

FOR CONTRACT NO. 07-2X9604

INFORMATION HANDOUT

AERIALY DEPOSITED LEAD SITE INVESTIGATION REPORT

Route 710 Slope Repair Project

From Pico Avenue Overhead to Route 91/710 Separation Post Mile 5.8 to Post
Mile 13.1 Los Angeles County, California. Dated April 11, 2012

Prepared by Geocon Consultants

EA 07-2X9601 Project No. 0700020911

ROUTE: 07-LA-710 M5.8/13.1

AERIALY DEPOSITED LEAD SITE INVESTIGATION REPORT



**ROUTE 710 SLOPE REPAIR PROJECT FROM PICO
AVENUE OVERHEAD TO ROUTE 91/710
SEPARATION, POST MILE 5.8 TO POST MILE 13.1
LOS ANGELES COUNTY, CALIFORNIA**

PREPARED FOR:
CALIFORNIA DEPARTMENT OF TRANSPORTATION
DISTRICT 7
100 SOUTH MAIN STREET
LOS ANGELES, CALIFORNIA



PREPARED BY:
GEOCON CONSULTANTS, INC.
3303 N. SAN FERNANDO BLVD., SUITE 100
BURBANK, CALIFORNIA



**CALTRANS CONTRACT 07A2730-A01
TASK ORDER NO. 23**

**EA NO. 07-2X9601
PROJECT NO. 07000209111**

GEOCON PROJECT NO. S9500-06-05

April 11, 2012



Project No. S9500-06-05

April 11, 2011

Mr. Duane Paul, PG, CHG
AMEC Environment and Infrastructure
510 Superior Avenue, Suite 200
Newport Beach, CA 92663

Subject: AERIALY DEPOSITED LEAD SITE INVESTIGATION REPORT
ROUTE 710 SLOPE REPAIR PROJECT FROM PICO AVENUE OVERHEAD
TO ROUTE 91/710 SEPARATION
POST MILE 5.8 TO 13.1, LOS ANGELES COUNTY, CALIFORNIA
CONTRACT NO. 07A2730-A01, TASK ORDER NO. 23, EA. 07-2X9601,
CALTRANS PROJECT NO. 07000209111

Dear Mr. Paul:

In accordance with Caltrans Contract No. 07A2730-A01, Task Order No 23 and the AMEC Environment and Infrastructure (AMEC) Work Order Number C012500217, Geocon Consultants, Inc. performed an aerially deposited lead investigation between Post Mile (PM) 5.8 and PM 13.1 along Route 710 in Los Angeles County, California. The accompanying report summarizes the services performed, including the advancement of hand-auger borings, soil sampling, laboratory analyses, and global positioning system data acquisition.

The contents of this report reflect the views of the author, who is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the State of California or the Federal Highway Administration. This report does not constitute a standard, specification, or regulation.

Please contact us if there are questions concerning this report or if we may be of further service.

Sincerely,

GEOCON CONSULTANTS, INC.

Mike Akoto, REA
Staff Geologist

(4/2CD) Addressee

Michael P. Conkle, PG
Project Manager



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EXECUTIVE SUMMARY

The California Department of Transportation (Caltrans) plans to repair embankment slopes along the 710 Freeway between the Pico Avenue Overhead to the Route 91/710 Separation (Post Mile [PM] 5.8 to PM 13.1) in Los Angeles County, California. Geocon Consultants, Inc. performed an aerially deposited lead (ADL) investigation at the following three locations: southbound 710 right shoulder at the 91/710 Separation; southbound 710 right shoulder at the Long Beach Boulevard overcrossing, and northbound 710 right shoulder at the Willow Street overcrossing. The objective of the investigation was to evaluate soil at these locations for the potential presence of elevated concentrations of lead suspected due to impact from vehicle exhaust emissions when leaded gasoline was used. Caltrans will use information obtained from the investigation to determine soil disposal options and identify health and safety concerns during proposed construction activities.

Three hand-auger borings were advanced at each location. Soil samples were collected from each boring at depths of 0 to 0.5 feet and 0.5 to 1.0 feet and submitted for laboratory analysis. Laboratory analytical data verification was performed in accordance with the United States Environmental Protection Agency Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. Based on the data review some of the sample results were qualified as estimated values (J-flagged). A review of the laboratory QA/QC results indicates satisfactory data reporting, and the data are of sufficient quality for the purposes of this report. Sampling results by location are discussed below.

Southbound 710 at the 91/710 Separation

Six soil samples were collected from this location. One of the soil samples (sample 1169-102-0.5) was reanalyzed for total lead and soluble lead. Total lead was detected in the soil samples at concentrations ranging from 4.2 to 170 milligrams per kilogram (mg/kg). A concentration of 170 mg/kg was reported in original sample 1169-102-0.5, however this sample was reanalyzed. A total lead concentration of 36 mg/kg was reported for the reanalysis. Four soil samples were analyzed for soluble lead using the waste extraction test (WET). Concentrations of WET lead were reported to range from 2.1 to 6.1 milligrams per liter (mg/l). One soil sample containing soluble lead concentrations greater than or equal to the Soluble Threshold Concentration (STLC) of 5.0 mg/l was further analyzed by the WET using de-ionized water as the extractant (DI-WET). DI-WET lead was reported for the sample at an estimated concentration of 0.17 J mg/l. One soil sample, with the highest total lead value, was analyzed for soluble lead using the Toxicity Characteristic Leaching Procedure (TCLP). TCLP lead was reported at a concentration of 0.20 mg/l. A pH of 7.9 was reported for this sample.

Southbound 710 at the Long Beach Boulevard Overcrossing

Total lead was detected in the six soil samples collected from this location at concentrations ranging from 28 to 59 mg/kg. Concentrations of soluble lead were reported to range from 2.1 to 3.0 mg/l in the four samples analyzed by the WET. A pH of 8.0 was reported for the one sample analyzed for pH.

Northbound 710 at the Willow Street Overcrossing

Total lead was detected in six soil samples collected from this location at concentrations ranging from 68 to 270 mg/kg. The six soil samples were further analyzed for soluble lead using the WET. Soluble lead was reported in the samples at concentrations ranging from 3.8 to 19 mg/l. Five of the six soil samples analyzed using the WET contained soluble lead concentrations greater than or equal to the STLC of 5.0 mg/l and were further analyzed by DI-WET. DI-WET lead was reported for two of the samples at estimated concentrations of 0.07 J and 0.10 J mg/l. TCLP lead was reported in the one sample analyzed at a concentration of 0.60 mg/l. A pH of 7.6 and 7.4 were reported for the two samples analyzed for pH.

In addition, one soil sample from this location was analyzed for Title 22 metals. Excluding lead, concentrations of the other reported Title 22 metals were less than their respective Total Threshold Limit Concentrations (TTLCs) and ten times their respective STLCs. The concentrations of metals, other than lead, and arsenic, reported in the soil sample were below their respective California Human Health Screening Levels (CHHSLs) for residential and industrial land use. Arsenic was reported for the sample at concentration of 2.3 mg/kg. The reported arsenic concentration exceeds the industrial and residential use CHHSLs of 0.24 and 0.07mg/kg, respectively; however the reported arsenic concentration is within the reported range of background concentrations in California soils.

AERIALLY DEPOSITED LEAD SITE INVESTIGATION REPORT

1. INTRODUCTION

The California Department of Transportation (Caltrans) plans to repair embankment slopes along the 710 Freeway between the Pico Avenue Overhead to the Route 91/710 Separation (Post Mile [PM] 5.8 to PM 13.1) in Los Angeles County, California (Figure 1).

On behalf of AMEC Environment and Infrastructure (AMEC), and in accordance with the Caltrans Contract No. 07A2730-A01 and Task Order (TO) No. 23, Expense Authorizations 07-2X9601 and Caltrans Project No. 07000209111, Geocon Consultants, Inc. performed an aerially deposited lead (ADL) investigation, at the following three locations: southbound 710 right shoulder at the 91/710 Separation; southbound 710 right shoulder at the Long Beach Boulevard overcrossing, and northbound 710 right shoulder at the Willow Street overcrossing. A general description of the investigation objectives are summarized below.

1.1 Investigation Background/Objective

Testing by Caltrans throughout the State has shown that ADL exists in soil along major highway routes due to vehicle exhaust containing lead from the combustion of leaded gasoline. The concentration and distribution of ADL in soil is a function of many variables, but in general, highway age and traffic volume appear to be primary factors. The objective of this investigation was to evaluate soil at the site for the potential presence of elevated concentrations of lead suspected due to impact from vehicle exhaust emissions when leaded gasoline was used. Caltrans will use information obtained from the investigation to determine soil management options (e.g., disposal or onsite reuse) and identify health and safety concerns during proposed construction activities.

2. SCOPE OF SERVICES

We performed the scope of services summarized below as requested by Caltrans in TO No. 23.

2.1 Pre-field Activities

- Prepared a *Health and Safety Plan* (HSP) dated February 2012 to provide guidelines on the use of personal protective equipment and the health and safety procedures to be implemented by Geocon personnel during field activities. The HSP specified the safety procedures for field work, summarized chemical hazard information, and identified site safety officers, emergency contacts, and the locations of emergency medical care facilities. A copy of the HSP is provided in Appendix A.
- Contacted Underground Service Alert (USA) to notify utility companies of the field activities. The USA ticket numbers are A20600183, A20600169, and A20600153.

2.2 Field Activities

Field activities consisted of collecting 18 soil samples from 9 hand-auger borings on March 2, 2012. The soil borings were advanced at the following three locations along the 710:

- Southbound right shoulder at the 91/710 Separation - Borings 1169-101 through 1169-103
- Southbound right shoulder at the Long Beach Boulevard overcrossing – Borings 1169-104 through 1169-106
- Northbound right shoulder at the Willow Street overcrossing - Borings 1169-107 through 1169-109

The nine borings were advanced at the approximate locations, selected by Caltrans, as shown on Figures 2-1 through 2-3. Photos of the boring locations and copies of the daily field notes from Geocon are provided in Appendix B. Two soil samples were collected from each of the borings at depths of 0 to 0.5 foot and 0.5 to 1.0 foot. Soil samples were homogenized in the field and placed in laboratory-provided glass jars for subsequent laboratory analysis.

2.3 GPS Coordinates

The borings locations were recorded with a Trimble GeoXT Global Positioning System (GPS) receiver using State Plane 83 coordinates and TerraSync™ software. Boring location latitude/longitude coordinates are on Table 1.

2.4 Laboratory Analyses

Sample laboratory analyses were performed by Advanced Technology Laboratories (ATL). Copies of laboratory reports and chain-of-custody (COC) documentation are in Appendix C. As requested by Caltrans in TO No. 23, samples were analyzed as follows:

- Eighteen soil samples were analyzed for total lead using Environmental Protection Agency (EPA) Test Method 6010B.
- Fourteen soil samples selected by Caltrans were analyzed for soluble lead by the California Waste Extraction Test (WET) using citrate acid as the extractant by EPA Test Method 7420.
- Six samples with WET soluble lead concentrations greater than 5.0 mg/l and were analyzed for soluble lead using the WET with de-ionized water as the extractant (DI-WET).
- Two soil samples with the highest total lead concentrations were also tested for soluble lead using the Toxicity Characteristic Leaching Procedure (TCLP) by EPA Test Method 1311/7420.
- One soil sample was analyzed for Title 22 metals according to Title 22 CCR, EPA Test Method 6010B and 7471A (mercury).
- Four soil samples were tested for pH using EPA Test Method 9045C.
- One equipment blank water sample was analyzed for total lead using EPA Test Method 6010B.

- One field blank water sample was analyzed for total lead using EPA Test Method 6010B.
- One soil sample (sample 1169-102-0.5) was reanalyzed for total lead by EPA Test Method 6010B and soluble lead by the WET by EPA Test Method 7420.

2.5 Report Preparation

This report was prepared to summarize the objectives, procedures, and results of the ADL investigation activities requested by Caltrans as performed by Geocon.

3. INVESTIGATIVE METHODS

3.1 Soil Sampling

Soil samples were collected from borings advanced with 2.5-inch-diameter stainless steel hand-augers. Surface vegetation (e.g., native grasses/forbs and landscaping plants) at the boring locations was removed prior to boring/sampling activities. Soil collected from each depth interval was placed into to a new re-sealable plastic bag and the soil was field homogenized within the sample bag. Homogenized soil within the bag was then transferred into a new 4-ounce, laboratory-provided, glass soil jar which was subsequently capped, labeled with the sample date/time and a unique soil sample number, placed in a chilled ice chest, and delivered to the analytical laboratory the same day the sample was collected.

Soil boring numbers were assigned based on a four-digit unique identification number provided by Caltrans (1169) and a sequential location number (101 through 109 for the hand-auger borings). Soil sample numbers were designated by the boring number and the bottom of the 6-inch depth interval from which the sample was collected. For example, the soil sample designated 1169-101-0.5 was obtained from a depth of approximately 0.0 to 0.5 feet from boring 1169-101.

Quality Assurance/Quality Control (QA/QC) procedures conducted during field activities included decontamination of sampling equipment before each boring was advanced, single use of new re-sealable plastic bags and soil jars, and sample COC documentation. Hand-augers sampling equipment was cleansed between samples by washing the equipment with an Alconox™ tap water solution followed by a tap water rinse and a final rinse with distilled/purified water.

The hand-auger borings were backfilled with surface soil from the immediate vicinity of the boring location. Decontamination water was discharged to the ground surface away from areas potentially associated with surface water bodies or storm drain inlets.

3.2 Blank Sampling

One equipment blank sample was collected by Geocon (per chain of custody completed) to verify proper cleaning of the hand-augers. The equipment blank sample was obtained by collecting distilled water passed over the hand-auger into an unpreserved, laboratory-provided container.

One field blank sample was collected to identify ambient atmospheric contamination that could potentially become entrained in the samples during collection. The field blank sample was collected in the field by filling an unpreserved laboratory-provided container with distilled water at a location adjacent to where sampling was performed.

3.3 Deviations from the Task Order

The TO served as the work plan for this investigation. Geocon performed the scope of work as generally summarized in the TO with the following exceptions:

- The Task Order directed that samples with total lead concentrations exceeding 50 milligrams per kilogram (mg/kg) be analyzed for soluble lead using the WET. At Caltrans request three samples (1169-130-1.0, 1169-104-1.0, and 1169-105-0.5) that had total lead concentrations less than 50 mg/kg were analyzed for soluble lead using the WET.
- Based on the disparity in the total lead concentration to the soluble lead concentration reported in sample 1169-102-0.5, this sample was reanalyzed for total and soluble lead.

4. FIELD OBSERVATIONS AND INVESTIGATIVE RESULTS

4.1 Soil Conditions

Soil conditions encountered within the borings generally ranged from olive brown silty sand with trace amounts of fine gravel to dark yellow brown sand and gravelly sand. Surface water and groundwater was not encountered at the boring locations. Field boring logs are presented in Appendix D.

4.2 Soil Sample Analytical Results

Soil sample analytical results for total lead, WET lead, DI-WET lead, TCLP lead, and pH are summarized in Table 1. Soil sample analytical results for Title 22 metals are summarized in Table 2. Copies of laboratory reports and COC documentation are in Appendix C. The following summarizes the soil sample analytical results:

- **Total lead** was reported for the soil samples at concentrations ranging from 4.2 to 270 mg/kg.
- **WET lead** was reported for the fifteen samples analyzed at concentrations ranging from 2.3 to 19 mg/kg. WET lead concentrations that equal or exceed the Soluble Threshold Limit

Concentration (STLC) value of 5.0 milligrams per liter (mg/l) were reported for six of the samples.

- **DI-WET lead** was reported for three of the six samples analyzed at estimated concentrations of 0.07 J, 0.10 J, and 0.17 J mg/l.
- **TCLP lead** was reported for the two samples analyzed at concentrations of 0.20 mg/l and 0.60 mg/l.
- **Title 22 metals** antimony and selenium were not detected in the one soil sample analyzed. Excluding lead, concentrations of other reported Title 22 metals were less than their respective Total Threshold Limit Concentrations (TTLCs) and ten times their respective STLCs.
- **Soil pH** values reported for the four samples analyzed ranged from 7.4 to 8.0.
- **Lead** was positively identified in the one equipment blank but not detected at a concentration equal to or greater than the laboratory reporting limit of 0.005 mg/l.
- **Lead** was reported in the one field blank at an estimated concentration of 0.005 J mg/l.

4.3 Data Validation

Geocon and ATL use QA/QC measures to minimize and control errors associated with field and laboratory methods. Field QA/QC measures consist of cleaning sampling equipment between each use with a detergent solution followed by tap and distilled/purified water rinses. Based on the equipment blank sample analytical results, it appears that the field investigation was free from potential cross-contamination resulting from inadequate equipment decontamination.

Laboratory QA/QC measures include the use of matrix spikes, duplicates, and method blanks, in addition to calculation of percent recovery and relative percentage difference (RPD). Laboratory analytical data verification was performed in accordance with the EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. A data validation report based on review of the field and laboratory QA/QC results, for the data collected by Geocon, is provided in Appendix E. Based on the data review some of the sample results were qualified as estimated values (J-flagged). The data qualifiers have been appended to the respective data in the analytical results summary tables (Tables 1 and 2). A review of the laboratory QA/QC results indicates satisfactory data reporting, and the data are of sufficient quality for the purposes of this report.

5. FINDINGS

5.1 Southbound 710 at the 91/710 Separation

Six soil samples were collected from this location. One of the soil samples (sample 1169-102-0.5) was reanalyzed for total lead and soluble lead. Total lead was detected in the soil samples at concentrations ranging from 4.2 to 170 mg/kg. A concentration of 170 mg/kg was reported in original sample 1169-102-0.5, however this sample was reanalyzed. A total lead concentration of 36 mg/kg was reported for the reanalysis. Four soil samples were analyzed for soluble lead using the WET. Concentrations of WET lead were reported to range from 2.1 to 6.1 mg/l. One soil sample containing soluble lead concentrations greater than or equal to the STLC of 5.0 mg/l was further analyzed by the DI-WET. DI-WET lead was reported for the sample at an estimated concentration of 0.17 J mg/l. One soil sample with the highest total lead value was analyzed for soluble lead using the TCLP. TCLP lead was reported for the sample at a concentration of 0.20 mg/l. A pH of 7.9 was reported for this sample.

Sample 1169-102-0.5 was analyzed twice for total and soluble WET lead. The original sample was reported to contain 170 mg/kg and 2.3 mg/l of total and WET soluble lead, respectively. Concentrations of 36 mg/kg and 4.6 mg/l were reported for the reanalysis. The data validation review of the laboratory QA/QC indicates that both sets of results are valid. The disparity between the two results is likely due to the non-homogeneity of the sample matrix.

When the laboratory performs the initial total lead analysis they extract a 5 gram aliquot of soil from the bulk sample container for the analysis. If the total lead result indicates that WET lead testing should be performed then a new 20 to 50 gram aliquot of soil is extracted from the bulk sample container. In this instance the total and WET lead analysis is performed on separate aliquots of soil.

When the lab is directed to reanalyze the sample for both total and WET lead they will remove an aliquot of soil from the bulk sample container of sufficient volume to perform both tests. This larger aliquot is then further homogenized prior to being separated for the two tests. It is our opinion that performing the total and WET lead analysis on a single homogenized aliquot removed from the bulk sample container reduces the potential variability inherent in performing duplicate analyses of a non-homogenous matrix.

5.2 Southbound 710 at the Long Beach Boulevard Overcrossing

Total lead was detected in the six soil samples collected from this location at concentrations ranging from 28 to 59 mg/kg. Concentrations of soluble lead were reported to range from 2.1 to 3.0 mg/l in the four samples analyzed by the WET. A pH of 8.0 was reported for the one sample analyzed for pH.

5.3 Northbound 710 at the Willow Street Overcrossing

Total lead was detected in six soil samples collected from this location at concentrations ranging from 68 to 270 mg/kg. The six soil samples were further analyzed for soluble lead using the WET. Soluble lead was reported in the samples at concentrations ranging from 3.8 to 19 mg/l. Five of the six soil samples analyzed using the WET contained soluble lead concentrations greater than or equal to the STLC of 5.0 mg/l and were further analyzed by DI-WET. DI-WET lead was reported for two of the samples at estimated concentrations of 0.07 J and 0.10 J mg/l. TCLP lead was reported in the one sample analyzed at a concentration of 0.60 mg/l. A pH of 7.6 and 7.4 were reported for the two samples analyzed for pH.

In addition, one soil sample from this location was analyzed for Title 22 metals. Excluding lead, concentrations of the other reported Title 22 metals were less than their respective TTLCs and ten times their respective STLCs. The concentrations of metals, other than lead, and arsenic, reported in the soil sample were below their respective California Human Health Screening Levels (CHHSLs) for residential and industrial land use. Arsenic was reported for the sample at concentration of 2.3 mg/kg. The reported arsenic concentration exceeds the industrial and residential use CHHSLs of 0.24 and 0.07mg/kg, respectively. Arsenic is a naturally occurring element; therefore, the reported concentrations were compared to regional background concentrations. The March 2008 Department of Toxic Substance Control (DTSC) publication *Determination of a Southern California Regional Background Arsenic Concentration in Soil* establishes a regional background for arsenic within Southern California including Los Angeles County using naturally occurring and anthropogenic concentrations of arsenic. The report finds that the upper-bound background concentration for arsenic within Los Angeles County is 12 mg/kg. The reported arsenic concentration does not exceeded 12 mg/kg, and therefore, the arsenic concentration reported in the soil sample is considered to be consistent with background concentrations of arsenic in Los Angeles County.

