditions. However, Kleinfelder's Phase I ESA revealed evidence of the following potential RECs:

- A portion of the Site is located within a plant nursery. Although not confirmed, it is possible that pesticides may have been used at the Site and released to the subsurface, which represents a potential REC.
- Several petroleum pipelines are reported to be located in the Site vicinity. Kleinfelder requested information concerning these pipelines from the owners, but has not received replies. The exact locations of these pipelines have therefore not been identified by Kleinfelder, but if they are located within or immediately adjoining to the Site and leaks have occurred, they would represent a REC.

In addition to these potential RECs, deviations are discussed in Chapter 8 of this report. This report is subject to the limitations in Section 2.5.

2.0 INTRODUCTION

The following report is a summary of work performed using the guidelines set forth in the ASTM Standard E 1527-05, “*Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*” (the ASTM Standard). This report also generally conforms to the ASTM Standard’s suggested table of contents. Minor format modifications have been made to the ASTM Standard’s suggested table of contents to assist in better reading and understanding the report findings.

2.1 PURPOSE

The purpose of this Phase I ESA is to identify, to the extent feasible pursuant to the scope of work defined in our Proposal number 05809PROP/LBE7P050, dated July 6, 2007, and limitations discussed in this report, RECs and other environmental issues related to the Site. As defined in the ASTM Standard, a REC is:

The presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include de minimis conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis are not recognized environmental conditions.

This report describes Kleinfelder’s assessment methodology and documents our assessment findings, subject to the limitations presented in Section 2.5 of this report.

2.2 DETAILED SCOPE-OF-SERVICES

The following sections describe Kleinfelder's work scope:

- Section 2, **Introduction**, includes a discussion of the purpose/reason for performing the Phase I ESA, additional services requested by the Client (e.g., an evaluation of business environmental risk factors associated with the Site), significant assumptions (e.g., property boundaries if not marked in the field), limitations, exceptions, special terms and conditions (e.g., contractual), and user reliance parameters.
- Section 3, **Site Description**, is a compilation of information concerning the Site location, legal description (if provided), current and proposed use of the Site, a description of structures and improvements on the Site at the time of Kleinfelder's assessment, and adjoining property use.
- Section 4, **Records Review**, is a compilation of Kleinfelder's review of several databases available from federal, state, and local regulatory agencies regarding hazardous substance use, storage, or disposal at the Site; and for off-Site facilities within the search distances specified in the ASTM Standard. Records provided by the Client are summarized and copies of relevant documents are included in the appendices of this report. Physical setting sources (including topography and soil and groundwater conditions) and typical Client-provided information (e.g., title records, environmental liens, specialized knowledge, valuation reduction for environmental issues, and owner, property manager, and occupant information) are also summarized in this section. Other interviews with people knowledgeable about the Site (including the Client) are included in Section 7.
- Section 5, **History of the Site**, summarizes the history of the Site and adjoining properties. This Site history is based on various sources which may include a review of historical aerial photographs, Sanborn Fire Insurance Maps, city or suburban directories, historical topographic maps, building department records, and results of previous Site assessments.

- Section 6, **Site Reconnaissance**, describes Kleinfelder's observations during the Site reconnaissance. The methodology used and limiting conditions are described.
- Section 7, **Interviews**, is a summary of telephone and personal interviews conducted with "Key Site Managers" that may include the Site owner/manager, occupants/tenants, local government officials, and the Client. Additional interview sources may be contacted if "Key Site Managers" are not available prior to production of this report, and may include adjoining landowners and people with historical knowledge of the area.
- Section 8, **Evaluation**, is a presentation of our findings and opinions regarding the information in Sections 3 through 7, and presents our conclusions regarding the presence of RECs connected with the Site, and recommendations.
- Section 9, **References**, is a summary of some of the resources used to compile this report.

Pertinent documentation regarding the Site is included in appendices of this report.

2.3 ADDITIONAL SERVICES

An evaluation of business environmental risk associated with the Site was not included in Kleinfelder's scope of work. The scope of this ESA does not incorporate ASTM Standard non-scope considerations, such as asbestos-containing materials, radon, lead-based paint, lead in drinking water, wetlands, regulatory compliance, cultural and historical resources, industrial hygiene, health and safety, ecological resources, endangered species, indoor air quality, and high voltage power lines.

2.4 SIGNIFICANT ASSUMPTIONS

Kleinfelder assumes the accuracy of the subcontracted regulatory agency database search report (Appendix B). Kleinfelder also assumes the property owner and/or Client provided all applicable and available environmental records and specialized knowledge regarding the Site. Kleinfelder has not made other significant assumptions during the performance of this Phase I ESA.

2.5 LIMITATIONS AND EXCEPTIONS

Phase I ESAs are non-comprehensive by nature and may not identify all environmental problems, and will not eliminate all risk. This report is a qualitative assessment. Kleinfelder offers a range of investigative and engineering services to suit the needs of our clients, including more quantitative investigations. Although risk can never be eliminated, more detailed and extensive investigations yield more information, which may help the Client understand and better manage risks. Since such detailed services involve greater expense, we ask our clients to participate in identifying the level of service, which will provide them with an acceptable level of risk. Please contact the signatories of this report if you would like to discuss this issue of risk further.

Kleinfelder performed this Phase I ESA in general accordance with the guidelines set forth in the ASTM Standard, and the proposed scope subsequently approved by our Client. No warranty, either expressed or implied, is made. Environmental issues not specifically addressed in this report were beyond the scope of our services and not included in our evaluation.

This report may be used only by the Client and only for the purposes stated within a reasonable time from its issuance, *but in no event later than 1 year from the date of the report*. Land or facility use, on- and off-Site conditions, regulations, or other factors may change over time, and additional work may be required with the passage of time. Since Site activities and regulations beyond our control could change at any time after the completion of this report, our observations, findings, and opinions can be considered valid only as of the date of the Site visit. This report should not be relied upon after 180 days from the date of its issuance (pursuant to the ASTM Standard's Section 4.6). Any party other than the Client who wishes to use this report shall notify Kleinfelder of such intended use. Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the Client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party, and Client agrees to defend, indemnify, and hold harmless Kleinfelder from any claim or liability associated with such unauthorized use or non-compliance.

2.6 SPECIAL TERMS AND CONDITIONS

No special terms and conditions in addition to those discussed in our Proposal Number 05809PROP/LBE7P050, dated July 6, 2007, were agreed to by the Client and Kleinfelder.

3.0 SITE DESCRIPTION

The Site description is presented in this section and describes the condition of the Site at the time of the Phase I ESA. The Site location is shown on Plate 1. Tables 3-1 through 3-4 summarize the physical characteristics of the Site and adjoining properties.

3.1 LOCATION AND LEGAL DESCRIPTION

The information presented in Table 3-1 describes the physical location and legal description of the Site. This information was obtained from review of various maps (such as topographic maps and tax assessor maps), aerial photographs, public records at city and/or county offices, interviews, and/or information provided by the Client.

**TABLE 3-1
LOCATION AND LEGAL DESCRIPTION**

Parameter	Information/Comments
LOCATION	The Site is located along River Avenue and McHelen Avenue, extending from the intersection of East 221 st Place and McHelen Avenue southward to, and including, a portion of a parcel adjoining the southern terminus of River Avenue. The Site is in the City of Long Beach, California.
ASSESSOR'S PARCEL NO.	The parcel adjoining the southern terminus of River Avenue is assigned Assessor's Parcel Number (APN) 7317-015-800 by the County of Los Angeles. There is no APN assigned to the portion of the Site along River Avenue and McHelen Avenue.
ADDRESS	There is no address for the portion of the Site along River Avenue and McHelen Avenue. APN 7317-015-800 has an assigned address of 3628 Webster Avenue.
TOWNSHIP & RANGE	Township 4 South, Range 13 West, Section 15, San Bernardino Baseline and Meridian.
ACREAGE	The portion of the Site along River Avenue and McHelen Avenues consists of approximately 1,800 linear feet. The portion of the Site located within APN 7317-015-800 occupies an area of approximately 100 feet by 250 feet.

3.2 CURRENT / PROPOSED USE OF THE PROPERTY

The Site includes an approximately 1,800-foot length of River Avenue and McHelen Avenue, which are contiguous asphalt-paved roadways. In addition, the southern portion of the Site consists of an approximately 100-foot by 250-foot area located within a parcel presently used as a plant nursery by Orange County Nursery, Inc. The Site is located in the City of Long Beach, California. At the time of Kleinfelder's assessment, land use in the general vicinity appeared to be commercial and residential. Current and proposed uses are described in Table 3-2.

**TABLE 3-2
CURRENT / PROPOSED USES**

Parameter	General Observations
CURRENT USE	The Site presently consists of active roadway and a portion of a plant nursery.
PROPOSED USE	Kleinfelder understands that the Client plans to construct a new storm drain along River Avenue and McHelen Avenue (contiguous roadways), starting from approximately the intersection of McHelen Avenue and East 223 rd Place, to the southern terminus of River Avenue. The total length of the proposed storm drain alignment is approximately 1,800 feet. In addition, an approximately 100-foot by 250-foot detention basin is to be constructed within the Site portion of APN 7317-015-800 (where the plant nursery is presently located).

3.3 DESCRIPTION OF STRUCTURES / IMPROVEMENTS

Structures and/or improvements observed on the Site at the time of Kleinfelder's Site reconnaissance are described in Table 3-3.

**TABLE 3-3
STRUCTURES / IMPROVEMENTS**

Parameter	General Observations
STRUCTURES	There are presently no buildings located on the Site.
IMPROVEMENTS	River Avenue and McHelen Avenue together are an active roadway paved with asphalt. The portion of the Site occupying part of APN 7317-015-800 is currently developed as a plant nursery.

3.4 CURRENT USES OF ADJOINING PROPERTIES

Kleinfelder performed a brief drive-by survey of the properties immediately adjoining to the Site on April 24, 2008. A summary of the surrounding properties is presented in Table 3-4.

**TABLE 3-4
ADJOINING PROPERTIES**

Direction	Land Use Description
NORTH	The Site is bounded by East 221 st Place to the north, beyond which are residences.
SOUTH	The Site is bounded by the plant nursery, beyond which is a Southern California Edison (SCE) substation.
EAST	The Site is bounded by the plant nursery and residences, beyond which are additional residences and a trailer park.
WEST	The Site is bounded by a plant nursery, residences, and a church. Farther west of the plant nursery is a Union Pacific Intermodal Container Transfer Facility.

Hazardous materials and petroleum products were not observed to be stored on properties directly adjoining the Site. No other environmental conditions were apparent on the adjoining properties at the time of Kleinfelder's Site reconnaissance. Based on our observations, the adjoining properties are not likely to adversely affect environmental conditions at the Site.

4.0 RECORDS REVIEW

4.1 STANDARD ENVIRONMENTAL RECORD SOURCES

The purpose of the records review is to obtain and review records that would help to evaluate RECs in connection with the Site and bordering properties.

Federal, state, and local regulatory agencies publish databases or 'lists' of businesses and properties that handle hazardous materials or hazardous waste, or are the known location of a release of hazardous substances to soil and/or groundwater. These databases are available for review and/or purchase at the regulatory agencies, or the information may be obtained through a commercial database service. Kleinfelder contracted a commercial database service, Environmental Data Resources, Inc. (EDR), of Milford, Connecticut, to perform the government database search for listings within the appropriate ASTM Standard minimum search distance of the Site. EDR also searches proprietary databases it maintains for listings. The EDR database search results, a description of the types of information contained in each of the databases reviewed, the agency responsible for compiling the data in each database, and locations of the listed facilities are included in the EDR DataMap[®] Area Study, which is presented in Appendix B.

4.2 STANDARD ENVIRONMENTAL RECORD SOURCES

The following sections include summary tables presenting the results of EDR's record search. Databases with listings identified by EDR are discussed further, following each of the summary tables. The EDR DataMap[®] Area Study in Appendix B has a discussion of the databases that contained no listings.

4.2.1 Federal Agency Records Review

The results of the federal agency records review are summarized in Table 4-1 and the text that follows.

**TABLE 4-1
FEDERAL RECORDS REVIEWED**

Database Searched	Site Listing	Adjoining Listings	Other Listings within 0.25-Mile	Listings within 0.25-0.50-Mile	Listings within 0.5-1.0 Mile
NPL	No	No	No	No	No
Proposed NPL	No	No	No	No	No
Delisted NPL	No	No	No	No	No
NPL Liens	No	No	No	No	No
CERCLIS	No	No	No	2	No
CERCLIS-NFRAP	No	No	No	1	3
LIENS 2	No	No	No	No	No
CORRACTS	No	No	No	1	4
RCRA-TSDF	No	No	No	1	3
RCRA-LQG	No	No	No	No	1
RCRA-SQG	No	No	No	2	2
RCRA-CESQG	No	No	No	No	No
RCRA-NonGen	No	No	No	No	1
US ENG CONTROLS	No	No	No	No	No
US INST CONTROLS	No	No	No	No	No
ERNS	No	No	No	No	No
HMIRS	No	No	No	No	No
DOT OPS	No	No	No	No	No
US CDL	No	No	No	No	No
US Brownfields	No	No	No	No	No
DOD	No	No	No	No	No
FUDS	No	No	No	No	No
LUCIS	No	No	No	No	No
CONSENT	No	No	No	No	No
ROD	No	No	No	No	No
UMTRA	No	No	No	No	No
ODI	No	No	No	No	No
Debris Region 9	No	No	No	No	No
MINES	No	No	No	No	No

**TABLE 4-1 (continued)
FEDERAL RECORDS REVIEWED**

Database Searched	Site Listing	Adjoining Listings	Other Listings within 0.25-Mile	Listings within 0.25-0.50-Mile	Listings within 0.5-1.0 Mile
TRIS	No	No	No	No	1
TSCA	No	No	No	No	No
FTTS	No	No	No	No	No
HIST FTTS	No	No	No	No	No
SSTS	No	No	No	No	No
ICIS	No	No	No	No	No
PADS	No	No	No	No	No
MLTS	No	No	No	No	No
RADINFO	No	No	No	No	No
FINDS	No	No	No	3	4
RAATS	No	No	No	No	No

The Site was not listed in the searched federal databases. Listed off-Site facilities are discussed below.

CERCLIS – The CERCLIS List is a compilation of facilities reported to the US EPA that have been investigated or are under investigation for a release or potential release of hazardous materials. Two off-Site facilities are listed in the CERCLIS Database. “Raytheon Systems Co” at 1500 Cabot Way and “Alameda St San Ldfl” at 22700 South Alameda Street are located within 0.5 mile northeast and southwest, respectively, of the Site. These facilities are crossgradient of the Site. Based on their distances and directions from the Site, in Kleinfelder’s opinion these facilities are unlikely to have resulted in a REC currently affecting the Site.

CERCLIS-NFRAP – As of February 1995, CERCLIS facilities designated “No Further Remedial Action Planned” (NFRAP) have been removed from CERCLIS. NFRAP facilities may be properties where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the facility to be placed on the NPL, or the contamination was not serious enough to require federal Superfund action or NPL consideration. One off-Site facility, “Johns-Manville Sales Corp Del” at 2430 East 223rd Street, is located within 0.5 mile west of the Site. This facility is crossgradient of the Site. Based on its distance and direction from the Site,

in Kleinfelder's opinion this facility is unlikely to have resulted in a REC currently affecting the Site. Three other CERCLIS-NFRAP facilities are listed in the EDR report but are not within 0.5 mile of the Site. The ASTM Standard search distance required for consideration for CERCLIS-NFRAP facilities is 0.5 mile; therefore, these listed facilities did not require further evaluation.

CORRACTS – The RCRA Corrective Actions Report (CORRACTS) identifies hazardous waste handlers with RCRA corrective action activity. Five off-Site facilities are listed in the CORRACTS Database. "Raytheon Systems Co" at 1500 Cabot Way is located within 0.5 mile northeast of the Site. "Niklor Chemical Co Inc" at 2060 East 220th Street (northwest of the Site), "Stauffer Chem Co" at 2112 East 223rd Street (west of the Site), "Monsanto Chem Co" at 2100 East 223rd Street (west of the Site), and "Texaco US Div Texaco Inc" at 23208 (street name not listed; southwest of the Site) are located within 1 mile of the Site. These facilities are crossgradient of the Site. Based on their distances and directions from the Site, in Kleinfelder's opinion these facilities are unlikely to have resulted in a REC currently affecting the Site.

RCRA-TSDF – The Resource Conservation and Recovery Information System (RCRIS) includes selective information on facilities which transport, store, treat, and/or dispose of hazardous waste (referred to as TSD facilities) as defined by the Resource Conservation and Recovery Act (RCRA). Four off-Site facilities are listed in the RCRA-TSDF Database. "Raytheon Systems Co" at 1500 Cabot Way is located within 0.5 mile northeast of the Site. This facility is crossgradient of the Site. Based on its distance and direction from the Site, in Kleinfelder's opinion this facility is unlikely to have resulted in a REC currently affecting the Site. Three other RCRA-TSDF facilities are also listed in the EDR report but are not within 0.5 mile of the Site. The ASTM Standard search distance required for consideration for RCRA-TSDF facilities is 0.5 mile; therefore, these listed facilities did not require further evaluation.

RCRA-LQG – These listings indicate that hazardous wastes are generated on a facility's premises as part of the company's business practices. One large quantity generator (LQG) located within 1 mile of the Site was listed in the EDR report, but does not adjoin the Site. The ASTM Standard search distance required for consideration for LQGs is Site and adjoining; therefore, this listed facility did not require further evaluation.

RCRA-SQG – These listings indicate that hazardous wastes are generated on a facility's premises as part of the company's business practices. Two small quantity generators (SQGs) located within 0.5 mile of the Site and two additional SQGs located within 1 mile of the Site were listed in the EDR report. None of these facilities adjoin the Site. The ASTM Standard search distance required for consideration for SQGs is Site and adjoining; therefore, these listed facilities did not require further evaluation.

RCRA-NonGen – These listings indicate that hazardous wastes were formerly, but not presently, generated on a facility's premises as part of the company's business practices. One non-generator located within 1 mile of the Site was listed in the EDR report, but does not adjoin the Site. The ASTM Standard search distance required for consideration for NonGens is Site and adjoining; therefore, this listed facility did not require further evaluation.

TRIS – The Toxic Chemical Release Inventory System (TRIS) identifies facilities that release toxic chemicals to the air, water, and land, in reportable quantities under Superfund Amendments and Reauthorization Act (SARA) Title III, Section 313. One TRIS facility located within 1 mile of the Site was listed in the EDR report, but does not adjoin the Site. The ASTM Standard search distance required for consideration for TRIS facilities is Site only; therefore, this listed facility did not require further evaluation.

FINDS – The Facility Index System/Facility Identification Initiative Program Summary Report (FINDS) contains both facility information and pointers to other sources that contain more detail. Two FINDS facilities located within 0.5 mile of the Site were listed in the EDR report. Five additional FINDS facilities located within 1 mile of the Site were listed in the EDR report. None of these facilities adjoin the Site. The ASTM Standard search distance required for consideration for FINDS facilities is Site only; therefore, these facilities did not require further evaluation.

4.2.2 State and Local Agency, Tribal, and EDR Proprietary Records Review

The results of the state and local agency, tribal, and EDR proprietary records review are summarized below in Table 4-2 and the text that follows.

**TABLE 4-2
STATE AND LOCAL AGENCY, TRIBAL, AND
EDR PROPRIETARY RECORDS REVIEWED**

Database Searched	Site Listing	Adjoining Listings	Other Listings within 0.25-Mile	Listings within 0.25-0.50-Mile	Listings within 0.5-1.0 Mile
HIST CAL-SITES	No	No	No	1	2
BEP	No	No	No	1	No
SCH	No	No	No	1	No
TOXIC PITS	No	No	No	No	1
SWF/LF	No	No	No	3	No
CA WDS	No	No	No	2	No
WMUDS/SWIS	No	No	No	6	No
CORTESE	No	No	No	8	No
SWRCY	No	No	No	2	No
LUST	No	No	No	10	No
CA FID UST	No	No	2	3	1
CA SLIC	No	No	No	7	No
AOCONCERN	No	No	No	No	No
UST	No	No	2	2	No
HIST UST	No	No	2	2	1
AST	No	No	No	No	No
LIENS	No	No	No	No	No
SWEEPS UST	No	No	2	4	1
CHMIRS	No	No	No	3	1
NOTIFY 65	No	No	No	No	1
LA Co. Site Mitigation	No	No	No	No	No
DEED	No	No	No	1	1
VCP	No	No	No	No	1
DRYCLEANERS	No	No	No	No	No
WIP	No	No	No	No	No
LOS ANGELES Co. HMS	No	No	No	3	1
CDL	No	No	No	No	No
RESPONSE	No	No	No	1	2
HAZNET	No	No	1	2	3
AIRS	No	No	No	1	2
HAULERS	No	No	No	No	No
ENVIROSTOR	No	No	No	2	7
INDIAN RESERV	No	No	No	No	No

**TABLE 4-2 (continued)
STATE AND LOCAL AGENCY, TRIBAL, AND
EDR PROPRIETARY RECORDS REVIEWED**

Database Searched	Site Listing	Adjoining Listings	Other Listings within 0.25-Mile	Listings within 0.25-0.50-Mile	Listings within 0.5-1.0 Mile
INDIAN ODI	No	No	No	No	No
INDIAN LUST	No	No	No	No	No
INDIAN UST	No	No	No	No	No
Manufactured Gas Plants	No	No	No	No	No

The Site was not listed in the searched state and local agency, tribal, and EDR proprietary records databases. Listed off-Site facilities are discussed below.

HIST CAL-SITES – The California Environmental Protection Agency (Cal/EPA) maintained a database of potential or confirmed hazardous waste facilities identified as the HIST Cal-Sites list. The facilities were identified through the historical Abandoned Site Survey Program and federal, state, and county funded site evaluation programs. Three off-Site facilities are listed in the HIST Cal-Sites Database. “Manville Corporation” at 2420 East 223rd Street is located within 0.5 mile west of the Site. “Stauffer Chem Co” at 2112 East 223rd Street and “Monsanto Chemical Company/ C/O” at 2100 East 223rd Street are located within 1 mile west of the Site. These facilities are crossgradient of the Site. Based on their distances and directions from the Site, in Kleinfelder’s opinion these facilities are unlikely to have resulted in a REC currently affecting the Site.

BEP – The Bond Expenditure Plan (BEP) was a site-specific expenditure plan developed by the California Department of Health Services as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. One off-Site BEP facility, “Manville Corporation” at 2420 East 223rd Street, is located within 0.5 mile west of the Site. This facility is crossgradient of the Site. Based on its distance and direction from the Site, in Kleinfelder’s opinion this facility is unlikely to have resulted in a REC currently affecting the Site.

SCH – The SCH List contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. One SCH facility located within 0.5 mile of the Site was listed in the EDR report. The ASTM Standard

search distance required for consideration for SCH facilities is Site and adjoining, and this facility does not adjoin the Site; therefore, this listed facility did not require further evaluation.

TOXIC PITS – This database is a list of Toxic Pits cleanup facilities, and identifies facilities suspected of containing hazardous wastes where cleanup has not yet been completed. The data come from the State Water Resources Control Board (SWRCB). One off-Site Toxic Pits facility, “GATX, Carson Terminal” at 2000 East Sepulveda Boulevard, is located within 1 mile southwest of the Site. This facility is crossgradient of the Site. Based on its distance and direction from the Site, in Kleinfelder’s opinion this facility is unlikely to have resulted in a REC currently affecting the Site.

SWF/LF – The California Integrated Waste Management Board (CIWMB) maintains the Solid Waste Information System (SWIS) Database of information regarding active, inactive, and closed landfills, and transfer and composting stations. The database is published annually. SWIS is also known as Solid Waste Fills/Land Fills (SWF/LF). Three off-Site facilities are listed in the SWF/LF Database. “Caltrans Long Beach, W LA River #2” at “W Los Angeles River/At end of W. Carson” (east of the Site), “Hardwick’s Disposal Pit” at 22620 South Alameda Street (southwest of the Site), and “Alameda Street Landfill” at 22700 South Alameda Street (southwest of Site) are located within 0.5 mile of the Site. These facilities are crossgradient of the Site. Based on their distances and directions from the Site, in Kleinfelder’s opinion these facilities are unlikely to have resulted in a REC currently affecting the Site.

CA WDS – The California Waste Discharge System (CA WDS) List is a SWRCB listing of facilities that have been issued waste discharge requirements. Two CA WDS facilities located within 0.5 mile of the Site were listed in the EDR report. These facilities do not adjoin the Site. The ASTM Standard search distance required for consideration for CA WDS facilities is Site only; therefore, these listed facilities did not require further evaluation.

WMUDS/SWAT – The Waste Management Unit Database (WMUDS) is used by the state for program tracking and inventory of waste management units. Six off-Site facilities are listed in the WMUDS/SWAT Database. “Manville Plant Site” at 2400 East 223rd Street (west of the Site), “Johns-Manville-Carson” at 22401 South Alameda Street (west of the Site), “Watson Land Company No. 1” at 22400 South Alameda

Street (west of the Site), "Hardwick Disposal Pit No. 44" at 22620 South Alameda Street (southwest of the Site), "Cassidy & Crisman-Carson" at 22700 South Alameda Street (southwest of the Site), and "Alameda Street" at 22700 South Alameda Street (southwest of the Site) are located within 0.5 mile of the Site. These facilities are crossgradient of the Site. Based on their distances and directions from the Site, in Kleinfelder's opinion these facilities are unlikely to have resulted in a REC currently affecting the Site.

CORTESE – This database identifies public drinking water wells with detectable levels of contamination, hazardous substance sites selected for remedial action, sites with known toxic material identified through the abandoned site assessment program, sites with underground storage tanks (USTs) having a reportable release, and solid waste disposal facilities from which there is known migration. The source is the California Environmental Protection Agency (Cal/EPA) Office of Emergency Information. Eight facilities are listed within the ASTM Standard search distance. "Cardlock Fuel Systems S.S.#18" at 2720 East Carson Street (northeast of the Site), "Dominguez Water company" at 21718 South Alameda Street (north-northwest of the Site), "Shell #204-4482-6307" at 1700 West Wardlow Road (east of the Site), "Manville Plant" at 2420 East 223rd Street (west of the Site), "Commercial Carriers Inc" at 22220 South Alameda Street (west of the Site), "Matlack Inc" at 22422 South Alameda Street (west of the Site), "United Oil #05" at 3631 Santa Fe Avenue (east of the Site), and "State Salvage" at 22500 South Alameda Street (southwest of the Site) are located within 0.5 mile of the Site. Although the listings provide no further information, these facilities are also listed in the Leaking UST (LUST) Database, discussed below, and LUST facilities are typically also listed in the CORTESE Database. Based on their distances and/or direction from the Site, in Kleinfelder's opinion these facilities are unlikely to have resulted in a REC currently affecting the Site.

SWRCY – The SWRCY Database is a listing of solid waste recycling facilities in California. Two off-Site facilities are listed in the SWCRY Database. "State Salvage Inc." at 22500 South Alameda Street and "Carson Auto Inc" at 22606 South Alameda Street are located within 0.5 mile west and southwest, respectively, of the Site. These facilities are crossgradient of the Site. Based on their distances and directions from the Site, in Kleinfelder's opinion these facilities are unlikely to have resulted in a REC currently affecting the Site.

LUST – The LUST Database is the State of California's list of LUST locations. The State Water Resources Control Board and individual Regional Water Quality Control Boards maintain LUST lists. Ten off-Site facilities are listed in the LUST Database. "Cardlock Fuel Systems S.S.#18" at 2720 East Carson Street is located within 0.5 mile northeast (crossgradient) of the Site. This facility had a release of gasoline in approximately 1994, which affected groundwater. A remediation plan has been submitted for this facility. "Dominguez Water Company" at 21718 South Alameda Street is located approximately 0.5 mile north-northwest (upgradient) of the Site. This facility had a release which reportedly impacted soil only. The case was closed on September 28, 2007. "Calif Dept of Transportation" at 22101 is located within 0.5 mile northeast (crossgradient) of the Site. A release of gasoline was reported in approximately 1995, but the listing indicates little additional information. "Shell #204-4482-6307" at 22101 South Santa Fe Avenue is located within 0.5 mile east (crossgradient) of the Site. This facility had a release of gasoline which impacted groundwater. The case was closed on September 6, 1996. "Ventura Transfer Company" at 2418 East 223rd Street is located within 0.5 mile west (crossgradient) of the Site. This facility had a release of diesel. The leak is being confirmed. "Manville Plant" at 2420 East 223rd Street is located within 0.5 mile west (crossgradient) of the Site. This facility had a release of diesel which impacted groundwater. The case was closed on July 18, 1996. "Matlack Inc" at 22422 South Alameda Boulevard is located within 0.5 mile west (crossgradient) of the Site. This facility had a release of diesel which impacted groundwater. The case was closed on June 26, 1996. "Commercial Carriers Inc" at 22440 South Alameda Street is located within 0.5 mile west (crossgradient) of the Site. This facility had a release of diesel which impacted soil. The case was closed on May 30, 1989. "United Oil #05" at 3631 Santa Fe Avenue is located within 0.5 mile east (crossgradient) of the Site. This facility had a release of gasoline which impacted groundwater. The listing indicates pollution characterization is underway. "State Salvage" at 22500 South Alameda Street is located within 0.5 mile west (crossgradient) of the Site. This facility had a release of diesel which impacted soil. The case was closed on July 3, 1991. Based on their distances and/or directions from the Site, in Kleinfelder's opinion these facilities are unlikely to have resulted in a REC currently affecting the Site.

California Facility Inventory (CA FID) UST – This database contains active and inactive UST locations. The source is the SWRCB. Six off-Site facilities are listed in the CA FID Database, including two facilities listed within 0.25 mile of the Site. The

ASTM Standard search distance required for consideration for CA FID USTs is Site and adjoining, and the facilities do not adjoin the Site; therefore, these listed facilities did not require further evaluation.

California Spills, Leaks, Investigations, and Cleanups (CA SLIC) – The CA SLIC List, maintained by the Los Angeles Regional Water Quality Control Board (LARWQCB), includes contaminated sites that impact groundwater or have the potential to impact groundwater. Seven off-Site facilities are listed in the CA SLIC Database. “Lakewood Kohl’s” at 2650 East Carson Street is located within 0.5 mile northeast (crossgradient) of the Site. This facility had a release and the status is not reported. “Rockwell” at 2770 East Carson Street is located within 0.5 mile northeast (crossgradient) of the Site. This facility had a release of perchloroethylene (PCE), trichloroethylene (TCE), and volatile organic compounds (VOCs). The status is reported as case open. Business name “Not reported” at 2442 East Carson Street is located within 0.5 mile north-northwest (upgradient) of the Site. This facility had a release and pollution characterization is ongoing. “Acta South – Parcel SE-340, Within the Union Pacif” at 2442 East Carson Street is located within 0.5 mile north-northwest (upgradient) of the Site. This facility had a release and the case is closed. Business name “Not reported” at South Alameda Street/East 223rd Street is located within 0.5 mile west (crossgradient) of the Site. This facility had a release and the case is closed. Business name “Not reported” at 2384 East 223rd Street is located within 0.5 mile west (crossgradient) of the Site. This facility had a release and pollution characterization is ongoing. “City of Carson – ARCO” at 2384 East 223rd Street is located within 0.5 mile west (crossgradient) of the Site. This facility had a release and site assessment is ongoing. Based on their distances and/or directions from the Site, in Kleinfelder’s opinion these facilities are unlikely to have resulted in a REC currently affecting the Site.

