

# **INFORMATION HANDOUT**

For Contract No. 07-300301

At LA-57, 210 Various Locations

Identified By

Project ID 0713000436

- I. Site Investigation Report
  
- II. City of Diamond Bar Business License and  
Encroachment Permit Application

# I. Site Investigation Report



Stantec

**SITE INVESTIGATION REPORT**

**STABILIZING SOIL EROSION  
LA-57 AND LA-210, LOS ANGELES COUNTY,  
CALIFORNIA  
LOCATION: LA-57 (PM R1.95/5.61); LA-210,  
(PM 37.81/R45.46)**

**E-FIS NUMBER: 07-1300-0436  
EA NUMBER: 300301  
TASK ORDER NO. 32**

**STANTEC PROJECT NO.: 185832032**

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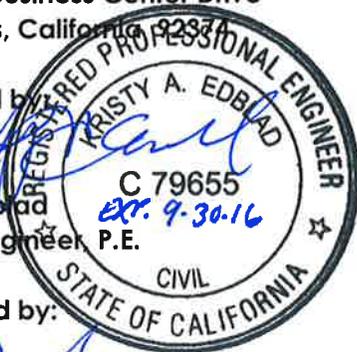
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**February 29, 2016**



## EXECUTIVE SUMMARY

At the request of the California Department of Transportation (Caltrans) District 7, a site investigation (SI) was conducted to evaluate the potential presence of constituents of concern in exposed soils for stabilizing soil erosion along bridge overcrossings and undercrossings of State Route 57 (LA-57), post mile (PM) R1.95/5.61 (northbound and southbound) and State Route 210 (LA-210), PM 37.81/R45.46 (eastbound and westbound), in Los Angeles County, California (Project Area). The objective of the SI is to evaluate potential constituents of concern, specifically Aerially Deposited Lead (ADL) and other constituents, in the exposed soils within the proposed construction area.

A total of 36 shallow soil samples were collected from surface to 0.5 foot below ground surface (bgs) at nine overcrossings (five on LA-57 and four on LA-210). All samples were analyzed for total lead, soluble lead by California Waste Extraction Test (Cal WET) using citric acid as the extractant, and soluble lead by the Toxicity Characteristic Leaching Procedure (TCLP). One sample from each bridge location (25 percent of samples) was randomly selected for quantification of Title 22 metals and pH.

The following briefly summarizes analytical results:

- Total lead concentrations ranged from 8.2 to 440 milligrams per kilogram (mg/kg). None of the samples were reported at concentrations at or above the California TLC of 1,000 mg/kg.
- Cal WET-Citric soluble lead concentrations ranged from 0.220 to 28 milligrams per liter (mg/L); with 12 samples from four of the bridges reporting concentrations at or above the 5.0 mg/L California hazardous waste Soluble Threshold Limit Concentration (STLC).
- TCLP soluble lead concentrations ranged from 0.004 to 0.61 mg/L. None of the samples reported soluble lead at concentrations at or above the federal toxicity characteristic of 5 mg/L for hazardous waste.
- pH concentrations ranged from 6.7 to 8.8; well within the range of nonhazardous waste criteria and above the Caltrans lead variance thresholds.
- Title 22 metals were not reported hazardous waste thresholds and guidelines.

Based on these findings, the following are concluded:

- ADL is present in soils proposed for disturbance and excavation.
- Soils exhibit a characteristic of a California Non-RCRA hazardous waste at 12 locations at four bridges (LA-57 Sunset Crossing Road, LA-210 Irwindale Avenue, LA-210 Zachary Padilla Avenue and LA-210 Vernon Avenue). Lead

concentrations at the remaining five bridges exhibit characteristics of non hazardous waste and total lead concentrations are below the 80 mg/kg unrestricted reuse criteria.

- With the exception of arsenic at one location (1315-120 at LA-57 State Street Bridge), heavy metals were reported at concentrations consistent with background.

Based on the findings and conclusions of this study the following are recommended:

- All work should be conducted under the guidance of a lead compliance plan (LCP) prepared in accordance with Section 14-11.03 Material Containing Hazardous Waste Concentrations of Aerially Deposited Lead of the 2010 Standard Specifications. The purpose of the LCP is to identify measures that will be implemented during the project to reduce potential exposure to workers and the public.
- Excess soil at 12 locations at four bridges should be managed and disposed as a California Non-RCRA hazardous waste:
  - LA-57 Sunset Crossing Road (south side of undercrossing; 1315-113 and -114),
  - LA-210 Irwindale Avenue Overcrossing (1315-122 to -124),
  - LA-210 Zachary Padilla Avenue Overcrossing (1315-125 to -128), and
  - LA-210 Vernon Avenue Overcrossing (1315-129, -130 and -132).

Soil at remaining locations exhibits the characteristics of nonhazardous waste.

- With the exception of soil represented by samples 1315-116 and 1315-120, all soil classified as nonhazardous waste may be released to the contractor for unrestricted use.
  - Soil represented by samples 1315-116 (LA-57 Sunset Crossing Road Undercrossing) may be reused in commercial or industrial applications, but not in residential applications as total lead concentrations exceed the unrestricted use criteria of 80 mg/kg but are below 320 mg/kg.
  - Soil represented by 1315-120 (LA-57 State Street Overcrossing) should be disposed at an appropriately licensed landfill as nonhazardous waste due to elevated levels of arsenic (17 mg/kg) above the California Department of Toxic Substances Control (DTSC) upper limit of background (12 mg/kg) for Southern California.

- Excess soil should be managed and disposed or released to the contractor for reuse according to the following table.

Route	Post Mile	Description	Classification	Data Point
LA-57	R 1.95	Diamond Bar Boulevard Undercrossing	Nonhazardous Waste/ Unrestricted Reuse	1315-101 to -104
LA-57	2.52	Cold Spring Lane Undercrossing	Nonhazardous Waste/ Unrestricted Reuse	1315-105 to -108
LA-57	3.17	Pathfinder Road Overcrossing	Nonhazardous Waste/ Unrestricted Reuse	1315-109 to -112
LA-57	4.98	Sunset Crossing Road Undercrossing	<b>California Non-RCRA Hazardous Waste</b>	1315-113 and -114 (south side of undercrossing)
			Nonhazardous Waste/ Unrestricted Reuse	1315-115 (north side of undercrossing)
			Nonhazardous Waste/ Commerical or Industrial Reuse	1315-116 (north side of undercrossing)
LA-57	5.61	State Street Overcrossing	Nonhazardous Waste/ Restricted (Dispose to appropriate landfill due to elevated arsenic)	1315-117 to -120
LA-210	37.86	Irwindale Avenue Overcrossing	<b>California Non-RCRA Hazardous Waste</b>	1315-121 to -124
LA-210	R 38.58	Zachary Padilla Avenue Overcrossing	<b>California Non-RCRA Hazardous Waste</b>	1315-125 to -128
LA-210	38.96	Vernon Avenue Overcrossing	<b>California Non-RCRA Hazardous Waste</b>	1315-129 to -132
LA-210	44.38	Route 57 Southbound Interchange	Nonhazardous Waste/ Unrestricted Reuse	1315-133 to -136

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## **1.0 INTRODUCTION**

### **1.1 PROJECT DESCRIPTION**

At the request of the California Department of Transportation (Caltrans) District 7, a site investigation (SI) was conducted to evaluate the potential presence of constituents of concern in the exposed soils for stabilizing soil erosion under bridge structures. The project area is within Caltrans right of way (ROW), along bridge overcrossings and undercrossings of State Route 57 (LA-57), post mile (PM) R1.95/5.61 (northbound and southbound) and State Route 210 (LA-210), PM 37.81/R45.46 (eastbound and westbound), in Los Angeles County, California (Project Area). The work was conducted pursuant to the provisions in Agreement 07A3322, the Task Order No. 32 (TO-32) request, and Stantec's proposal dated January 26, 2016.

### **1.2 PURPOSE AND OBJECTIVES**

The objective of the SI is to evaluate potential constituents of concern, specifically Aerially Deposited Lead (ADL), in the exposed soils within the proposed construction area. The purpose of the SI is to determine the potential presence of contaminants in the exposed soils for stabilizing soil erosion under bridge structures. The proposed scope of work is intended to evaluate whether soils in the proposed construction area are impacted and will result in the need for special handling or disposal (as defined by Title 22 of the California Code of Regulations). The result of this site investigation will also assist the contractor in developing an appropriate health and safety plan and training program for the field staff as required per Title 8 of the California Code of Regulations (8CCR) and Cal-OSHA Construction Safety Order.

### **1.3 BACKGROUND**

According to the TO-32 Request, dated February 2, 2016, Caltrans is preparing PS&E Documents for the Soil Stabilization Protocol Annual Element Program. Caltrans proposes to pave the existing open dirt areas adjacent to and under bridge structures to stabilize soil erosion at nine locations (five along LA-57 and four along LA-210). Soil excavation to a depth of approximately 4 to 6-inches below ground surface (bgs) is anticipated for construction of new hardscapes. The construction locations for slope paving are provided in the Task Order request.

The remainder of this report describes the scope of work, methodology, findings, results, and conclusions.

## **2.0 PROJECT SETTING**

This section describes the project setting including a description of the Project Area, the physiographic setting of the Project Area, the geology and hydrogeology, and a description of the area around the Project Area.

### **2.1 PROJECT AREA DESCRIPTION**

The Project Area is located along the shoulders of LA-57 between PM R1.95 and 5.61 and LA-210, between PM 37.81 and R45.46 at nine specific bridge locations in Los Angeles County, California.

### **2.2 PHYSIOGRAPHIC SETTING**

The topography along the shoulders of LA-57 between PMR1.95 and 5.61 slopes southerly as the alignment descends south from an approximate elevation between 206 to 238 feet (ft) at or near mean sea level (msl). The topography along the shoulders of LA-210 between PM 37.81 and R45.46 slopes westerly as the alignment descends west from an approximate elevation between 129 to 241 ft msl. (USGS, Los Angeles [1979]; San Bernardino [1982]; Long Beach [1981] and Santa Ana [1983]).

### **2.3 REGIONAL GEOLOGY AND HYDROGEOLOGY**

The Project Area is located within the Peninsular Ranges Geomorphic Province of California. The Peninsular Ranges are a series of ranges separated by northwest trending valleys, subparallel to faults branching from the San Andreas Fault. The trend of topography is similar to the Coast Ranges, but the geology is more like the Sierra Nevada, with granitic rock intruding the older metamorphic rocks. The Penninsular Ranges extend into lower California and are bound on the east by the Colorado Desert. The Los Angeles Basin and the island group (Santa Catalina, Santa Barbara, and the distinctly terraced San Clemente and San Nicolas islands), together with the surrounding continental shelf (cut by deep submarine fault troughs), are included in this province (CGS, 2002).

According to DWR's Bulletin 118, the southern portion of the Project Area along LA-57 lies in the Central Subbasin of the Coastal Plain of Los Angeles within the South Coast Hydrologic Region. The Central Subbasin occupies a large portion of the southeastern part of the Coastal Plain of Los Angeles Groundwater Basin. This subbasin is commonly referred to as the "Central Basin" and is bounded on the north by a surface divide called the La Brea high, and on the northeast and east by emergent less permeable Tertiary rocks of the Elysian, Repetto, Merced, and Puente Hills. The southeast boundary between Central Basin and Orange County Groundwater Basin roughly follows Coyote Creek, which is a regional drainage province boundary. The southwest boundary is formed by the Newport Inglewood uplift. The Los Angeles and San Gabriel Rivers drain inland basins and pass across the surface of the Central Basin on their way to the Pacific Ocean. The northern portion of the Project Area along LA-210 lies in the San

Gabriel Valley Groundwater Basin within the South Coast Hydrologic Region. The San Gabriel Valley Groundwater Basin is located in eastern Los Angeles County and includes the water-bearing sediments underlying most of the San Gabriel Valley and includes a portion of the upper Santa Ana Valley that lies in Los Angeles County. This Basin is bounded on the north by the Raymond fault and the contact between Quaternary sediments and consolidated basement rocks on the San Gabriel Mountains. Exposed consolidated rocks of Repetto, Merced, and Puente Hills bound the basin on the south and west, and the Chino fault and the San Jose fault form the eastern boundary. The Rio Hondo and San Gabriel Mountains, then surface water flows southwest across the San Gabriel Valley and exit through the Whittier Narrows, a gap between the Merced and Puente Hills (DWR, 2004).

#### **2.4 SITE VICINITY**

The Site surroundings are comprised largely of commercial with minor residential properties interspersed along the State ROW.

### **3.0 SCOPE OF WORK**

The following subsections present the original scope of work as outlined in the task order and deviations from the original scope of work.

#### **3.1 TASK ORDER SCOPE OF WORK**

The original scope of work as described in the task order consisted of the following general elements:

- Pre-field activities
  - Development of a site specific health and safety plan; and
  - Coordination of equipment and subcontractors.
- Field Investigations
  - Implementation of traffic control at each location;
  - Collection of 36 surface samples to a depth of 0.5 feet bgs at nine bridges in Caltrans ROW along LA-57 and LA-210:
    - LA-57: Collection of 20 surface samples at five bridges
    - LA-210: Collection of 16 surface samples at four bridges
  - Collection of 36 soil samples;
  - Collection of field quality control samples;
  - Boring location survey using global positioning system (GPS);
  - Boring abandonment; and
  - Disposal of investigation-derived wastes (IDW).
- Laboratory analysis of soil samples
  - Analysis of all soil samples for the following:
    - Total lead by United States Environmental Protection Agency (USEPA) Test Method 6010B;
    - Soluble lead by the California Waste Extraction Test (Cal WET) using citric acid as the extractant;
    - Soluble lead by the Toxicity Characteristic Leaching Procedure (TCLP) by USEPA Test Method 1311;
    - One randomly selected soil sample from each bridge to be analyzed for Title 22 Metals by USEPA Test Method 6010B/7000.; and
    - One randomly selected soil sample from each overcrossing to be analyzed for pH by USEPA Test Method 9045C.
- Data validation, evaluation and report preparation.

#### **3.2 DEVIATIONS FROM TASK ORDER SCOPE OF WORK**

There were no deviations from the original task order scope of the work.

## **4.0 SOIL INVESTIGATION METHODOLOGY**

The SI was conducted in general accordance with the methods and requirements of Contract 07A3322, the TO-32 request, and Stantec's proposal dated January 26, 2016. The following subsections summarize the methodology implemented in completing the required scope of work. In addition, any deviations from the proposed scope of work are identified in section 3.2 of this report.

### **4.1 PRE-FIELD ACTIVITIES**

Prior to beginning field work, the scope of work was reviewed and approved by Caltrans. Proposed sample locations designated on figures provided by Caltrans were checked for accessibility in the field through site reconnaissance.

As required by TO-32, a site-specific Health and Safety Plan (HASP) was developed in accordance with California Occupational Safety and Health Administration (Cal OSHA) requirements to guide field sampling activities. The HASP describes health and safety procedures and was submitted to Caltrans for approval prior to initiating field activities (Appendix A).

### **4.2 FIELD INVESTIGATIONS**

Field investigations were conducted on February 10, 2016. The weather was sunny throughout each day. There were no weather-related restrictions during the field investigation.

All field activities were conducted under the project specific HASP. A pre-field tail gate health and safety meeting was conducted at the site with field personnel prior to beginning work each day. During the tail gate meeting, daily work activities and health and safety issues were discussed, including the following:

- Field tasks to be conducted throughout the day;
- Project schedule;
- Hazard awareness;
- General health and safety practices, procedures and issues;
- Health and Safety procedures, controls, etc.;
- Engineering controls; personal protective equipment and monitoring;
- Traffic control and safety; and
- Emergency procedures and contacts.

Field documentation of health and safety meetings and monitoring were maintained throughout the duration of field activities. A copy of the completed field forms and the HASP are provided in Appendix A.

The following subsections describe the methodology and procedures followed in conducting the field investigations.

#### **4.2.1 Traffic Control**

Soil borings were located no closer than six feet from the edge of pavement within existing Caltrans ROW or within the boundaries of the proposed construction areas. To improve worker safety, traffic warning signage, cones and truck flashers were used to alert drivers of workers along the shoulders. Traffic control consisted of the following elements:

- W21-5 "Shoulder Work" signs were placed not less than 500 feet and not more than one mile from each borehole. The signs were moved as work progressed to assure that the signage follows the work. Signs were placed at the top of hills or ahead of roadway curves to improve visibility to drivers.
- High visibility reflective cones were placed along the pavement edge at least 100 feet from the work area.
- Work trucks were equipped with flashing amber strobe lights and were positioned as safety barriers between workers and oncoming traffic.

#### **4.2.2 Soil Borings and Sampling**

The sample points were located near or under existing bridge structures along LA-57 and LA-210 at nine locations within the construction area—five locations along LA-57 and four along LA-210. Four soil samples were collected at each bridge. A total of 36 were collected from the surface to a depth of 0.5 feet bgs using a four-inch diameter hand auger. The following paragraphs summarize field sample protocols.

#### **4.2.3 Sample Collection**

All soil samples (1315-101-0 through 1315-136-0) were collected using a hand auger. Soil samples were collected from surface to 0.5 feet bgs at each boring. Soil samples were collected from the hand auger bucket, discharged to a clean ziplock one (1) gallon bag, manually homogenized, and then discharged to eight-ounce laboratory-certified clean glass jars. Upon sampling at each boring, soils were visually examined and logged in accordance with the August 1996 edition of the Soil & Rock Logging Classification Manual (Field Guide), State of California, Department of Transportation, Engineering Service Center, Office of Structural Foundations. A summary of the soil classifications are presented in the boring logs in Appendix D (DOT, 1996).

Each sample was labeled with a specific sample I.D., boring I.D., project I.D., EA number, sample date, and sample time, and then placed in an ice-filled cooler. Each sample was also recorded on a chain-of-custody (CoC) form and delivered to an environmental laboratory for analysis.

#### **4.2.4 Boring Locations**

All boring locations were identified and plotted on a field map with a unique boring identification (I.D.) number to represent each borehole. In addition, the spatial coordinates for each borehole were obtained during sample collection using a handheld field GPS Trimble unit and recorded on field data sheets. Boring locations are shown on Figures 2 through 10. Boring coordinates are provided in Appendix B and a photographic log is provided in Appendix C.

#### **4.2.5 Decontamination**

All reuseable sampling equipment in contact with soil was decontaminated using a brush prior to advancing to the next borehole using a non-phosphate detergent solution and double-rinsed with distilled water.

#### **4.2.6 Borehole Abandonment**

Boreholes were abandoned by replacing and tamping soil cuttings in the borehole.

#### **4.2.7 Investigation Derived Wastes (IDW)**

Excess soil removed from the borings was replaced in their respective boreholes. All IDW were disposed in accordance with U.S. USEPA publication OSWER Directive 9345.3-02 entitled "Management of Investigation-Derived Waste During Site Inspections" as specified in Contract 07A3322, Method 17. Used and soiled personal protective equipment (PPE) and decontamination solid waste (i.e., used gloves, paper towels, etc.) were bagged and disposed to the municipal trash (EPA, 1991).

#### **4.2.8 Field Quality Assurance/Quality Control**

One equipment blank was collected for every ten soil samples to evaluate the adequacy of field decontamination efforts. The equipment blanks for soil sampling were collected by pouring deionized water over the hand auger bucket and collecting the water in appropriate sample containers. The equipment blanks were analyzed for total lead.

## 5.0 LABORATORY ANALYSIS

A total of 36 soil samples and one groundwater sample were submitted under CoC to Advanced Technology Laboratories (ATL). ATL is certified through the California Environmental Laboratory Accreditation Program (ELAP) to conduct the analyses required in this task order.

The laboratory analyzed select soil samples from all of the boring locations for the following analyses:

- *Total lead (USEPA Test Method 6010B)*—performed on all soil samples and used to evaluate total lead concentrations against screening limits and California hazardous waste total threshold limit concentration (TTLIC).
- *Cal WET-Citric (USEPA Test Method 3010)*—performed for lead on all soil samples and used to evaluate waste characteristics and the requirements for disposal against California hazardous waste Soluble Threshold Limit Concentration (STLC).
- *TCLP (USEPA Test Method 1311)*— performed for lead on all soil samples and used to evaluate waste characteristics and the requirements for disposal against Federal hazardous waste toxicity characteristic thresholds.
- *Title 22 metals (USEPA Test Method 6010B/7470)*—performed on one soil sample at each bridge (25 percent of samples) to screen soil samples for other potentially elevated heavy metal analytes and to further characterize excess soil for off-site disposal.
- *pH (EPA Test Method 9045C)*—performed on one soil sample for every four borings used to evaluate the requirements for managing and disposing of excess soil in accordance with the Caltrans lead variance and State and Federal regulations.

The equipment blanks were analyzed for total lead. Copies of the laboratory CoCs and analytical reports are attached in Appendix E.

## 6.0 INVESTIGATIVE RESULTS

This section describes observations, findings and results of field investigations and laboratory analysis.

### 6.1 FIELD FINDINGS

The soils encountered during sampling were generally yellowish brown and dark grayish brown and consisted primarily of silty sand with fine to coarse. Groundwater was not encountered during this investigation.

### 6.2 ANALYTICAL RESULTS

A summary of the analytical results is presented in Tables 1 through 2 and discussed in the following paragraphs. Copies of the laboratory reports and CoC forms are included in Appendix E.

#### 6.2.1 Total Lead

A total of 36 soil samples were analyzed for total lead by USEPA Test Method 6010B (20 from LA-57 and 16 from LA-210). Total lead concentrations ranged from 8.2 to 440 milligrams per kilogram (mg/kg). None of the samples were reported at concentrations at or above the California TLC of 1,000 mg/kg for lead (see Table 1).

#### 6.2.2 Soluble Lead (Cal WET- Citric)

A total of 36 soil samples were analyzed for soluble lead by Cal WET-Citric (20 from LA-57 and 16 from LA-210). Soluble lead concentrations ranged from 0.220 to 28 milligrams per liter (mg/L); with 12 samples from four of the bridges reporting concentrations at or greater than 5.0 mg/L (see Table 1).

#### 6.2.3 Soluble Lead (TCLP)

A total of 36 soil samples were analyzed for soluble lead by TCLP (20 from LA-57 and 16 from LA-210). TCLP soluble lead concentrations ranged from 0.004 to 0.61 mg/L. None of the samples reported soluble lead at concentrations at or above the federal toxicity characteristic of 5 mg/L for hazardous waste (see Table 1).

#### 6.2.4 pH

A total of nine soil samples were analyzed for pH (one for every four borings). The pH values in soil ranged from 6.7 to 8.8. None of the samples were reported below the pH criteria value of 5.0 for the Caltrans Variance issued by the California Department of Toxic Substances Control (DTSC; see Table 1).

#### 6.2.5 Title 22 Metals

A total of nine soil samples (one for every four borings) were analyzed for Title 22 metals to evaluate whether concentrations of heavy metals, other than lead, would require special handling and disposal. None of the reported analytes were reported above

USEPA Region 9 Regional Screening Levels (RSLs) or the DTSC Office of HERO modified soil screening levels for industrial exposure, other than arsenic. Arsenic naturally occurs in California at concentrations above human health screening levels for soil. Arsenic concentrations ranged from 3.3 to 17 mg/kg. The arsenic results were compared to the DTSC Southern California regional background arsenic concentration of 12 mg/kg (Chernoff et al). One sample (1315-120-0) reported concentrations of arsenic above 12 mg/kg. None of the analytes were reported at soil concentrations above California and Federal RCRA hazardous waste thresholds or guidelines (see Table 2).

## **6.3 DATA VALIDATION**

### **6.3.1 Field QA/QC**

Quality assurance and quality control (QA/QC) procedures were performed in general accordance with Stantec's proposal dated January 26, 2016 and the Task Order No. 32 request. Field QA/QC procedures included analyses of equipment blanks. Field equipment blanks were collected for every ten soil samples to evaluate the adequacy of field decontamination efforts. Detected concentrations of barium, beryllium, chromium, copper, molybdenum, and thallium were reported in the equipment blank samples following soil sampling.

These concentrations were reported below the Practical Quantitation Limit (PQL) but above the Method Detection Limit (MDL). The low level may also be attributed to ambient impacts (dust) and/or artifact from the sampling equipment from which the sample was derived. The very low concentration represents an insignificant impact on the quality of the data and conclusions presented in this report.

### **6.3.2 Laboratory QA/QC**

Prior to submitting soil samples to the laboratory, the CoC documentation was reviewed for accuracy and completeness. The laboratory reports were cross-checked with the chain-of-custody forms to confirm accurate transposing of sample information. In addition, an initial comparison of total lead and Cal WET-Citric data was conducted. Total lead and soluble lead are bivariate variables. Typically, Cal WET-Citric soluble lead concentrations are less than 10 percent of the total lead concentrations. Based on initial evaluation of the data, none of the samples were flagged as suspect for re-extraction and analysis.

Laboratory QA/QC data (field duplicates, method blanks, laboratory control samples and duplicates, matrix spike samples and duplicates) were also reviewed for compliance with QA/QC objectives. Stantec reviewed the laboratory QA/QC (duplicates, laboratory control, matrix spike and matrix spike duplicates). Other than minor issues related to natural heterogeneity of metals in soil duplicate sample analyses, and very low detections of certain metals in blank samples (common contaminants in field blanks are poured over metal sampling equipment), QA/QC data

are within expected control limits and considered valid for the intended use. The following summarizes identified data QA/QC issues and associated remedy.

1. Method Blanks: Several metals analytes (chromium, copper, lead, molybdenum and nickel) were reported in method blanks at very low concentrations. Associated sample results below the blank concentration are validated to non-detect and flagged "UJB". Sample results greater than the blank concentration are flagged "JB". The detection limit is changed to the blank concentration. Sample results greater than 10 times the blank concentration require no qualifying action.
2. Equipment Blanks: Several metals were reported in equipment blanks at very low levels, and may be reflective of laboratory method blank detections, field artifact associated with dust, incomplete decontamination or artifact from contact with metal sampling equipment. Sample results greater than 10 times the blank concentration require no qualifying action.
3. Laboratory Duplicate Samples: Laboratory duplicate samples were reported within the relative percent difference (RPD) control limit of 20 percent except for the following:
  - a. 6010B batch B6B0516 – Laboratory duplicate RPD above  $\pm 20\%$  limit for Molybdenum (22%). Associated sample result flagged "J" for 1315-102-0 only.
  - b. 6010B batch B6B0514 – Laboratory duplicate RPD above  $\pm 20\%$  limit for Lead (44%). Associated result flagged "J" for 1315-120-0 only.

The discrepancy may be related to sample heterogeneity and the data were qualified as indicated above, but not rejected.

4. Matrix Spike and Spike Duplicates: Matrix spike and duplicate samples were analyzed to assess accuracy and to evaluate matrix effects on data analysis. The percent recoveries and RPDs were found to be within laboratory-determined control limits except for the following:
  - a. 6010B batch B6B0568 – Matrix Spike percent recoveries (%R) below the 77% to 121% limit for TCLP Lead (74%). Associated sample result flagged "J" for 1315-114-0 only.
  - b. 7471A batch B6B0520 – Post digestion spike %R above  $\pm 15\%$  limit for Mercury. All associated sample result flagged "J" if positive.

Based on the validation process, the data contained herein are adequate for the purposes of this study. The validated data are summarized in attached tables with appropriate qualifiers. No results are qualified as "rejected". The Data Validation Reports/Checklists summarize compounds that were qualified and are included with the data validation report as Appendix F.

## 7.0 CONCLUSIONS

At the request of the Caltrans District 7, a SI was conducted to evaluate the potential presence of constituents of concern in exposed soils for stabilizing soil erosion along bridge overcrossings and undercrossings of LA-57, PM R1.95/5.61 (northbound and southbound) and LA-210, PM 37.81/R45.46 (eastbound and westbound), in Los Angeles County, California. The objective of the SI is to evaluate potential constituents of concern, specifically ADL and other constituents, in the exposed soils within the proposed construction area.

A total of 36 shallow soil samples were collected from surface to 0.5 foot bgs at nine overcrossings (five on LA-57 and four on LA-210). All samples were analyzed for total lead, Cal-WET-Citric soluble lead, and TCLP soluble lead. One sample from each bridge location (25 percent of samples) was randomly selected for quantification of Title 22 metals and pH.

The following briefly summarizes analytical results:

- Total lead concentrations ranged from 8.2 to 440 mg/kg. None of the samples were reported at concentrations at or above the California TTLC of 1,000 mg/kg.
- Cal WET-Citric soluble lead concentrations ranged from 0.220 to 28 mg/L; with 12 samples from four of the bridges reporting concentrations at or above the 5.0 mg/L STLC.
- TCLP soluble lead concentrations ranged from 0.004 to 0.61 mg/L. None of the samples reported soluble lead at concentrations at or above the federal toxicity characteristic of 5 mg/L for hazardous waste.
- pH concentrations ranged from 6.7 to 8.8; well within the range of nonhazardous waste criteria and above the Caltrans lead variance thresholds.
- Title 22 metals were not reported hazardous waste thresholds and guidelines.

Based on these findings, the following are concluded:

- ADL is present in soils proposed for disturbance and excavation.
- Soils exhibit a characteristic of a California Non-RCRA hazardous waste at 12 locations at four bridges (LA-57 Sunset Crossing Road, LA-210 Irwindale Avenue, LA-210 Zachary Padilla Avenue and LA-210 Vernon Avenue). Lead concentrations at the remaining five bridges exhibit characteristics of non hazardous waste and total lead concentrations are below the 80 mg/kg unrestricted reuse criteria.
- With the exception of arsenic at one location (1315-120 at LA-57/State Street Bridge), heavy metals were reported at concentrations consistent with background.

## 8.0 RECOMMENDATIONS

Based on the findings and conclusions of this study the following are recommended:

- All work should be conducted under the guidance of a lead compliance plan (LCP) prepared in accordance with Section 14-11.03 Material Containing Hazardous Waste Concentrations of Aerially Deposited Lead of the 2010 Standard Specifications. The purpose of the LCP is to identify measures that will be implemented during the project to reduce potential exposure to workers and the public.
- Excess soil at 12 locations at four bridges should be managed and disposed as a California Non-RCRA hazardous waste:
  - LA-57 Sunset Crossing Road (south side of undercrossing; 1315-113 and -114),
  - LA-210 Irwindale Avenue Overcrossing (1315-122 to -124),
  - LA-210 Zachary Padilla Avenue Overcrossing (1315-125 to -128), and
  - LA-210 Vernon Avenue Overcrossing (1315-129, -130 and -132).

Soil at remaining locations exhibits the characteristics of nonhazardous waste.

- With the exception of soil represented by samples 1315-116 and 1315-120, all soil classified as nonhazardous waste may be released to the contractor for unrestricted use.
  - Soil represented by samples 1315-116 (LA-57 Sunset Crossing Road Undercrossing) may be reused in commercial or industrial applications, but not in residential applications as total lead concentrations exceed the unrestricted use criteria of 80 mg/kg but are below 320 mg/kg.
  - Soil represented by 1315-120 (LA-57 State Street Overcrossing) should be disposed at an appropriately licensed landfill as nonhazardous waste due to elevated levels of arsenic (17 mg/kg) above the California Department of Toxic Substances Control (DTSC) upper limit of background (12 mg/kg) for Southern California.
- Excess soil should be managed and disposed or released to the contractor for reuse according to the following table.

Route	Post Mile	Description	Classification	Data Point
LA-57	R 1.95	Diamond Bar Boulevard Undercrossing	Nonhazardous Waste/ Unrestricted Reuse	1315-101 to -104

Route	Post Mile	Description	Classification	Data Point
LA-57	2.52	Cold Spring Lane Undercrossing	Nonhazardous Waste/ Unrestricted Reuse	1315-105 to -108
LA-57	3.17	Pathfinder Road Overcrossing	Nonhazardous Waste/ Unrestricted Reuse	1315-109 to -112
LA-57	4.98	Sunset Crossing Road Undercrossing	<b>California Non-RCRA Hazardous Waste</b>	1315-113 and -114 (south side of undercrossing)
			Nonhazardous Waste/ Unrestricted Reuse	1315-115 (north side of undercrossing)
			Nonhazardous Waste/ Commerical or Industrial Reuse	1315-116 (north side of undercrossing)
LA-57	5.61	State Street Overcrossing	Nonhazardous Waste/ Restricted (Dispose to appropriate landfill due to elevated arsenic)	1315-117 to -120
LA-210	37.86	Irwindale Avenue Overcrossing	<b>California Non-RCRA Hazardous Waste</b>	1315-121 to -124
LA-210	R 38.58	Zachary Padilla Avenue Overcrossing	<b>California Non-RCRA Hazardous Waste</b>	1315-125 to -128
LA-210	38.96	Vernon Avenue Overcrossing	<b>California Non-RCRA Hazardous Waste</b>	1315-129 to -132
LA-210	44.38	Route 57 Southbound Interchange	Nonhazardous Waste/ Unrestricted Reuse	1315-133 to -136

## 9.0 REFERENCES

- Based on the findings and conclusions of this study the following are recommended
- California Department of Conservation, California Geological Survey (CGS), 2002, California Geomorphic Provinces, Note 36, December.
- California Department of Toxic Substances Control (DTSC), 2008, Determination of a Southern California Regional Background Arsenic Concentration in Soil, March.
- California Department of Toxic Substances Control (DTSC), 2009, Variance No. V09HQSCD006, July 1.
- California Department of Toxic Substances Control (DTSC), 2015, Human and Ecological Risk Office (HERO), Human Health Risk Assessment (HHRA) Note 3, DTSC-modified Screening Levels (DTSC-SLs) for Lead (in mg/kg) for industrial soil, October.
- California Department of Water Resources (DWR), 2004, California's Groundwater Bulletin 118, South Coast Hydrologic Region, Coastal Plain of Los Angeles Groundwater Basin, Central Subbasin, updated February 27.
- CalUSEPA, 2015, Soil Screening Numbers – Updated Table (January, 2015), online. <http://oehha.ca.gov/risk/chhsltable.html>
- Chernoff, G.; Bosan, W.; Oudiz D. Undated. Determination of a Southern California Regional Background Arsenic Concentration in Soil, California Department of Toxic Substances Control (<https://www.dtsc.ca.gov/upload/Background-Arsenic.pdf>)
- Environmental Protection Agency (EPA), 1991, Management Of Investigation-Derived Wastes During Site Inspections, Office of Emergency and Remedial Response.
- Kearny Foundation of Soil Science, 1996, Background Concentrations of Trace and Major Elements in California Soils, Division of Agriculture and Natural Resources, University of California, March.
- Marret, D.J., A.L. Page, G.R. Bradford, D. Bakhtar, R.C. Graham, A.C. Chang (Marret, et al), 1991, Background Levels of Soil Trace Elements in Southern California Soils, April.
- State of California, Department of Transportation (DOT), 1996, Soil & Rock Logging Classification Manual (Field Guide), Engineering Service Center, Office of Structural Foundations, August.