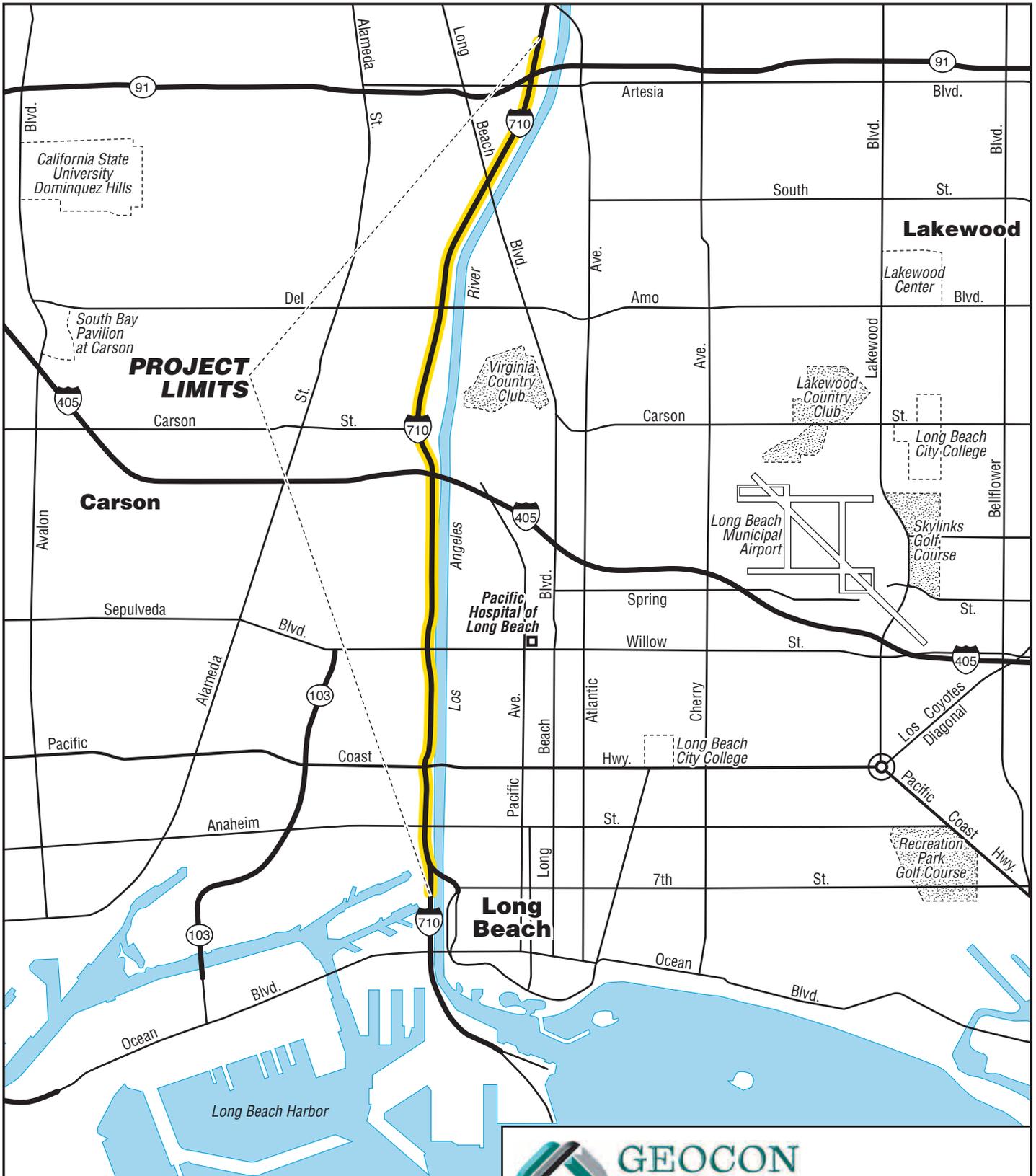
6. REPORT LIMITATIONS

This report has been prepared exclusively for AMEC and Caltrans. The information obtained is only relevant as of the date of the latest site visit and will require an update to reflect additional information obtained.

The findings presented herein are based on laboratory analytical results obtained from a limited number of samples collected from in-place soil and from widely spaced locations according to Caltrans-prescribed protocol. The purpose of these sampling and characterization activities was to allow Caltrans to reasonably predict the character of soil to be disturbed for planned construction activities within the described limits of the Caltrans right-of-way.

The Client should recognize that this report is not a comprehensive site characterization and should not be construed as such. The appropriate regulatory agency may require additional investigations. The findings as presented in this report are predicated on the results of the limited soil sampling and laboratory analyses performed. In addition, the information obtained is not intended to address potential impacts related to sources other than those specified herein.

Therefore, the report should only be deemed conclusive with respect to the information obtained. No guarantee or warranty of the results of the report is implied within the intent of this report or any subsequent reports, correspondence, or consultation, either express or implied. Geocon strived to perform the services summarized herein in accordance with the local standard of care in the geographic region at the time the services were rendered.



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LA-710 from Pico Overhead to Route 91/710 Separation

Post Mile 5.8/13.1
Los Angeles, California

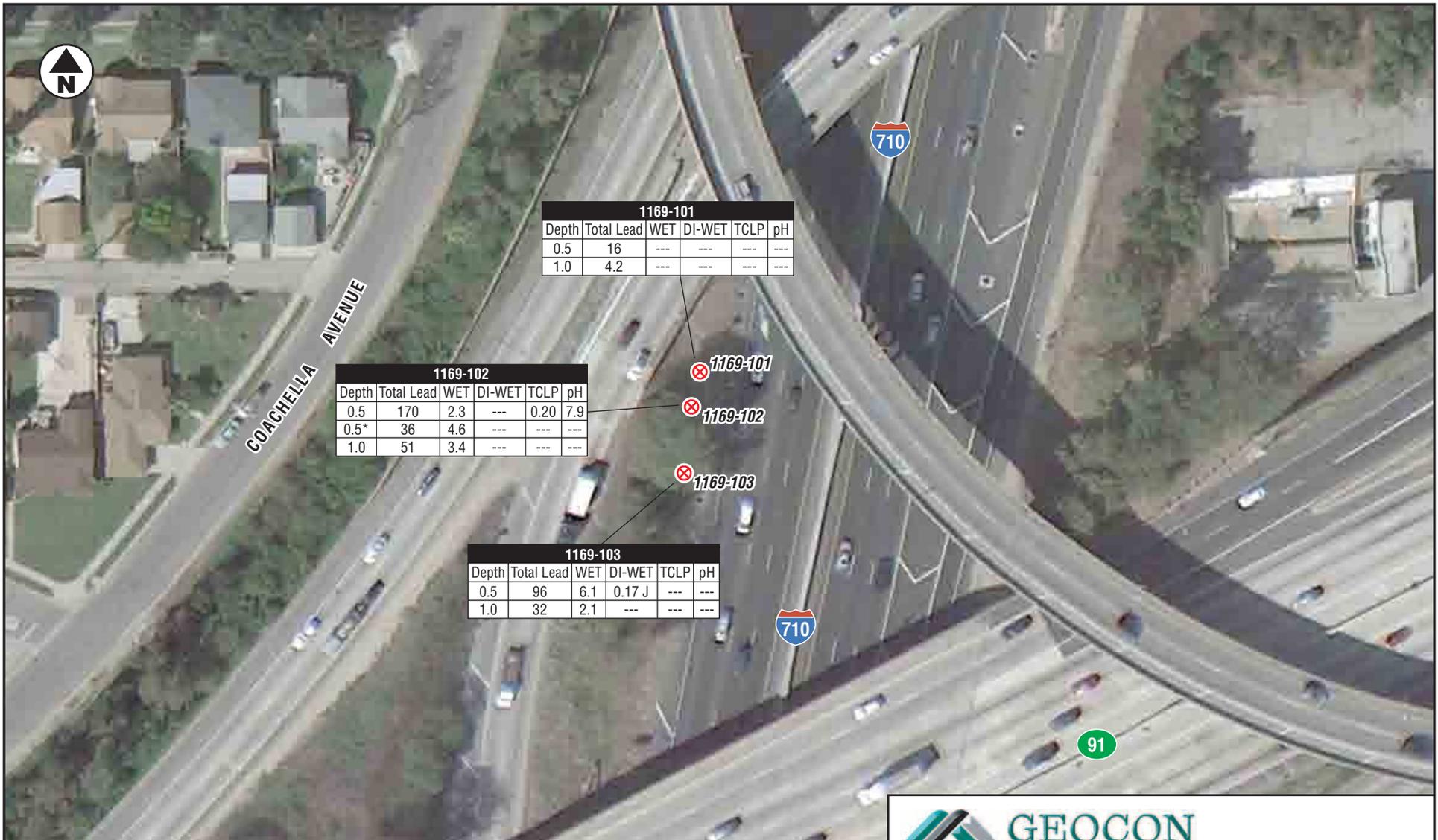
VICINITY MAP

GEOCON Proj. No. S9500-06-05

Task Order No. 23

April 2012

Figure 1



1169-101					
Depth	Total Lead	WET	DI-WET	TCLP	pH
0.5	16	---	---	---	---
1.0	4.2	---	---	---	---

1169-102					
Depth	Total Lead	WET	DI-WET	TCLP	pH
0.5	170	2.3	---	0.20	7.9
0.5*	36	4.6	---	---	---
1.0	51	3.4	---	---	---

1169-103					
Depth	Total Lead	WET	DI-WET	TCLP	pH
0.5	96	6.1	0.17 J	---	---
1.0	32	2.1	---	---	---

LEGEND:

⊗ Approximate Boring Location

Total Lead Results in mg/kg
 WET, DI-WET, TCLP Results in mg/l
 Depth in Feet

--- = Analysis not performed

J = Result qualified as an estimated value due to analytical bias in precision or accuracy

* = Reanalysis Result



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LA-710 from Pico Overhead to Route 91/710 Separation

Post Mile 5.8/13.1
 Los Angeles, California

SITE PLAN

GEOCON Proj. No. S9500-06-05

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April 2012

Figure 2-1



1169-104						
Depth	Total Lead	WET	DI-WET	TCLP	pH	
0.5	59	2.1	---	---	8.0	
1.0	36	2.6	---	---	---	

1169-105						
Depth	Total Lead	WET	DI-WET	TCLP	pH	
0.5	45	3.0	---	---	---	
1.0	28	---	---	---	---	

1169-106						
Depth	Total Lead	WET	DI-WET	TCLP	pH	
0.5	51	2.4	---	---	---	
1.0	30	---	---	---	---	

LEGEND:

- Approximate Boring Location
- Boring Located Beneath Overpass

Total Lead Results in mg/kg
 WET, DI-WET, TCLP Results in mg/l
 Depth in Feet

--- = Analysis not performed



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LA-710 from Pico Overhead to Route 91/710 Separation

Post Mile 5.8/13.1
 Los Angeles, California

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SITE PLAN

April 2012

Figure 2-2



1169-107					
Depth	Total Lead	WET	DI-WET	TCLP	pH
0.5	92	5.3	< 0.06	---	---
1.0	76	6.2	< 0.06	---	---

1169-108					
Depth	Total Lead	WET	DI-WET	TCLP	pH
0.5	68	3.8	---	---	---
1.0	86	6.1	0.07 J	---	---

1169-109					
Depth	Total Lead	WET	DI-WET	TCLP	pH
0.5	170	12	< 0.06	---	7.6
1.0	270	19	0.10 J	0.60	7.4

LEGEND:

-  Approximate Boring Location
-  Boring Located Beneath Overpass

Total Lead Results in mg/kg
 WET, DI-WET, TCLP Results in mg/l
 Depth in Feet

- <0.06 = Not Detected at or above laboratory detection limit indicated
- = Analysis not performed
- J = Result qualified as an estimated value due to analytical bias in precision or accuracy



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LA-710 from Pico Overhead to Route 91/710 Separation

Post Mile 5.8/13.1
 Los Angeles, California

SITE PLAN

GEOCON Proj. No. S9500-06-05

Task Order No. 23

April 2012

Figure 2-3

TABLE 1
 BORING COORDINATES AND SUMMARY OF LEAD AND pH ANALYTICAL RESULTS
 ROUTE 710 FROM PICO AVENUE OH TO ROUTE 91/710 SEPARATION ADL INVESTIGATION
 LOS ANGELES COUNTY, CALIFORNIA

Sample ID	LONGITUDE	LATITUDE	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	DI-WET Lead (mg/l)	TCLP Lead (mg/l)	pH
ROUTE 710 SOUTH & 91 SEPARATION BRIDGE								
1169-101-0.5	-118.19319743	33.87628705	0.0-0.5	16				
1169-101-1.0			0.5-1.0	4.2				
1169-102-0.5	-118.19321480	33.87623536	0.0-0.5	170	2.3		0.20	7.9
1169-102-0.5*			0.0-0.5	36	4.6			
1169-102-1.0			0.5-1.0	51	3.4			
1169-103-0.5	-118.19322698	33.87613135	0.0-0.5	96	6.1	0.17 J		
1169-103-1.0			0.5-1.0	32	2.1			
710 SOUTH & LONG BEACH BOULEVARD BRIDGE								
1169-104-0.5	-118.19933248	33.86325591	0.0-0.5	59	2.1			8.0
1169-104-1.0			0.5-1.0	36	2.6			
1169-105-0.5	-118.19945700	33.86307400	0.0-0.5	45	3.0			
1169-105-1.0			0.5-1.0	28				
1169-106-0.5	-118.19964800	33.86279500	0.0-0.5	51	2.4			
1169-106-1.0			0.5-1.0	30				
710 NORTH & WILLOW STREET BRIDGE								
1169-107-0.5	-118.20722664	33.80458573	0.0-0.5	92	5.3	<0.06		
1169-107-1.0			0.5-1.0	76	6.2	<0.06		
1169-108-0.5	-118.20724612	33.80439126	0.0-0.5	68	3.8			
1169-108-1.0			0.5-1.0	86	6.1	0.07 J		
1169-109-0.5	-118.20720772	33.80425293	0.0-0.5	170	12	<0.06		7.6
1169-109-1.0			0.5-1.0	270	19	0.10 J	0.60	7.4
QA/QC SAMPLES								
1169-EQ-1	Equipment Blank		NA	0.005 U				
1169-FB-1	Field Blank		NA	0.005 J				

Notes:

- mg/kg = Milligrams per kilogram
- mg/l = Milligrams per liter
- WET = Waste Extraction Test using citric acid as the extraction fluid
- DI-WET = Waste Extraction Test using deionized water as the extraction fluid
- TCLP = Toxicity Characteristic Leaching Procedure
- < = Analyte was not detected above the method detection limit
- J = Results qualified as an estimated value due to analytical bias in precision or accuracy
- U = Analyte was positively identified, but was not detected at a concentration equal to or greater than the laboratory practical quantitation limit
- * = Reanalysis results

TABLE 2
SUMMARY OF TITLE 22 METALS ANALYTICAL RESULTS
ROUTE 710 FROM PICO AVENUE OVERHEAD TO ROUTE 91/710 SEPARATION ADL INVESTIGATION
LOS ANGELES COUNTY, CALIFORNIA

Sample ID	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	
1169-109-1.0	<0.08	2.3	100	0.33 J	0.31 J	14	5.0	29	270	0.10 U	0.65 J	12	<0.13	1.0 U	0.88 J	21	200	
TTL	500	500	10,000	75	100	2,500	8,000	2,500	1,000	20	3,500	2,000	100	500	700	2,400	5,000	
STL	15	5.0	100	0.75	1.0	5.0	80	25	5.0	0.2	350	20	1.0	5.0	7.0	24	250	
CHHSLs	Ind	380	0.24	6,300	190	7.5	10,000	3,200	38,000	320	180	4,800	16,000	4,800	4,800	63	6,700	100,000
	Res	30	0.07	5,200	16	1.7	10,000	600	3,000	80	18	380	1,600	380	380	5.0	530	23,000
Background Concentrations ⁽¹⁾																		
Minimum	0.15	0.6	133	0.25	0.05	23	2.7	9.1	12.4	0.05	0.10	9.0	0.015	0.1	5.3	39	88	
Maximum	1.95	12	1,400	2.70	1.7	1,579	46.9	96.4	97.1	0.90	9.6	509	0.43	8.3	36.2	288	236	
Mean	0.60	3.5	509	1.28	0.36	122	14.9	28.7	23.9	0.26	1.3	57	0.058	0.8	15.7	112	149	

Notes:

Results shown in milligrams per kilogram (mg/kg)

< = Not detected above the method detection limit specified

J = Estimated value - concentration is between the method detection limit and the laboratory practical quantitation limit

U = Analyte was positively identified, but was not detected at a concentration equal to or greater than the laboratory practical quantitation limit

TTL = Total Threshold Limit Concentration

STL = Soluble Threshold Limit Concentration

CHHSLs = California Environmental Protection Agency, California Human Health Screening Levels for industrial (Ind) and residential (Res) use

TTL, STL, and CHHSLs shown for chromium are for chromium III.

⁽¹⁾ Background Concentrations of Trace and Major Elements in California Soils

(Kearney Foundation of Soil Science, Division of Agriculture and Natural Resources, University of California, March 1996)

Maximum arsenic background concentration source - *Determination of a Southern California Regional Background Arsenic Concentration in Soil*, DTSC March 2008

APPENDIX A

HEALTH AND SAFETY PLAN

SITE INVESTIGATION

LA-710 FROM PICO OVERHEAD TO
ROUTE 91/710 SEPARATION
POST MILE 5.8/13.1
LOS ANGELES COUNTY, CALIFORNIA



GEOCON
CONSULTANTS, INC.

GEOTECHNICAL
ENVIRONMENTAL
MATERIALS

PREPARED BY

GEOCON CONSULTANTS, INC.
3303 N. SAN FERNANDO BLVD., SUITE 100
BURBANK, CALIFORNIA 91504

PROJECT NO. S9500-06-05
CALTRANS CONTRACT NO. 07A2730
TASK ORDER NO. 23
EA NO. 07-2X9601

FEBRUARY 2012

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[Attachment A - T8 CCR §1532.1 Lead - Appendix A](#)

Figure 1 – Vicinity Map

HEALTH AND SAFETY PLAN SUMMARY

Site Location/Address: LA-710 From Pico Overhead to Route 91/710 Separation,
Post Mile 5.8/13.1
Los Angeles County, California

Project Representatives:

- Project Manager/Cell No.: **Mike Conkle** (213) 503-7841
- Site Safety Officer/Cell No.: **Mike Conkle** (213) 503-7841
- Geocon Consulting CIH: **Doug Krause** (530) 758-6397
Cell No.: (530) 848.9232
- Caltrans TO Manager: **Samuel Yang** (213) 897-4058

Scope:

- General survey/non-intrusive activities
- Soil sampling (hand-auger)

Hazard Summary:

- Mechanical - material handling, slip/trip, struck-by injuries
- Underground and Overhead Utilities
- Noise – road traffic
- Biological - bites or stings
- Chemical – aerially deposited lead (ADL)

Control Summary:

- Personal Protection Equipment (PPE) – ANSI Class II safety vests, hard hats, safety glasses, steel-toed boots
- Site Control - utility location/identification
- Hearing protection – ear plugs/muffs
- Site inspection & awareness; repellent, wasp spray
- Engineering Controls/Isolation/PPE - safe (wet) sampling methods & work practices; protective gloves; sanitation.

Hospital Reference: Pacific Hospital of Long Beach
2776 Pacific Ave., Long Beach, CA 90806
(562) 997-2000

Directions: Exit Route 710 at W Willow Street Turn left on Pacific Avenue. (see Vicinity Map, Figure 1).

Emergency Assistance:

Fire/Police/Medical Assistance: **911**
Poison Control: **800-876-4766**

1.0 INTRODUCTION

This Health and Safety Plan (HSP) is a compilation of health and safety guidelines, policies and/or performance protocols that, when exercised, are intended to reduce or eliminate the potential for injury and exposure during the performance of the activities at the site described below. Conformance with its contents does not warrant that injuries or exposures will not occur.

This HSP is not a training tool and does not contain the degree of detail necessary to train an employee on the appropriate performance, approach and/or equipment-use protocols referenced, herein. It will be assumed that persons working on this project and referring to this HSP meet the minimum training requirements described later, herein.

This HSP has been prepared to specifically support the field activities described herein. The provisions described herein apply to employees of Geocon Consultants, Inc. (Geocon) and its subcontractors, only. Representatives of the Client, Client-retained subcontractors, and representatives of state or local government agencies are expected to observe the safety rules and requirements established by their respective organizations, provided they do not conflict with this HSP, but will not be responsible for enforcing the conditions of this HSP on these representatives.

The contents of this HSP are based on factors and conditions understood prior to the start of the field activities. If those factors and conditions change during the performance of the activities, including the service scope, or if conditions exist that were not considered in the preparation of this HSP, then such shall be brought to the immediate attention of the person approving this HSP, and the HSP shall be modified, accordingly.

A copy of the Plan will be provided to all subcontractors and Caltrans or designee involved with project activities. All project personnel, including Caltrans field inspectors will review, and become familiar with the elements of the Plan prior to site work and acknowledge such by signing the last page of this HSP

A pre-job conference will be held to delineate roles and responsibilities, discuss key elements of the Plan, and coordinate activities. This Plan is a "working document" to be used by affected personnel. The Plan may be modified at any time in accordance with Section 1.4 to adequately address changing conditions or previously unrecognized exposure hazards which may be encountered during the project.

The Plan will be updated at least every six months and a current copy of the Plan will be maintained at the project site and be available to all affected personnel. The date indicated in the lower right-hand corner of this document indicates the latest version of this Plan.

1.1 Project Location and Description

Site Location: LA-710 From Pico Overhead to Route 91/710 Separation,
Post Mile 5.8/13.1, Los Angeles County, California

1.2 Background

Caltrans proposes to repair embankment slopes between the abovementioned post miles. These damaged slopes were results of a series of winter storms from January 17 to March 5, 2010. The storms caused heavy flooding with debris and mud flows throughout the Southern California region. All existing damaged slopes will be repaired in accordance with Caltrans design standards. This includes backfilling and re-grading the failed/damaged slope areas to restore the existing slope conditions.

Aerially deposited lead (ADL) may be present on the site, primarily due to historic leaded fuel emissions from automobile exhausts.