UST – The California UST Database is a listing of registered USTs within California maintained by the SWRCB. Two UST facilities within 0.25 mile of the Site and two facilities within 0.5 mile of the Site were listed in the EDR report, but none of these facilities adjoin the Site. The ASTM Standard search distance required for consideration for USTs is Site and adjoining; therefore, these listed facilities did not require further evaluation.

Historical (HIST) UST – This database, maintained by the California State Water Resources Control Board, identifies historical registered USTs. Two HIST UST facilities within 0.25 mile of the Site and three facilities within 0.5 mile of the Site were listed in the EDR report, but none adjoin the Site. The ASTM Standard search distance required for consideration for HIST USTs is Site and adjoining; therefore, these listed facilities did not require further evaluation.

Statewide Environmental Evaluation and Planning System (SWEEPS) UST – This database was a UST listing maintained and updated by a company under contract to the State Water Resources Control Board in the early 1980s, but it is no longer maintained or updated. Two SWEEPS UST facilities within 0.25 mile of the Site and five facilities within 0.5 mile of the Site were listed in the EDR report, but none adjoin the Site. The ASTM Standard search distance required for consideration for SWEEPS USTs is Site and adjoining; therefore, these listed facilities did not require further evaluation.

CHMIRS – The California Hazardous Material Incident Report System (CHMIRS) contains information on reported hazardous material incidents (i.e., accidental releases or spills). The source is the California Office of Emergency Services. Four off-Site listings are in the CHMIRS Database. The ASTM Standard search distance required for consideration for CHMIRS listings is Site only; therefore, these listings did not require further evaluation.

NOTIFY 65 – Notify 65 records contain facility notifications about releases that could impact drinking water and thereby expose the public to a potential health risk. The data are from the SWRCB's Proposition 65 database. One off-Site facility, "Texaco" at 232000 South Alameda Street, is located within 1 mile southwest (crossgradient) of the Site. Based on the distance and direction from the Site, in Kleinfelder's opinion this facility is unlikely to have resulted in a REC currently affecting the Site.

DEED – This database contains information regarding facilities with land use restrictions. The source for this list is the Department of Toxic Substances Control (DTSC). Two off-Site DEED facilities are listed, but the ASTM Standard search distance required for consideration for DEED facilities is Site only, and the Site is not listed as a DEED facility.

VCP – The Voluntary Cleanup Program (VCP) database contains low threat level properties with either confirmed or unconfirmed releases, where project proponents have requested that DTSC oversee investigation and/or cleanup activities and have agreed to pay DTSC's related oversight costs. One off-Site facility is located within 1 mile of the Site but over 0.5 mile from the Site. The ASTM Standard search distance required for consideration for VCP facilities is 0.5 mile; therefore, this listed facility did not require further evaluation.

LOS ANGELES COUNTY HMS – The Los Angeles County Hazardous Materials System (HMS) List is a street address listing of permitted industrial facilities, and facilities with permitted USTs. Four off-Site facilities are located within 0.5 mile of the Site. The ASTM Standard search distance required for consideration for HMS facilities is Site and adjoining, and the Site was not listed; these listed facilities did not require further evaluation.

RESPONSE – The Response Database identifies confirmed release sites where the DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high priority and high potential risk. “Manville Corporation” at 2420 East 223rd Street is located within 0.5 mile west (crossgradient) of the Site. The media impacted is soil and use restrictions have been placed on this facility. The status listed is “Certified / Operation & Maintenance.” “Stauffer Chem Co” at 2112 East 223rd Street is located within 1 mile west (crossgradient) of the Site. The media impacted is soil and groundwater. The status is listed as active. “Monsato Chemical Company C/O Larry Adams Superin” at 2100 East 223rd Street is located within 1 mile west (crossgradient) of the Site. The media impacted is soil and groundwater. The status is listed as active. Based on their distances and directions from the Site, in Kleinfelder’s opinion these facilities are unlikely to have resulted in a REC currently affecting the Site.

HAZNET – The HAZNET Database is extracted from the copies of hazardous waste manifests received each year by DTSC. Six off-Site facilities are listed in the HAZNET Database. The ASTM Standard search distance required for consideration for HAZNET facilities is Site only, and the Site was not listed; these listed facilities did not require further evaluation.

AIRS – This database contains toxics and criteria pollutant emissions data. The source of this list is the Air Resources Board (ARB) and local air pollution agencies. Three off-Site facilities are listed in the AIRS Database. The ASTM Standard search distance required for consideration for AIRS facilities is Site only, and the Site was not listed in the AIRS Database.

ENVIROSTOR – The DTSC's Site Mitigation and Brownfields Reuse Program (SMBRP) maintains the ENVIROSTOR Database, which identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes Federal Superfund (NPL), State Response (including Military Facilities and State Superfund), Voluntary Cleanup, and School sites. ENVIROSTOR provides similar information to that formerly maintained in the Cal-Sites Database, and provides additional information including identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites. Nine off-Site facilities are listed within 1 mile of the Site. "Dura-Life Compressed Fiberglass Pots Inc" at 21100 South Alameda Street is located within 1 mile north (upgradient) of the Site. Wood furniture manufacturing and repacking of soaps and degreasers was previously performed at this facility. DTSC required no further action and the case has been referred to another agency. "South Region High School #4 56" at West Carson Street/Santa Fe Avenue is located within 0.5 mile northeast (crossgradient) of the Site. This facility was previously occupied by an office building, a railroad right-of-way, and for recreation services. No further action is required. "Clean Steel Inc." at 2061 East 220th Street is located within 1 mile northwest (crossgradient) of the Site. The previous use of this facility was not specified. The status is listed as "Refer: 1248 Local Agency." "Niklor Chem Co Inc" at 2060 East 220th Street is located within 1 mile northwest (crossgradient) of the Site. The previous use of this facility was not specified. The status is listed as "Refer: 1248 Local Agency." "Manville Corporation" at 2420 East 223rd Street is located within 0.5 mile west (crossgradient) of the Site. The media impacted is soil and use restrictions have been placed on this facility. The previous use of this facility is listed as unknown. The status listed is "Certified / Operation & Maintenance." "Stauffer Chem Co" at 2112 East 223rd Street is located within 1 mile west (crossgradient) of the Site. The previous use of this facility was chemical manufacturing. The media impacted is soil and groundwater. The status is

listed as active. "Coons Trust Property" at 2254 East 223rd Street is located within 0.5 mile west (crossgradient) of the Site. The previous use of this facility is listed as chemical manufacturing. The media impacted is soil and groundwater. Restrictions have been placed on this facility. The status listed is "Certified / Operation & Maintenance." "Monsato Chemical Company C/O Larry Adams Superin" at 2100 East 223rd Street is located within 1 mile west (crossgradient) of the Site. The previous use of this facility is listed as chemical manufacturing. The media impacted is soil and groundwater. The status is listed as active. "Watson Carbon & Chemical Company" at 2021 East Sepulveda Boulevard is located within 1 mile southwest (crossgradient) of the Site. The media impacted is not specified. The status listed is "Refer: Other Agency." Based on the distances and/or direction of these facilities from the Site, in Kleinfelder's opinion these facilities are unlikely to have resulted in a REC affecting the Site.

4.2.1 Orphan List

Sites not plotted by EDR due to poor or inadequate address information are referred to as orphan sites. There are 147 unmapped sites in the EDR report. The orphan summary/unmapped sites report was reviewed by Kleinfelder to assess the potential for off-Site properties that might pose a REC to the Site. Based on our review of these listings and our reconnaissance of the Site vicinity on April 24, 2008, these orphan sites appear to be in other databases discussed previously, are outside of the ASTM search distances, and/or are located hydrogeologically down- or crossgradient relative to the Site, and in our opinion they do not represent a REC to the Site.

4.3 OTHER RECORDS REVIEWED / AGENCIES CONTACTED

The following additional sources of environmental records were reviewed during this Phase I ESA for the purposes of meeting the ASTM Standard. Local regulatory agencies were contacted for reasonably ascertainable and practically reviewable documentation regarding RECs present at the Site and adjoining facilities. Interviews with local regulatory agency representatives are included in Section 7 of this report (with interview documentation included in Appendix C). The following agencies were contacted for documentation:

South Coast Air Quality Management District (SCAQMD)

- Long Beach Development Services (LBDS)
- Long Beach Health and Human Services (LBHHS)
- Long Beach Fire Department (LBFD)
- Los Angeles Regional Water Quality Control Board (LARWQCB)
- State Division of Oil, Gas, and Geothermal Resources (DOGGR)
- State Department of Toxic Substances Control (DTSC)
- California State Fire Marshal (CSFM) Pipeline Safety Office
- Los Angeles Sanitation District (LASD)

SCAQMD was not contacted because information concerning air permits was obtained from its internet web site (www.aqmd.gov). LBDS was not contacted because information concerning building permits was obtained from its internet web site (www.longbeach.gov). DOGGR was not contacted because information concerning oil and gas fields was obtained from published maps available for download on its internet web site (www.consrv.ca.gov).

South Coast Air Quality Management District

On May 5, 2008, Kleinfelder reviewed the SCAQMD web site (www.aqmd.gov) to search for information regarding permits, equipment lists, and notices of violation (NOV) for the Site addresses. According to the SCAQMD Facility Information Module, no records were available for the Site.

Long Beach Development Services

On April 25, 2008, Kleinfelder reviewed the LBDS web site (www.longbeach.gov) for available historical permit information pertaining to the Site. An Application for Building Permit issued on October 18, 1946 with attached site plan was reviewed. The permit was to construct a 560 square foot dwelling at 3628 Webster Avenue, and it appears the proposed dwelling was located off-Site, near the intersection of Webster Avenue and West Lincoln Street.

Long Beach Health and Human Services

On April 25, 2008, Kleinfelder submitted a request to LBHHS to review available records pertaining to the Site. A letter dated May 6, 2008 from LBHHS indicated that there was no information on file for the Site.

Long Beach Fire Department

On April 25, 2008, Kleinfelder submitted a written request to LBFD for information pertaining to the Site. Kleinfelder was informed via a facsimile dated April 29, 2008 that LBFD found no files for the Site.

Los Angeles Regional Water Quality Control Board

On April 25, 2008, Kleinfelder searched for information pertaining to the Site on the SWRCB's Geotracker Database (www.geotracker.swrcb.ca.gov), which lists LUST cases. The search identified no records pertaining to the Site. In addition, Kleinfelder submitted a written request to LARWQCB for a review of available records. According to the UST Division, no records are available for the Site. A response has not been received to date from the SLIC Division. Should records exist for the Site and information subsequently received alter our conclusions and recommendations, an addendum to this Phase I ESA will be provided.

Department of Oil, Gas, and Geothermal Resources

On April 23, 2008, DOGGR Map W1-6 was reviewed by Kleinfelder to identify oil and/or gas wells located on or in close proximity to the Site. According to DOGGR Map W1-6, no oil or gas wells are depicted on or immediately adjoining the Site.

State Department of Toxic Substances Control

On May 6, 2008, Kleinfelder submitted a request to DTSC for information pertaining to the Site. A letter dated May 9, 2008 from DTSC indicated that no records exist pertaining to the Site.

State Fire Marshal, Pipeline Safety Office

On April 23, 2008, Kleinfelder submitted a request to the CSFM for pipeline information in the vicinity of the Site. According to a letter received from the CSFM via electronic mail, the following pipelines jurisdictional to the CSFM are present in the Site vicinity:

ConocoPhillips

CSFM ID: 0447

Size: 6, 8, 10

Commodity: Crude Oil

Contact: Leo Martinez, (805) 226-2656

Defense Energy Support Ctr

CDFM ID: 0065

Size: 10

Commodity: Refined Product (Gasoline, Jet Fuel, Gas Oil)

Contact: Joe Trani, (310) 900-6960 x1106

Kinder Morgan

CDFM ID: 0268

Size: 10

Commodity: Refined Product (Gasoline, Jet Fuel, Gas Oil)

Contact: Don Quinn, (714) 560-4940

Kinder Morgan

CDFM ID: 0267

Size: 16

Commodity: Refined Product (Gasoline, Jet Fuel, Gas Oil)

Contact: Don Quinn, (714) 560-4940

Kinder Morgan

CDFM ID: 0258

Size: 4, 10

Commodity: Refined Product (Gasoline, Jet Fuel, Gas Oil)

Contact: Don Quinn, (714) 560-4940

Pacific Pipeline System, LLC

CSFM ID: 0800

Size: 16

Commodity: Crude Oil

Contact: Mel Durley, (562) 728-2859

Pacific Pipeline System, LLC

CSFM ID: 0987

Size: 20

Commodity: Crude Oil

Contact: Mel Durley, (562) 728-2859

Paramount

CSFM ID: 0217

Size: 6, 8

Commodity: Crude Oil

Contact: Jack Harding, (562) 531-2060 x2667

On April 25, 2008, Kleinfelder requested information on specific pipeline locations and recorded releases from the above-referenced contacts. Responses have not been received to date. Should information subsequently received alter our conclusions and recommendations, an addendum to this Phase I ESA will be provided.

Los Angeles Sanitation District

On April 25, 2008, Kleinfelder submitted a written request to LASD for industrial waste information for the Site. A response has not been received to date. Should records exist for the Site and information subsequently received alter our conclusions and recommendations, an addendum to this Phase I ESA will be provided.

4.4 PHYSICAL SETTING SOURCE(S)

Table 4-3 presents information concerning the physical setting of the Site. This information was obtained from published maps.

**TABLE 4-3
PHYSICAL SETTING**

Data	General Information
USGS TOPOGRAPHIC QUADRANGLE	Based on a review of the United States Geological Survey (USGS) Long Beach, California 7½-Minute Series (Topographic) Quadrangle Map dated 1934, photorevised 1981, the Site is located at an approximate elevation of 20 to 25 feet above mean sea level (msl). The topographic relief in the Site vicinity slopes gently to the west.
SOIL TYPE	The dominant soil component in the general area of the Site is classified as "Urban Land" (NCSS, as per EDR, 2008). Other surface soil textures in the Site vicinity include loam, clay, silt loam, loamy sand, fine sand, clay loam, gravelly-sandy loam, coarse sand, gravelly-sand, and sand.
OIL AND GAS FIELDS	DOGGR Map W1-6 was reviewed by Kleinfelder to identify oil and/or gas wells located on or in close proximity to the Site. According to DOGGR Map W1-6, oil or gas wells are not depicted on or immediately adjoining the Site.

Information about the regional geology is presented in Table 4-4. This information was obtained from published data and maps, interviews with public agencies, and/or from previous investigations conducted by Kleinfelder in the vicinity of the Site.

**TABLE 4-4
REGIONAL GEOLOGY AND HYDROGEOLOGY**

Physical Parameter	Information/Comments
REGIONAL PHYSIOGRAPHY AND GEOLOGY	The Site is located on the Central Plain of the southwestern Block of the Los Angeles Basin. The Los Angeles Basin lies within the Peninsular Ranges geomorphic province, and the Site is located within the Dominguez Gap physiographic feature. Regionally, the Site and surrounding area have been mapped as underlain by Holocene age surficial sediments, described as alluvial flood plain deposits of Dominguez Creek and the Los Angeles River (CDMG, 1962). Deeper alluvial sediments comprise the Upper Pleistocene Lakewood Formation (CDMG, 1961). The alluvial materials consist of clay, silt, silty sand, and sand. Below these alluvial sediments are non-marine and marine sediments including loosely consolidated gravels, sands, and silts of the Lower Pleistocene San Pedro Formation and underlying sedimentary formations/units that are reportedly up to 14,000 feet thick in this portion of the greater Los Angeles Basin area (CDMG, 1961).

**TABLE 4-4 (continued)
REGIONAL GEOLOGY AND HYDROGEOLOGY**

Physical Parameter	Information/Comments
REGIONAL HYDROGEOLOGY	The site is situated within the West Coast groundwater basin, wherein groundwater occurs in a series of Quaternary age units of varying usage and water quality. Shallow groundwater, which is not known to be used as a source of drinking water is encountered under unconfined conditions in the site vicinity in the Bellflower Aquiclude. From youngest to oldest, the aquifers in the Site vicinity beneath the Bellflower Aquiclude include the Gaspur Aquifer, the Gage Aquifer (also known as the "200 Foot Sand"), the Lynwood Aquifer (or "400 Foot Gravel"), and the Silverado Aquifer. Of these aquifers, most groundwater in the West Coast Basin is pumped from the Lynwood and Silverado Aquifers.
DEPTH TO GROUNDWATER	The depth to historic high groundwater at the Site is reported to be approximately 20 feet bgs (CDMG, 2001). Fluctuations of the groundwater level, localized zones of perched water, and soil moisture content should be anticipated during and following the rainy season. Irrigation of landscaped areas on or immediately adjacent to the site can also cause a fluctuation of local groundwater levels.
DIRECTION OF ANTICIPATED FLOW ¹	Shallow groundwater flow in the vicinity of the northwest corner of Santa Fe Avenue and Lincoln Street, located approximately 0.4 mile east of the Site, is to the southeast (Frey Environmental, Inc., 2007).
REGIONAL GROUNDWATER QUALITY PROBLEMS	Regional groundwater quality problems and regional impairments to water quality were not identified during Kleinfelder's assessment. (EDR, 2008).
FLOOD ZONE DESIGNATION	The Site is located within a flood hazard zone designated "AR" (FEMA, 1998).

¹ Groundwater flow direction is based on regional information sources. Site-specific conditions may vary due to a variety of factors including geologic anomalies, utilities, nearby pumping wells (if present), and other developments.

4.5 USER PROVIDED INFORMATION

According to the Client, the purpose for performing this Phase I ESA is to evaluate the potential for RECs at the Site prior to the Client proceeding with construction of a storm drain. Information regarding the current Site owner/occupant is listed in Table 4-5.

**TABLE 4-5
OWNER / OCCUPANT INFORMATION**

Entity	Name
OWNER	River Avenue and McHelen Avenue: City of Long Beach APN 7317-015-800: Edison Securities Company, a corporation
PROPERTY MANAGER	River Avenue and McHelen Avenue: N/A APN 7317-015-800: Roslyn Delmar
OCCUPANT	River Avenue and McHelen Avenue: N/A APN 7317-015-800: Orange County Nursery, Inc.

Note: N/A indicates not applicable

Summaries of interviews of key individuals with knowledge of the Site (“Key Site Managers”) are provided in Section 7. The following sections present information provided by the Client.

4.5.1 Title Records

A Preliminary Title Report or Chain-of-Title Report was not provided to Kleinfelder for review prior to production of this report. Such documents may provide information about land including ownership and other interests in the land, easements, and liens. Not all liens, defects, and encumbrances affecting title to the land may be included in a Preliminary Title Report.

4.5.2 Environmental Liens and Usage Limitations

According to information provided in the EDR regulatory agency database search report (EDR, 2008), there are no liens listed in the US EPA’s Federal Superfund Liens List, and no known recorded land-use environmental deed restrictions pertaining to the Site listed in the State Liens Database. According to the Client, there are no known current limitations on either activity at or use of the Site.

Kleinfelder requested EDR to perform an Environmental Lien Search for the Site. Results of the lien search indicated that no environmental lien or other Activity and Use Limitations (AULs) were found.

4.5.3 Value Reduction

As part of the ASTM E 1527-05 process, information is to be gathered regarding the prospective purchase price of the Site relative to its fair market value. If there appears to be a value reduction, that reduction must be identified with respect to whether the difference could be attributed to environmental degradation of the property. However, since this Phase I ESA was not performed in association with a property transaction, information from the client regarding value reduction is not applicable.

4.5.4 Other Information/Documents Provided

The Client reportedly does not have specialized knowledge of the Site.

5.0 HISTORY OF THE SITE

The history of the Site was researched to identify obvious uses. Historical land use was researched to the first developed use, or back to 1940, whichever was earlier or readily available. Table 5-1 summarizes the availability of information reviewed during this assessment.

**TABLE 5-1
HISTORICAL SOURCES**

Source	Years reviewed	Availability
SANBORN FIRE INSURANCE MAPS	N/A	EDR
AERIAL PHOTOGRAPHS	1928, 1947, 1956, 1956, 1965, 1976, 1989, 1994, 2002, and 2005	EDR
CITY DIRECTORIES	1920 through 2006 (selected years only)	EDR
HISTORICAL TOPOGRAPHIC MAP REPORT	1901, 1902, 1930, 1947, 1951, 1964, 1972, and 1981	EDR
BUILDING DEPARTMENT	1946	Long Beach Development Services
PREVIOUS ASSESSMENT(S)	N/A	N/A

Note: N/A indicates not available or not applicable

5.1 SANBORN FIRE INSURANCE MAPS

Sanborn Fire Insurance Maps provide historical land use information for some metropolitan areas and small, established towns. Kleinfelder requested that EDR search for available Sanborn Fire Insurance Maps. EDR indicated Sanborn Fire Insurance Maps were not available for the Site and immediate vicinity.

5.2 AERIAL PHOTOGRAPHS

A review of historical aerial photography may indicate past activities at a site that may not be documented by other means, or observed during a site visit. The effectiveness of this technique depends on the scale and quality of the photographs and the available coverage. Aerial photographs were obtained from several historical photograph collections through EDR. A tabulation of the aerial photographs reviewed

is presented in Table 5-2. Copies of the aerial photographs provided by EDR are included in Appendix D.

**TABLE 5-2
HISTORICAL AERIAL PHOTOGRAPHS REVIEWED**

Date	Approximate Scale	Type	Source	Quality
1928	1" = 500'	Black and White Monoscopic	Fairchild	Good
1947	1" = 666'	Black and White Monoscopic	Fairchild	Good
1956	1" = 400'	Black and White Monoscopic	Fairchild	Good
1965	1" = 666'	Black and White Monoscopic	Fairchild	Good
1976	1" = 666'	Black and White Monoscopic	Teledyne	Good
1989	1" = 666'	Black and White Monoscopic	USGS	Good
1994	1" = 666'	Black and White Monoscopic	USGS	Good
2002	1" = 666'	Black and White Monoscopic	USGS	Good
2005	1" = 484"	Color Monoscopic	EDR	Good

Note: Aerial photographs only provide information on indications of land use, and no conclusions regarding the release of hazardous substances or petroleum products can be drawn from the review of photographs alone.

5.1.1 Site

1928 – River Avenue appeared to be paved from West Wardlow Road to its southern terminus. North of the intersection of River Avenue and West Wardlow Road appeared to be vacant land. The area south of the southern terminus of River Avenue where the detention basin is to be constructed also appeared to be vacant land.

1947 – River Avenue and McHelen Avenue appeared to be paved. The area south of the southern terminus of River Avenue where the detention basin is to be constructed appeared to remain vacant land.

1956 – There are no significant changes from the 1947 aerial photograph, with the exception of the presence of a dirt road which traversed the general area where the detention basin is to be constructed.

1965 – The Interstate 405 Freeway and its overpass at McHelen Avenue had apparently been constructed. River Avenue appeared similar to the 1956 aerial photograph. A dirt road continued to traverse the area where the detention basin is to be constructed.

1976 – There are no significant changes from the 1965 aerial photograph.

1989 – River Avenue and McHelen Avenue appeared generally as they exist today. The area where the detention basin is to be constructed appeared light in color, suggesting disturbed (e.g., recently graded) soil.

1994 – There are no significant changes from the 1989 aerial photograph.

2002 and 2005 – The Site appeared generally as it exists at the present time, with the southern portion of the Site within APN 7317-015-800 in use by the plant nursery.

5.1.2 Surrounding Areas

1928 – Areas immediately adjoining the Site appeared to be vacant land. What appeared to be agricultural land was present farther southeast.

1947 – Residential development was evident along River Avenue. Areas adjoining McHelen Avenue appeared to be vacant land. What appeared to be a natural waterway was evident to the south of the location where the detention basin is to be constructed. What appeared to be agricultural land was present farther southeast.

1956 – Increased residential development was evident along River Avenue. In addition, residential development was evident along McHelen Avenue. What appeared to be agricultural land was present to the east and southeast of the area where the detention basin is to be constructed.

1965 – The areas adjoining River Avenue and McHelen Avenue appeared similar to the 1956 aerial photograph, with the exception of the addition of the Interstate 405 Freeway. What appeared to be buildings were visible southeast and southwest of the area where the detention basin is to be constructed. Farther southwest was an oval-shaped surface feature which appeared to probably be a catch basin. An electrical substation was visible farther south of the Site.

1976 – The areas adjoining River Avenue and McHelen Avenue appeared similar to the 1965 aerial photograph. Areas adjoining the proposed detention basin to the east, south, and west appeared to be vacant land. The electrical substation remained farther south.

1989 – Areas adjoining River Avenue and McHelen Avenue appeared generally as they are at present. Areas adjoining the proposed detention basin to the east, south, and west appeared light in color, suggesting disturbed (e.g., recently graded) soil. Farther south the electrical substation remained.

1994 – There were no significant changes from the 1989 aerial photograph.

2002 and 2005 – The adjoining sites appeared as it does at present.

Based on the historical aerial photographs reviewed, no environmental conditions were observed on the immediate surrounding properties that suggest evidence of a REC for the Site.

5.3 CITY DIRECTORIES

City directories provide information regarding property occupants by address. EDR provided a summary city directory search report, which is included in Appendix D. The Site address of 3628 Webster Avenue was not listed in EDR's report.

Residences were listed at street addresses along West Arlington Street, Webster Avenue, McHelen Avenue, and River Avenue beginning in 1929 and continuing through 2006. In addition to the residential listings, the following commercial facilities of potential concern were listed:

- “Genes Crane Serv Excavating Contr GA” at 3661 River Avenue was listed in a 1963 and 1969 directory. This facility would have been located on the northwest corner of River Avenue and West Cameron Street, which is considered by the ASTM Standard to be adjoining to the Site.
- “Kermahs Mobil Service” at 2121 Arlington Street was listed in a 1971 directory. This facility would have been located on the north side of West Arlington Street, between River Avenue and Webster Avenue, and is not considered by the ASTM Standard to be adjoining to the Site.

The two above-referenced locations are not listed in EDR’s regulatory database search report (previously discussed in Section 4). In Kleinfelder’s opinion these potential concerns are unlikely to have resulted in RECs affecting the Site.

No other listings of environmental concern to the Site were identified in the city directories reported by EDR.

5.4 HISTORICAL TOPOGRAPHIC MAP REVIEW

Kleinfelder obtained information regarding historical topographic maps of the Site vicinity from EDR. The topographic maps reviewed for this assessment are listed below in Table 5-3. Copies of the maps are included in Appendix D.

**TABLE 5-3
HISTORICAL TOPOGRAPHIC MAPS REVIEWED**

Year	Quadrangle	Series	Scale
1901	Southern CA Sheet 1	60 minute	1:250,000
1902	Downey	15 minute	1:62,500
1930	Compton	6 minute	1:24,000
1947	Downey	15 minute	1:50,000
1951	Long Beach Vicinity 2 of 3	7.5 minute	1:24,000
1964	Long Beach	7.5 minute	1:24,000
1972 (photorevised from 1964)	Long Beach	7.5 minute	1:24,000
1981 (photorevised from 1964)	Long Beach	7.5 minute	1:24,000

5.4.1 Site

1901 and 1902 – The Site was depicted as undeveloped land, with no structures shown on the Site.

1930 – River Avenue, from West Wardlow Road to its southern terminus, was depicted. The area north of the intersection of River Avenue and West Wardlow Road was depicted as undeveloped land. The area south of the southern terminus of River Avenue was also depicted as undeveloped land.

1947 – There were no significant changes from the 1930 topographic map.

1951 – River Avenue and McHelen Avenue were depicted. The area south of the southern terminus of River Avenue remained depicted as undeveloped land.

1964 – River Avenue and McHelen Avenue remained depicted. A southwest-oriented roadway was depicted to the south of the southern terminus of River Avenue.

1972 and 1981 – There were no significant changes from the 1964 topographic map.

5.4.2 Surrounding Areas

1901 and 1902 – The Site vicinity was depicted as undeveloped land, with no structures in the immediate vicinity of the Site.

1930 – No structures were shown on the properties adjoining the Site.

1947 – Structures were evident along River Avenue. The area north of the intersection of River Avenue and West Wardlow Road was depicted as undeveloped land. The area south of the southern terminus of River Avenue was also depicted as undeveloped land.

1951 – Structures were evident along River Avenue. The area adjoining the west side of McHelen Avenue was depicted as a shaded region, indicating dense development. No structures were shown on the properties adjoining the east side of McHelen Avenue.

1964 – Adjoining areas along River Avenue and McHelen Avenue were depicted as a shaded region, indicating dense development. A church was depicted on the southwest corner of West Wardlow Road and River Avenue. Structures were shown south of the area where the detention basin is to be constructed.

1972 – There were no significant changes from the 1964 topographic map, other than structures no longer being shown south of the area where the detention basin is to be constructed.

1981 – There were no significant changes from the 1964 topographic map, except for the addition of the label “Substa” to an area south of the Site. This appears to be the electrical substation which presently is located to the south of the Site.

Based on the topographic maps reviewed, no environmental conditions were observed on the immediate surrounding properties that suggest evidence of a REC for the Site.

5.5 BUILDING DEPARTMENT RECORDS

According to LBDS records, an Application for Building Permit was issued on October 18, 1946 for construction a 560 square foot dwelling at 3628 Webster Avenue. Based on review of a site plan with the permit, it appears the proposed dwelling was located off-Site, near the intersection of Webster Avenue and West Lincoln Street.

5.6 PREVIOUS ASSESSMENTS

Reports of previous assessments pertaining to the Site were not provided to Kleinfelder for review, nor were the existence of previous assessments revealed during the historical research for the Site.

6.0 SITE RECONNAISSANCE

Kleinfelder's Phase I ESA activities included a Site reconnaissance. This section summarizes the findings from the Site reconnaissance.

6.1 METHODOLOGY AND LIMITING CONDITIONS

Mr. Paolo Dizon performed a Site reconnaissance on April 24, 2008. The Site reconnaissance included a visual inspection of the Site to assist in identifying the presence or likely presence of hazardous substances or petroleum hydrocarbons under conditions that indicate an existing release, a past release, or threat of release into structures, soil, groundwater, or surface water at the Site (i.e., RECs). Observations of readily apparent environmental conditions are summarized in Table 6-1, and color photographs of the Site are presented on Plates 3 through 7. The approximate Site boundaries are shown on Plate 2, "Site Map."