United States Geological Survey (USGS), Topographic Map, 1983, 30 x 60-minute series, Santa Ana, California Quadrangle.

USGS, Topographic Map, 1982, 30 x 60-minute series, San Bernardino, California Quadrangle.

USGS, Topographic Map, 1981, 30 x 60-minute series, Long Beach, California Quadrangle.

USGS, Topographic Map, 1979, 30 x 60-minute series, Los Angeles, California Quadrangle.

U.S. USEPA, Region 9, 2015, Regional Screening Levels for Chemical Contaminants at Superfund Sites, January.

## **10.0 CLOSURE**

The conclusions presented in this report are professional opinions based on data described in this report. The opinions of this report have been arrived at in accordance with currently accepted hydrogeologic and engineering standards and practices applicable to this location, and are subject to the following inherent limitations. Stantec makes no other warranty, either expressed or implied, concerning the conclusions and professional advice that is contained within the body of this report.

Inherent in most projects performed in a heterogeneous subsurface environment, continuing excavation and assessments may reveal findings that are different than those presented herein. This facet of the environmental profession should be considered when formulating professional opinions on the limited data collected on these projects.

This report has been issued with the clear understanding that it is the responsibility of the owner, or their representative, to make appropriate notifications to regulatory agencies. It is specifically not the responsibility of Stantec to conduct appropriate notifications as specified by current County and State regulations.

The information presented in this report is valid as of the date our exploration was performed. Site conditions may degrade with time; consequently, the findings presented herein are subject to change.

In the event of any conflict between the terms and conditions of this report and the terms and conditions of the consulting services agreement between the State of California Department of Transportation, District 7, and Stantec Consulting Services Inc., the consulting services agreement shall control.

## **TABLES**

**TABLE 1**  
**SUMMARY OF SOIL ANALYTICAL RESULTS - LEAD and pH**  
**SITE INVESTIGATION FOR STABILIZING SOIL EROSION**  
**LA-57, PM R1.95/5.61; LA-210, PM 37.81/R45.46**  
**EA: 300301 (E-FIS: 07-1300-0436)**  
**TASK ORDER #32 CONTRACT 07A3322**

BORING	CALTRANS UNIQUE SAMPLE ID <sup>1</sup>	SAMPLE DEPTH (feet bgs)	TOTAL LEAD <sup>2</sup> (mg/kg)	SOLUBLE LEAD <sup>2</sup> CaI WET-Citric (mg/L)	SOLUBLE LEAD <sup>2</sup> TCLP (mg/L)	pH <sup>3</sup>
<b>LA-57 (PM R1.95): Diamond Bar Boulevard Undercrossing</b>						
1315-101	1315-101-0	0.0 to 0.5 Feet	13	0.33 NJ	<0.0019	
1315-102	1315-102-0	0.0 to 0.5 Feet	30	1.6	0.018 NJ	6.7
1315-103	1315-103-0	0.0 to 0.5 Feet	26	1.4	0.011 NJ	
1315-104	1315-104-0	0.0 to 0.5 Feet	10	0.30 NJ	<0.0019	
<b>LA-57 (PM 2.52): Cold Spring Lane Undercrossing</b>						
1315-105	1315-105-0	0.0 to 0.5 Feet	19	0.76 NJ	0.0042 NJ	7.0
1315-106	1315-106-0	0.0 to 0.5 Feet	12	0.66 NJ	<0.0019	
1315-107	1315-107-0	0.0 to 0.5 Feet	18	0.62 NJ	<0.0019	
1315-108	1315-108-0	0.0 to 0.5 Feet	14	0.45 NJ	<0.0019	
<b>LA-57 (PM 3.17): Pathfinder Road Overcrossing</b>						
1315-109	1315-109-0	0.0 to 0.5 Feet	30	1.7	0.0070 NJ	
1315-110	1315-110-0	0.0 to 0.5 Feet	8.5	0.30 NJ	<0.0019	7.4
1315-111	1315-111-0	0.0 to 0.5 Feet	9.2	0.58 NJ	<0.0019	
1315-112	1315-112-0	0.0 to 0.5 Feet	8.2	0.22 NJ	<0.0019	
<b>LA-57 (PM 4.98): Sunset Crossing Road Undercrossing</b>						
1315-113	1315-113-0	0.0 to 0.5 Feet	320	<b>16</b>	0.31	
1315-114	1315-114-0	0.0 to 0.5 Feet	230	<b>13</b>	0.19 J	
1315-115	1315-115-0	0.0 to 0.5 Feet	50	2.8	0.019 NJ	
1315-116	1315-116-0	0.0 to 0.5 Feet	91	4.2	0.055	7.7
<b>LA-57 (PM 5.61): State Street Overcrossing</b>						
1315-117	1315-117-0	0.0 to 0.5 Feet	12	<0.038	<0.0019	
1315-118	1315-118-0	0.0 to 0.5 Feet	43	1.9	0.028 NJ	
1315-119	1315-119-0	0.0 to 0.5 Feet	49	3.6	0.014 NJ	
1315-120	1315-120-0	0.0 to 0.5 Feet	71 J	0.72 NJ	0.013 NJ	7.5
<b>LA-210 (PM 37.86): Irwindale Avenue Overcrossing</b>						
1315-121	1315-121-0	0.0 to 0.5 Feet	58	3.4	0.026 NJ	
1315-122	1315-122-0	0.0 to 0.5 Feet	440	<b>28</b>	0.39	
1315-123	1315-123-0	0.0 to 0.5 Feet	170	<b>9.4</b>	0.19	
1315-124	1315-124-0	0.0 to 0.5 Feet	180	<b>12</b>	0.25	7.5
<b>LA-210 (PM R38.58): Zachary Padilla Avenue Overcrossing</b>						
1315-125	1315-125-0	0.0 to 0.5 Feet	380	<b>24</b>	0.61	7.4
1315-126	1315-126-0	0.0 to 0.5 Feet	85	<b>5.3</b>	0.043 NJ	
1315-127	1315-127-0	0.0 to 0.5 Feet	200	<b>15</b>	0.48	
1315-128	1315-128-0	0.0 to 0.5 Feet	270	<b>16</b>	0.49	

**TABLE 1**  
**SUMMARY OF SOIL ANALYTICAL RESULTS - LEAD and pH**  
**SITE INVESTIGATION FOR STABILIZING SOIL EROSION**  
**LA-57, PM R1.95/5.61; LA-210, PM 37.81/R45.46**  
**EA: 300301 (E-FIS: 07-1300-0436)**  
**TASK ORDER #32 CONTRACT 07A3322**

BORING	CALTRANS UNIQUE SAMPLE ID <sup>1</sup>	SAMPLE DEPTH (feet bgs)	TOTAL LEAD <sup>2</sup> (mg/kg)	SOLUBLE LEAD <sup>2</sup> Cal WET-Citric (mg/L)	SOLUBLE LEAD <sup>2</sup> TCLP (mg/L)	pH <sup>3</sup>
<b>LA-210 (PM 38.96): Vernon Avenue Overcrossing</b>						
1315-129	1315-129-0	0.0 to 0.5 Feet	120	<b>7.7</b>	0.22	
1315-130	1315-130-0	0.0 to 0.5 Feet	250	<b>17</b>	0.28	
1315-131	1315-131-0	0.0 to 0.5 Feet	34	2.6	0.069	
1315-132	1315-132-0	0.0 to 0.5 Feet	370	<b>22</b>	0.42	7.1
<b>LA-210 (PM 44.38): Route 57 Southbound Interchange</b>						
1315-133	1315-133-0	0.0 to 0.5 Feet	79	4.4	0.053	8.8
1315-134	1315-134-0	0.0 to 0.5 Feet	59	2.9	0.022 NJ	
1315-135	1315-135-0	0.0 to 0.5 Feet	41	2.6	0.020 NJ	
1315-136	1315-136-0	0.0 to 0.5 Feet	9.1	0.30 NJ	<0.0019	
<b>QA/QC (mg/L)</b>						
	EBA1-021016		<0.0019	--	--	--
	EBA2-021016		<0.0019	--	--	--
	EBB-021016		<0.0019	--	--	--
	Minimum		8.2	0.220	0.004	6.7
	Maximum		440	28	0.61	8.8
	Mean		105.8	6.4	--	--
	Type X Material <sup>4</sup> Non Hazardous		<1000	<5	<5	>2 and <12.5
	Type Z-2 Material <sup>4</sup> California Non-RCRA Hazardous Waste		≥1000	≥5	<5	>2 and <12.5
	Type Z-3 Material <sup>4</sup> RCRA Hazardous Waste		--	--	≥5	≤2 or ≥12.5
	DTSC HERO Screening Levels - Industrial Soils <sup>5</sup>		320	--	--	--
	DTSC HERO Unrestricted Use SL <sup>5</sup>		80	--	--	--

**NOTES:**

- (1) - Boring identification number/Caltrans Unique ID assigned
  - (2) - Total Lead, California Waste Extraction Test (Cal WET - Citric and Cal WET-DI), and Toxicity Characteristic Leaching Procedure (TCLP) analysis using EPA Method 6010B. Extraction methods vary.
  - (3) - pH determined with EPA Method 9045C.
  - (4) - California Department of Transportation (Caltrans) and California Department of Toxic Substances Control (DTSC) Variance No. V09HQSCD006 (July 1, 2009).
  - (5) - California Department of Toxic Substances Control (DTSC) Human and Ecological Risk Office (HERO), Human Health Risk Assessment (HHRA) Note 3, DTSC-modified Screening Levels (DTSC-SLs) for Lead (in mg/kg) for industrial soil, January 2016.
- bgs = below ground surface  
mg/kg = milligrams per kilogram  
mg/L = milligrams per liter  
PM = post mile  
-- = Not analyzed or not applicable  
<0.0014 = Analyte not reported at or above stated detection limit  
**Bold** = Exceeds threshold limit  
NJ = The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.  
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.  
QA/QC samples consisted of liquid equipment blanks (EB)

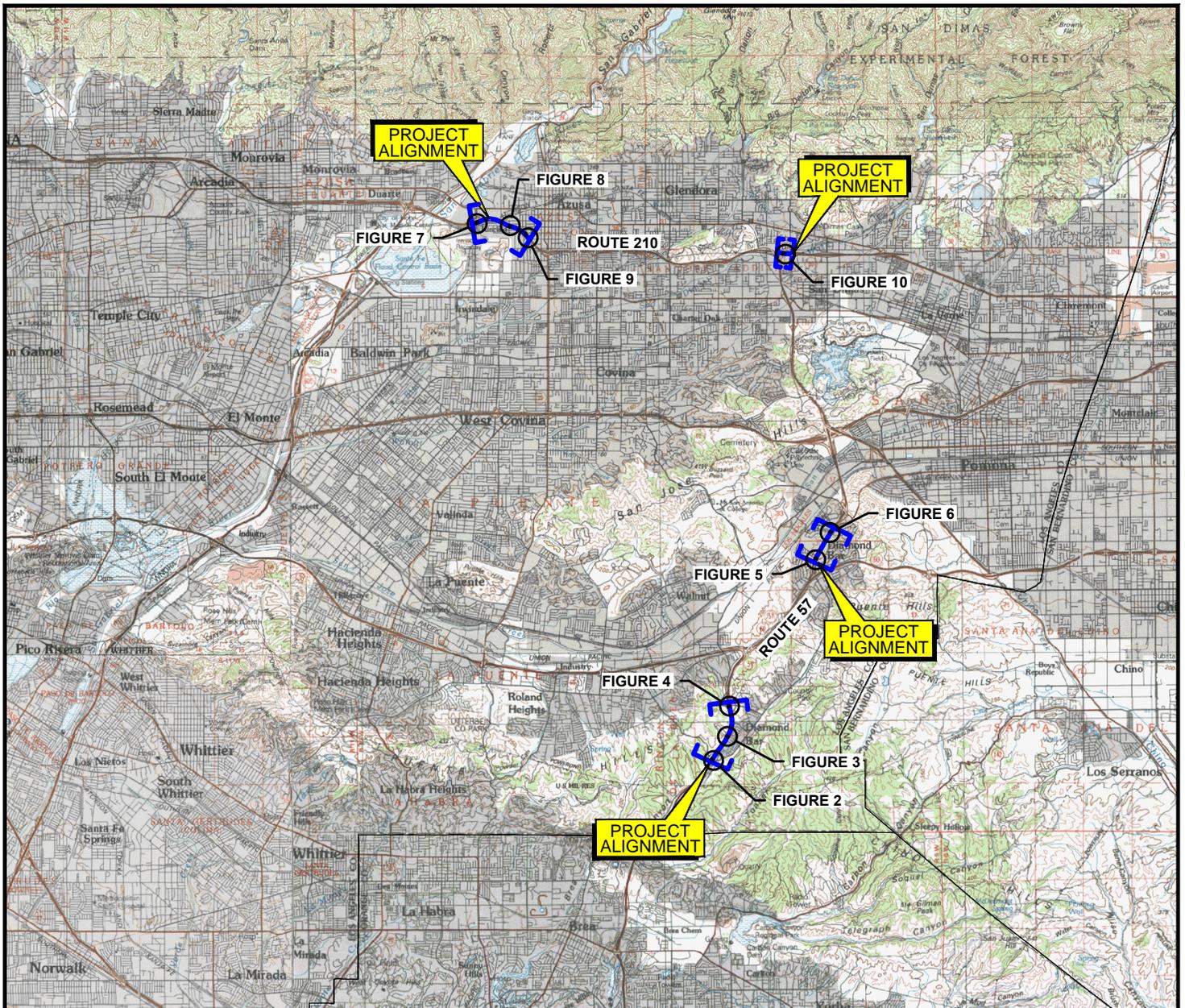
TABLE 2  
SUMMARY OF SOIL ANALYTICAL RESULTS - TITLE 22 METALS  
SITE INVESTIGATION FOR STABILIZING SOIL EROSION  
LA-57, PM R1.95/5.61; LA-210, PM 37.81/R45.46  
EA: 300301 (E-FIS: 07-1300-0436)  
TASK ORDER #32 CONTRACT 07A3322

BORING	CALTRANS UNIQUE SAMPLE ID <sup>1</sup>	SAMPLE DEPTH <sup>2</sup>	SAMPLE DATE	TITLE 22 METALS (USEPA Test Method 6010B/7000)																
				ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CHROMIUM	COBALT	COPPER	MOLYBDENUM	NICKEL	SELENIUM	SILVER	THALLIUM	VANADIUM	ZINC	MERCURY	
<i>Regional Screening Levels<sup>3</sup></i>				470	0.42	220,000	15	5.2	270,000	350	47,000	5,800	4,300	5,800	5,800	12	1,500	350,000	3.9	
<i>DTSC HERO Screening Levels - Industrial Soils<sup>4</sup></i>																				
<i>California TTLC (mg/kg)</i>				500	500	10,000	75	100	2,500	8,000	2,500	3,500	2,000	100	500	700	2,400	5,000	20	
<i>10 x California STLC (mg/kg)</i>				150	50	1,000	7.5	10	50	800	250	3,500	200	10	50	70	240	2,500	2	
<i>20 x RCRA Toxicity Characteristic (mg/kg)</i>				--	100	2,000	--	20	100	--	--	--	--	20	100	--	--	--	4	
<b>Various Locations</b>																				
1315-102	1315-102-0	0.0 to 0.5 Feet	2/10/2016	0.81 NJ	<b>4.3</b>	81	0.43 NJ	1.0	9.7	4.1	14	3.3 J	15	1.2	<0.12	<0.36	21	54	0.04 NJ	
1315-105	1315-105-0	0.0 to 0.5 Feet	2/10/2016	0.40 NJ	<b>3.4</b>	85	0.40 NJ	1.4	8.3	4.3	11	1.9	13	1.1	<0.12	<0.36	19	49	0.03 NJ	
1315-110	1315-110-0	0.0 to 0.5 Feet	2/10/2016	0.21 NJ	<b>4.7</b>	86	0.42 NJ	0.70 NJ	8.4	4.9	16	1.7	12	0.92 NJ	<0.12	<0.36	22	58	0.04 NJ	
1315-116	1315-116-0	0.0 to 0.5 Feet	2/10/2016	0.36 NJ	<b>8.8</b>	110	0.57 NJ	2.7	15	4.5	25	8.1	27	2.1	<0.12	<0.36	30	330	0.05 NJ	
1315-120	1315-120-0	0.0 to 0.5 Feet	2/10/2016	<0.21	<b>17</b>	100	0.50 NJ	1.2	15	4.7	23	2.8	19	1.7	<0.12	<0.36	30	81	0.12 J	
1315-124	1315-124-0	0.0 to 0.5 Feet	2/10/2016	0.78 NJ	<b>3.9</b>	77	0.41 NJ	0.47 NJ	13	4.8	36	1.1	16	1.1	<0.12	<0.36	17	350	0.05 NJ	
1315-125	1315-125-0	0.0 to 0.5 Feet	2/10/2016	1.0 NJ	<b>3.5</b>	110	0.44 NJ	0.72 NJ	17	5.6	57	2.2	16	1.0	<0.12	<0.36	19	390	0.07 NJ	
1315-132	1315-132-0	0.0 to 0.5 Feet	2/10/2016	0.85 NJ	<b>4.1</b>	92	0.44 NJ	0.60 NJ	13	5.6	42	0.77 NJ	13	1.1	<0.12	<0.36	20	430	0.05 NJ	
1315-133	1315-133-0	0.0 to 0.5 Feet	2/10/2016	1.1 NJ	<b>5.0</b>	95	0.61 NJ	0.45 NJ	13	6.4	32	1.1	12	1.3	<0.12	<0.36	25	270	0.05 NJ	
<b>QA/QC (mg/L)</b>																				
	EBA1-021016		2/10/2016	<0.0073	<0.0084	<0.0003	0.0003 NJ	<0.0004	0.0024 NJB	<0.0004	<0.0029 UJB	0.0010 NJB	<0.0022 UJB	<0.0065	<0.0012	<0.0037	<0.0017	<0.0087	<0.15	
	EBA2-021016		2/10/2016	<0.0073	<0.0084	0.0013 NJ	0.0002 NJ	<0.0004	0.0036 NJB	<0.0004	0.0041 NJB	0.0014 NJB	<0.0022 UJB	<0.0065	<0.0012	0.0037 NJ	<0.0017	<0.0087	<0.15	
	EBB-021016		2/10/2016	<0.0073	<0.0084	<0.0003	<0.0002	<0.0004	0.0018 NJB	<0.0004	<0.0029 UJB	<0.0008 UJB	<0.0022 UJB	<0.0065	<0.0012	<0.0037	<0.0017	<0.0087	<0.15	

**NOTES:**

- (1) - Boring identification number/Caltrans Unique ID assigned
  - (2) - Sample depth reported in feet below the ground surface
  - (3) - United States Environmental Protection Agency (Region 9) Regional Screening Levels (RSLs; in mg/Kg) for industrial soil (last updated November 2015). Lowest level of the RSLs and DTSC HERO screening levels for cancer and non-cancer presented.
  - (4) - California Department of Toxic Substances Control (DTSC) Human and Ecological Risk Office (HERO), Human Health Risk Assessment (HHRA) Note 3, DTSC-modified Screening Levels (DTSC-SLs) for industrial soil (in mg/kg; last updated January 2016). Lowest level of the RSLs and DTSC HERO screening levels for cancer and non-cancer presented.
- All soil results in mg/Kg
- <0.5 - Analyte not reported at or above stated reporting limit
- = Not analyzed or not applicable
- Bold** = Exceeds threshold limit
- TTLC = Total Threshold Limit Concentration
- STLC = Soluble Threshold Limit Concentration
- RCRA = Resource Conservation and Recovery Act
- J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- NJ = The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
- B = The analyte was detected in the method, field and/or trip blank.
- QA/QC samples consisted of liquid equipment blanks (EB)

## FIGURES



SOURCE: USGS 30 x 60 MINUTE TOPOGRAPHIC MAP, LOS ANGELES , 1979  
 SAN BERNARDINO, 1982  
 LONG BEACH, 1981  
 SANTA ANA, 1983



0 10000 20000

APPROXIMATE SCALE (FEET)



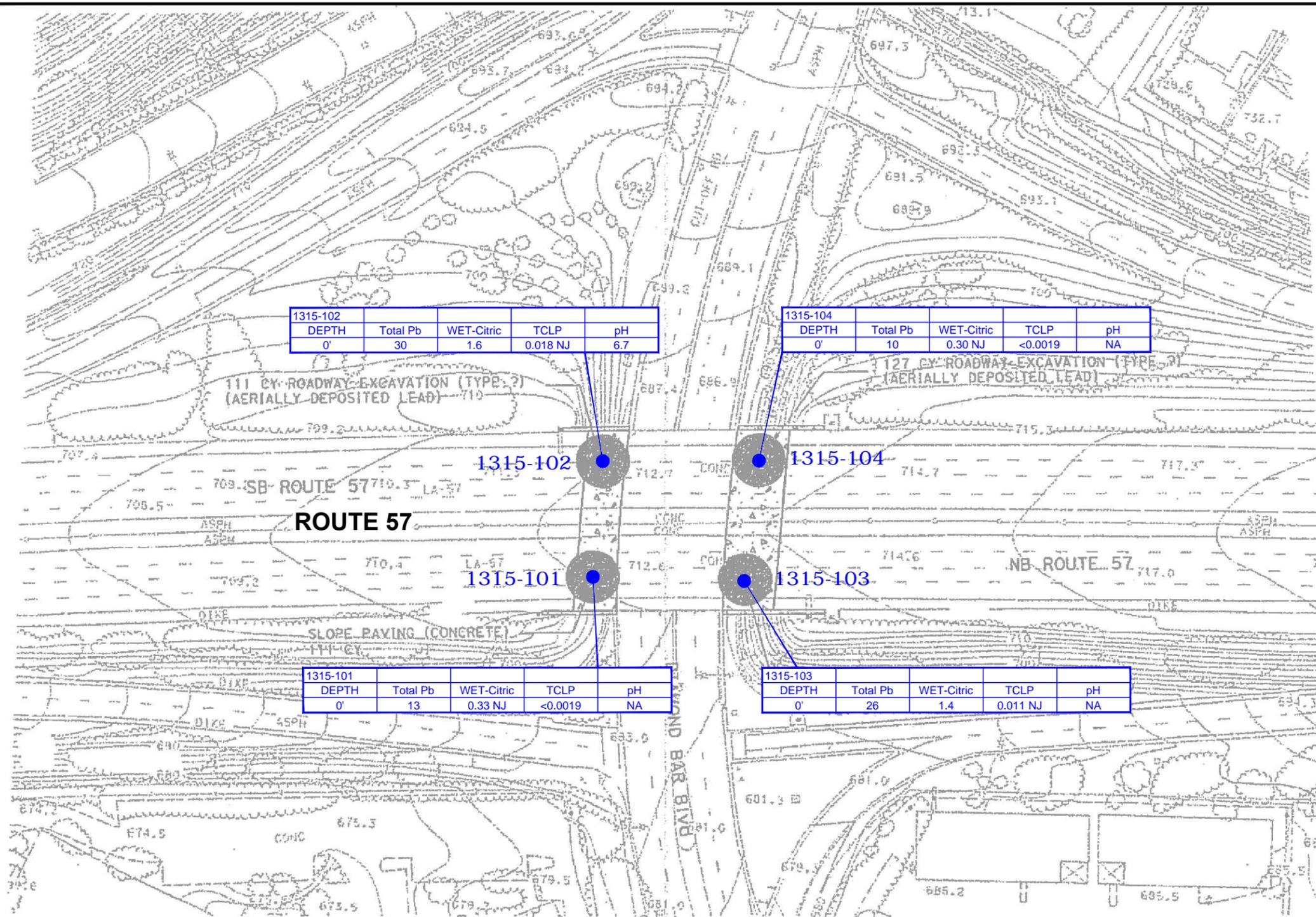
290 Conejo Ridge Avenue  
 Thousand Oaks, CA 91361  
 PHONE: (805) 230-1266 FAX: (805) 230-1277

FOR:  
 ADL Site Investigation  
 Agreement No. 07A3322  
 Task Order No. 32  
 LA-57 (PM R1.95/5.61); LA-210 (PM 37.81/R45.46)  
 EFIS: 07-0000-0436 EA Number: 300301

SITE LOCATION MAP

1

JOB NUMBER: 185832032	DRAWN BY: RAR	CHECKED BY: SE	APPROVED BY: KE	DATE: 02/23/16
--------------------------	------------------	-------------------	--------------------	-------------------



1315-102				
DEPTH	Total Pb	WET-Citric	TCLP	pH
0'	30	1.6	0.018 NJ	6.7

1315-104				
DEPTH	Total Pb	WET-Citric	TCLP	pH
0'	10	0.30 NJ	<0.0019	NA

1315-101				
DEPTH	Total Pb	WET-Citric	TCLP	pH
0'	13	0.33 NJ	<0.0019	NA

1315-103				
DEPTH	Total Pb	WET-Citric	TCLP	pH
0'	26	1.4	0.011 NJ	NA

**LEGEND**

● SAMPLE LOCATION

Boring ID	Sample	Total Pb	WET-Citric	TCLP	pH
#	##	##	##	##	##

Sample Depth in Feet bgs and Analytical Concentrations

- Total Pb = Total Lead (mg/kg)
- WET-Citric = Soluble Lead Cal Wet-Citric (mg/L)
- TCLP = Soluble Lead Toxicity Characteristic Leaching Procedure (mg/L)
- pH = pH
- NA = Not Analyzed
- J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample
- NJ = The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration
- B = The analyte was detected in the method, field and/or trip blank

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Thousand Oaks, CA 91361  
PHONE: (805) 230-1266 FAX: (805) 230-1277

FOR:  
ADL Site Investigation  
Agreement No. 07A3322  
Task Order No. 32  
LA-57 (PM R1.95/5.61); LA-210 (PM 37.81/R45.46)  
EFIS: 07-0000-0436 EA Number: 300301

JOB NUMBER:  
185832032

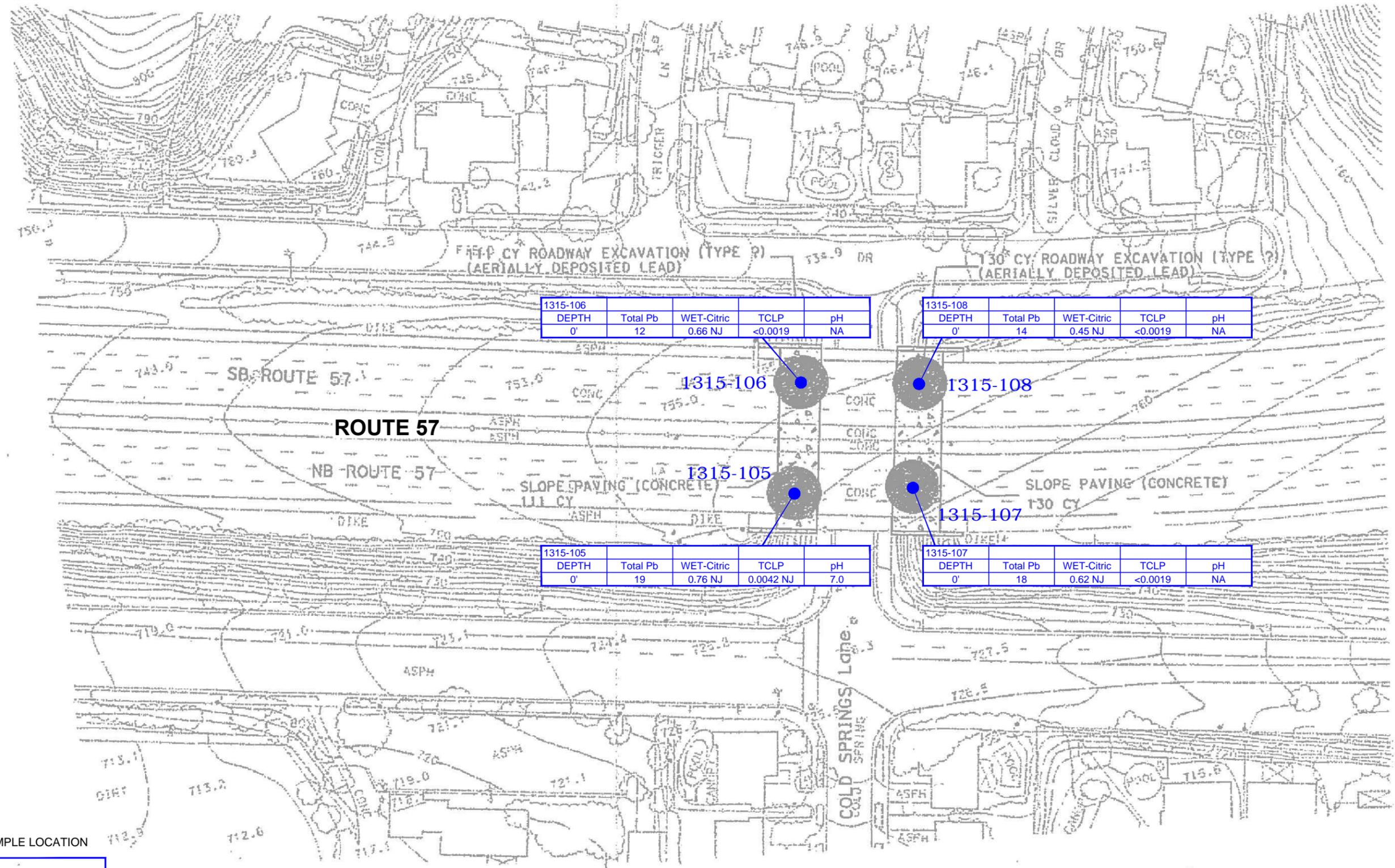
DRAWN BY:  
RAR

CHECKED BY:  
SE

APPROVED BY:  
KE

FIGURE:  
**2**  
DATE:  
02/23/16

Site Plan -  
Diamond Bar Boulevard Undercrossing



1315-106	DEPTH	Total Pb	WET-Citric	TCLP	pH
	0'	12	0.66 NJ	<0.0019	NA

1315-108	DEPTH	Total Pb	WET-Citric	TCLP	pH
	0'	14	0.45 NJ	<0.0019	NA

1315-105	DEPTH	Total Pb	WET-Citric	TCLP	pH
	0'	19	0.76 NJ	0.0042 NJ	7.0

1315-107	DEPTH	Total Pb	WET-Citric	TCLP	pH
	0'	18	0.62 NJ	<0.0019	NA

**LEGEND**  
 SAMPLE LOCATION

Boring ID	Sample	Total Pb	WET-Citric	TCLP	pH
#	##	##	##	##	##

Sample Depth in Feet bgs and Analytical Concentrations

- Total Pb = Total Lead (mg/kg)
- WET-Citric = Soluble Lead Cal Wet-Citric (mg/L)
- TCLP = Soluble Lead Toxicity Characteristic Leaching Procedure (mg/L)
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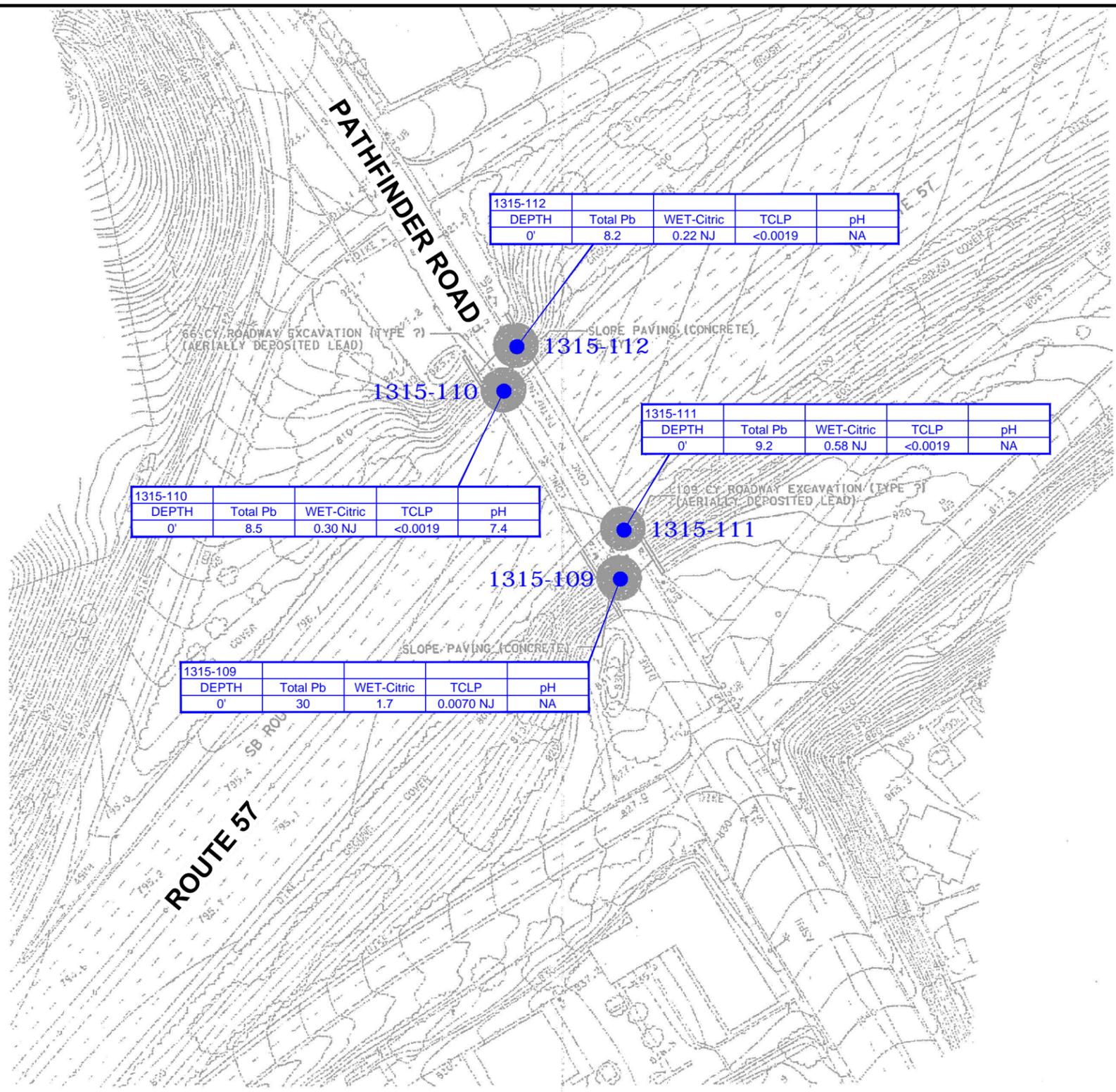
290 Conejo Ridge Avenue  
 Thousand Oaks, CA 91361  
 PHONE: (805) 230-1266 FAX: (805) 230-1277