1.3 Project Objectives

The purpose of the scope of services is to evaluate whether ADL soil are present at the site at regulated levels. The site investigation can also be used for recommendations on appropriate handling procedures for handling and disposing of soil generated during excavation activities.

1.4 Planned Scope of Services

- Soil Sampling (hand-auger)

1.5 Schedule

Anticipated Period of Performance: March 2012

Anticipated Weather/Temperature: Moderate

2.0 ADMINISTRATIVE REQUIREMENTS/CONTROLS

2.1 Personnel

Personnel responsible for project safety include the Project Manager (PM), Site Safety Officer (SSO), the Consulting Certified Industrial Hygienist (CIH), and participating project personnel.

2.1.1 Project Manager/ Site Safety Officer

The Project Manager, who will also function as the Site Safety Officer (SSO) has ultimate authority and responsibility for project Health and Safety. Accordingly, he/she has the responsibility to develop the HSP (or assign its development); audit compliance with the provisions of this HSP; suspend project

activities or modify service practices for health and safety reasons, and; to dismiss from a project site individuals whose onsite conduct either endangers the health and/or safety of others or is judged not to comply with the provisions of the HSP. The Project Manager/SSO is responsible for sharing/distributing the HSP to participating field personnel and to an authorized representative of each project subcontractor. The Project Manager/SSO is also responsible for implementing all provisions of the HSP and any applicable addenda. Implementation includes:

- A review of the HSP requirements (if prepared by another project member);
- An overview presentation of the provisions of the HSP with project participants;
- The provision of the safety equipment specified herein;
- The collection and submittal of the requisite health and safety documentation (training rosters/certificates, air monitoring records (exposure assessments); site personnel logs, medical approvals);

Note: Air monitoring and exposure assessment records will be maintained in accordance with the provisions of T8 CCR §3204, Access to Employee Exposure and Medical Records as well as requirements in T8 CCR §1532.1 – Lead.

- Maintaining project safety equipment supplies;
- Performing air monitoring, if and as specified herein (ref: T8 CCR §1532.1(d) Lead Exposure Assessment);
- Directing decontamination operations, as appropriate;
- First line enforcement of the provisions of this HSP;
- Directing emergency response operations until public emergency personnel arrive,
- Setting up site controls, if and as specified herein; and,
- Reporting all Plan amendments to the Consulting CIH.

The Project Manager/SSO has the authority to temporarily suspend project activities any time he/she determines that the provisions of the HSP are inadequate to provide a service/project environment conducive to employee safety. The Project Manager/SSO will counsel (warn) and/or discipline any individuals whose onsite actions jeopardize either their health and safety or the health and safety of others.

2.1.2 Geocon Certified Industrial Hygienist

The Consulting CIH provides industrial hygiene and safety technical support to the Project Manager/SSO. In this capacity, the CIH:

- Provides training, as requested;
- Approves or recommends airborne sampling strategies and monitoring equipment;
- Provides technical support for the selection and use of Personal Protective Equipment (PPE); and,
- Provides arbitration on project health and safety issues.

2.1.3 Project Field Staff

All project personnel are responsible for:

- Complying with the provisions of this HSP;
- Performing services in a manner that is consistent with good health and safety practice; and
- Reading and being knowledgeable of the contents of this HSP.

2.2 Personnel Training

2.2.1 General Site Employees

Site employees will attend a project orientation prior to starting the project. The orientation will review all elements of the HSP, including: 1) the location of potential health and safety hazards on the site and 2) requirements of the HSP. The training will also address other Cal/OSHA requirements such as the Geocon Hazard Communication Program (T8 CCR §5194), including the potential hazards of exposure to lead (T8 CCR §1532.1(l)) and the Injury and Illness Prevention Program (T8 CCR §3203).

2.2.2 “Tailgate” Meetings

During the active field components of the project, the Project Manager/SSO or designee will conduct regular (i.e., weekly or daily, as appropriate) “tailgate” safety meetings. This meeting will include information on the following subjects, as applicable:

- Changes to project scope;
- Recognized changes to site conditions;
- Review of safe work practices;
- On or off the project safety practices;
- Feedback from employees on hazards, safety suggestions, or concerns; and
- Recognition for compliance, good safety performance or attitude.

Attendance at the tailgate meetings is considered a part of each employee’s job responsibilities.

2.3 Medical Surveillance

Based on Negative Exposure Assessments from industrial hygiene monitoring for airborne inorganic lead performed for representative tasks, using similar controls, and carried out within the past twelve months (ref. T8 CCR §1532.1(d)(5)(A)), medical surveillance is not mandate for these tasks nor is respiratory protective equipment required for this project.

Therefore, additional exposure assessments will not be required and Medical Surveillance as specified under T8 CCR §1532.1 is not required or justified for personnel assigned to this project.

Geocon and subcontractor employees required to wear respiratory protection shall have a current medical evaluation and approval by a physician or other licensed health care professional (PLHCP). Medical evaluations will be provided in accordance with the Geocon Respiratory Protective Equipment Program (ref. T8 CCR §5144(e) “Medical Evaluation”).

Project personnel are to arrive at the jobsite well rested and physically prepared to perform assigned tasks.

3.0 HAZARD AND CONTROL ANALYSIS

The following hazards were assessed to either exist, or have the potential to develop, during the performance of the project activities:

TASKS	HAZARDS							
	MECHANICAL	ELECTRICAL/ UTILITY	NOISE	BIOLOGICAL	RADIOLOGICAL	THERMAL	CHEMICAL	OTHER
Driving	X							
Soil sampling	X	X	X	X			X	

3.1 Safe Driving

Hundreds of workers are injured or die in job-related motor vehicle accidents annually. Motor vehicle accidents are one of the number-one causes of employee injuries and deaths. Most accidents can be avoided by practicing defensive driving. Geocon policies mandate that employees:

- Prepare themselves and their vehicle for the road before travel;
- Drive according to posted speed limits unless adverse conditions necessitate slower speeds;
- Never tailgate, employ the three (3) second rule in following vehicles;
- Follow California State Law and other local laws and regulations regarding the use of cellular phones for communication while driving;
- Additionally, talking on a cell phone and/or texting is prohibited while working near drill rigs or operating sampling equipment; and,
- Use practical driving procedures in cities, on the freeway, and in rural areas.

3.2 Mechanical Hazards

Type(s)/Source:

- Material Handling/Back Injury

- Striking (slips, trips); and
- Struck-by injuries

Qualified Exposure Risk: Moderate

Hazard Control(s):

- Safe Lifting
- Isolation - shoulder closure traffic control/work methods/no work during inclement weather or darkness
- PPE – ANSI safety vests; hard hats; safety-toe shoe or boot; safety glasses

3.2.1 Material Handling/Back Injury

Hazard: It is expected that field personnel will be required to lift heavy equipment and supplies and/or perform arduous tasks during this project. Accordingly, back injuries or physical strain may be caused by: routine lifting or one-time-only lifting; the weight of a lifted object; the frequency of lifting; bending, twisting, or rotating during lifting; prolonged sitting; exposure to vibrations; poor arch support in shoes; and, not stretching prior to physical activity. If the following “control” mechanisms are not exercised, debilitating back injury may occur.

Control(s): Before attempting to lift and carry an object, always test its weight first. If it is too heavy, get help. If possible, use mechanical lifting aids. If manageable, the proper method for lifting is:

- Get a good footing;
- Place feet about shoulder width apart;
- Bend knees to pick up load. Never bend from the waist;
- Keep back straight;
- Get a firm hold. Grasp opposite corners of the load, if possible;
- Keep the back as upright as possible;
- Lift gradually by straightening the legs - don't jerk the load;
- Keep the weight as close to the body as possible; and
- When changing directions, turn the entire body, including the feet. Don't twist the body.

If devices are used for handling materials manually (e.g., two-handed lifters, barrel ring clamps, hand trucks, wheelbarrows, etc.), wear protective equipment like gloves and safety shoes to minimize the potential of appendages becoming pinched or smashed between the load and stationary features. Also, avoid overloading the device.

3.2.2 "Striking" Injuries

Hazard: Injuries can, and often, result when a person (a kinetic mass) unexpectedly instigates contact with another kinetic mass. These occurrences typically result from inadvertent slips, trips and falls.

Control(s): To minimize risks of "slip/trip" hazards, personnel shall maintain a constant program of good housekeeping, keeping areas clear of trip hazards and wet and slippery surfaces. All hand tools shall be regularly secured and care shall be taken when entering areas where work is being performed above eye level.

3.2.3 "Struck-by" Injuries

Hazard: Injuries can, and often, result when workers are the unexpected receptor of contact with another kinetic mass. These occurrences typically result from the worker being struck by a dropped or collapsed mass, a moving piece of equipment, or more likely a moving vehicle.

Control(s): Engage the vehicle's warning light bar whenever planning to pull off or exit the highway. When stopped or parked, continue use of the light bar. Employees/workers shall not exit the vehicle until they have successfully pulled off of the highway. In those instances where it is not possible to clear the shoulder, workers shall exit the vehicle on the side opposite the adjacent traffic flow. Geocon employees will be required to wear hard hats and fluorescent vests and place safety cones at 10-yard intervals for a minimum of 30 yards (if achievable) from the left rear corner of the vehicle so they may be seen by adjacent traffic.

If shoulder and/or lane closure is required to perform the services, it shall be provided in conformance with Caltrans' *Standard Provisions for Maintaining Traffic* as specified in *Standard Plans T-10, T-10A, T-11, T-12, T-13, and T-14*.

Workers shall maintain a constant awareness of traffic patterns/conditions throughout the duration of the field services.

3.3 Underground Utility Hazards

Type(s)/Source: Water, sewer, electric, fiber optic, gas, or fuel

Potential Hazards: Flooding, shock or electrocution, fire or explosion

Qualified Exposure Risk: Low – Hand-auger sampling

Hazard Controls: Site control, isolation, and third-party inspection, i.e., independent utility locator

Demarcate all drilling/digging locations, first. Contact Underground Service Alert (USA) (1-800-227-2600) and review as-built plans before performing any excavation/drilling/coring activity. It is advised that a private utility locator be contacted to supplement USA's demarcations, especially when the project is on private property. Soil intrusive work shall not proceed until all locating activities have

been completed and fully documented in the site records. The initial site safety orientation meeting for all personnel onsite shall include a review of the underground utility locations and the location of the site map, showing the position of any underground utility lines. The site safety orientation shall include a site walkover of each marked utility or line.

Should a sub-surface condition be encountered that creates suspicion that there may be an unidentified underground line or utility, immediately cease work and secure the equipment. Work will not proceed until the potential risk or condition is resolved.

3.4 Noise Hazards

Equipment operated at sampling sites may present a noise hazard to employees. In all cases where the sound pressure levels may exceed a time-weighted average noise dose of 85 decibels (the Action Level), the Project Manager/SSO will evaluate exposures according to the Geocon Hearing Conservation Program (ref. T8 CCR §§5095-5100). Selection of hearing protection will be made in accordance with the Geocon Safety Equipment Guide. Only hearing protectors (ear plugs or muffs) with a Noise Reduction Rating of 20 dB, or higher, will be used. When worn, earmuffs will be donned in the "over the head" position with the hair pulled back from the sealing surface.

Note: In general, noise levels in excess of 85 dBA interfere with communication between two individuals speaking in a normal tone of voice at a distance of 3 feet from one another.

3.5 Biological Hazards –Biting Insects (Vectors) & Animals

Qualified Exposure Risk: Low

Hazard Controls:

- Isolation (Attention to detail – avoidance)
- PPE (Gloves/boots/long-sleeve shirts)
- Wear long-sleeve shirts, long pants, and high top stockings
- Repellent, wasp spray, pepper spray

Hazard: Contact with plants, insects, and animals likely to be present at the site should be avoided. Plants (such as poison oak or ivy) can cause an allergic reaction and skin rash in some individuals. Stinging and biting insects, including bees, spiders, and ticks, can cause extreme discomfort and/or serious allergic responses. Insect bites are generally not dangerous, unless they are from a poisonous insect or mosquitoes potentially carrying West Nile virus.

The primary concern with animal bites and scratches is the potential for infection and/or rabies. Snake or scorpion bites can also be dangerous, but more from infection or trauma than the toxins injected by the snake or scorpion.

Control(s): Avoid conducting site activities from dusk to dawn when the risk of encountering biting mosquitoes is higher. Before beginning fieldwork each day, inspect the work area for the presence of standing water, poisonous plants and inhabitant reptiles, and take measures necessary to minimize the potential for contact. Specially prepared topical barriers, such as Teknu®, for protection against poison oak, and insect repellent containing approximately 50% DEET for protecting exposed skin from biting insects; the more DEET a repellent contains the longer time it can provide protection from mosquito bites. Apply insect repellent sparingly to exposed skin. These products are commercially available and may minimize the potential for development of skin rashes and/or irritations due to such exposures. If unprotected contact with potentially poisonous plants does exist, wash with soap and water as soon as possible. If irritation still develops, apply First Aid and/or seek medical attention, accordingly. If you are allergic to bee or wasp stings, be sure to have the appropriate first aid available (e.g., an epi-pen) on the project. If you are stung, administer first aid and seek immediate medical attention.

Be sure a reptile or animal bite victim obtains medical attention quickly if a bite or scratch occurs, especially if there is a potential that it was poisonous. In the meantime, administer First Aid by scrubbing the wound with soap and water, and rinsing thoroughly under running water. Dry off and place a clean bandage on the wound. Victims of these bites should lie down and remain calm and motionless; cold packs should be applied and medical attention sought immediately.

3.6 Chemical Hazards – Inorganic Lead

The risk of significant exposure to aerially deposited inorganic lead in soils is considered to be low while performing characterization tasks required on this project. Sampling methods and work practices to be employed, as well as damp soil conditions, which are common in the area during the winter season, will reduce the potential for significant exposures to airborne lead or other contaminants.

Detailed information regarding the physical description of inorganic lead, including health hazards, routes of entry into the body, signs and symptoms of exposure, and target organs, published exposure limits (PEL- TWA and Action Level) is available in [Attachment A – Lead](#), which is the Substance Information Sheet referenced in T8 CCR §1532.1 .

Types/Source: Aerially deposited inorganic lead (ADL)

Exposure Routes: Inhalation and ingestion;
ref. [Attachment A - T8 CCR §1532.1 Lead - Appendix A](#)

Qualified Exposure Risk: Low, due to wet or moist soil conditions

Primary “Control”:

- Site Control – formal work zones will be established around drilling operations (ref. Section 4.2)
- T8 CCR §5145 Media for Allaying Dusts (wet methods) and adherence to safe work practices, and specific sampling methods and procedures

Negative Exposure Assessment: Results of industrial hygiene monitoring of representative tasks and sampling procedures for aerially deposited lead impacted shallow soils using wet controls document exposures consistently below the 30 µg/m³ Action Level for airborne inorganic lead (ref. T8 CCR §1532.1(d)(5)(A))

- Avoid contact with, and inhalation of, airborne contaminated soil/dust.
- PPE (Gloves/glasses)
- Follow good personal hygiene practices (see Section 4.2).

CHEMICAL NAME AND CAS#	ROUTES OF ENTRY	PUBLISHED EXPOSURE LIMITS		
		CATEGORY	CONCENTRATION	SOURCE
Lead, Elemental & Inorganic Compounds 7439-92-1	Inhalation	PEL-TWA	0.05 mg/m ³	Cal/OSHA
	Ingestion	Action Limit	0.03 mg/m ³	

4.0 GENERAL HEALTH AND SAFETY REQUIREMENTS

4.1 Air Monitoring

Industrial hygiene monitoring will not be performed for the inorganic lead sampling tasks being carried out for this project. Based on Negative Exposure Assessments for inorganic lead while performing similar sampling and characterization activities carried out within the past twelve months, the airborne levels were well below the Cal/OSHA Action Level for airborne lead of 30 micrograms per cubic meter of air (30 µg/m³) (ref. T8 CCR §1532.1(d)(5)(A)).

4.2 Personal Hygiene

The SSO will establish hand-wash facilities, including clean water, hand soap, waterless hand cleaner, sanitary wipes and clean towels at the project site. All Geocon personnel, subcontractor employees, and Caltrans field inspectors and engineers leaving the project site (work zones) will clean potential impacted soils from their footwear and wash hands prior to leaving the project site (ref. T8 CCR §1527(a)(2)). In addition, the following procedures will be followed to ensure worker protection against potential exposure through ingestion:

- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-in-mouth transfer and ingestion of material is prohibited in any area designated as being potentially impacted.
- Hands and face must be thoroughly washed upon leaving the work area, and before eating, drinking, or other non-project activities.
- Avoid unnecessary kneeling, sitting, leaning, or general contact with potentially impacted surfaces or with surfaces suspected of being potentially impacted by hazardous materials (i.e., puddles, mud, leachate, etc.).

- Medicine and alcohol can potentiate the effects of exposure to toxic chemicals. Personnel should take neither if the likelihood of such potentiation exists. Being under the influence of alcohol during the field activities is prohibited.

4.3 Buddy System

Project personnel are to work with another person when performing sampling tasks; the client or a subcontractor's representative can serve as the second person while the work is being conducted in the field. Under no circumstances, other than completion of paper work at the end of the day, are field personnel to work alone at the site.

4.4 Work Zone Controls

With exception to the traffic controls discussed in Section 3.3.3, formal work, as referenced above, although airborne concentrations of lead are not anticipated to exceed the 30 $\mu\text{g}/\text{m}^3$ Action Level, nevertheless, work zones (Exclusion and Support) will be established for this project to minimize risk to non-project personnel and the public. Conventional construction signs, barricades and caution tape shall be utilized to control access and egress of project workers from potential lead impacted areas (zones), maintain security, and prevent access to the project site from the public.

4.5 Code of Safe Practices

General safe work practices to be utilized by all project personnel are summarized below:

- All nonessential personnel will be kept clear of work areas.
- Adequate signs and safety devices will be installed on equipment.
- The use of entertainment and personal communication devices in the work zone shall not be allowed.
- All site employees will wear assigned personal protective equipment and level of protection as designated by the Site Safety Officer.
- Eating, drinking, smoking, chewing gum or tobacco, or application of cosmetics is allowed in designated areas only.
- At a minimum, all personnel will wash with soap and water before lunch, using the restroom, and at the end of work. The face and hands shall be washed before eating, drinking, smoking, chewing gum, applying cosmetics, etc.
- Over-the-counter drugs and prescription medications must be reported to the Site Safety Officer for clearance before an employee is allowed to work near drill rig or other heavy equipment.
- When portable electric tools and equipment are used, three-wire extension cords are required.
- Employees will advise their supervisors of any malfunctioning equipment immediately.
- An ongoing safety maintenance program for tools and equipment will be instituted. Inspections will occur on a regular basis to ensure parts are secure and intact. Defective equipment will be repaired or replaced.

- Appropriate engineering controls and equipment guards will be installed on tools and equipment. This includes seat belts & backup warning lights and signals.
- A list of names of personnel who are trained in CPR and first aid shall be available.
- Labels shall be placed on containers of hazardous materials.
- No one will work alone; the "buddy system" shall be implemented for all field work.
- Employees shall be trained to identify effects and symptoms of toxic exposure and report them immediately.
- Under no circumstances are Geocon personnel authorized to enter a confined space.

5.0 PERSONAL PROTECTIVE EQUIPMENT

The employment of the engineering controls is the preferred method of providing personal protection from hazards identified at this and any site. PPE provides acceptable secondary recourse, but only when engineering controls fail or cannot adequately eliminate exposure to the hazard. The use of PPE is intended to provide protection for onsite personnel from operational hazards that cannot be controlled through other safety procedures or work practices.

PPE required to be onsite for each worker during this project will include:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Hard Hat (without face Shield) | <input checked="" type="checkbox"/> Safety Glasses |
| <input checked="" type="checkbox"/> Leather Safety Toe Boots/Shoe | <input checked="" type="checkbox"/> Disposable inner gloves (for sample handling) |
| <input checked="" type="checkbox"/> Chem. Resistant Boots | <input checked="" type="checkbox"/> Chem. Resistant gloves |
| <input checked="" type="checkbox"/> Leather Gloves (optional) | <input type="checkbox"/> Air-Purifying Respirator |
| <input checked="" type="checkbox"/> Hearing Protection - Ear Plugs/Muffs | <input type="checkbox"/> APR Cartridges |
| <input checked="" type="checkbox"/> ANSI Approved Safety Vest | <input type="checkbox"/> Tyvek coveralls |
| <input type="checkbox"/> Other | |

Only ANSI approved PPE and NIOSH approved respirators will be assigned for use. The use applications for this equipment are summarized in the following matrix. Specific procedures are further described below.

TASKS	PPE												
	Hard Hat	Safety Glasses	Leather or Synthetic Safety Toe Boots	Chemical Resistant Boots	Disposable Inner Gloves	Chemical Resistant Gloves	Leather or Synthetic Work Gloves	Ear Plugs/Muffs	Air-Purifying Respirator	APR Cartridges	ANSI Class II Safety Vest	Tyvek Coveralls	Other
General Survey Non-Sampling Activities	X	X	X					X			X		
Soil sampling	X	X	X		X		X	X			X		

5.1 Respiratory Protection

Respiratory protection will not be required during sampling activities. The Project Manager/SSO will determine the need for upgrading the level of protection from “D” to “C”. If it is determined that respiratory protection is required, personnel shall don a full facepiece or half-mask air-purifying respirator fitted with a combination organic vapor (Black), or organic vapor-acid gas (Yellow) and HEPA (P100, Magenta) cartridge. If unanticipated conditions arise that warrant the use of respiratory protective equipment, the Project Manager/SSO will immediately contact the Consulting Certified Industrial Hygienist.