6.2 GENERAL SITE SETTING

The Site comprises an approximately 1,800-foot length of River Avenue and McHelen Avenue, which are contiguous asphalt-paved roadways, and adjoining to the south, beyond the terminus of River Avenue, also an approximately 100-foot by 250-foot area located within a parcel used as a plant nursery by Orange County Nursery, Inc. The Site is located in the City of Long Beach, California.

6.3 SITE OBSERVATIONS

Site observations are indicated in Table 6-1.

**TABLE 6-1
SITE OBSERVATIONS**

General Observations	Remarks	Observed	Not Observed
Current use	River Avenue and McHelen Avenue are active roadways paved with asphalt. The proposed detention basin is located within APN 7317-015-800, which is currently developed as a plant nursery.	X	
Current use likely to indicate RECs	Use of the southern portion of the Site as a plant nursery. Pesticide application may have occurred as a result of this use, which is a potential REC.		X
Past use	Undeveloped land.		X
Past use likely to indicate RECs	None.		X
Structures	None.		X
Roads	River Avenue and McHelen Avenue, both paved with asphalt.	X	
Topography of Site and surrounding area	Generally flat, with general slight southerly slope.		X
Aboveground storage tank (AST)	None.		X
Asbestos and lead	Not applicable (no structures).	X	
Below grade vaults	None.		X
Burned or buried debris	None.		X
Chemical storage	None.		X
Chemical mixing areas	None.		X
Discolored soil or water	None.		X
Ditches, streams	None.		X
Drains and piping (e.g. floor drains, floor trenches, bay drains, sand traps, grease traps)	None.		X
Drums	None.	X	
Electrical or hydraulic equipment (polychlorinated biphenyls [PCBs])	None.		X

**TABLE 6-1 (continued)
SITE OBSERVATIONS**

Interior and exterior observations or environmental conditions that may involve the use, storage, disposal or generation of hazardous substances or petroleum products.		Observed	Not Observed
Fill dirt from an unknown source.	None.		X
Fill dirt from a known source	None.		X
Hazardous chemical and petroleum products in connection with <i>known</i> use.	None.		X
Hazardous chemical and petroleum products in connection with <i>unknown</i> use.	None.		X
Non-hazardous containers with contents	None.		X
Hazardous waste storage	None.		X
Heating and cooling system and fuel source	Not applicable.		X
Industrial waste treatment equipment	None.		X
Loading and unloading areas	None.		X
Odors	None.		X
Pits, ponds, or lagoons	None.		X
Pools of liquid	None.		X
Process waste water	None.		X
Sanitary sewer system	None.		X
Septic system (e.g. tank and leach fields)	None.		X
Soil piles	None.		X
Solid waste/evidence of Unauthorized Dumping	None.		X
Stained pavement, soil or concrete	None.		X
Stains or corrosion (interior, non-water)	None		X
Storm drains/catch basins	None.		X
Stressed vegetation	None.		X

**TABLE 6-1 (continued)
SITE OBSERVATIONS**

Interior and exterior observations or environmental conditions that may involve the use, storage, disposal or generation of hazardous substances or petroleum products.		Observed	Not Observed
Sumps and clarifiers	None.		X
Surface water	None.		X
Underground storage tank(s) (including heating oil tanks)	None.		X
Unidentified substance containers	None.		X
Waste water discharge	None.		X
Water supplies (potable and process)	None.		X
Wells (irrigation, monitoring, or domestic)	None.		X
Wells (dry)	None.		X
Wells (oil and gas)	None.		X

6.4 RESULTS OF SITE RECONNAISSANCE

The Site includes an approximately 1,800-foot length of River Avenue and McHelen Avenue, which are contiguous asphalt-paved roadways. In addition, the southern portion of the Site consists of an approximately 100-foot by 250-foot area located within a parcel presently used as a plant nursery by Orange County Nursery, Inc.

Evidence of discolored soil or water, stressed vegetation, hazardous materials, ASTs, USTs, pits, ponds, or lagoons was not observed at the Site during the reconnaissance.

7.0 INTERVIEWS

Kleinfelder attempted to conduct interviews of "Key Site Managers" or other people knowledgeable of the Site, to obtain current and historical environmental information concerning the Site. The following sections highlight information revealed during the interviews.

7.1 INTERVIEW WITH OWNER/MANAGER

Kleinfelder forwarded an interview questionnaire to Roslyn Delmar of SCE, which (as Edison Securities Company, a corporation) owns APN 7317-015-800. To date, the completed interview questionnaire has not been returned. Should information subsequently provided alter our conclusions and recommendations, an addendum to this Phase I ESA will be provided.

7.2 INTERVIEW WITH OCCUPANTS

Kleinfelder also forwarded an interview questionnaire to Thelma Diaz of Orange County Nursery, Inc., the occupant of APN 7317-015-800. To date, the completed interview questionnaire has not been received. Should information subsequently provided alter our conclusions and recommendations, an addendum to this Phase I ESA will be provided.

7.3 INTERVIEWS WITH LOCAL GOVERNMENT OFFICIALS

See Section 7.4, Interview with Client/Others.

7.4 INTERVIEW WITH CLIENT / OTHERS

Kleinfelder forwarded an interview questionnaire to Mr. Frank Sanchez of the City of Long Beach. Mr. Sanchez discussed the presence of horticulture and a SCE substation on the portion of the Site located to the south of the terminus of River Avenue. He was unaware of the presence or use of ASTs, USTs, pesticides, or hazardous substances/chemicals at the Site.

Mr. Sanchez was not aware of environmental cleanup liens against the property that are filed or recorded under federal, tribal, state, or local law. He was also not aware of AULs such as engineering controls, land use restrictions, or institutional controls that are in place at the Site and/or have been filed or recorded in a registry under federal, tribal, state, or local law. Mr. Sanchez did not have specialized knowledge or experience related to the Site or nearby properties. He was unaware of the past uses of the Site and he also did not know of specific chemicals that are present or once were present at the Site. Further, Mr. Sanchez did not know of spills, chemical releases, or environmental cleanups that have taken place at the Site.

8.0 EVALUATION

Kleinfelder performed this Phase I ESA of the Site in conformance with the scope and limitations of ASTM Standard Practice E 1527-05. The following sections describe Kleinfelder's findings and provide general background information about the Site. Findings address RECs, historical RECs, and notation of *de minimus* quantities, as applicable to the Site. Business environmental risk issues are discussed in Section 8.3, Deviations and Additional Services. In summary, Kleinfelder's assessment revealed the following information concerning the Site:

8.1 BACKGROUND

River Avenue, from the intersection of River Avenue and West Wardlow Road to its southern terminus, was paved from at least 1928. McHelen Avenue was paved from at least 1947. The portion of the Site within APN 7317-015-800 where the detention basin is to be constructed appears to have remained undeveloped until sometime after 1994, but by 2002 was developed as a plant nursery.

8.2 FINDINGS AND OPINIONS

No obvious indications were observed during the Site reconnaissance that a release of hazardous materials/wastes or petroleum products has occurred at the Site. Kleinfelder identified no indication that pesticide application was performed on the portion of the Site located within the plant nursery, but the possibility of the use of pesticides at the Site cannot be ruled out. It is Kleinfelder's opinion that the plant nursery at the Site represents a potential recognized environmental condition (REC) to the Site.

No off-Site properties were observed to be a likely environmental concern to the Site.

The CSFM reported that there are several petroleum pipelines in the Site vicinity, and provided owner contact information to Kleinfelder; we then requested information concerning these pipelines from the owners, but have not received replies. The exact locations of these pipelines have therefore not been identified by Kleinfelder, but if they

are located within or immediately adjoining to the Site and leaks have occurred, they would represent a REC.

8.3 DEVIATIONS AND ADDITIONAL SERVICES

An evaluation of business environmental risk associated with the parcel(s) was not included in Kleinfelder's scope of services. The Phase I ESA does not incorporate non-scope considerations, such as asbestos-containing materials testing, radon, lead-based paint testing, lead in drinking water testing, wetlands, regulatory compliance, cultural and historical resources, industrial hygiene, health and safety, ecological resources, endangered species, indoor air quality, and high voltage power lines.

8.4 CONCLUSIONS AND RECOMMENDATIONS

We have performed a Phase I ESA, in conformance with the scope of work required by ASTM Standard Practice E 1527-05 and our Proposal Number 05809PROP/LBE7P050, dated July 6, 2007, of the property referred to as the Proposed River Avenue Drain Phase II Project, in the City of Long Beach, California. Any exceptions to, or deviations from, this practice are described in Section 8.3 of this report. This assessment has revealed no evidence of RECs in connection with the Site except for the following:

- The southern portion of the Site is presently used as a plant nursery. Kleinfelder identified no indication that pesticide application was performed on the portion of the Site located within the plant nursery, but the possibility of the use of pesticides at the Site cannot be ruled out. It is Kleinfelder's opinion that the plant nursery at the Site represents a potential recognized environmental condition (REC) to the Site.
- The CSFM reported that there are several petroleum pipelines in the Site vicinity, and provided owner contact information to Kleinfelder. We then requested information concerning these pipelines from the owners, but have not received replies. The exact locations of these pipelines have therefore not been identified by Kleinfelder, but if they are located within or immediately adjoining to the Site and leaks have occurred, they would represent a REC.

8.4.1 Data Gaps

Although Kleinfelder attempted to obtain reasonably ascertainable information regarding the Site, some information was either not received or not readily available at the time of this report. At the time of preparation of this report, Kleinfelder has not received responses to our requests to review files for the Site (if any) from DTSC, LARWQCB SLIC Division, LASD, and several petroleum pipeline owners (ConocoPhillips, Defense Energy Support Ctr, Kinder Morgan, Kinder Morgan Pacific Pipeline System, LLC, and Paramount). Kleinfelder has also not received completed questionnaires from the owner and occupant of APN 7317-015-800. In Kleinfelder's opinion, the pending information concerning petroleum pipelines represents a significant data failure (data gap). Based on other information obtained, in Kleinfelder's opinion the remaining data gaps do not represent significant data failures.

9.0 REFERENCES

- California Division of Mines and Geology (CDMG), 1961, *Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County, Appendix A Ground Water Geology*, Bulletin 104, June.
- CDMG, 1962, *Geologic Map of California, Long Beach Sheet*, compiled by Charles W. Jennings, scale 1:250,000.
- CDMG, 2001, *Seismic Hazard Evaluation of the Long Beach 7.5 Minute Quadrangle, Los Angeles County, Seismic Hazard Zones Report 028*, last revised January 13, 2006.
- Environmental Data Resources, Inc. (EDR), 2008, *The EDR DatabMap[®] Area Study, Proposed River Avenue Drain Phase II Project, Long Beach, CA 90810*, Inquiry Number: 02203938.1r, April 30.
- EDR, 2008, *GeoCheck[®] - Physical Setting Source Addendum, Proposed River Avenue Drain Phase II Project, Long Beach, CA 90810*, Inquiry Number: 2203497.2s, April 24.
- EDR, 2008, *The EDR Aerial Photo Decade Package, Proposed River Avenue Drain Phase II Project, Long Beach, CA 90810*, Inquiry Number: 2203497.5, April 24.
- EDR, 2008, *Certified Sanborn Map Report, Proposed River Avenue Drain Phase II Project, Long Beach, CA 90810*, Inquiry Number: 2203497.3, April 24.
- EDR, 2008, *EDR Historical Topographic Map Report, Proposed River Avenue Drain Phase II Project, Long Beach, CA 90810*, Inquiry Number: 2203497.4, April 24.
- FEMA, 1998, *Map Panel 0601360010C*, electronic file dated July 6.
- Frey Environmental, Inc., 2007, *Groundwater Monitoring Well Monitoring and Sampling and Site Status Update, Third Quarter 2007, Sanesco Oil Company Station*



No. 5, 3631 Santa Fe Avenue, Long Beach, California (RWQCB ID# 908100161, Global ID #T0603701910), November 15.

State of California, Division of Oil, Gas, and Geothermal Resources, 2005, Map W1-6, electronic file dated April 16.

Additional sources may be referenced separately in the report text.

APPENDICES

These Appendices (i.e., to the Phase I Environmental Site Assessment, prepared by Kleinfelder, dated May 16, 2008) are available in their entirety for review at the City of Long Beach, Community Development Department, located at 333 West Ocean Boulevard, Long Beach, California 90802.

APPENDIX D:
Hydrology Report

November 8, 2005

TO: Sree Kumar
Design Division

Attention Joe Li

FROM: Rod H. Kubomoto
R. Hoyle for Water Resources Division

**RIVER AVENUE STORM DRAIN
CITY OF LONG BEACH
HYDROLOGY REPORT**

In response to your request dated October 5, 2005, this memorandum provides hydrologic information for the watershed tributary to the River Avenue storm drain in the City of Long Beach. The information in this completed hydrology report will assist in developing solutions to the flooding problems along West Arlington Street.

The watershed has a tributary area of 237 acres (0.37 square miles). Approximately 42.6 percent of the watershed is in the City of Long Beach with 57.4 percent in the City of Carson.

As agreed upon in our meeting with Design Division on November 1, 2005, we have included the analyses for the 2-, 5-, 10-, 25-year frequency design storms. The hydrologic models of the watershed were developed using the Watershed Modeling System and the Modified Rational Method. The hydrologic analyses are based on the standards and procedures described in the 1991 Public Works Hydrology/Sedimentation Manual and the 2002 Hydrology Manual Addendum.

Attachments

- A-1. Hydrologic map showing existing drainage area boundaries tributary to the River Avenue storm drain.
- A-2. Aerial photograph showing existing drainage area boundaries tributary to the River Avenue storm drain.
- B-1. Hydrologic data tables listing subarea sizes, subarea flow rates, and reach flow rates based on adequately collected runoff from a 2-year frequency design storm.

- B-2. Hydrologic data tables listing subarea sizes, subarea flow rates, and reach flow rates based on adequately collected runoff from a 5-year frequency design storm.
- B-3. Hydrologic data tables listing subarea sizes, subarea flow rates, and reach flow rates based on adequately collected runoff from a 10-year frequency design storm.
- B-4. Hydrologic data tables listing subarea sizes, subarea flow rates, and reach flow rates based on adequately collected runoff from a 25-year frequency design storm.
- C. Supporting information including design parameters and street flooding analysis.
- D. Design Division's request dated October 5, 2005.

Summary of Findings

- Flow rates from subareas 10B and 18C represent runoff from a 50-year frequency design storm due to sump conditions for the 10- and 25-year frequency storm analyses only.
- The adequately collected peak flow from a 2-year frequency storm for the area tributary to the River Avenue storm drain is 65 cubic feet per second (cfs).
- The adequately collected peak flow from a 5-year frequency storm for the area tributary to the River Avenue storm drain is 111 cubic feet per second (cfs).
- The adequately collected peak flow from a 10-year frequency storm for the area tributary to the River Avenue storm drain is 150 cubic feet per second (cfs).
- The adequately collected peak flow from a 25-year frequency storm for the area tributary to the River Avenue storm drain is 191 cubic feet per second (cfs).

Sree Kumar
November 8, 2005
Page 3

If you have any questions, please contact Jessica Murphy at 458-6133.

JM
JM
12
JM:ac

C:\Documents and Settings\jmurphy\Desktop\River Avenue\files\River Ave Memo.doc

Attach.

cc: Water Resources (Araiza, Files)

APPENDIX E:
Noise Data

Site Number: RI001			
Recorded By: Eddie Torres			
Job Number: 10-106837			
Date: 6/16/09			
Time: 12:53 p.m.			
Location: Residential uses along River Avenue near Lincoln Street			
Source of Peak Noise: Vehicles			
Noise Data			
Leq (dB)	Lmin (dB)	Lmax (dB)	Peak (dB)
57.8	45.6	70.4	82

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Brüel & Kjær	2250	2548189	11/14/2007	
	Microphone	Brüel & Kjær	4189	2543364	11/15/2007	
	Preamp	Brüel & Kjær	ZC 0032	4265	7/18/2006	
	Calibrator	Brüel & Kjær	4231	2545667	7/31/2006	
Weather Data						
Est.	Duration: 10 minutes			Sky: ☀		
	Note: dBA Offset = 0.06			Sensor Height (ft): 5 ft		
	Wind Ave Speed (mph / m/s)		Temperature (degrees Fahrenheit)		Barometer Pressure (hPa)	
	0.4		76.4		1017	

Photo of Measurement Location



2250

Instrument:		2250
Application:		BZ7225 Version 2.0.2
Start Time:		06/16/2009 12:53:30
End Time:		06/16/2009 13:03:30
Elapsed Time:		00:10:00
Bandwidth:		Broadband
Max Input Level:		140.20

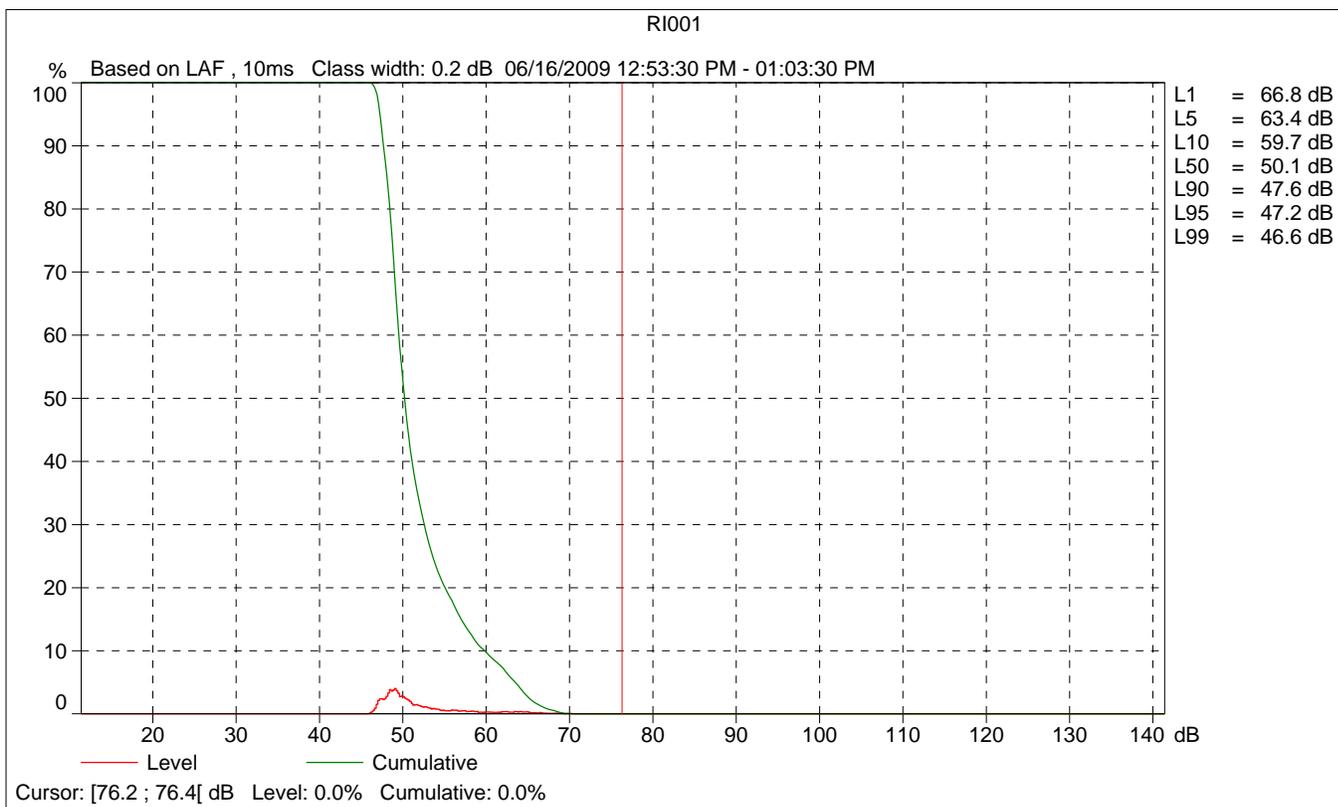
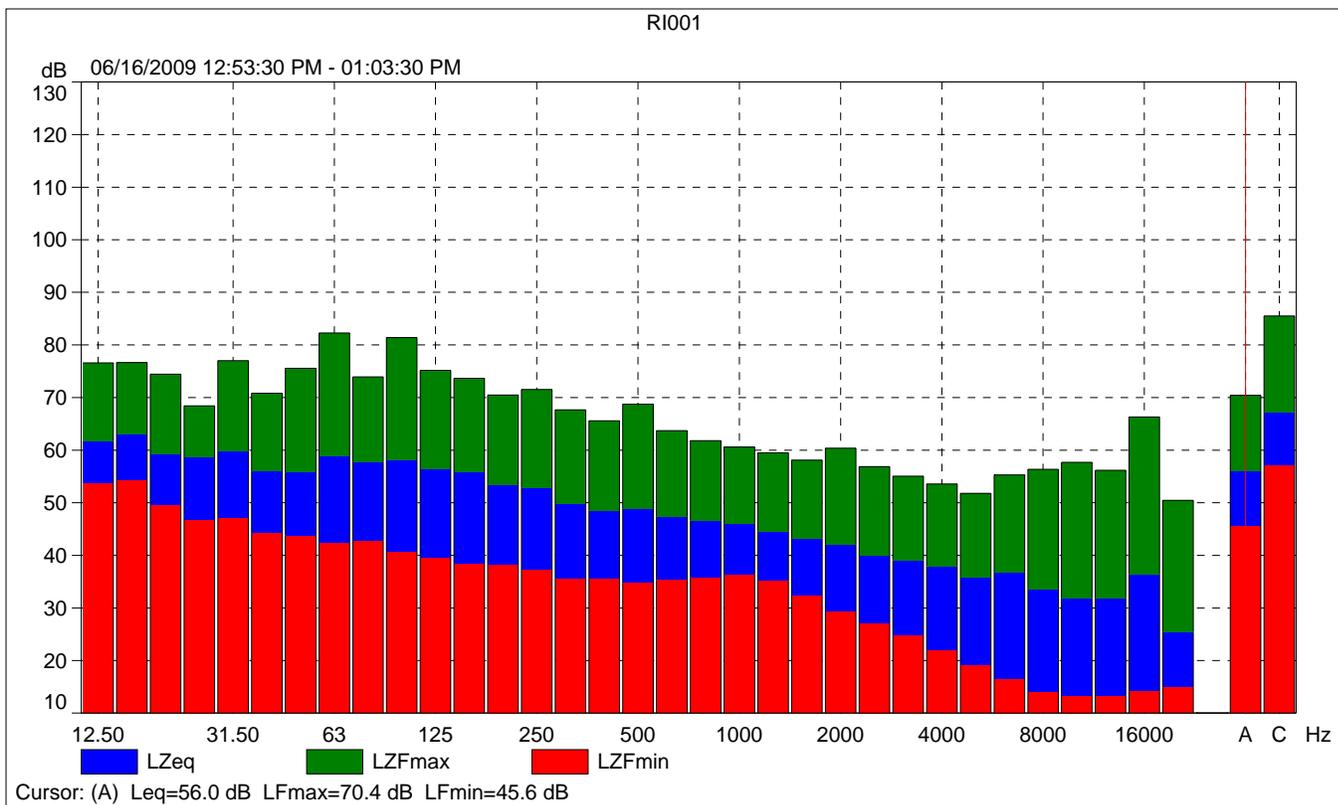
	Time	Frequency
Broadband (excl. Peak):	FSI	AC
Broadband Peak:		C
Spectrum:	FS	Z

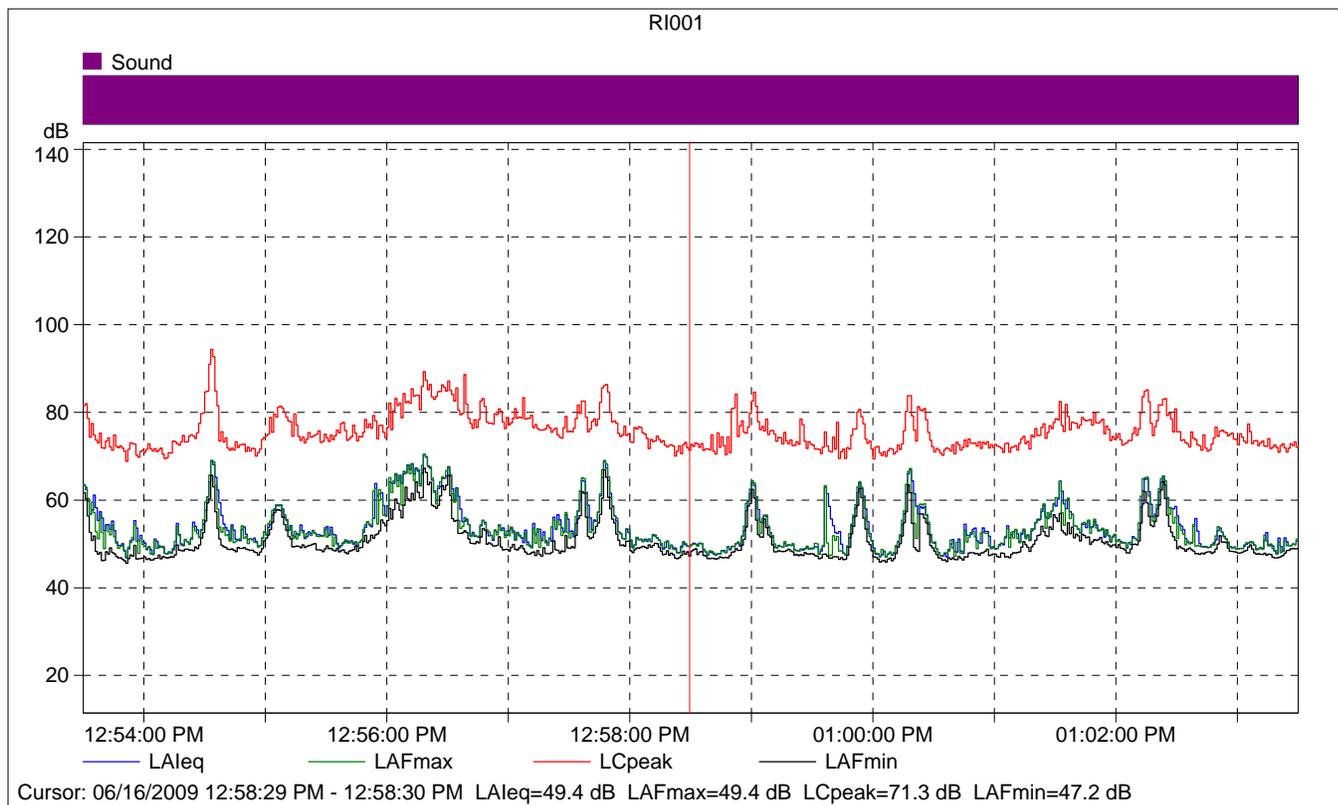
Instrument Serial Number:		2548189
Microphone Serial Number:		2543364
Input:		Top Socket
Windscreen Correction:		None
Sound Field Correction:		Diffuse-field

Calibration Time:		06/16/2009 11:19:17
Calibration Type:		External reference
Sensitivity:		54.51 mV/Pa

RI001

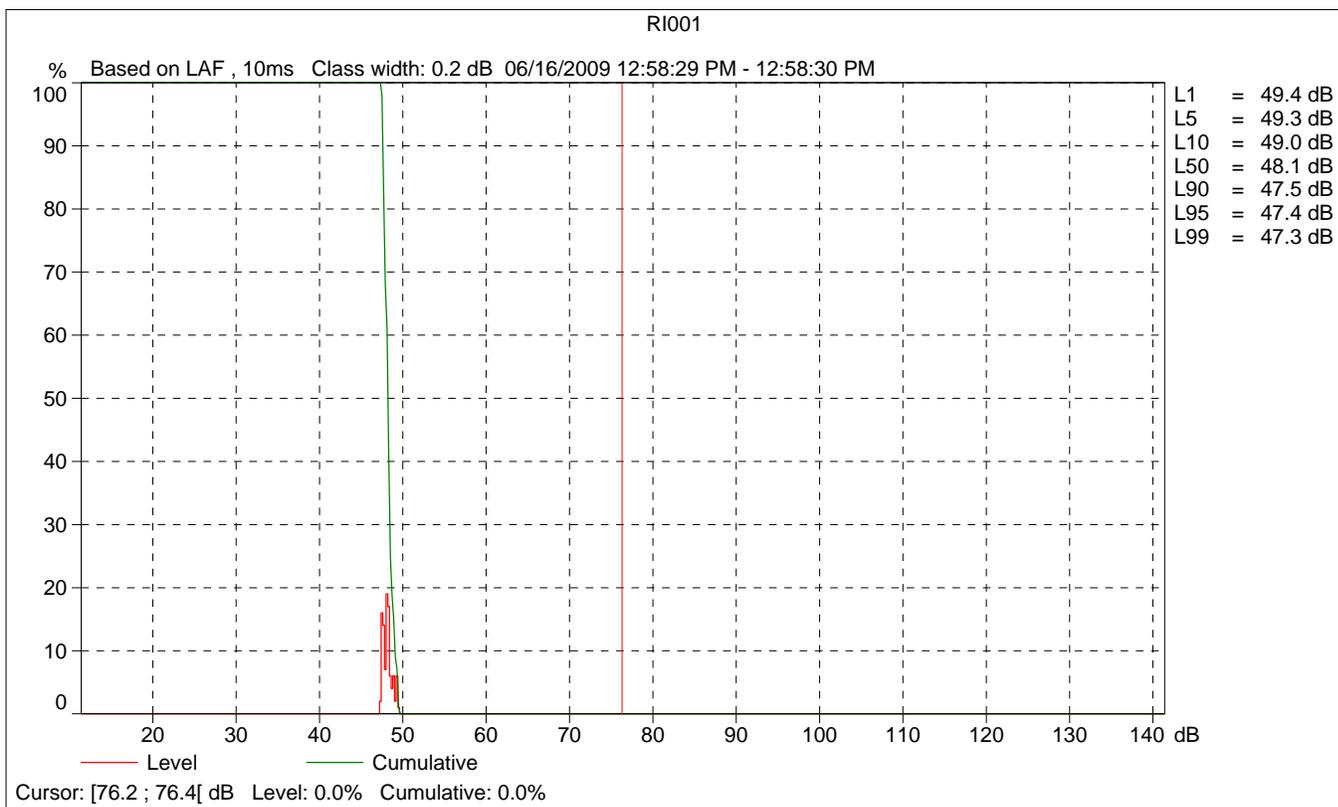
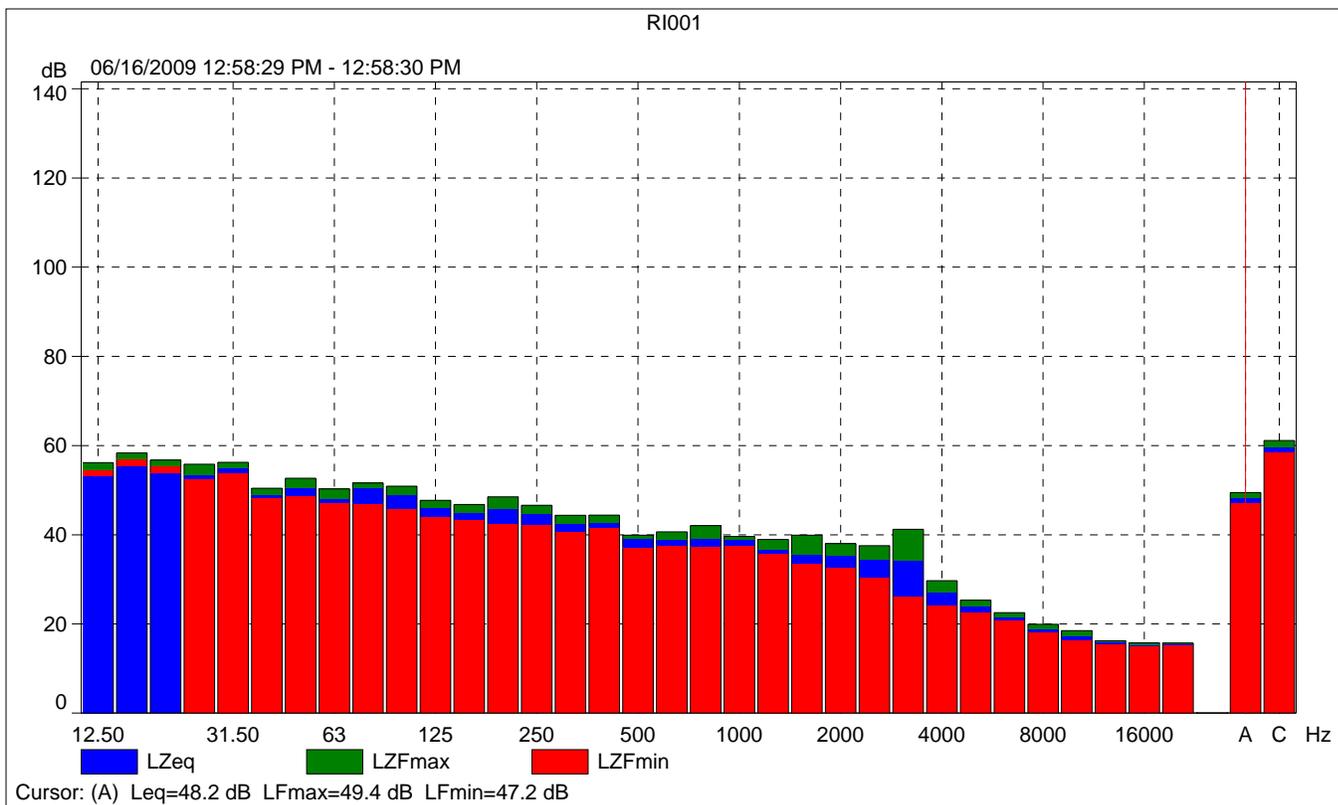
	Start time	End time	Overload [%]	LAFeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			---	57.8	70.4	45.6
Time	12:53:30 PM	01:03:30 PM				
Date	06/16/2009	06/16/2009				