FOR:  
 ADL Site Investigation  
 Agreement No. 07A3322  
 Task Order No. 32  
 LA-57 (PM R1.95/5.61); LA-210 (PM 37.81/R45.46)  
 EFIS: 07-0000-0436 EA Number: 300301

Site Plan -  
 Cold Spring Lane Undercrossing

FIGURE:  
**3**

JOB NUMBER: 185832032	DRAWN BY: RAR	CHECKED BY: SE	APPROVED BY: KE	DATE: 02/23/16
--------------------------	------------------	-------------------	--------------------	-------------------



1315-112				
DEPTH	Total Pb	WET-Citric	TCLP	pH
0'	8.2	0.22 NJ	<0.0019	NA

1315-111				
DEPTH	Total Pb	WET-Citric	TCLP	pH
0'	9.2	0.58 NJ	<0.0019	NA

1315-110				
DEPTH	Total Pb	WET-Citric	TCLP	pH
0'	8.5	0.30 NJ	<0.0019	7.4

1315-109				
DEPTH	Total Pb	WET-Citric	TCLP	pH
0'	30	1.7	0.0070 NJ	NA

**LEGEND**  
 SAMPLE LOCATION

Boring ID				
Sample	Total Pb	WET-Citric	TCLP	pH
#	##	##	##	##

Sample Depth in Feet bgs  
 and Analytical Concentrations

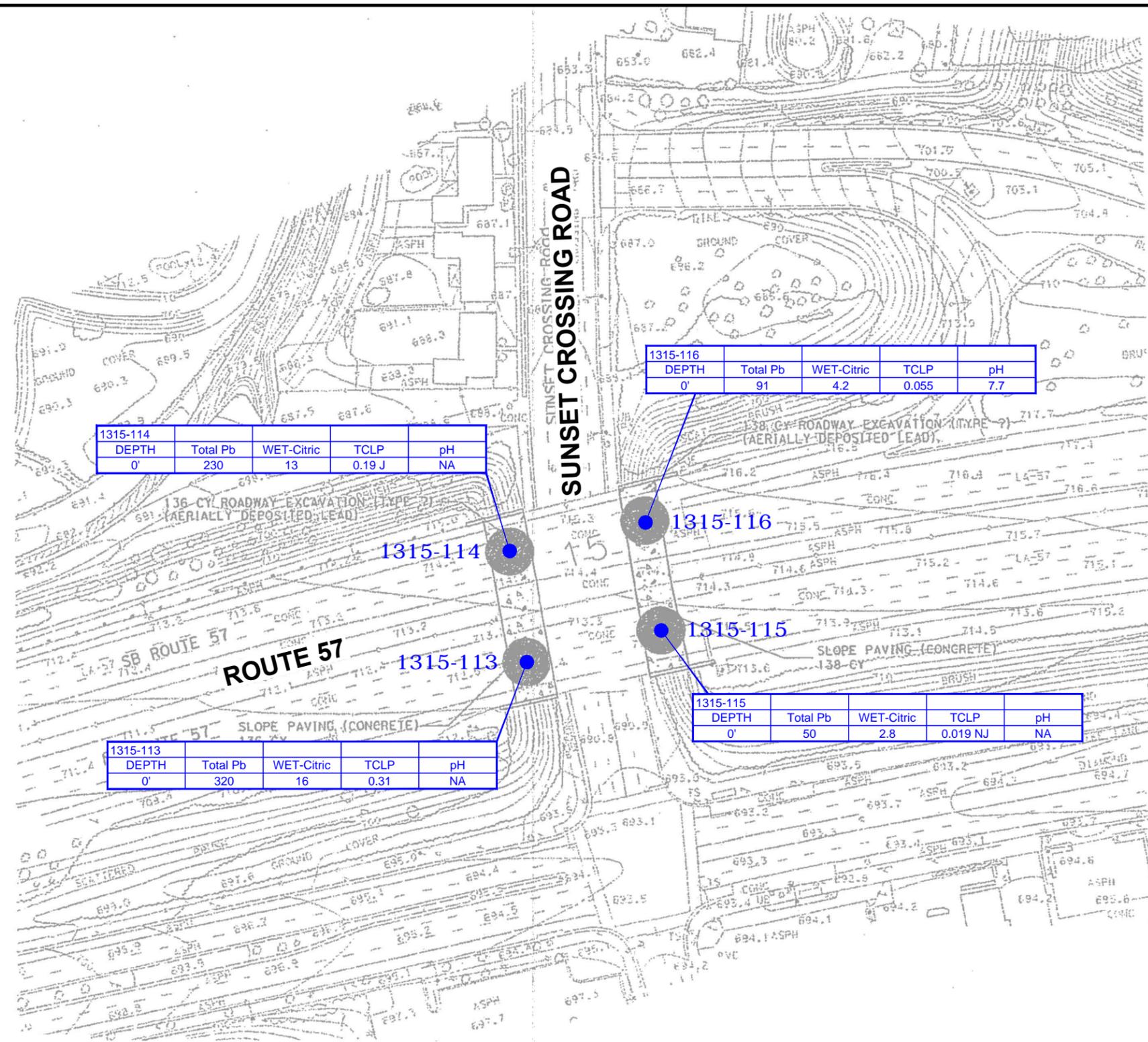
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NOT TO SCALE

 290 Conejo Ridge Avenue Thousand Oaks, CA 91361 PHONE: (805) 230-1266 FAX: (805) 230-1277	FOR: ADL Site Investigation Agreement No. 07A3322 Task Order No. 32 LA-57 (PM R1.95/5.61); LA-210 (PM 37.81/R45.46) EFIS: 07-0000-0436 EA Number: 300301		Site Plan - Pathfinder Road Overcrossing		FIGURE: <b>4</b>
	JOB NUMBER: 185832032	DRAWN BY: RAR	CHECKED BY: SE	APPROVED BY: KE	DATE: 02/23/16



1315-114				
DEPTH	Total Pb	WET-Citric	TCLP	pH
0'	230	13	0.19 J	NA

1315-116				
DEPTH	Total Pb	WET-Citric	TCLP	pH
0'	91	4.2	0.055	7.7

1315-113				
DEPTH	Total Pb	WET-Citric	TCLP	pH
0'	320	16	0.31	NA

1315-115				
DEPTH	Total Pb	WET-Citric	TCLP	pH
0'	50	2.8	0.019 NJ	NA

**LEGEND**  
 ● SAMPLE LOCATION

Boring ID	Total Pb	WET-Citric	TCLP	pH
Sample #	##	##	##	##

Sample Depth in Feet bgs and Analytical Concentrations

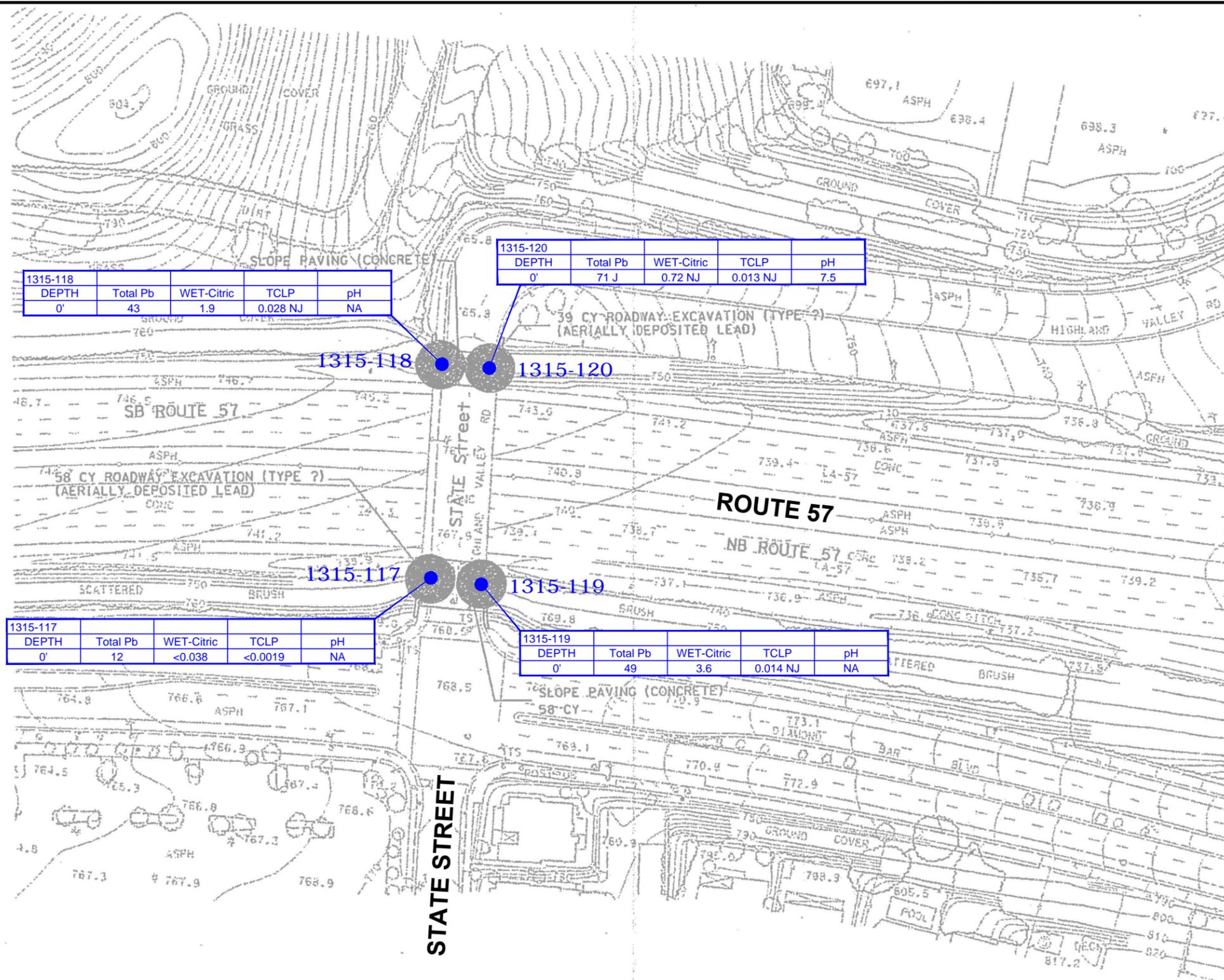
- Total Pb = Total Lead (mg/kg)
- WET-Citric = Soluble Lead Cal Wet-Citric (mg/L)
- TCLP = Soluble Lead Toxicity Characteristic Leaching Procedure (mg/L)
- pH = pH
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	JOB NUMBER: 185832032	DRAWN BY: RAR	CHECKED BY: SE	APPROVED BY: KE



1315-118				
DEPTH	Total Pb	WET-Citric	TCLP	pH
0'	43	1.9	0.028 NJ	NA

1315-120				
DEPTH	Total Pb	WET-Citric	TCLP	pH
0'	71 J	0.72 NJ	0.013 NJ	7.5

1315-117				
DEPTH	Total Pb	WET-Citric	TCLP	pH
0'	12	<0.038	<0.0019	NA

1315-119				
DEPTH	Total Pb	WET-Citric	TCLP	pH
0'	49	3.6	0.014 NJ	NA

**LEGEND**

● SAMPLE LOCATION

Boring ID	Total Pb	WET-Citric	TCLP	pH
Sample #	##	##	##	##

Sample Depth in Feet bgs and Analytical Concentrations

- Total Pb = Total Lead (mg/kg)
- WET-Citric = Soluble Lead Cal Wet-Citric (mg/L)
- TCLP = Soluble Lead Toxicity Characteristic Leaching Procedure (mg/L)
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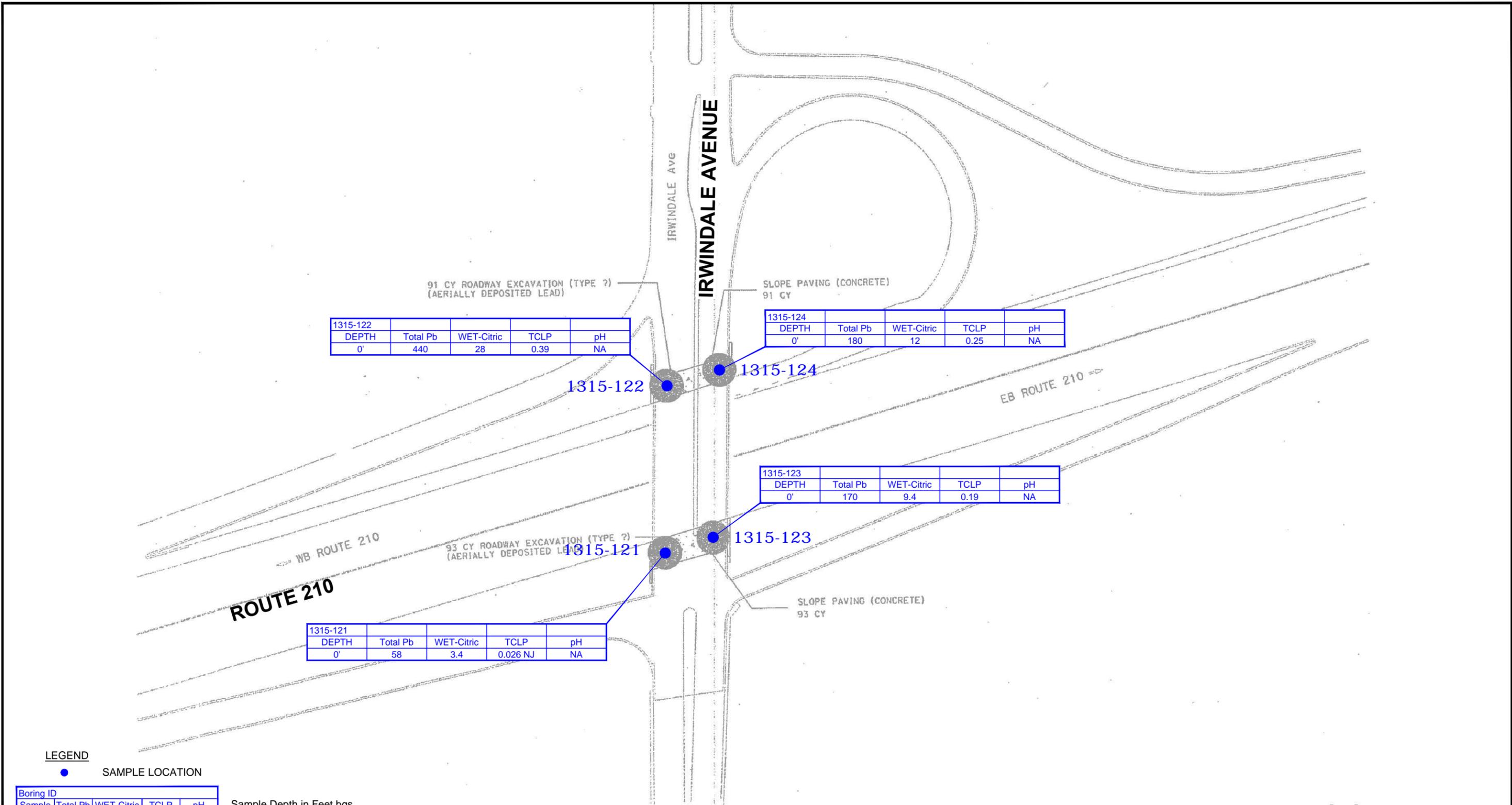


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 Thousand Oaks, CA 91361  
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FOR: ADL Site Investigation Agreement No. 07A3322 Task Order No. 32 LA-57 (PM R1.95/5.61); LA-210 (PM 37.81/R45.46) EFIS: 07-0000-0436 EA Number: 300301		FIGURE: <b>6</b>	
JOB NUMBER: 185832032	DRAWN BY: RAR	CHECKED BY: SE	APPROVED BY: KE
DATE: 02/23/16			



1315-122	DEPTH	Total Pb	WET-Citric	TCLP	pH
	0'	440	28	0.39	NA

1315-124	DEPTH	Total Pb	WET-Citric	TCLP	pH
	0'	180	12	0.25	NA

1315-123	DEPTH	Total Pb	WET-Citric	TCLP	pH
	0'	170	9.4	0.19	NA

1315-121	DEPTH	Total Pb	WET-Citric	TCLP	pH
	0'	58	3.4	0.026 NJ	NA

**LEGEND**

● SAMPLE LOCATION

Boring ID	Sample	Total Pb	WET-Citric	TCLP	pH
#	##	##	##	##	##

Sample Depth in Feet bgs and Analytical Concentrations

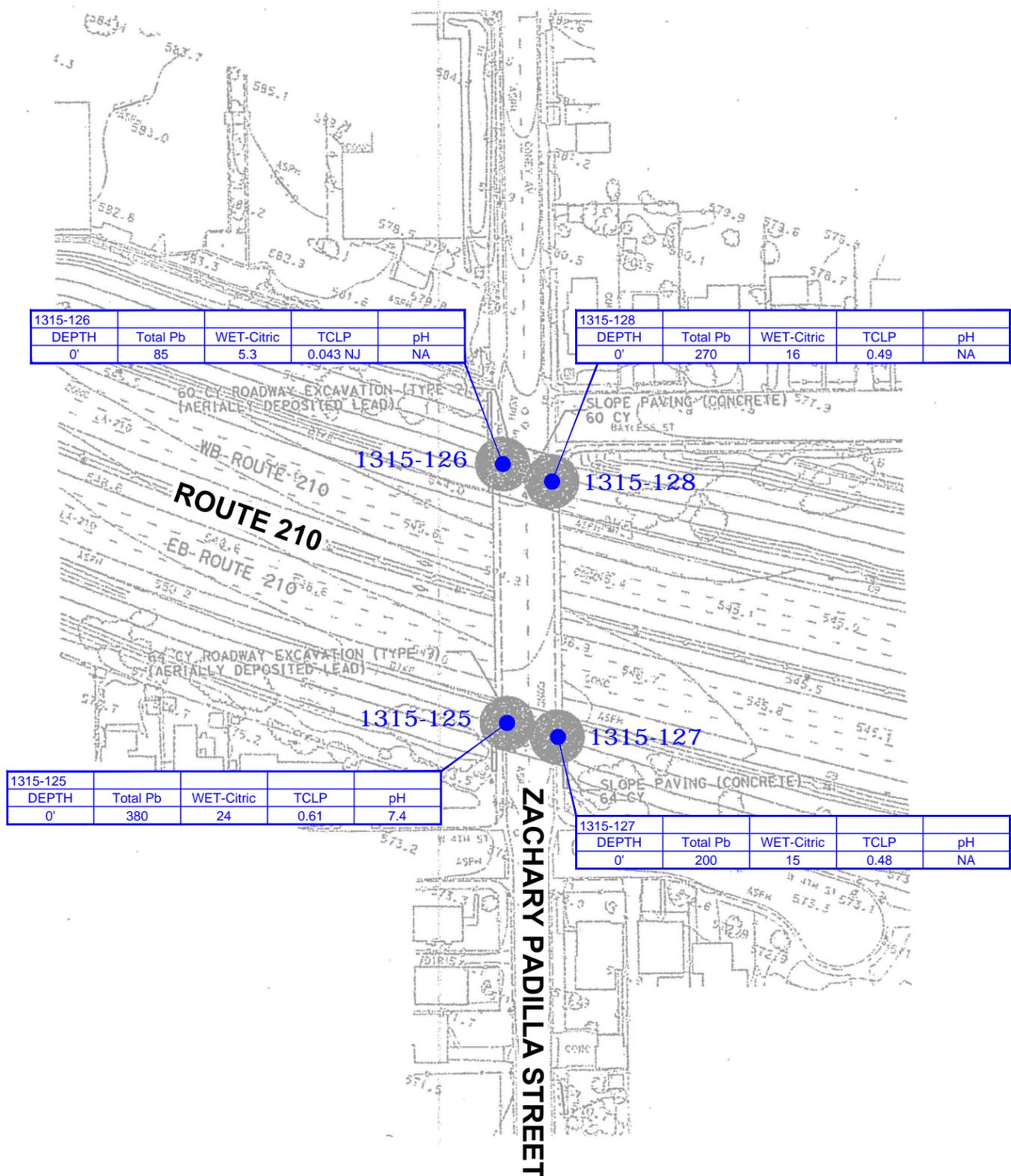
- Total Pb = Total Lead (mg/kg)
- WET-Citric = Soluble Lead Cal Wet-Citric (mg/L)
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	JOB NUMBER: 185832032	DRAWN BY: RAR	CHECKED BY: SE	APPROVED BY: KE	DATE: 02/23/16



1315-126				
DEPTH	Total Pb	WET-Citric	TCLP	pH
0'	85	5.3	0.043 NJ	NA

1315-128				
DEPTH	Total Pb	WET-Citric	TCLP	pH
0'	270	16	0.49	NA

1315-125				
DEPTH	Total Pb	WET-Citric	TCLP	pH
0'	380	24	0.61	7.4

1315-127				
DEPTH	Total Pb	WET-Citric	TCLP	pH
0'	200	15	0.48	NA

**LEGEND**

● SAMPLE LOCATION

Boring ID				
Sample #	Total Pb	WET-Citric	TCLP	pH
#	##	##	##	##

Sample Depth in Feet bgs and Analytical Concentrations

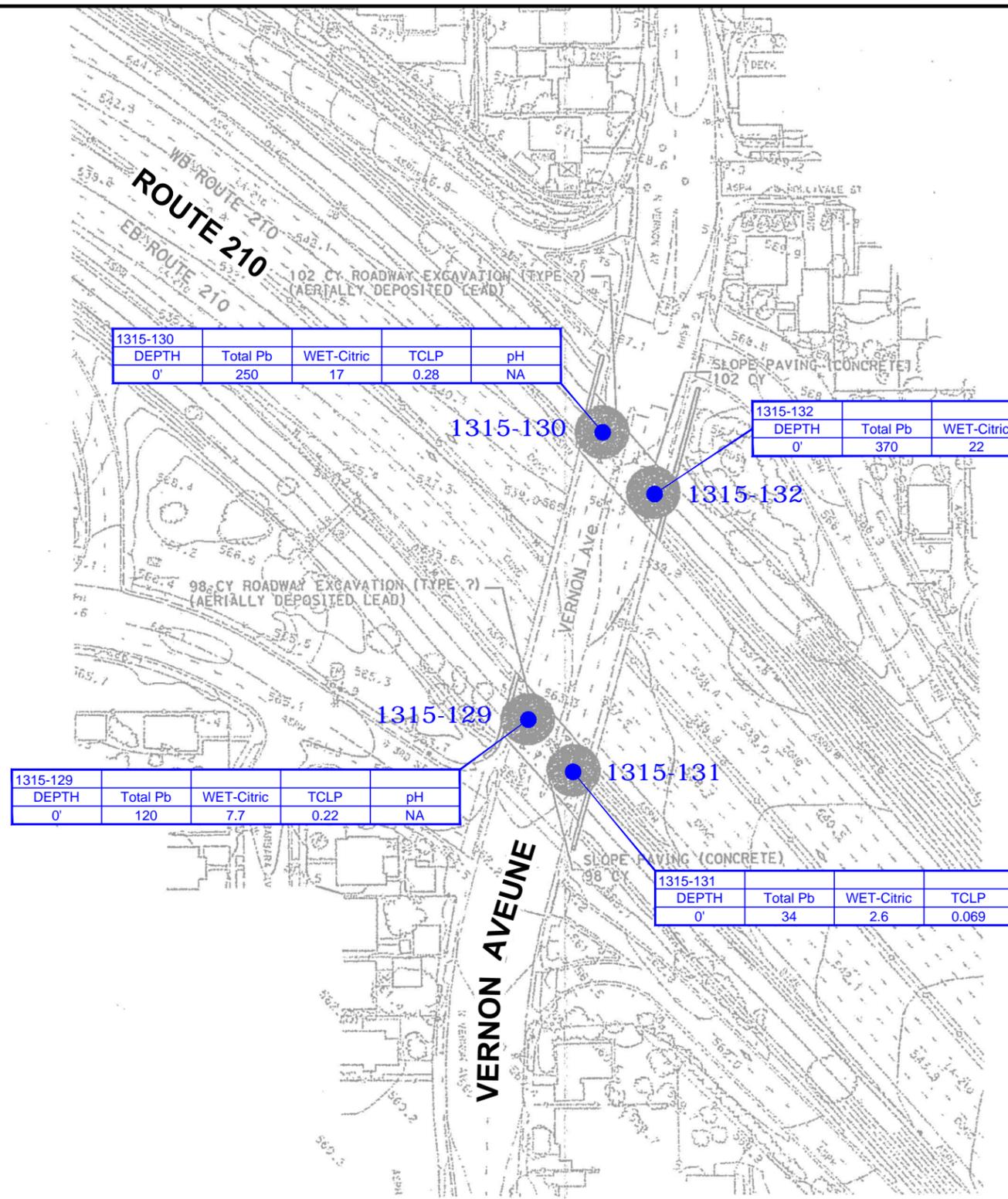
- Total Pb = Total Lead (mg/kg)
- WET-Citric = Soluble Lead Cal Wet-Citric (mg/L)
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	JOB NUMBER: 185832032	DRAWN BY: RAR	CHECKED BY: SE	APPROVED BY: KE	DATE: 02/23/16



1315-130				
DEPTH	Total Pb	WET-Citric	TCLP	pH
0'	250	17	0.28	NA

1315-132				
DEPTH	Total Pb	WET-Citric	TCLP	pH
0'	370	22	0.42	7.1

1315-129				
DEPTH	Total Pb	WET-Citric	TCLP	pH
0'	120	7.7	0.22	NA

1315-131				
DEPTH	Total Pb	WET-Citric	TCLP	pH
0'	34	2.6	0.069	NA

**LEGEND**  
 ● SAMPLE LOCATION

Boring ID	Total Pb	WET-Citric	TCLP	pH
Sample #	##	##	##	##

Sample Depth in Feet bgs and Analytical Concentrations

- Total Pb = Total Lead (mg/kg)
- WET-Citric = Soluble Lead Cal Wet-Citric (mg/L)
- TCLP = Soluble Lead Toxicity Characteristic Leaching Procedure (mg/L)
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	JOB NUMBER: 185832032	DRAWN BY: RAR	CHECKED BY: SE	APPROVED BY: KE	DATE: 02/23/16

NORTH AMELIA AVENUE

101 CY ROADWAY EXCAVATION (TYPE ?)  
(AERIALY DEPOSITED LEAD)

1315-134	DEPTH	Total Pb	WET-Citric	TCLP	pH
	0'	59	2.9	0.022 NJ	NA

1315-134

114 CY ROADWAY EXCAVATION (TYPE ?)  
(AERIALY DEPOSITED LEAD)

1315-136	DEPTH	Total Pb	WET-Citric	TCLP	pH
	0'	9.1	0.30 NJ	<0.0019	NA

1315-136

1315-133

1315-135	DEPTH	Total Pb	WET-Citric	TCLP	pH
	0'	41	2.6	0.020 NJ	NA

1315-135

SLOPE PAVING (CONCRETE)  
101 CY

SLOPE PAVING (CONCRETE)  
114 CY

1315-133	DEPTH	Total Pb	WET-Citric	TCLP	pH
	0'	79	4.4	0.053	8.8

ROUTE 210

EB ROUTE 210

EB Rte 210 FROM NB Rte 57

LEGEND

● SAMPLE LOCATION

Boring ID	Sample	Total Pb	WET-Citric	TCLP	pH
#	##	##	##	##	##

Sample Depth in Feet bgs  
and Analytical Concentrations

- Total Pb = Total Lead (mg/kg)
- WET-Citric = Soluble Lead Cal Wet-Citric (mg/L)
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LA-57 (PM R1.95/5.61); LA-210 (PM 37.81/R45.46)  
EFIS: 07-0000-0436 EA Number: 300301

JOB NUMBER:  
185832032

DRAWN BY:  
RAR

CHECKED BY:  
SE

APPROVED BY:  
KE

DATE:  
02/23/16

Site Plan -  
Route 57 Southbound Interchange

FIGURE:  
10

**APPENDIX A  
HASP**



**SITE-SPECIFIC HEALTH AND SAFETY  
PLAN (HASP)  
TASK ORDER NO. 32  
SITE INVESTIGATION FOR STABILIZING  
SOIL EROSION  
07A3322-32  
LA-57, PM R1.95/5.61;  
LA-210, PM 37.81/R45.46  
Los Angeles County, California  
PN: 07-0000-0436  
EA: 300301**

**Prepared for:**

The State of California, Department of  
Transportation  
District 7  
Los Angeles, California  
Contract # 07A3322

**Submitted by:**

Stantec Consulting Services Inc.  
25864-F Business Center Dr.  
Redlands, CA 92374

February 4, 2016



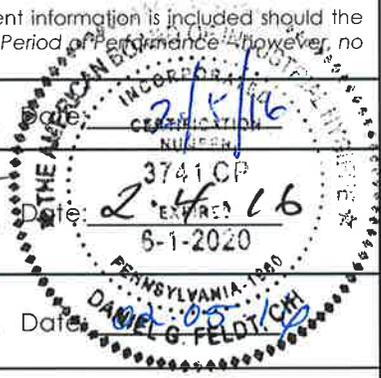
## Purpose and Approval

**Our work can be hazardous, and it is imperative that we never forget that!** It is the purpose of this Health and Safety Plan (HASP) to proactively aid Stantec employees in:

- Identifying and understanding the potential risks/hazards they may encounter at the site.
- Mitigating those potential risks/hazards.

Stantec's policy is to complete our work on this site without any type of incident (injury, illness, impact to the environment, impact to property and equipment). In order to achieve this goal, the project team will work together to perform an effective hazard assessment. The team will then establish appropriate precautions and communicate these daily among project staff. Staff will be responsible for communicating changing field conditions to the project management so these conditions and appropriate precautions may be re-evaluated as needed. Staff will implement **STOP WORK AUTHORITY** at any time they believe that conditions may be inherently unsafe or might cause damage to property or harm to the environment. Staff may refuse to participate in work they believe will be unsafe. If it is believed that such conditions exist, staff will communicate immediately with the Project Manager to resolve the situation. We expect all subcontractors and project personnel to share this goal.

<b>Client:</b> <u>The State of California, Department of Transportation – 07A3322</u> <b>Project Name:</b> <u>TASK ORDER NO. 32 – SI</u> <b>Start Date:</b> <u>February 4, 2016</u> <b>Plan Review Date*:</b> <u>July 4, 2016</u>	<b>Site Name:</b> LA-57, PM R1.95/5.61; LA-210, PM 37.81/R45.46, Los Angeles County, California <b>Project Number:</b> <u>185832032</u> <b>End Date:</b> <u>February 29, 2016</u>
<small>(*The Plan Review Date is the date the HASP would need to be re-reviewed to maintain current information is included should the Task Order be extended. The Plan Review date is no longer than 6 months from the start of the Period of Performance; however, no reviews will be performed on the HASP outside of the Task Order Period of Performance.)</small>	
<u>Kevin Miskin</u> Project Manager	Signature: <u>[Signature]</u> Date: <u>2/5/16</u>
<u>Dan Feldt, MPH, CIH</u> Health and Safety Manager, Certified Industrial Hygienist (CIH) HASP review	Signature: <u>[Signature]</u> Date: <u>2/4/16</u>
<u>StephAnnie Roberts</u> Office Safety Environmental Coordinator (OSEC)	Signature: <u>[Signature]</u> Date: <u>02/05/16</u>
<u>Anuya Sawant</u> Site Health and Safety Officer (SHSO)	Signature: <u>[Signature]</u> Date: <u>2/5/2016</u>
<b>FOR</b> <u>Jason Stagno</u> Peer Reviewer	Signature: <u>[Signature]</u> Date: <u>02/05/16</u>
<u>Kristy Edblad</u> HASP Originator	Signature: <u>[Signature]</u> Date: <u>2-5-2016</u>



The health and safety guidelines in this HASP were prepared exclusively for this site. This HASP will be amended (**with changes recorded on the Health and Safety Plan Modification Log located in Attachment A**) if site conditions, scope of work, training dates, personnel, or other critical items change during the field work or before the scheduled HASP review date above. This HASP is intended to be available on site. Elements of the HASP shall be reviewed during daily tailgate meetings conducted by the Site Health & Safety Officer.



## Acknowledgement and Agreement Form

### **"Zero Tolerance for Incidents of ANY Kind. Work Together to Ensure a SAFE and High Quality Project"**

All parties conducting site activities are required to coordinate their activities and practices with the Stantec Site Health and Safety Officer (SHSO). Stantec has provided a copy of this HASP to site contractors in the interest of disclosure of potential risks/hazards of which Stantec may be aware. Similarly, contractors shall inform Stantec of any potential site risks/hazards of which they are aware including the contractor's work, equipment, procedures and chemicals.

This HASP has been developed for the purpose of proactively aiding Stantec employees in identifying, understanding, and mitigating the potential risks/hazards they are may encounter at the site. This HASP may also be used as a reference document by properly trained and experienced Stantec subcontractors and clients. However, subcontractors and other contractors at the site must develop their own HASP to address the potential risks/hazards faced by their own employees.

This HASP should NOT be understood by contractors or anyone other than Stantec employees to provide information on all of the potential risks/hazards to which they may be exposed as a result of their work. Stantec claims no responsibility for use of this HASP by others.

Your signature below confirms the following: that you have read and understand the potential risks/hazards identified by Stantec and the associated mitigation measures discussed in this HASP; that there may be additional risks or hazards that are not identified in this HASP; that you have received training and medical surveillance according to this HASP and the OSHA Standard on Hazardous Waste Operations and Emergency Response (29 CFR 1910.120); and that you understand that you could be prohibited by the Stantec Site Health and Safety Officer or other authorized Stantec personnel from working on this project for not complying with any aspect of this or any other applicable HASP.

**\*\*Note:** From this point forward in this document, the terms OSHA (i.e. federal Occupational Safety and Health Administration or FedOSHA) will be used interchangeably and shall be considered equivalent to the State of California Division of Occupational Safety and Health or CalOSHA.