5.2 PPE – Level D Protection

The protective equipment to be donned by personnel working in the sampling areas (Exclusion Zones) includes:

- Body Protection: Body protection shall include the use of "work clothing," including long pants and long- or short-sleeved shirts, and Class II ANSI approve safety vest.
- Head Protection: Non-metallic hard hats shall be worn by all personnel; ref. T8 CCR §§1514 & 3385 Head Protection.
- Hearing Protection: Hearing protection shall include the use of foam ear inserts or muffs; ref. T8 CCR §5098.
- Eye Protection: Protective eye wear (i.e., safety glasses) shall be worn by personnel working in direct proximity to operating heavy equipment and highway traffic; ref. T8 CCR §§1514 & 3385 Eye Protection.
- Hand Protection: Appropriate hand protection shall be required for employees whose work involves unusual and excessive exposure of hands to cuts capable of causing injury or impairments; ref. T8 CCR §§1514 & 3384 Hand Protection.
- Foot Protection: foot protection, such as steel toed shoes or boots shall be required for employees who are exposed to foot injuries from electrical hazards, falling objects, or crushing or penetrating actions; ref. T8 CCR §§1514 & 3385 Foot Protection.

5.3 PPE – Level “C” Protection

Level D Protection may be up-graded to Level C protection if at any time the effectiveness of controls is a concern. However, Level C protection shall only be downgraded upon approval by Project Manager/SSO in consultation with the Consulting CIH.

5.4 Miscellaneous Safety Equipment

Additional protective equipment to be available to personnel working at the site includes portable radios/walkie talkies or cell phones shall accompany all personnel.

6.0 DECONTAMINATION

The Project Manager/SSO will establish a work zone around each sampling location. The zone will be established to minimize the potential spread of contaminated soils.

The following decontamination (cleansing/disposal) procedures for equipment and PPE have been developed with the intent of reducing the potential for the transfer of hazardous soil from the site(s). Decontamination should be performed in direct proximity to each work area. The primary principle in consideration of decontamination procedure is: Avoid unnecessary contamination of PPE and Sampling Equipment.

6.1 Equipment Decontamination

Decontamination of soil sampling equipment shall include washing with a solution of TSP, Alconox[®], or Liquinox[®] and water followed by a tap water rinse and a third rinse of deionized water between samples and before vacating the work area.

6.2 PPE Decontamination

The project manager/SSO will determine the necessity for and arrangement of decontamination appropriate to this project. Consumable PPE may be discarded as general refuse. Brush loose dust and soil from pants and shoes before entering vehicles.

Respirator decontamination, if required, shall include a wash with soap and water followed by a clean water rinse.

7.0 EMERGENCY RESPONSE PROCEDURES

7.1 Physical Injury

In the event of an accident resulting in physical injury, call emergency service personnel immediately and perform first aid commensurate with training and seriousness of the injury. Severely injured personnel are to be transported only by emergency service personnel and/or by ambulance personnel, unless a life-threatening condition is judged to exist that must be addressed immediately.

The Project Manager/SSO, or designee will prepare a written report within 24 hours of the accident.

7.2 Catastrophic Event

In the event of a catastrophic event (e.g., severe personal injury, fire, explosion, and/or property damage), notify the fire/safety and rescue department immediately by dialing 911.

Any accident involving serious injury will require suspension of site activities until the Project Manager/SSO (or designee) has completed a review of the events and site conditions and authorized work to resume.

The Project Manager/SSO (or designee) will notify the nearest Cal/OSHA District Office immediately (within 8-hours) by phone or fax upon learning of a death or serious injury:

Torrance District Office
680 Knox Street, Suite 100
Torrance, CA 90502

Tel: (310) 516-3734
Fax: (310) 516-4253

7.3 Emergency Telephone Numbers

Fire/Police/Medical Assistance: **911**
Poison Control: **(800) 876-4766**

Other phone numbers may be available or required for emergency response at specific sites. Check with onsite representatives before mobilizing to the job site.

7.4 Project Site Address

Site Location: LA-710 From Pico Overhead to Route 91/710 Separation,
Post Mile 5.8/13.1, Los Angeles County, California

7.5 Hospital Address and Route

Hospital Reference: Pacific Hospital of Long Beach
2776 Pacific Ave. Long Beach, CA 90806
(562) 997-2000

Directions: Exit Route 710 at W Willow Street Turn left on Pacific Avenue (see Vicinity Map, Figure 1).

8.0 PLAN APPROVAL

The undersigned has reviewed and approved this Health and Safety Plan prepared for the LA-710 site investigation as described herein.



 Douglas S. Krause, CIH
 Geocon Consulting Certified Industrial Hygienist
 ABIH Certification No. 2123, Exp. June 1, 2015



February 27, 2012

 Date



 Mike Conkle, PG
 Project Manager/SSO

February 28, 2012

 Date

The following personnel, including subcontractors involved with the project activities have reviewed, or received a copy of this Plan and Attachment A and agree to follow the health and safety procedures described herein.

Print Name	Title	Signature	Date

I. SUBSTANCE IDENTIFICATION INORGANIC LEAD

- A Substance: Pure lead (Pb) is a heavy metal at room temperature and pressure and is a basic chemical element. It can combine with various other substances to form numerous lead compounds.
- B Compounds covered by the standard: The word "lead" when used in this standard means elemental lead, all inorganic lead compounds and a class of organic lead compounds called lead soaps. This standard does not apply to other organic lead compounds.
- C Uses: Exposure to lead occurs in several different occupations in the construction industry, including demolition or salvage of structures where lead or lead-containing materials are present; removal or encapsulation of lead-containing materials, new construction, alteration, repair, or renovation of structures that contain lead or materials containing lead; installation of products containing lead. In addition, there are construction related activities where exposure to lead may occur, including transportation, disposal, storage, or containment of lead or materials containing lead on construction sites, and maintenance operations associated with construction activities.
- D Permissible exposure: The permissible exposure limit (PEL) set by the standard is 50 micrograms of lead per cubic meter of air (50 µg/m³) averaged over an 8-hour workday.
- E Action level: The standard establishes an action level of 30 micrograms of lead per cubic meter of air (30 µg/m³) averaged over an 8-hour workday. The action level triggers several ancillary provisions of the standard such as exposure monitoring, medical surveillance, and training.

II. HEALTH HAZARD DATA

- A Ways in which lead enters your body. When absorbed into your body in certain doses, lead is a toxic substance. The object of the lead standard is to prevent absorption of harmful quantities of lead. The standard is intended to protect you not only from the immediate toxic effects of lead, but also from the serious toxic effects that may not become apparent until years of exposure have passed. Lead can be absorbed into your body by inhalation (breathing) and ingestion (eating). Lead (except for certain organic lead compounds not covered by the standard, such as tetraethyl lead) is not absorbed through your skin. When lead is scattered in the air as a dust, fume or mist it can be inhaled and absorbed through your lungs and upper respiratory tract. Inhalation of airborne lead is generally the most important source of occupational lead absorption. You can also absorb lead through your digestive system if lead gets into your mouth and is swallowed. If you handle food, cigarettes, chewing tobacco, or make-up which have lead on them or handle them with hands contaminated with lead, this will contribute to ingestion. A significant portion of the lead that you inhale or ingest gets into your blood stream. Once in your blood stream, lead is circulated throughout your body and stored in various organs and body tissues. Some of this lead is quickly filtered out of your body and excreted, but some remains in the blood and other tissues. As exposure to lead continues, the amount stored in your body will increase if you are absorbing more lead than your body is excreting. Even though you may not be aware of any immediate symptoms of disease, this lead stored in your tissues can be slowly causing irreversible damage, first to individual cells, then to your organs and whole body systems.
- B Effects of overexposure to lead.
 - 1. Short term (acute) overexposure. Lead is a potent, systemic poison that serves no known useful function once absorbed by your body. Taken in large enough doses, lead can kill you in a matter of days. A condition affecting the brain called acute encephalopathy may arise which develops quickly to seizures, coma, and death from cardiorespiratory arrest. A short term dose of lead can lead to acute encephalopathy. Short term occupational exposures of this magnitude are highly unusual, but not impossible. Similar forms of encephalopathy may, however, arise from extended, chronic exposure to lower doses of lead. There is no sharp dividing line between rapidly developing acute effects of lead, and chronic effects which take longer to acquire. Lead

adversely affects numerous body systems, and causes forms of health impairment and disease which arise after periods of exposure as short as days or as long as several years.

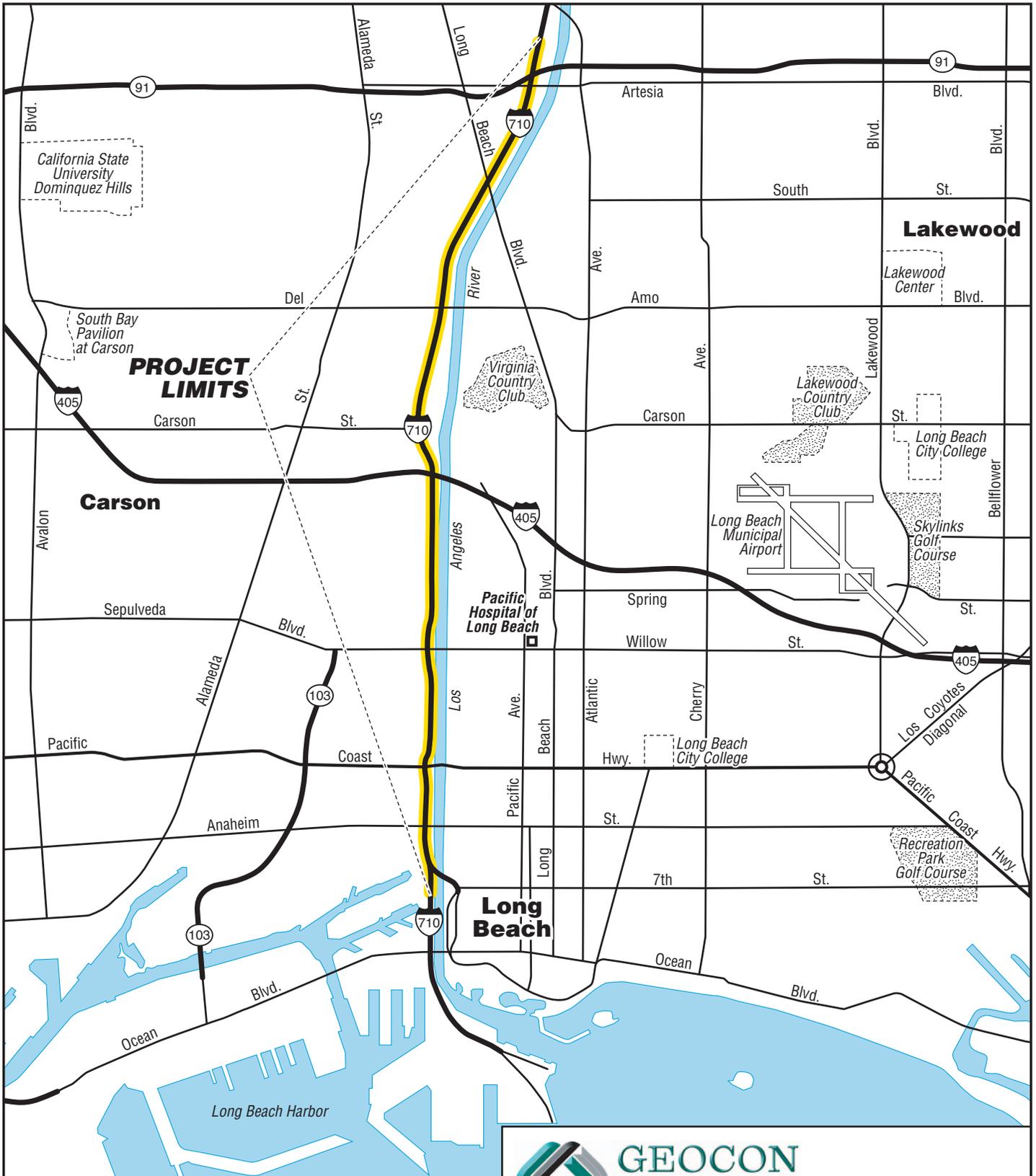
2. Long-term (chronic) overexposure. Chronic overexposure to lead may result in severe damage to your blood-forming, nervous, urinary and reproductive systems. Some common symptoms of chronic overexposure include loss of appetite, metallic taste in the mouth, anxiety, constipation, nausea, pallor, excessive tiredness, weakness, insomnia, headache, nervous irritability, muscle and joint pain or soreness, fine tremors, numbness, dizziness, hyperactivity and colic. In lead colic there may be severe abdominal pain. Damage to the central nervous system in general and the brain (encephalopathy) in particular is one of the most severe forms of lead poisoning. The most severe, often fatal, form of encephalopathy may be preceded by vomiting, a feeling of dullness progressing to drowsiness and stupor, poor memory, restlessness, irritability, tremor, and convulsions. It may arise suddenly with the onset of seizures, followed by coma, and death. There is a tendency for muscular weakness to develop at the same time. This weakness may progress to paralysis often observed as a characteristic "wrist drop" or "foot drop" and is a manifestation of a disease to the nervous system called peripheral neuropathy. Chronic overexposure to lead also results in kidney disease with few, if any, symptoms appearing until extensive and most likely permanent kidney damage has occurred. Routine laboratory tests reveal the presence of this kidney disease only after about two-thirds of kidney function is lost. When overt symptoms of urinary dysfunction arise, it is often too late to correct or prevent worsening conditions, and progression to kidney dialysis or death is possible. Chronic overexposure to lead impairs the reproductive systems of both men and women. Overexposure to lead may result in decreased sex drive, impotence and sterility in men. Lead can alter the structure of sperm cells raising the risk of birth defects. There is evidence of miscarriage and stillbirth in women whose husbands were exposed to lead or who were exposed to lead themselves. Lead exposure also may result in decreased fertility, and abnormal menstrual cycles in women. The course of pregnancy may be adversely affected by exposure to lead since lead crosses the placental barrier and poses risks to developing fetuses. Children born of parents either one of whom were exposed to excess lead levels are more likely to have birth defects, mental retardation, behavioral disorders or die during the first year of childhood. Overexposure to lead also disrupts the blood-forming system resulting in decreased hemoglobin (the substance in the blood that carries oxygen to the cells) and ultimately anemia. Anemia is characterized by weakness, pallor and fatigability as a result of decreased oxygen carrying capacity in the blood.
3. Exposure to lead throughout a working lifetime requires that a worker's blood lead level (BLL, also expressed as PbB) be maintained at or below forty micrograms per deciliter of whole blood (40 µg/dl). The blood lead levels of workers (both male and female workers) who intend to have children should be maintained below 30 µg/dl to minimize adverse reproductive health effects to the parents and to the developing fetus. The measurement of your blood lead level (BLL) is the most useful indicator of the amount of lead being absorbed by your body. Blood lead levels are most often reported in units of milligrams (mg) or micrograms (ug) of lead (1 mg=1000 µg) per 100 grams (100g), 100 milliliters (100 ml) or deciliter (dl) of blood. These three units are essentially the same. Sometime BLLs are expressed in the form of mg% or µg%. This is a shorthand notation for 100g, 100 ml, or dl. (Reference to BLL measurements in this standard are expressed in the form of µg/dl.)

BLL measurements show the amount of lead circulating in your blood stream, but do not give any information about the amount of lead stored in your various tissues. BLL measurements merely show current absorption of lead, not the effect that lead is having on your body or the effects that past lead exposure may have already caused. Past research into lead-related diseases, however, has focused heavily on associations between BLLs and various diseases. As a result, your BLL is an important indicator of the likelihood that you will gradually acquire a lead-related health impairment or disease.

Once your blood lead level climbs about 40 µg/dl, your risk of disease increases. There is a wide variability of individual response to lead, thus it is difficult to say that a particular BLL in a given person will cause a particular effect. Studies have associated fatal encephalopathy with BLLs as low as 150 µg/dl. Other studies have shown other forms of diseases in some workers with BLLs well below 80 µg/dl. Your BLL is a crucial indicator of the risks to your health, but one other factor is also extremely important. This factor is the length of time you have had elevated BLLs. The longer you have an elevated BLL, the greater the risk that large quantities of lead are being gradually stored in your organs and tissues (body burden). The greater your overall body burden, the greater the chances of substantial permanent damage. The best way to prevent all forms of lead-related impairments and diseases -- both short term and long term -- is to maintain your BLL below 40 µg/dl. The provisions of the standard are designed with this end in mind.

Your employer has prime responsibility to assure that the provisions of the standard are complied with both by the company and by individual workers. You, as a worker, however, also have a responsibility to assist your employer in complying with the standard. You can play a key role in protecting your own health by learning about the lead hazards and their control, learning what the standard requires, following the standard where it governs your own actions, and seeing that your employer complies with provisions governing his or her actions.

4. Reporting signs and symptoms of health problems. You should immediately notify your employer if you develop signs or symptoms associated with lead poisoning or if you desire medical advice concerning the effects of current or past exposure to lead or your ability to have a healthy child. You should also notify your employer if you have difficulty breathing during a respirator fit test or while wearing a respirator. In each of these cases, your employer must make available to you appropriate medical examinations or consultations. These must be provided at no cost to you and at a reasonable time and place. The standard contains a procedure whereby you can obtain a second opinion by a physician of your choice if your employer selected the initial physician.



GEOCON
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3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA. 91504
PHONE 818.841.8388 - FAX 818.841.1704

LA-710 from Pico Overhead to Route 91/710 Separation

Post Mile 5.8/13.1
Torrance, California

VICINITY MAP

GEOCON Proj. No. S9500-06-05

Task Order No. 23

March 2012

Figure 1

APPENDIX B



Photo 1 – View of boring 1169-101 location



Photo 2 – Completed boring 1169-101

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3303 N. San Fernando Blvd., Suite 100, Burbank, CA 91504
PHONE (818) 841-8388 – FAX (818) 841-1704



SITE PHOTOS 1 and 2

ADL Soil Investigation
Interstate 710 Freeway
Los Angeles County, California

S9500-06-05

March 2012



Photo 3 – View of boring 1169-102 location



Photo 4 – Completed boring 1169-102

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SITE PHOTOS 3 & 4
ADL Soil Investigation
Interstate 710 Freeway
Los Angeles County, California

S9500-06-05

March 2012



Photo 5 – View of boring 1169-103 location



Photo 6 – Completed boring 1169-103

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SITE PHOTOS 5 & 6
ADL Soil Investigation
Interstate 710 Freeway
Los Angeles County, California

S9500-06-05

March 2012



Photo 7 – View of boring 1169-104 location

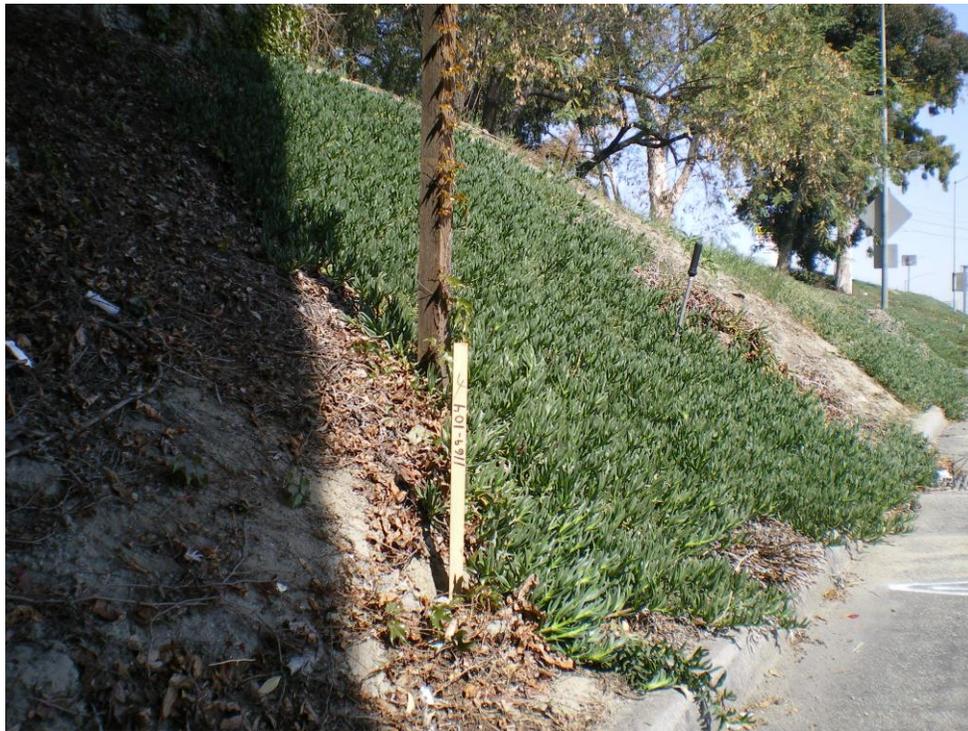


Photo 8 – Completed boring 1169-104

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SITE PHOTOS 7 & 8
ADL Soil Investigation
Interstate 710 Freeway
Los Angeles County, California

S9500-06-05

March 2012



Photo 9 – View of boring 1169-105 location



Photo 10 – Completed boring 1169-105

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SITE PHOTOS 9 & 10

ADL Soil Investigation
Interstate 710 Freeway
Los Angeles County, California

S9500-06-05

March 2012



Photo 11 – View of boring 1169-106 location



Photo 12 – Completed boring 1169-106

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SITE PHOTOS 11 & 12

ADL Soil Investigation
Interstate 710 Freeway
Los Angeles County, California

S9500-06-05

March 2012



Photo 13 – View of boring 1169-107 location



Photo 14 – Completed boring 1169-107

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SITE PHOTOS 13 & 14

ADL Soil Investigation
Interstate 710 Freeway
Los Angeles County, California

S9500-06-05

March 2012



Photo 15 – View of boring 1169-108 location



Photo 16 – Completed boring 1169-108

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SITE PHOTOS 15 & 16

ADL Soil Investigation
Interstate 710 Freeway
Los Angeles County, California

S9500-06-05

March 2012



Photo 17 – View of boring 1169-109 location



Photo 18 – Completed boring 1169-109

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SITE PHOTOS 17 & 18

ADL Soil Investigation
Interstate 710 Freeway
Los Angeles County, California

S9500-06-05

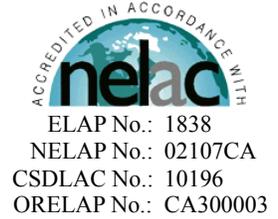
March 2012

APPENDIX C



March 06, 2012

Duane Paul
AMEC Environmental & Infrastructure, Inc.
121 Innovation Drive, Suite 200
Irvine, CA 92617
Tel: (949) 642-0245
Fax: (949) 642-4474



Re: ATL Work Order Number : 1200774
Client Reference : State Route 710 ADL, S9500-06-05

Enclosed are the results for sample(s) received on March 02, 2012 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or your Project Manager.