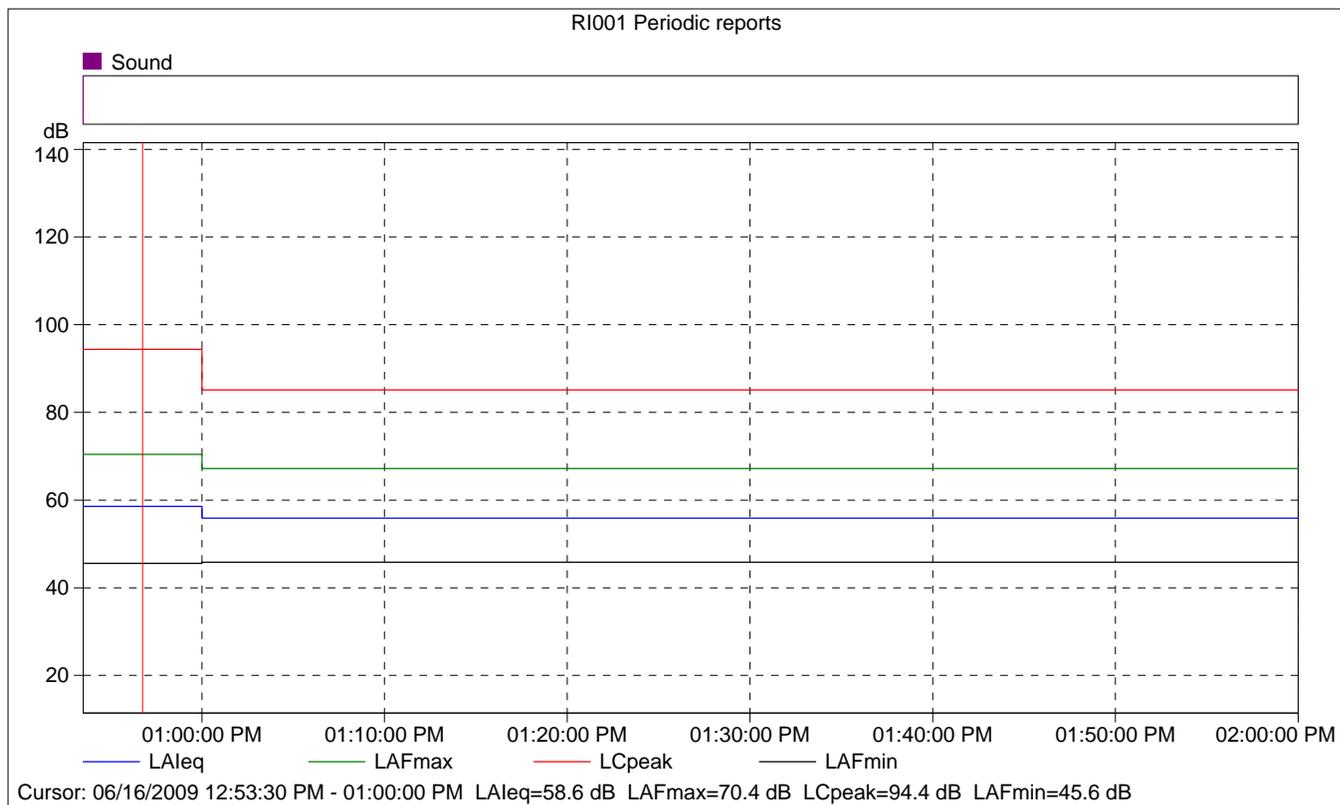




RI001

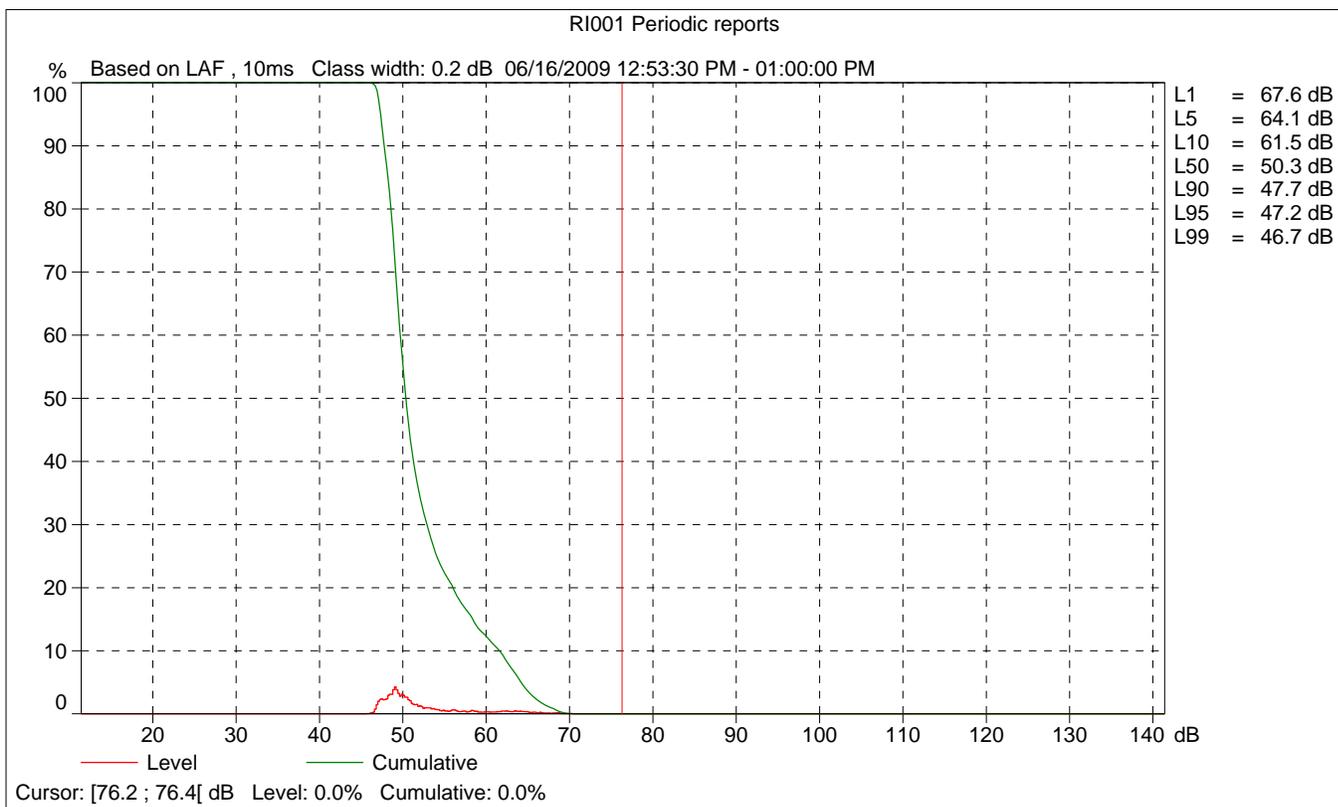
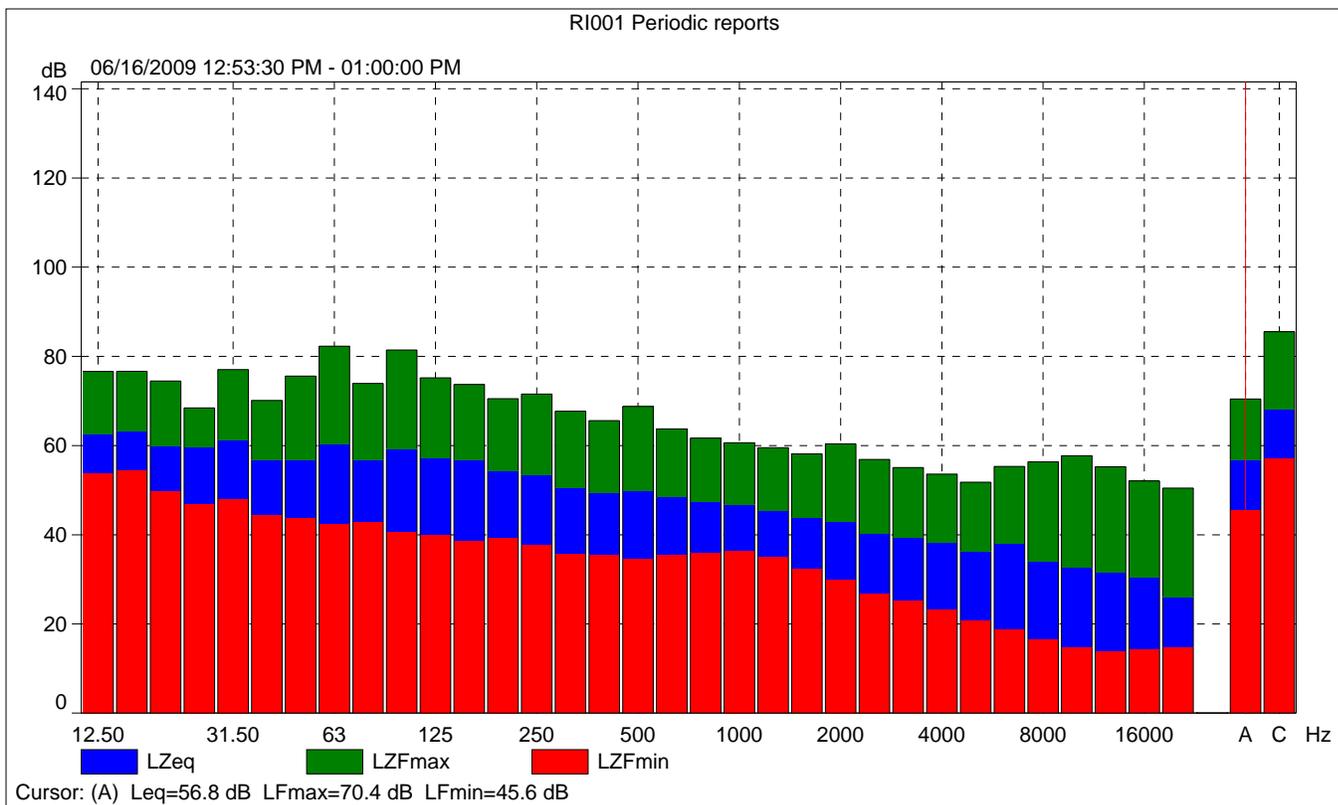
	Start time	Elapsed time	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			49.4	49.4	47.2
Time	12:58:29 PM	0:00:01			
Date	06/16/2009				

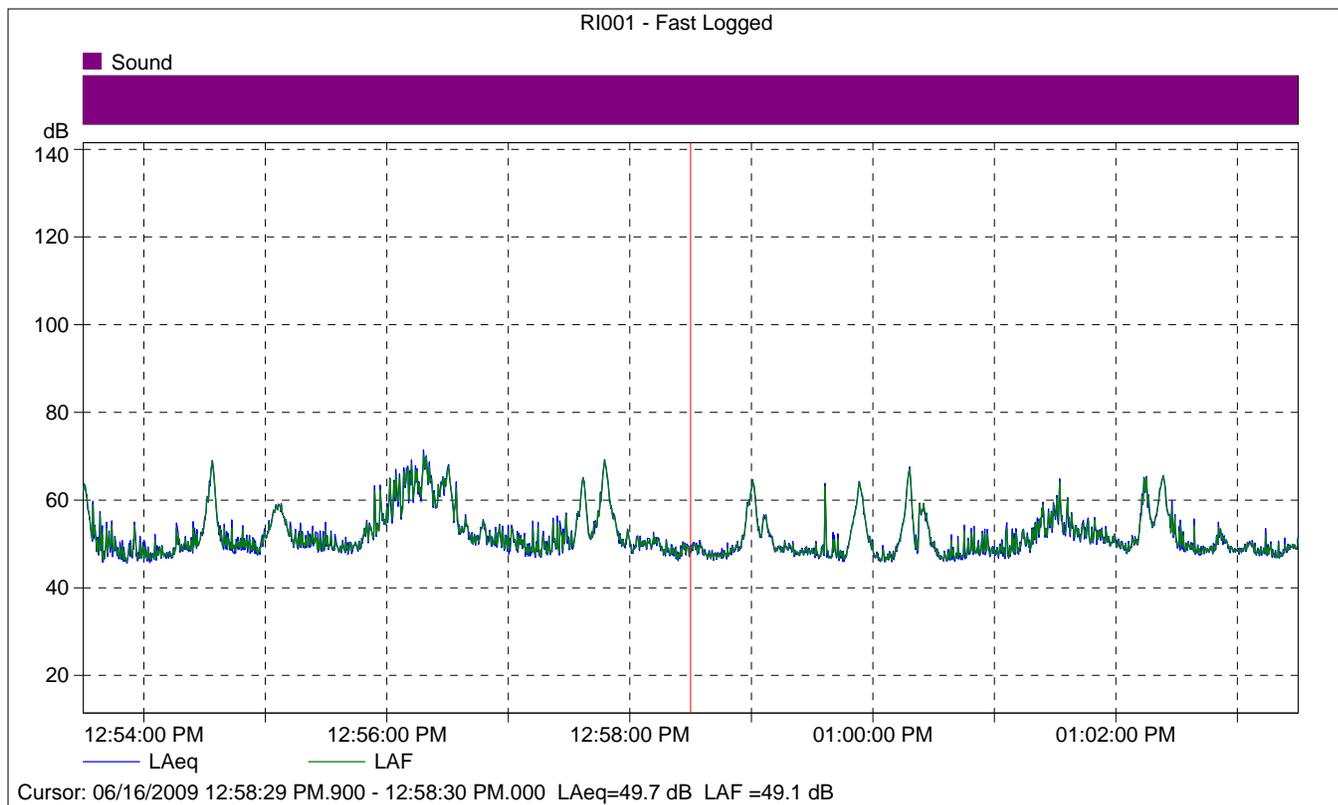




RI001 Periodic reports

	Start time	Elapsed time	Overload [%]	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	58.6	70.4	45.6
Time	12:53:30 PM	0:06:30				
Date	06/16/2009					





RI001 - Fast Logged

	Start time	Elapsed time	LAeq [dB]
Value			49.7
Time	12:58:29 PM.900	0:00:00.100	
Date	06/16/2009		

Roadway Construction Noise Model (RCNM), Version 1.0

Report date 7/16/2009

Case Desc Demolition

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
North	Residential	1	1	1

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Tractor	No	40	84		110	0
Front End Loader	No	40		79.1	110	0
Concrete Saw	No	20		89.6	110	0
Dozer	No	40		81.7	110	0

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
	*Lmax	Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Tractor	77.2	73.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	72.3	68.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Saw	82.7	75.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	74.8	70.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	82.7	78.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
East	Residential	1	1	1

Equipment	
Spec	Actual
Receptor	Estimated

Front End Loader	53.1	49.1	N/A											
Concrete Saw	63.6	56.6	N/A											
Dozer	55.6	51.7	N/A											
Total	63.6	59.7	N/A											

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Description Land Use		Daytime	Evening	Night
West	Residential	1	1	1

		Equipment				
		Spec	Actual	Receptor	Estimated	
Description		Impact Device	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Tractor	No	40	84	79.1	18	0
Front End Loader	No	40		89.6	18	0
Concrete Saw	No	20		81.7	18	0
Dozer	No	40				

		Results												
		Calculated (dBA)				Noise Limits (dBA)				Noise Limit Exceedance (dBA)				
		Day		Evening		Night		Day		Evening		Night		
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Tractor	92.9	88.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	88	84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Saw	98.5	91.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	90.5	86.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	98.5	94.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.0

Report date 7/16/2009

Case Desc Trenching

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
North	Residential	1	1	1

		Equipment				
		Spec	Actual	Receptor	Estimated	
Description	Impact Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Excavator	No	40		80.7	110	0
Excavator	No	40		80.7	110	0
All Other Equipment > 5	No	50	85		110	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		73.9	69.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		73.9	69.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5		78.2	75.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total		78.2	77.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
East	Residential	1	1	1

		Equipment				
		Spec	Actual	Receptor	Estimated	
Description	Impact Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)

Excavator	No	40		80.7	18	0
Excavator	No	40		80.7	18	0
All Other Equipment > 5	No	50	85		18	0

Equipment	Calculated (dBA)		Results						Noise Limit Exceedance (dBA)					
	*Lmax	Leq	Day		Evening		Night		Day	Evening		Night		
			Lmax	Leq	Lmax	Leq	Lmax	Leq		Lmax	Leq	Lmax	Leq	
Excavator	89.6	85.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	89.6	85.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5	93.9	90.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	93.9	92.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
South	Residential	1	1	1

Description	Impact Device	Usage(%)	Equipment			
			Spec	Actual	Receptor	Estimated
			Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Excavator	No	40		80.7	1000	0
Excavator	No	40		80.7	1000	0
All Other Equipment > 5	No	50	85		1000	0

Equipment	Calculated (dBA)		Results						Noise Limit Exceedance (dBA)					
	*Lmax	Leq	Day		Evening		Night		Day	Evening		Night		
			Lmax	Leq	Lmax	Leq	Lmax	Leq		Lmax	Leq			
Excavator	54.7	50.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	54.7	50.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5	59	56	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	59	58	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
West	Residential	1	1	1

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	18	0
Excavator	No	40		80.7	18	0
All Other Equipment > 5	No	50	85		18	0

Equipment	Calculated (dBA)		Results						Noise Limit Exceedance (dBA)					
	*Lmax	Leq	Day		Evening		Night		Day		Evening		Night	
			Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	89.6	85.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	89.6	85.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5	93.9	90.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	93.9	92.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.0

Report date 7/16/2009

Case Desc Paving

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
North	Residential	1	1	1

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Drum Mixer	No	50	80	80	110	0
Drum Mixer	No	50	80	80	110	0
Drum Mixer	No	50	80	80	110	0
Drum Mixer	No	50	80	80	110	0
Paver	No	50	77.2	77.2	110	0
Roller	No	20	80	80	110	0
Tractor	No	40	84	84	110	0

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)							
	*Lmax	Leq	Day		Evening		Night		Day		Evening		Night	
			Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Drum Mixer	73.2	70.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer	73.2	70.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer	73.2	70.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer	73.2	70.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	70.4	67.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	73.2	66.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	77.2	73.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	77.2	78.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
East	Residential	1	1	1

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Drum Mixer	No	50		80	18	0
Drum Mixer	No	50		80	18	0
Drum Mixer	No	50		80	18	0
Drum Mixer	No	50		80	18	0
Paver	No	50		77.2	18	0
Roller	No	20		80	18	0
Tractor	No	40	84		18	0

Equipment	Results														
	Calculated (dBA)			Noise Limits (dBA)				Noise Limit Exceedance (dBA)							
	*Lmax	Leq		Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq
Drum Mixer	88.9	85.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer	88.9	85.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer	88.9	85.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer	88.9	85.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	86.1	83.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	88.9	81.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	92.9	88.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	92.9	94.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
South	Residential	1	1	1

Equipment			
Spec	Actual	Receptor	Estimated

Description	Impact Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)	
Drum Mixer	No	50			80	1000	0
Drum Mixer	No	50			80	1000	0
Drum Mixer	No	50			80	1000	0
Drum Mixer	No	50			80	1000	0
Paver	No	50			77.2	1000	0
Roller	No	20			80	1000	0
Tractor	No	40	84			1000	0

Equipment	Results															
	Calculated (dBA)				Noise Limits (dBA)				Noise Limit Exceedance (dBA)							
	*Lmax		Leq		Day		Evening		Night		Day		Evening		Night	
Drum Mixer	54		51	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer	54		51	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer	54		51	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer	54		51	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	51.2		48.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	54		47	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	58		54	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	58		59.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
West	Residential	1	1	1

Description	Impact Device	Usage(%)	Equipment				
			Spec	Actual	Receptor	Estimated	
			Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)	
Drum Mixer	No	50			80	18	0
Drum Mixer	No	50			80	18	0
Drum Mixer	No	50			80	18	0
Drum Mixer	No	50			80	18	0

Paver	No	50		77.2	18	0
Roller	No	20		80	18	0
Tractor	No	40	84		18	0

		Results													
		Calculated (dBA)				Noise Limits (dBA)				Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Drum Mixer		88.9	85.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer		88.9	85.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer		88.9	85.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Drum Mixer		88.9	85.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver		86.1	83.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		88.9	81.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		92.9	88.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	92.9	94.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

PART II
NEPA ENVIRONMENTAL ASSESSMENT



**U.S. Department of Housing and Urban
Development**
Los Angeles Field Office
611 W. 6th Street, 8th Floor
Los Angeles, CA 90017

Environmental Assessment for HUD-funded Proposals

Recommended format per 24 CFR 58.36, revised February 2004

Project Identification: River Avenue Storm Drain Improvements Project

Preparer: City of Long Beach

Responsible Entity: City of Long Beach

Month/Year: August 2009

**PUBLIC REVIEW DRAFT
PART II
ENVIRONMENTAL ASSESSMENT**

River Avenue Storm Drain Improvements Project

LEAD AGENCY:

City of Long Beach
333 West Ocean Boulevard
Long Beach, California 90802
Contact: Mr. Mark Christoffels
562.5701.6771

PREPARED BY:

RBF Consulting
14725 Alton Parkway
Irvine, California 92618
Contacts: Mr. Glenn Lajoie, AICP
949.472.3505

August 3, 2009

JN 10-106837

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ENVIRONMENTAL ASSESSMENT

Responsible Entity: City of Long Beach

Certifying Officer: Ms. Angela Reynolds, Manager, Neighborhood Services Bureau

Project Name: River Avenue Storm Drain Improvements Project

Project Location: The proposed project is located within the City of Long Beach (City), generally located in the southern portion of Los Angeles County; refer to Exhibit 2-1, Regional Vicinity of the IS/MND. The proposed project involves approximately 1,800 linear feet of improvements. The River Avenue Storm Drain Project (herein referenced as the “project”) proposes pipeline infrastructure improvements, generally from the intersection of Wardlow Road and River Avenue to a Southern California Edison (SCE) easement, located to the south of Arlington Street; refer to Exhibit 2-2, Local Vicinity of the IS/MND.

Estimated Total Project Cost: \$1.4 Million

Grant Recipient: City of Long Beach

Recipient Address: 333 West Ocean Boulevard, 3rd Floor, Long Beach, California 90802

Project Representative: Ms. Angela Reynolds, Manager, Neighborhood Services Bureau

Telephone Number: 562.570.6771

Conditions of Approval: (List all mitigation measures adopted by the responsible entity to eliminate or minimize adverse environmental impacts. These conditions must be included in project contracts or other relevant documents as requirements).

AIR QUALITY

AQ-1 During clearing, grading, earth moving, or excavation operations, excessive fugitive dust emissions must be controlled by regular water or other dust preventive measures using the following procedures, as specified in the SCAQMD Rule 403.

- Limit on-site vehicle speed to 15 miles per hour.
- Water material excavated or graded sufficiently to prevent excessive amounts of dust. Water at least twice daily with complete coverage, preferably in the late morning and after work is done for the day.
- Water or securely cover material transported on-site or off-site sufficiently to prevent generating excessive amounts of dust.

- Minimize area disturbed by clearing, grading, earth moving, or excavation operations so as to prevent generating excessive amounts of dust.
- Indicate these control techniques in project specifications. Compliance with the measure will be subject to periodic site inspections by the City.
- Prevent visible dust from the project from emanating beyond the property line, to the maximum extent feasible.
- Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for ten days or more).
- Trucks transporting soil, sand, cut or fill materials, and/or construction debris to or from the site must be tarped from the point of origin.

AQ-2 Ozone precursor emissions from construction equipment vehicles must be controlled by maintaining equipment engines in good condition and in proper tune per manufacturer's specifications, to the satisfaction of the City Engineer. Compliance with this measure must be subject to periodic inspections of construction equipment vehicles by the City and included in construction bid documents.

AQ-3 All trucks that are to haul material must comply with California Vehicle Code Section 23114, with special attention to Sections 23114(b)(F), (e)(2) and (e)(4) as amended, regarding the prevention of such material spilling onto public streets and roads. This provision must be provided in construction bid documents.

AQ-4 Construction hours, allowable work days, and phone numbers of the job superintendent must be clearly posted at all construction entrances to allow for surrounding property owners and residents to contact the job superintendent. If the job superintendent receives a complaint, appropriate corrective actions must be implemented immediately and a report taken to the reporting party.

AQ-5 Backup generators shall be used only for emergency operations. All backup generators shall be selected in consultation with the SCAQMD from their list of certified internal combustion engines.

CULTURAL RESOURCES

CUL-1 If cultural materials or archeological remains are encountered during the course of grading or construction activities, the project contractor shall cease any ground disturbing activities near the find. A qualified archaeologist, approved by the City of Long Beach, shall be retained to evaluate significance of the resources and recommend appropriate treatment measures. Treatment measures may include avoidance,

preservation, removal, data recovery, protection, or other measures developed in consultation with the City of Long Beach.

GEOLOGY AND SOILS

- GEO-1 Prior to grading operations, a soils report shall be prepared for the proposed development to identify the potential for liquefaction, expansive soils, ground settlement, and slope failure. The report shall also:
- Specify loose alluvium that shall be excavated and removed from the site, as it is considered unsuitable for reuse as structural fill.
 - Specify remedial measures that could be feasibly implemented to minimize potential impact.
 - Analyze the potential for groundwater within the study area and recommend measures to remediate associated conditions.
 - Determine the need for dewatering of areas during construction to remove all water within the excavation perimeter and recommend appropriate method of dewatering.

HAZARDS AND HAZARDOUS MATERIALS

- HAZ-1 Prior to construction activities, an Environmental Professional shall conduct Phase II sampling on the Southern California Edison property within the area of disturbance to confirm or deny the presence of pesticides. Should sampling deny the presence of pesticides, sampling procedures would be deemed complete. Should sampling confirm the presence of pesticides, the Environmental Professional shall recommend further site characterization and/or remedial actions, if necessary.
- HAZ-2 Prior to construction activities, the exact location of petroleum pipelines along River Avenue and within the footprint of the proposed detention unit on the Southern California Edison property shall be identified. The City of Long Beach shall confirm the locations with the following petroleum pipeline owners: ConcoPhillips, Defense Energy Support Center, Kinder Morgan, Pacific Pipeline System, and Paramount.

NOISE

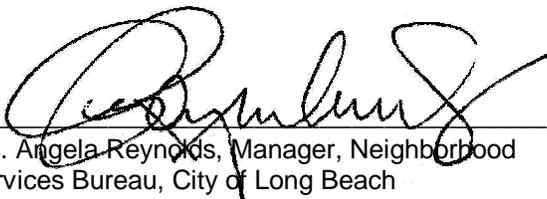
- N-1 Prior to site mobilization, a construction management plan shall be prepared which includes the following:
- All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers;
 - Construction noise reduction methods such as shutting off idling equipment, installing temporary acoustic barriers around stationary construction noise sources, maximizing the distance between construction equipment staging areas and occupied

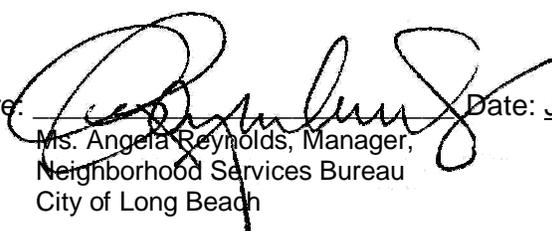
residential areas, and use of electric air compressors and similar power tools, rather than diesel equipment, shall be used where feasible;

- During construction, stationary construction equipment shall be placed such that emitted noise is directed away from sensitive noise receivers;
- During construction, stockpiling and vehicle staging areas shall be located as far as practical from noise sensitive receptors;
- Operate earthmoving equipment on the construction site, as far away from vibration sensitive sites as possible; and
- Property owners and occupants located within 100 feet of the project boundary shall be sent a notice, at least 15 days prior to commencement of construction of each phase, regarding the construction schedule of the proposed project. A sign, legible at a distance of 50 feet shall also be posted at the project construction site. All notices and signs shall indicate the dates and duration of construction activities, as well as provide a contact name and a telephone number where residents can inquire about the construction process and register complaints.