**(All Stantec and subcontractor personnel must sign.)**

Name	Signature	Company	Date
SCOTT EDCLAD		STANTEC	02/10/16
MARK MASON		STANTEC	2-10-16
Ryan McDaniel		Stantec	2-10-16
Tommy Fardig		STANTEC	2-10-16
Jack City		CalTrans	2-10-16



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### ATTACHMENTS

- Attachment A General Safety Information (for all Sites)
- Attachment B Training Certificates
- Attachment 1 Stantec Field Binder Checklist and Project Applicable Forms
- Attachment 2 Job Safety Analyses
- Attachment 3 RMS-2 Fit for Duty/Heat Illness Prevention Plan
- Attachment 4 Driver's Fatigue Checklist /Safe Driving Vehicle Pre-Use Checklist
- Attachment 5 RMS-3 incident/Near Miss Investigation and Collision Kit

## 1.0 Emergency Response

### PHONE NUMBERS

The nearest telephone is: Anuya Sawant (Stantec – SHSO) (805) 341-9514 cell. Additional personnel who may be on-site are listed below:

1. Tommy Fardig (Field Staff): (805) 341-2396 (cell phone)
2. Mark Mason (Field Staff): (805) 341-1492 (cell phone)
3. Ryan McDaniel (Field Staff): (909) 289-9675 (cell phone)
4. Scott Edblad (Field Staff): (661) 754-0862 (cell phone)

Emergency Response			
	Name	Telephone	Verification
<b>Hospital</b>	San Dimas Community Hospital 1350 West Covina Blvd, San Dimas, CA 91773	911 or Non-emergency 909-599-6811	2/4/2016
<b>Ambulance</b>	Emergency Ambulance Service, Inc.	<b>911</b> or Non-emergency 714-990-1331	2/4/2016
<b>Police</b>	Los Angeles County Sheriff's Department	911 or Non-emergency 909-620-3266	2/4/2016
<b>Fire Department</b>	Brea Fire Department (LA-57) City of Glendora Fire Dpt (LA-210)	<b>911</b> or Non-emergency 714-990-7655 (LA-57) 626-963-2733 (LA-210)	2/4/2016
<b>Spill Response</b>	Belshire Environmental	(800)-995-8220	2/4/2016
<b>Environmental Response</b>	National Response Center (24-hour hotline)	(800) 424-8802	2/4/2016
<b>Environmental Protection</b>	US Environmental Protection Agency (24-hour hotline)	(800) 424-9346	2/4/2016
<b>Emergency Services</b>	Office of Emergency Services (24- hour hotline)	(800) 852-7550	2/4/2016
<b>Poison Control</b>	California/U.S. National Poison Control Center (24-hour hotline)	(800) 222-1222	2/4/2016
Agency / Line Locator			
<b>National Line Locator</b>	National 811 Call-Before-You-Dig Hotline (24-hour hotline)	811	2/4/2016
<b>Public Utility Locator</b>	DIG ALERT	811	2/4/2016

**Local office and additional contacts in case of an emergency or field questions regarding the Site:**

1. Kevin Miskin (Contract Manager) at 909-224-3406
2. Kristy Edblad (TO Support and Manager) at 661-754-0863

Flow charts for contacting additional departments in Stantec and official reporting protocol can be found in Section 1.4 of Attachment A.

## 2.0 Project Team Information

Project Team Phone Numbers			
Project Role/Name		Telephone	Verification
Stantec Project/Contract Manager	Kevin Miskin	909-224-3406 (cell) 909-255-8210 (office)	2/4/2016
<b>Field Staff #1:</b> Stantec Site Health and Safety Officer (SHSO)	Anuya Sawant	805-341-9514	2/4/2016
<b>Field Staff #2:</b> Stantec Project Staff	Tommy Fardig	805-341-2396	2/4/2016
<b>Field Staff #3:</b> Stantec Project Staff	Mark Mason	805-341-1492	2/4/2016
<b>Field Staff #4:</b> Stantec Project Staff	Ryan McDaniel	909-289-9675	2/4/2016
<b>Field Staff #5:</b> Stantec Project Staff	Scott Edblad	661-754-0863	2/4/2016
Senior Certified Industrial Hygienist (CIH)	Dan Feldt	414-305-1984	2/4/2016
Stantec West Region Health, Safety, Environment (HSE) Coordinator	Clint Reuter	818-395-8556 Cell 626-584-1599 Office	2/4/2016
Stantec Human Resources Representative	Peggy Ramos	949-923-6061	2/4/2016
OSEC (Stantec Office Safety & Environmental Coordinator)	StephAnnie Roberts	805-427-4873	2/4/2016

*(Note: The Field Staff will be on-Site. All others are Stantec employees supporting all Stantec staff and not necessarily charging time to the Task Order.)*

### TRAINING

Site personnel will be trained and certified in hazardous waste operations and emergency response as follows:

- 40-Hour HAZWOPER Training;
- OSHA Respiratory Protection [29 CFR 1910.134]
- Annual 8-Hour Refresher [29 CFR 1910.120(e)(8)];
- First Aid/CPR Training;
- Physical examination consistent with 29 Code of Federal Regulations (CFR) 1910.120 (and 8 California Code of Regulations (CCR) 5192, if applicable);
- Supervisory 8-hour Training [29 CFR 1910.120(e)(4)] for the Site Manager/SHSO; and
- Additional training specific to the job being performed (e.g., Fall Protection, Lock Out/Tag Out, Hot Work, Confined Space, etc.).

In addition to the above-mentioned trainings, Stantec personnel are required to have training in a behavior-based safety program and defensive driving. Fit tests are also required for respirator use.

**Client-Specific Safety Procedures:**

Caltrans does not have any additional required safety programming or expectations, thus Stantec staff will comply with state, federal and local regulations, and Stantec policies, procedures and expectations.

Site specific staff safety training certification information is listed on the following page.

**SITE SPECIFIC STAFF TRAINING  
(Includes personnel that could potentially visit the Site)**

<b>Name</b>	<b>40Hr HAZWOPER</b>	<b>8Hr HAZWOPER Refresher</b>	<b>CPR / First Aid</b>	<b>Annual Physical</b>	<b>Defensive Driver Training</b>	<b>Respirator Fit Test</b>
FIELD STAFF: Anuya Sawant	07/30/2010	07/28/2015	06/14/2013	09/28/2015	04/09/2013	09/28/2015
FIELD STAFF: Tommy Fardig	03/15/2012	03/03/2015	06/14/2013	06/30/2015	09/17/2014	06/30/2015
FIELD STAFF: Mark Mason	7/17/2001	02/12/2015	06/13/2013	08/14/2015	04/27/2015	08/14/2015
FIELD STAFF: Ryan McDaniel	10/28/2013	11/24/2015	10/30/2015	02/05/2016	10/22/2013	10/16/2015
FIELD STAFF: Scott Edblad	11/04/2000	02/17/2015	06/14/2013	12/21/2015	09/12/2013	12/22/2014
<b>List Staff Changes/Additions Below</b>						

Copies of the OSHA 8-Hour Refresher Certificates are included in Attachment B.

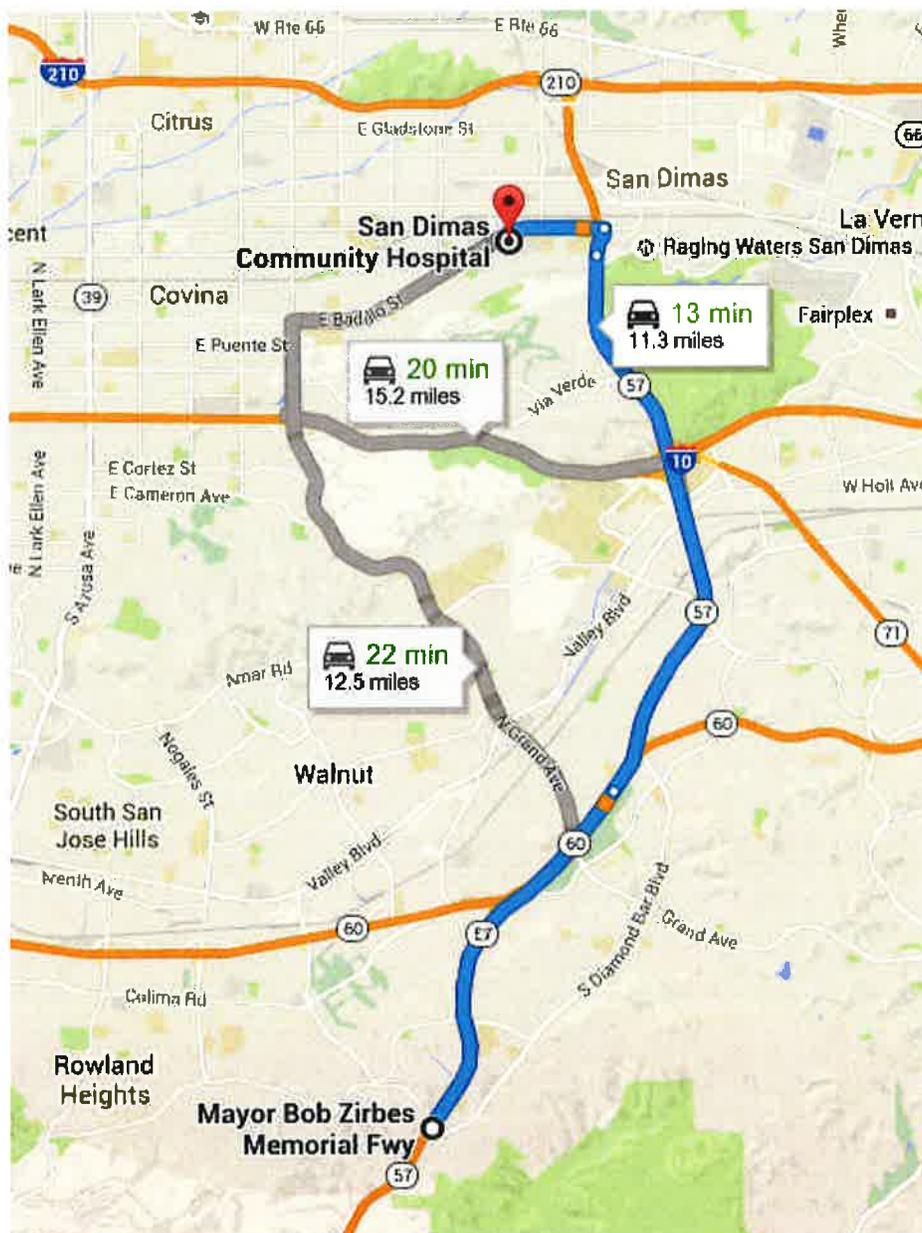
## DIRECTIONS AND MAP TO THE HOSPITAL

The SHSO will verify and validate the route to the hospital by driving it before work begins.

### San Dimas Community Hospital (909-599-6811):

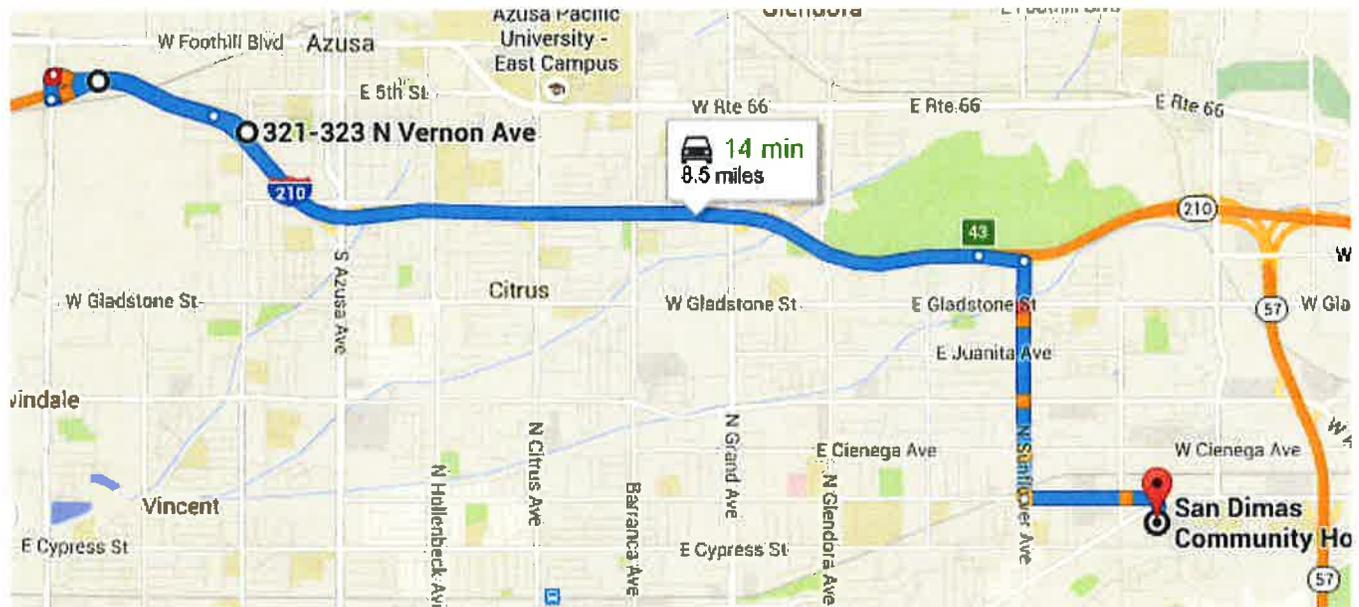
#### From LA-57 Project Locations:

1. Head northeast on LA-57N
2. Exit 24A for Covina Boulevard
3. Turn left onto Covina Boulevard
4. Hospital is on the LEFT side at 1350 West Covina Boulevard, San Dimas, CA 91773



**From LA-210 Project Locations:**

1. Head northwest on LA-210W
2. Exit 43 for Sunflower Avenue
3. Turn right on Sunflower Avenue
4. Turn left onto Covina Boulevard
5. Hospital is on the AHEAD at the threeway intersection of E Covina Blvd, W Covina Blvd, and Badillo St. at 1350 West Covina Boulevard, San Dimas, CA 91773



## 3.0 Scope of Work

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The scope of this project is described in the Task Order No. 32 Proposal, dated January 29, 2016 (rev 1).

According to the Task Order No. 32 request, Caltrans is currently preparing PS&E Documents for the Soil Stabilization Protocol Annual Element Program. Caltrans proposes to pave the existing open dirt areas adjacent to and under bridge structures to stabilize soil erosion at nine locations (five along LA-57 and four along LA-210). Soil excavation to a depth of approximately 4 to 6-inches below ground surface (bgs) is anticipated for construction of new hardscapes. The construction locations for slope paving are provided in the Task Order request.

This SI will evaluate if aerially deposited lead (ADL) and other Title 22 metals are present in soil at the proposed excavation locations at concentrations in excess of acceptable regulatory thresholds and will recommend the appropriate soil management procedures for excess soils that are disturbed during construction activities. In addition, the SI results will also assist the Contractor in developing appropriate health and safety plan and training program for the field staff as required per Title 8 of the California Code of Regulations (8CCR) and Cal-OSHA Construction Safety Order.

### **GPS Data Collection**

All soil boring locations will be surveyed (x and y coordinates) with a hand-held global positioning system unit (GPS) at the completion of field sampling activities.

### **SITE INVESTIGATION**

As directed in the Task Order No. 32 Request, Stantec proposes to advance up to 36 borings at nine locations (five locations along LA-57 and four locations along LA-210) as outlined in the attachments in the Task Order request. Two boreholes are proposed for each unpaved area and four boreholes are proposed for each bridge structure. Soil Samples will be collected from the boring locations depicted on the Boring Layout Plan (BLP) and described in the Task Order request.

Soil samples will be collected from surface to 0.5-feet bgs (surface). Approximately 36 samples will be collected and analyzed at a stationary laboratory. No borings will be advanced outside of the existing right of way or in existing paved areas. Soil samples will be collected directly from the hand auger bailer or using a sampling spade, discharged to a clean ziplock one (1) gallon bag and will be discharged to eight-ounce laboratory certified clean glass jars. All soil sampling equipment will be decontaminated before the collection of each sample using the three bucket system.

Observed soil conditions in the borings will be recorded on field boring logs by the field staff and will include a description of the soil, classified in accordance with the latest edition of the Soil & Rock Logging Classification Manual (Field Guide), State of California, Department of Transportation, Engineering Service Center, Office of Structural Foundations (following USCS classification system), including color, moisture content, consistency, odor, and staining.

All samples will be labeled with unique sample identification along with the borehole ID, sample depth, sample date, and sample time. All samples will be annotated on chain-of-custody forms and delivered

to a laboratory certified by the California Department of Health Services Environmental Laboratory Accreditation Program for the analyses indicated herein.

Laboratory Analysis:

Stantec is estimating that out of 36 soil samples collected, the following will be submitted to the laboratory for analysis:

- 36 samples for total lead,
- 36 samples for soluble lead by CalWET-citric,
- 36 samples for soluble lead by TCLP,
- 9 samples for Title 22 metals; and
- 9 samples for pH.

All investigation derived waste (IDW) will be disposed of in accordance with U.S. EPA publication OSWER Directive 9345.3-02 entitled "Management of Investigation-Derived Waste During Site Inspections" as specified in Contract 07A3322, Method 17. Excess soil removed from the shallow borings will be replaced back into their respective borings. Decontamination water used for the investigation will be disposed of on-Site, while taking measures to prevent any liquids from entering the roadway, storm drains, or flowing as run-off from the ROW. Used and soiled personal protective equipment (PPE) will be bagged and disposed to the municipal trash.

The scope of work will be conducted in a manner consistent with the methods and assumptions outlined in **TASK ORDER NO. 32.**

The scope of work referenced in this HASP will be available for Stantec personnel on site. The field staff may also call the Project Manager, Kevin Miskin (909-224-3406) or Task Manager, Kristy Edblad (661-754-0863), should they have any questions that are not specifically addressed in the HASP or the signed Task Order.

## 4.0 Site Background, Potential Hazards and Mitigation Measures

---

### PROJECT BACKGROUND INFORMATION

The Site background is described in the Task Order Request and summarized below.

#### *Project Background*

The purpose of the SI is determine the appropriate management for handling and disposing of soils that will be generated during construction. The project area is within Caltrans ROW, along State Route 57 (LA-57) and State Route 210 (LA-210), in Los Angeles County, California.

### POTENTIAL HAZARDS

#### Chemical:

Historical reports were provided which indicated encountering strong odor and petroliferous material around 40 feet or deeper and ADL at the site area during previous investigations. Therefore, potential chemical hazards at this site may include:

- ADL and other heavy metals in soil.

#### Physical:

The project area is located along LA-57 and LA-210 unpaved shoulders, near both ends of bridge structures, within Caltrans Right-of-Way. Other potential site specific hazards may include:

- Traffic
  - Vehicles are driving into and out of the Site throughout the day.
    - When sampling outside, set cones up in your immediate work area to provide visibility to the vehicles traveling into/out of the area of the work zone. Whenever possible, don't place your back to traffic.
    - Use the work vehicle as an added buffer for your work area (DO NOT BLOCK TRAFFIC). Consider traffic lane closure or re-routing if necessary.
- Wind/debris
  - Should weather conditions change and become a hindrance to performing the task safely, stop work and contact the project manager.
- Heat
  - Be sure to drink plenty of liquids, be sure your co-worker is drinking enough liquids. The site appears to have access to areas that do provide shade so be sure to take breaks to cool down.
    - At 95 degrees, employees should take 10 minute breaks every hour in the shade.
    - DRINK WATER (not soft drinks or Gatorade). Don't wait until you are thirsty.
    - If an employee is feeling nauseated, dizziness or has any symptoms attributable to heat, remove the employee immediately from the work area and get them into the shade so they can cool down and drink

water. If symptoms worsen (i.e. if the employee appears to be losing consciousness or has trouble breathing, etc., call 911.

- Trips/falls
  - To protect yourself, always look before you step. Take care walking and standing working in all areas of the site.
- Noise
  - The Site is located off the highway on Caltrans ROW property – wear the proper hearing protection if found to be necessary [rule of thumb: if you need to raise your voice above regular talking intensity at a distance of 3 feet (one arm length) hearing protection should be worn]
- PPE
  - Wear the proper PPE for the tasks involved – minimum: gloves, hard hat, safety glasses, steel toed boots, safety vest and possibly a dust respirator (LBP). Additional safety wear may need to be used if site conditions change.

## HAZARD MITIGATION

Attachment A provides information for avoiding, monitoring and mitigating chemical and physical hazards, including general hazards that can potentially be encountered on any project site (earthquakes, bees, etc). As described, proper hygiene and personal protective equipment (PPE) shall be required including,

- Washing hands before eating or smoking, and
- Donning hard hats, safety glasses, reflective high visibility vests, steel toed shoes, and disposable sampling gloves.

**Protect yourself, always look before you step and wear proper PPE for the task being performed.**

## 5.0 Journey Management Plan

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### PURPOSE

The purpose of this Journey Management Procedure (JMP) is to prevent losses associated with motor vehicle related incidents including: injuries to drivers, passengers and pedestrians, damage to motor vehicles and damage to third party property. By communicating potential safety risks before mobilizing to a site, a motor vehicle operator will be able to prepare for and avoid potential hazards.

These JMPs apply to all vehicles assigned for the support of site operations, including company owned and personal use vehicles. This JMP does not apply to vendors (such as UPS, FedEx. etc.) not under contract with Stantec or their supplier. This JMP does not address hazards that are external to the site access/egress and on the onsite project operations.

### Site Specific JMP

#### **General Vehicle Hazards**

Highways approaching/near the project site are typically congested – allow extra time and space, slow down, and watch for vehicles.
---

#### **Site Specific Potential Vehicle Hazards**

Heat, traffic, winds. Watch for debris along the roadway. Highway adjacent – watch for traffic. If parking along the shoulder, watch for traffic before exiting vehicle. Use the vehicle to provide a buffer between you and the traffic, where possible. Watch for dips, debris, bushes. <b>**SHOULDER CLOSURE of immediately adjacent shoulder to work activity should be considered utilizing cones and signage**</b>
--

#### **Directions: Access to the Site**

The Site is located along LA-57 (between Diamond Bar Boulevard and West Temple Avenue) and LA-210 (between State Route 605 and LA-57). Access may be gained along the highway or from the applicable streets/properties adjacent to where the samples are being collected. Cones should be carried to the work area.
--

#### **Directions: Leaving the Site**

Merge onto LA-57 or LA-210 and continue traveling on the highway.
---

#### **Site Specific Restrictions and Controls**

None
------

This Journey Management Plan is approved for use:

From: 2/4/2016	Time: 0700	To: 02/29/2016	Time: 1700
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Journey Management Plan Maintained by

Field Manager : Anuya Sawant	Cell: 805-341-9514
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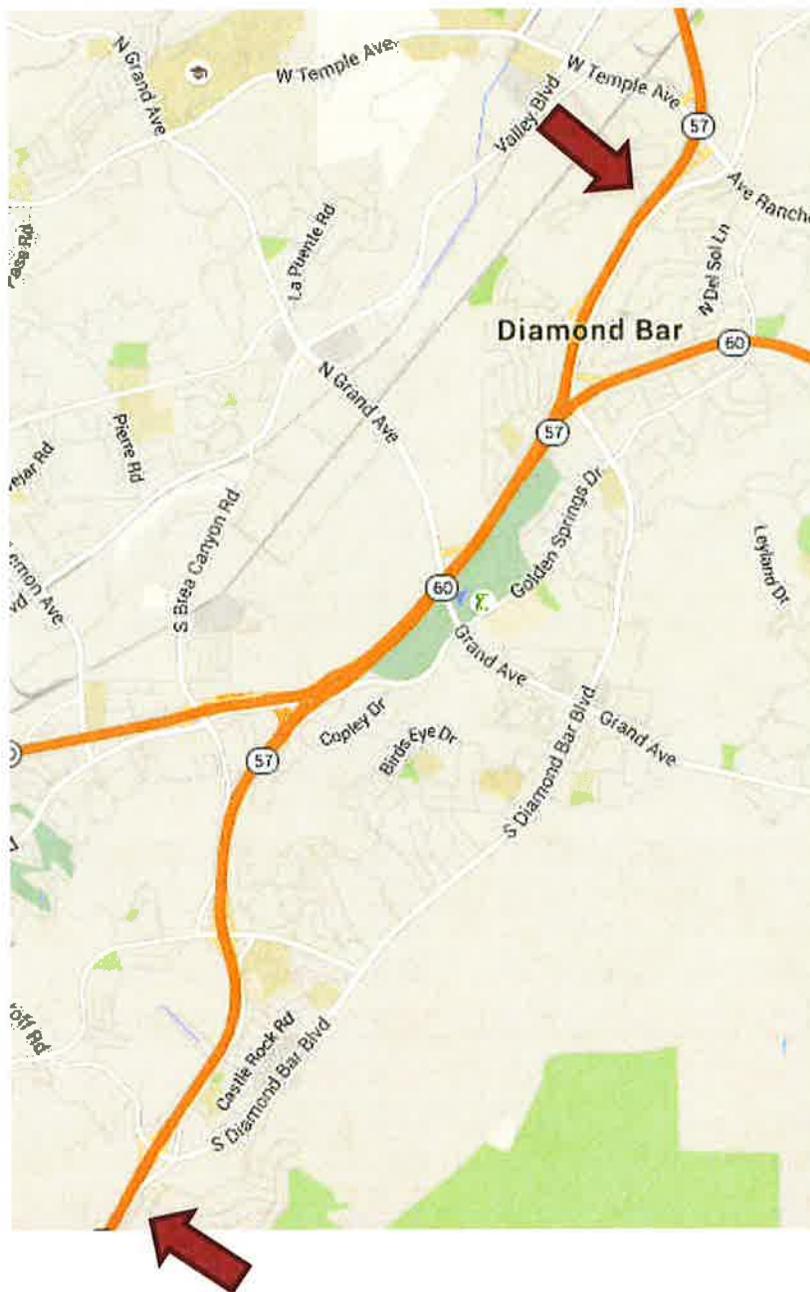
Contract Project Manager: Kevin Miskin	Cell: 909-224-3406
--	--------------------

Should an incident occur, refer to Attachment 5 for Stantec's procedures of notifications and reporting.

**SITE MAP/SKETCH**

It can be helpful in clarifying access/egress routes, parking and positioning of equipment, traffic cones and other delineators.

**Site Sketch: LA-57**



The red arrow points to the sampling section on LA-57 between Diamond Bar Boulevard and West Temple Avenue, where the LA-57 portion of the SI will occur.

(Site view provided from Google Earth, 2016.)

**Site Sketch: LA-210**



The red arrow points to the sampling section on LA-210 between State Route 605 and LA-57, where the LA-210 portion of the SI will occur.

(Site view provided from Google Earth, 2016.)



## **Attachment A**

# **General Safety Information for ALL SITES**



## 1.0 General Safety Information

---

### 1.1 Emergency Response Procedures: Evacuation

In the event of an on-site or off-site emergency requiring site evacuation (e.g., fire, release, explosion, etc), the following procedures will be followed:

- Stop Work and notify the SHSO.
- Evacuate the site and go to the emergency meeting location if safe conditions exist. The evacuation point is shown in the sketch below or following this page. If safe conditions prevent evacuation to this location, move upwind, away from the source of the emergency. Maintain a safe distance from the source.
- Check in with the SHSO at the emergency meeting location. The SHSO will take attendance once all personnel have gathered.
- Call the appropriate emergency response number(s). State the problem clearly and completely and remain on the line until dismissed by the operator.
- Only attempt to extinguish small fires with portable dry chemical (A-B-C) extinguishers on-hand. When in doubt, emergency response personnel shall be summoned (i.e. **911**).
- Do not reenter the emergency site without specific approval from emergency response personnel.

Randomly scheduled evacuation drills may be conducted at any time during field activities.

### 1.2 Emergency Response Procedures: Injury or Illness

If an injury or illness occurs, take the following action:

- Stop Work, stabilize the situation, and secure the site.
- Administer First Aid for the person immediately using a first aid and blood-borne pathogens kit.
- Determine if emergency response (fire/ambulance) is necessary. If so, call appropriate emergency response numbers on closest available phone. Provide the location of the injured person and other details as requested. Drive the individual to the hospital only if it makes sense.
- If emergency decontamination is required (unlikely on this project):
  - Immediately remove any contaminated personal protective equipment (PPE) or clothing. (EXCEPTION: if the person has been burned, only emergency medical services (EMS) personnel should remove any clothing)
  - If possible, wash contaminated area with mild soap and water.
  - Use eyewash station if necessary.
  - Personnel assisting the contaminated individual will don the proper PPE to avoid exposure.
- For all injuries or illness, even minor cuts, scratches, and bruises, notify the SHSO immediately. The SHSO is responsible for initiating incident reporting procedures immediately after the victim(s)/site have been stabilized. The SHSO will assume responsibility during a medical emergency until more qualified EMS personnel arrive at the site as needed.
- As promptly as possible following an injury or illness, the Project Manager or designee shall ensure appropriate notification has been made to the family of the individual involved.
- Please see Section 1.6 for incident reporting procedures.

### **1.2.1 Injuries or Illnesses Requiring Hospital Service WITHOUT Ambulance Service**

Injuries or illnesses requiring hospital service without ambulance services include minor lacerations, minor sprains, etc. The following procedures will be taken immediately:

- The SHSO will ensure prompt transportation of the injured person to a physician or hospital.
- A representative of Stantec will always drive the injured employee to the medical facility and remain at the facility until the employee is ready to be discharged.
- If the driver of the vehicle is not familiar with directions to the hospital, a second person shall accompany the driver and the injured employee and navigate the route to the hospital.
- If it is necessary for the SHSO to accompany the injured employee, provisions will be made to have another employee, properly trained and certified in First Aid, to act as the temporary SHSO.
- If the injured employee is able to return to the job site the same day, he/she will bring a statement from the doctor containing such information as:
  - Date
  - Employee's name
  - Diagnosis
  - Date he/she is able to return to work, regular or light duty
  - Date he/she is to return to doctor for follow-up appointment, if necessary
  - Signature and address of doctor
- As promptly as possible following an injury or illness, ensure appropriate notification has been made to the family of the individual involved.
- Please see Section 1.6 for incident reporting procedures.

If the injured employee is unable to return to the job site the same day, the employee who transported him will bring this information back to the job site and report it to the Project Manager, office OSEC, Clint Reuter, Stantec's Practice and Risk Management (PRM), and their regional Human Resources Specialist.

### **1.2.2 Injuries or Illnesses Requiring Hospital Service WITH Ambulance Service**

Injuries or illnesses requiring transport by ambulance include life-threatening conditions such as severe head injuries, amputations, heart attacks, heat stroke, etc. The following procedures will be taken immediately:

- Call for Emergency Medical Services (EMS) and notify the SHSO.
- Administer First Aid until EMS arrives and relieved by them or other qualified first air personnel.
- While the injured employee is being transported, the SHSO will contact the medical facility to be utilized.
- One designated representative will accompany the injured employee to the medical facility and remain at the facility until final diagnosis and other relevant information is obtained.
- As promptly as possible following an injury or illness, ensure appropriate notification has been made to the family of the individual involved.
- Please see Section 1.6 for incident reporting procedures.

### **1.2.3 Death of an Individual or Hospitalization of Three or More Employees**

The emergency response procedures above will be followed. If the injured person dies, follow the incident reporting procedures. PRM will notify the Human Resources Department, local officials and the respective county coroner or medical examiner immediately. Stantec Human Resources will notify the local OSHA office within 8 hours of a fatality or the hospitalization of three or more employees.

### 1.3 Emergency Response Procedures: Spills or Cut Lines

Prevent problems by documenting the location of underground lines (e.g., product, sewer, electrical, gas, telephone, fiber optic) before starting site work. If a line or tank is drilled through, or a leak occurs, document the event as soon as possible using the Incident Investigation Report.

In the event of a spill/release, follow this plan:

- Stop Work, stabilize the situation, and secure the site.
- Stay upwind of the spill/release.
- Wear appropriate PPE.
- Turn off equipment and other sources of ignition, but only from a safe distance.
- Turn off pumps and shut valves to stop the flow/leak, but only from a safe distance.
- Plug the leak or capture drippings, when possible, if you can do this safely and within your level of training.
- Use sorbent pads to collect product and impede its flow, if possible and only if you can do it safely and within your level of training.
- Call Fire Department immediately if fire or explosion risk is involved (e.g. natural gas involved).
- Notify the SHSO to begin the incident reporting procedures. All spills/releases will be reported to the Client Project Manager within 24 hours.
- Determine if the client wants Stantec to repair the damage or if the client will use an emergency repair contractor of their choice.
- Based on agreements, contact emergency spill contractor for containment of free product. The contacts for this project will be the local fire department.
- Advise the client of spill discharge notification requirements and determine who will complete and submit forms. *(Do not submit or report to agencies without the client's approval/consent.)* Document each interaction with the client and regulators and note, in writing; name, title, authorizations, refusals, decisions, and commitments to any action.
- Do not transport or approve transportation of contaminated soils or product until proper manifests have been completed and approved. Be aware that soils/product may meet criteria for hazardous waste.
- Do not sign manifests as generator of wastes unless you have been given appropriate training and approval for signing on behalf of the generator; contact Project Manager or Waste Compliance Manager to discuss waste transportation.
- If the spill extends into waterways, the Coast Guard and the National Response Center shall be notified immediately by the client (or by the Stantec Project Manager with the client's permission).

The Project Manager will involve the client/generator in any Incident Investigation process. The client/generator is under obligation to report to the proper government agencies.

### 1.4 Incident Reporting Procedures

This section outlines the procedures that will be followed in the event of an incident. A flowchart and a table with necessary contact information (phone numbers, fax numbers, and email addresses) for incident reporting are also provided.

In the event of an incident:

1. Stop Work, stabilize the situation, and secure the site.
2. Report all incidents, injuries, spills, non-conformance events, permit exceedances and potential incidents (near losses) immediately to the SHSO, who will then notify the Stantec Project Manager. **If you are unsure whether or not something should be reported, Stop Work and proceed with notification anyway.**
3. The Stantec Project Manager will make internal notifications\* to the following:
  - Office OSEC
  - Stantec Senior HSE Team Member (Clint Reuter);
  - The Account Manager (TBD)
  - **If a team member does not answer, leave a detailed message with a number at which you can be reached, and follow-up with another call later.**

\*Internal notification is a Stantec requirement. Internal reporting requirements have been established primarily to provide a pathway for employees to obtain the assistance of company health and safety experts during an incident or significant near loss. Secondary to obtaining expert assistance, internal notification is required to help Stantec track injuries and near losses that occur to our employees. The data captured during the reporting process is then used to identify trends that can be pro-actively addressed to improve overall health and safety within our company. This helps everyone go home safely.

4. The Stantec Project Manager will obtain concurrence from at least one of Stantec's HSE Team Members and the Account Manager regarding Caltrans's reporting requirements.
5. A: If the incident is determined to not be reportable to Caltrans, the SHSO, office OSEC, and Stantec Project Manager will submit an initial copy of the Stantec Incident Investigation/Near Loss Investigation (IINLI) report to Stantec's PRM group in Edmonton (via phone and fax), and Clint Reuter within 24 hours of the event. The final report is due within 5 business days.  
  