Sincerely,

A handwritten signature in black ink, appearing to read "E. Rodriguez", is placed above the typed name.

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.

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www.atlglobal.com



AMEC Environmental & Infrastructure, Inc.

121 Innovation Drive, Suite 200

Irvine, CA 92617

Project Number : State Route 710 ADL, S9500-06-05

Report To : Duane Paul

Reported : 03/06/2012

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
1169-101-0.5	1200774-01	Soil	3/02/12 9:16	3/02/12 12:45
1169-101-1.0	1200774-02	Soil	3/02/12 9:22	3/02/12 12:45
1169-102-0.5	1200774-03	Soil	3/02/12 9:28	3/02/12 12:45
1169-102-1.0	1200774-04	Soil	3/02/12 9:31	3/02/12 12:45
1169-103-0.5	1200774-05	Soil	3/02/12 9:36	3/02/12 12:45
1169-103-1.0	1200774-06	Soil	3/02/12 9:39	3/02/12 12:45
1169-104-0.5	1200774-07	Soil	3/02/12 10:21	3/02/12 12:45
1169-104-1.0	1200774-08	Soil	3/02/12 10:28	3/02/12 12:45
1169-105-0.5	1200774-09	Soil	3/02/12 10:32	3/02/12 12:45
1169-105-1.0	1200774-10	Soil	3/02/12 10:35	3/02/12 12:45
1169-106-0.5	1200774-11	Soil	3/02/12 10:40	3/02/12 12:45
1169-106-1.0	1200774-12	Soil	3/02/12 10:43	3/02/12 12:45
1169-107-0.5	1200774-13	Soil	3/02/12 11:41	3/02/12 12:45
1169-107-1.0	1200774-14	Soil	3/02/12 11:45	3/02/12 12:45
1169-108-0.5	1200774-15	Soil	3/02/12 11:50	3/02/12 12:45
1169-108-1.0	1200774-16	Soil	3/02/12 11:55	3/02/12 12:45
1169-109-0.5	1200774-17	Soil	3/02/12 12:00	3/02/12 12:45
1169-109-1.0	1200774-18	Soil	3/02/12 12:04	3/02/12 12:45
1169-EQ-1	1200774-19	Water	3/02/12 11:32	3/02/12 12:45
1169-FB-1	1200774-20	Water	3/02/12 11:55	3/02/12 12:45



AMEC Environmental & Infrastructure, Inc.

121 Innovation Drive, Suite 200

Irvine, CA 92617

Project Number : State Route 710 ADL, S9500-06-05

Report To : Duane Paul

Reported : 03/06/2012

Lead by ICP-AES EPA 6010B

Analyte: Lead

Analyst: SB

Laboratory ID	Client Sample ID	Result	Units	PQL	MDL	Dilution	Batch	Prepared	Date/Time		Notes
									Analyzed		
1200774-01	1169-101-0.5	16	mg/kg	1.0	0.13	1	B2C0111	03/06/2012	03/06/12 13:15		
1200774-02	1169-101-1.0	4.2	mg/kg	1.0	0.13	1	B2C0111	03/06/2012	03/06/12 13:15		
1200774-03	1169-102-0.5	170	mg/kg	1.0	0.13	1	B2C0111	03/06/2012	03/06/12 13:16		
1200774-04	1169-102-1.0	51	mg/kg	1.0	0.13	1	B2C0111	03/06/2012	03/06/12 13:17		
1200774-05	1169-103-0.5	96	mg/kg	1.0	0.13	1	B2C0111	03/06/2012	03/06/12 13:17		
1200774-06	1169-103-1.0	32	mg/kg	1.0	0.13	1	B2C0111	03/06/2012	03/06/12 13:18		
1200774-07	1169-104-0.5	59	mg/kg	1.0	0.13	1	B2C0111	03/06/2012	03/06/12 13:19		
1200774-08	1169-104-1.0	36	mg/kg	1.0	0.13	1	B2C0111	03/06/2012	03/06/12 13:21		
1200774-09	1169-105-0.5	45	mg/kg	1.0	0.13	1	B2C0111	03/06/2012	03/06/12 13:22		
1200774-10	1169-105-1.0	28	mg/kg	1.0	0.13	1	B2C0111	03/06/2012	03/06/12 13:22		
1200774-11	1169-106-0.5	51	mg/kg	1.0	0.13	1	B2C0111	03/06/2012	03/06/12 13:24		
1200774-12	1169-106-1.0	30	mg/kg	1.0	0.13	1	B2C0111	03/06/2012	03/06/12 13:25		
1200774-13	1169-107-0.5	92	mg/kg	1.0	0.13	1	B2C0111	03/06/2012	03/06/12 13:26		
1200774-14	1169-107-1.0	76	mg/kg	1.0	0.13	1	B2C0111	03/06/2012	03/06/12 13:26		
1200774-15	1169-108-0.5	68	mg/kg	1.0	0.13	1	B2C0111	03/06/2012	03/06/12 13:27		
1200774-16	1169-108-1.0	86	mg/kg	1.0	0.13	1	B2C0111	03/06/2012	03/06/12 13:29		
1200774-17	1169-109-0.5	170	mg/kg	1.0	0.13	1	B2C0111	03/06/2012	03/06/12 13:30		
1200774-18	1169-109-1.0	270	mg/kg	1.0	0.13	1	B2C0111	03/06/2012	03/06/12 13:30		

Lead by ICP-AES EPA 6010B

Analyte: Lead

Analyst: SB

Laboratory ID	Client Sample ID	Result	Units	PQL	MDL	Dilution	Batch	Prepared	Date/Time		Notes
									Analyzed		
1200774-19	1169-EQ-1	0.003	mg/L	0.005	0.0008	1	B2C0109	03/06/2012	03/06/12 13:34		J
1200774-20	1169-FB-1	0.005	mg/L	0.005	0.0008	1	B2C0109	03/06/2012	03/06/12 13:35		



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Project Number : State Route 710 ADL, S9500-06-05
 Report To : Duane Paul
 Reported : 03/06/2012

QUALITY CONTROL SECTION

Lead by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2C0109 - EPA 3010A									
Blank (B2C0109-BLK1)					Prepared: 3/6/2012 Analyzed: 3/6/2012				
Lead	0.004	0.005			NR				J
LCS (B2C0109-BS1)					Prepared: 3/6/2012 Analyzed: 3/6/2012				
Lead	1.0	0.005	1.00		103	85 - 115			
Duplicate (B2C0109-DUP1)					Source: 1200774-20 Prepared: 3/6/2012 Analyzed: 3/6/2012				
Lead	0.002	0.005		0.005	NR		92.4	20	R, J
Matrix Spike (B2C0109-MS1)					Source: 1200774-20 Prepared: 3/6/2012 Analyzed: 3/6/2012				
Lead	2.6	0.005	2.50	0.005	104	78 - 117			
Matrix Spike Dup (B2C0109-MSD1)					Source: 1200774-20 Prepared: 3/6/2012 Analyzed: 3/6/2012				
Lead	2.4	0.005	2.50	0.005	95.4	78 - 117	8.42	20	
Batch B2C0111 - EPA 3050 Modified									
Blank (B2C0111-BLK1)					Prepared: 3/6/2012 Analyzed: 3/6/2012				
Lead	ND	1.0			NR				
Blank (B2C0111-BLK2)					Prepared: 3/6/2012 Analyzed: 3/6/2012				
Lead	ND	1.0			NR				
LCS (B2C0111-BS1)					Prepared: 3/6/2012 Analyzed: 3/6/2012				
Lead	270	1.0	250		108	80 - 120			
Duplicate (B2C0111-DUP1)					Source: 1200774-18 Prepared: 3/6/2012 Analyzed: 3/6/2012				
Lead	240	1.0		270	NR		12.0	20	
Duplicate (B2C0111-DUP2)					Source: 1200774-10 Prepared: 3/6/2012 Analyzed: 3/6/2012				
Lead	26	1.0		28	NR		6.89	20	
Matrix Spike (B2C0111-MS1)					Source: 1200774-18 Prepared: 3/6/2012 Analyzed: 3/6/2012				
Lead	450	1.0	250	270	72.9	46 - 116			
Matrix Spike (B2C0111-MS2)					Source: 1200774-10 Prepared: 3/6/2012 Analyzed: 3/6/2012				
Lead	260	1.0	250	28	92.2	46 - 116			
Matrix Spike Dup (B2C0111-MSD1)					Source: 1200774-18 Prepared: 3/6/2012 Analyzed: 3/6/2012				
Lead	510	1.0	250	270	98.1	46 - 116	13.1	20	
Batch S2C0059 - B2B0794									
Instrument Blank (S2C0059-IBL1)					Prepared: 3/6/2012 Analyzed: 3/6/2012				
Lead	ND	0.005			NR				



AMEC Environmental & Infrastructure, Inc.

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Project Number : State Route 710 ADL, S9500-06-05

Report To : Duane Paul

Reported : 03/06/2012

Notes and Definitions

- R RPD value outside acceptance criteria. Calculation is based on raw values.
- J Analyte detected below the Practical Quantitation Limit but above or equal to the Method Detection Limit. Result is an estimated concentration.
- ND Analyte not detected at or above reporting limit
- PQL Practical Quantitation Limit
- MDL Method Detection Limit
- NR Not Reported
- RPD Relative Percent Difference

March 09, 2012

Duane Paul
AMEC Environmental & Infrastructure, Inc.
121 Innovation Drive, Suite 200
Irvine, CA 92617
Tel: (949) 642-0245
Fax: (949) 642-4474



Re: ATL Work Order Number : 1200774
Client Reference : State Route 710 ADL, S9500-06-05

Enclosed are the results for sample(s) received on March 02, 2012 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or your Project Manager.

Sincerely,

A handwritten signature in black ink, appearing to read 'E Rodriguez'.

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



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Project Number : State Route 710 ADL, S9500-06-05

Report To : Duane Paul

Reported : 03/09/2012

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
1169-102-0.5	1200774-03	Soil	3/02/12 9:28	3/02/12 12:45
1169-102-1.0	1200774-04	Soil	3/02/12 9:31	3/02/12 12:45
1169-103-0.5	1200774-05	Soil	3/02/12 9:36	3/02/12 12:45
1169-104-0.5	1200774-07	Soil	3/02/12 10:21	3/02/12 12:45
1169-106-0.5	1200774-11	Soil	3/02/12 10:40	3/02/12 12:45
1169-107-0.5	1200774-13	Soil	3/02/12 11:41	3/02/12 12:45
1169-107-1.0	1200774-14	Soil	3/02/12 11:45	3/02/12 12:45
1169-108-0.5	1200774-15	Soil	3/02/12 11:50	3/02/12 12:45
1169-108-1.0	1200774-16	Soil	3/02/12 11:55	3/02/12 12:45
1169-109-0.5	1200774-17	Soil	3/02/12 12:00	3/02/12 12:45
1169-109-1.0	1200774-18	Soil	3/02/12 12:04	3/02/12 12:45

CASE NARRATIVE

Results were J-flagged. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.



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Project Number : State Route 710 ADL, S9500-06-05

Report To : Duane Paul

Reported : 03/09/2012

Client Sample ID 1169-102-0.5

Lab ID: 1200774-03

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	2.3	0.50	0.06	1	B2C0228	03/09/2012	03/09/12 12:03	

TCLP Lead by AA (Direct Aspiration) EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	0.20	0.50	0.06	1	B2C0226	03/09/2012	03/09/12 12:33	J

pH by EPA 9045C

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	7.9	0.10	0.10	1	B2C0205	03/08/2012	03/08/12 14:30	



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Project Number : State Route 710 ADL, S9500-06-05

Report To : Duane Paul

Reported : 03/09/2012

Client Sample ID 1169-102-1.0

Lab ID: 1200774-04

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	3.4	0.50	0.06	1	B2C0228	03/09/2012	03/09/12 12:03	



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Project Number : State Route 710 ADL, S9500-06-05
Report To : Duane Paul
Reported : 03/09/2012

Client Sample ID 1169-103-0.5

Lab ID: 1200774-05

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	6.1	0.50	0.06	1	B2C0228	03/09/2012	03/09/12 12:03	



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Project Number : State Route 710 ADL, S9500-06-05

Report To : Duane Paul

Reported : 03/09/2012

Client Sample ID 1169-104-0.5

Lab ID: 1200774-07

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	2.1	0.50	0.06	1	B2C0228	03/09/2012	03/09/12 12:03	

pH by EPA 9045C

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	8.0	0.10	0.10	1	B2C0205	03/08/2012	03/08/12 14:30	



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Project Number : State Route 710 ADL, S9500-06-05

Report To : Duane Paul

Reported : 03/09/2012

Client Sample ID 1169-106-0.5

Lab ID: 1200774-11

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	2.4	0.50	0.06	1	B2C0228	03/09/2012	03/09/12 12:04	



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Project Number : State Route 710 ADL, S9500-06-05

Report To : Duane Paul

Reported : 03/09/2012

Client Sample ID 1169-107-0.5

Lab ID: 1200774-13

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	5.3	0.50	0.06	1	B2C0228	03/09/2012	03/09/12 12:04	



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Project Number : State Route 710 ADL, S9500-06-05

Report To : Duane Paul

Reported : 03/09/2012

Client Sample ID 1169-107-1.0

Lab ID: 1200774-14

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	6.2	0.50	0.06	1	B2C0228	03/09/2012	03/09/12 12:04	



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Project Number : State Route 710 ADL, S9500-06-05

Report To : Duane Paul

Reported : 03/09/2012

Client Sample ID 1169-108-0.5

Lab ID: 1200774-15

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	3.8	0.50	0.06	1	B2C0228	03/09/2012	03/09/12 12:06	



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Project Number : State Route 710 ADL, S9500-06-05

Report To : Duane Paul

Reported : 03/09/2012

Client Sample ID 1169-108-1.0

Lab ID: 1200774-16

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	6.1	0.50	0.06	1	B2C0228	03/09/2012	03/09/12 12:06	



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Project Number : State Route 710 ADL, S9500-06-05

Report To : Duane Paul

Reported : 03/09/2012

Client Sample ID 1169-109-0.5

Lab ID: 1200774-17

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	12	1.0	0.12	2	B2C0228	03/09/2012	03/09/12 12:07	

pH by EPA 9045C

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	7.6	0.10	0.10	1	B2C0205	03/08/2012	03/08/12 14:30	



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Project Number : State Route 710 ADL, S9500-06-05

Report To : Duane Paul
Reported : 03/09/2012

Client Sample ID 1169-109-1.0

Lab ID: 1200774-18

Total Metals by ICP-AES EPA 6010B

Analyst: KK/HF

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	0.08	1	B2C0196	03/08/2012	03/09/12 10:25	
Arsenic	2.3	1.0	0.05	1	B2C0196	03/08/2012	03/09/12 10:25	
Barium	100	1.0	0.02	1	B2C0196	03/08/2012	03/09/12 10:25	
Beryllium	0.33	1.0	0.04	1	B2C0196	03/08/2012	03/09/12 10:25	J
Cadmium	0.31	1.0	0.04	1	B2C0196	03/08/2012	03/09/12 10:25	J
Chromium	14	1.0	0.02	1	B2C0196	03/08/2012	03/09/12 10:25	
Cobalt	5.0	1.0	0.02	1	B2C0196	03/08/2012	03/09/12 10:25	
Copper	29	2.0	0.16	1	B2C0196	03/08/2012	03/09/12 10:25	
Molybdenum	0.65	1.0	0.04	1	B2C0196	03/08/2012	03/09/12 10:25	J
Nickel	12	1.0	0.03	1	B2C0196	03/08/2012	03/09/12 10:25	
Selenium	ND	1.0	0.13	1	B2C0196	03/08/2012	03/09/12 10:25	
Silver	0.20	1.0	0.02	1	B2C0196	03/08/2012	03/09/12 10:25	J
Thallium	0.88	1.0	0.08	1	B2C0196	03/08/2012	03/09/12 10:25	J
Vanadium	21	1.0	0.04	1	B2C0196	03/08/2012	03/09/12 10:25	
Zinc	200	1.0	0.87	1	B2C0196	03/08/2012	03/09/12 10:25	

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	19	2.5	0.31	5	B2C0228	03/09/2012	03/09/12 12:10	

TCLP Lead by AA (Direct Aspiration) EPA 7420

Analyst: VV

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	0.60	0.50	0.06	1	B2C0226	03/09/2012	03/09/12 12:33	

Mercury by AA (Cold Vapor) EPA 7471

Analyst: VV

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	0.04	0.10	0.003	1	B2C0231	03/09/2012	03/09/12 12:12	J



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Project Number : State Route 710 ADL, S9500-06-05

Report To : Duane Paul

Reported : 03/09/2012

Client Sample ID 1169-109-1.0

Lab ID: 1200774-18

pH by EPA 9045C

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	MDL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	7.4	0.10	0.10	1	B2C0205	03/08/2012	03/08/12 14:30	



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Project Number : State Route 710 ADL, S9500-06-05

Report To : Duane Paul

Reported : 03/09/2012

QUALITY CONTROL SECTION

Total Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B2C0196 - EPA 3050B

Blank (B2C0196-BLK1)

Prepared: 3/8/2012 Analyzed: 3/9/2012

Antimony	0.13	2.0				NR			J
Arsenic	ND	1.0				NR			
Barium	0.03	1.0				NR			J
Beryllium	ND	1.0				NR			
Cadmium	ND	1.0				NR			
Chromium	0.09	1.0				NR			J
Cobalt	ND	1.0				NR			
Copper	ND	2.0				NR			
Molybdenum	ND	1.0				NR			
Nickel	0.04	1.0				NR			J
Selenium	0.15	1.0				NR			J
Silver	0.04	1.0				NR			J
Thallium	ND	1.0				NR			
Vanadium	ND	1.0				NR			
Zinc	ND	1.0				NR			

LCS (B2C0196-BS1)

Prepared: 3/8/2012 Analyzed: 3/9/2012

Antimony	49	2.0	50.0		98.1	80 - 120			
Arsenic	48	1.0	50.0		95.6	80 - 120			
Barium	49	1.0	50.0		98.0	80 - 120			
Beryllium	50	1.0	50.0		101	80 - 120			
Cadmium	48	1.0	50.0		95.9	80 - 120			
Chromium	49	1.0	50.0		98.9	80 - 120			
Cobalt	50	1.0	50.0		99.0	80 - 120			
Copper	51	2.0	50.0		103	80 - 120			
Molybdenum	52	1.0	50.0		104	80 - 120			
Nickel	49	1.0	50.0		97.2	80 - 120			
Selenium	47	1.0	50.0		93.7	80 - 120			
Silver	46	1.0	50.0		92.9	80 - 120			
Thallium	50	1.0	50.0		99.4	80 - 120			
Vanadium	51	1.0	50.0		102	80 - 120			
Zinc	48	1.0	50.0		96.5	80 - 120			

Duplicate (B2C0196-DUP1)

Source: 1200774-18

Prepared: 3/8/2012 Analyzed: 3/9/2012

Antimony	ND	2.0		ND	NR			20	
Arsenic	2.4	1.0		2.3	NR		4.12	20	
Barium	100	1.0		100	NR		1.54	20	
Beryllium	0.34	1.0		0.33	NR		5.39	20	J
Cadmium	0.29	1.0		0.31	NR		5.90	20	J
Chromium	13	1.0		14	NR		2.82	20	



AMEC Environmental & Infrastructure, Inc.