FINDING:

- Finding of No Significant Impact**
(The project will not result in a significant impact on the quality of the human environment)
- Finding of Significant Impact**
(The project may significantly affect the quality of the human environment)

Preparer Signature:  Date: July 31, 2009
Title/Agency: Ms. Angela Reynolds, Manager, Neighborhood Services Bureau, City of Long Beach

RE Approving Official Signature:  Date: July 31, 2009
Title/Agency: Ms. Angela Reynolds, Manager, Neighborhood Services Bureau, City of Long Beach



1.0 STATEMENT OF PURPOSE AND NEED FOR THE PROPOSAL

1.1 INTRODUCTION

The proposed River Avenue Storm Drain Project (herein referenced as the “project”) involves pipeline and catch basin improvements, and construction of additional catch basins and a detention unit within the City of Long Beach (Long Beach). The proposed project involves approximately 1,800 linear feet of improvements generally from the intersection of Wardlow Road and River Avenue to the Southern California Edison (SCE) easement, located south of Arlington Street.

The City of Long Beach determined that the proposed improvements are subject to the guidelines and regulations of the California Environmental Quality Act (CEQA). The City has prepared an Initial Study/Mitigated Negative Declaration (IS/MND) for the project under the provisions of CEQA. Enclosed as Part 1 of this document is the project IS/MND, which was prepared in compliance with the guidelines and regulations of CEQA. As the City is seeking project funding from the U.S. Department of Housing and Urban Development (HUD), the proposed project is also subject to environmental review under the National Environmental Policy Act (NEPA).

This Environmental Assessment (EA) addresses the environmental effects of the project, as proposed, under NEPA. The analysis contained within the EA includes several references to the project IS/MND where similar impacts have been previously analyzed.

1.2 STATEMENT OF PURPOSE AND NEED FOR THE PROPOSAL

The purpose of the project is to alleviate flooding occurrences to residents in the low-lying 2300 block of Arlington Street (located in a sump), which have experienced damage to homes and vehicles as a result of flooding events along the River Avenue storm drain segment.

The existing storm drain system provides drainage for a 237-acre watershed from Carson Street, at the upstream end of the watershed area, to Dominguez Channel (along McHelen Avenue, River Avenue, and the previous Orange County Nursery). The existing storm drain design was based on hydrology that was completed in 1957 and consists of the following components:

- 5,700 feet of 42- to 60-inch reinforced concrete pipe (RCP);
- Various lengths of 8- to 21-inch RCP connector pipes;
- Catch basin curb inlets located on Arlington Street and River Avenue; and
- A surface drain on the Southern California Edison (SCE) property.

The 5-year flow rate for the mainline on River Avenue, upstream from Arlington Street, is 105 cubic feet per second (cfs). Based on 2005 hydrologic conditions, it was determined that the existing storm drain has a capacity of approximately 80 cfs at the intersection of Arlington Street and River Avenue. However, the catch basins along River Avenue are restricted and collect only 65 cfs. As the flow approaches the intersection of River Avenue and Arlington Street, the



surface flow partially diverts toward the sump along Arlington Street (a 50 percent split occurs). The excess surface flow (approximately 40 cfs) that is not accommodated by the drainage system flows into a sump area on Arlington Street and onto adjacent properties (i.e., adjoining residential uses). The inadequate drainage system has resulted in several flooding occurrences.

Recurring flooding incidents have resulted in tens of thousands of dollars in home renovations and subsequent litigation. Flooding severity did increase when a retaining wall was built on the SCE property. Excess surface flows drained into the fields south of Arlington Street. However, the development to the south of Arlington Street has enclosed the neighborhood and restricted flows.

In 2007, the Los Angeles County Department of Public Works, Storm Drain Division, conducted a drainage study of the area for the City of Long Beach. The report concluded that the existing 60-inch storm drain pipe that collects storm water from the project area, as well as the adjoining SCE property and carries storm water flows to the Dominguez Channel, is undersized, providing less than a five year protection level. The proposed project would increase flood protection to a 10-year level in the Arlington Street neighborhood and alleviate current flooding hazards.

1.3 NATIONAL ENVIRONMENTAL POLICY ACT

This Environmental Assessment (EA) has been prepared by the City of Long Beach (Lead Agency), in accordance with the United States Department of Housing and Urban Development (HUD) guidelines. This EA is a concise document containing an analysis of the potential environmental impacts of the proposed action. The purpose of the document is to aid the Agency's compliance with the National Environmental Policy Act (NEPA).

The process of preparing an EA is designed to involve the public in federal decision-making. Comments from agencies have been solicited to help identify the potential environmental issues associated with the proposed project; refer to Section 8.0 (Consultation and Coordination).

1.4 CALIFORNIA ENVIRONMENTAL QUALITY ACT

In accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Sections 21000-21177) and pursuant to Section 15063 of Title 14 of the California Code of Regulations (CCR), the City of Long Beach, acting in the capacity of Lead Agency, is required to undertake the preparation of an Initial Study to determine whether the proposed project would have a significant environmental impact.

If the Lead Agency finds that there is no evidence that the project, either as proposed or as modified to include the mitigation measures identified in the Initial Study, may cause a significant effect on the environment, the Lead Agency shall find that the proposed project would not have a significant effect on the environment and shall prepare a Negative Declaration (or Mitigated Negative Declaration) for that project. Such determination can be made only if "there is no substantial evidence in light of the whole record before the Lead Agency" that such impacts may occur (Section 21080(c), Public Resources Code).

The City of Long Beach has prepared an Initial Study/Mitigated Negative Declaration (IS/MND) for the proposed action in accordance with CEQA (Public Resources Code Sections 21000-21177) and pursuant to Section 15063 of Title 14 of the California Code of Regulations (CCR). The IS/MND is provided as Part 1 of this document.



2.0 DESCRIPTION OF THE PROPOSAL

2.1 PROJECT LOCATION AND SETTING

The City of Long Beach (City) is located in the southern portion of Los Angeles County; refer to Exhibit 2-1, *Regional Vicinity* of the IS/MND. The proposed project involves approximately 1,800 linear feet of improvements. The River Avenue Storm Drain Project (herein referenced as the “project”) proposes pipeline infrastructure improvements, generally from the intersection of Wardlow Road and River Avenue to the SCE easement, located to the south of Arlington Street; refer to Exhibit 2-2, *Local Vicinity* of the IS/MND.

An existing storm drain facility extends along River Avenue and continues in a south-southwestern direction, within the SCE property. The following are located adjacent in the vicinity of the project area:

- North. Land uses to the north include single-family residential uses. Wardlow Road/223rd Street is located to the north and trends east/west. Interstate 405 (I-405) trends north of the project area.
- East. Single- and multi-family residential uses, institutional uses, and the Union Pacific Railroad (UPRR) are in proximity to the east.
- South. Land uses to the south include SCE property (with a substation facility). To the south of the project area is the Dominguez Channel, and Pacific Ocean.
- West. Land uses to the west include single-family residential, the Union Pacific Intermodal Transfer Container Facility, and UPRR.

The existing River Avenue Storm Drain system traverses the cities of Long Beach, Los Angeles, and Carson and includes approximately 5,700 linear feet of 42- to 60-inch reinforced concrete pipe (RCP). The system provides drainage for a 237-acre watershed from Carson Street, at the upstream end of the watershed area, to Dominguez Channel (along McHelen Avenue, River Avenue, and the previous Orange County Nursery). The existing storm drain design was based on hydrology that was completed in 1957 and consists of the following components:

- 5,700 feet of 42- to 60-inch RCP;
- Various lengths of 8- to 21-inch RCP connector pipes;
- Catch basin curb inlets located on Arlington Street and River Avenue; and
- A surface drain on the SCE property.

The 5-year flow rate for the mainline on River Avenue, upstream from Arlington Street, is 105 cubic feet per second (cfs). Based on 2005 hydrologic conditions, it was determined that the existing storm drain has a capacity of approximately 80 cfs at the intersection of Arlington Street and River Avenue. However, the catch basins along River Avenue are restricted and collect only 65 cfs. As the flow approaches the intersection of River Avenue and Arlington Street, the surface flow partially diverts toward the sump along Arlington Street (a 50 percent split occurs). The excess surface flow (approximately 40 cfs) that is not accommodated by the drainage system flows into a sump area on Arlington Street and onto adjacent properties (i.e., adjoining residential uses). The inadequate drainage system has resulted in several flooding occurrences.



2.2 PROJECT CHARACTERISTICS

The inadequate River Avenue drainage system has resulted in flooding to adjacent residents. The project proposes to bring the flood protection in this area to a full 10 year protection level. The proposal involves construction of a parallel storm drain system along River Avenue (north of Arlington Street) that would connect to an underground storage (detention) basin proposed on the SCE property. The detention basin would temporarily hold two acre-feet of storm water during heavy flows and then release the flows as the storm abates. The proposed detention basin would allow the downstream pipe to no longer flow full.

The existing storm drain system was analyzed to determine the level of flooding if a 10-year frequency storm occurred. The 10-year reported flow rate at the intersection of River Avenue and Arlington Street is 144 cfs. The proposed retention system combined with the existing drain system is anticipated to accept 105 cfs at the intersection. The excess surface runoff of 39 cfs would be above the property lines. To provide the desired 10-year frequency flood protection, a retention system consisting of 3,148 linear feet of 72-inch diameter RCP or high-density polyethylene (HDPE) and 317 linear feet of 30-inch diameter RCP or HDPE with seven additional catch basins would be necessary; refer to Exhibit 2-3, Site Plan of the IS/MND. The City has elected to proceed with the 10-year frequency flood level protection. The project consists of the following elements:

- Construction of 1,021 feet of 48-inch reinforced concrete pipe along River Avenue, from Wardlow Road to the SCE property.
- Modification of five street level catch basins along River Avenue including the installation of trash and bacteria filters.
- Construction of six new street level catch basins along River Avenue including the installation of trash and bacteria filters.
- Construction of a detention system consisting of five 84-inch corrugated metal pipes, each 430 feet in length to be located within a dedicated easement on property owned by SCE in order to retain two acre-feet of storm drain flows.
- Modification of a surface inlet on the SCE property with a debris deflector.
- Construction of connecting pipes from the existing storm drain system to the detention system.
- Relocation of waterlines and gas lines along River Avenue.
- Preparation of a traffic control plan.

Construction equipment staging would be located on the SCE property. The proposed construction would consist of a 5-foot wide trench on River Avenue, from Wardlow Road to the SCE property, as well as 5-foot wide trenches on the SCE property to accommodate the detention pipes. Approximately 1,250 square feet of asphalt would be hauled to an off-site location. Approximately 4,500 cubic yards of excavated soil would be excavated and deposited on the SCE property.



2.3 PHASING

The project phasing would be as follows:

- Phase 1: Construction of the parallel drain on River Avenue
- Phase 2: Construction of the storm drain retention system

The project construction time frame would be as follows:

- Demolition – November 1, 2009 to December 15, 2009
- Trenching – November 1, 2009 to February 1, 2010
- Paving – December 30, 2009



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3.0 EXISTING CONDITIONS AND TRENDS

This Section includes a discussion of the existing conditions for the character, features, and resources of the project area and its surroundings, as well as the trends likely to continue in the absence of the project. The following information is provided pursuant to 24 Code of Federal Regulations (CFR) 58.40(a).

3.1 LAND DEVELOPMENT

The *City of Long Beach General Plan (General Plan)*, is the long-range planning guide for growth and development for the City. The *General Plan* sets forth the goals, policies, and directions the City will take in managing its future. The *General Plan* is the citizens' blueprint for development; the guide to achieving the City's vision.

The project is located within an existing roadway and an SCE easement. The project is designated as Rights-of-Way in the *General Plan* at the SCE easement and as a local roadway (River Avenue) in the Transportation Element.

The *City of Long Beach Municipal Code (Municipal Code)*, enacted April 21, 2009, consists of regulatory, penal, and administrative ordinances of the City. It is the method the City uses to implement control of land uses, in accordance with *General Plan* goals and policies. The City's *Zoning Code*, Title 21 of the *Municipal Code*, identifies land uses permitted and prohibited according to the zoning category of particular parcels. The purpose of the *Zoning Code* is "to promote and preserve the public health, safety, comfort, convenience, prosperity and general welfare of the people of Long Beach." The *Buildings and Construction Code* (Title 18 of the *Municipal Code*) specifies rules and regulations for construction, alteration, and building for uses of human habitation. Title 20, *Subdivisions*, is also regulated within the City's *Municipal Code*. The project site is located within an existing roadway, which are not applicable to zoning designations, and an SCE easement, which is zoned PR (Public Right-of-Way) and permits utility uses.

Title XII of Division A of the American Recovery and Reinvestment Act of 2009, which became effective on February 17, 2009, appropriates \$1 billion to carry out the Community Development Block Grant (CDBG) program under Title I of the Housing and Community Development Act of 1974 on an expedited basis. Consequently, HUD has established a new program called the Community Development Block Grant-Recovery (CDBG-R). Under this program the City is eligible to receive \$2,332,444 of federal funding.¹

3.2 NOISE

NOISE SENSITIVE RECEPTORS

Certain land uses are particularly sensitive to noise, including schools, hospitals, rest homes, long-term medical and mental care facilities, and parks and recreation areas. Residential areas are also considered noise sensitive, especially during the nighttime hours. Table 3.2-1, *Sensitive Receptors*, provides a listing showing the location of sensitive receptors within one mile of the project site.

¹ City of Long Beach, *City Council Supplemental Agenda*, June 2, 2009.



**Table 3.2-1
 Sensitive Receptors**

Type	Name	Direction from Project Site	Distance from Project Site (miles)
Schools	First Baptist Preschool	North	0.57 miles
	Dominguez Elementary School	Northeast	0.86 miles
	Webster Elementary School	Southeast	0.46 miles
	Muir Elementary School	Southeast	0.90 miles
	Stephens Middle School	South	0.89 miles
Parks	Dominguez Park	Northeast	0.84 miles
Places of Worship	Harbor Baptist Church	North	0.01 miles
	Our Lady of Guadalupe Old Catholic Church	North	0.51 miles
	Dominguez United Methodist Church	North	0.63 miles
	Centro De Intercersion	East	0.40 miles
	Iglesia Misionera Pentecostal	East	0.42 miles
	St. Luke's Baptist Church	East	0.64 miles
	Filipino-American Baptist Church	East	0.64 miles
	Inter Faith Cogic	Southeast	0.55 miles
	Silverado United Methodist Church	Southeast	0.94 miles
	Word of God Ministries	Southeast	0.90 miles
	Lily of the Valley Church	Southeast	0.67 miles
	Faith Lutheran Church	Southeast	0.70 miles
	First Samoan Assembly of God	Southeast	0.71 miles
	Westside Church-The Nazarene	Southeast	0.85 miles
Residents	Single-family residential units	North, East, West	0.01-1.0 miles

Source: RBF Consulting field reconnaissance, June 2009, and Google Earth 2009.

NOISE SURVEY

Improvements within River Avenue are surrounded by sensitive residential uses. The improvements within the SCE property are surrounded by sensitive residential uses to the north.

In order to quantify existing ambient noise levels in the proposed project area, RBF Consulting (RBF) conducted one ten-minute (12:53 p.m. to 1:03 p.m.) noise measurement within the residential uses along River Avenue near Lincoln Street on June 16, 2009. The measured noise level was 57.8 dBA. The complete result of the field measurement is included in Appendix E, Noise Data of the IS/MND.

MOBILE NOISE SOURCES

Mobile noise sources in the project area include traffic-related noise from vehicles traveling along River Avenue and adjacent local streets, Wardlow Road/223rd Street, and Interstate 405 (I-405). Noise generated by mobile sources typically attenuates (is reduced) at a rate between 3.0 dBA and 4.5 dBA per doubling of distance. The rate depends on the ground surface and the number or type of objects between the noise source and the receiver. Hard and flat surfaces, such as concrete or asphalt, have an attenuation rate of 3.0 dBA per doubling of distance. Soft surfaces, such as uneven or vegetated terrain, have an attenuation rate of about 4.5 dBA per doubling of distance. Although mobile noise sources exist in the project vicinity, they are not



significantly loud, as justified by the noise measurement conducted at the project site (57.8 dBA).

3.3 AIR QUALITY

The project site is located within the City, which is part of the South Coast Air Basin (Basin) and under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The SCAQMD is one of 35 air quality management districts that have prepared an *Air Quality Management Plan* (AQMP) to accomplish a five-percent annual reduction in emissions. The most recent AQMP was adopted in 2007.

Both the State of California and the Federal government have established health-based Ambient Air Quality Standards (AAQS) for criteria air pollutants. These pollutants include carbon monoxide (CO), ozone (O₃), nitrogen oxides (NO_x), sulfur oxides (SO_x), particulate matter up to 10 microns and 2.5 microns in diameter (PM₁₀ and PM_{2.5}, respectively), and lead (Pb). O₃ is formed by a photochemical reaction between NO_x and volatile organic compounds (VOCs). Thus, impacts from O₃ are assessed by evaluating impacts from NO_x and VOCs.

SENSITIVE RECEPTORS

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. The California Air Resources Board (CARB) has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. Sensitive receptors located within one mile of the project site are listed in Table 3.2-1, *Sensitive Receptors*, above.

3.4 ENVIRONMENTAL DESIGN

The Conservation Element of the *General Plan* identifies the following historical and cultural assets within the City: Rancho Los Cerritos, Rancho Los Alamitos, "Alamitos 1" (the first oil well), Civic Center Complex, Art Museum, Pacific Terrace Center, Queen Mary, California State University, Long Beach, and Long Beach City College. The project site is located within a residential neighborhood and an SCE easement, and no identified historical resources are known to be present within the immediate project area.

Refer also to Section 3.1, *Land Development*.

3.5 SOCIOECONOMIC

The City's 2000 population was an estimated 461,522 persons, representing a 7.5 percent increase over the 1990 population of 429,433 persons.² As of January 1, 2009, the City's population was an estimated of 492,682 persons.³ Population growth is expected to continue in the City, with Southern California Association of Governments (SCAG) estimating that its

² Census 2000, accessed at www.census.gov in July 2009.

³ State of California, Department of Finance, *E-4 Population Estimates for Cities, Counties and the State, 2001-2009, with 2000 Benchmark*. Sacramento, California, accessed in July 2009.



population will reach 503,251 persons by 2010, 517,226 persons by 2015, 531,854 persons by 2020 and 559,598 persons by 2030.⁴ This projection would represent a population growth of approximately 13.6 percent between 2009 and 2030.

According to the Census 2000, the total housing stock in the City of Long Beach was an estimated 171,659 housing units.⁵ This represents an increase of approximately eight percent over the estimated 158,975 housing units reported in the Census 1990. The City's housing stock as of January 2009 was an estimated 175,164 housing units and its vacancy rate was 4.98 percent. Comparatively, the County's vacancy rate is estimated to be 4.21 percent. The number of persons per household in the City was 2.898 (January 2009)⁶. According to SCAG projections, the number of housing units in the City is expected to increase to 169,739 units by 2010, 175,415 units by 2015, 181,397 units by 2020 and 190,576 units by 2030⁷. This increase in housing represents an approximately 8.8 percent increase between 2009 and 2030.

In 2000, the City of Long Beach's civilian labor force consisted of approximately 209,167 persons. At the time of the Census, an estimated 9.4 percent of the City's civilian labor force (19,680 persons) was unemployed. Similar to the County of Los Angeles, the majority of the City's labor force (approximately 34.3 percent) was employed in management, professional, and related occupations; a substantial portion (27.2 percent) was in sales and office occupations.⁸ SCAG projects that the City's employment trends will continue to increase over the next twenty years with 185,938 employees by 2010, 189,987 employees by 2015, 192,614 employees by 2020, and 198,860 by 2030, representing a 6.9 percent increase over the next 20 years.⁹

3.6 COMMUNITY FACILITIES AND SERVICES

3.6.1 EDUCATIONAL FACILITIES

The project site is located within the Long Beach Unified School District (LBUSD). These districts provide educational services for approximately 90,000 students in 95 public schools, in kindergarten through 12th grade. The project site is approximately 0.46 miles northwest of Webster Elementary School and 0.89 miles north of Stephens Middle School, both of which are in the LBUSD. Cabrillo High School is located 1.95 miles south of the project site and is a part of the LBUSD. Additionally, California State University, Long Beach, is located approximately 6.5 miles southeast of the project site.

3.6.2 COMMERCIAL FACILITIES

The project site is located in the western portion of Long Beach, which is generally surrounded by residential, industrial, railroad, and public utility uses. Wardlow Road/223rd Street adjoins the project site to the north and contains general commercial/retail uses including supermarkets and

⁴ Southern California Association of Governments, *Adopted 2008 Regional Transportation Plan Growth Forecast, By City*, <http://www.scag.ca.gov/forecast/index.htm>, accessed in July 2009.

⁵ *Census 2000*, accessed at www.census.gov in July 2009.

⁶ State of California, Department of Finance, *E-4 Population Estimates for Cities, Counties and the State, 2001-2009, with 2000 Benchmark*. Sacramento, California, accessed in July 2009.

⁷ Southern California Association of Governments, *Adopted 2008 Regional Transportation Plan Growth Forecast, By City*, <http://www.scag.ca.gov/forecast/index.htm>, accessed in July 2009.

⁸ *Census 2000*, accessed at www.census.gov in July 2009.

⁹ Southern California Association of Governments, *Adopted 2008 Regional Transportation Plan Growth Forecast, By City*, <http://www.scag.ca.gov/forecast/index.htm>, accessed in July 2009.



restaurants. Also, commercial uses are prominent along Santa Fe Avenue, located approximately 0.40 miles east of the project site. Along Santa Fe Avenue, commercial uses are primarily comprised of retail commercial, restaurant and professional service uses.

3.6.3 HEALTH CARE

Three hospitals provide comprehensive medical service to Long Beach: Community Hospital of Long Beach, Long Beach Memorial Medical Center, and Pacific Hospital of Long Beach. Combined, these hospitals provide comprehensive services including Emergency and Urgent Care, Outpatient Surgery, Cardiac Care Unit (CCU), Intensive Care Unit (ICU), obstetrics, pediatrics, physical/occupational therapy, mental health services, respiratory therapy, radiology, ultrasound, and Magnetic Resonance Imaging (MRI). Additionally, private medical centers and clinics within Long Beach provide a comprehensive array of specialized medical services including emergency treatments.

3.6.4 SOCIAL SERVICES

Social service facilities located in the project vicinity include:

Center for Families and Youth (6355 Myrtle Avenue). The Center for Families and Youth is located approximately 3.9 miles northeast of the project site. Services provided at this facility include a variety of family support programs such as the family preservation program, family support program, and targeted case management program.

Central Facilities Center (1133 Rhea Street). The Central Facilities Center (located approximately 3.25 miles southeast of the project site) includes several services including child care services, helpline youth counseling, emergency food referrals, emergency housing, immediate need transportation, and rehabilitation services.

Homeless Services Division (1301 West 12th Street). The Homeless Services Division (located approximately 2.8 miles south of the project site) is responsible for coordinating homeless services and addressing the impacts of homelessness citywide. The Homeless Services Division administers grand funding for continuum of care, emergency shelter grant, homeless Veterans initiative, emergency food and shelter program, and emergency shelter services program.

Additional social services are provided to the residents of Long Beach, including adult services, children services, senior services, health services, mental health services, disabled services, and shelters.

3.6.5 SOLID WASTE

Solid waste (including recycled materials) in the area is handled and transported by the City's Refuse Collection Division. Most trash in the City is taken to the Southeast Resource Recovery Center (SERRF) to be incinerated and converted to electricity. The residue from this process is taken to landfills to be used as road base. The remainder of the City's trash is taken to the Puente Hills Landfill in the City of Whittier. The Puente Hills Landfill has a total permitted capacity of 106.4 million cubic yards, of which 49.4 million cubic yards is the remaining capacity.



The landfill is anticipated to close in 2013.¹⁰ Additionally, the City has implemented a Construction and Demolition Recycling program (Section 18.97 of the *Municipal Code*) that requires certain demolition and/or construction projects to divert at least 60 percent of waste from landfills through recycling, salvage, or deconstruction.

3.6.6 WASTEWATER

Wastewater collected in the City initially flows through the local sewer pipelines owned by the City. In 1988, the Long Beach Water Department assumed the responsibility of the sanitary sewer system including operations and maintenance. The Long Beach Water Department operates and maintains nearly 765 miles of sanitary sewer line, delivering over 40 million gallons per day (gpd) to Los Angeles County Sanitation Districts facilities located on the north and south sides of the City. From these facilities, treated sewage is used for irrigation, to recharge the groundwater basin, or is pumped into the Pacific Ocean.

The majority of the City's wastewater is delivered to the Joint Water Pollution Control Plan (JWPCP) of the Los Angeles County Sanitation Districts. The remaining portion of the City's wastewater is delivered to the Long Beach Water Reclamation Plant. The JWPCP is located in the City of Carson and occupies approximately 350 acres. It provides advanced primary and partial secondary treatment for 350 million gallons of wastewater per day. The Long Beach Water Reclamation Plant is located at 7400 East Willow Street in Long Beach and occupies 17 acres west of the I-605 Freeway. The plant provides primary, secondary, and tertiary treatment for 25 million gpd of wastewater.

3.6.7 STORM WATER

The project proposes improvements to the existing storm drain system located within River Avenue. The existing storm drain system includes approximately 5,700 linear feet of 42- to 60-inch RCP. The system provides drainage for a 237-acre watershed from Carson Street, at the upstream end of the watershed area, to Dominguez Channel (along McHelen Avenue, River Avenue, and the previous Orange County Nursery). The existing storm drain design was based on hydrology that was completed in 1957 and consists of 5,700 feet of 42- to 60-inch RCP, various lengths of 8- to 21-inch RCP connector pipes, catch basin curb inlets located on Arlington Street and River Avenue, and a concrete ditch located at the SCE property.

The five-year flow rate for the mainline on River Avenue, upstream from Arlington Street, is 105 cfs. Based on 2005 hydrologic conditions, it was determined that the existing storm drain has a capacity of approximately 80 cfs at the intersection of Arlington Street and River Avenue. However, the catch basins along River Avenue are restricted and collect only 65 cfs. As the flow approaches the intersection of River Avenue and Arlington Street, the surface flow partially diverts toward the sump along Arlington Street (a 50 percent split occurs). The excess surface flow (approximately 40 cfs) that is not accommodated by the drainage system flows into a sump area on Arlington Street and onto adjacent properties (i.e., adjoining residential uses). The inadequate drainage system has resulted in several flooding occurrences and damage to adjoining residential units.

¹⁰ Solid Waste Facility Listing: <http://www.ciwmb.ca.gov/Swis/search.aspx>, accessed in July 2009.



3.6.8 WATER SUPPLY

The Long Beach Water Department is the water provider for the City. The City receives its potable water from groundwater wells and treated surface water purchased from the Metropolitan Water District of Southern California (MWD). This water originates from the Colorado River via the Colorado River Aqueduct, and from Northern California's Bay-Delta region via the California Aqueduct.

3.6.9 PUBLIC SAFETY

The Long Beach Fire Department (LBFD) provides fire protection and emergency response to the City. Twenty-five fire stations serve the City. LBFD headquarters is located at 3205 Lakewood Boulevard, approximately 4.8-miles east of the project site. The nearest fire station to the project site is Fire Station 13, located at 2475 Adriatic Avenue (approximately 1.40-miles southeast of the project site).

The City of Long Beach Police Department (LBPD) provides police protection to the City. The police station headquarters is located at 400 West Broadway, approximately 3.9-miles southeast of the project site.

3.6.10 EMERGENCY MEDICAL

In addition to fire protection services, LBFD provides emergency medical services to the City. Fire Stations 1, 2, 9, 10, 11, 12, 13 (nearest to the project site), 14, and 17 have paramedic rescue ambulances, and Fire Stations 3, 4, 11, 16, and 17 are equipped with basic life support ambulances. All paramedic rescue ambulances are manned by two firefighters/paramedics. The LBFD responded to 38,677 medical-related calls in 2007.¹¹ Emergency medical treatment is provided by local hospitals and private medical facilities; refer to Section 3.6.3 (Health Care).

3.6.11 OPEN SPACE AND RECREATION

The City of Long Beach Parks, Recreation, and Marine Department supervise and maintain park, recreational and marine facilities in the City. The Parks, Recreation, and Marine Department operates 152 parks with 25 community centers, two major tennis centers, five golf courses, and the largest municipally operated marina system in the nation with 3,800 boat slips and 6 miles of beaches. More than 3,066 acres within the City's 50 square miles are developed for recreation. The park nearest to the project site is Silverado Park, located approximately 0.60 miles to the southeast.

3.7 TRANSPORTATION

3.7.1 ACCESS

According to the *General Plan*, street classifications in the City include freeway, regional corridor, major arterial, minor arterial, collector street, and local street. River Avenue is designated as a local street.

¹¹ City of Long Beach Fire Department, accessed at <http://www.longbeach.gov/civica/filebank/blobdload.asp?BlobID=21340> in July 2009.



Transit services within the City are provided by Long Beach Transit (fixed-route bus service), Los Angeles County Metropolitan Transportation Authority (bus transit and the Metro Blue Line), Orange County Transportation Authority, Torrance Transit, and the Commuter Express operated by the City of Los Angeles Department of Transportation. The nearest transit stop to the project site is the Long Beach Transit Bus Routes 191 and 193 stop located at the intersection of Wardlow Road/223rd Street and McHelen Avenue (approximately 175 feet north of River Avenue). This transit stop is not located within the project site.

The City adopted the Bicycle Master Plan in December 2001. Bikeways within the City include Class I, Class II, and Class III bikeways. There are no bikeways located within the project site. The nearest bikeway to the project site is a Class I bikeway along the Los Angeles River, approximately 0.93 miles to the east.

3.7.2 BALANCE

The existing transportation system provides for travel by private automobile, public transit, or bicycle. Private automobile trips to and from the project site would be served by a grid system of local collector streets. Further, the Metrolink Rail Station (located at Wardlow Avenue and Pacific Place) provides commuter train service to and from the City with connections to surrounding counties within southern California.

3.7.3 SAFETY

Roadways serving the project area are controlled by traffic control devices (traffic signals, stop signs, speed restriction signs, street name signs, and striping on the roadway). Section 10.08 (*Traffic-Control Devices*) of the *Municipal Code*, regulates the operation and maintenance of traffic control devices within the City. In addition, existing roadways in the project vicinity are improved with curbs, gutters, sidewalks, and paving.

3.7.4 LEVEL OF SERVICE

The Transportation Element of the *General Plan* establishes Level of Service (LOS) D as being the acceptable LOS standard. The *General Plan* identifies several roadways that are congested. However, none of these roadways traverse through the project limits.