B: If the incident is determined to be reportable to Caltrans, the Stantec Project Manager and Account Manager will:
  - Notify Caltrans and also provide a written report of the incident on a Stantec IINLI form to Stantec's PRM group (via fax and phone), and Clint Reuter within 24 hours and a final report within 5 business days.

## Stantec Energy & Resources Incident Reporting

### Incident occurs:

Stop work, stabilize the situation, secure the site & provide immediate care. Stantec employee or contractor must immediately report the incident to the Stantec Project Lead. Injured personnel requiring medical attention will transport the injured person to medical care and remain until released.

**HSE TEAM:**

Tony Wong (1-805-274-6227)  
 tony.wong@stantec.com  
 Clint Reuter (1-403-696-2279)  
 clint.reuter@stantec.com  
 Terry Arseneau (1-403-702-6686)  
 terry.arseneau@stantec.com  
 Scott Purves (1-403-542-9751)  
 scott.purves@stantec.com  
 Adam Taylor (1-403-585-3238)  
 adam.taylor@stantec.com  
 Marty Ringen (1-780-862-3470)  
 marty.ringen@stantec.com  
 Don Johnson (1-778-385-5846)  
 don.johnson@stantec.com

Site Lead or Contractor Supervisor notifies Project Manager & Stantec Area HS Lead Verbal notification and email an **INCIDENT QUICK REPORT** notification within 1 hour. **Client Reporting Schedule Starts (next Page)**

**Conference Call Review YES or NO**

**HIGH POTENTIAL INCIDENT**

YES

NO

**Senior Management Team 4-Hour HPI Flash Alert Notice Team (Email-description, classification & path forward)**

Jon Lessard (1-713-548-5700)  
 Jon.lessard@stantec.com  
 Bob Seager (1-403-540-0259)  
 bob.seager@stantec.com  
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Finalized RMS 3 forwarded to Corporate HSE

Stantec Site Lead, Project Manager or Contractor Supervisor issues RMS 3 Incident Report within 24- hours.

Stantec Site Lead, Project Manager or Contractor Supervisor issues RMS 3 Incident Report within 24- hours.

Stantec Site Lead & Area HSE Lead conducts investigation following the corporate investigation process. A report is issued within 5 days to the Stantec Energy & Resources Sr. Mgt. Team identifying root causes and implementing barriers to prevent re-occurrence. Senior Management Team signs off on the Incident report.

Based on clients expectations a more formal Incident Cause and Analysis Method may also be used to support for the investigation.

HSE develops Lessons Learned Report for corporate-wide / client distribution

**Client Reporting Schedule  
"No client requirements"**

**Notifications**

**Stantec Account and HSE Support Contacts - notify within 1 hour**

See Project Team Phone Numbers for  
National Account Manager (NAM)  
Alternate NAM  
Health and Safety Coordinator

**Client - notify within 24 hours unless high potential (notify within 1 hour) :**

See Project Team Phone Numbers for  
Client

**Incident Investigation Report within 5 days**

See Project Team Phone Numbers for  
Client

<b>Incident Type</b>	<b>Definition (Current Stantec Corporate Definitions)</b>
<b>Report Only</b>	An employee needs to document a happening which may be relevant in the future. Examples include: witnessing an accident or a non work-related injury, an incident on a worksite not involving Stantec personnel, physical signs and symptoms related to workstation ergonomics and/or materials handling
<b>Incident</b>	Any unplanned event that adversely affects our employees, our business, its physical assets, the clients we serve, or the environment.
<b>Serious Incident</b>	Any work-related incident where there is property damage greater than \$5000, employee hospitalization, fatality, facility/site shutdown, or involves a third party (public). A near miss with the potential for any of the above consequences would also be considered a serious incident.
<b>Near-Miss</b>	Any event that could adversely affect our employees, our business, its physical assets, the customers we serve, or the environment, given any change in circumstances.
<b>Hazard Identification</b>	The identification of a condition or practice that has the potential for an incident or loss.
<b>Property Damage (Vehicle)</b>	Damage to any vehicle used for Stantec business, includes normal wear and tear (e.g. tire damage, minor scratches, stone chips to paint or windshield, mechanical wear), whether the vehicle is attended or not.
<b>Property Damage (Other)</b>	Damage to equipment, materials, etc., excluding vehicle damage.
<b>Theft</b>	Theft of any property under the care and control of Stantec.
<b>Non-compliance</b>	Where an employee or project is identified as operating outside the parameters of Stantec policy and/or legislative requirements.
<b>*Near Miss - Injury</b>	An employee reports physical symptoms related to work activities which have not yet resulted in treatment of any type, nor have they impacted the employee's working ability.
<b>First Aid</b>	An injury or illness requires first aid treatment only
<b>Medical Treatment</b>	Medical treatment above and beyond first aid, without loss of work time beyond the day of injury or illness.

<b>Incident Type</b>	<b>Definition (Current Stantec Corporate Definitions)</b>
<b>Restricted Work</b>	Change in job duties and/or shortened work day resulting from a work-related injury or illness, affecting the employee's ability to engage in one or more routine work activities (i.e. an activity carried out at least once per week).
<b>Lost Time</b>	Health care professional recommends one or more days away from work due to a work-related injury or illness.
<b>Fatality</b>	Work related fatality.
<b>Motor Vehicle Incident</b>	An incident involving a vehicle driven by an employee, whether on or off the road, that has resulted in damage to assets, the environment or Stantec's reputation, irrespective of cost or responsibility for cause. This does not include damage as a result of normal wear and tear (see Property Damage – Vehicle).
<b>Spill or Release</b>	Discharge of material or substance which is reportable to a third party such as a regulatory agency or a client, or which may expose an employee to a health risk.
<b>Contractor Recordable Injury</b>	Definitions as above, including Medical Aid – No Lost Time, Restricted Work, Lost Time or Fatality) but applied to a Stantec subcontractor.
<b>Fire / Explosion / Flood</b>	A natural or man-made hazard including fire, explosion or flood that causes damage or injury.
<b>Violence or Harassment</b>	Any act in which a person is abused, threatened, intimidated or assaulted in the course of their employment.
<b>3<sup>rd</sup> Party Incident</b>	Incident involves someone who is not party to the work being completed, but may be impacted. Example: Member of the public.
<b>Utility Strike</b>	Compromising or disrupting of service to buried and/or overhead utility service lines, municipal or third party owned utility services, UST system components and other subsurface property service lines or systems
<b>Work Refusal</b>	An employee has enacted their legislated Right to Refuse dangerous work.
<b>Stop Work Authority</b>	An employee has enacted Stantec's Stop Work Authority provisions upon observing the presence of unsafe conditions associated with Stantec work activities. All employees have the right to stop or refuse work when they perceive an immediate danger to their health and safety or that of their colleagues.
<b>For Consideration</b>	
<b>High Potential Incident</b>	<p>A Near Miss, First Aid injury, Medical Aid injury, Modified Work injury or Lost Time injury can often have the potential to be a fatality or a Significant Injury with disability if the circumstances would have been slightly different. For example, a Lost Time incident due to a back soft tissue injury would only be counted as a Lost Time with low potential for a serious injury, whereas a First Aid incident involving a remotely operated machine striking a worker and imparting a small cut would be counted as a First Aid incident with high potential for a Fatality or a Significant Injury.</p> <p>Any incident with energy exchange that had the potential to be a Fatality or a Significant Injury if the circumstances would have been slightly different should be counted as High Potential; all others should be counted as low potential and reported as normal incidents (see above).</p> <p>In terms of Risk Assessment language when the exposure, probability and consequence of the hazard(s) that created the injury calculate to a High or Extreme Risk Level, the incident should be counted as a High Potential; all others should be counted as low potential.</p>
<b>Critical Risk Control</b>	<p style="text-align: center;"><b>TBA</b></p> <ol style="list-style-type: none"> <li>1. Vehicles and Mobile Equipment</li> <li>2. Hazardous Materials Management</li> <li>3. Equipment Safeguarding</li> <li>4. De-Energizing, Isolation, Lock-Out, and Tagging</li> <li>5. Working at Heights</li> <li>6. Lifting Operations</li> <li>7. Confined Space</li> <li>8. Excavations and Trenching</li> <li>9. Ergonomic &amp; Manual Handling</li> <li>10. Working on Ice or water</li> <li>11. Wildlife Interactions</li> </ol>

## **2.0 Potential Airborne Concerns and Air Monitoring Action Levels**

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An air purifying respirator or mask with high-efficiency particulate air (HEPA) filtering capability shall be used when sampling suspect ADL materials. Given that the proposed work will take place adjacent to VEN-33, the following is a list of chemicals that may be present in the work area but are not planned to be monitored on a continual basis given that minimal soil disturbance is planned.

The list below includes lead and carbon monoxide.

Potential Airborne Concerns						
Chemical (Or Class)	OSHA PEL ACGIH TLV	Other Pertinent Limits	Warning Properties	Routes of Exposure or Irritation	Acute Health Effects	Chronic Health Effects/Target Organs
Lead	OSHA PEL: 8 hr, TWA 0.050 mg/m <sup>3</sup>  ACGIH TLV: 8 hr, TWA 0.050 mg/m <sup>3</sup>	NIOSH REL, 0.05 mg/m <sup>3</sup> 8 hr. TWA	A heavy, ductile, soft, gray solid	Inhalation and ingestion,	Lead is a potent, systemic poison that serves no known useful function once absorbed by your body. A short term dose of lead can lead to acute encephalopathy. Short term occupational exposures of this magnitude are highly unusual, but not impossible. Lead can potentially adversely affect numerous body systems, and can cause forms of health impairment and disease which arise after periods of exposure as short as days or as long as several years. For additional information, see SDS (safety data sheet) for lead	Encephalopathy (central nervous system disease) may arise from extended, chronic exposure to lower doses of lead.  See note below table, and refer to SDS on lead.
Carbon Monoxide	OSHA PEL 50 ppm 8 hr. TWA  CalOSHA PEL 25 ppm 8 hr. TWA CalOSHA 200 ppm-ceiling  ACGIH TLV 25 ppm 8 hr. TWA	NIOSH REL = 35 ppm 8 hr. TWA  IDLH = 1200 ppm	Colorless, odorless gas	Inhalation	headache, drowsiness, lassitude (weakness, exhaustion), narcosis; dyspnea, heart palpitation, unconsciousness, death	None established

Abbreviation	Explanation
<b>PEL</b>	Permissible Exposure Limit set by OSHA (8 hour time-weighted average/TWA)
<b>REL</b>	Recommended Exposure Limit (set by National Institute of Occupational Safety & Health-NIOSH)
<b>C</b>	Ceiling Limit (airborne concentration not to be exceeded for any period of time)
<b>STEL</b>	15-minute Short Term Exposure Limit (unless other time period specifically identified)
<b>IDLH</b>	Immediately Dangerous to Life or Health
<b>TWA</b>	8 hour time-weighted average (PEL, TLV, REL)
<b>TLV</b>	Threshold Limit Value set by the American Conference of Governmental Industrial Hygienists (ACGIH) 8 hr. TWA
<b>AIHA WEEL</b>	Workplace Environmental Exposure Level (set by the AIHA-American Industrial Hygiene Association)
<b>SKIN</b>	Skin Absorption is significant contributor to total exposure
<b>NIOSH</b>	National Institute of Occupation Safety and Health
<b>CNS</b>	Central Nervous System
<b>CVS</b>	Cardiovascular System

## 3.0 Other Potential Site Hazards

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### 3.1 Physical Hazards

Physical hazards may include traffic, uneven terrain, sharp debris, fencing, holes, noise, etc. Thusly, a constant awareness of one's location is paramount to your personal safety. However, knowing where you are, the level of noise produced by associated machinery and hearing protection may hinder your ability to hear vocal warnings. "Keep your head on a swivel" as the order of the day.

**Be aware of the location of all of the equipment activities in your work area.**

To protect yourself, always look before you step and wear proper PPE for the task being performed.

### 3.2 Weather and Natural Disasters

Hazards associated with weather and natural disasters may include, but are not limited to, effects of extreme heat (heat exhaustion, heat stroke), effects of extreme cold (hypothermia, frostbite), high winds, heavy rain, lightning, heavy snow, ice, earthquakes, landslides, flooding, etc.

The most likely hazards at the site are effects of extreme heat (heat exhaustion, heat stroke) and earthquakes.

To protect yourself from heat, perform the heaviest work during the coolest part of the day; drink plenty of cool water; wear light, loose-fitting, breathable clothing; and take frequent, short breaks in the shade. Certain medications, having a previous heat-related illness, and wearing PPE such as a respirator or protective suit can increase risk.

#### Heat Exhaustion

##### ***What are the symptoms?***

**HEADACHES; DIZZINESS OR LIGHTEADEDNESS; WEAKNESS; MOOD CHANGES SUCH AS IRRITABILITY, CONFUSION, OR THE INABILITY TO THINK STRAIGHT; UPSET STOMACH; VOMITING; DECREASED OR DARK-COLORED URINE; FAINTING OR PASSING OUT; AND PALE, CLAMMY SKIN**

##### ***What should you do?***

- Act immediately. If not treated, heat exhaustion may advance to heat stroke or death.
- Move the victim to a cool, shaded area to rest. Don't leave the person alone. If symptoms include dizziness or lightheadedness, lay the victim on his or her back and raise the legs 6 to 8 inches. If symptoms include nausea or upset stomach, lay the victim on his or her side.
- Loosen and remove any heavy clothing.
- Have the person drink cool water (about a cup every 15 minutes) unless sick to the stomach.
- Cool the person's body by fanning and spraying with a cool mist of water or applying a wet cloth to the person's skin.
- Call 911 for emergency help if the person does not feel better in a few minutes.

## Heat Stroke—A Medical Emergency

### *What are the symptoms?*

**DRY, PALE SKIN WITH NO SWEATING; HOT, RED SKIN THAT LOOKS SUNBURNED; MOOD CHANGES SUCH AS IRRITABILITY, CONFUSION, OR THE INABILITY TO THINK STRAIGHT; SEIZURES OR FITS; AND UNCONCIOUSNESS WITH NO RESPONSE**

### *What should you do?*

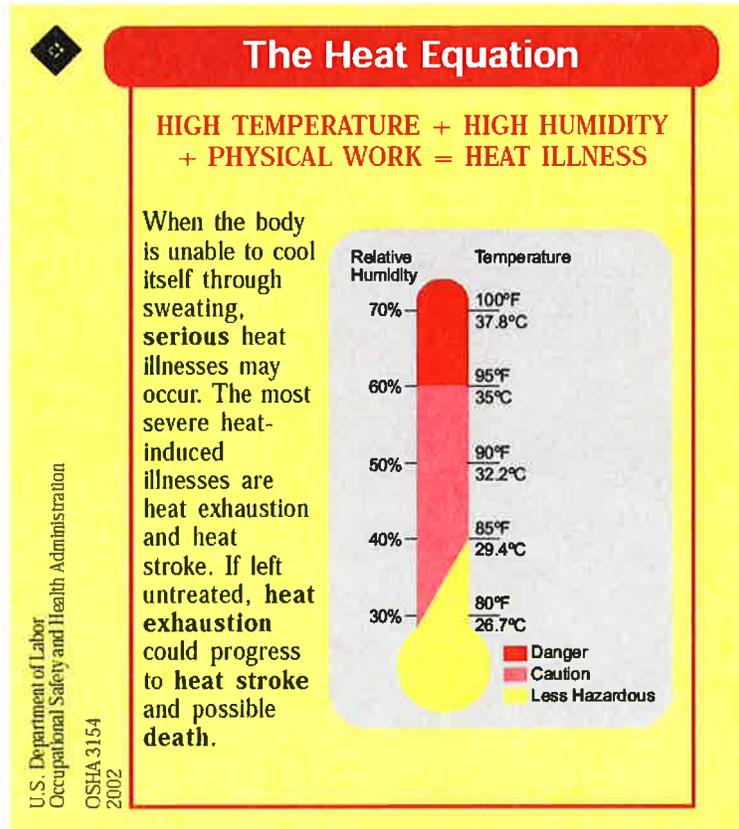
- Call 911 for emergency help immediately.
- Move the victim to a cool, shaded area. Don't leave the person alone. Lay the victim on his or her back. Move any nearby objects away from the person if symptoms include seizures or fits. If symptoms include nausea or upset stomach, lay the victim on his or her side.
- Loosen and remove any heavy clothing.
- Have the person drink cool water (about a cup every 15 minutes) if alert enough to drink something, unless sick to the stomach.
- Cool the person's body by fanning and spraying with a cool mist of water or wiping the victim with a wet cloth or covering him or her with a wet sheet.
- Place ice packs under the armpits and groin area.

### *How can you protect yourself and your coworkers?*

- Learn the signs and symptoms of heat-induced illnesses and how to respond.
- Train your workforce about heat-induced illnesses.
- Perform the heaviest work during the coolest part of the day.
- Build up tolerance to the heat and the work activity slowly. This usually takes about 2 weeks.
- Use the buddy system, with people working in pairs.
- Drink plenty of cool water, about a cup every 15 to 20 minutes.
- Wear light, loose-fitting, breathable clothing, such as cotton.
- Take frequent, short breaks in cool, shaded areas to allow the body to cool down.
- Avoid eating large meals before working in hot environments.
- Avoid alcohol or beverages with caffeine. These make the body lose water and increase the risk for heat illnesses.

### *What factors put you at increased risk?*

- Taking certain medications. Check with your health-care provider or pharmacist to see if any medicines you are taking affect you when working in hot environments.
- Having a previous heat-induced illness.
- Wearing personal protective equipment such as a respirator or protective suit.



## HEAT STRESS

### INTRODUCTION

Operations involving high air temperatures, radiant heat sources, high humidity, direct physical contact with hot objects, or strenuous physical activities have a high potential for inducing heat stress in employees engaged in such operations. Outdoor operations conducted in hot weather, such as construction, refining, asbestos removal, and hazardous waste site activities, especially those that require workers to wear semi-permeable or impermeable protective clothing, are also likely to cause heat stress among exposed workers.

### CAUSAL FACTORS

Age, weight, degree of physical fitness, degree of acclimatization, metabolism, use of alcohol or drugs, and a variety of medical conditions such as hypertension all affect a person's sensitivity to heat. However, even the type of clothing worn must be considered. Prior heat injury predisposes an individual to additional injury. It is difficult to predict just who will be affected and when, because individual susceptibility varies. In addition, environmental factors include more than the ambient air temperature. Radiant heat, air movement, conduction, and relative humidity all affect an individual's response to heat.

### DEFINITIONS

The American Conference of Governmental Industrial Hygienists (2002) states that workers should not be permitted to work when their deep body temperature exceeds 100.4°F (38 °C).

**Heat** is a measure of energy in terms of quantity.

A **calorie** is the amount of heat required to raise 1 gram of water 1°C (based on a standard temperature of 16.5 to 17.5°).

**Conduction** is the transfer of heat between materials that contact each other. Heat passes from the warmer material to the cooler material. For example, a worker's skin can transfer heat to a contacting surface if that surface is cooler, and vice versa.

**Convection** is the transfer of heat in a moving fluid. Air can be described as a fluid. Air flowing past the body can cool the body if the air temperature is cool. On the other hand, air that exceeds 35°C (95°F) can increase the heat load on the body.

**Evaporative cooling** takes place when sweat evaporates from the skin. High humidity reduces the rate of evaporation and thus reduces the effectiveness of the body's primary cooling mechanism.

**Radiation** is the transfer of heat energy through space. A worker whose body temperature is greater than the temperature of the surrounding surfaces radiates heat to these surfaces. Hot surfaces and infrared light sources radiate heat that can increase the body's heat load.

**Globe temperature** is the temperature inside a blackened, hollow, thin copper globe.

**Metabolic heat** is a by-product of the body's activity.

**Natural wet bulb (NWB) temperature** is measured by exposing a wet sensor, such as a wet cotton wick fitted over the bulb of a thermometer, to the effects of evaporation and convection. The term natural refers to the movement of air around the sensor.

**Dry bulb (DB) temperature** is measured by a thermal sensor, such as an ordinary mercury-in-glass thermometer, that is shielded from direct radiant energy sources.

## HEAT DISORDERS AND HEALTH EFFECTS

### HEAT STROKE

Heat Stroke occurs when the body's system of temperature regulation fails and body temperature rises to critical levels. This condition is caused by a combination of highly variable factors, and its occurrence is difficult to predict. **Heat stroke is a medical emergency.** The primary signs and symptoms of heat stroke are confusion; irrational behavior; loss of consciousness; convulsions; a lack of sweating (usually); hot, dry skin; and an abnormally high body temperature, e.g., a rectal temperature of 41°C (105.8°F). If body temperature is too high, it causes death. The elevated metabolic temperatures caused by a combination of workload and environmental heat load, both of which contribute to heat stroke, are also highly variable and difficult to predict. If a worker shows signs of possible heat stroke, professional medical treatment should be obtained immediately. The worker should be placed in a shady area and the outer clothing should be removed. The worker's skin should be wetted and air movement around the worker should be increased (as long as the temperature of the air is less than 95° F) to improve evaporative cooling until professional methods of cooling are initiated and the seriousness of the condition can be assessed. Fluids should be replaced as soon as possible.

The medical outcome of an episode of heat stroke depends on the victim's physical fitness and the timing and effectiveness of first aid treatment. Regardless of the worker's protests, no employee

suspected of being ill from heat stroke should be sent home or left unattended unless a physician has specifically approved such an order.

### **HEAT EXHAUSTION**

The signs and symptoms of heat exhaustion are headache, nausea, vertigo, weakness, thirst, and giddiness. Fortunately, this condition responds readily to prompt treatment. Heat exhaustion should not be dismissed lightly, however, for several reasons. One is that the fainting associated with heat exhaustion can be dangerous because the victim may be operating machinery or controlling an operation that should not be left unattended; moreover, the victim may be injured when he or she faints. Also, the signs and symptoms seen in heat exhaustion are similar to those of heat stroke, a real potential medical emergency.

Workers suffering from heat exhaustion should be removed from the hot environment and given fluid replacement. They should also be encouraged to get adequate rest.

### **HEAT CRAMPS**

Heat Cramps are usually caused by performing hard physical labor in a hot environment. These cramps have been attributed to an electrolyte imbalance caused by sweating. It is important to understand that cramps can be caused by both too much and too little salt. Cramps appear to be caused by the lack of water replenishment. Because sweat is a hypotonic solution ( $\pm 0.3\%$  sodium chloride), excess salt can build up in the body if the water lost through sweating is not replaced.

Thirst cannot be relied on as a guide to the need for water; instead, water must be taken every 15 to 20 minutes in hot environments. Under extreme conditions, such as working for 6 to 8 hours in heavy protective gear, a loss of sodium may occur. Studies have shown that drinking commercially available carbohydrate-electrolyte replacement liquids is effective in minimizing physiological disturbances during recovery.

### **HEAT COLLAPSE**

Heat Collapse ("Fainting"). In heat collapse, the brain does not receive enough oxygen because blood pools in the extremities. As a result, the exposed individual may lose consciousness. This reaction is similar to that of heat exhaustion and does not affect the body's heat balance. However, the onset of heat collapse is rapid and unpredictable. To prevent heat collapse, the worker should gradually become acclimatized to the hot environment.

### **HEAT RASHES**

Heat Rashes are the most common problem in hot work environments. "Prickly heat", as heat rashes are sometimes called, is manifested as red papules on the skin and usually appears in areas where the clothing is restrictive. As sweating increases, these papules give rise to a prickling sensation. Prickly heat occurs in skin that is persistently wetted by unevaporated sweat, and heat rash papules may become infected if they are not treated. In most cases, heat rashes will disappear when the affected individual returns to a cool environment.

### **HEAT FATIGUE**

A factor that predisposes an individual to heat fatigue is lack of acclimatization. The use of a program of acclimatization and training for work in hot environments is advisable. Acclimatization can take several weeks depending on the individual involved and the difference in temperature between the location from which the person is coming and the temperature to which he/she is going. The signs and symptoms of heat fatigue include impaired performance of skilled sensorimotor, mental, or vigilance

jobs. There is no treatment for heat fatigue except to remove the heat stress before a more serious heat-related condition develops.

### **CONTROL MEASURES FOR HEAT STRESS**

Ventilation, air-cooling, fans, shielding, and insulation are the five major types of engineering controls used to reduce heat stress in hot work environments. Heat reduction can also be achieved by using power assists and tools that reduce the physical demands placed on a worker.

However, for this approach to be successful, the metabolic effort required for the worker to use or operate these devices must be less than the effort required without them. Another method is to reduce the effort necessary to operate power assists. Workers should be allowed to take frequent rest breaks in a cooler environment.

### **ACCLIMATIZATION**

The human body can adapt to heat exposure to some extent. This physiological adaptation is called acclimatization. After a period of acclimatization, the same activity will produce fewer cardiovascular demands. The worker will sweat more efficiently (causing better evaporative cooling), and thus will more easily be able to maintain normal body temperatures.

### **FLUID REPLACEMENT**

Cool (50°-60°F) water or any cool liquid (except alcoholic beverages, tea and coffee) should be made available to workers to encourage them to drink small amounts frequently, e.g., one cup every 20 minutes. Ample supplies of liquids should be placed close to the work area. Although some commercial replacement drinks contain salt, this is not necessary for acclimatized individuals because most people add enough salt to their summer diets.

### **GENERAL VENTILATION**

General ventilation is used to dilute hot air with cooler air (generally cooler air that is brought in from the outside). This technique clearly works better in cooler climates than in hot ones. A permanently installed ventilation system usually handles large areas or entire buildings. Portable or local exhaust systems may be more effective or practical in smaller areas.

### **AIR TREATMENT/AIR COOLING**

Air treatment/air cooling differs from ventilation because it reduces the temperature of the air by removing heat (and sometimes humidity) from the air.

Air conditioning is a method of air-cooling, but it is expensive to install and operate. An alternative to air conditioning is the use of chillers to circulate cool water through heat exchangers over which air from the ventilation system is then passed; chillers are more efficient in cooler climates or in dry climates where evaporative cooling can be used.

Local air cooling can be effective in reducing air temperature in specific areas. Two methods have been used successfully in industrial settings. One type, cool rooms, can be used to enclose a specific workplace or to offer a recovery area near hot jobs. The second type is a portable blower with built-in air chiller. The main advantage of a blower, aside from portability, is minimal set-up time.

Another way to reduce heat stress is to increase the airflow or convection using fans, etc. in the work area (as long as the air temperature is less than the worker's skin temperature). Changes in air speed can help workers stay cooler by increasing both the convective heat exchange (the exchange between the skin surface and the surrounding air) and the rate of evaporation. Because this method does not actually cool the air, any increases in air speed must impact the worker directly to be effective.

If the outdoor air temperature (i.e. the dry bulb temperature) is higher than 95°F (35 °C) the hot air passing over the skin can actually make the worker hotter (i.e. add to the overall body heat load). When the temperature is >95°F and the air is dry, evaporative cooling may be improved by air movement, although this improvement will be offset by the convective heat. When the temperature exceeds 95°F and the relative humidity is 100%, air movement will make the worker hotter. Increases in air speed have no effect on the body temperature of workers wearing vapor-barrier clothing.

## **HEAT CONDUCTION**

Heat conduction methods include insulating the hot surface that generates the heat and changing the surface itself.

Simple engineering controls, such as shields, can be used to reduce radiant heat i.e. heat coming from hot surfaces within the worker's line of sight. Surfaces that exceed 95°F, and this is very common on hot summer days, are sources of infrared radiation that can add to the worker's heat load. Flat black surfaces absorb heat more than smooth, polished ones. Having cooler surfaces surrounding the worker, assists in cooling because the worker's body radiates heat toward them.

With some sources of radiation, such as heating pipes, it is possible to use both insulation and surface modifications to achieve a substantial reduction in radiant heat. Instead of reducing radiation from the source, shielding can be used to interrupt the path between the source and the worker. Polished surfaces make the best barriers, although special glass or metal mesh surfaces can be used if visibility is a problem.

Shields should be located so that they do not interfere with airflow, unless they are also being used to reduce convective heating. The reflective surface of the shield should be kept clean to maintain its effectiveness.

## **ADMINISTRATIVE CONTROLS/SAFE WORK PRACTICES**

Training is the key to good work practices. Unless all employees understand the reasons for using new, or changing old, work practices, the chances of such a program succeeding are greatly reduced. NIOSH (1986) states that a good heat stress training program should include least the following components:

- ♦ Knowledge of the hazards of heat stress;
- ♦ Recognition of predisposing factors, danger signs, and symptoms;
- ♦ Awareness of first-aid procedures for, and the potential health effects of, heat stroke and heat exhaustion;

- Employee responsibilities in avoiding heat stress;
- Dangers of using drugs, including therapeutic ones, and alcohol in hot work environments;
- Use of protective clothing and equipment; and
- Purpose and coverage of environmental and medical surveillance programs and the advantages of worker participation programs.

Hot jobs should be scheduled for the cooler part of the day when possible, and routine maintenance and repair work in hot areas should be scheduled for the cooler seasons of the year.

Measurement is often required of those environmental factors that most nearly correlate with deep body temperature and other physiological responses to heat. At the present time, the Wet Bulb Globe Temperature Index (WBGT) is the most used technique to measure these environmental factors. WBGT values are calculated by the following equations:

#### **WET BULB GLOBE TEMPERATURE INDEXES (WBGI)**

Indoor or outdoors with no solar load

$$WBGT = 0.7NWB + 0.3GT$$

Outdoors with solar load

$$WBGT = 0.7NWB + 0.2GT + 0.1DB$$

Where: WBGT = Wet Bulb Globe Temperature Index  
NWB = Natural Wet Bulb Temperature  
DB = Dry Bulb (air) Temperature  
GT = Globe Thermometer Temperature

The determination of WBGT requires the use of a black globe thermometer, a natural (static) wet-bulb thermometer, and a dry-bulb thermometer. The measurement of environmental factors shall be performed as follows:

1. The range of the dry and the natural wet-bulb thermometers should be  $-5^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$ , with an accuracy of  $\pm 0.5^{\circ}\text{C}$ . The dry bulb thermometer must be shielded from the sun and the other radiant surfaces of the environment without restricting the airflow around the bulb. The wick of the natural wet bulb thermometer should be kept wet with distilled water for at least one-half hour before the temperature reading is made. It is not enough to immerse the other end of the wick into a reservoir of distilled water and wait until the whole wick becomes wet by capillarity. The wick must be wetted by direct application of water from a syringe one-half hour before each reading. The wick must cover the bulb of the thermometer and an equal length of additional wick must cover the stem above the bulb. The wick should always be clean, and new wicks should be washed before using.
2. A globe thermometer, consisting of a 15 cm (6-inch) in diameter hollow copper sphere painted on the outside with a matte black finish, or equivalent, must be used. The bulb or sensor of a

thermometer (range -5°C to +100°C with an accuracy of  $\pm 0.5^\circ\text{C}$ ) must be fixed in the center of the sphere. The globe thermometer should be exposed at least 25 minutes before it is read.

3. A stand should be used to suspend the three thermometers so that they do not restrict free airflow around the bulbs and the wet-bulb and globe thermometer are not shaded.
4. It is permissible to use any other type of temperature sensor that gives a reading similar to that of a mercury thermometer under the same conditions.
5. The thermometers must be placed so that the readings are representative of the employee's work or rest areas, as appropriate.

Once the WBGT has been estimated, employers can estimate workers' metabolic heat load and use the ACGIH method to determine the appropriate work/rest regimen, clothing, and equipment to use to control the heat exposures of workers in their facilities.

### **Heat Illness Prevention**

The California Occupational Safety and Health Standards Board confirmed that new major changes to the state's heat illness prevention regulations will take effect on **May 1, 2015**.

Outlined below are the current California requirements for outdoor projects (as of May 1, 2015):

#### **REQUIREMENTS FOR OUTDOOR PLACES OF EMPLOYMENT**

- **Water** – Must Be Fresh, Pure, Suitably Cool, Free And As Close As Practicable To Work Areas
  - PM's must ensure that employees have access to potable drinking water that is fresh, pure, suitably cool, and provided to employees free of charge.
  - A new requirement is that the water must be "located as close as practicable to the areas where the employees are working."
- **Shade** – Required If Above 80 Degrees; Still Required If 80 Degrees Or Below Upon Employee Request
  - Access to shade is required when the temperature exceeds 80 degrees Fahrenheit (previously, the standard was 85 degrees).
  - The area of shade now must be large enough to accommodate the number of employees on cool-down periods, rest breaks, and must accommodate the number of employees who remain onsite during meal periods.
  - **Please note** – Employers must provide shade upon an employee's request, regardless of the temperature.
- **Cool-Down Periods** – Employees Must Be Monitored, Asked About Heat Illness Symptoms, And Provided A Minimum Of Five Minutes Of Net Resting Time
  - Employees must be allowed and encouraged to take a cool-down period when they feel the need to do so to protect themselves from overheating.
  - However, an employee who takes a cool-down period:
    1. Must be monitored and asked if he or she is experiencing symptoms of heat illness;
    2. Must be encouraged to stay in the shade;
    3. Must not be ordered back to work before he/she has had at least five minutes of net resting time
    4. Must not be ordered back to work "until any signs or symptoms of heat illness have abated," even if this abatement period takes longer than five minutes.
  - When an employee, on cool-down period exhibits or reports symptoms of heat illness, the employer must provide appropriate first aid or implement emergency response procedures.
- **High-Heat Procedures** – Pre-Shift Meetings, Day-Long Monitoring, and Emergency Preparedness

- Employers must have high-heat procedures, triggered at 95 degrees. There are several new additions to the high-heat requirements.
  1. When the temperature reaches or exceeds 95 degrees, the PM's must now conduct meetings with employees before commencing work.
    - During these "pre-shift" meetings, which are on paid time, the PM must review the high-heat procedures, encourage employees to drink plenty of water, and remind employees of their right to take cool-down periods when necessary.
  2. During the workday, the PM must ensure effective monitoring/observation for signs of heat illness, such as through adopting a buddy system, tasking a supervisor with monitoring crews of 20 or fewer employees, or any other "effective means of observation."
  3. The PM must now designate at least one employee at each worksite as being a person who is authorized to call for emergency medical services if the need arises.

For projects in agriculture, when the temperature reaches or exceeds 95 degrees, the PM must do more than make cool-down periods available. Instead, the PM must "ensure" that the employees take a 10-minute cool-down period every two hours.