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Project Number : State Route 710 ADL, S9500-06-05

Report To : Duane Paul
Reported : 03/09/2012

Total Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B2C0196 - EPA 3050B (continued)

Duplicate (B2C0196-DUP1) - Continued

Source: 1200774-18

Prepared: 3/8/2012 Analyzed: 3/9/2012

Cobalt	4.8	1.0		5.0	NR		4.78	20	
Copper	30	2.0		29	NR		0.0787	20	
Molybdenum	0.83	1.0		0.65	NR		23.6	20	R, J
Nickel	12	1.0		12	NR		1.16	20	
Selenium	ND	1.0		ND	NR			20	
Silver	0.19	1.0		0.20	NR		2.19	20	J
Thallium	0.96	1.0		0.88	NR		8.80	20	J
Vanadium	20	1.0		21	NR		0.869	20	
Zinc	200	1.0		200	NR		3.84	20	

Matrix Spike (B2C0196-MS1)

Source: 1200774-18

Prepared: 3/8/2012 Analyzed: 3/9/2012

Antimony	92	2.0	125	ND	73.7	44 - 105			
Arsenic	110	1.0	125	2.3	85.6	57 - 103			
Barium	210	1.0	125	100	86.9	36 - 134			
Beryllium	110	1.0	125	0.33	88.8	64 - 106			
Cadmium	100	1.0	125	0.31	83.6	58 - 102			
Chromium	130	1.0	125	14	90.6	55 - 105			
Cobalt	110	1.0	125	5.0	87.5	59 - 105			
Copper	150	2.0	125	29	94.8	64 - 117			
Molybdenum	110	1.0	125	0.65	90.6	59 - 108			
Nickel	120	1.0	125	12	84.7	52 - 109			
Selenium	110	1.0	125	ND	87.2	56 - 100			
Silver	120	1.0	125	0.20	92.3	65 - 107			
Thallium	110	1.0	125	0.88	84.4	47 - 100			
Vanadium	140	1.0	125	21	93.4	64 - 110			
Zinc	300	1.0	125	200	77.2	37 - 123			

Matrix Spike Dup (B2C0196-MSD1)

Source: 1200774-18

Prepared: 3/8/2012 Analyzed: 3/9/2012

Antimony	98	2.0	125	ND	78.4	44 - 105	6.08	20	
Arsenic	120	1.0	125	2.3	92.3	57 - 103	7.39	20	
Barium	230	1.0	125	100	100	36 - 134	7.72	20	
Beryllium	120	1.0	125	0.33	95.1	64 - 106	6.83	20	
Cadmium	110	1.0	125	0.31	88.7	58 - 102	5.88	20	
Chromium	130	1.0	125	14	95.4	55 - 105	4.58	20	
Cobalt	120	1.0	125	5.0	92.4	59 - 105	5.25	20	
Copper	160	2.0	125	29	105	64 - 117	7.92	20	
Molybdenum	110	1.0	125	0.65	90.9	59 - 108	0.324	20	
Nickel	120	1.0	125	12	89.3	52 - 109	4.69	20	
Selenium	120	1.0	125	ND	92.5	56 - 100	5.96	20	
Silver	120	1.0	125	0.20	98.2	65 - 107	6.15	20	
Thallium	110	1.0	125	0.88	90.5	47 - 100	6.91	20	
Vanadium	150	1.0	125	21	99.6	64 - 110	5.55	20	



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Project Number : State Route 710 ADL, S9500-06-05
 Report To : Duane Paul
 Reported : 03/09/2012

Total Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B2C0196 - EPA 3050B (continued)

Matrix Spike Dup (B2C0196-MSD1) - Continued

Source: 1200774-18

Prepared: 3/8/2012 Analyzed: 3/9/2012

Zinc	320	1.0	125	200	95.7	37 - 123	7.43	20	
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Project Number : State Route 710 ADL, S9500-06-05
 Report To : Duane Paul
 Reported : 03/09/2012

STLC Lead by AA (Direct Aspiration) by EPA 7420 - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes
Batch B2C0228 - STLC Extraction									
Blank (B2C0228-BLK1)				Prepared: 3/9/2012 Analyzed: 3/9/2012					
Lead	0.10	0.50			NR				J
Blank (B2C0228-BLK2)				Prepared: 3/9/2012 Analyzed: 3/9/2012					
Lead	0.13	0.50			NR				J
LCS (B2C0228-BS1)				Prepared: 3/9/2012 Analyzed: 3/9/2012					
Lead	5.3	0.05	5.00		105	80 - 120			
Duplicate (B2C0228-DUP1)		Source: 1200774-17		Prepared: 3/9/2012 Analyzed: 3/9/2012					
Lead	11	1.0		12	NR		4.33	20	
Duplicate (B2C0228-DUP2)		Source: 1200774-18		Prepared: 3/9/2012 Analyzed: 3/9/2012					
Lead	20	2.5		19	NR		0.959	20	
Matrix Spike (B2C0228-MS1)		Source: 1200774-17		Prepared: 3/9/2012 Analyzed: 3/9/2012					
Lead	16	0.10	5.00	12	98.1	80 - 120			
Matrix Spike (B2C0228-MS2)		Source: 1200774-18		Prepared: 3/9/2012 Analyzed: 3/9/2012					
Lead	25	0.25	5.00	19	112	80 - 120			
Matrix Spike Dup (B2C0228-MSD1)		Source: 1200774-17		Prepared: 3/9/2012 Analyzed: 3/9/2012					
Lead	16	0.10	5.00	12	94.6	80 - 120	1.06	20	



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Project Number : State Route 710 ADL, S9500-06-05
 Report To : Duane Paul
 Reported : 03/09/2012

TCLP Lead by AA (Direct Aspiration) EPA 7420 - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B2C0226 - EPA 3010A

Blank (B2C0226-BLK2)				Prepared: 3/9/2012 Analyzed: 3/9/2012					
Lead	ND	0.50			NR				
LCS (B2C0226-BS1)				Prepared: 3/9/2012 Analyzed: 3/9/2012					
Lead	1.1	0.50	1.00		109	80 - 120			
Duplicate (B2C0226-DUP1)				Source: 1200783-25 Prepared: 3/9/2012 Analyzed: 3/9/2012					
Lead	2.1	0.50		2.3	NR		7.03	20	
Matrix Spike (B2C0226-MS1)				Source: 1200783-25 Prepared: 3/9/2012 Analyzed: 3/9/2012					
Lead	4.9	0.50	2.50	2.3	104	80 - 120			
Matrix Spike Dup (B2C0226-MSD1)				Source: 1200783-25 Prepared: 3/9/2012 Analyzed: 3/9/2012					
Lead	4.8	0.50	2.50	2.3	103	80 - 120	0.704	20	



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Project Number : State Route 710 ADL, S9500-06-05
 Report To : Duane Paul
 Reported : 03/09/2012

Mercury by AA (Cold Vapor) EPA 7471 - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes
Batch B2C0231 - EPA 7471									
Blank (B2C0231-BLK1)				Prepared: 3/9/2012 Analyzed: 3/9/2012					
Mercury	0.003	0.10			NR				J
LCS (B2C0231-BS1)				Prepared: 3/9/2012 Analyzed: 3/9/2012					
Mercury	0.92	0.10	0.833		111	80 - 120			
Duplicate (B2C0231-DUP1)		Source: 1200774-18		Prepared: 3/9/2012 Analyzed: 3/9/2012					
Mercury	0.04	0.10		0.04	NR		1.00	20	J
Matrix Spike (B2C0231-MS1)		Source: 1200774-18		Prepared: 3/9/2012 Analyzed: 3/9/2012					
Mercury	0.98	0.10	0.833	0.04	112	70 - 130			
Matrix Spike Dup (B2C0231-MSD1)		Source: 1200774-18		Prepared: 3/9/2012 Analyzed: 3/9/2012					
Mercury	0.97	0.10	0.833	0.04	111	70 - 130	0.999	20	



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Report To : Duane Paul

Reported : 03/09/2012

pH by EPA 9045C - Quality Control

Analyte	Result (pH Units)	PQL (pH Units)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B2C0205 - Prep_WC_1_S

Duplicate (B2C0205-DUP1)

Source: 1200293-EE

Prepared: 3/8/2012 Analyzed: 3/8/2012

pH	8.4	0.10		8.0	NR		4	20	
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Report To : Duane Paul

Reported : 03/09/2012

Notes and Definitions

R	RPD value outside acceptance criteria. Calculation is based on raw values.
J	Analyte detected below the Practical Quantitation Limit but above or equal to the Method Detection Limit. Result is an estimated concentration.
ND	Analyte not detected at or above reporting limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA1	CA-NELAP (CDPH)
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

Diane Galvan

From: Paul, Duane [Duane.Paul@amec.com]
Sent: Tuesday, March 06, 2012 4:55 PM
To: Diane Galvan
Cc: conkle@geoconinc.com
Subject: RE: Results/EDD - State Route 710 ADL (1200774)

Diane,
All on a three day is fine.

Duane

From: Diane Galvan [mailto:diane@atlglobal.com]
Sent: Tuesday, March 06, 2012 4:51 PM
To: Paul, Duane
Cc: conkle@geoconinc.com
Subject: RE: Results/EDD - State Route 710 ADL (1200774)

Duane,

The STLC Extraction is 48hrs and the TCLP Extraction is 18hrs.

OK, so 3-days for STLC and 2-days for the rest or all on a 3-day? Please advise.

Thanks,

Diane

From: Paul, Duane [mailto:Duane.Paul@amec.com]
Sent: Tuesday, March 06, 2012 4:50 PM
To: Diane Galvan
Cc: conkle@geoconinc.com
Subject: RE: Results/EDD - State Route 710 ADL (1200774)

Diane,
I thought the extraction was 24-hours and the quickest total turnaround time was 48-hours. Please clarify.

We would still like to move forward to move forward with the expedited TAT.

Duane

From: Diane Galvan [mailto:diane@atlglobal.com]
Sent: Tuesday, March 06, 2012 4:47 PM
To: Paul, Duane
Cc: conkle@geoconinc.com
Subject: RE: Results/EDD - State Route 710 ADL (1200774)

Hi Duane,

The quickest we can do STLC is 3-days.

Diane

From: Paul, Duane [<mailto:Duane.Paul@amec.com>]
Sent: Tuesday, March 06, 2012 4:41 PM
To: Diane Galvan
Cc: conkle@geoconinc.com
Subject: RE: Results/EDD - State Route 710 ADL (1200774)

Diane,
Attached please find additional analyses for the subject project that we would like to have run on a 48-hour turnaround time.

Please call me should you have any questions.

Thank you,

Duane

Duane G. Paul, PG, CHG
Senior Hydrogeologist
AMEC

Environment & Infrastructure
121 Innovation, Suite 200, Irvine, CA 92617, USA
Tel 1-949-642-0245 x 7084, fax 1-949-642-4474
Direct 1-949-574-7084, mobile/cell 1-949-892-8244
duane.paul@amec.com
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From: Diane Galvan [<mailto:diane@atglobal.com>]
Sent: Tuesday, March 06, 2012 3:48 PM
To: Paul, Duane
Cc: conkle@geoconinc.com
Subject: Results/EDD - State Route 710 ADL (1200774)

Hi Duane,

Here are the results and EDD for the project referenced above.

Thanks,

Diane Galvan
Project Manager



Advanced Technology Laboratories
www.atglobal.com
Tel: (562) 989-4045 ext. 238
Fax: (562) 989-4040

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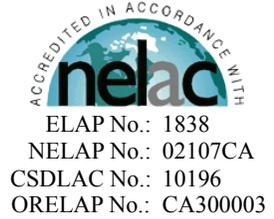
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March 15, 2012

Duane Paul
AMEC Environmental & Infrastructure, Inc.
121 Innovation Drive, Suite 200
Irvine, CA 92617
Tel: (949) 642-0245
Fax: (949) 642-4474



Re: ATL Work Order Number : 1200774
Client Reference : State Route 710 ADL, S9500-06-05

Enclosed are the results for sample(s) received on March 02, 2012 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or your Project Manager.

Sincerely,

A handwritten signature in black ink, appearing to read "E. Rodriguez", is written over a light gray rectangular background.

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.

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Project Number : State Route 710 ADL, S9500-06-05

Report To : Duane Paul

Reported : 03/15/2012

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
1169-102-0.5	1200774-03	Soil	3/02/12 9:28	3/02/12 12:45
1169-102-1.0	1200774-04	Soil	3/02/12 9:31	3/02/12 12:45
1169-103-0.5	1200774-05	Soil	3/02/12 9:36	3/02/12 12:45
1169-103-1.0	1200774-06	Soil	3/02/12 9:39	3/02/12 12:45
1169-104-0.5	1200774-07	Soil	3/02/12 10:21	3/02/12 12:45
1169-104-1.0	1200774-08	Soil	3/02/12 10:28	3/02/12 12:45
1169-105-0.5	1200774-09	Soil	3/02/12 10:32	3/02/12 12:45
1169-106-0.5	1200774-11	Soil	3/02/12 10:40	3/02/12 12:45
1169-107-0.5	1200774-13	Soil	3/02/12 11:41	3/02/12 12:45
1169-107-1.0	1200774-14	Soil	3/02/12 11:45	3/02/12 12:45
1169-108-0.5	1200774-15	Soil	3/02/12 11:50	3/02/12 12:45
1169-108-1.0	1200774-16	Soil	3/02/12 11:55	3/02/12 12:45
1169-109-0.5	1200774-17	Soil	3/02/12 12:00	3/02/12 12:45
1169-109-1.0	1200774-18	Soil	3/02/12 12:04	3/02/12 12:45

CASE NARRATIVE

Results were J-flagged. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.



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Project Number : State Route 710 ADL, S9500-06-05
 Report To : Duane Paul
 Reported : 03/15/2012

Lead by ICP-AES EPA 6010B

Analyte: Lead

Analyst: KK/HF

Laboratory ID	Client Sample ID	Result	Units	PQL	MDL	Dilution	Batch	Prepared	Date/Time	Notes
									Analyzed	
1200774-03	1169-102-0.5	36	mg/kg	1.0	0.13	1	B2C0374	03/14/2012	03/15/12 14:21	

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyte: Lead

Analyst: VV

Laboratory ID	Client Sample ID	Result	Units	PQL	MDL	Dilution	Batch	Prepared	Date/Time	Notes
									Analyzed	
1200774-03	1169-102-0.5	4.6	mg/L	0.50	0.06	1	B2C0401	03/15/2012	03/15/12 13:37	
1200774-06	1169-103-1.0	2.1	mg/L	0.50	0.06	1	B2C0366	03/14/2012	03/15/12 11:48	
1200774-08	1169-104-1.0	2.6	mg/L	0.50	0.06	1	B2C0366	03/14/2012	03/15/12 11:48	
1200774-09	1169-105-0.5	3.0	mg/L	0.50	0.06	1	B2C0366	03/14/2012	03/15/12 11:48	

STLC-DI Lead by AA (Direct Aspiration) EPA 7420

Analyte: Lead

Analyst: VV

Laboratory ID	Client Sample ID	Result	Units	PQL	MDL	Dilution	Batch	Prepared	Date/Time	Notes
									Analyzed	
1200774-05	1169-103-0.5	0.17	mg/L	0.50	0.06	1	B2C0365	03/14/2012	03/14/12 13:04	J
1200774-13	1169-107-0.5	ND	mg/L	0.50	0.06	1	B2C0365	03/14/2012	03/14/12 13:04	
1200774-14	1169-107-1.0	ND	mg/L	0.50	0.06	1	B2C0365	03/14/2012	03/14/12 13:05	
1200774-16	1169-108-1.0	0.07	mg/L	0.50	0.06	1	B2C0365	03/14/2012	03/14/12 13:05	J
1200774-17	1169-109-0.5	ND	mg/L	0.50	0.06	1	B2C0365	03/14/2012	03/14/12 13:05	
1200774-18	1169-109-1.0	0.10	mg/L	0.50	0.06	1	B2C0365	03/14/2012	03/14/12 13:05	J



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QUALITY CONTROL SECTION

Lead by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2C0374 - EPA 3050 Modified									
Blank (B2C0374-BLK1)					Prepared: 3/14/2012 Analyzed: 3/15/2012				
Lead	ND	1.0					NR		
LCS (B2C0374-BS1)					Prepared: 3/14/2012 Analyzed: 3/15/2012				
Lead	250	1.0	250		99.6	80 - 120			
Duplicate (B2C0374-DUP1)					Source: 1200774-03RE1 Prepared: 3/14/2012 Analyzed: 3/15/2012				
Lead	38	1.0		36	NR		4.55	20	
Matrix Spike (B2C0374-MS1)					Source: 1200774-03RE1 Prepared: 3/14/2012 Analyzed: 3/15/2012				
Lead	230	1.0	250	36	77.1	46 - 116			
Matrix Spike Dup (B2C0374-MSD1)					Source: 1200774-03RE1 Prepared: 3/14/2012 Analyzed: 3/15/2012				
Lead	230	1.0	250	36	76.8	46 - 116	0.352	20	
Batch S2C0059 - B2B0794									
Instrument Blank (S2C0059-IBL1)					Prepared: 3/6/2012 Analyzed: 3/6/2012				
Lead	ND	0.005					NR		



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STLC Lead by AA (Direct Aspiration) by EPA 7420 - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
Batch B2C0366 - STLC Extraction								
Blank (B2C0366-BLK1)								
						Prepared: 3/14/2012 Analyzed: 3/15/2012		
Lead	0.12	0.50			NR			J
LCS (B2C0366-BS1)								
						Prepared: 3/14/2012 Analyzed: 3/15/2012		
Lead	5.0	0.05	5.00		99.3 80 - 120			
Duplicate (B2C0366-DUP1)								
						Prepared: 3/14/2012 Analyzed: 3/15/2012		
Lead	2.9	0.50		2.8	NR	3.51	20	
Matrix Spike (B2C0366-MS1)								
						Prepared: 3/14/2012 Analyzed: 3/15/2012		
Lead	8.1	0.05	5.00	2.8	106 80 - 120			
Matrix Spike Dup (B2C0366-MSD1)								
						Prepared: 3/14/2012 Analyzed: 3/15/2012		
Lead	8.1	0.05	5.00	2.8	106 80 - 120	0.336	20	
Batch B2C0401 - STLC Extraction								
Blank (B2C0401-BLK1)								
						Prepared: 3/15/2012 Analyzed: 3/15/2012		
Lead	0.12	0.50			NR			J
LCS (B2C0401-BS1)								
						Prepared: 3/15/2012 Analyzed: 3/15/2012		
Lead	5.3	0.05	5.00		106 80 - 120			
Duplicate (B2C0401-DUP1)								
						Prepared: 3/15/2012 Analyzed: 3/15/2012		
Lead	4.7	0.50		4.6	NR	1.38	20	
Matrix Spike (B2C0401-MS1)								
						Prepared: 3/15/2012 Analyzed: 3/15/2012		
Lead	10	0.10	5.00	4.6	109 80 - 120			
Matrix Spike Dup (B2C0401-MSD1)								
						Prepared: 3/15/2012 Analyzed: 3/15/2012		
Lead	10	0.10	5.00	4.6	112 80 - 120	1.58	20	
Batch S2C0111 - B2C0228								
Instrument Blank (S2C0111-IBL1)								
						Prepared: 3/9/2012 Analyzed: 3/9/2012		
Lead	ND	0.50			NR			
Batch S2C0204 - B2C0401								
Instrument Blank (S2C0204-IBL1)								
						Prepared: 3/15/2012 Analyzed: 3/15/2012		
Lead	ND	0.50			NR			



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Project Number : State Route 710 ADL, S9500-06-05
 Report To : Duane Paul
 Reported : 03/15/2012

STLC-DI Lead by AA (Direct Aspiration) EPA 7420 - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
Batch B2C0365 - STLC DI Extraction								
Blank (B2C0365-BLK1)				Prepared: 3/14/2012 Analyzed: 3/14/2012				
Lead	ND	0.50			NR			
LCS (B2C0365-BS1)				Prepared: 3/14/2012 Analyzed: 3/14/2012				
Lead	5.1	0.05	5.00		103	80 - 120		
Duplicate (B2C0365-DUP1)		Source: 1200774-18			Prepared: 3/14/2012 Analyzed: 3/14/2012			
Lead	0.08	0.50		0.10	NR		22.7	20 R, J
Matrix Spike (B2C0365-MS1)		Source: 1200774-18			Prepared: 3/14/2012 Analyzed: 3/14/2012			
Lead	5.1	0.05	5.00	0.10	100	80 - 120		
Matrix Spike Dup (B2C0365-MSD1)		Source: 1200774-18			Prepared: 3/14/2012 Analyzed: 3/14/2012			
Lead	5.0	0.05	5.00	0.10	98.1	80 - 120	1.87	20
Batch S2C0177 - B2C0365								
Instrument Blank (S2C0177-IBL1)				Prepared: 3/14/2012 Analyzed: 3/14/2012				
Lead	ND	0.50			NR			



AMEC Environmental & Infrastructure, Inc.

121 Innovation Drive, Suite 200

Irvine, CA 92617

Project Number : State Route 710 ADL, S9500-06-05

Report To : Duane Paul

Reported : 03/15/2012

Notes and Definitions

- R RPD value outside acceptance criteria. Calculation is based on raw values.
- J Analyte detected below the Practical Quantitation Limit but above or equal to the Method Detection Limit. Result is an estimated concentration.
- ND Analyte not detected at or above reporting limit
- PQL Practical Quantitation Limit
- MDL Method Detection Limit
- NR Not Reported
- RPD Relative Percent Difference

Diane Galvan

From: Paul, Duane [Duane.Paul@amec.com]
Sent: Friday, March 09, 2012 5:00 PM
To: Diane Galvan
Cc: conkle@geoconinc.com
Subject: RE: Additional Results/EDD - State Route 710 ADL (1200774)

Diane,
we are requesting a 72-hour turnaround time for analysis of lead using the DI-Wet method for the following six soil samples:

1169-103-0.5

1169-107-0.5

1169-107-1.0

1169-108-1.0

1169-109-0.5

1169-109-1.0

Please call me should you have any questions.

Thank you,

Duane

Duane G. Paul, PG, CHG
Senior Hydrogeologist
AMEC

Environment & Infrastructure
121 Innovation, Suite 200, Irvine, CA 92617, USA
Tel 1-949-642-0245 x 7084, fax 1-949-642-4474
Direct 1-949-574-7084, mobile/cell 1-949-892-8244

duane.paul@amec.com

amec.com

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Diane Galvan

From: Paul, Duane [Duane.Paul@amec.com]
Sent: Monday, March 12, 2012 11:55 AM
To: Diane Galvan
Cc: conkle@geoconinc.com
Subject: State Route 710 ADL (1200774)

Diane,

In addition to the existing analyses that we are currently doing for the subject project, we are now requesting that the additional three soil samples be analyzed for STLC-lead on a 72-hour turnaround time:

1169-103-1.0
1169-104-1.0
1169-105-0.5

Also we are asking ATL to check the STLC-lead result for 1169-102-0.5. The result seems somewhat low relative to the TTLC result.

Please confirm your receipt of this request.

Thank you,

Duane

Duane G. Paul, PG, CHG
Senior Hydrogeologist
AMEC

Environment & Infrastructure
121 Innovation, Suite 200, Irvine, CA 92617, USA
Tel 1-949-642-0245 x 7084, fax 1-949-642-4474
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Diane Galvan

From: Paul, Duane [Duane.Paul@amec.com]
Sent: Monday, March 12, 2012 1:30 PM
To: Diane Galvan
Cc: conkle@geoconinc.com
Subject: State Route 710 ADL (1200774)

Importance: High

Diane,
One more request, we would like ATL to re-homogenize soil sample 1200774-03 (1169-102-0.5) and then analyze it for both TTLC-lead and STLC-lead on a 72-hour turnaround time.

Please confirm your receipt of this request.