3.8 NATURAL FEATURES

3.8.1 WATER RESOURCES AND SURFACE WATER

The City receives its water from local groundwater, the Colorado River, and Northern California's Bay-Delta. The City receives its potable water from groundwater wells and treated surface water that is purchased from the MWD.

No surface water features are located within the project area. Refer also to [Section 3.6.8, *Water Supply*](#).



3.8.2 UNIQUE NATURAL FEATURES AND AGRICULTURAL LANDS

No unique natural features or scenic resources exist on the project site or in the project area. The project site is located in the western portion of the City and is zoned PR (Public Right-of-Way). The project site is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. No farmland exists in the project area.

3.8.3 VEGETATION AND WILDLIFE

The project area is generally located within a developed area of the City. The project site consists of roadway uses and areas of utility easement. As a result of the disturbed and developed nature of the project site and the lack of significant native habitats, these improvement areas have limited value to native plants and wildlife. The Conservation Element of the *General Plan* identifies the following habitats in the City:

- Riparian;
- Ponds and Lakes;
- Freshwater Streams and Rivers;
- Freshwater Marsh;
- Salt Marsh and Estuaries;
- Mudflat (Tidal);
- Rocky Coastal;
- Sandy Coastal;
- Open Sea;
- Open Space; and
- El Dorado Preserve and Nature Center.

The project site is not located within a habitat area of the City, according to the Conservation Element. No Federally listed or proposed threatened and endangered species (i.e., plants, animals, fish, or invertebrates), nor designated or proposed critical habitats exist in the project vicinity. Additionally, no Federally protected wetlands occur within the project area; refer also to Section 6.8.3.1, *Vegetation*.



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4.0 STATUTORY CHECKLIST

4.1 EVALUATION OF DETERMINATIONS

Pursuant to 24 CFR Section 58.5, this section analyzes the proposed project's compliance for each listed statute, executive order, or regulation. The Environmental Assessment determination and sources used to verify compliance are provided. It should be noted that information contained in the River Avenue Storm Drain Improvements Project Initial Study/Mitigated Negative Declaration (IS/MND) (enclosed as Part 1 of this document), was used for informational purposes throughout this EA. Where a potentially significant adverse impact is identified (relative to the identified statute, executive order, or regulation), mitigation measures are recommended to reduce the impact.

Factors	Determinations and Compliance Documentation
Historic Preservation [36 CFR 800]	<p><u>In Compliance.</u> The project site consists of a roadway (River Avenue) and a Southern California Edison (SCE) easement. Project implementation would not impact historic properties or potentially historic properties located within the vicinity of the project site.</p> <p><u>Study:</u> Refer to <u>Section 6.4.2, <i>Historic, Cultural and Archaeological Resources</i></u> and <u>Section 4.5, <i>Cultural Resources</i></u> of the IS/MND.</p>
Floodplain Management [24 CFR 55, Executive Order 11988]	<p><u>In Compliance.</u> The project site is not located within a 100-year floodplain and does not involve property acquisition, land management, construction, or improvement within a 100-year floodplain identified by Federal Emergency Management Agency maps; additionally, the project does not involve a "critical action" (e.g., emergency facility, facility for mobility impaired persons, etc.) within a 500-year floodplain.</p> <p><u>Printed:</u> FIRM Community Panel Number 06037C1955F, September 26, 2008 Panel 1955 of 2350.</p> <p><u>Study:</u> Refer to <u>Section 6.1.6.3, <i>Flood Hazards</i></u>, and <u>Section 4.8, <i>Hydrology and Water Quality</i></u> of the IS/MND.</p>
Wetlands Protection [Executive Order 11990]	<p><u>In Compliance.</u> No Federally protected wetlands occur within the project area. The project does not involve new construction within or adjacent to a wetland identified by or delineated on maps issued by the U. S. Department of Interior, Fish and Wildlife Service.</p> <p><u>Printed:</u> Wetland Maps, The National Wetlands Inventory http://www.fws.gov/wetlands/data/index.html.</p>
Coastal Zone Management Act [Sections 307 (c), (d)]	<p><u>In Compliance.</u> The project does not involve the placement, erection, or removal of materials, nor does it increase the intensity of a use within the Coastal Zone.</p> <p><u>Study:</u> Refer to <u>Section 6.8.1, <i>Water Resources and Surface Waters</i></u> and <u>Section 4.9, <i>Land Use and Planning</i></u> of the IS/MND.</p>
Sole Source Aquifers [40 CFR 149]	<p><u>In Compliance.</u> The project site is not located within an area designated by the Environmental Protection Agency (EPA) as being supported by a sole source aquifer. The proposed project does not require any source of water, other than for temporary construction activities.</p> <p><u>Printed:</u> <i>Designated Sole Source Aquifers in EPA Region IX</i>, www.epa.gov/safewater/sourcewater/pubs/qrg_ssamap_reg9.pdf.</p>



Factors	Determinations and Compliance Documentation
Endangered Species Act [50 CFR 402]	<p><u>In Compliance.</u> The project would not affect Federally listed or proposed threatened and endangered species (i.e., plants, animals, fish, or invertebrates), nor designated or proposed critical habitat.</p> <p><u>Study:</u> Refer to <u>Section 6.8.3, <i>Vegetation and Wildlife</i></u> and <u>Section 4.4, <i>Biological Resources</i></u> of the IS/MND.</p>
Wild and Scenic Rivers Act [Sections 7 (b), (c)]	<p><u>In Compliance.</u> The project site is not located within 1.0 mile of a listed Wild and Scenic River, as identified by the U.S. Department of Interior or National Park Service.</p> <p><u>Printed:</u> U.S. Department of Fish and Wildlife Services, <i>National Wild and Scenic Rivers</i>, http://www.rivers.gov/</p> <p><u>Study:</u> Refer to <u>Section 6.8.1.7.</u></p>
Air Quality [Clean Air Act, Sections 176 (c) and (d), and 40 CFR 6, 51, 93]	<p><u>In Compliance.</u> The project conforms with the EPA-approved State Implementation Plan (SIP).</p> <p><u>Study:</u> Refer to <u>Section 6.3, <i>Air Quality</i></u> and <u>Section 4.3, <i>Air Quality</i></u> of the IS/MND.</p>
Farmland Protection Policy Act [7 CFR 658]	<p><u>In Compliance.</u> The project site does not include prime farmland or unique farmland or other farmland of statewide or local importance, as identified by the U.S. Department of Agriculture, Natural Resources Conservation Service.</p> <p><u>Printed:</u> U.S. Department of Agriculture, Natural Resources Conservation Service.</p> <p><u>Study:</u> Refer to <u>Section 6.8.2, <i>Unique Natural Features and Agricultural Lands</i></u> and <u>Section 4.2, <i>Agricultural Resources</i></u> of the IS/MND.</p>
Environmental Justice [Executive Order 12898]	<p><u>In Compliance.</u> The project proposes storm drain improvements to alleviate current flooding hazards within a low- to moderate-income neighborhood in the City. The improvements would be beneficial and would not pose an environmental justice issue. Refer to <u>Section 6.5, <i>Socioeconomic</i>.</u></p>

HUD Environmental Standards	Determinations and Compliance Documentation
Noise Abatement and Control [24 CFR 51 B]	<p><u>In Compliance.</u> The project would not create objectionable noise during project operations. Refer to <u>Section 6.2, <i>Noise</i></u> and <u>Section 4.11, <i>Noise</i></u> of the IS/MND.</p> <p><u>Study:</u> Refer to <u>Section 6.2, <i>Noise</i></u> and <u>Section 4.11, <i>Noise</i></u> of the IS/MND.</p>
Toxic or Hazardous Substances and Radioactive Materials [HUD Notice 79-33]	<p><u>In Compliance.</u> The project is not located on or adjacent to any known or suspected sites contaminated with toxic chemicals or radioactive materials.</p> <p><u>Study:</u> Refer to <u>Section 6.1.7.2, <i>Toxic Chemicals and Radioactive Materials</i></u> and <u>Section 4.7, <i>Hazards and Hazardous Materials</i></u> of the IS/MND.</p>



HUD Environmental Standards	Determinations and Compliance Documentation
Siting of HUD-Assisted Projects near Hazardous Operations [24 CFR 51 C]	<u>In Compliance.</u> The project would not expose people or buildings to hazardous operations. <u>Study:</u> Refer to Section 6.1.7.3, <i>Explosive and Fire Hazards</i> and Section 4.7, <i>Hazards and Hazardous Materials</i> of the IS/MND.
Airport Clear Zones and Accident Potential Zones [24 CFR 51 D]	<u>In Compliance.</u> The project site is not located within an FAA-designated civilian airport Runway Clear Zone (RCZ), within a military airfield Clear Zone (CZ), or Accident Potential Zone (APZ). <u>Study:</u> Refer to Section 6.1.7, <i>Man-Made Hazards and Nuisances</i> and Section 4.7, <i>Hazards and Hazardous Materials</i> of the IS/MND.



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5.0 ENVIRONMENTAL ASSESSMENT CHECKLIST

5.1 EVALUATION OF ENVIRONMENTAL IMPACTS

[Environmental review Guide HUD CPD 782, 24 CFR 58.40; Ref. 40 CFR 1508.8 & 1508.27]

The following is an evaluation of the significance of the proposal on the character, features, and resources of the project area. Relevant base data and verifiable source documentation has been provided to support the finding; refer to Section 6.0, *Environmental Consequences*, for detailed discussions. The appropriate impact code has been entered from the following list to make a finding of impact. Impact Codes: (1) – No impact anticipated; (2) – Potentially beneficial; (3) – Potentially adverse; (4) – Requires mitigation; (5) – Requires project modification. The names, dates of contact, telephone numbers, and page references, have been noted. It should be noted that information from the River Avenue Storm Drain Improvements Project Initial Study/Mitigated Negative Declaration (IS/MND), dated July 27, 2009, enclosed as Part 1 of this document, and associated technical appendices, was used for informational purposes throughout this EA.

Land Development	Code	Source or Documentation
Conformance with Comprehensive Plans and Zoning	1	<i>City of Long Beach General Plan; Zoning Code; and Exhibit 2-3, Site Plan</i> of the IS/MND
Compatibility and Urban Impact	1	<i>City of Long Beach General Plan; Zoning Code; and Exhibit 2-3, Site Plan</i> of the IS/MND
Slope	1	<i>City of Long Beach General Plan; Section 4.6, Geology and Soils</i> of the IS/MND; and <u>Appendix B, <i>Geotechnical Investigation</i></u> of the IS/MND
Erosion	3	<i>Municipal Code; and Site Visits/Photos</i>
Soil Suitability	4	<u>Section 4.6, <i>Geology and Soils</i></u> of the IS/MND; and <u>Appendix B, <i>Geotechnical Investigation</i></u> of the IS/MND
Natural Hazards and Nuisances (Including Site Safety)	4	<i>City of Long Beach General Plan; City of Lancaster Municipal Code; Section 4.6, <i>Geology and Soils</i></i> of the IS/MND; <u>Appendix B, <i>Geotechnical Investigation</i></u> of the IS/MND; <u>Section 4.7, <i>Hazards and Hazardous Materials</i></u> of the IS/MND; <u>Appendix C, <i>Phase I Environmental Site Assessment</i></u> of the IS/MND; and Flood Insurance Rate Maps
Energy Consumption	1	<u>Exhibit 2-3, Site Plan</u> of the IS/MND
Noise Contribution to Community Noise Levels	4	<i>Municipal Code; Exhibit 2-3, Site Plan</i> of the IS/MND; <u>Section 4.11, <i>Noise</i></u> of the IS/MND; and <u>Appendix E, <i>Noise Data</i></u> of the IS/MND
Air Quality Effects of Ambient Air Quality on Project and Contribution to Community Pollution levels	4	SCAQMD CEQA Handbook; <u>Exhibit 2-3, Site Plan</u> of the IS/MND; <u>Section 6.3, <i>Air Quality</i></u> ; <u>Section 4.3, <i>Air Quality</i></u> of the IS/MND; and <u>Appendix A, <i>Air Quality Data</i></u> of the IS/MND
Environmental Design Visual Quality – Coherence, Diversity, Compatible Use and Scale	1	<i>City of Long Beach General Plan; Municipal Code; and Exhibit 2-3, Site Plan</i> of the IS/MND
Historic, Cultural, and Archaeological Resources	1	<i>City of Long Beach General Plan</i>



Socioeconomic	Code	Source or Documentation
Demographic Character Changes	1	California Department of Finance; U.S. Census Data 1990 and 2000; and <u>Exhibit 2-3, Site Plan</u> of the IS/MND
Displacement	1	California Department of Finance; U.S. Census Data 1990 and 2000; and <u>Exhibit 2-3, Site Plan</u> of the IS/MND
Employment and Income Patterns	1	California Department of Finance; U.S. Census Data 1990 and 2000; and <u>Exhibit 2-3, Site Plan</u> of the IS/MND

Community Facilities Socioeconomic	Code	Source or Documentation
Educational Facilities	1	Long Beach Unified School District
Commercial Facilities	1	<u>Exhibit 2-3, Site Plan</u> of the IS/MND; and Site Visits/Photos
Health Care	1	City of Long Beach website; and Long Beach Fire Department
Social Services	1	<u>Exhibit 2-3, Site Plan</u> of the IS/MND
Solid Waste	1	City of Long Beach Public Works; and California Integrated Waste Management Board
Wastewater	1	Long Beach Water Department
Storm Water	2	Site Plan; Section 4.8, <u>Hydrology and Water Quality</u> of the IS/MND; and <u>Appendix D, Hydrology Report</u> of the IS/MND
Water Supply	1	Long Beach Water Department
Public Safety		
- Police	1	Long Beach Police Department; and <u>Exhibit 2-3, Site Plan</u> of the IS/MND
- Fire	1	Long Beach Fire Department; and <u>Exhibit 2-3, Site Plan</u> of the IS/MND
- Emergency Medical	1	Long Beach Fire Department; and <u>Exhibit 2-3, Site Plan</u> of the IS/MND
Open Space and Recreation - Open Space - Recreation - Cultural Facilities	1	City of Long Beach Parks, Recreation, and Marine Department; and <u>Exhibit 2-3, Site Plan</u> of the IS/MND
Transportation	1	<i>City of Long Beach General Plan</i> ; Long Beach Transit; Los Angeles County Metropolitan Transportation Authority; and <u>Exhibit 2-3, Site Plan</u> of the IS/MND

Natural Features	Code	Source or Documentation
Water Resources	1	Long Beach Water Department; and Metropolitan Water District of Southern California
Surface Water	1	Long Beach Water Department; and Metropolitan Water District of Southern California
Unique Natural Features and Agricultural Lands	1	U.S. Department of Fish and Wildlife Services; National Park Service; and California Department of Conservation
Vegetation and Wildlife	1	<i>City of Long Beach General Plan</i> ; <u>Exhibit 2-3, Site Plan</u> of the IS/MND



Other Factors	Code	Source or Documentation
Flood Disaster protection Act [Flood Insurance] [58.6(a)]	1	Flood Insurance Rate Map Community Panel Number 06037C1955F, September 26, 2008 Panel 1955 of 2350; and <u>Exhibit 2-3, Site Plan</u> of the IS/MND
Coastal Barrier Resources Act/Coastal Barrier Improvement Act [58.6(c)]	1	<u>Exhibit 2-3, Site Plan</u> of the IS/MND
Airport Runway Clear Zone or Clear Zone Disclosure [58.6(d)]	1	Los Angeles County Airport Land Use Commission, <i>Airport Influence Area</i> , May 13, 2003; and <u>Exhibit 2-3, Site Plan</u> of the IS/MND
Other Factors	N/A	N/A



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6.0 ENVIRONMENTAL CONSEQUENCES

Section 6.0, *Environmental Consequences*, of the Environmental Assessment, contains a detailed analysis of the project's impacts pursuant to *Environmental Review Guide HUD CPD 782, 24 CFR 58.40*, and *Ref. 40 CFR 1508.8 and 1508.27*. As part of the proposed project, environmental impacts were also analyzed per the guidelines and regulations of the California Environmental Quality Act (CEQA). Per CEQA, an Initial Study/Mitigated Negative Declaration (IS/MND) was prepared in order to address the direct, indirect, and cumulative environmental effects of the project, as proposed.

Section 6.0 contains references to the River Avenue Storm Drain Improvements Project IS/MND enclosed as Part 1 of this document. Specific instances of reference are identified where information from the IS/MND was utilized in the preparation of the Environmental Assessment (EA).

6.1 LAND DEVELOPMENT

6.1.1 CONFORMANCE WITH COMPREHENSIVE PLANS AND ZONING

Finding: No Impact Anticipated.

1. *Is the proposal consistent or compatible with completed components of the local or regional comprehensive plan?*

Yes. As stated in Section 4.9, *Land Use and Planning* of the IS/MND, the project would be consistent with the SCE property's land use designation (Rights-of-Way). The portion of the project site within River Avenue does not include an existing land use designation. River Avenue is designated in the Transportation Element as a local roadway. Therefore, the proposed project is consistent/compatible with the *City of Long Beach General Plan (General Plan)*.

2. *Is there a state plan and is the proposal consistent?*

Yes. The proposal is consistent with the State Implementation Plan (SIP); refer to Section 6.3, *Air Quality*, for a detailed discussion regarding the proposal's consistency with the SIP.

3. *Is the proposed project consistent with other plans including those prepared by areawide planning agencies, special districts and boards in various functional areas?*

Yes. The purpose of the project is to alleviate current flooding hazards in the project area and would not increase capacity beyond what is necessary to alleviate current flooding events.

Also, Title XII of Division A of the American Recovery and Reinvestment Act of 2009, which became effective on February 17, 2009, appropriates \$1 billion to carry out the Community Development Block Grant (CDBG) program under Title I of the Housing and Community Development Act of 1974 on an expedited basis. Consequently, the department of Housing and Urban Development (HUD) has established a new program called the Community Development Block Grant-Recovery (CDBG-R). Under this program the City is eligible to



receive \$2,332,444 of federal funding. The City proposes that 90 percent of the CDBG-R funds be made available for infrastructure projects that benefit low and moderate income neighborhoods, projects that can be under construction within 120 days of the release of funds, and projects that assist with job creation and retention objectives. The project proposes improvements that would alleviate flooding to the Arlington residential neighborhood. The Arlington neighborhood is considered to be a low- to moderate-income residential neighborhood in the City. Therefore, the proposed project would meet these criteria and would, therefore, be eligible for CDBG-R funding.

6.1.2 COMPATIBILITY AND URBAN IMPACT

Finding: No Impact Anticipated.

1. *What are the existing land uses adjacent to the proposed project and will the proposed project be compatible with the existing development?*

Yes. The project is generally bounded by single-family residential uses and Wardlow Road/223rd Street on the north, an SCE easement, utility, and industrial uses on the south and southwest, and single-family residential uses on the east and west. A storm drain system is currently located along River Avenue. The proposed project would be compatible with surrounding uses, as utility uses along River Avenue and the SCE easement are permitted under the City's *Zoning Code*. The project would also alleviate current flooding hazards within the neighborhoods along River Avenue.

Refer to Section 6.1.7.4, *Other Hazards*, Section 6.2, *Noise*, and Section 6.3, *Air Quality* for a discussion of general factors addressing compatibility.

2. *Will the project introduce elements or induce development, which is out of character or scale with the existing physical environment?*

No. The proposed project would not introduce elements or induce development, which is out of character or scale with the existing physical environment. The proposed project would consist of underground storm drain improvements River Avenue and within the SCE property. Upon completion of construction, the project site would be similar to existing conditions.

Also, refer to Section 6.1.1.1, above.

3. *Will the project location, appearance, construction, or activities which it will generate, detract from the aesthetic appeal of natural or man-made surroundings?*

No. As stated in Section 4.1, *Aesthetics* of the IS/MND, there are no scenic vistas or visual resources located within the vicinity of the project site. During project operation, views in the project area would remain similar to existing conditions, as the proposed improvements would be located underground. The project's construction activities may be visible from adjoining residents. However, construction impacts are short-term and would cease upon project completion. Additionally, implementation of the required permits for the Regional Water Quality Control Board (RWQCB), such as the National Pollution Discharge Elimination System (NPDES), and the required Best Management Practices (BMPs), would reduce potential impacts from visible dust and dirt track out areas. Therefore, the project



(both short-term and long-term operations) would not detract from the aesthetic appeal of the man-made surroundings.

4. *Is the project protected from incompatible uses by proper zoning?*

Yes. The project is protected from incompatible uses by proper zoning; refer to Section 6.1.2.1, above.

5. *Are the approaches to the project convenient, adequate, safe, and attractive?*

Yes. Vehicle access to the project site would be primarily from River Avenue. Pedestrian access would primarily occur from River Avenue, Wardlow Road/223rd Street, Cameron Street, Lincoln Street, and Arlington Street. The project site is served by a closely spaced grid system of streets that provide multiple paths of travel for vehicles and can be easily crossed by pedestrians. Project implementation would not alter the existing roadway network or adversely affect the levels of service of the nearby intersections; refer to Section 6.7, Transportation.

6. *Is the site location readily accessible to employment, shopping and service areas?*

Yes. The project site is located within the western portion of the City, which primarily consists of residential, utility, railroad, and industrial uses. Some areas of employment, shopping, and services are located along Wardlow Road/223rd Street (adjacent to the north of the project site), and along Santa Fe Avenue (approximately 0.4 miles west of the project site). As the project would not result in an increase of population at the project site either directly, or indirectly, the project would not impact accessibility of persons to employment, shopping, and service areas; refer to Section 3.6, Community Facilities and Services.

7. *Is access to the site free from impediments such as railroad crossings at grade, steep hills, prone to flash floods?*

Yes. Access to the project site is free from impediments. The Union Pacific Railroad and Southern Pacific Railroad (located east and west of the project site, respectively) do not obstruct access to the site. The project site is generally flat; however, the project site and adjacent neighborhoods experience flooding during storm events. The proposed project would alleviate current flooding hazards in the project area. Also, the project would not generate an increase in population. Therefore, no impact would result in this regard.

8. *Does the site plan make arrangements for necessary street and road improvements to serve the residents, and to decrease the possible hazards to pedestrians in the area?*

Yes. Refer to Section 6.1.2.5.

9. *Is the project an addition to already existing development or will it be completely new? Will the project be isolated from all services and have to provide its own access roads and streets?*

Yes/No. The project area is developed with residential and utility uses. The project site consists of River Avenue and an SCE easement; both of which have been previously disturbed for the construction of the River Avenue storm drain system. The proposed project would construct an additional parallel storm drain pipeline within River Avenue and



an underground detention unit on the SEC property. The project site is served by an existing system of local streets. The surrounding area is urbanized and a variety of services are available within the surrounding area. Upon project implementation, the existing street system would remain. Refer to Section 3.6, *Community Facilities and Services* and Section 6.1.2.5.

6.1.3 SLOPE

Finding: No Impact Anticipated.

1. *Does the proposal call for development on a steep slope and, if so, does its design plan include measures to overcome potential erosion, slope stability, and runoff problems?*

No. The project site is generally flat, ranging from 22 feet above mean sea level (msl) to 26 feet above msl, sloping slightly to the north. The proposal would not involve development on a steep slope. Also refer to Section 4.6, *Geology and Soils* of the IS/MND.

2. *Does the county, local, or site-specific soil survey mention that slopes are unstable for any of the soils on the site?*

No. Refer to Section 6.1.3.1, Section 6.1.5, *Soil Stability*, and Section 4.6, *Geology and Soils* of the IS/MND.

3. *Is there a history of slope failure in the project area environs?*

No. Refer to Section 6.1.3.1 and Section 6.1.3.2.

4. *Is there visual indications of previous slides or slumps in the project area, such as cracked walls or tilted trees or fences?*

No. The project site is generally flat, and no indications of previous slides or slumps were visible on the project site during the June 16, 2009 site visit; refer to Section 6.1.3.1.

6.1.4 EROSION

Finding: Potentially Adverse.

1. *Does the site clearance require vegetation removal? How many acres will be cleared and for how long? Are temporary control facilities provided?*

Yes. The project would not require clearance of structures or vegetation. Project construction would occur over approximately three months. Construction activities may expose soils to short-term wind and water erosion. The proposed project would implement temporary erosion control measures pursuant to the Los Angeles Regional Water Quality Control Board, the *Municipal Code*, and the National Pollutant Discharge Elimination System (NPDES) permit for construction activities. With implementation of erosion control measures as stated in the *Municipal Code* and adherence to all NPDES requirements, a minor impact would occur in this regard. Also, refer to Section 3.6.7, *Stormwater* and Section 4.9, *Hydrology and Water Quality* of the IS/MND, for further discussion with respect to the erodibility of soils.



2. *Is there evidence of previous erosion or sedimentation on the site?*

No. The portion of the project site within River Avenue is paved with asphalt and the surrounding area is developed, and there is no evidence of erosion or sedimentation. The SCE easement contains utility uses and currently consists of vacant land and a plant nursery atop bare soil.

6.1.5 SOIL SUITABILITY

Finding: Requires Mitigation.

1. *Is there any visible evidence of soil problems—foundations cracking or settling, basement flooding, etc.—in the neighborhood of the project site?*

No. Refer to Section 6.1.5.2.

2. *Have soil studies or borings been made for the area? Do they indicate marginal or unsatisfactory soil conditions?*

Yes/No. Soil borings were conducted as part of the *Geotechnical Investigation* for the project, prepared by Kleinfelder on May 16, 2008. Soil deposits encountered during the investigation generally consist of alternating layers of loose to medium dense silty sand/sandy silt underlain by medium stiff sandy clay and by dense sand with silt. Based on field exploration, laboratory testing, and geotechnical analyses conducted for the project, it is geotechnically feasible to construct the project as proposed. The project would not be subject to a hazard from settlement, slippage, or landslide, and would not adversely affect the geologic stability of the site or adjacent properties. Additionally, Mitigation Measure GEO-1 contained within the IS/MND requires a soils report to be conducted prior to site disturbance.

3. *Is there evidence of high water table or poor soil conditions where septic systems are to be installed?*

No. The project would not involve the use of septic tanks or alternative wastewater disposal systems.

6.1.6 NATURAL HAZARDS AND NUISANCES (INCLUDING SITE SAFETY)

Finding: Potentially Adverse.

6.1.6.1 SEISMIC HAZARDS

Ground Shaking

1. *Will the site be near a natural hazard [relative to ground shaking] involving a potential risk to project residents?*

No. As stated in Section 4.6, *Geology and Soils* in the IS/MND, the project site is not located within, or immediately adjacent to, an Alquist-Priolo Earthquake Fault Zone.



According to the Seismic Safety Element of the *General Plan*, two active faults have the greatest potential to create significant ground shaking, including the Newport-Inglewood and the Palos Verdes Fault Zones. Strong seismic ground shaking may result in damage to the proposed storm drain pipelines. Damage resulting from ground shaking along the Newport-Inglewood Fault and the Palos Verdes Fault could be reduced effectively through compliance with California Building Code requirements.

Numerous controls imposed on the project through the permitting process would lessen potential impacts associated with seismically-induced ground shaking. Adherence to standard engineering practices and Code requirements relative to seismic and geologic hazards would minimize potential impacts pertaining to potential damage to the proposed storm drain pipelines. Also, the project does not include the construction or modification of structures. Therefore, project implementation would result in less than significant impacts associated with the exposure of people or structures to potential substantial adverse effects involving strong seismic ground shaking.

2. *Can the project be protected [from ground shaking] by mitigation measures?*

Yes. Refer to Section 6.1.6.1.1.

Liquefaction

3. *Will the site be near a natural hazard [relative to liquefaction] involving a potential risk to project residents?*

No. Based on the *Geotechnical Investigation*, the project site is located within a seismic hazard zone for liquefaction potential, as designated by the State of California and County of Los Angeles. Due to the City's geological, geotechnical, and groundwater conditions, the potential exists for the occurrence of liquefaction which may result in damage to storm drain pipelines. With implementation of Mitigation Measure GEO-1 contained within the IS/MND, the project would require a soils report to identify the potential for liquefaction, expansive soils, ground settlement, slope failure, and groundwater (refer to Section 4.6, *Geology and Soils* of the IS/MND).

4. *Can the project be protected [from liquefaction] by mitigation measures?*

Yes. Refer to Section 6.1.6.1.3.

Settlement

5. *Will the site be near a natural hazard [relative to settlement] involving a potential risk to Project residents?*

No. Based on the *Geotechnical Investigation*, the total and differential settlements due to liquefaction along the storm drain alignment may be approximately 1.5 inches and 0.75 inches, respectively. The project site would be subject to differential settlement due to intense shaking associated with seismic events. Mitigation Measure GEO-1 within the IS/MND would require a soils report to identify the potential for liquefaction, expansive soils, ground settlement, slope failure, and groundwater. Following compliance with controls established through the permitting process, *Municipal Code Title 18, Buildings and Construction*, and *State of California Building Code* provisions adopted by reference in the



Municipal Code, project implementation would result in a minor impact from potential risk as a result of a natural hazard (relative to settlement).

6. *Can the project be protected [from settlement] by mitigation measures?*

Yes. Refer to Section 6.1.6.1.5.

6.1.6.2 WILDLAND FIRE HAZARDS

1. *Will the site be near a natural hazard [relative to wildland fires] involving a potential risk to Project residents?*

No. According to the Public Safety Element of the *General Plan*, the project site is located in an area of the City categorized as a "least critical" fire hazard area. Therefore, the site would not expose surrounding residents to potential wildland fire risk.

2. *Can the project be protected [from wildland fires] by mitigation measures?*

Not Applicable. Refer to Section 6.1.6.2.1.

6.1.6.3 FLOOD HAZARDS

1. *Will the project be located in the 100-year floodplain?*

No. According to the Public Safety Element of the *General Plan*, the project site is located within one of the 19 flood hazard areas within the City, based on a 10-year recurrence probability. The published Flood Insurance Rate Maps (FIRMs) for the project site are included on Community Panel No. 06037C1955F (September 26, 2008). The purpose of the FIRM is to show the areas of a community located in a 100-year floodplain (an area that has a one percent or greater chance of flooding in any given year). These areas are known as Special Flood Hazard Areas (SFHAs). The project site is located in Other Flood Areas-Zone X, which are areas of 0.2 percent annual chance flood. Therefore, the project would not be located in SFHAs inundated by a 100-year floodplain.

2. *Is the project in compliance with Executive Order 11988 and implementing HUD procedures?*

Yes. Refer to Section 6.1.6.3.1.

3. *Will the project change the 100-year floodplain or affect the floodway?*

No. Refer to Section 6.1.6.3.1.

4. *Are there practicable alternatives to locating the project or activity in the floodplain?*

Not Applicable. Refer to Section 6.1.6.3.1.



6.1.7 MAN-MADE HAZARDS AND NUISANCES (INCLUDING SITE SAFETY)

Finding: Requires Mitigation.