- These 10-minute cool-down periods for agricultural employees may be taken concurrently with any other meal period or rest breaks required by law so long as their timing coincides with the timing of meal period and/or rest breaks.
- **Emergency Response Procedures** – Ensuring That Employees Can Call For Help, Receive Immediate Onsite Attention From Supervisors, And Attention From Emergency Medical Responders:
  - The revised regulations now specifically require "effective" emergency response procedures in heat illness prevention programs. Such requirements include:
    1. All employees at the worksite must be able to contact (through "effective communication") a supervisor or summon emergency medical services.
    2. When an onsite supervisor observes or receives a report of heat illness symptoms, he or she must take immediate action, including offering the affected employee first aid or emergency medical services if the symptoms are severe.
    3. A PM must transport, if necessary, an affected employee to a location where he/she can be reached by an emergency medical provider.
    4. A PM must be able to provide emergency medical providers with clear and precise directions to the worksite.
      - Please note that using a cellular phone for calling or texting is considered "effective communication" only if reception in the work area is reliable.
- **Acclimatization Procedures** – Monitoring Employees Who Work During Heat Waves and in High-Heat Areas
  - During a "heat wave" a supervisor or designee is required to closely observe all employees at the worksite. A "heat wave" is any day in which the predicted high temperature for the day is at least 80 degrees and at least ten degrees higher than the "average high daily temperature in the preceding five days."
  - In addition, an employee who has been "newly assigned" to a high heat area must be closely observed by a supervisor or designee for the first 14 days of the employee's work.

**The California Heat Illness Prevention Plan is included with the RMS-2 in Attachment 3 of this document.**

**REFLECTIVE CLOTHING**

Reflective clothing, which can vary from aprons and jackets to suits that completely enclose the worker from neck to feet, can stop the skin from absorbing radiant heat. However, since most reflective clothing does not allow air exchange through the garment, the reduction of radiant heat must more than offset the corresponding loss in evaporative cooling. For this reason, reflective clothing should be worn as loosely as possible. In situations where radiant heat is high, auxiliary-cooling systems can be used under the reflective clothing.

**AUXILIARY BODY COOLING**

1. Commercially available **ice vests**, though heavy, may accommodate as many as 72 ice packets, which are usually filled with water. Carbon dioxide (dry ice) can also be used as a coolant. The cooling offered by ice packets lasts only 2 to 4 hours at moderate to heavy heat loads, and frequent replacement is necessary. However, ice vests do not encumber the worker and thus permit maximum mobility. Cooling with ice is also relatively inexpensive.

2. **Wetted clothing** is another simple and inexpensive personal cooling technique. It is effective when reflective or other impermeable protective clothing is worn. The clothing may be wetted terry cloth coveralls or wetted two-piece, whole-body cotton suits. This approach to auxiliary cooling can be quite effective under conditions of high temperature and low humidity, where evaporation from the wetted garment is not restricted.

3. **Water-cooled garments** range from a hood, which cools only the head, to vests and "long johns," which offer partial or complete body cooling. Use of this equipment requires a battery-driven circulating pump, liquid-ice coolant, and a container.

Although this system has the advantage of allowing wearer mobility, the weight of the components limits the amount of ice that can be carried and thus reduces the effective use time. The heat transfer rate in liquid cooling systems may limit their use to low-activity jobs; even in such jobs, their service time is only about 20 minutes per pound of cooling ice. To keep outside heat from melting the ice, an outer insulating jacket should be an integral part of these systems.

4. **Circulating air** is the most highly effective, as well as the most complicated, personal cooling system. By directing compressed air around the body from a supplied air system, both evaporative and convective cooling is improved. The greatest advantage occurs when circulating air is used with impermeable garments or double cotton overalls.

One type, used when respiratory protection is also necessary, forces exhaust air from a supplied-air hood ("bubble hood") around the neck and down inside an impermeable suit. The air then escapes through openings in the suit. Air can also be supplied directly to the suit without using a hood in three ways:

- by a single inlet;
- by a distribution tree; or
- by a perforated vest.

In addition, a vortex tube can be used to reduce the temperature of circulating air. The cooled air from this tube can be introduced either under the clothing or into a bubble hood. The use of a vortex tube separates the air stream into a hot and cold stream; these tubes also can be used to supply heat in cold climates. Circulating air, however, is noisy and requires a constant source of compressed air supplied through an attached air hose.

One problem with this system is the limited mobility of workers whose suits are attached to an air hose. Another is that of getting air to the work area itself. These systems should therefore be used in work areas where workers are not required to move around much or to climb. Another concern with these systems is that they can lead to dehydration. The cool, dry air feels comfortable and the worker may not realize that it is important to drink liquids frequently.

## **RESPIRATOR USAGE**

The use of any kind of respiratory protection device increases stress on a worker, and this stress contributes to overall heat stress. Chemical protective clothing such as totally encapsulating chemical protection suits will also add to the heat stress problem.

## **SUMMARY**

Heat stress offers significant challenges when work needs to be performed under hot ambient conditions. However, a well thought-out program can substantially reduce the chances of heat stress. A combination of engineering and administrative controls along with effective use of personal protective equipment can protect employees from suffering the effects of heat stress.

## **EARTHQUAKES**

Earthquakes can last just a few seconds or as long as several minutes. Safety precautions include (as amended from [http://safety.lovetoknow.com/Earthquake\\_Safety\\_Precautions](http://safety.lovetoknow.com/Earthquake_Safety_Precautions)):

- Before an earthquake:
  - Store heavy items or glassware on low shelves so they do not become dangerous projectiles. Secure large equipment with straps, bolts, or other stabilizing methods.
  - Know the emergency meeting location at the site.
- During an earthquake:
  - Immediately seek a safe location such as in a doorway, beneath a table or desk, or along an interior wall away from windows or hazardous objects.
  - Cover the back of your head and your eyes to minimize injury from flying debris
  - Do not take elevators during an earthquake.
  - If outdoors, stay in open areas away from buildings, power lines, trees, and other potential hazards.
  - If driving, stop quickly but safely and stay in the vehicle. Do not stop near power lines, bridges, overpasses, or other potentially dangerous locations.
  - Stay calm and brace yourself to keep your balance. Sit if possible.
- After an earthquake:
  - Be prepared for aftershocks, which may be stronger than the initial jolt.
  - Administer First Aid and summon emergency assistance if necessary.
  - Wear PPE (boots, gloves) to avoid getting cut by broken glass.
  - Turn off gas, electricity, and water if damage is suspected or if advised to do so by authorities.
  - Be cautious opening cabinets, cupboards, and closets in case items are poised to fall.
  - Keep phone lines clear for emergency use.
  - Be patient: it may take hours or days to restore all services depending on the severity of the quake.

## 1.3 Biological Hazards

Biological hazards may include, but are not limited to, bees/wasps, spiders, snakes, stray dogs, rats and poisonous/allergenic plants.

### Bee/Wasp Precautions

#### Purpose

Bees and similar organisms such as wasps, hornets and yellow jackets can cause significant injury, pain and/or discomfort during our work. This precaution has been developed to help avoid injury.

We can encounter these organisms during a number of our tasks such as:

- Opening well vault covers
- Opening core or sample boxes
- Performing O & M in system compounds
- Working in tall grass, weeds and brush
- Performing site assessments (indoors and outdoors)

#### Yellow Jackets

Yellow Jackets are found throughout the United States. Yellow Jackets feed on insects, spiders and a wide variety of other food items. They are medium-sized, stout-bodied, and black with bright yellow bands. Yellow-jackets construct globular paper nests, usually in underground cavities. Favorite nesting places include rodent burrows, compost piles and wall voids. Yellow Jackets are scavengers and frequently are found foraging around compost piles and garbage receptacles. Their activity can be discouraged in the vicinity of patios, parks, picnic and other recreational areas by covering all food and disposing of waste in covered containers.



#### Paper Wasps

Paper wasps are about 1" in length, have a spindle-shaped body and are marked with a brown and yellow pattern. Paper wasps construct umbrella-shaped, single-layered nests with exposed cells. Nests may be built in trees and shrubs but frequently are found under building overhangs, in attics, barns, garages and sheds. These wasps are not considered overly aggressive and usually pose a threat only when their nests are disturbed. However, foraging wasps can cause considerable annoyance as they fly in and about entrances of buildings.



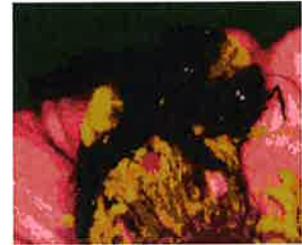
#### Honey Bees

Honey bees may become troublesome when they swarm or build colonies in or near residential areas. Honeybees occasionally invade homes and establish a colony, building combs of wax containing honey, pollen and brood in wall spaces. Once established, a colony is difficult to remove because it usually involves structural modification of the building. To be effective, the honey and wax should be removed along with the bees or the site will remain attractive to other swarms.



## Bumble Bees

These bees most commonly become a problem when they establish nests close to a sidewalk or near building foundations. Bumble bees are large, robust bees covered with dense black and yellow hairs. They commonly reach one inch in length. Bumble bees usually are not overly aggressive, but will sting if molested. To avoid confrontations with bumble bees, stay clear of patches of flowers visited by adults. These bees can be controlled by spraying or dusting insecticides into their nests. Retreatment may be necessary.



## What to do?

Naturally, there are many kinds of bees, and other insects for that matter, about which we should be concerned. The following are some good rules of thumb to keep in mind.

To mitigate hazards associated with bees/wasps:

- Avoid known locations of bees/wasps.
- Keep your eyes and ears open for swarms.
- Look for insects flying in and out of openings such as a crack in the wall, an open pipe end, or a well vault lid.
- Be cautious of tall grass as some bees build their hives at ground level.
- Be cautious of pointed structures, especially in barns, storage sheds, and outbuildings as bees often build hives in those structures.
- Avoid wearing citrus or floral aftershaves or perfumes as bees/wasps may be attracted to these odors.
- Wear light colored clothing as insects are generally attracted to dark colors.
- Fill in cracks or crevices and close open ends of pipes when bees/wasps are not around.
- Leave the area as quickly as possible if a nest has been disturbed. Do not retrieve nearby belongings. Do not stand still. Do not try to fight them.

If stung by a bee or wasp, wash the area with soap and water. If you have been stung over 15 times or are having symptoms other than pain and swelling, seek emergency medical assistance immediately. Staff that are allergic will carry an EpiPen® as prescribed by a doctor. The SHSO, OSEC and Project Manager should be made aware of this prior to the start of the project.

## Insect Sting Reactions

Insect sting reactions can be classified into three types - a normal reaction, a toxic reaction, and an allergic reaction. A normal reaction, lasts only a few hours, involves pain, redness, swelling, itching, and warmth at the site of the sting. A toxic reaction lasts for several days, results from multiple stings and causes muscle cramps, headache, fever, and drowsiness. An allergic reaction is similar to a toxic reaction but is triggered with only one sting.

An allergic reaction can involve one or more of the following: hives, itching, and swelling in areas other than the sting site; tightness in the chest and difficulty in breathing; a hoarse voice or swelling of the tongue; dizziness or a sharp drop in blood pressure; and unconsciousness or cardiac arrest.

## **4.0 Site Control and Safety Procedures**

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Procedures described in this section are intended to aid Stantec personnel in mitigating site risks/hazards.

### Video Cameras

Prior to using a camera or other electronic recording devices on this site, all on-site personnel and/or visitors will obtain approval from the Project Manager.

### Daily Production Health and Safety Briefings

A safety meeting will be conducted twice daily and as needed at the site to discuss the health and safety issues for the activities to be conducted that day. The topics of the meeting will include, at a minimum, general health and safety procedures, reviewing health and safety policies and reviewing the job hazard analyses for the tasks to be conducted. Additional safety meetings may be conducted if the scope of work changes during the day, or if other health and safety issues are identified. The Daily Production Health and Safety Briefing Log and example meeting topics are included in Attachment 3.

### Driving

- Review the Stantec Safe Driving Procedures provided on-site.
- Utilize the Daily Vehicle Checklist at least once a day for each vehicle driven for Stantec business to identify potential vehicle issues/hazards. Copies of the Daily Vehicle Inspection Checklist are included in this HASP as Attachment 4.
- Have each team member who will travel to/from the site review the site-specific Journey Management Plan (JMP) before traveling to identify routes of travel and potential driving/journey/traffic hazards. JMP(s) will be kept with each traveling employee throughout the entire course of travel.
- A Stantec Vehicle Collision Kit will be kept in every vehicle used for Stantec project work. A Stantec Vehicle Collision Kit is included in this HASP as Attachment 5.

### Drug and Alcohol Testing

Following an incident, Stantec will follow the incident reporting procedures. If appropriate, Stantec will include drug and alcohol testing, consistent with Stantec's Policies and Procedures, as well as the client's contractual requirements for testing.

### Exclusion Zone and Decontamination (as applicable)

No eating, drinking, or smoking or raw tobacco use is permitted within the exclusion zone. These activities will be conducted only in designated areas of the site. Use of PDAs, cell phones, pagers, or other electrical devices (with the exception of intrinsically safe devices) are prohibited in the exclusion zone. Personnel will properly decontaminate after leaving an exclusion zone. Decontamination procedures may involve disposing of Tyveks, latex gloves, etc. in a decontamination zone located immediately outside of the exclusion zone. At a minimum, personnel will wash any exposed skin before leaving a site using soap and water or pre-moistened cleansing towels. Stantec will evaluate the hazards and develop site-specific decontamination procedures to address the chemical hazards at each site. These procedures can be found in the job safety analyses.



### HASP Inspections

The site-specific HASP should be inspected in the field by the SHSO or other Stantec personnel to determine the effectiveness of the plan. Any deficiencies should be corrected and changes will be recorded on the HASP Modification Log.

### Jewelry

Jewelry can be dangerous and shall not be worn during field activities. Large earrings, long necklaces, loose-fitting bracelets, rings, watches, etc. can become entangled in machinery and cause traumatic amputation of limbs, as well as be conductive of electricity.

### Job Safety Analysis

Job Safety Analyses (JSAs) will be prepared or revised prior to mobilizing to the field. Applicable JSAs will be reviewed in detail on a daily basis by all affected on-site workers and/or visitors. Any revisions to the JSAs will be hand written into the JSAs, forwarded to the project manager, and communicated to during Daily Production Health and Safety Briefings.

### Material Safety Data Sheets (a.k.a. Safety Data Sheets/GHS)

Material Safety Data Sheets (MSDSs) will be available in the Stantec HASP &/or in the subcontractor's HASP for chemicals on site (including chemicals brought on site by on-site personnel and/or visitors).

### Permits

The approved/signed Task Order for the project is the permit to work on Caltrans right-of-way and must be available onsite at all times.

### Personal Protective Equipment

PPE is identified in JSAs. PPE listed in each JSA is specific to the task outlined in the JSA and is consistent with Appendix B of 29 CFR 1910.120. PPE is to be used in accordance with manufacturers' recommendations and employee training. Minimum PPE at the site includes steel toe/steel shank boots, high visibility work gloves, hi-viz safety vest, long sleeve shirt, pants, safety glasses with side shields, and a hard hat.

### Pre-entry Briefing

All on-site workers and visitors will receive a pre-entry briefing prior to accessing work areas of the site. The briefing will include reviewing contents of the HASP, signing the Acknowledgement and Agreement Form. The briefing for visitors may be abbreviated to be fit-for-purpose based on the intent of the visit.

### Public Questions and Press

Questions about the site posed by neighbors, the press, or other interested parties will be directed to the **Caltrans Project Manager Mr. Tuanchi (Jack) Liu at (213) 897-1350.**

### Shutoff Valves/Switches

(IF NEEDED) The SHSO will identify the location of shutoff valves and switches for utilities and products on the Site Plan and disseminate this information to all site personnel and visitors as appropriate.

### Site Security

Security of our staff, subcontractors, equipment, and the public is of paramount importance to Stantec. Employees are trained in hazard recognition and will follow standard policies and procedures to report and mitigate site security issues/hazards if identified. Note that security consideration is different than traffic guidance and control, which also impacts security to some extent. Security refers to personal safety and freedom from theft or violence. The following items will be evaluated when considering security measures at the site:

- Recent criminal activity at the site and nearby areas (ask site owner/operator and the police);
- Work hours (security concerns may be different depending on the time of day); and
- Lighting at the site (thieves are generally dissuaded from stealing on well lighted sites).

Standard security measures will be implemented on site to minimize the potential for loss at the site. Standard security measures include properly maintained lighting, functioning locks for windows/doors/equipment storage areas, and maintaining control of tools and equipment when not in use. Security may be implemented in a variety of ways:

- Orange construction fence (minimal security);
- Chain link fencing;
- Extra lighting;
- Specialized locks; and/or
- Contract security.

### Traffic Guidance and Control

Incidents on sites have shown the need for a site-specific Traffic Guidance and Control Plan. The SHSO and project staff will develop a Traffic Guidance and Control Plan and disseminate this information to all site personnel. This plan will consider the amount of traffic at a site and provide for the safety of all workers. Equipment and resources to be considered as part of traffic guidance and control include:

- Vehicle hazard lights (tail and headlights)
- Cones/Delineators
- Placement of vehicles as barriers between workers and traffic
- Rotating amber hazard lights that can be placed on top of vehicles
- Signage advising drivers of shoulder work.

Other considerations for the Traffic Guidance and Control Plan include:

- Lane closures with proper signing
- Requiring personal vehicles (that aren't being used as barriers) to park as far away from potential traffic as possible.
- Cordoning off as much space as is necessary to ensure our safety.
- Identifying traffic flow routes and parking areas for heavy equipment (e.g., vacuum trucks, drill rigs, etc.) and establishing site speed limits.
- Reviewing local regulations for: formally developed traffic guidance and control plans signed by licensed individuals, police details, flagmen, hours of activity, closure of streets, etc.

### Work Hours

Work on this project will likely be conducted between the hours of 0900 to 1500.

**A. Waste Generation** (Type(s)/Quantities Expected):

Anticipated (YES/NO): **NO**

Types: \_\_\_ Solid \_\_\_ Sludge \_\_\_ Other (describe) \_\_\_\_\_

Quantity (Expected Volume): \_\_\_Unknown\_\_\_

**B. Characteristics** (Expected): **NA**

Corrosive \_\_\_ Flammable/Combustible \_\_\_ Radioactive \_\_\_ Toxic \_\_\_

Reactive \_\_\_ Unknown \_\_\_

Other (specify) \_\_\_\_\_

**C. Packaging Requirements for Waste Material** (Expected): **NO**

- 5-gallon bucket NO -
- Baker Tanks (possibly tankers if trucked off-site) NO
- Lined Waste Bins NO
- Temporary Stockpile NO

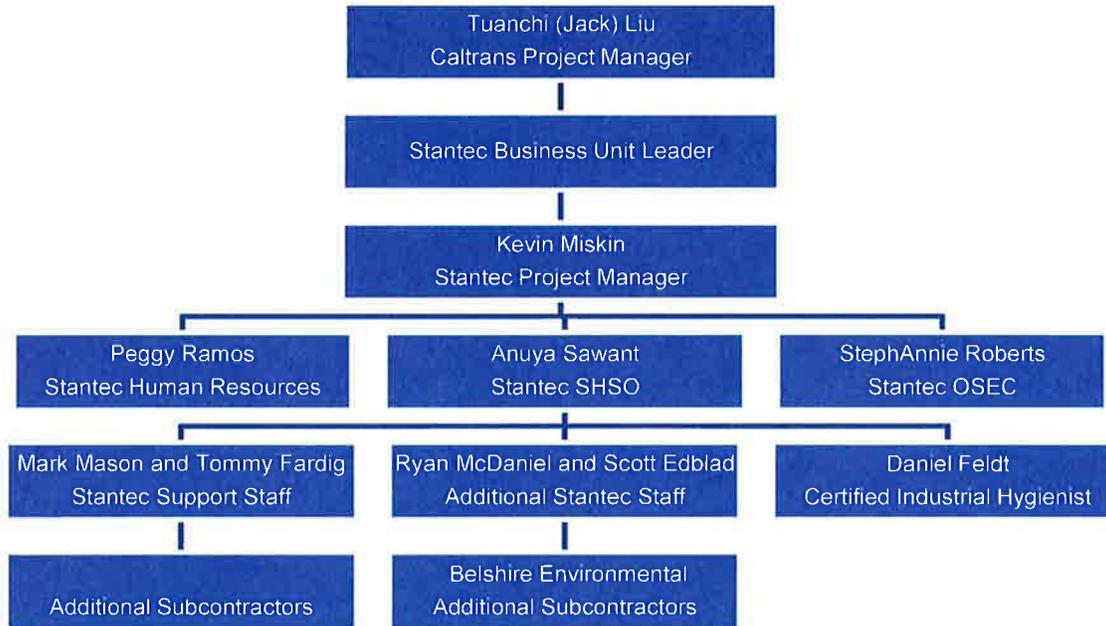
**D. Disposal and/or Treatment Methods Proposed** (Expected): **YES**

All investigation derived wastes (IDW) will be disposed of in accordance with U.S. EPA publication OSWER Directive 9345.3-02 entitled "Management of Investigation-Derived Waste During Site Inspections" as specified in Contract 07A3322, Method 17. Excess soil removed from the shallow borings will be replaced back into their respective borings. Decontamination water used for the investigation will be disposed of on-Site, while taking measures to prevent any liquids from entering the roadway, storm drains, or flowing as run-off from the ROW. Used and soiled personal protective equipment (PPE) will be bagged and disposed to the municipal trash.

When/If applicable: All wastes will be labeled, sampled, and analyzed for all applicable chemicals of potential concern and physical properties (e.g., pH, vapor pressure, etc.) to ensure proper waste characterization. Results of analysis will determine how and where impacted materials may be disposed. Belshire Environmental will be responsible for the categorization and transportation of all solid waste generated on this Site, if any. All materials will be disposed of or treated in accordance with federal, state and local regulations as selected and arranged by Stantec.

## 4.1 Organization and Responsibilities

An organization chart for project personnel is provided below.



A table summarizing responsibilities for project personnel is provided below.

Project Job Title	General Project Responsibilities
Stantec Project Manager	Overall financial and logistics. Contact client and subs to understand all hazards. Discuss with SHSO. Follow-up all incidents upon notice.
Stantec Site Health and Safety Officer	Conduct Site Safety Meeting (tailgate) and fieldwork in accordance with JSA and this HASP. Report all incidents and near misses immediately to Project Manager.
Stantec Support/Project Staff	Assist Stantec Site Health and Safety Officer in implementing site scope of work
Stantec Business Unit Leader	Provide immediate support at notice of all incidents
Stantec Sr. Certified Industrial Hygienist	Respond with corporate resources to all incidents as appropriate. Assist in HASP review. Assist in incident investigation.
Stantec Human Resources	Assist with incident review, recordkeeping.
Stantec Office Safety and Environment Coordinator	Manage Health and Safety responsibilities for personnel in Office. Assist employees with setting up training and attending/completing necessary courses.
Caltrans Project Manager	Provide all known analytical data gathered by others and notice of hazards. Provide access to site and available emergency response capabilities.
Additional Subcontractors	ABC Liovin Drilling, Inc. - Direct Push or Hollow Stem Auger for groundwater sample collection. Belshire Environmental – Waste Disposal

**Attachment B**  
**Training Certificates**



# ***Certificate of Completion***

*Presented to*

**Anuya Sawant**

*of*

**Stantec Inc.**

*for successful completion of*

**Stantec Hazwoper Refresher Course v3, PS4 eLesson**

**Dated: 07-28-2015**

A handwritten signature in black ink, appearing to read 'Tracy A. Phillips'.

**HSE Systems Coordinator**



# *Certificate of Completion*

*Presented to*

**Thomas Fardig**

*of*

**Stantec Consulting Services Inc.**

*for successful completion of*

**Stantec Hazwoper Refresher Course v3, PS4 eLesson**

**Dated: 03-03-2015**

A handwritten signature in black ink, appearing to read 'Thomas Fardig', is written over two horizontal lines.



# ***Certificate of Completion***

*Presented to*

**Mark Mason**

*of*

**Stantec Consulting Services Inc.**

*for successful completion of*

**Stantec Hazwoper Refresher Course v3, PS4 eLesson**

**Dated: 02-12-2015**

  
\_\_\_\_\_  
Kenneth Roberts



# Certificate of Completion

Presented to

**Ryan McDaniel**

of

**Stantec Inc.**

*for successful completion of*

**Stantec HAZWOPER Refresher Course V3, PS4 eLesson Updated  
081514**

**Dated: 11-24-2015**

  
HSE Systems Coordinator



# ***Certificate of Completion***

*Presented to*

**Scott Edblad**

*of*

**Stantec Consulting Services Inc.**

*for successful completion of*

**Stantec Hazwoper Refresher Course v3, PS4 eLesson**

**Dated: 02-17-2015**

*Scott Edblad*  
\_\_\_\_\_  
*Scott Edblad*  
\_\_\_\_\_

**Attachment 1**

**Stantec Field Binder Checklist and Project Applicable Forms**



## Stantec Field Binder Checklist

INCLUDED			FORMS	Qty.	COMMENTS
YES	NO	N/A			
<b>PROJECT DOCUMENTS</b>					
			Kick-off Meeting Materials	1	
X			Site-Specific Workplan / Written Scope	1	
			Project Management Checklist	1	
X			Field and Safety Supplies Checklist	5	
X			Sampling Procedures	1	
X			Permits		
X			Traffic Control Plans	1	
<b>STANTEC ENVIRONMENTAL SERVICES SECTOR</b>					
<b>Field Notes and Logs</b>					
X			<a href="#">Site Observation Report</a>	20	
			Borehole/Well Construction Logs	10	
			Gauging Logs	5	
			Purge Groundwater Sampling Logs	10	
			Grab Groundwater Sample Log	10	
			Non-Aqueous Phase Liquid Bailing Sheets	5	
			O&M Field Data Log	20	
			Waste Management Form	10	
<b>Oil &amp; Gas Subsector</b>					
<b>HSE Monitoring</b>					
			Equipment Calibration Sheet	5	
			Air Monitoring Logs	10	
			HSE Opportunity Card	5	
			SAFE Observation Remedial System	1	
			SAFE Observation Emergency Drill	1	
			SAFE Observation Groundwater	1	
			SAFE Observation Drilling	1	
			SAFE Observation Excavation	1	
			SAFE Observation Heavy Equipment	1	
<b>STANTEC CORPORATE HEALTH SAFETY AND ENVIRONMENT</b>					
<b>Hazard Assessment</b>					
X			<a href="#">RMS2- FIELD LEVEL Risk ASSESSMENT (FIT FOR DUTY), 1 day</a>	20	
X			<a href="#">RMS2- FIELD LEVEL Risk ASSESSMENT (FIT FOR DUTY), 5 days</a>	10	
X			<a href="#">RMS 7 - Quantified Hazard Assessment</a>		
			SWP 102a - Workplace Violence		



## Stantec Field Binder Checklist

INCLUDED			FORMS	Qty.	COMMENTS
YES	NO	N/A			
			Inspection Form		
X			SWP 105a - Hazard Assessment for PPE Assessment Form	1	
<b>HSE Monitoring and Incident Report</b>					
X			<a href="#">RMS 5 - Worksite Inspection - Field</a>	1	
X			<a href="#">RMS 3 - Incident Report</a>	1	
<b>Driving Safety and JMP</b>					
X			<a href="#">SWP 124a - Vehicle Pre-Use Checklist</a>	20	
X			<a href="#">SWP 124b - Journey Management Plan</a>	1	
<b>Ground Disturbance</b>					
			<a href="#">SWP 213a - Pre-Ground Disturbance Worksheet Approval</a>	3	
			<a href="#">SWP 213c - Site Management and Post-Disturbance Checklist</a>	3	
			<a href="#">SWP 213d - Backfill Inspection Form</a>	1	
<b>Electrical Work</b>					
			<a href="#">SWP 406a - Electrical Job Brief Hazard Assessment</a>	1	
			<a href="#">SWP 406b - Energized Work Permit</a>	1	
			<a href="#">SWP 408a - LTT Permit</a>	1	
			<a href="#">SWP 408b - Emergency LTT Removal</a>	1	
			<a href="#">SWP 408c - LTT Periodic Audit</a>	1	
<b>Confined Space</b>					
			<a href="#">SWP 411a - Confined Space Entry Permit</a>	1	
			<a href="#">SWP 411b - Alternate Entry Permit</a>	1	
<b>Lifting Operations</b>					
			<a href="#">SWP 217a - Forklift Pre-Operational Checklist</a>	1	
<b>CLIENT-SPECIFIC DOCUMENTS</b>					
<p>Instructions: Review your Stantec Field Binder prior to starting work and ensure applicable contents are included. Sign and date the checklist. Your signature indicates your acknowledgement that you will maintain the field binder with forms required for your work.</p>					
Signature				Date:	



## WORK SITE INSPECTION FIELD – RMS 5

Department: \_\_\_\_\_ Business Centre: \_\_\_\_\_  
 Location: \_\_\_\_\_ Date: \_\_\_\_\_

Purpose: To identify hazards in the field where Stantec personnel are working.

Responsibility: The Project Manager will determine how often work site inspections are required. OSEC will assist.

NOTE: for pre-use vehicle inspection, record inspection on SWP 124a – Vehicle Pre-Use Checklist.

	Status			Severity Ranking			Repeat Item (Y or blank)	Action Required (incl. champion's name)	Date Done
	Okay	Needs Work	N/A	A	B	C			
<b>HSE Documentation</b>									
Rms1 – hazard assessment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Health and Safety Plan (HASP)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Toolbox meeting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Permits (e.g. work, confined space, hot work, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Clearances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Training requirements met	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Safe Work Practices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Inspection forms (e.g. ladder, chainsaw, client-specific excavation, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Other: Specify: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
<b>Emergency Preparedness</b>									
Emergency Response Plan current & available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Muster point	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
First aid kit stocked/available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Emergency eyewash available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
First aid providers on-site	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Fire extinguisher	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Communication available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Spill response kit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Other: Specify: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
<b>Protective Equipment</b>									
Hard hats	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Safety glasses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Hearing protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
High visibility vests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Proper work gloves	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Safety boots	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
18" PVC orange traffic cones	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Road signs as required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						

A – Major – Includes potential for serious incident or illness, hospitalization, permanent disability, fatality or extensive property damage  
 B – Moderate – Includes potential for lost-time injury or illness, temporary disability or considerable property damage  
 C – Minor – Includes potential for first aid injury, minor illness, no lost time or limited property damage



**WORK SITE INSPECTION FIELD – RMS 5**

	Status			Severity Ranking			Repeat Item (Y or blank)	Action Required (incl. champion's name)	Date Done
	Okay	Needs Work	N/A	A	B	C			
Fall arrest/restraint	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Personal floatation device	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Other: Specify: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
<b>Tools and Equipment</b>									
Maintenance – tools in good condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Used properly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Appropriate for job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Stored and/or secured safely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Lockout system established	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Clearance from panels/overhead wires	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Guards in place	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Other: Specify: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
<b>Chemicals</b>									
Controlled products labeled properly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Stored properly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
MSDS available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
TDG compliance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Other: Specify: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
<b>Site</b>									
Parking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Accessibility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Work area demarcated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Visibility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Slipping and tripping hazards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Drainage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Overhead hazards identified	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Buried utilities located/marked and exposed by hand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Pits/excavations barricaded	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Excavation/Trench supports/slope	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Traffic hazards controlled (including pedestrian walkways)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Other: Specify: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
<b>Environment</b>									
Sensitive areas identified	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Noise levels (</= 84dBA – 8hr shift; 82dBA – 12hr shift)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						

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 B – Moderate – Includes potential for lost-time injury or illness, temporary disability or considerable property damage  
 C – Minor – Includes potential for first aid injury, minor illness, no lost time or limited property damage

	Status			Severity Ranking			Repeat Item (Y or blank)	Action Required (Incl. champion's name)	Date Done
	Okay	Needs Work	N/A	A	B	C			
Chemical hazards identified	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Working near water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Heat/Cold	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Gas, fumes, dusts, vapors, asbestos	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Ventilation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Confined space (including monitor and attendant(s))	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Other: Specify: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
<b>General (Including Buildings/Trailers)</b>									
Exits marked and accessible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Stairs and walkways clean and dry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Handrails sturdy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Emergency lighting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
General housekeeping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Body positioning, ergonomics (resources available on StanNet)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Other: Specify: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						

Prepared by: \_\_\_\_\_  
Signature Date

Approved by: \_\_\_\_\_  
Signature (Project Manager) Date

Original Copy: Project Files  
 Copies: OSEC & Field Files

A – Major – Includes potential for serious incident or illness, hospitalization, permanent disability, fatality or extensive property damage  
 B – Moderate – Includes potential for lost-time injury or illness, temporary disability or considerable property damage  
 C – Minor – Includes potential for first aid injury, minor illness, no lost time or limited property damage

A proactive approach to safety requires systematic analysis of the tasks each occupation is required to perform regularly. The objectives of this hazard assessment process are to review and quantify the risk inherent in each task, to assess the effectiveness of existing controls and to develop new controls if necessary. Tasks with high levels of inherent risk are *critical tasks*, and require detailed and stringent controls. It is important that the people who perform the tasks are involved in this analysis, as their experience and knowledge are essential to the process. The controls identified and created should be used as tools for training and orienting new employees and contractors.

Using the attached risk matrix rate each task using severity and likelihood. Once this evaluation is complete, critical tasks will be identified and the existing controls evaluated.

Instructions:

1. List all the tasks that are completed as part of the job, even if they are not daily occurrences.
2. List the hazards associated with completing the task (consider hazard categories: chemical, physical, ergonomic, biological or environmental).
3. Using the attached Risk Matrix, use Tables 1 and 2 to determine the severity and likelihood rating for each task.
4. Determine the Risk Ranking according to the coloured Risk Matrix.
5. Using Table 3, tasks which are ranked A or B require immediate/prompt attention, and may be considered critical tasks. Critical tasks require further hazard analysis and assessment of controls.
6. As a baseline for the organization as a whole, a [critical task inventory](#) has been created for Stantec operations. Please [contact](#) your Regional Safety and Environment Coordinator (RSEC) for information and guidance.



# RMS7 – QUANTIFIED HAZARD ASSESSMENT - TASK INVENTORY

TASK INVENTORY			Date:		
Occupation:	Name:		Severity (1 to 4)	Likelihood (1 to 4)	Risk Level (A to D)
Task	Hazards		4	3	A
Example: Vehicle Operation	Other drivers, poor vehicle maintenance, loose objects in the cab, animals, fatigue, weather conditions, darkness, inexperience, distractions				

Controls Required to Mitigate Identified Risks to an Acceptable Level	
1.	4.
2.	5.
3.	6.
	7.
	8.
	9.