Thank you,

Duane

Duane G. Paul, PG, CHG
Senior Hydrogeologist
AMEC

Environment & Infrastructure
121 Innovation, Suite 200, Irvine, CA 92617, USA
Tel 1-949-642-0245 x 7084, fax 1-949-642-4474
Direct 1-949-574-7084, mobile/cell 1-949-892-8244
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APPENDIX D



GEOCON
INLAND EMPIRE, INC

Boring No.: 1169-101

Project No.: 59506-06-05

Client: RUGER / CALTRANS

Location: 71B/21

Elevation: _____

Logged By: UPE

Excavation Date: 3/2/12

Excavation Method: 1/2

Boring Diameter: _____

Sampling Method: _____

Hammer Drop: _____

Hammer Weight: _____

Sample Type	Depth (feet)	Blows per 6"	Depth (feet)	Graphic	USCS Class.	Surface Condition:
						Description
G	0-0.5		0			SM SILTY SAND, FINE, 36% SILT, TRACE F-GRAVEL, DR OLIVE BROWN, SET INST, LOOSE
G	0.5-1.0		1			
			2			TD 1800'
			3			
			4			
			5			
			6			
			7			
			8			
			9			
			10			
			11			
			12			
			13			
			14			
			15			
			16			
			17			
			18			
			19			
			20			

R - Ring Sample from California Modified Sampler
S - Standard Penetration Test (can bulk)

Bulk - Large Bag
CB - Small Can Bulk



GEOCON

INLAND EMPIRE, INC

Boring No.: 1168-162

Project No.: 59760-0605

Client: DMC/CALTRANS

Location: 710/91

Elevation: _____

Logged By: WPC

Excavation Date: 3/2/12

Excavation Method: HA

Boring Diameter: _____

Sampling Method: _____

Hammer Drop: _____

Hammer Weight: _____

Sample Type	Depth (feet)	Blows per 6"	Depth (feet)	Graphic	USCS Class.	Surface Condition: Description
G	0-0.5		0 --		SM	SILTY SAND, SOFT SILT, FINE, TRACE F-IN GRAVEL, DK OLIVE BROWN, SLT MOIST, LOOSE TO 1500'
G	0.5-1.0		1 --			
			2 --			
			3 --			
			4 --			
			5 --			
			6 --			
			7 --			
			8 --			
			9 --			
			0 --			
			1 --			
			2 --			
			3 --			
			4 --			
			5 --			
			6 --			
			7 --			
			8 --			
			9 --			
			0 --			

R - Ring Sample from California Modified Sampler
S - Standard Penetration Test (can bulk)

Bulk - Large Bag
CB - Small Can Bulk



GEOCON
INLAND EMPIRE, INC

Boring No.: 1169-103

Project No.: 59500-06-05

Client: ADOC/KALTRANS

Location: 710/91

Elevation: _____

Logged By: MJC

Excavation Date: 3/2/02

Excavation Method: NA

Boring Diameter: _____

Sampling Method: _____

Hammer Drop: _____

Hammer Weight: _____

Sample Type	Depth (feet)	Blows per 6"	Depth (feet)	Graphic	USCS Class.	Surface Condition:
						Description
G	0-0.5		0 --			Silt SILTY SAND, FINE TO COARSE, 30% SILT, TRACE S-K GRAVEL, LT OLIVE BROWN, SLT MST LOOSE
G	0.5-1.0		1 --			
			2 --			TD 1 FOOT
			3 --			
			4 --			
			5 --			
			6 --			
			7 --			
			8 --			
			9 --			
			0 --			

R - Ring Sample from California Modified Sampler
S - Standard Penetration Test (can bulk)

Bulk - Large Bag
CB - Small Can Bulk



GEOCON

INLAND EMPIRE, INC

Boring No.: 1169-104

Project No.: 57500-06-05

Client: AMER / COLTRAINS

Location: 710 / LONG BEACH BLVD

Elevation: _____

Logged By: UPL

Excavation Date: 3/2/12

Excavation Method: HA

Boring Diameter: _____

Sampling Method: _____

Hammer Drop: _____

Hammer Weight: _____

Sample Type	Depth (feet)	Blows per 6"	Depth (feet)	Graphic	USCS Class.	Surface Condition:	
						Description	
G	0-0.5		0		SP	SAND, F-M, MOSTLY F, TRACE SILT, TRACE G. GRAVEL	
G	0.5-1		1			DIL YELLOW BRN, SILT MIST, LOOSE,	
			2			TID - 1ST	
			3				
			4				
			5				
			6				
			7				
			8				
			9				
			10				
			11				
			12				
			13				
			14				
			15				
			16				
			17				
			18				
			19				
			20				

R - Ring Sample from California Modified Sampler
S - Standard Penetration Test (can bulk)

Bulk - Large Bag
CB - Small Can Bulk



GEOCON
INLAND EMPIRE, INC

Boring No.: 1169-105
 Project No.: 59500-06-05
 Client: AMEL CONTRACTORS
 Location: 710/LOVE BAY BLVD
 Elevation: _____

Logged By: WPL
 Excavation Date: 3/2/12
 Excavation Method: HA
 Boring Diameter: _____
 Sampling Method: _____
 Hammer Drop: _____
 Hammer Weight: _____

Sample Type	Depth (feet)	Blows per 6"	Depth (feet)	Graphic	USCS Class.	Surface Condition:	
						Description	
G	0-0.5		0 --		SP	SAND, FINE-MEDIUM, MOSTLY FINE, TRACE SILT, TRACE F-GRAVEL, DR YELLOW BROWN	
G	0.5-1.0		1 --			SET M.S.T, LOOSE	
			2 --			TD 1ST	
			3 --				
			4 --				
			5 --				
			6 --				
			7 --				
			8 --				
			9 --				
			0 --				

R - Ring Sample from California Modified Sampler
 S - Standard Penetration Test (can bulk)

Bulk - Large Bag
 CB - Small Can Bulk



GEOCON

INLAND EMPIRE, INC

Boring No.: 1169-106

Project No.: 59400-04-05

Client: AMCC / CALTRANS

Location: 710 COLLEGE BOULEVARD

Elevation: _____

Logged By: MPL

Excavation Date: 3/2/12

Excavation Method: HA

Boring Diameter: _____

Sampling Method: _____

Hammer Drop: _____

Hammer Weight: _____

Sample Type	Depth (feet)	Blows per 6"	Depth (feet)	Graphic	USCS Class	Surface Condition:
						Description
G	0-0.5		0		SP	SAND, FV-F, SOME SILT, TRACE F GRAVEL, DR YELLOW BROWN, DRY, COSSB
G	0.5-1.0		1			
			2			TO 15T
			3			
			4			
			5			
			6			
			7			
			8			
			9			
			0			
			1			
			2			
			3			
			4			
			5			
			6			
			7			
			8			
			9			
			0			

R - Ring Sample from California Modified Sampler
S - Standard Penetration Test (can bulk)

Bulk - Large Bag
CB - Small Can Bulk



GEOCON
INLAND EMPIRE, INC

Boring No.: 1169-107
 Project No.: 58504-06-05
 Client: RMEC/CALTRANS
 Location: 715/11446W
 Elevation: _____

Logged By: MPC
 Excavation Date: 3/2/12
 Excavation Method: HA
 Boring Diameter: _____
 Sampling Method: _____
 Hammer Drop: _____
 Hammer Weight: _____

Sample Type	Depth (feet)	Blows per 6"	Depth (feet)	Graphic	USCS Class.	Surface Condition:
						Description
G	0-0.5		0		SP	GRAVELY SAND, MOSTLY IN. SAND, SOME F-C GRAVEL, TRACE SILT, CT-YELLOW BROWN, SGT MGT TD-1 FT
G	0.5-1.0	1.0	1			
			2			
			3			
			4			
			5			
			6			
			7			
			8			
			9			
			10			
			11			
			12			
			13			
			14			
			15			
			16			
			17			
			18			
			19			
			20			

R - Ring Sample from California Modified Sampler
 S - Standard Penetration Test (can bulk)

Bulk - Large Bag
 CB - Small Can Bulk



GEOCON
INLAND EMPIRE, INC

Boring No.: 1109-108
 Project No.: 5950-06-05
 Client: AMCC/CALTRANS
 Location: 710/US100W
 Elevation: _____

Logged By: UPL
 Excavation Date: 3/2/12
 Excavation Method: NA
 Boring Diameter: _____
 Sampling Method: _____
 Hammer Drop: _____
 Hammer Weight: _____

Sample Type	Depth (feet)	Blows per 6"	Depth (feet)	Graphic	USCS Class.	Surface Condition:
						Description
G	0-0.5		0		SP	SAND, LF-F, TRACE AMOUNTS OF SILT, TR F-C GRAVEL, DISPERSED FINE, SUT MIST, LACSD TR ORGANIC MATTER, TR ASPHALT ID C-SAND TO R GRAVEL PLAYS TO 15T
G	0.5-1.0		1			
			2			
			3			
			4			
			5			
			6			
			7			
			8			
			9			
			0			
			1			
			2			
			3			
			4			
			5			
			6			
			7			
			8			
			9			
			0			

R - Ring Sample from California Modified Sampler
 S - Standard Penetration Test (can bulk)

Bulk - Large Bag
 CB - Small Can Bulk



GEOCON
INLAND EMPIRE, INC

Boring No.: 1169-109
 Project No.: 59500-06-05
 Client: AMEC/CALTRANS
 Location: 710/1211111
 Elevation: _____

Logged By: WPC
 Excavation Date: 3/2/12
 Excavation Method: HA
 Boring Diameter: _____
 Sampling Method: _____
 Hammer Drop: _____
 Hammer Weight: _____

Sample Type	Depth (feet)	Blows per 6"	Depth (feet)	Graphic	USCS Class.	Surface Condition:	
						Description	
G	0-0.5 F		0 --		SP	SAND, U.F.C, MOSTLY F, TR FINE GRAVEL, TR SCLT	
G	0.5-1.0		1 --			LT YELLOW BROWN, SLT MGT, LOOSE, TR ORGANIC MATERIAL	
			2 --			TD 15T	
			3 --				
			4 --				
			5 --				
			6 --				
			7 --				
			8 --				
			9 --				
			0 --				

R - Ring Sample from California Modified Sampler
 S - Standard Penetration Test (can bulk)

Bulk - Large Bag
 CB - Small Can Bulk

APPENDIX E

APPENDIX E

DATA VALIDATION REPORT AERIALY DEPOSITED LEAD (ADL) INVESTIGATION REPORT ROUTE 710 SLOPE REPAIR, POST MILE 5.8 TO 13.1 Caltrans Contract Number 07A2730-A01, Task Order # 23 EA 07-2X9601 Los Angeles County, California

INTRODUCTION

This report summarizes the findings of the data validation for soil samples collected by Geocon Consultants, Inc. (Geocon), on behalf of the California Department of Transportation (Caltrans), for the State Route 710 Slope Repair Project (Project) located in Los Angeles County, California. Samples were submitted to Advanced Technology Laboratories in Signal Hill, California (ATL) for laboratory analysis; a State of California laboratory certified by the National Environmental Laboratory Accreditation Program (NELAP).

Field Quality Assurance and Quality Control (QA/QC) samples for soil samples collected within the Project area consisted of equipment blanks and field blanks. Laboratory QA/QC samples consisted of method blanks, matrix spike / matrix spike duplicate (MS/MSDs) recoveries, and laboratory control and laboratory duplicate samples (LCS).

The field quality control samples were submitted to the laboratory for analyses along with the primary soil samples collected in the Project area. Data verification was performed in accordance with the United States Environmental Protection Agency (U.S. EPA) Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (U.S. EPA, 2010). The data quality evaluation for the soil samples analyzed is described below.

Data qualified as estimated (J, J+, and J-) are likely to be quantitatively biased to some degree. Such data provide only an approximate measure of the respective analyte concentration(s). These data qualifiers have been appended to the respective data and are reflected in the data summary tables. The data, as qualified, are acceptable and can be used for decision-making purposes; however, the limitations identified by the applied qualifiers should be considered when using the data.

1.1 DATA COMPLETENESS

A total of 20 samples (including field QC samples) were submitted to ATL for analysis. Results for all samples were reported by ATL. The project goal of a minimum of 90% completeness for collected data was achieved. A total of 20 soil samples (including field QC samples) listed on the chain-of-custody were analyzed and reported by ATL. Shallow soil samples were collected at depths of approximately 0-0.5 feet and 0.5-1.0 feet using a hand auger. Soil samples were placed into plastic bags, homogenized in the field, and then placed into laboratory-provided 4 ounce glass sample jars.

1.2 SAMPLE HOLD TIMES

All samples submitted to the laboratory for analysis were properly preserved according to guidelines established by the appropriate methods as verified by the laboratory. Recommended hold times were achieved for all analyses performed.

1.3 BLANK SAMPLES

Equipment Blank Samples

Equipment blank samples are used to evaluate for potential residual contamination on sampling equipment. The equipment blank sample was obtained by collecting distilled water passed over the hand-augers into an unpreserved, laboratory-provided container. One equipment blank sample was collected during the one day of field work. The equipment blank was analyzed for total lead using EPA Method 6010B. The Project met the frequency of collection requirements as specified in the Caltrans Contract #07A2730-A01, Task Order #23 (Task Order) (Caltrans, 2010). The target analyte (lead) was detected in the one equipment blank (1169-EQ-1) collected on March 2, 2012 (laboratory work order #1200774) at a concentration above the method detection limit (MDL) and below the practical quantitation limit (PQL) at an estimated concentration of 0.003 J milligrams per liter (mg/l). Lead was detected in the associated project samples above their PQLs; therefore, data qualification for these samples based on equipment blank results was not required.

Field Blank Samples

Preparing blank samples in the field may identify ambient atmospheric contamination that could potentially become entrained in the samples during collection. One field blank sample was collected in the sampling area by directly filling the laboratory-provided sample containers with distilled water. The field blank sample was analyzed for total lead using EPA Method 6010B. The target analyte (lead) was detected in the field blank (1169-FB-1) collected on March 2, 2012 (laboratory work order #1200774) at a concentration equal to the PQL (0.005 mg/l). Lead was

detected in the associated project samples at concentrations greater than the PQL; therefore, data qualification for these samples based on field blank results was not required.

Method Blank Samples

The laboratory analyzed method blanks to provide an additional measure of internal quality control. Method blank results for all analytes were less than the reported PQLs, however some metals were detected above the MDL. Analytes detected in the method blanks include: antimony, barium, chromium, nickel, selenium, silver, and lead as follows:

- Laboratory work order 1200774 – antimony was detected in method blank sample B2C0196-BLK1 at an estimated concentration of 0.13 mg/kg. Antimony was not detected in the associated project sample at a concentration equal to or greater than the MDL; therefore, data qualification for the sample was not required.
- Laboratory work order 1200774 – barium was detected in method blank sample B2C0196-BLK1 at an estimated concentration of 0.03 mg/kg. Barium was detected in the associated project sample at a concentration greater than its respective PQL value; therefore, data qualification for the sample was not required.
- Laboratory work order 1200774 – chromium was detected in method blank sample B2C0196-BLK1 at an estimated concentration of 0.09 mg/kg. Chromium was detected in the associated project sample at a concentration greater than its respective PQL value; therefore, data qualification for the sample was not required.
- Laboratory work order 1200774 – nickel was detected in method blank sample B2C0196-BLK1 at an estimated concentration of 0.04 mg/kg. Nickel was detected in the associated project sample at a concentration greater than its respective PQL value; therefore, data qualification for the sample was not required.
- Laboratory work order 1200774 – selenium was detected in method blank sample B2C0196-BLK1 at an estimated concentration of 0.15 mg/kg. Selenium was not detected in the associated project sample at a concentration equal to or

greater than the MDL; therefore, data qualification for the sample was not required.

- Laboratory work order 1200774 – silver was detected in method blank sample B2C0196-BLK1 at an estimated concentration of 0.04 mg/kg. Silver also was detected in the associated project sample between the MDL and PQL. Silver was therefore reported as the PQL and qualified with a U* flag (the analyte was positively identified, but was not detected at a concentration greater than or equal to the PQL).
- Laboratory work order 1200774 – mercury was detected in method blank sample B2C0231-BLK1 at an estimated concentration of 0.003 mg/kg. Mercury also was detected in the associated project sample between the MDL and PQL. Mercury was therefore reported as the PQL and qualified with a U* flag.
- Laboratory work order 1200774 – lead was detected in method blank sample B2C0109-BLK1 at an estimated concentration of 0.004 mg/l. Lead also was detected in the associated equipment blank sample between the MDL and PQL. Lead was therefore reported as the PQL and qualified with a U* flag.
- Laboratory work order 1200774 – soluble lead (STLC Lead by EPA Method 7420) was detected in method blank samples B2C0228-BLK1 and B2C0228-BLK2 at reported estimated concentrations of 0.10 mg/l and 0.13 mg/l, respectively. Soluble lead was detected in the associated project samples at concentrations greater than their respective PQL value; therefore, data qualification for the samples were not required.
- Laboratory work order 1200774 – soluble lead (STLC Lead by EPA Method 7420) was detected in method blank sample B2C0366-BLK1 at an estimated concentration of 0.12 mg/l. Soluble lead was detected in the associated project sample at a concentration greater than its respective PQL value; therefore, data qualification for the sample was not required.
- Laboratory work order 1200774 – soluble lead (STLC Lead by EPA Method 7420) was detected in method blank sample B2C0401-BLK1 at an estimated concentration of 0.12 mg/l. Soluble lead was detected in the associated project

sample at a concentration greater than its respective PQL value; therefore, data qualification for the sample was not required.

1.4 LABORATORY CONTROL SAMPLES

LCSs were analyzed as a measure of data accuracy. Internal laboratory QA/QC data associated with these analyses met criteria, including percent recoveries (%Rs). The Project laboratory met the frequency requirements for LCS analyses established by U.S. EPA National Functional Guidelines.

1.5 LABORATORY DUPLICATE SAMPLES

As another estimate of precision, the laboratory performed duplicate analyses of unspiked project samples at the frequency of collection requirements established by U.S. EPA National Functional Guidelines. The relative percent differences (RPDs) did not exceed the control limit of 20% established by the National Functional Guidelines (U.S. EPA, 2010) for the technical review of non-homogenous soil samples, with the following exceptions.

- Laboratory batch ID B2C0196 – Method 6010B molybdenum analysis; RPD for molybdenum result in the laboratory duplicate sample B2C0196-DUP1 was 23.6%. The RPD value in this batch exceeded the control limit of 20%, therefore, molybdenum results in the soil sample associated with this QA/QC batch was qualified as estimated “J.”
- Laboratory batch ID B2C0109 – Method 6010B lead analysis; RPD for lead result in the laboratory duplicate sample B2C0109-DUP1 was 92.4%. The RPD value in this batch exceeded the control limit of 20%, therefore, lead results in the soil sample associated with this QA/QC batch was qualified as estimated “J.”
- Laboratory batch ID B2C0365 – Method 7420 DI-WET lead analysis; RPD for lead result in the laboratory duplicate sample B2C0365-DUP1 was 22.7%. The RPD value in this batch exceeded the control limit of 20%, therefore, lead results in the soil samples associated with this QA/QC batch were qualified as estimated “J.”

1.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLES

The laboratory also analyzed MS/MSD samples to assess data accuracy. The purpose of spiked samples is to evaluate the effect of the matrix on a method’s recovery efficiency (percent recovery). A sample prepared by adding a known concentration of a target analyte to an aliquot

of a specific homogenized environmental sample for which an independent estimate of the target analyte concentration is available. The matrix spike is accompanied by an independent analysis of the unspiked aliquot of the environmental sample. Only MS/MSD samples collected on site are considered appropriate for assessing matrix conditions. When recoveries from MS/MSD samples exceeded acceptance limits for both the primary and duplicate samples, the detections are qualified as estimated biased high (J+), and the non-detects are not qualified. When recoveries from MS/MSD samples were less than compound-specific acceptance limits, the detections are qualified as estimated biased low (J-) and non-detects are qualified as estimated (UJ).

The purpose of matrix spike duplicate (MSD) samples is to evaluate the precision of the intralaboratory analytical process for specific analytes in a sample matrix. The duplicate sample is prepared simultaneously as a split with the matrix spike sample, and each is spiked with identical, known concentrations of targeted analyte(s). The precision is measured by the RPD between the spiked results. The percent recoveries and RPDs of target analytes were within the laboratory determined control limits.

1.7 Summary of Qualified Data

All other quality assurance data met the acceptance criteria for soil samples. Except for the qualified data discussed above, the results of field and laboratory quality control indicate that the sampling and analysis were performed consistent with the analytical methods. Overall, the results of the QA/QC review indicate that the test results are valid and usable. The following table summarizes the sample data warranting qualification based on the data review elements discussed above.

Sample ID	Compound	Laboratory Work Order Number	Analytical Method	Qualified Result	Units
1200774-18	Silver	1200774	USEPA Method 6010B	1.0 U	mg/kg
1200774-18	Mercury	1200774	USEPA Method 6010B	0.10 U	mg/kg
1200774-19	Lead	1200774	USEPA Method 6010B	0.005 U	mg/kg
1200774-20	Lead	1200774	USEPA Method 6010B	0.005 J	mg/kg
1200774-18	Molybdenum	1200774	USEPA Method 6010B	0.65 J	mg/kg
1200774-05	DI-WET lead	1200774	USEPA Method 7420	0.17 J	mg/l
1200774-16	DI-WET lead	1200774	USEPA Method 7420	0.07 J	mg/l
1200774-18	DI-WET lead	1200774	USEPA Method 7420	0.10 J	mg/l

2.0 REFERENCES

U.S. EPA, 2010, USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, Final, Office of Superfund Remediation and Technology Innovation, Washington, D.C., January.