6.1.7.1 AVIATION HAZARDS

1. *Is there a military airfield or commercial service airport near (in the vicinity of) the proposed project site?*

No. As stated in Section 4.7, *Hazards and Hazardous Materials* of the IS/MND, the Long Beach Municipal Airport is located approximately 3.4 miles east of the project site. The project site is located approximately 3.10 miles west of the Long Beach Airport Influence Area, and would, therefore, not result in a safety hazard. Additionally, since the proposed project does not include the construction of any habitable structures, a safety hazard for people residing in the project area, as a result of the project, would not occur. The proposed storm drain improvements would not result in any permanent activity that would be adversely affected by airport operations.

2. *If the project is located in a Runway Clear Zone or Clear Zone, will the project be frequently used or occupied by people?*

Not Applicable. Refer to Section 6.1.7.1.1.

3. *If the project is located in the Accident Potential Zone at a military airfield, is the project type generally consistent with the Department of Defense's land use compatibility guidelines?*

Not Applicable. Refer to Sections 6.1.7.1.1.

6.1.7.2 TOXIC CHEMICALS AND RADIOACTIVE MATERIALS

1. *Will the proposed project be placed on filled land and what materials were used for the fill?*

No. A Phase I Environmental Site Assessment (Phase I ESA) was prepared for the project site, by Kleinfelder on May 16, 2008 (refer to Appendix C of the IS/MND). Based on the findings of the Phase I ESA, no areas of fill dirt from a known or unknown sources was identified.

2. *Is the project on or near a site suspected of posing a potential environmental hazard?*

Yes. Refer to Section 4.7, *Hazards and Hazardous Materials* of the IS/MND.

6.1.7.3 EXPLOSIVE AND FIRE HAZARDS

1. *Is the project site located near or in an area where conventional petroleum fuels (such as gasoline), hazardous gases (e.g., propane), or chemicals (e.g., benzene or hexane) of a flammable nature are stored? If yes, will the project be located at an acceptable distance from the hazardous situation or activity? If it cannot, will appropriate mitigating measures be taken?*



No. The southern portion of the project site located within the SCE easement and has been currently used as a plant nursery and is still currently used for utility uses. No hazardous substances or petroleum fuels have been identified to be stored within the project vicinity.

2. *Will the project need special structural or design considerations to make it acceptable?*

Not Applicable. Refer to Section 6.1.7.3.1.

6.1.7.4 OTHER HAZARDS

1. *Does the project involve any potential hazards [such as the following]?*

- a. *Site Hazards: inadequate street lighting, uncontrolled access to lakes and streams, improperly screened drains or catchment areas, drilling operations, pipelines, steep stairs or walks, overgrown brush, lack of access for emergency vehicles.*

Yes. The project would not involve any new potential site or traffic hazards. As stated in Section 4.7, Hazards and Hazardous Materials of the IS/MND, it is anticipated that traffic flow along River Avenue would be temporarily impacted during construction of the proposed improvements. However, construction of the proposed project would not obstruct emergency operations. Upon completion of construction, operation of the project would not obstruct traffic flow or emergency operations. Additionally, the project would be required to comply with all City and State Safety Codes, and project plans would be reviewed by the City's Public Works Department.

- b. *Traffic: circulation conflicts, heavy traffic, hazardous cargo transportation routes, and road safety.*

Yes. Refer to Section 6.1.7.4(a).

- c. *Neighborhood hazards/nuisances: vibration, glare from parking lots, odors, and proximity of the project to aerial transmission lines, power plants, transformers, drainage canals, junk yards, and industrial activities.*

Yes. Vibration associated with construction would be short-term and would not be significant. Overhead power lines are located along River Avenue and within the SCE easement. However, existing transmission lines would not be affected by project construction and would not be required to be removed or relocated.

2. *Are there project users or neighboring populations whose special health and safety needs are not anticipated in the project design? Have actions been taken to protect children from "attractive" nuisances? Have measures been taken to reduce the potential risk to the elderly from dust, and to provide temporary walkways and traffic around construction sites?*

No/Not Applicable/Yes. The infrastructure improvements would not involve users or neighboring populations. The project does not involve any "attractive" nuisances, as the project consists of underground storm drain improvements. Construction activities associated with the proposed project would be subject to compliance with *Municipal Code* provisions relative to construction-related safety measures (including dust control). Additionally, Section 4.3, Air Quality of the IS/MND, contains Mitigation Measures AQ-1



through AQ-5 which would ensure compliance with South Coast Air Quality Management District (SCAQMD) standards.

3. *Can the problems, which may generate nuisances, be alleviated by designs or plan changes?*

Yes. Refer to Section 6.1.7.4.1 and Section 6.1.7.4.2.

4. *Will the project need special design or engineering criteria, which bring into question its feasibility?*

No. Refer to Section 6.1.7.4.1.

6.1.8 ENERGY CONSUMPTION

Finding: No Impact Anticipated.

1. *Does the location of the site have any special energy related advantages or disadvantages and can these be maximized or overcome.*

Not Applicable. Project operation would not generate an increase in population, new vehicular trips, and does not include significant energy consumption.

2. *Have the plans taken full advantage of potential energy saving measures, such as proper orientation, insulation, window design and placement, lighting, heating, cooling and hot water systems? If district heating and cooling is available, will it be used? Is the project in conformance with other applicable energy saving codes?*

Not Applicable. Refer to Section 6.1.8.1.

3. *Are utilities already installed, and will they be available for use by the project? If district heating and cooling is a good future possibility, can the building be adapted to use it without expensive retrofit costs?*

Not Applicable. Refer to Section 6.1.8.1.



6.2 NOISE

Finding: Requires Mitigation.

1. *Given the existing noise levels and estimated future noise levels at the site, will the project be exposed to noise levels, which exceed HUD’s noise standards?*

No. HUD has identified exterior noise standards for new housing construction; refer to Table 6.2-1, HUD Site Acceptability Standards. As indicated in Table 6.2-1, sites with sound levels of 65 CNEL and below are “acceptable” and are allowable. Construction of new noise sensitive uses is prohibited generally for projects with “unacceptable” noise exposures and is discouraged for projects with “normally unacceptable” noise exposure.

**Table 6.2-1
 HUD Site Acceptability Standards**

Approval	Ldn or CNEL dBA ²	Requirements
Acceptable ¹	≤65 ³	None.
Normally Unacceptable	65 – 75	Special Approvals ⁴ Environmental Review ⁵ Attenuation ⁶
Unacceptable	> 75	Special Approvals ⁴ Environmental Review ⁵ Attenuation ⁷
Notes: 1. The noise environment inside a building is considered acceptable if: (i) The noise environment external to the building complies with these standards, and (ii) the building is constructed in a manner common to the area or, if of uncommon construction, has at least the equivalent noise attenuation characteristics. 2. Where the building location is determined, the standards shall apply at a location 6.5 feet from the building housing noise sensitive activities in the direction of the predominant noise source. Where the building location is undetermined, the standards shall apply 6.5 feet from the building setback line nearest to the predominant noise source. However, where quiet outdoor space is desired at a site, distances should be measured from important noise sources to the outdoor area in question. (It is assumed that quiet outdoor space includes single-family private yards and multi-family patios or balconies that are greater than six feet in depth). 3. Acceptable threshold may be shifted to 70 dBA in special circumstances pursuant to Section 51.105 (a). 4. See Section 51.104(b) (Special Requirements) for requirements. 5. See Section 51.104(b) (Special Requirements) for requirements. 6. Five (5.0) dBA additional attenuation required for sites above 65 dB but not exceeding 70 dBA, and 10 dBA additional attenuation required for sites above 70 dBA but not exceeding 75 dB; see Section 51.104(a). 7. Attenuation measures can be submitted to the Assistant Secretary for CPD for approval on a case-by-case basis.		
Source: Title 24 (Housing and Urban Development [HUD]), Part 51 (Environmental Criteria and Standards), Subpart B (Noise Abatement and Control), Section 51.103 (Criteria and Standards).		

The proposed project involves improvements to the storm drain system along River Avenue and construction of a detention unit within the adjoining SCE property. The project does not propose the construction of new noise sensitive uses and would, therefore, not expose new sensitive uses to “normally unacceptable” or “unacceptable” noise levels. Additionally, as stated in Section 4.11, Noise of the IS/MND, RBF Consulting conducted one ten-minute (12:53 p.m. to 1:03 p.m.) noise measurement within the residential uses along River Avenue near Lincoln Street on June 16, 2009. The measured noise level was 57.8 dBA.



The proposed project would not generate any new vehicular trips during operation. Construction related noise impacts would not result in a significant impact, as construction activities would be short-term and would cease upon project completion. As stated in Section 4.11, Noise of the IS/MND, Section 8.80.330 of the *Municipal Code* contains an exemption from the Noise Ordinance for public health, safety, and welfare activities, which includes activities associated with catch basins and storm drains. Additionally, implementation of the recommended Mitigation Measure N-1 contained within Section 4.11, Noise of the IS/MND, would ensure construction related noise impacts are minimized to the extent feasible. As such, with implementation of N-1 and compliance with the City's *Municipal Code*, Title 8, *Health and Safety*, construction noise impacts would be less than significant.

Upon project completion, noise in the project area would remain similar to existing noise levels (approximately 58 dBA). The proposed facilities would not involve any sources of stationary noise (i.e., pumps, generators, etc.).

2. *If there is a potential noise problem, what kinds of mitigation measures are proposed for the project?*

Not Applicable. Refer to Section 6.2.1.



6.3 AIR QUALITY

Finding: Requires Mitigation.

1. *Is the project located in the vicinity of heavy industry, incinerators, power generating plants, oil refineries, parking facilities for 1,000 cars (inside an SMSA) or 2,000 cars (outside an SMSA), or near a highway with six or more traffic lanes?*

Yes. The project is located within approximately 400 feet of a substation facility, and approximately 650 feet of a railroad yard. The existing substation does not directly emit pollutants. It is anticipated that the existing railroad yard does emit diesel particulates from train and truck traffic. Also, the project site is located approximately 300 feet south of I-405.

The proposed project involves storm drain improvements and would not place new housing within the project site. Therefore, less than significant impacts are anticipated in this regard.

2. *Are the project users particularly sensitive to existing or projected air pollution levels? Has the project been designed to mitigate possible adverse effects?*

No/Yes. There would be no project users associated with the proposed project, as the project consists of underground storm drain improvements. Although short-term air quality impacts would occur during grading and construction operations associated with development of the proposed project, these are considered minor due to the nature of the proposed project. Refer to Section 4.3, Air Quality of the IS/MND, which indicates that localized air quality emissions are less than significant.

3. *Is the project located in the vicinity of a monitoring station where air quality violations have been registered?*

Yes. As noted within Table 6.3-1, Local Air Quality Levels, violations have occurred in regards to the one- and eight-hour ozone standards, as well as PM₁₀ and Federal PM_{2.5} standards.

**Table 6.3-1
Local Air Quality Levels**

Pollutant	Primary Standard		Year	Maximum ¹ Concentration	Number of Days State/Federal Std. Exceeded
	California	Federal			
Carbon Monoxide (CO) ²	9 ppm for 8 hours	9 ppm for 8 hours	2006	3.36 ppm	0/0
			2007	2.59	0/0
			2008	2.49	0/0
Ozone (O ₃) (1-Hour) ²	0.09 ppm for 1 hour	NA ⁴	2006	0.081 ppm	0/0
			2007	0.099	1/0
			2008	0.093	0/0
Ozone (O ₃) (8-Hour) ²	0.07ppm for 8 hours	0.075 ppm for 8 hours	2006	0.059 ppm	0/0
			2007	0.074	1/0
			2008	0.074	1/0
Nitrogen Dioxide (NO ₂) ²	0.18 ppm for 1 hour	0.053 ppm annual average	2006	0.102 ppm	0/NA
			2007	0.107	0/NA
			2008	0.125	0/NA



**Table 6.3-1 (Continued)
 Local Air Quality Levels**

Pollutant	Primary Standard		Year	Maximum ¹ Concentration	Number of Days State/Federal Std. Exceeded
	California	Federal			
Particulate Matter (PM ₁₀) ^{2,4,5}	50 µg/m ³ for 24 hours	150 µg/m ³ for 24 hours	2006 2007 2008	78.0 µg/m ³ 232.0 62.0	5/0 6/1 1/0
Fine Particulate Matter (PM _{2.5}) ^{2,5}	No Separate State Standard	35 µg/m ³ for 24 hours	2006 2007 2008	58.5 µg/m ³ 82.8 39.4	NM/5 NM/12 NM/2
ppm = parts per million µg/m ³ = micrograms per cubic meter NM = Not Measured PM ₁₀ = particulate matter 10 microns in diameter or less PM _{2.5} = particulate matter 2.5 microns in diameter or less NA = Not Applicable					
Notes: 1 – Maximum concentration is measured over the same period as the California Standard. 2 – Measurements taken at the North Long Beach Monitoring Station (located at 3648 North Long Beach Boulevard, Long Beach, California 90807). 3 – The United States Environmental Protection Agency revoked the Federal 1-hour Standard in June of 2005. 4 – PM ₁₀ exceedances are based on State thresholds established prior to amendments adopted on June 20, 2002. 5 – PM ₁₀ and PM _{2.5} exceedances are derived from the number of samples exceeded, not days.					
Source: California Air Resources Board, <i>ADAM Air Quality Data Statistics</i> , http://www.arb.ca.gov/adam/welcome.html , accessed on July 21, 2009.					

General Conformity Analysis

This analysis has been structured to illustrate how the proposed project would meet the requirements of the Federal Clean Air Act (FCAA) General Conformity requirements, as well as those set forth by the South Coast Air Quality Management District (SCAQMD). The project site is located within the South Coast Air Basin (Basin) and is designated non-attainment for O₃, PM_{2.5}, and PM₁₀. The following outlines the screening level analysis consistent with the General Conformity process:

- i) *If the applicant's project is located in a nonattainment area or an attainment area subject to a maintenance plan (maintenance area) the environmental document should include a description of the air quality status for each criteria pollutant for which an area has been designated nonattainment or maintenance. Provide an estimate of the annual emissions that are expected from both the construction and operation of the project for each criteria pollutant. Projects in an attainment area not under a maintenance plan or in an unclassified area are not subject to a conformity analysis.*

The Basin fails to meet the Federal and State air quality standards for O₃, PM_{2.5}, and PM₁₀. Atmospheric concentrations of the other criteria pollutants do not exceed Federal or State standards.

The majority of ozone formation occurs when nitrogen oxides (NO_x) and volatile organic gases (VOCs), react in the atmosphere in the presence of sunlight. NO_x and VOCs are called ozone precursors. Therefore, this analysis will quantify NO_x and VOCs with the



URBEMIS 2007 model to determine ozone impacts. PM_{2.5} and PM₁₀ emissions are directly quantified with the URBEMIS 2007 model.

- ii) Compare these emissions to the de minimis (applicability) levels specified for each nonattainment or maintenance area pollutant. See 40 C.F.R. Section 93.153(b) (Applicability).

Per 40 C.F.R. Section 93.153(b), the de minimus concentrations of ozone are limited to 25 tons/year (50 tons/year of VOC and 100 tons/year of NO_x), and PM₁₀ is limited to 70 tons/year and PM_{2.5} is limited to 100 tons/year. Implementation of the proposed project would not create operational emissions, and therefore would only introduce an increase in emissions during construction activities; refer to Table 6.3-2, Clean Air Act – Step A. As these compounds speciate in the troposphere and are not necessarily additive, predicted ozone levels are not expected to exceed the de minimus thresholds. Additionally, as stated above, construction would occur in 2009 and 2010. Construction activities in 2009 would emit 0.07 tons of VOC, 0.56 tons of NO_x, 0.03 tons of PM_{2.5}, and 0.01 tons of PM₁₀; construction activities in 2010 would emit 0.02 tons of VOC, 0.20 tons of NO_x, 0.03 tons of PM_{2.5}, and 0.01 tons of PM₁₀, which are all below the de minimus thresholds.

**Table 6.3-2
Clean Air Act Conformity – Step A**

Criteria	Non-Attainment Pollutants (tons/year)			
	Ozone ³		PM ₁₀	PM _{2.5}
	VOC	NO _x		
2009				
Construction Emissions ¹	0.07	0.56	0.03	0.03
<i>De Minimus Levels²</i>	<i>50</i>	<i>100</i>	<i>70</i>	<i>100</i>
<i>Are De Minimus Levels Exceeded?</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>
2010				
Construction Emissions ¹	0.02	0.20	0.01	0.01
<i>De Minimus Levels²</i>	<i>50</i>	<i>100</i>	<i>70</i>	<i>100</i>
<i>Are De Minimus Levels Exceeded?</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>
Notes:				
1. Project emissions derived from URBEMIS 2007 version 9.2.4 computer model; refer to <u>Appendix A, Air Quality Data</u> of the IS/MND. Emissions have been quantified for "worst case" construction scenarios. Operational emissions are minor, and are less than the construction related emissions. Therefore, they are not presented in this table.				
2. De minimus levels are established within 40 C.F.R. Section 93.153.				
3. The majority of ozone formation occurs when nitrogen oxides (NO _x) and volatile organic compounds (VOCs), react in the atmosphere in the presence of sunlight. NO _x and VOCs are called ozone precursors. Therefore, this analysis quantifies NO _x and VOCs to determine ozone impacts.				

- iii) If the projects emissions are below the appropriate de minimis level, compare the emissions to the emissions inventory for the nonattainment or maintenance area to ensure the project's emissions are less than 10% of the inventory. See 40 C.F.R. Section 93.153(i) (Regional Significance). Emissions inventories can be obtained from the local air pollution control agency.



The predicted emissions are compared to the 2009 annual average emissions by source category in the *2007 Air Quality Management Plan* for the Basin. As shown in Table 6.3-3, Clean Air Act Conformity – Step B, the project emissions for non-attainment pollutants would be below ten percent of the emissions inventory. Therefore, project-related emissions would be less than significant.

**Table 6.3-3
 Clean Air Act Conformity – Step B**

South Coast Air Basin Non-Attainment Pollutants	South Coast Air Basin Emission Inventory (tons/year) ¹	Project Emissions (tons/year) ²	Project Exceed Ten Percent of Inventory?
2009			
VOC	210,970	0.07	<i>No</i>
NO _x	296,745	0.56	<i>No</i>
PM ₁₀	101,105	0.03	<i>No</i>
PM _{2.5}	36,500	0.03	<i>No</i>
2010			
VOC	210,970	0.02	<i>No</i>
NO _x	296,745	0.20	<i>No</i>
PM ₁₀	101,105	0.01	<i>No</i>
PM _{2.5}	36,500	0.01	<i>No</i>
Notes:			
1. South Coast Air Basin Annual Average Emission Budgets in the 2007 Air Quality Management Plan for the year 2009.			
2. Project emissions derived from URBEMIS 2007 version 9.2.4 computer model; refer to <u>Appendix A, Air Quality Data</u> of the IS/MND. Emissions have been quantified for "worst case" construction scenarios. Operational emissions are minor, and are less than the construction related emissions. Therefore, they are not presented in this table.			

iv) If emissions are below the de minimis levels and are less than 10% of the area's inventory the project is not subject to any further general conformity analysis.

The URBEMIS 2007 model was utilized to estimate emissions of air pollutants associated with short-term construction; refer to Appendix A, Air Quality Data of the IS/MND. The URBEMIS 2007 model was used to estimate project-related construction. Default values representative of the proposed project were used when project-specific data were not available. As discussed above, the proposed project would be less than significant in relation to the SCAQMD thresholds and Federal de minimus levels, and less than ten percent of the emissions inventory for the Basin; refer to Table 6.3-2 and Table 6.3-3. Therefore, the proposed project would not be subject to a further general conformity analysis.



6.4 ENVIRONMENTAL DESIGN

6.4.1 VISUAL QUALITY – COHERENCE, DIVERSITY, COMPATIBLE USE AND SCALE

Finding: No Impact Anticipated.

1. *Physical Alteration: Will there be demonstrable destruction or physical alteration of the natural or man-made environment?*

Yes. The project would result in excavation activities along River Avenue and within the SCE easement. However, construction impacts are short-term and would cease upon project completion. Additionally, implementation of the required permits for the Regional Water Quality Control Board (RWQCB) and the required Best Management Practices (BMPs), would reduce potential impacts from visible dust and dirt track out areas. Upon completion of construction, the project site would appear similar to existing conditions. Therefore, although physical alteration of the man-made environment would occur during construction, these impacts would be considered minimal. The project site would appear similar to existing conditions during project operations.

2. *Nonconformity with the Existing Environment: Will there be intrusion of elements out of character or scale with existing physical environment?*

No. Refer to Section 6.1.2, *Compatibility and Urban Impact*. Also, the project proposes underground storm drain improvements, similar to existing conditions. Therefore, no intrusive elements would be visible above ground that would appear out of character or scale with the existing physical environment.

3. *Will the proposed structure block views or degrade them, change the skyline or create a new focal point? Is objectionable visual pollution introduced directly or indirectly due to loading docks, trash collectors, and parking? Is this mitigated visually?*

No/No. Refer to Section 6.1.2.3. The project proposes underground storm drain improvements. No view blockage or degradation would occur. Due to the nature and scope of the proposed project, objectionable visual pollution would not be introduced.

4. *Disruption of the Ambient Environment: Will there be an interface with or impairment of ambient (or existing background) conditions necessary for the enjoyment of the physical environment?*

No. Refer to Section 6.2, *Noise* and Section 6.3, *Air Quality*.

6.4.2 HISTORIC, CULTURAL, AND ARCHAEOLOGICAL RESOURCES

Significance: No Impact Anticipated.

1. *Does the project area and its environs contain any properties listed on the National Register of Historic Places? Does the locality have an inventory of historic places?*



No/No. The project site consists of River Avenue and the SCE easement, and does not contain any structures; therefore, the project site does not contain any properties listed on the National Register of Historic Places. Additionally, the project would not affect any structures, as the project is limited to subsurface activities within the roadway right-of-way and the SCE easement.

Refer to Section 3.4, *Environmental Design* and Section 4.5, *Cultural Resources* of the IS/MND.

2. *What information on the project area does the State Historic Preservation Office (SHPO) have and has a survey of local historic properties been conducted? If the SHPO lacks information, is there a local historical society or commission that can provide historic information?*

No. No known survey of historic properties has been conducted in the project site area. Refer to Section 6.4.2.1.

3. *Are there other properties within the boundaries or in the vicinity of the project that appear to be historic and thus require consultation with the SHPO as to eligibility for the National Register?*

No. Refer to Section 6.4.2.1.

4. *If historic property in the project's environment has been identified, does the SHPO believe these will be affected by the project? Adversely affected?*

No/No. Refer to Section 6.4.2.1.

5. *Has the department of the Interior been requested to make a determination of eligibility on properties the SHPO deems eligible and affected?*

No. Refer to Section 6.4.2.1.

6. *Does the Advisory Council on Historic Preservation need to be given opportunity to comment because properties that are on or have been found eligible for the National Register would be affected by the project?*

No. Refer to Section 6.4.2.1.

7. *Does the Advisory Council response indicate that a Memorandum of Agreement is needed to avoid or reduce affects?*

No. Refer to Section 6.4.2.1.

8. *If so, has the Advisory Council's "106 Process" been completed?*

Not Applicable. Refer to Section 6.4.2.1.



6.5 SOCIOECONOMIC

6.5.1 DEMOGRAPHIC CHARACTER CHANGES

Finding: No Impact Anticipated.

1. *What is/are the identifiable neighborhoods within the sphere of likely impact of the proposed project?*

The project site is located within the Arlington residential neighborhood.

2. *Will the proposed project significantly alter the demographic characteristics of the neighborhood?*

No. The project would not result in new jobs, population growth, or construct housing or any type of growth-inducing development. Therefore, implementation of the project would not alter the demographic characteristics of the neighborhood.

3. *Will the proposed project result in physical barriers or reduced access, which will isolate a particular neighborhood or population group, making access to local services, facilities and institutions or other parts of the city more difficult or extremely inconvenient?*

No. As stated in Section 4.9, *Land Use and Planning* in the IS/MND, the proposed project would not result in physical barriers or reduced access, and would not physically divide an established community. Upon completion of construction, the project site and surrounding street access would appear similar to existing conditions. Therefore, the project would not create a physical barrier or reduce site access.

4. *Will the proposed project substantially alter residential, commercial or industrial uses?*

No. No residential, commercial, or industrial structures or areas of activity would be altered as a result of project implementation.

6.5.2 DISPLACEMENT

Finding: No Impact Anticipated.

1. *Will the project require the demolition of existing occupied structures?*

No. The project would involve the demolition of asphalt for trenching activities to accommodate the new storm drain pipeline. The project would not require the demolition of any structures; refer to Section 4.12, *Population and Housing* in the IS/MND.

2. *Will the project require current occupants of structures to leave?*

No. There are no structures located within the project site; no occupants would be required to leave. Also refer to Section 4.12, *Population and Housing* in the IS/MND.



3. *Will the project displace businesses or other private, quasi-public or public uses?*

No. Implementation of the project would not displace businesses or other private, quasi-public, or public uses.

6.5.3 EMPLOYMENT AND INCOME PATTERNS

Finding: No Impact.

1. *Will the project either significantly increase or decrease employment opportunities? Will it create conditions favorable or unfavorable to commercial, industrial, or institutional operation or development?*

No/Not Applicable. Project implementation would not increase employment opportunities (other than temporary construction-related jobs), since employment-generating land uses are not proposed. The proposed storm drain improvements would create neither favorable nor unfavorable conditions in regards to commercial, industrial, or institutional operations, as the infrastructure improvements would be located underground.

2. *How many temporary and how many permanent jobs will be created by the project?*

The proposed project would create temporary construction-related jobs. However, the proposal would not involve employment-generating land uses. Therefore, no permanent employment would be created.

3. *What is the profile of new jobs created by the project? What is the distribution across the skills and income scale? How do these relate to the skills and income profile of project area residents?*

Not Applicable. Refer to Section 6.5.3.2.

4. *Will the new jobs likely go to area residents, to lower income, unemployed and minority group members? Will construction jobs likely go to union or non-union workers?*

Yes. The proposed project would only create new jobs during construction, and would not result in employment opportunities during project operation. As the project would obtain funding through the Community Block Grant from the United States Department of Housing and Urban Development (HUD), the project would be required to be compliant with Section 3 of the Federal Regulations. Compliance with Section 3 would ensure that a portion of the new construction jobs created as part of the project would go to lower-income/minority group members. Also, refer to Section 6.1.1.3.

5. *Where are the new employees likely to come from (i.e., inner city, suburb, outside SMSA)?*

Yes. Refer to Section 6.5.3.4.



6.5.4 PHYSICAL SITE SUITABILITY

Finding: Requires Mitigation.

1. *Will the proposed project be compatible with surrounding development?*

Yes. Refer to Section 6.1.2, *Compatibility and Urban Development*.

2. *Is the project site served with adequate roads and streets so that residents have acceptable access to employment, shopping, and services?*

Yes. Refer to Section 6.1.2, *Compatibility and Urban Development*.

3. *Will the site be affected by potential threats from natural or man-made hazards?*

Yes. Refer to Section 6.1.6, *Natural Hazards and Nuisances*.

4. *Does the proposed project create slopes by cut and fill?*

No. The project site is generally flat and the proposal would not create slopes; refer also to Section 6.1.3, *Slope*.

5. *Are subsurface minerals being extracted, such as coal, oil, gas or water?*

No. As stated in Section 4.10, *Mineral Resources* of the IS/MND, known mineral resources in the City are concentrated within the Wilmington Oil Field, located approximately 1.50 miles south of the project site. Therefore, project implementation would not result in the extraction of subsurface minerals. Also, the project would not result in the extraction of water resources during project operation.

6. *Is there evidence that the site has been used as a sanitary landfill or mine waste disposal area?*

No. Refer to Section 6.1.7, *Man-made Hazards and Nuisances*.

7. *Does the site have a high water table?*

No. According to the *Geotechnical Investigation*, groundwater was encountered at a depth of 25 feet. Refer to Section 4.6, *Geology and Soils* of the IS/MND.

8. *Are there potential hazards related to slope failure or falling rock?*

No. Refer to Section 6.1.3, *Slope*.

9. *Is there evidence of ground subsidence on the site or is there a history of ground subsidence in the area?*

No. Refer to Section 6.1.6.1, *Seismic Hazards*.



10. *Are there other unusual conditions on the site?*

No. Based on field observations conducted by RBF, and the existing land use and site conditions, no other unusual conditions exist on the project site. However, Mitigation Measure GEO-1 contained in Section 4.6, *Geology and Soils* of the IS/MND, recommends a soils report be prepared for the proposed improvements to identify the potential for liquefaction, expansive soils, ground settlement, and slope failure. Also, refer to Section 6.1, *Land Development*.

11. *Is site suitability a concern?*

No. As described in Section 6.1.6, *Natural Hazards and Nuisances*, Section 6.2, *Noise*, Section 6.3, *Air Quality*, and Sections 6.5.4.1 through 6.5.4.10, no significant environmental health effects are anticipated with development of the project at the proposed site. The proposed project would not affect, generate, or displace any existing residents in the project area. Additionally, project improvements are proposed in areas which have been previously disturbed for the construction of the existing River Avenue storm drain system.



6.6 COMMUNITY FACILITIES AND SERVICES

6.6.1 EDUCATIONAL FACILITIES

Finding: No Impact Anticipated.

1. *Will the additional school age children in the proposed development exceed the capacity of the school?*

No. As stated in Section 4.9, *Land Use and Planning* of the IS/MND, the project would not generate an increase in population or student generation, and would not result in impacts to school services. Therefore, the project would not create additional school age children and would not exceed the capacity of the school.

2. *Does the potentially affected schools have adequate existing facilities (i.e., classroom space, buses) for the projected population increase?*

Not Applicable. The proposed project would not result in an increase in population. Refer to Section 6.6.1.1.

3. *Will additional or alternative facilities have to be provided to ensure adequate programs?*

No. Refer to Section 6.6.1.1.

4. *What measures will be taken by the school agency or governing body to resolve potential problems?*

Refer to Section 6.6.1.1.

6.6.2 COMMERCIAL FACILITIES

Finding: No Impact Anticipated.

1. *Is there adequate and convenient access to retail services? In the case of the elderly, this means that shopping for such essential items as food and medicine and services such as banks and other convenience shopping should be within walking distance.*

Yes. Refer to Section 3.6.2, *Commercial Facilities*. Also, the project would not generate an increase in population. Therefore, the project would not impact retail services.

2. *Do local retail services meet the needs of project occupants/users?*

Not Applicable. As the project is an infrastructure project, there would be no occupants or users. Refer to Section 6.6.2.1.

3. *Will existing retail and commercial services be adversely impacted or displaced by the proposed project?*



No. Refer to Section 6.6.2.1. Also, the project site does not traverse existing or proposed retail or commercial uses. Therefore, the project would not impact or displace existing retail or commercial uses.

6.6.3 HEALTH CARE

Finding: No Impact Anticipated.

1. *Are emergency health care providers located within reasonable proximity to the proposed project?*

Yes. The proposed project would not generate an increase in population. Therefore, project implementation would not result in deficiencies in this regard. Also, refer to Section 6.6.10.1, regarding ambulance and paramedic service to the project area.