## RMS7 – QUANTIFIED HAZARD ASSESSMENT – RISK MATRIX

<b>LIKELIHOOD</b>	4	C	B	A	A
	3	C	B	B	A
	2	D	C	B	B
	1	D	D	C	C
		1	2	3	4
<b>SEVERITY</b>					

**Table 1: Severity Result Criteria**

Severity Level	People Impacts	Property Impacts	Liability/Cash Flow Impacts	Environmental Impacts
1	<b>Minor Injury</b> (first aid only – may have to see doctor)	<b>Minor</b> operational upset or damage to equipment. Total loss less than \$10,000	<b>Minor</b> Third party damage claim. Total loss less than \$10,000	<b>Incidental</b> Release with incidental or insignificant effects within facility.
2	<b>Medical Treatment Case</b> (had to see doctor AND get treatment)	<b>Moderate</b> operational upset and/or equipment damage. Total loss between \$10,000 and \$50,000	<b>Moderate</b> Third party damage claim/lawsuit. Total loss between \$10,000 and \$50,000	<b>Minor</b> Release within or outside fence with known consequences. Localized effect with mild environmental effects. Requires reporting to regulatory authorities.
3	<b>Serious Injury</b> (Modified Work, Away from Work and/or Long Term Disability)	<b>Major</b> operational upset and/or equipment damage. Total loss between \$50,000 and \$150,000	<b>Major</b> Civil charges laid against company or employees. Lawsuit anticipated. Total loss between \$50,000 and \$150,000	<b>Adverse</b> Release outside fence with known detrimental effects. Requires response from outside agencies (Hazmat units, police, and fire department)
4	<b>Death</b> (to 1 or more people)	<b>Critical</b> major damages or complete loss to essential equipment. Total loss more than \$150,000	<b>Critical</b> Criminal charges laid against company or employees. Operation of site or operation halted by regulatory agency. Company-wide negative effects to operations. Lawsuit anticipated. Total loss more than \$150,000.	<b>Serious</b> Release outside fence with known detrimental effects. Requires an ongoing cleanup requiring significant resources. Regulatory or other charges are possible.

**Table 2: Probability Result Criteria**

Likelihood Level	Result Criteria (where Likelihood = Frequency x Probability)
4	<p><b>Constant.</b> Constant or continuous exposure to the risk. Task or activity is performed or may occur daily on a continuing basis.</p> <p><b>High</b> probability of <b>RISK resulting in incident.</b> Incident is certain to occur, risk not fully controlled. Expected – occurs often as part of the process.</p>
3	<p><b>Frequently.</b> Regular exposure to the risk. Task or activity is performed or may occur once per week or more.</p> <p><b>Moderate</b> probability of <b>RISK resulting in incident.</b> Incidents happen, risk not fully eliminated. <b>POSSIBLE – KNOWN TO OCCUR DURING THE PROCESS.</b></p>
2	<p><b>Occasionally.</b> Low frequency of exposure to the risk. Task or activity is performed or may occur two or three times per month.</p> <p><b>Low</b> probability of <b>RISK resulting in incident.</b> Occurrence is not likely but may have occurred in the past. Unusual – known to occur occasionally but not normally anticipated.</p>
1	<p><b>Seldom.</b> Very low frequency of exposure to the risk. Task or activity performed or may occur once per month or less.</p> <p><b>Extremely Low</b> probability of <b>RISK resulting in incident.</b> Occurrence very unlikely and may not have occurred in the past.</p>

**Table 3: Required Action For Each Risk Level**

Risk Level	Category	Action Required
<b>A</b>	Unacceptable	Must be mitigated with appropriate controls to a risk ranking of C or D immediately.
<b>B</b>	Undesirable	Must be mitigated with appropriate controls to a risk ranking of C or D as soon as possible.
<b>C</b>	Acceptable with Controls	Risk mitigation to risk ranking of D is optional; procedures and controls must be verified.
<b>D</b>	Acceptable as is	No risk mitigation required.

**Attachment 2**

**Job Safety Analyses**



Field staff must review job-specific work plan and coordinate with project manager to verify that all up-front logistics are completed prior to starting work including, but not limited to, permitting, access agreements, and notification to required contacts (e.g. site managers, inspectors, clients, subcontractors, etc.). A tailgate safety meeting must be performed and documented at the beginning of each workday. Last-Minute Risk Assessment (LMRA) procedures must be used throughout the project. Weather conditions (heat, cold, rain, and lightning) must also be considered. Each employee is empowered, expected, and has the responsibility to stop the work performed by him/herself or another co-worker if the working conditions or behaviors are considered unsafe. All employees should act proactively to identify and mitigate hazards to the safest extent of their ability. Use Stop Work Authority as needed.

Job Steps	Personal Protective Equipment	Potential Hazard	Critical Actions
<p>Verify a Vehicle Collision Kit, a 3-lb type ABC fire extinguisher, and other as needed emergency equipment is in the vehicle.</p>	<p>Safety vest, high visibility work gloves, steel-toe/shank boots, safety glasses, long-sleeved shirt</p>	<p>Struck by another vehicle, pinch points, falling equipment</p>	<ul style="list-style-type: none"> <li>● Verify prepared field kit is in the vehicle. Inventory of the kit should include first aid kit, blood borne pathogen kit, fire extinguisher, collision kit, flashlight, etc. – STANTEC</li> <li>● For cold weather areas the inventory should also include a bag of sand, a bag of salt, gloves, wool socks, wool caps, wool blankets, tire chains, small shovel and matches – STANTEC</li> </ul>
<p>Perform perimeter walk around of vehicle for damage or unusual conditions, and complete the SWP-124a - Vehicle Pre-Use Checklist.</p>	<p>Safety vest, high visibility work gloves, steel-toe/shank boots, safety glasses, long-sleeved shirt</p>	<p>Getting hit by a car, pinch points, slip/trip/fall, chemical contacts (grease or oil from car), overheated engine or break-down due to lack of critical fluids.</p>	<ul style="list-style-type: none"> <li>● Complete the SWP-124a - Vehicle Pre-Use Checklist prior to travel – STANTEC</li> <li>● Wear safety vest and watch for cars during walk around – STANTEC</li> <li>● Address all questionable items prior to departure – STANTEC</li> <li>● Assure tires are properly inflated – STANTEC</li> <li>● Assure there are no cuts or bulges in the sidewalls – STANTEC</li> <li>● Assure windshield and window glass is clean and not cracked or crazed – STANTEC</li> <li>● Lift wiper arms and check wiper blades for damage or deterioration – STANTEC</li> <li>● Check behind vehicle for obstructions – STANTEC</li> <li>● Check under vehicle engine for evidence of fluid leaks – STANTEC</li> <li>● Check fluid levels – STANTEC</li> <li>● Wear Nitrile gloves when checking under hood – STANTEC</li> <li>● Verify all traffic control equipment is removed/safely stowed away – STANTEC</li> <li>● Look for and identify possible slip, trip, fall, and pinch point hazards – STANTEC</li> <li>● Do not touch metal with moist or wet skin – STANTEC</li> </ul>

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Job Steps		Personal Protective Equipment	Potential Hazard	Critical Actions
Enter and prepare to start vehicle	<b>SEAT BELT</b> , sunglasses if needed	Back or body strain, slip/trip/fall, blind spots, inability to signal intentions, streaking windshield, impaired vision.	<ul style="list-style-type: none"> <li>● Scrape windows, front and rear windshields – STANTEC</li> <li>● Be aware of footing, handholds, and head room when entering vehicle – STANTEC</li> <li>● Adjust seat so back is fully supported, upper arms close to body, and pedals within easy reach – STANTEC</li> <li>● Lower steering wheel so hands are below shoulders and shoulders are relaxed – STANTEC</li> <li>● Check mirror adjustments each time vehicle is re-started – STANTEC</li> <li>● Locate and test operations of front and rear turn signals, headlamps, wipers, and washer fluid – STANTEC</li> <li>● Verify proper operation of climate controls – STANTEC</li> <li>● Fasten seat belt – STANTEC</li> <li>● Lock doors – STANTEC</li> <li>● Driver's cell phone shall be turned off – STANTEC</li> <li>● Turn on headlights if vehicle is not equipped with day-time running lights – STANTEC</li> </ul>	
Start engine and let vehicle warm up.	<b>SEAT BELT</b> , sunglasses if needed	Unexpected movement.	<ul style="list-style-type: none"> <li>● Assure that transmission is in Park, or in neutral if a manual transmission, and that parking brake is set – STANTEC</li> <li>● Refer to Manufacturers vehicle manual for warm up times – STANTEC</li> <li>● Assure there is sufficient gas, oil and other critical fluids – STANTEC</li> <li>● Check for proper function of warning lights – STANTEC</li> <li>● Make any other necessary adjustments prior to driving – STANTEC</li> </ul>	
Pull out of parking space.	<b>SEAT BELT</b> , sunglasses if needed	Collision with other vehicles, pedestrians, or	<ul style="list-style-type: none"> <li>● Check mirrors and over shoulder in all directions prior to pulling out of parking space – STANTEC</li> </ul>	

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**Job Steps**

**Personal Protective Equipment**

**Potential Hazard**

**Critical Actions**

<p>Drive a motor vehicle</p>	<p><b>SEAT BELT</b>, sunglasses if needed</p>	<p>stationary objects.  Collision, injury or death to occupants or other parties.</p>	<ul style="list-style-type: none"> <li>● Give two short blasts on the horn and while looking over your shoulder – STANTEC_____.</li> <li>● Slowly pull out of the parking space being prepared to apply the brakes if needed – STANTEC_____.</li> <li>● Signal if parallel parked along a street – STANTEC_____.</li> <li>● Avoid reversing when possible – STANTEC_____.</li> <li>● If reversing with 2 or more personnel in the vehicle, then at least 1 person must exit the vehicle and act as a spotter. If alone, before getting in the car, assess the area for approaching pedestrians and vehicles – STANTEC_____.</li> <li>● Use the Stantec safe driving techniques – STANTEC_____.</li> <li>● <b>Scan</b> – Scan your horizon – STANTEC_____.</li> <li>● <b>Timing</b> – Do you have enough time to stop – STANTEC_____.</li> <li>● <b>Alert</b> – Don't drive when you are tired – STANTEC_____.</li> <li>● <b>Next</b> – Anticipate what could happen next – STANTEC_____.</li> <li>● <b>Team</b> – Passengers need to assist – STANTEC_____.</li> <li>● <b>Elevate</b> – Elevate your line of site – STANTEC_____.</li> <li>● <b>Courteous</b> – Don't be the driver others dislike – STANTEC_____.</li> <li>● Driver's cell phone shall be turned off – STANTEC_____.</li> <li>● Scan major and minor intersections before entry (left-right-left) – STANTEC_____.</li> <li>● Scan mirrors frequently, at least one mirror every 5-8 seconds – STANTEC_____.</li> <li>● Avoid staring while evaluating road conditions – STANTEC_____.</li> <li>● Maintain adequate spacing between your vehicle and the vehicle in front of you (Rule of thumb is 1 second for every 10 miles per hour – STANTEC_____.</li> <li>● After stopping, allow vehicle in front to move for 3 seconds before accelerating – STANTEC_____.</li> </ul>
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Field staff must review job-specific work plan and coordinate with project manager to verify that all up-front logistics are completed prior to starting work including, but not limited to, permitting, access agreements, and notification to required contacts (e.g. site managers, inspectors, clients, subcontractors, etc.). A tailgate safety meeting must be performed and documented at the beginning of each workday. Last-Minute Risk Assessment (LMRA) procedures must be used throughout the project. Weather conditions (heat, cold, rain, and lightning) must also be considered. Each employee is empowered, expected, and has the responsibility to stop the work performed by him/herself or another co-worker if the working conditions or behaviors are considered unsafe. All employees should act proactively to identify and mitigate hazards to the safest extent of their ability. Use Stop Work Authority as needed.

Job Steps		Personal Protective Equipment	Potential Hazard	Critical Actions
				<ul style="list-style-type: none"> <li>Evaluate approaching merge before you reach them – STANTEC_____.</li> <li>Avoid being boxed in by other vehicles – STANTEC_____.</li> <li>Seek eye contact with other drivers – STANTEC_____.</li> <li>Before changing lanes, signal well in advance, check mirrors and over shoulder, and allow adequate space before changing lanes – STANTEC_____.</li> <li>Avoid blind spots – STANTEC_____.</li> <li>Increase the distance between your vehicle and the vehicle in front of you at night and in inclement weather. – STANTEC_____.</li> </ul>
Pauses in travel	Safety vest, high visibility work gloves, steel-toe/shank boots, safety glasses, long-sleeved shirt, cell phone.	Struck by another vehicle, insecure connections		<ul style="list-style-type: none"> <li>If there is a pause in travel (i.e. rest stop, gas station) do another walk around the vehicle prior to resuming travel – STANTEC_____.</li> <li>Be aware of nefarious characters – STANTEC_____.</li> </ul>
Reversing the vehicle	<b>SEAT BELT</b> , sunglasses if needed	Collision, injury or death to occupants or other parties.		<ul style="list-style-type: none"> <li>Make all backing maneuvers slowly and cautiously – STANTEC_____.</li> <li>Check mirrors and over shoulders – STANTEC_____.</li> <li>If reversing with 2 or more personnel in the vehicle, then at least 1 person must exit the vehicle and act as a spotter. If alone, before getting in the car, assess the area for approaching pedestrians and vehicles – STANTEC_____.</li> </ul>

Field staff must review job-specific work plan and coordinate with project manager to verify that all up-front logistics are completed prior to starting work including, but not limited to, permitting, access agreements, and notification to required contacts (e.g. site managers, inspectors, clients, subcontractors, etc.). A tailgate safety meeting must be performed and documented at the beginning of each workday. Last-Minute Risk Assessment (LMRA) procedures must be used throughout the project. Weather conditions (heat, cold, rain, and lightning) must also be considered. Each employee is empowered, expected, and has the responsibility to stop the work performed by him/herself or another co-worker if the working conditions or behaviors are considered unsafe. All employees should act proactively to identify and mitigate hazards to the safest extent of their ability. Use Stop Work Authority as needed.

Job Steps		Personal Protective Equipment	Potential Hazard	Critical Actions
Parking	SEAT BELT, sunglasses if needed	Collision, injury or death to occupants or other parties.	<ul style="list-style-type: none"> <li>● Park away from other cars when possible and when safe. – STANTEC _____.</li> <li>● Look for pull-through parking to avoid reversing – STANTEC _____.</li> <li>● Back into parking spot when possible and safe and legal – STANTEC _____.</li> <li>● If reversing with 2 or more personnel in the vehicle, then at least 1 person must exit the vehicle and act as a spotter. If alone, before getting in the car, assess the area for approaching pedestrians and vehicles – STANTEC _____.</li> <li>● Maintain cushion of safety from fixed objects – STANTEC _____.</li> <li>● Set parking brake – STANTEC _____.</li> </ul>	
POST-TRIP		Conditions worsen leading to mechanical failure possibly resulting in accident, injury, or death.	<ul style="list-style-type: none"> <li>● Report vehicle problems immediately to company representative or rental car agency – STANTEC _____.</li> <li>● Schedule a tune-up or repair if necessary – STANTEC _____.</li> </ul>	

**2. The following table addresses the concerns with hand augering for the collection of soil samples.**

POC	Development Team	Position/Title	Date	Reviewed By	Position/Title
	Michael Allen Philipp	West Region Health and Safety Manager	09/23/05		
			02/02/06	Michael Allen Philipp	West Region Health and Safety Manager
Site specific edits to this JSA were made on and by					
If most recent review date is more than six months old, then this JSA must be updated and reviewed again to remain current					
POC is the JSA development 'Point Of Contact'					
Field staff must review job-specific work plan and coordinate with project manager to verify that all up-front logistics are completed prior to starting work including, but not limited to, permitting, access agreements, and notification to required contacts (e.g. site managers, inspectors, clients, subcontractors, etc.). A tailgate safety meeting must be performed and documented at the beginning of each workday. Plan, Prevent, Execute (PPE)/Safe Performance Self Assessment (SPSA) procedures must be used throughout the project. Weather conditions (heat, cold, rain, lightning) must also be considered. Each employee is empowered, expected, and has the responsibility to stop the work performed by him/herself or another co-worker if the working conditions or behaviors are considered unsafe. All employees should act proactively to identify and mitigate hazards to the safest extent of their ability.					
Job Steps	Personal Protective Equipment	Potential Hazard	Critical Actions		
Clear hand augering locations.	Wear reflective vest for traffic, steel toed and shank shoes, hardhat, safety glasses with side shields, and leather gloves as necessary.	Traffic hazards, overhead and underground installations, product releases, property damage, dealer inconvenience.	<ul style="list-style-type: none"> <li>Reference Utility Clearance Review form (<b>Attachment 4</b>).</li> <li>Coordinate with Site Manger (or designee) to minimize potential conflicts.</li> <li>Review proposed locations against available construction drawings and known utilities, tanks, product lines, etc.</li> <li>Mark out the proposed borehole locations.</li> <li>Call underground utility locating service for public line location clearance and get list of utilities being contacted. If necessary, coordinate private line locator for private property.</li> <li>Develop a traffic guidance and control plan with the client and local agencies as applicable. Plan may include use of delineators, barrier tape, jersey barriers, construction fence, etc. (Refer to <b>Attachment 2</b>).</li> <li><b>It is the responsibility of the SHSO to annotate the Site Plan with the Traffic Guidance and Control configuration if a formally developed Traffic Guidance and Control Plan is not available.</b></li> </ul>		
Mobilize with proper equipment/supplies for hand augering/soil sampling.	Gather necessary PPE: Reflective vest for traffic, steel toed and shank shoes, hard hat, safety glasses with side shields, ear plugs/muffs, leather gloves for the non-chemical aspects	Vehicle accident. Lifting hazards. Delay or improper performance of work due to improper equipment onsite.	<ul style="list-style-type: none"> <li>Start project with Production Safety Meeting (<b>Attachment 6</b>).</li> <li>Follow safe driving procedures.</li> <li>Employ safe lifting procedures.</li> </ul>		

Field staff must review job-specific work plan and coordinate with project manager to verify that all up-front logistics are completed prior to starting work including, but not limited to, permitting, access agreements, and notification to required contacts (e.g. site managers, inspectors, clients, subcontractors, etc.). A tailgate safety meeting must be performed and documented at the beginning of each workday. Plan, Prevent, Execute (PPE)/Safe Performance Self Assessment (SPSA) procedures must be used throughout the project. Weather conditions (heat, cold, rain, lightning) must also be considered. Each employee is empowered, expected, and has the responsibility to stop the work performed by him/herself or another co-worker if the working conditions or behaviors are considered unsafe. All employees should act proactively to identify and mitigate hazards to the safest extent of their ability.

1 Job Steps	2 Personal Protective Equipment	3 Potential Hazard	4 Critical Actions
	<p>of work as necessary: Wear an air purifying respirator with combination organic vapor/P-100 cartridges, and other PPE as needed. (Use a North 7700 series half-face respirator or its equivalent. Best brand nitrile gloves or their equivalent. Howard Leight Max foam earplugs with an NRR of 33 or their equivalent. Tyvek, poly-coated chemical resistant suit or its equivalent).</p>		<ul style="list-style-type: none"> <li>Review permit conditions (if applicable).</li> </ul>
Visually clear proposed hand augering/soil sampling locations.	Wear reflective vest for traffic, steel toed and shank shoes, hardhat, safety glasses with side shields, and leather gloves as necessary.	Underground installations.	<ul style="list-style-type: none"> <li>Complete Pre-Mobilization section of Utility Clearance Review form (<b>Attachment 4</b>) and adjust hand augering locations as necessary.</li> </ul>
Set up necessary traffic guidance and control equipment. See <b>Attachment 2</b> for detailed plan.	Wear reflective vest for traffic, steel toed and shank shoes, hardhat, safety glasses with side shields, and leather gloves as necessary.	Struck by vehicle during placement. Vehicle accident as a result of improper traffic guidance and control equipment placement.	<ul style="list-style-type: none"> <li>Use buddy system for placing traffic guidance and control equipment.</li> <li>Implement traffic guidance and control plan such as setting out delineators, construction fence and caution tape defining safety area.</li> <li>Adhere to approved Traffic Guidance and Control Plans when working in roadways.</li> <li><b>It is the responsibility of the SHSO to annotate the Site Plan with the Traffic Guidance and Control configuration if a formally developed Traffic Guidance and Control Plan is not available.</b></li> </ul>
Set up exclusion zone(s) and workstations (hand augering and logging/sample collection).	Wear reflective vest for traffic, steel toed and shank shoes, hardhat, safety glasses with side shields, and leather gloves as necessary.	Struck by vehicle during set up. Slip, trip and fall hazards.	<ul style="list-style-type: none"> <li>Implement exclusion zone set-up.</li> <li><b>It is the responsibility of the SHSO to annotate the Site Plan with the Exclusion Zone set up.</b></li> <li>Set up workstations with clear walking paths to and from hand augering location.</li> <li>Use delineators, construction fence, and/or safety tape as required.</li> <li>If utilizing Visqueen, (sheet plastic), for sampling area, completely secure Visqueen to the pavement, dirt, etc. with duct tape, delineators, etc. Do not use objects that are hard to notice or could become a trip hazard themselves.</li> </ul>

Field staff must review job-specific work plan and coordinate with project manager to verify that all up-front logistics are completed prior to starting work including, but not limited to, permitting, access agreements, and notification to required contacts (e.g. site managers, inspectors, clients, subcontractors, etc.). A tailgate safety meeting must be performed and documented at the beginning of each workday. Plan, Prevent, Execute (PPE)/Safe Performance Self Assessment (SPSA) procedures must be used throughout the project. Weather conditions (heat, cold, rain, lightning) must also be considered. Each employee is empowered, expected, and has the responsibility to stop the work performed by him/herself or another co-worker if the working conditions or behaviors are considered unsafe. All employees should act proactively to identify and mitigate hazards to the safest extent of their ability.

1 Job Steps	2 Personal Protective Equipment	3 Potential Hazard	4 Critical Actions
Commence hand augering.	Don required PPE as appropriate for this step: steel toed and shank shoes, hard hat, safety glasses with side shields, hearing protection, reflective safety vest, and leather gloves for the non-chemical aspects of work as necessary. Wear chemical resistant gloves during handling of soil. Wear an air-purifying respirator with combination organic vapor/P-100 cartridges if necessary or as directed. (Use a North 7700 series half face respirator or its equivalent. Best brand nitrile gloves or their equivalent. Howard Leight Max foam earplugs with an NRR of 33 or their equivalent. Tyvek poly-coated suit or its equivalent).	Back strain, exposure to chemical hazards, hitting an underground utility, repetitive motion.	<ul style="list-style-type: none"> <li>▪ Initiate air quality monitoring as outlined in <b>Section 12 if required.</b></li> <li>▪ Have appropriate respirator with combination organic vapor/P-100 cartridges within 3-5 feet of work area, readily available.</li> <li>▪ Stand upwind to avoid exposure whenever possible.</li> <li>▪ Use the organic vapor monitor aggressively to track the airborne concentration of contaminants close to potential sources such as the core as it is being raised from the hole, the core is opened, etc.</li> <li>▪ Evaluate any soil samples inside a Ziploc bag at arm's length. DO NOT EVALUATE THE SAMPLE WITH THE BAG OPEN. THIS WILL AVOID UNNECESSARY EXPOSURE.</li> <li>▪ Use proper lifting techniques and tools.</li> <li>▪ Complete the Pre-Drilling section of the Borehole Clearance Review form.</li> <li>▪ Decontaminate sampling equipment after collecting a sample and decontaminate hand augering equipment after each borehole.</li> <li>▪ Avoid twisting back during the operation; Decontaminate equipment after use. Decontamination will be accomplished by an Alconox wash with tap water rinse followed by a de-ionized or distilled water rinse. Collect rinse water in 5 gallon buckets and transfer to 55-gallon drums and stage drums in a location agreed upon by the SHSO and the Property/Station Owner/Manager.</li> </ul>
Collect samples in accordance with sampling plan.	Steel toed and shank shoes, hardhat, safety glasses with side shields, hearing protection, reflective safety vest, and leather gloves for the non-chemical aspects of work as necessary. Wear appropriate air purifying respirator with combination organic vapor/P-100 cartridges (see above) if needed or as directed.	Cross-contamination, improper labeling or storage, exposure to site contaminants.	<ul style="list-style-type: none"> <li>▪ Evaluate any soil samples inside a Ziploc bag at arm's length. DO NOT EVALUATE THE SAMPLE WITH THE BAG OPEN. THIS WILL AVOID UNNECESSARY EXPOSURE.</li> <li>▪ Decontaminate sampling equipment between each sampling run.</li> <li>▪ Label samples in accordance with sampling plan.</li> <li>▪ Keep samples stored in proper containers, at correct temperature, and away from work area.</li> <li>▪ Conduct air monitoring as outlined in <b>Section 12.</b></li> <li>▪ Have appropriate respirator with combination organic vapor/P-100 cartridges within 3-5 feet of work area, readily available.</li> </ul>
Proper clean up and disposal of broken sample container.	Safety glasses Long sleeved shirts Leather Work Gloves Hand Broom and Dust Pan A receptacle for the broken glass (something to contain the broken glass (double garbage bag, a box, or bucket)).	Exposure to broken glass and acid (from water preservation acids) Injury	<ul style="list-style-type: none"> <li>● Isolate area where broken glass is located - STANTEC/Contractor.</li> <li>● Determine if the sample container was preserved (did it have acid in it?) - STANTEC.</li> <li>● Determine what to contain the broken glass in, and where to dispose of the broken glass before beginning to pick up the glass - STANTEC.</li> </ul>

Field staff must review job-specific work plan and coordinate with project manager to verify that all up-front logistics are completed prior to starting work including, but not limited to, permitting, access agreements, and notification to required contacts (e.g. site managers, inspectors, clients, subcontractors, etc.). A tailgate safety meeting must be performed and documented at the beginning of each workday. Plan, Prevent, Execute (PPE)/Safe Performance Self Assessment (SPSA) procedures must be used throughout the project. Weather conditions (heat, cold, rain, lightning) must also be considered. Each employee is empowered, expected, and has the responsibility to stop the work performed by him/herself or another co-worker if the working conditions or behaviors are considered unsafe. All employees should act proactively to identify and mitigate hazards to the safest extent of their ability.

1 Job Steps	2 Personal Protective Equipment	3 Potential Hazard	4 Critical Actions
			<ul style="list-style-type: none"> <li>● Collect equipment needed to clean up and contain the broken glass - STANTEC/Contractor.</li> <li>● Minimize "picking up" broken glass pieces with your gloved hands. Use a dust pan if possible/practical - STANTEC/Contractor.</li> <li>● If broken glass is located inside a container (i.e. box), to the extent practical, leave glass inside box and put entire box into a garbage bag. Double bag if warranted. Place into dumpster - STANTEC/Contractor.</li> <li>● If broken glass is inside a cooler, remove all other sample containers and place in a safe location, then use hand broom and dust pan to sweep up glass in cooler - STANTEC.</li> <li>● After clean up is complete, contact your Project Manager to report this Loss/Incident - STANTEC.</li> </ul>

**Attachment 3**

**RMS-2 Fit for Duty**

**HEALTH, SAFETY, AND ENVIRONMENT  
RMS2- FIELD LEVEL Risk ASSESSMENT (FIT FOR DUTY), 1 day**



Project: TASK ORDER 32 Project No: 185032032  
 Client: CAL TRANS  
 Location: LA-57 LA-210  
 Start Date: \_\_\_\_\_

**Work Description Provide A General Description Of The Work To Be Conducted.**

ADL SAMPLE COLLECTION.

**Documentation and Procedure Review**

1. Risk Management Strategy (RMS1) form and/or Site Specific Health and Safety Plan signed and reviewed?  Yes  No\*
2. Emergency Response Plan reviewed?  Yes  No\*  N/A
3. Tested two-way communications (cell phone, satellite phone) and security measures?  Yes  No\*
4. Attended Client Site Health and Safety meeting?  Yes  No\*  N/A
5. Conducted Stantec site safety meeting with all workforces?  Yes  No\*  N/A
6. Are there any new or unexpected hazards not identified in the RMS1/HASP?  
If yes, include in the Job Safety Analysis (JSA).  Yes  No
7. Working alone or remote work?  
If yes, complete call in/out process – Safe Work form must be completed.  Yes  No

**Notifications and Permits**

8. Are work permits required for this site?  
If yes, have they been completed and submitted as required?  Yes  No  
 Yes  No\*
9. Are utility locates required for this site?  
If yes, have they been completed and reviewed?  Yes  No  
 Yes  No\*
10. Does the Client require any notification prior to starting the work?  
If yes, has the notification been provided?  Yes  No  
 Yes  No\*

**\*Contact your Project Manager immediately.**

**Personal Protective Equipment List specific PPE as needed. Verify type and inspect condition.**

- Head Protection Type: HARD HAT  Hearing Protection: \_\_\_\_\_  Gloves Type: NITRILE / LEATHER
- Foot Protection Type: SAFETY TIE  Respiratory Protection: \_\_\_\_\_  Water Safety Gear: \_\_\_\_\_
- Eye Protection Type: SAFETY GLASS  Fire Retardant Coveralls: \_\_\_\_\_
- High Visibility Vest: REFLECTIVE  Fall Protection: \_\_\_\_\_

**Tools and Equipment List specific equipment to be used. Verify type and inspect condition.**

- SHOVEL / HAND AUGER  GPS
- IPHONE CAMERA  TRAFFIC CONTROL

**HEALTH, SAFETY, AND ENVIRONMENT  
RMS2- FIELD LEVEL Risk ASSESSMENT (FIT FOR DUTY), 1 day**



**Daily Tailgate Discussions/Subcontractor Input**

Start	Time: 0700	Weather: SUNNY / 1975
HEALTH & SAFETY MEETING; NOTIFIED OSEC / PM		
Mid-Day	Time: 1450	Weather: SUNNY / 1975
DEPARTURE FROM SITE; NOTIFIED OSEC / PM		
Post-Day	Time: 1615	Weather: SUNNY / 1975
ARRIVED @ OFFICE / UNLOADED EQUIPMENT AND SAMPLES		

**I know the hazards:**

By signing here, you are stating the following:

- I have been involved in the Job Safety Analysis and understand the hazards and risk control actions associated with each task I am about to perform.
- I understand the permit to work requirements applicable to the work I am about to perform (if it includes permitted activities).
- I am aware that no jobs or work (that is not risk-assessed) is to be performed.
- I am aware of my obligation to "Stop Work" (See Stop Work Section).

**I arrived and departed fit for duty:**

- I am physically and mentally fit for duty.
- I am not under the influence of any type of medication, drugs or alcohol that could affect my ability to work safely.
- I am aware of my responsibility to bring any illness, injury (regardless of where or when it occurred) or fatigue issue I may have to the attention of the Crew Lead.
- I signed out uninjured unless I have otherwise informed the Crew Lead.

Insert fitness level under corresponding time column: Fit for Duty = F      Alternate Plan = AP Team Lead to contact Project Manager for any personnel identified as AP			
Individual Name/Company Name/Signature	Time:	Time:	Time:
SCOTT EDLAP / STANTEC / <i>Scott Edlap</i>	0700 F	1450 F	1615 F
MARK MASON / STANTEC / <i>Mark Mason</i>	0700 F	F	F
Ryan McDanel / Stantec / <i>Ryan McDanel</i>	0700 F	F	/
Tommy Fordig / STANTEC / <i>Tommy Fordig</i>	0700 F	F	F

- I will STOP the job any time anyone is concerned or uncertain about safety.
- I will STOP the job if anyone identifies a hazard or additional mitigation not recorded.
- I will be alert to any changes in personnel or their fitness level (AP), conditions at the work site or hazards.
- If it is necessary to STOP THE JOB, I will reassess the task, hazards and mitigations; then proceed only when safe to do so.



- Remember to**
1. Stop and think
  2. Look around
  3. Assess risk
  4. Control risks
  5. Begin/resume work

Conclusion of day: I certify that the planned work activities are completed for the day and all injuries and first aids have been reported via RMS3.

Signature of Crew Lead: *Scott Edlap*

Date: 02/10/16

Health, Safety and Environment  
**RMS2 – FIELD LEVEL Risk ASSESSMENT (FIT FOR DUTY)**



**o Safety Analysis (JSA) Must be completed for all field activities.**

Basic Job Steps	Potential Hazards	Controls to Reduce or Eliminate Hazard	Person Responsible
LOAD/UNLOAD EQUIPMENT	LOSE FIELD EQUIPMENT SLIPS, TRIPS, FAUS, SPRAINS	SECURE LOAD; PROPER LIFTING	S. REDBLAD M. MARSON T. PANDIG
DRIVING TO AND FROM SITE	TRAFFIC; ACCIDENTS	DEFENSIVE DRIVING	R. MEDANIAN
SAMPLE COLLECTION	HEAT STRESS; BIOLOGICAL; SLIPS, TRIPS, FAUS	PPE; HYDRATION; TRAFFIC CONTROL	

**Review the hazard categories below and check the mitigation measures applicable to the identified scope of work.**

<p><b>Environmental Hazards</b></p> <p>1. Work area clean <input type="checkbox"/></p> <p>2. Material storage identified <input type="checkbox"/></p> <p>3. Dust/Mist/Fume <input type="checkbox"/></p> <p>4. Noise in area <input type="checkbox"/></p> <p>5. Extreme temperatures <input checked="" type="checkbox"/></p> <p>6. Spill potential <input type="checkbox"/></p> <p>7. Waste containers needed <input type="checkbox"/></p> <p>8. Waste properly disposed <input type="checkbox"/></p> <p>9. Waste plan identified <input type="checkbox"/></p> <p>10. Excavation permit required <input type="checkbox"/></p> <p>11. Other workers in area <input type="checkbox"/></p> <p>12. Weather conditions <input type="checkbox"/></p> <p>13. MSDS reviewed <input type="checkbox"/></p>	<p><b>Access/Egress Hazards</b></p> <p>23. Aerial lift/Man basket (inspected &amp; tagged) <input type="checkbox"/></p> <p>24. Scaffold (inspected &amp; tagged) <input type="checkbox"/></p> <p>25. Ladders (tied off) <input type="checkbox"/></p> <p>26. Slips &amp; trips <input type="checkbox"/></p> <p>27. Hoisting (tools, equipment) <input type="checkbox"/></p> <p>28. Evacuation (alarms, routes, ph. #) <input type="checkbox"/></p> <p>29. Confined space entry permit required <input type="checkbox"/></p>	<p><b>Rigging &amp; Hoisting Hazards</b></p> <p>38. Lift study required <input type="checkbox"/></p> <p>39. Proper tools used <input checked="" type="checkbox"/></p> <p>40. Tools inspected <input checked="" type="checkbox"/></p> <p>41. Equipment inspected <input type="checkbox"/></p> <p>42. Slings inspected <input type="checkbox"/></p> <p>43. Others working overhead/below <input type="checkbox"/></p> <p>44. Critical lift permit <input type="checkbox"/></p>
	 <p><b>Remember to</b></p> <p>1. Stop and think</p> <p>2. Look around</p> <p>3. Assess risk</p> <p>4. Control risks</p> <p>5. Begin/resume work</p> <p>Are you ready to work safely?</p>	<p><b>Electrical Hazards</b></p> <p>45. GFI test <input type="checkbox"/></p> <p>46. Lighting levels too low <input type="checkbox"/></p> <p>47. Working on/near energized equipment <input type="checkbox"/></p> <p>48. Electrical cords condition <input type="checkbox"/></p> <p>49. Electrical tools condition <input type="checkbox"/></p> <p>50. Fire extinguisher <input type="checkbox"/></p> <p>51. Hot work or electrical permit required <input type="checkbox"/></p>
<p><b>Ergonomic Hazards</b></p> <p>14. Awkward body position <input checked="" type="checkbox"/></p> <p>15. Over extension <input checked="" type="checkbox"/></p> <p>16. Prolonged twisting/bending motion <input checked="" type="checkbox"/></p> <p>17. Working in a tight area <input type="checkbox"/></p> <p>18. Lift too heavy/awkward to lift <input checked="" type="checkbox"/></p> <p>19. Parts of body in line of fire <input checked="" type="checkbox"/></p> <p>20. Repetitive motion <input checked="" type="checkbox"/></p> <p>21. Hands not in line of sight <input checked="" type="checkbox"/></p> <p>22. Working above your head <input type="checkbox"/></p>	<p><b>Overhead Hazards</b></p> <p>30. Barricades &amp; signs in place <input type="checkbox"/></p> <p>31. Hole coverings identified <input type="checkbox"/></p> <p>32. Harness/lanyard inspected <input type="checkbox"/></p> <p>33. 100% Tie-off with harness <input type="checkbox"/></p> <p>34. Tie off points identified <input type="checkbox"/></p> <p>35. Falling items <input type="checkbox"/></p> <p>36. Foreign bodies in eyes <input type="checkbox"/></p> <p>37. Hoisting or moving loads overhead <input type="checkbox"/></p>	<p><b>Personal Limitations/Hazards</b></p> <p>52. Procedure not available for task <input type="checkbox"/></p> <p>53. Confusing instructions <input type="checkbox"/></p> <p>54. No training for task or tools to be used <input type="checkbox"/></p> <p>55. First time performing the task <input type="checkbox"/></p> <p>56. Micro break (stretching/flexing) <input type="checkbox"/></p> <p>57. Report all injuries to your supervisor <input type="checkbox"/></p>

**It is important that all relevant hazards have plans in place to reduce risk.  
 Be sure that all associated permits are closed off at the end of the job.**

**Remember: Stop and Think**

Reviewed by Name and Signature: Sute Gell

## HEALTH, SAFETY, AND ENVIRONMENT

### RMS2 – FIELD LEVEL Risk ASSESSMENT (FIT FOR DUTY), 5 day



#### Fit for Duty

Safety is influenced by many factors, but the most important is the health and well-being of Stantec's employees and partners. Physical and mental health are just as important as good tools, good practices, and good job planning.