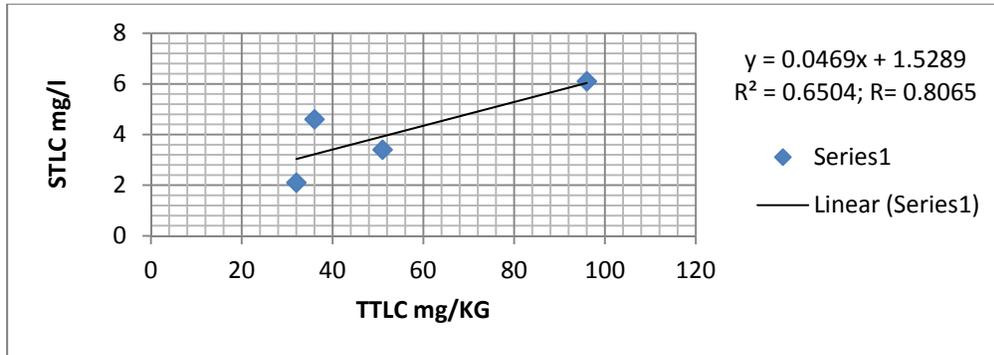
Attachment to the Site Investigation Report

Hazardous Waste Analysis for Assessment Issued on March 28, 2012

ADL Analysis for locations 3, 6 and 7						
Location No.	Location Description	Range of Lab Results for Lead Analysis		Statistical Analysis Results for Lead (95% UCL)		Waste Classification for Disposal
		TTLIC (mg/kg)	STLC (mg/l)	TTLIC (mg/kg)	STLC (mg/l)	
3	710 NORTH & WILLOW STREET BRIDGE	16 to 170	2.1 to 6.1	78.8	5.5	Type Z-2 material; as STLC >5
6	710 SOUTH & LONG BEACH BOULEVARD BRIDGE	28 to 59	2.1 to 3.0	55	less than 3.0	Type X ; Non-Haz Material
7	ROUTE 710 SOUTH & 91 SEPARATION BRIDGE	68 to 270	3.8 to 19	247.5	17.4	Type Z-2 material; as STLC >5
Note:	The above analysis for waste disposal is based on off-site disposal of the excess material, as indicated on construction plans.					

Location 3 - 710 NORTH & WILLOW STREET BRIDGE

Regression Analysis between TTLC and STLC results



TTLC Statistical Analysis

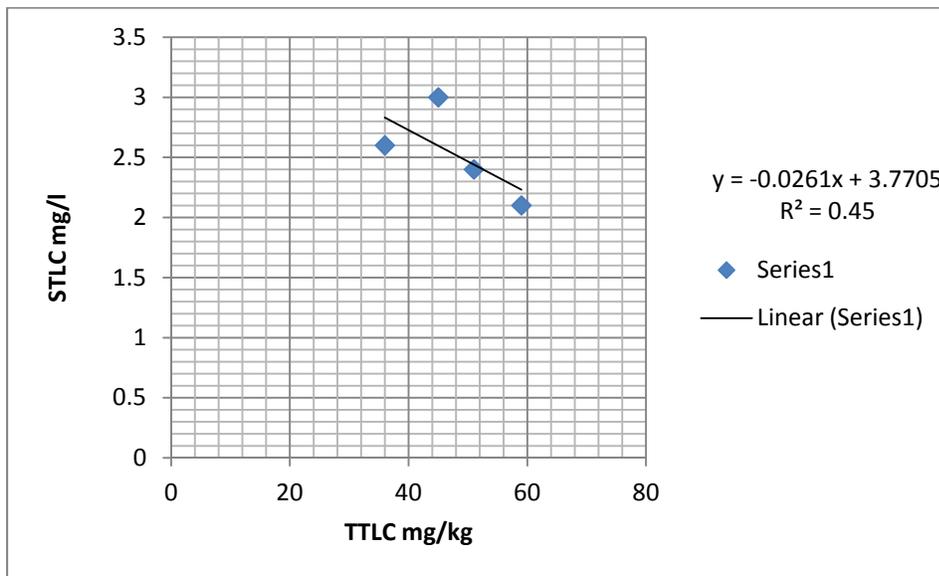
#	Depth (ft)	Sample I.D.	Total Lead (mg/kg)	Normalize by 96	Transformed (Arcsine)
1			16.0	0.17	0.17
2			4.2	0.04	0.04
3			36.0	0.38	0.38
4			51.0	0.53	0.56
5			96.0	1.00	1.57
6			32.0	0.33	0.34
Number of samples, n			6.0	Max. TTLC	6.00
Mean (Average), x			39.2	96.0	0.51
Delta = RT - Mean			1,456.8		
Appropriate no. of Samples			0	< 6 Samples OK	
Standard Deviation of a Sample, S			32.2		0.55
Standard Deviation of the Mean			13.2		0.22
Variance of a Sample, S ²			1,038.2	> 39.2 (Mean)	
90% t-value for (n-1) samples			1.476	Need to	1.476
90% Upper Confidence Level			58.6	Transform	0.84
Reverse Transformation for 90%					71.61
OK, we can invoke the variance					< 1496 mg/kg
95% t-value for (n-1) samples					2.015
95% Upper Confidence Level					0.96
Reverse Transformation for 95%					78.79
OK, depending on STLC results, we can consider it clean soil					< 1496 mg/kg

Location 6- 710 SOUTH & LONG BEACH BOULEVARD BRIDGE

Statistical Analysis

#	Depth (ft)	Sample I.D.	Total Lead (mg/kg)	Normalize by 59	Transformed (Arcsine)
1			59.0	1.00	1.57
2			36.0	0.61	0.66
3			46.0	0.78	0.89
4			28.0	0.47	0.49
5			51.0	0.86	1.04
6			30.0	0.51	0.53
Number of samples, n			6.0	Max. TTLC	6.00
Mean (Average), x			41.7	59.0	0.87
Delta = RT - Mean			1,454.3		
Appropriate no. of Samples			0	< 6 Samples OK	
Standard Deviation of a Sample, S			12.3		0.41
Standard Deviation of the Mean			5.0		0.17
Variance of a Sample, S ²			152.3	> 41.7 (Mean)	
90% t-value for (n-1) samples			1.476	Need to	1.476
90% Upper Confidence Level			49.1	Transform	1.11
Reverse Transformation for 90%					52.84
OK, we can invoke the variance					< 1496 mg/kg
95% t-value for (n-1) samples					2.015
95% Upper Confidence Level					1.20
Reverse Transformation for 95%					54.97
OK, depending on STLC results, we can consider it clean soil					< 1496 mg/kg

Regression Analysis



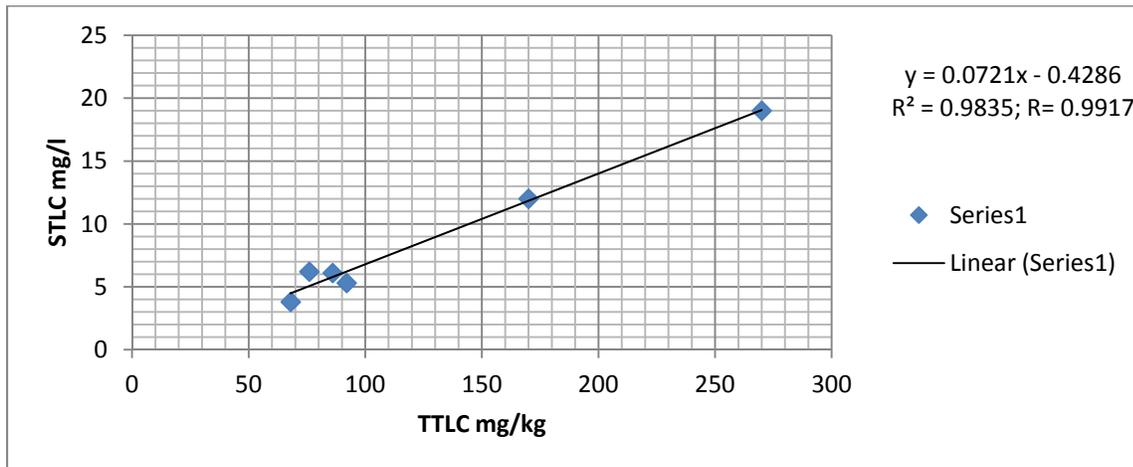
Note: As the correlation could not be attained between the TTLC and STLC; and none of the STLC samples exceeds 3.0, conclusion is drawn as STLC < 3.0

Location 7 - ROUTE 710 SOUTH & 91 SEPARATION BRIDGE

Statistical Analysis

#	Depth (ft)	Sample I.D.	Total Lead (mg/kg)	Normalize by 270	Transformed (Arcsine)
1			92.0	0.34	0.35
2			76.0	0.28	0.29
3			86.0	0.32	0.32
4			170.0	0.63	0.68
5			270.0	1.00	1.57
Number of samples, n			5.0	Max. TTLC	5.00
Mean (Average), x			138.8	270.0	0.64
Delta = RT - Mean			1,357.2		
Appropriate no. of Samples			0	< 5 Samples OK	
Standard Deviation of a Sample, S			82.3		0.54
Standard Deviation of the Mean			36.8		0.24
Variance of a Sample, S ²			6,777.2	> 138.8 (Mean)	
90% t-value for (n-1) samples			1.533	Need to	1.533
90% Upper Confidence Level			195.2	Transform	1.01
Reverse Transformation for 90%					229.23
OK, we can invoke the variance					< 1496 mg/kg
95% t-value for (n-1) samples					2.132
95% Upper Confidence Level					1.16
Reverse Transformation for 95%					247.47
OK, depending on STLC results, we can consider it clean soil					< 1496 mg/kg

Regression Analysis



FOR CONTRACT NO. 07-2X9604

INFORMATION HANDOUT

HARBOR DEVELOPMENT PERMIT

ROUTE: 07-LA-710 M5.8/13.1



The Port of
LONG BEACH

HARBOR DEVELOPMENT PERMIT

925 HARBOR PLAZA LONG BEACH, CALIFORNIA 90802

TELEPHONES (562)590-4160 (562)437-0041 FAX:(562)901-1728

PAGE 1 OF 3

1. PERMIT NUMBER HDP-11-099	2. ISSUE DATE 01/04/2012	3. EXPIRATION DATE 01/04/2014	NOTE
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4. TYPE OF ACTION:

- PURSUANT TO CALIFORNIA COASTAL ACT OF 1976 AND CERTIFIED PORT MASTER PLAN.
- PURSUANT TO SECTION 1215 OF THE LONG BEACH CITY CHARTER.
- LEVEL 1 COASTAL DEVELOPMENT PERMIT.
- APPEALABLE UNDER COASTAL ACT SECTION 30715.

5. PERMITTEE: CALTRANS	8. PERMITTEE PHONE: (213) 897-0120
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6. LEGAL INTEREST: Permittee	9. CONTACT PERSON: Orlance Lee
7. PERMITTEE ADDRESS 100 S. Main Street Los Angeles, CA ZIP 90012	10. TITLE/AFFILIATION: Senior Transportation Engineer
	11. PHONE: 213-897-8905 / 213-897-0717

12. DESCRIPTION OF APPROVED WORK:
Regrade and recompact eroded slope, replace damaged pipe, and reconstruct chain link fences.

13. LOCATION OF APPROVED WORK:
710 Southbound at Pier C Street, Long Beach, CA

14. DRAWINGS: Project Location Map, Construction Details

15. CALIFORNIA ENVIRONMENTAL QUALITY ACT DETERMINATION:

- CATEGORICALLY EXEMPT 2 [CLASS]
- NEGATIVE DECLARATION, ADOPTED _____ [DATE]
- ENVIRONMENTAL IMPACT REPORT, CERTIFIED BY _____ [LEAD AGENCY] _____ [DATE]

16. MANDATORY FINDINGS:

- THE PROJECT CONFORMS WITH THE CERTIFIED PORT MASTER PLAN
- THE PROJECT CONFORMS WITH THE POLICIES OF THE COASTAL ACT
- THE PROJECT CONFORMS WITH THE ESTABLISHED POLICIES OF THE Northeast HARBOR PLANNING DISTRICT
- THE PROJECT WILL WILL NOT HAVE ANY SIGNIFICANT ADVERSE ENVIRONMENTAL IMPACTS
- PUBLIC HEARING NOT REQUIRED PURSUANT TO THE PROVISIONS OF THE CERTIFIED PORT MASTER PLAN
- THE EXECUTIVE DIRECTOR AUTHORIZED ISSUANCE OF THIS PERMIT ON 01/04/2012
- A PUBLIC HEARING WAS HELD ON _____ AT _____
- THE BOARD OF HARBOR COMMISSIONERS AUTHORIZED ISSUANCE OF THIS PERMIT ON _____ BY A _____ TO _____ VOTE

17. THIS PERMIT IS ISSUED SUBJECT TO PERMITTEE OBTAINING THE FOLLOWING APPROVALS, AS NECESSARY, AND COMPLYING WITH STATED PERMIT TERMS AND CONDITIONS

- L.B. DEPARTMENT OF PLANNING AND BUILDING
- L.B. BUREAU OF FIRE PREVENTION
- REGIONAL WATER QUALITY CONTROL BOARD
- AIR QUALITY MANAGEMENT DISTRICT
- U.S. ARMY CORPS OF ENGINEERS
- OTHER Dig Alert, Hot Work Permit
- THOSE STANDARD CONDITIONS SHOWN ON THE ATTACHED PAGE OF THIS PERMIT.
- THOSE SPECIAL CONDITIONS SHOWN ON THE ATTACHED PAGE[S] OF THIS PERMIT.

18. ACKNOWLEDGEMENTS

DIRECTOR OF PLANNING

DATE 01/05/2012

I, PAUL H. HSU [PERMITTEE/AGENT] HEREBY ACKNOWLEDGE RECEIPT OF
HDP-11-099 AND HAVE ACCEPTED ITS CONTENTS AND CONDITIONS.

SIGNATURE OF PERMITTEE/AGENT

DATE 1/26/2012

APPLICANT COPY



HARBOR DEVELOPMENT PERMIT

925 HARBOR PLAZA LONG BEACH, CALIFORNIA 90802

TELEPHONES (562)590-4160 (562)437-0041 FAX:(562)901-1728

PAGE 2 OF 3

1. PERMIT NUMBER HDP-11-099	2. ISSUE DATE 01/04/2012	3. EXPIRATION DATE 01/04/2014	NOTE
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STANDARD CONDITIONS:

- Effective Date:** This permit shall not become effective until the ORIGINAL has been returned to the Environmental Planning Division, fully signed by the permittee or agent(s) authorized in the permit application. Failure to return the original within thirty (30) days of approval shall render the permit invalid. Other conditions notwithstanding, if the project is appealable the permit shall not become until after the tenth (10th) working day following notification of approval, unless an appeal has been filed with the California Coastal Commission within that time. By executing this permit, permittee or its agent(s) acknowledge that they have received a copy of the fully-signed permit for its use and post said copy conspicuously at the project site.
- Non-Waiver Condition and Assignment:** Nothing in this permit shall be deemed or construed as a waiver of any term or condition contained in permittee lease, preferential assignment, permit, or other agreement with the Long Beach Harbor Commission. This permit shall not be assigned except as provided in the Board of Harbor Commissioners Port Master Plan Implementation Guidelines and in Section 13170 of Title 14 of the California Administrative code, to the extent applicable.
- Permit Expiration:** Work authorized by this permit must commence within two years of the effective date of this permit unless otherwise specified. If work has not commenced, this permit will expire two (2) years from its effective date. Any application for an extension of said commencement date must be made at least thirty (30) days prior to the expiration of this permit.
- Compliance With Laws and Regulations:** Permittee shall comply with all laws, statutes, rules, regulations, and orders of all governmental agencies having jurisdiction over the permittee's project. Permittee, at its own expense, shall obtain all requisite permits, approvals, and consents from the appropriate agencies, including but not limited to the City of Long Beach (COLB) Harbor Department, the COLB Development Services, COLB Fire Department, the South Coast Air Quality Management District, the California Department of Health Services, and the Regional Water Quality Control Board, and shall comply with any such permit, approval or consent. Copies of all requisite permits shall be available for inspection at the project site.
- Construction Drawings:** Final plans and specifications for construction (hard copies and CADD files in Bentley MicroStation format), incorporating any modifications made by the Harbor Department, shall be submitted to the Environmental Planning Division for review and approval prior to commencement of any portion of the development.
- Notification:** Permittee shall notify the Chief Harbor Engineer, in writing, of the anticipated start date of any construction at least ten (10) days in advance.
- Permission from Property Owner:** Permittee shall coordinate with all facilities which may be affected by the permitted project. Permittee shall not interfere with any facility operations. Permittee may contact the Harbor Department Terminal Services Section at 562-590-4180 for assistance with notifications.
- Subsurface Construction:** Permittee shall consult with the Surveys and Mappings Section of the Harbor Department and Underground Service Alert of Southern California (Dig-Alert) regarding possible interference to underground utilities for all work involving excavation, a minimum of 48 hours in advance. Permittee shall conduct all subsurface work in accordance with Section 5 of the latest edition of Standard Specifications for Public Works Constructions (The "Green Book"). Permittee shall be responsible for all damage to underground structures and utility lines occurring as a result of project construction and shall restore all ground surfaces disturbed by excavation to original conditions, unless otherwise provided for by the permitted project design. This includes, but is not limited to, irrigation lines, water main lines, underground conduit and surface landscaping. The alignment of any underground utilities that must be relocated as a result of the permitted project must be approved by the Director of Environmental Planning and the utility owner. Permittee, except as otherwise provided for or agreed to, is responsible for any costs associated with repairing, replacing, or relocating underground or surface utilities or landscaping disturbed or destroyed during the permitted project.
- Conduct of Work:** Permittee shall perform all work in strict accordance with the plans and specifications approved by the Harbor Department Environmental Planning Division. For project site preparation and construction activities the permittee shall utilize water trucks and sprinkler systems to minimize dust and releases of materials into harbor waters. Distribution and/or removal of surplus materials (fills, dirt, broken asphalt, etc.) generated by the construction on property under the jurisdiction of the Harbor Commission must have prior approval of the Chief Harbor Engineer.
- As-built:** As-built drawings for construction within the Harbor District (hard copies and CADD files in Bentley MicroStation format) shall be submitted to the Construction Management Division (562-590-4172) of the Harbor Department within thirty (30) days of the completion of work. Except in the case of underground work, final construction drawings may serve as as-builts provided a set of such drawings are submitted and stamped "as-built". For underground work, permittee shall submit to the Construction Management Division, within thirty (30) days of completion of the work, two (2) sets of as-built drawings and survey notes, signed by a licensed surveyor who shall certify to the accuracy of the horizontal and vertical alignment. All of said drawings shall be drawn to a scale of no more than one hundred (100) feet to the inch, shall show the accurate alignments by centerline traverses, shall be referenced to all intersections of street property lines and survey points furnished by the Harbor Department, and shall show the elevations of the tops of the pipelines and facilities. All surveys work shall be to the latest third order of accuracy as established by the National Oceanic and Atmospheric Administration surveys.
- Traffic Management:** For all projects that impact Harbor Department roads, Permittee shall submit for approval by the Director of Environmental Planning a Traffic Management Plan. Permittee shall comply with all traffic warning and control devices, signs, and plans described in the Work Area Traffic Control Handbook or the Manual on Uniform Traffic Control Devices (MUTCD) 2003 California Supplement.
- Non-Compliance Penalties:** Violation of any provision or condition in this permit shall constitute grounds for revocation of this permit and shall render the permittee liable for civil penalties of up to \$10,000.00. Any person who willfully and knowingly conducts work in the Harbor District in violation of the Port Master Plan Guidelines shall be liable for civil penalties of \$5,000.00 per violation per day.
- Hazardous Material:** If during the course of the permitted project permittee shall discover or have reason to believe that material being excavated at the project site contains extremely hazardous wastes or hazardous wastes as those terms are or have been defined by the administrator of the Environmental Protection Agency, the California Department of Toxic Substances Control, or any other person or agency having jurisdiction over the management of hazardous materials, permittee, at its cost, shall: (i) promptly notify the Director of Environmental Planning of the permittees discovery or belief; (ii) at the request of the Director of Environmental Planning, initiate chemical and or physical characterization of the material; (iii) promptly submit all laboratory and test results to the Director of Environmental Planning on receipt thereof; (iv) develop and submit for

ACKNOWLEDGEMENTS

	01/05/2012		1/26/2012
DIRECTOR OF PLANNING	DATE	SIGNATURE OF PERMITTEE/AGENT	DATE

APPLICANT COPY



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PAGE 3 OF 3

1. PERMIT NUMBER HDP-11-099	2. ISSUE DATE 01/04/2012	3. EXPIRATION DATE 01/04/2014	NOTE
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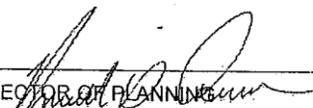
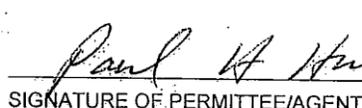
approval to the Director of Environmental Planning a remediation plan providing for the appropriate disposal and or treatment of the contaminated material; (v) implement that plan in accordance with the regulations and orders of the governmental agencies having jurisdiction; (vi) if material is removed, replace all such material with clean fill material that is structurally suitable for the project, and cause the excavation to be backfilled and compacted; and (vii) promptly submit copies of all waste manifests to the Director of Environmental Planning.

14 Indemnity: Permittee shall indemnify the Harbor Department from and against any and all actions, suits, proceedings, claims, demands, damages, losses, liens, costs, expenses, or liabilities of any kind and nature whatsoever ("claims") which may be brought, made, filed against, imposed upon, or sustained by the Harbor Department, arising from, attributable to, caused by, in connection with, or pertaining to the activities described in this permit, except to the extent such claims are caused by the negligence or willful misconduct of the Harbor Department.

SPECIAL CONDITIONS:

- 1 Permittee shall coordinate with all facilities which may be affected by the permitted project. Permittee shall not interfere with any facility operations including but not limited SSAT (562-495-8657). Permittee may contact POLB Terminal Services at (562-590-4180) for assistance with notifications.
- 2 Permittee shall replace any landscaping and/or irrigation equipment disturbed by the permitted project.

ACKNOWLEDGEMENTS

	01/05/2012		1/26/2012
DIRECTOR OF PLANNING	DATE	SIGNATURE OF PERMITTEE/AGENT	DATE

APPLICANT COPY