2. *Can ambulance trips to a hospital or other health care center be made within reasonable time?*

Yes. Refer to Section 6.6.3.1. Also, refer to Section 6.6.10.2, regarding ambulance and paramedic access and transport.

3. *Will project residents/users require special medical services or skills such as geriatric or pediatric clinics that will require very specialized skills and services? Cardiac pulmonary resuscitation (CPR), which is especially important for elderly is one example of an emergency medical skill which may be needed.*

Not Applicable. Project implementation would not result in deficiencies to special medical services/skills.

6.6.4 SOCIAL SERVICES

Finding: No Impact Anticipated.

1. *Will residents have specific social service needs?*

Not Applicable. As the project consists of an underground storm drain system, the project would not generate an increase in population. Therefore, the project would not impact specific social service needs.

2. *If so, are social services currently located within a “convenient” and a “reasonable” distance of residents?*

Not Applicable. Refer to Sections 6.6.4.1 and Section 6.1.2, *Compatibility and Urban Impact*.

3. *Are the social services available “matched” to the potential users?*

Yes. Refer to Section 6.6.4.1.



6.6.5 SOLID WASTE

Finding: No Impact Anticipated.

1. *Will the existing or planned solid waste disposal system adequately service the proposed development?*

Yes. Refer to Section 3.6.5, *Solid Waste*, and Section 4.16, *Utilities and Service Systems* of the IS/MND. The proposed project would only generate solid waste during construction. Most solid waste in the City is taken to the SERRF to be incinerated and converted to electricity. The remainder of the City's solid waste is taken to the Puente Hills Landfill in the City of Whittier which as a total permitted capacity of 106.4 million cubic yards, of which 49.4 million cubic yards is the remaining capacity. Additionally, the City has implemented a Construction and Demolition Recycling program (Section 18.97 of the *Municipal Code*) that requires certain demolition and/or construction projects to divert at least 60 percent of waste from landfills through recycling, salvage, or deconstruction. No solid waste disposal activities would occur for the project during operation.

2. *Will the proposed development overload these facilities?*

No. Refer to Section 6.6.5.1.

3. *Will the proposed project be adversely affected by proximity to these facilities?*

No. The project site is not located in proximity to any solid waste facilities; no impact is anticipated in this regard.

4. *Does the community provide collection service either directly or by contract?*

Yes. Solid waste (including recycled materials) in the area is handled and transported by the City's Refuse Collection Division. No impact is anticipated in this regard.

6.6.6 WASTEWATER

Finding: No Impact Anticipated.

1. *Will the existing or planned wastewater disposal systems provide satisfactory service to the proposed development?*

Yes. Project implementation would not result in wastewater generation. Refer to Section 3.6.6, *Wastewater*, and Section 4.16, *Utilities and Service Systems* of the IS/MND.

2. *Will the design capacity of the treatment plant be exceeded by the project as proposed?*

Not Applicable. Refer to Section 6.6.6.1.

3. *Will the proposed project be adversely affected by the proximity of sewage disposal facilities?*



No. The project site is not located in proximity to any wastewater disposal facilities; no impact is anticipated in this regard.

4. *In areas remote from existing sewer systems are the soil conditions suitable for on-site septic systems?*

Not Applicable. Refer to Section 6.1.5.3.

6.6.7 STORMWATER

Finding: Potentially Beneficial.

1. *Will existing or planned system adequately service the proposed development?*

Yes. The proposed project would involve improvements to the currently deficient storm drain system along River Avenue in order to bring the system to a full 10-year flood protection level. The project involves the construction of 1,021 feet of 48-inch RCP along River Avenue, modification of five catch basins, construction of six new catch basins, and construction of a detention system of five 84-inch (430 feet in length) underground pipelines. The project would alleviate current flooding hazards in the project area and would not increase storm water runoff.

Refer to Section 3.6.7 Stormwater, and Section 4.16, Utilities and Service Systems of the IS/MND.

2. *Can storm water be disposed of on-site?*

Yes. Refer to Section 6.6.7.1.

3. *Will surface water be channeled directly into a closed storm drainage system rather than to recharge aquifers?*

Yes. The River Avenue storm drain system outlets approximately 0.7 miles southwest of the project site into the Dominguez Channel. Refer to Section 6.6.7.1.

6.6.8 WATER SUPPLY

Finding: No Impact Anticipated.

1. *Will either the municipal water utility or on-site water supply system be adequate to serve the proposed project?*

Yes. Project operations would not require water supplies beyond those typically required during standard construction practices. Construction impacts would be minimal and would cease upon completion.

2. *If a public system is not available, will individual wells meet HUD's standards?*

Not Applicable. Refer to Section 3.6.8, Water Supply.



3. *Will the project affect a sole source or other aquifer?*

No. Refer to Section 6.6.8.1.

6.6.9 PUBLIC SAFETY

6.6.9.1 POLICE

Finding: No Impact Anticipated.

1. *Does the project location provide adequate access to police services? Does the project design provide easy access for emergency vehicles and individuals? Are there existing obstacles to project access such as one-way roads, narrow bridges, waterways, expressways, railroads which would prohibit access in an emergency situation? Does the design of the project create such obstacles or isolated areas?*

Yes/Yes/No/No. The proposed project does not increase population or include uses that would require additional police services or facilities.

Also, refer to Section 6.1.2, Compatibility and Urban Impact, Section 6.1.7.4, Other Hazards, and Section 4.13, Public Services of the IS/MND.

2. *Are police protection services available to the project adequate to meet project needs?*

Not Applicable. It is not anticipated that implementation of the proposed project would cause a significant impact on law enforcement services, as the project consists of storm drain improvements. Refer to Section 6.6.9.1.1.

3. *Does the area have a particularly high crime rate? Are there special plans for a security system which have been approved by the police department? Can the development be patrolled easily by the police from the street?*

No/No/Yes. The project vicinity does not require significant law enforcement resources, and there are currently no special plans for a security system. The proposed project would not alter the LBPD's ability to patrol the area from the street. Construction activities may temporarily affect access to the project area; however, this would be short-term and would cease upon project completion. Also, emergency access would be maintained at all times. Project implementation would not result in deficiencies in this regard.

4. *Will the project create a burden on existing facilities in terms of personnel and/or equipment? Can services either be expanded or be provided by the project, such as an in-house security force?*

No. Refer to Sections 6.6.9.1.1 and 6.6.9.1.2.



6.6.9.2 FIRE

Finding: No Impact Anticipated.

1. *Does the project location provide adequate access for fire vehicles? Does the project design provide easy and unrestricted access for fire emergency vehicles and individuals? Are there existing obstacles to access to the project such as one-way roads, narrow bridges, waterways, expressways, railroads which would limit access in an emergency situation? Will the project create such obstacles?*

Yes/Yes/No/No. Refer to Section 6.1.2, *Compatibility and Urban Impact*, Section 6.1.7.4, *Other Hazards*, and Section 4.13, *Public Services* of the IS/MND. The Long Beach Fire Department (LBFD) provides fire protection and emergency response to the City. The nearest fire station to the project site is Fire Station 13 located at 2475 Adriatic Avenue, approximately 1.40-miles southeast of the project site.

The proposed storm drain improvements would be located underground and would not restrict access during project operation. Access in the project area may be temporarily affected by construction activities; however, this would be a short-term impact which would cease upon project completion. Additionally, LBFD would require standard conditions of approval, which would ensure that access to fire trucks is not impeded in the project vicinity during construction.

2. *Will the project create a burden on existing facilities in terms of manpower and/or equipment?*

Not Applicable. The proposed storm drain improvements would not create a greater demand on existing fire protection resources. Additional manpower, equipment, and facilities are would not be necessary as a result of project implementation.

3. *If so, can services be expanded?*

Not Applicable. Refer to Section 6.6.9.2.2.

4. *Is the water supply and water pressure adequate for fighting fires?*

Not Applicable. The proposed project would not affect water supply or pressure in the area. Refer to Section 6.6.8, *Water Supply*.

6.6.10 EMERGENCY MEDICAL

Finding: No Impact Anticipated.

1. *Are emergency health care providers located within reasonable proximity to the proposed project?*

Yes. The LBFD operates Fire Station 13 (located at 2475 Adriatic Avenue, approximately 1.40-miles southeast of the project site), which provides emergency medical services to the project area. All paramedic rescue units are manned by two firefighters/paramedics. Also, refer to Section 6.6.3.1, regarding the location of hospitals in the project area.



2. *Can ambulance trips to a hospital or other health care center be made within reasonable time?*

Yes. The project site is located approximately two miles northwest of Pacific Hospital of Long Beach. Due to the proximity of the project site to nearby hospitals, ambulance trips would be made within reasonable time. Project implementation would not result in deficiencies in this regard.

3. *Will project residents/users require special medical services or skills such as geriatric or pediatric clinics that will require very specialized skills and services? Cardiac pulmonary resuscitation (CPR), which is especially important for elderly is one example of an emergency medical skill, which may be needed.*

Not Applicable. The project involves underground storm drain improvements and does not propose any use or facility that would create a user population.

6.6.11 OPEN SPACE AND RECREATION

Finding: No Impact Anticipated.

1. *Are open space, recreational and cultural facilities within reasonable walking distance to the project area? Or is adequate public transportation available from the project to these facilities?*

Yes. Refer to Section 3.6.11, *Open Space and Recreation* and Section 3.7.1, *Access*. Project implementation would not result in deficiencies in this regard.

2. *Will the proposed project overload existing facilities?*

No. The project does not propose any growth-inducing uses that would overload existing facilities or require additional facilities. Refer to Section 4.13, *Public Services* of the IS/MND.

3. *If the project includes special groups such as small children, or the elderly and handicapped, are there convenient facilities to meet their particular needs? For example, are there tot lots for very small children, playgrounds for elementary school children, drop-in centers for senior citizens and ball fields for teenagers?*

Not Applicable. Refer to Sections 6.6.11.1 and 6.6.11.2.



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6.7 TRANSPORTATION

6.7.1 ACCESS

Finding: No Impact Anticipated.

1. *Will transportation facilities and services be adequate to meet the needs of the project's users? Is off-street parking available and adequate? Is adequate public transportation available?*

Not Applicable/No/Yes. Access to the project site is provided via River Avenue, Wardlow Road/223rd Street, Cameron Street, Lincoln Street, and Arlington Street. I-405, located north of the project site, provides regional access to the project area. Since the proposed project consists of underground storm drain improvements, there are no project users (no traffic trips would be generated as part of the proposed project). As stated in Section 4.15, *Transportation/Traffic* of the IS/MND, the nearest transit stop to the project site is the Long Beach Transit Bus Routes 191 and 193 stop located at the intersection of Wardlow Road/223rd Street and McHelen Avenue (approximately 175 feet north of River Avenue). Project construction would not impact these off-site transportation facilities.

Refer also to Section 3.7.1, *Access* and Section 3.7.2, *Balance*.

2. *Are there special transportation needs (programs for the elderly and handicapped, bridge clearances for trucks, emergency vehicle access), which have not been adequately provided for?*

Not Applicable. The project does not propose any type of development that would generate population growth or provide any type of facility that would create a destination location. Also, the project does not involve the permanent alteration of a roadway, bridge, or sidewalk. It is anticipated that traffic flow along River Avenue would be temporarily impacted during construction of the proposed improvements. However, these impacts would cease upon completion of construction activities. Upon completion of construction, operation of the project would not obstruct traffic flow or emergency operations.

Refer also to Section 3.7.2, *Balance*, Section 6.1.7.4.1, and Section 6.6.9.2.1 regarding emergency vehicle access.

3. *Will the project serve to reduce the mobility of any group?*

No. The proposed project would not reduce the mobility of any group. Refer to Section 6.7.1.2 and Section 4.15, *Transportation/Traffic* of the IS/MND.

6.7.2 BALANCE

Finding: No Impact Anticipated.

1. *Will the project encourage additional private vehicle trips?*

No. No additional vehicle trips following completion of construction would be created. Refer to Section 4.15, *Transportation/Traffic* of the IS/MND.



6.7.3 SAFETY

Finding: No Impact Anticipated.

1. *Will the project create any safety hazards? For example, have curbs been designed with wheelchair ramps, have pedestrian activated signal lights or pedestrian overpasses been included in plans where needed? Is traffic light timing adequate for elderly pedestrians?*

No. As stated in Section 4.15, *Transportation/Traffic* of the IS/MND, the project would not alter the existing lane configurations or curb lines along River Avenue. All proposed improvements would be underground or within curb and gutter areas of River Avenue. In areas where trenching would occur, River Avenue would be rehabilitated to its pre-construction condition.

6.7.4 LEVEL OF SERVICE

Finding: No Impact Anticipated.

1. *Will the project be provided with an adequate level of transportation service? Will it overload existing or proposed transportation services or conversely, create a situation whereby facilities are seriously underused?*

Yes/No. The proposed project would not create additional trips in the project area. Refer to Section 6.7.2, *Balance*, and Section 4.15, *Transportation/Traffic* of the IS/MND.



6.8 NATURAL FEATURES

6.8.1 WATER RESOURCES AND SURFACE WATER

Finding: No Impact Anticipated.

1. *If the project is to use groundwater from the site, is there evidence that supplies are adequate and free from pollution?*

Not Applicable. The project would not utilize groundwater from the project site as water is not required for project operation. With adherence to standard construction measures, the project would be required to obtain applicable permits from the RWQCB pertaining to waste discharge requirements. Therefore, no impact is anticipated in this regard; refer to Section 6.6.8, *Water Supply* and Section 4.8, *Hydrology and Water Quality* of the IS/MND.

2. *Are there visual or other indications of water quality problems on or near the site?*

No. The project site currently experiences flooding during large storm events as a result of a deficient storm drain system. However, there are no visual or other indications that the project area experiences water quality problems.

3. *Will the project involve discharge of sewage effluent into surface water bodies? If so, will the effluent meet State, Federal and other applicable standards?*

No. The proposed storm drain improvement project would not involve discharge of sewage effluent; refer to Section 6.6.6, *Wastewater*, and Section 4.16, *Utilities and Service Systems* of the IS/MND.

4. *Will the project involve a substantial increase in impervious surface area, and if so, have runoff control measures been included in the design?*

No. Surface areas of River Avenue and the SCE property would be similar to existing conditions upon completion of construction. Therefore, there would not be an increase in impervious surface area. Additionally, runoff from off-site areas entering the project site are controlled by compliance with standard construction measures and applicable RWQCB permits. Refer to Section 6.6.7, *Stormwater* and Section 4.8, *Hydrology and Water Quality* of the IS/MND.

5. *Will the project affect surface water flows or water levels in ponds as a result of groundwater well pumping?*

No. There are no streams or ponds located on or in proximity to the project site and the project would not require groundwater well pumping.

6. *Will the project involve the impoundment of over 10 acres or divert or change a stream or lake?*

No. The proposed project would not involve the impoundment of water or change a stream or lake. The River Avenue storm drain system outlets approximately 0.7 miles southwest of



the project site into the Dominguez Channel. Upon completion of construction, the storm drain system's ultimate outlet would not change. No impact is anticipated in this regard.

7. *Will the project affect a Wild and Scenic River or a river in the Nationwide Rivers inventory?*

No. The project site is not located in proximity to a listed Wild and Scenic River.¹ Further, the project does not involve a river in the Nationwide Rivers Inventory.² No impact is anticipated in this regard.

6.8.2 UNIQUE NATURAL FEATURES AND AGRICULTURAL LANDS

Finding: No Impact Anticipated.

6.8.2.1 UNIQUE NATURAL FEATURES

1. *Will the project location, construction or activities affect unique natural features or resource extraction on or near the site?*

No. The project is located in a developed area of the City and there are no unique natural features or resources on or near the project site. Refer to Section 3.8.2, *Unique Natural Features and Agricultural Lands*, Section 4.2, *Agricultural Resources* of the IS/MND, and Section 4.10, *Mineral Resources* of the IS/MND.

2. *Will the project either destroy or isolate the unique natural feature from public or scientific access?*

Not Applicable. Refer to Section 6.8.2.1.1, Section 3.8.2, *Unique Natural Features and Agricultural Lands*, Section 4.2, *Agricultural Resources* of the IS/MND, and Section 4.10, *Mineral Resources* of the IS/MND.

3. *Will the unique feature or resource extraction activity pose safety hazards for a proposed development?*

Not Applicable. Refer to Section 6.8.2.1.1, Section 3.8.2, *Unique Natural Features and Agricultural Lands*, Section 4.2, *Agricultural Resources* of the IS/MND, and Section 4.10, *Mineral Resources* of the IS/MND.

6.8.2.2 AGRICULTURAL LANDS

1. *Will the proposed project be located on or directly adjacent to land that is categorized as prime, unique, or of State or local importance?*

No. The project site and surrounding area are located in an urbanized area of the City. The project site is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as designated by the California Department of Conservation. Refer to

¹ U.S. Department of Fish and Wildlife Services, *National Wild and Scenic Rivers*, accessed at <http://www.rivers.gov/>, on July 22, 2009.

² National Park Service- U.S. Department of the Interior, *Nationwide Rivers Inventory*, accessed at <http://www.nps.gov/ncrc/programs/rtca/nri/> on July 22, 2009.



Section 3.8.2, *Unique Natural Features and Agricultural Lands* and Section 4.2, *Agricultural Resources* of the IS/MND.

2. *Will the project location, construction or activities of project users adversely affect farmland on or near the site by conversion?*

No. Refer to Section 6.8.2.2.1, Section 3.8.2, *Unique Natural Features and Agricultural Lands*, and Section 4.2, *Agricultural Resources* of the IS/MND.

3. *Will drainage from the project adversely affect farmland?*

No. The project improvements would enhance the current storm drain system in the project area. Also, farmland would not be adversely affected, as there is no farmland on or near the project site. Refer to Section 6.8.2.2.1.

4. *Will the project create problems by introducing nuisance species of vegetation, which may spread to adjacent farmland?*

No. No species of vegetation would be introduced as part of the proposed project. Also, there is no farmland on or near the project site.

6.8.3 VEGETATION AND WILDLIFE

Finding: No Impact Anticipated.

6.8.3.1 VEGETATION

1. *Will the project damage or destroy existing plant communities, listed as rare or endangered species?*

No. There are no existing plant communities within the project site, other than existing ornamental landscaping. Refer to Section 3.8.3, *Vegetation and Wildlife* and Section 4.4, *Biological Resources* of the IS/MND.

2. *Will it damage or destroy trees without replacement landscaping?*

No. The project would not require the removal of trees within the vicinity of the project site.

3. *Will the project create environmental conditions which might threaten the survival of existing vegetation, particularly changes in the native plant community habitats?*

No. Ornamental landscaping is the only vegetation type within the project area, and the project would not require the removal of any existing trees. Refer to Section 3.8.3, *Vegetation and Wildlife* and Section 4.4, *Biological Resources* of the IS/MND.



4. *Will it create conditions favorable to nuisance species?*

No. Due to the nature and scope of the proposed underground storm drain improvements, project implementation would not create conditions favorable to nuisance species. No impact is anticipated in this regard.

6.8.3.2 WILDLIFE

1. *Will the project create special hazards for animal life? What types of animal will be affected and how?*

No. The project site does not currently support animal life, and does not propose any type of use that would support animal life. Refer to Section 3.8.3, *Vegetation and Wildlife* and Section 4.4, *Biological Resources* of the IS/MND.

2. *Will the project damage or destroy existing wildlife habitats?*

No. Refer to Section 3.8.3, *Vegetation and Wildlife* and Section 4.4, *Biological Resources* of the IS/MND.

3. *Will the project threaten any animal species listed by either State or Federal agencies as rare or endangered?*

No. Refer to Section 3.8.3, *Vegetation and Wildlife* and Section 4.4, *Biological Resources* of the IS/MND.

4. *Will the project damage game fish habitats or spawning grounds?*

No. The project site does not contain habitat to support any migratory fish or wildlife species. Refer to Section 3.8.3, *Vegetation and Wildlife* and Section 4.4, *Biological Resources* of the IS/MND.

5. *Will the project create conditions favorable to the proliferation of pest species?*

No. Due to the nature and scope of the proposed storm drain improvements, project implementation would not create conditions favorable to the proliferation of pest species. No impact is anticipated in this regard.

6. *Will excessive grading alter the groundwater level and thus cause the destruction of trees and ground cover, which serves as animal habitats?*

No. According to the *Geotechnical Investigation* prepared for the project by Kleinfelder on May 16, 2008, (refer to Appendix B of the IS/MND), groundwater was encountered at 25 feet below ground surface (bgs) at the project site. Trenching activities to allow for the laying of the storm drain pipelines and detention unit would extend to approximately 12 feet in depth and are not anticipated to encounter groundwater. Therefore, the project is not anticipated to indirectly affect potential animal habitats. Refer to Section 3.8.3, *Vegetation and Wildlife* and Section 4.4, *Biological Resources* of the IS/MND.



7.0 ALTERNATIVES TO THE PROPOSED ACTION

The following analysis is prepared pursuant to 24 CFR 58.40(e), Ref. 40 CFR 1508.9, which requires that other reasonable courses of action that were considered and not selected be identified, or other uses of the project site. In addition to the proposed action, which is being considered, the “No Action” and “Aboveground Detention Basin,” alternatives are addressed below. The purpose of the alternatives analysis is to provide an environmental perspective to alternatives review and a format for documentation of that analysis.

7.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, the River Avenue Storm Drain Improvements Project would not be implemented and the project site would remain in its current state, and flooding events would continue to occur within the Arlington residential neighborhood during a large storm event.

7.1.1 LAND DEVELOPMENT

This Alternative would remain consistent with the Right-of-Way land use designation, and the visual appearance of the project site would not be altered.

7.1.2 NOISE

Implementation of this Alternative would not result in an increase in stationary or mobile noise.

7.1.3 AIR QUALITY

Unlike the proposed project, emissions associated with construction activities would not occur with this Alternative, as the storm drain improvements would not be developed.

7.1.4 ENVIRONMENTAL DESIGN

The physical man-made environment would not be altered with this Alternative, since the existing storm drain system would not be updated to accommodate flooding hazards along the Arlington residential neighborhood.

7.1.5 SOCIOECONOMIC

Direct population growth would not occur under this Alternative (similar to the proposed project), as no new development would be constructed.

7.1.6 COMMUNITY FACILITIES AND SERVICES

Similar to the proposed project, an increased demand for health care and/or social services would not occur, as the area’s population would not increase with this Alternative. Also, an increased demand for community facilities and services would not occur with this Alternative (similar to the proposed project). Unlike the proposed project, potential long-term flooding hazards to surrounding residential uses would remain with this Alternative.



7.1.7 TRANSPORTATION

This Alternative would not generate population growth or provide any type of facility that would create a destination location. Unlike the proposed project, traffic flow along River Avenue would not be temporarily impacted, as construction of the proposed storm drain improvements would not occur.

7.1.8 NATURAL FEATURES

As with the proposed project, no impacts to unique natural features, agricultural lands, vegetation, or wildlife would occur with this Alternative, as these resources do not exist on the project site or area.

7.2 ALTERNATIVES AND PROJECT MODIFICATIONS CONSIDERED

7.2.1 ABOVE GROUND DETENTION BASIN

The Above ground Detention Basin Alternative would involve similar improvements to the pipeline along River Avenue. However, an above ground detention basin would be constructed at the SCE parcel instead of an underground detention unit. The above ground basin would be located at the same location as the detention unit.

7.2.1.1 LAND DEVELOPMENT

Similar to the proposed project, this Alternative would be consistent with the Right-of-Way land use designation, as the project site would remain roadway and utility easement uses. Construction activities may disrupt the visual character of the area due to trenching activities, as with the proposed project. These impacts would be short-term and would cease upon completion. The proposed above ground basin would not be visible to surrounding residents due to an existing perimeter wall that is located between the SCE easement and surrounding residents.

Potential neighborhood hazards/nuisances, which exist within or adjacent to the project area (i.e., SCE Substation and aerial transmission lines), would continue to exist with this Alternative. Also similar to the proposed project, the existing flood hazard that currently occurs along the Arlington residential neighborhood would be alleviated with implementation of this Alternative, resulting in a beneficial impact.

Similar to the project, there would be no increase in demand for natural gas, electrical service, and fuel (i.e., gasoline/diesel) consumption associated with long-term operations of this Alternative. Short-term construction activities would require fuel consumption for operations of construction equipment (similar to the project). These impacts would be minimal and would cease upon completion of construction.



7.2.1.2 NOISE

Similar to the proposed project, temporary construction noise impacts would result with implementation of this Alternative. These impacts would be short-term and would cease upon completion of construction. Implementation of the recommended Mitigation Measure N-1 contained within Section 4.11, Noise of the IS/MND, would ensure construction related noise impacts are minimized to the extent feasible. As such, with implementation of N-1 and compliance with the City's *Municipal Code*, Title 8, *Health and Safety*, construction noise impacts would be less than significant, as with the proposed project.

7.2.1.3 AIR QUALITY

As the population of the project area would not increase with this Alternative, additional people would not be exposed to CO "hot spots," similar to the proposed project. This Alternative would not result in increased operational emissions (combined mobile source and area emissions) within the project area (as with the proposed project), as the proposed storm drain improvements would not generate an increase in population or vehicle trips.

7.2.1.4 ENVIRONMENTAL DESIGN

Implementation of this Alternative would result in similar impacts to the physical man-made environment, as the proposed project. This Alternative would construct an above ground detention basin at the SCE easement (to the south of the Arlington residential neighborhood), rather than an underground detention unit. The proposed above ground basin would not be visible to surrounding residents due to an existing perimeter wall that is located between the SCE easement and surrounding residents.

7.2.1.5 SOCIOECONOMIC

Direct population growth would not occur under this Alternative (similar to the proposed project), as the proposed storm drain improvements would not result in the development of new land uses, other than proposed utilities. With implementation of this Alternative, an above ground detention basin and associated underground piping would be placed on the SCE easement. These impacts would be slightly increased, as compared to the proposed project (as the project would place all the utility features underground). As the SCE easement is currently utilized for utility purposes, implementation of this Alternative is not anticipated to result in socioeconomic impacts to the SCE easement.

7.2.1.6 COMMUNITY FACILITIES AND SERVICES

Similar to the proposed project, an increased demand for health care and/or social services would not occur, as the area's population would not increase with this Alternative. Also, an increased demand for community facilities and services would not occur with this Alternative (similar to the proposed project), as no development uses, other than utilities, are proposed.

As with the project, the existing flooding events along the Arlington residential neighborhood would be alleviated with implementation of this Alternative. Thus, potential long-term flooding hazards to surrounding residential uses would result in a beneficial impact with this Alternative (similar to the proposed project).



7.2.1.7 TRANSPORTATION

This Alternative would not generate population growth or provide any type of facility that would create a destination location. This Alternative would not create additional trips in the project area during operations. Also, this Alternative does not involve the permanent alteration of a roadway, bridge, or sidewalk, similar to the proposed project. Long-term operations of this Alternative would not obstruct traffic flow or emergency operations.

7.2.1.8 NATURAL FEATURES

As with the proposed project, no impacts to unique natural features, agricultural lands, vegetation, or wildlife would occur with this Alternative, as these resources do not exist on the project site or area.



8.0 CONSULTATION AND COORDINATION

8.1 LEAD AGENCY

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8.2 RESPONSIBLE AGENCIES

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8.3 PREPARERS OF THE ENVIRONMENTAL ASSESSMENT

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Mr. Eddie Torres, INCE, Project Manager
Ms. Kristen Bogue, CEI, Environmental Analyst
Ms. Kelly Chiene, Environmental Analyst
Mr. Achilles Malisos, Air Quality and Noise Specialist
Ms. Linda Bo, Document Producer and Graphic Artist

8.4 LOCAL AGENCIES/OTHER PERSONS CONSULTED

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Ms. Christina Nuanez, Right of Way Agent



8.5 BIBLIOGRAPHY

California Air Resources Board, Aerometric Data Analysis and Measurement System (ADAM) website: www.arb.ca.gov/adam.

California Integrated Waste Management, *Solid Waste Facility Listing*, accessed at <http://www.ciwmb.ca.gov/Swis/search.aspx> in July 2009.

City of Long Beach, *Air Quality Element*, dated December 1996.

City of Long Beach, *Bicycle Master Plan*, dated December 2001.

City of Long Beach, *Conservation Element*, dated April 1973.

City of Long Beach, *Housing Element*, dated May 2009.

City of Long Beach, *Land Use Element*, dated July 1989.

City of Long Beach, *Local Coastal Program*, dated February 1980.

City of Long Beach, *Noise Element*, dated March 1975.

City of Long Beach, official website, <http://www.longbeach.gov/>, accessed in July 2009.

City of Long Beach, *Open Space Element*, dated October 2002.

City of Long Beach, *Public Safety Element*, dated May 1975.

City of Long Beach, *Seismic Safety Element*, dated October 1988.

City of Long Beach, *Transportation Element*, dated December 1991.

City of Long Beach, *Natural Hazards Mitigation Plan*, dated October 19, 2004.

City of Long Beach, *Municipal Code*, enacted April 21, 2009.

Federal Emergency Management Agency, *Flood Insurance Rate Map, Panel 1955 of 2350, Map Number 06037C1955F*, September 26, 2008.

Southern California Association of Governments (SCAG), *Adopted 2008 Regional Transportation Plan Growth Forecasts, By City*, <http://www.scag.ca.gov/forecast/index.htm>, accessed in July 2009.

State of California, Department of Finance, *E-4 Population and Housing Estimates for Cities, Counties and the State, 2001-2009, with 2000 Benchmark*, Sacramento, California, accessed in July 2009.

U.S. Census Bureau, 1990 and 2000 Census data. <http://www.factfinder.census.gov>.



U.S. Department of Housing and Urban Development, Office of Community Planning and Development, *The Noise Guidebook*, Undated.

U.S. Department of Housing and Urban Development (HUD), *Title 24, Part 51 (Environmental Criteria and Standards)*, Subpart B (Noise Abatement and Control), Section 51.103 (Criteria and Standards), July 1979.

U.S. Department of Fish and Wildlife Services, *National Wild and Scenic Rivers*, accessed at <http://www.rivers.gov/>, on July 22, 2009.

National Park Service - U.S. Department of the Interior, *Nationwide Rivers Inventory*, accessed at <http://www.nps.gov/ncrc/programs/rca/nri/> on July 22, 2009.



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9.0 ADDITIONAL STUDIES PERFORMED

Refer to the *River Avenue Storm Drain Improvements Project Initial Study/Mitigated Negative Declaration (IS/MND)*, enclosed as Part 1 of this document, for the additional studies utilized in this Environmental Assessment (EA).



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10.0 APPENDICES

Refer to the *River Avenue Storm Drain Improvements Project Initial Study/Mitigated Negative Declaration (IS/MND)*, enclosed as Part 1 of this document, for the Technical Appendices referenced in this Environmental Assessment (EA).



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