This card is designed to help you do a quick self-assessment of your physical and mental health. Any concerns resulting from your assessment regarding your ability to carry out your job responsibilities safely and in good health need to be discussed with your supervisor before starting work.

- Am I feeling good today and ready to work at my typical level of physical activity and responsibility?
- Do I have any sprains/strains, areas of weakness or soreness?
- Am I managing multiple sources of stress?
- Am I well hydrated?
- Any physically-demanding activities recently (chores, sports, hobbies)?
- Am I well-rested with a good energy level? When did I eat last?
- Am I taking any medications that can make me drowsy or adversely affect my safe performance?
- Any cuts/scrapes are clean and bandaged?
- Did I remember to bring with me my health maintenance medications (blood pressure, diabetes, cholesterol, heart, etc.)?

If your answers to any of the questions above indicate that you may not be ready to work, contact your supervisor immediately to discuss a plan of action.

## LAST-MINUTE RISK ASSESSMENT (LMRA)

### 1. STOP and Think

### 2. Look around

Is the work area safe?  
Will my work endanger others?  
Will other people pose risk?

### 3. Assess risk

Do I clearly understand the task?  
Will lifting or manual handling be required?  
Potential for slips, trips, or falls?  
Are there driving or vehicle concerns?  
Have I considered all underground services?  
Moving or pressurized equipment?  
What could go wrong?

### 4. Control risk

What can I do to control hazards?  
Do I have the right tools?  
Is the SWP (Safe Work Practice) appropriate?  
Do I have the appropriate PPE?  
Are emergency plans in place?

### 5. Begin/Resume work

If you're unsure, talk to your supervisor.



Are you ready to work safely?

**HEALTH, SAFETY, AND ENVIRONMENT  
RMS2 – FIELD LEVEL Risk ASSESSMENT (FIT FOR DUTY), 5 day**



Project: \_\_\_\_\_ Project No: \_\_\_\_\_  
 Client: \_\_\_\_\_  
 Location: \_\_\_\_\_  
 Start Date: \_\_\_\_\_

**Documentation and Procedure Review**

- 11. Risk Management Strategy (RMS1) form and/or Site Specific Health and Safety Plan signed and reviewed?  Yes  No\*
- 12. Emergency Response Plan reviewed?  Yes  No\*  N/A
- 13. Tested two-way communications (cell phone, satellite phone) and security measures?  Yes  No\*
- 14. Attended Client Site Health and Safety meeting?  Yes  No\*  N/A
- 15. Conducted Stantec site safety meeting with all workforces?  Yes  No\*  N/A
- 16. Are there any new or unexpected hazards not identified in the RMS1/HASP?  
*If yes, include in the Job Safety Analysis (JSA).*  Yes  No
- 17. Working alone or remote work?  
*If yes, complete call in/out process – Safe Work form must be completed.*  Yes  No

**Notifications and Permits**

- 18. Are work permits required for this site?  
*If yes, have they been completed and submitted as required?*  Yes  No  
 Yes  No\*
- 19. Are utility locates required for this site?  
*If yes, have they been completed and reviewed?*  Yes  No  
 Yes  No\*
- 20. Does the Client require any notification prior to starting the work?  
*If yes, has the notification been provided?*  Yes  No  
 Yes  No\*

**\*Contact your Project Manager immediately.**

**Work Description Provide a general description of the work to be conducted.**

**Personal Protective Equipment List specific PPE as needed. Verify type and inspect condition.**

<input type="checkbox"/> Head Protection Type: _____	<input type="checkbox"/> Hearing Protection: _____	<input type="checkbox"/> Gloves Type: _____
<input type="checkbox"/> Foot Protection Type: _____	<input type="checkbox"/> Respiratory Protection: _____	<input type="checkbox"/> Water Safety Gear: _____
<input type="checkbox"/> Eye Protection Type: _____	<input type="checkbox"/> Fire Retardant Coveralls: _____	<input type="checkbox"/> _____
<input type="checkbox"/> High Visibility Vest: _____	<input type="checkbox"/> Fall Protection: _____	<input type="checkbox"/> _____

**Tools and Equipment List specific equipment to be used. Verify type and inspect condition.**

<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____
<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____



<b>Date:</b>	<b>Time:</b>	<b>Weather:</b>
Start		
Mid-Day		
Post-Day		
<b>Date:</b>	<b>Time:</b>	<b>Weather:</b>
Start		
Mid-Day		
Post-Day		
<b>Date:</b>	<b>Time:</b>	<b>Weather:</b>
Start		
Mid-Day		
Post-Day		
<b>Date:</b>	<b>Time:</b>	<b>Weather:</b>
Start		
Mid-Day		
Post-Day		
<b>Date:</b>	<b>Time:</b>	<b>Weather:</b>
Start		
Mid-Day		
Post-Day		



**HEALTH, SAFETY, AND ENVIRONMENT**  
**RMS2 – FIELD LEVEL Risk ASSESSMENT (FIT FOR DUTY), 5 day**  
**Job Safety Analysis (JSA) Must be completed for all field activities.**



Basic Job Steps	Potential Hazards	Controls to Reduce or Eliminate Hazard	Person Responsible

**Review the hazard categories below and check the mitigation measures applicable to the identified scope of work.**

<p><b>Environmental Hazards</b></p> <ul style="list-style-type: none"> <li>23. Work area clean</li> <li>24. Material storage identified</li> <li>25. Dust/Mist/Fume</li> <li>26. Noise in area</li> <li>27. Extreme temperatures</li> <li>28. Spill potential</li> <li>29. Waste containers needed</li> <li>30. Waste properly disposed</li> <li>31. Waste plan identified</li> <li>32. Excavation permit required</li> <li>33. Other workers in area</li> <li>34. Weather conditions</li> <li>35. MSDS reviewed</li> </ul>	<p><b>Access/Egress Hazards</b></p> <ul style="list-style-type: none"> <li>38. Aerial life/Man basket (inspected &amp; tagged)</li> <li>39. Scaffold (inspected &amp; tagged)</li> <li>40. Ladders (tied off)</li> <li>41. Slips &amp; trips</li> <li>42. Hoisting (tools, equipment)</li> <li>43. Evacuation (alarms, routes, ph. #)</li> <li>44. Confined space entry permit required</li> </ul>	<p><b>Rigging &amp; Hoisting Hazards</b></p> <ul style="list-style-type: none"> <li>58. Lift study required</li> <li>59. Proper tools used</li> <li>60. Tools inspected</li> <li>61. Equipment inspected</li> <li>62. Slings inspected</li> <li>63. Others working overhead/below</li> <li>64. Critical lift permit</li> </ul>
<p><b>Ergonomic Hazards</b></p> <ul style="list-style-type: none"> <li>36. Awkward body position</li> <li>37. Over extension</li> <li>38. Prolonged twisting/bending motion</li> <li>39. Working in a tight area</li> <li>40. Lift too heavy/awkward to lift</li> <li>41. Parts of body in line of fire</li> <li>42. Repetitive motion</li> <li>43. Hands not in line of sight</li> <li>44. Working above your head</li> </ul>	<div style="text-align: center;">  <p><b>Remember to</b></p> <ol style="list-style-type: none"> <li>1. Stop and think</li> <li>2. Look around</li> <li>3. Assess risk</li> <li>4. Control risks</li> <li>5. Begin/resume work</li> </ol> </div>	<p><b>Electrical Hazards</b></p> <ul style="list-style-type: none"> <li>65. GFI test</li> <li>66. Lighting levels too low</li> <li>67. Working on/near energized equipment</li> <li>68. Electrical cords condition</li> <li>69. Electrical tools condition</li> <li>70. Fire extinguisher</li> <li>71. Hot work or electrical permit required</li> </ul>
	<p><b>Overhead Hazards</b></p> <ul style="list-style-type: none"> <li>45. Barricades &amp; signs in place</li> <li>46. Hole coverings identified</li> <li>47. Harness/lanyard inspected</li> <li>48. 100% Tie-off with harness</li> <li>49. Tie off points identified</li> <li>50. Falling items</li> <li>51. Foreign bodies in eyes</li> <li>52. Hoisting or moving loads overhead</li> </ul>	<p><b>Personal Limitations/Hazards</b></p> <ul style="list-style-type: none"> <li>72. Procedure not available for task</li> <li>73. Confusing instructions</li> <li>74. No training for task or tools to be used</li> <li>75. First time performing the task</li> <li>76. Micro break (stretching/flexing)</li> <li>77. Report <b>all injuries</b> to your supervisor</li> </ul>

**It is important that all relevant hazards have plans in place to reduce risk.  
 Be sure that all associated permits are closed off at the end of the job.**

**Remember: Stop and Think**

Reviewed by Name and Signature: \_\_\_\_\_

## Required Pre-Entry Discussion Topics / Requirements for All Workers and Visitors



Safety rules apply to anyone entering a Stantec workplace or worksite, including employees, supervisors, management and visitors

### **COMPANY SAFETY RULES (REFERENCE: STANTEC'S HSE MANUAL SECTION 1.3)**

- Take reasonable care to protect the health and safety of yourself and others, and the environments in which we all work.
- Consumption of alcohol is only approved during company-sponsored events. Consumption or possession of illegal drugs on company premises, or on any company jobsite, is prohibited.
- Horseplay, fighting or otherwise interfering with other employees is prohibited.
- Theft, vandalism or any other abuses or misuse of company property is prohibited.
- All unsafe acts and conditions, including "near miss" incidents, spills or releases of hazardous materials, property damage, and injuries are to be promptly reported to your supervisor in accordance with Section 12 of the HSE manual, and Section 1.8 of this health and safety plan (HASP).
- Clothing and personal protective equipment (PPE) shall be appropriate to tasks being performed, as determined by hazard assessment (refer to job safety analyses and/or standard operating procedures in Attachment 2 and the work risk assessment tool in Attachment 1 of this HASP).
- All work shall be conducted in accordance with applicable regulatory safety requirements, client safety requirements, and in accordance with Stantec's HSE manual.
- Only use tools, vehicles and equipment that are in good repair, with all guards and safety devices in place, and for which you have sufficient training and experience. Select tools, vehicles and equipment appropriate for the task intended, and use them in compliance with the manufacturer's written instructions.
- Every employee will keep the work area neat, clean and orderly. A floor or other surface used by any employee will be kept free of obstructions, hazards, and accumulations of refuse, snow or ice.
- As a Stantec employee, you are responsible and authorized to STOP work immediately if you become aware of an unsafe act or condition that could place anyone in danger, or if you are not confident in the work plan. Refer to the Stop Work Authority for guidance.

### **DISCUSSION IDEAS FOR THE DAILY PRODUCTION H&S MEETING**

- Emergency response plan, emergency vehicle (full of fuel) and muster point
- Route to medical aid (hospital or other facility)
- Work hours, is night work planned?
- Hand signals around heavy equipment
- Traffic control
- Pertinent Legislation and Regulations
- Above and below ground utilities (energized or de-energized)
- Material Safety Data Sheets (MSDS)
- To who, what, why, and when to report an incident
- Fire extinguisher and First Aid kit locations
- Excavations, trenching sloping and shoring
- Personal protective equipment ( PPE ) and training

## **Required Pre-Entry Discussion Topics / Requirements for All Workers and Visitors**



- Safety equipment and training
- Emergency telephone and telephone numbers (may not be 911)
- Eye wash stations and washroom locations
- Energy lock-out/tag-out procedures. Location of "kill Switches" etc.
- Weather restrictions
- Site security. Site hazards. Is special waste present?
- Traffic and people movements
- Working around machinery (both static and mobile)
- Sources of ignition, static electricity etc.
- Stings, bites, large animals and other naturally related injuries
- Working above grade
- Working at isolated sites
- Decontamination procedures (both personnel and equipment)
- Falls, trips, sprains and lifting injuries (how to prevent)
- Right to refuse unsafe work
- Adjacent property issues (residence, business, school, day care center)
- Hand & glove safety, pinch points, hand positioning

**Required Pre-Entry Discussion Topics /  
Requirements for All Workers and Visitors**



**HEAT STRESS PREVENTION (California addendum) SWp 113c**

**CALIFORNIA OUTDOOR PROJECT HEAT ILLNESS PREVENTION PLAN**

**Scope**

This plan is to ensure all employees working outdoors are properly protected from heat related illness risks and that projects are compliant with Cal/OSHA Heat Illness Prevention standards. This applies to all employees regardless of their duration at the project sites in California when temperatures are expected to be above 80 °F.

This plan is to be reviewed and agreed upon with all onsite staff prior to the start of work, including any subcontractors not operating under their own plan.

Complete this 6 Step plan for all outdoor projects within California.

**Project Info:**

Jobsite Address: LA-57 / LA-210

Today's Task(s): APL SAMPLING

Expected Job Duration: \_\_\_\_\_

**1. PROJECT MANAGEMENT RESPONSIBILITIES & STAFF MEMBERS**

The following supervisors have authority and responsibility for implementing the provisions of this plan at this worksite. (List all staff and responsible supervisors).

Project Manager: ~~KEVIN EDBLAD~~ DANN PELLER Phone: 909 335-6116

Site Supervisor: SCOTT EDBLAD Phone: 661 754 0862

Site Health & Safety Officer: SCOTT EDBLAD Phone: 661 754 0862

**All crew members and subcontractors operating off of this plan (print and sign)**

Name (Print):	Signature:
<u>SCOTT EDBLAD</u>	<u>[Signature]</u>
<u>R. MCDANIEL</u>	
<u>M. MASON</u>	
<u>T. FARGIG</u>	

Use more sheets if necessary.

Review Staff Expectations:

- All Onsite employees to be aware of this plan and its provisions.
- Any employees not in agreement with or not following this plan shall not be allowed to work at this jobsite.
- Discuss "Fit for Duty" aspects; are employees well-rested, hydrated, and acclimatized?

# Required Pre-Entry Discussion Topics / Requirements for All Workers and Visitors



## 2. WATER PROVISION PLAN

Each employee must have available at least 1 quart of clean, cool water per hour before the start of each shift, maintained throughout the day.

Describe how adequate water supplies will be maintained throughout the day for all employees:

Person(s) responsible for water: S. EDBLAD How often checked? daily

### Review Water Provisions Expectations:

- Reusable containers/bottles are to be uniquely marked or identified to avoid potential health exposure between coworkers.
  - Non-water (chemical/industrial) containers are to be clearly labeled to prevent inadvertent consumption.
- Water to be replenished before supplies drop below 1 quart/employee/hour.
- Water to be readily accessible (as close as practical) with multiple stations, if necessary.
- Electrolyte replacement fluids are also suitable. Water must also be maintained.
- Caffeinated/sugary drinks are discouraged. Water consumption is expected regardless.

## 3. ACCESS TO SHADE

Describe how shade will be provided and maintained throughout the day for all employees:

Person(s) responsible for shade: TRUCK / VEHICLE CAB  
S. EDBLAD

### Review Shade Access Expectations:

- Shade is required at 80 °F.
- Shade is to be available at any time (or temperature) if requested by any employee or subcontractor.
- For crews of 4 or more, shade should be provided by pop up canopy, tent, or other appropriate shade structure.
  - Crews of 4 or fewer can utilize vehicle cabs with working A/C as effective means of shade and rest.
  - Multiple vehicles can accommodate up to 4 employees each, rotating if necessary).
- Work must be stopped and rescheduled if access to water or shade is insufficient.
- Employees who are not from the local area and acclimatized are to be closely monitored and given additional breaks. Every employee can take breaks as needed.

# Required Pre-Entry Discussion Topics / Requirements for All Workers and Visitors



## 4. WEATHER MONITORING

Start of project temperature: 65°F Today's Forecasted High Temperature: 85°F  
Describe how temperatures will be monitored throughout the day:

CELL PHONE / VEHICLE

Person(s) responsible for weather monitoring: S. EDWARDS

### Review Weather Monitoring Expectations:

- **Check forecasts prior to the start of work.**
  - On or Offsite PM/Supervisor Monitoring and Communication expected.
- Shade is required at 80 °F.
- High Heat Procedures go into effect at 95 °F or during a Heat Wave (defined below).

## 5. HIGH HEAT AND HEAT WAVE PROCEDURES

These High Heat Procedures go into effect at 95 °F and above, or during a "Heat Wave".

- Heat Waves are defined as: Temperatures above 80 °F, and when temperatures are at least 10°F higher than average high daily temperature of the preceding 5 days.

### **Record time of High Heat or Heat Wave Plan Implementation.**

\_\_\_\_\_ : Stopped Work once temperatures reach 95 °F for a mandatory 10 minute cool-down, rest period and High Heat/Heat Wave procedure discussion.

1. Breaks to be:
  - At least 10 minutes, repeated at least every 2 hours,
  - encouraged to be taken individually by request,
  - Taken as often as employees need based on signs and symptoms.
2. Establish employee buddy system or monitoring plan with frequent communication to be on the lookout for signs and symptoms of heat illness.
  - Direct or electric means of communication will be maintained, so that employees can contact a supervisor when needed.
  - If the supervisor is unable to be near all workers to effectively communicate in person, electronic devices such as cell phone, text messaging, or satellite phone may be used if reception in the area is reliable.

3. Record Break times: \_\_\_\_\_  
/ / / / / / / /

**Note - Any employees who are not acclimatized to the local environment must be closely monitored and directed to take additional rest breaks.**

## 6. EMERGENCY RESPONSE PLANNING

For any heat related illness, dial 911 immediately.

1. Call AllOne Health (800) 350-4511 for any work related injuries/questions/concerns.
2. Notify the project Supervisor/PM once the situation is stabilized and care has begun.
3. Follow Stantec's Injury Reporting protocol, report the incident to the RSEC within 1 hour, with a RMS3 (Incident Report) to be submitted to [HSE@stantec.com](mailto:HSE@stantec.com) within 24 hours.

# Required Pre-Entry Discussion Topics / Requirements for All Workers and Visitors

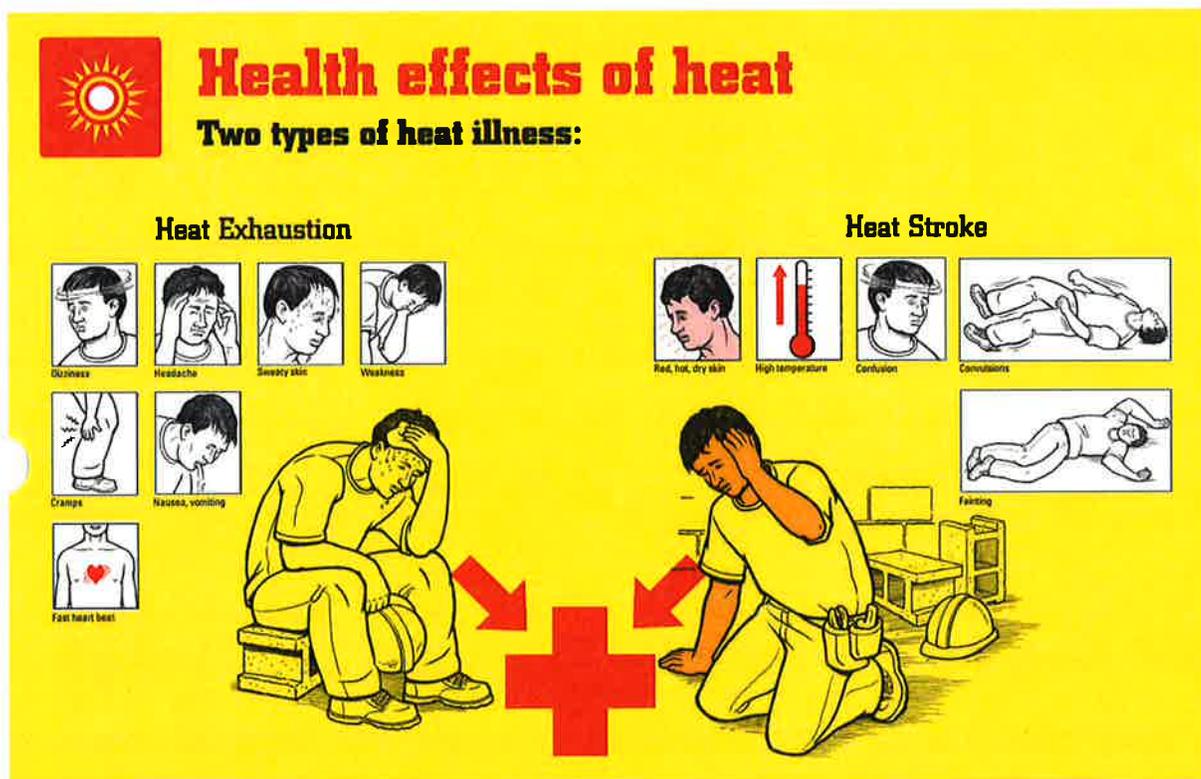


## Record time of Emergency Planning step.

\_\_\_\_\_ Daily Tailgate/RMS2 Emergency planning discussion held.

### Review Heat Illness Signs and Symptoms, and Emergency Response Plan expectations:

- Review site layout and emergency protocols as described in the HASP, or RMS1.
- Review each step of this plan with all site workers regardless of arrival time or duration onsite when temperatures are expected to be above 80 °F.
- Review Heat Illnesses Signs and Symptoms.



## 6.0 REVISION HISTORY

Date	Change	Acknowledgments
20150617	Created	Clint Reuter/Brandon Barnes
	Reviewed	Pending
	Posted to StanNet	Pending

**Attachment 4**

**Driver's Fatigue Checklist /Safe Driving Vehicle Pre-Use Checklist**

# Too tired to drive?

A road safety initiative of RACV, Rural Ambulance Victoria and Metropolitan Ambulance Service

## Driver Fatigue Checklist

Before you drive, answer these questions to make sure you are not too tired to drive.

	Yes	No
Have you been getting full nights of restful sleep over the past week? <i>When you don't get enough sleep you acquire sleep debt. The only way to repay the debt is by sleeping.</i>	<input type="checkbox"/>	<input type="checkbox"/>
Are you setting off on a trip after a good night's sleep, rather than after a full day at work? <i>Being awake for 17 hours has the same effect on driving as having a BAC (Blood Alcohol Concentration) of .05, doubling your risk of crashing. After 24 hours the BAC equivalent is 0.1, equating to a 7 times greater risk of crashing than someone who is well rested.</i>	<input type="checkbox"/>	<input type="checkbox"/>
Are you planning to start your trip after 6am, rather than starting out earlier when you would normally be asleep? <i>Your body naturally wants to sleep between about 1am and 6am greatly increasing your risk of crashing, at those times.</i>	<input type="checkbox"/>	<input type="checkbox"/>
Have you allowed time in your trip to stop and rest if you feel tired? <i>Regular breaks every 2 hours will help maintain vigilance, however, the only way to combat fatigue is to sleep.</i>	<input type="checkbox"/>	<input type="checkbox"/>
Do you stop and have a Powernap if you feel tired while driving? <i>Stopping for a 15 to 30 minute sleep or Powernap when you are tired is effective in alleviating the short-term effects of fatigue, but ensure you allow time to recover from your sleep before commencing to drive.</i>	<input type="checkbox"/>	<input type="checkbox"/>
Are you sure that you do not suffer from a sleeping disorder, such as sleep apnoea? <i>2% of people suffer from the most common sleep disorder, sleep apnoea. Men over 50, particularly those overweight, are most at risk.</i>	<input type="checkbox"/>	<input type="checkbox"/>

If you have answered "no" to any of these questions you may be at risk of fatigue.



# Too tired to drive?

## What is fatigue?

Driver fatigue contributes to more than 25 per cent of all road crashes in Victoria.

### Two main causes:

- lack of quality sleep
- driving at times when you would normally be asleep.

### Protect yourself from having a fatigue-related crash by:

- making sure you regularly get enough sleep
- being aware of the fatigue high crash risk times when driving between 1am-6am
- not starting a long trip after a long day's work
- planning your trip so you can take regular breaks
- seeking medical advice if you often feel sleepy
- being aware of the effects of any medication taken.

### Once you're on the road:

- regular rest breaks to help keep you alert, but if you feel tired, the only way to keep safe is to stop and sleep
- eat proper and well-balanced meals, preferably at your normal meal times.

**If you feel tired when driving, take a Powernap (sleep for 15 to 30 minutes), but allow time to recover from your sleep before commencing to drive.**

**Don't be fooled by myths about fatigue! The following common beliefs about fatigue are untrue:**

- myth** – Coffee is the best way to combat fatigue.  
*Coffee only provides short-term benefits; once its effects wear off, you suffer from sleep rebound, which is a major cause of crashes.*
- myth** – Playing music will help keep me alert.  
*This is only a short-term benefit.*
- myth** – Plenty of fresh air through the window will help keep me alert.  
*This is only a short-term benefit.*
- myth** – Young people need less sleep.  
*In fact, drivers under 25 years of age are over-represented in fatigue crashes.*
- myth** – I know when I am tired, or when I am having "sleep attacks".  
*The danger is that you only find out how tired you are when it's too late.*

**The only cure for fatigue is sleep**

**HEALTH, SAFETY AND ENVIRONMENT**

**SAFE DRIVING – VEHICLE PRE-USE CHECKLIST**

**SWP 124A**

Employee Name: *SCOTT EDLAD*

Region/Business Unit: *1858*

Date: *02/10/16*

Time: *0530*

Vehicle Color: *SILVER*

Vehicle Make/Model: *DODGE RAM*

Vehicle License Plate Number: *51705X1*

Job: *18583032*

Job #: # of Km or Mi Driven

Job:

Job #: # of Km or Mi Driven

Odometer Start:

Odometer Stop:

Total Km or Mi Driven:

Stantec Vehicle

Rental

Personal Vehicle

**Perimeter Walk Around:**

**Item is OK**

**Item is NOT OK**

Check for signs of vandalism, negligence, damage or unusual conditions	<i>X</i>	
Check all tires for excessive and unusual wear and proper inflation – include the spare tire if accessible	<i>X</i>	
Check under vehicle for signs of leaking fluids	<i>X</i>	
Check wiper blades (Do they work? Do they need replacement?)	<i>X</i>	
Check all light systems – brake, head, back-up, running, turn signals, emergency flashers	<i>X</i>	
Check to make sure doors, truck/toolbox lids, tailgates all open and close properly	<i>X</i>	
(Make sure you have keys to any toolboxes that you may need to access)	<i>X</i>	

**Check Gauges on Dashboard:**

Fuel Level	<i>X</i>	
Oil light	<i>X</i>	
Engine Coolant Temperature Gauge	<i>X</i>	
Service Indicator Lights	<i>X</i>	
Battery Charge Indicator	<i>X</i>	

**HEALTH, SAFETY AND ENVIRONMENT**

**SAFE DRIVING – VEHICLE PRE-USE CHECKLIST**

**SWP 124A**

**Inside Vehicle:**

Make sure seatbelts are present for all who will be riding in the vehicle	X	
Secure all cargo in the vehicle so that items will not become projectiles in the event of sudden stops or collisions	X	
Adjust the seat position, rearview and side mirrors	X	
Adjust temperature controls, vents, radio, etc.	X	

**If Pulling a Trailer:** *Na*

Is trailer properly hitched to the vehicle (including safety chains)		
All lights are working properly		
Proper trailer for the load (check weight specifications) and load is balanced. If you anticipate the load is near the trailer weight limit, weigh the trailer at a weigh station		
Are tires in good condition and properly inflated?		

Notify the vehicle manager or rental company if you feel that any deficiencies are unsafe and DO NOT drive the vehicle

Signature:

*John Kelly*

**HEALTH, SAFETY AND ENVIRONMENT**

**SAFE DRIVING – VEHICLE PRE-USE CHECKLIST**

**SWP 124A**

**1 REVISION HISTORY**

<b>Date</b>	<b>Change</b>	<b>Acknowledgments</b>
2010/02/23	Changed HSE to SWP; reformatted header and footer; added revision history	GD
20121015	Updated and reviewed by PS	KDR

**Attachment 5**  
**RMS-3 incident/Near Miss Investigation and Collision Kit**



# INCIDENT REPORT – RMS 3

**Incidents involving injury, potential injury, or report of pain, soreness, or discomfort must be reported immediately (within one hour) to a supervisor. Supervisors will then immediately contact their HSE representative to develop a plan for assessment and care.** This form must be completed and **submitted within 24 hours** of any incident. Do not delay submission waiting for signatures. **Email to [hse@stantec.com](mailto:hse@stantec.com) or fax unsigned report to (780) 969-2030** and file locally in compliance with the corporate [records retention policy and practices](#) once all signatures have been obtained.

This document contains privileged and confidential information prepared at the request of Stantec's Legal Counsel. The contents of this report are restricted to HR personnel, Risk Management Representatives, Project Manager and PC Leader, and Stantec's Insurer, Adjuster and Legal Counsel. Information collected will be used solely for the purpose of meeting the requirements of Stantec's HSE and insurance programs, complying with applicable legislation, and will be used in accordance with any governing privacy legislation. The information collected will be maintained electronically and may be included in required reports.

SECTION 1: GENERAL INFORMATION			
Office location:		BC number:	
Location of incident:			
Incident date and time:		Date and time reported:	
Project name:		Project number:	
Client Name:			
Person in charge:		Person in Charge Phone:	

SECTION 2: STANTEC EMPLOYEE INFORMATION (If more than one identify extras in incident details below)			
Name:		Phone:	
Job position:		Group name:	
Time employee began work:		Job Experience (in years)	
Type of employment:	Full Time <input type="checkbox"/> ; Visitor <input type="checkbox"/> ; Contract <input type="checkbox"/> ; Volunteer <input type="checkbox"/> ; Seasonal <input type="checkbox"/>		
Supervisor:		Supervisor Phone:	

SECTION 3: INCIDENT DETAILS			
Type of Incident:	<i>*Incident types marked with an asterisk, please complete pages 1 and 4 only</i>		
	<b>See StanNet for a list of <a href="#">Incident Type Definitions</a></b>		
<input type="checkbox"/> *Report Only	<input type="checkbox"/> *Hazard Identification	<input type="checkbox"/> *Near Miss	
<input type="checkbox"/> First Aid	<input type="checkbox"/> Motor Vehicle Incident	<input type="checkbox"/> 3 <sup>rd</sup> Party Incident (i.e., Public)	
<input type="checkbox"/> Medical Aid – No Lost Time	<input type="checkbox"/> Property Damage - Vehicle	<input type="checkbox"/> Spill or Release	
<input type="checkbox"/> Restricted Work	<input type="checkbox"/> Property Damage - Other	<input type="checkbox"/> Utility Strike	
<input type="checkbox"/> Lost Time	<input type="checkbox"/> Theft	<input type="checkbox"/> Fire/Explosion/Flood	
<input type="checkbox"/> Fatality	<input type="checkbox"/> Contractor Recordable Incident	<input type="checkbox"/> Stop Work Authority	
<input type="checkbox"/> Violence or Harassment	<input type="checkbox"/> Non-compliance	<input type="checkbox"/> Other (specify details below)	
Describe incident in detail: (include any issues related to people, equipment, materials, environment, and processes)			
Immediate corrective actions taken:			

Canada East (Atlantic) – Neil Clements (506-639-2961); Canada East (ON/QC) – Jim Elkins (613-404-8508); Canada Prairie & Mountain – Yvonne Beattie (780-616-8909); International – Kev Metcalfe (780-231-2185); US Northeast & South – Fred Miller (610-235-7315); US Midwest & Mid-Atlantic - Keith Kuhlmann (740-816-6170); US West – Clint Reuter (818-395-8556)



# INCIDENT REPORT – RMS 3

SECTION 4: MEDICAL INFORMATION																																																	
Name of first aid attendant:	Injury recorded in first aid log? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>																																																
Description of first aid or medical treatment administered:																																																	
Clinic/hospital sent to:																																																	
Attending physician/paramedic (if known):																																																	
<b>Area of Injury – Please check all that apply:</b>																																																	
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<input type="checkbox"/> Elbow	<input type="checkbox"/>	<input type="checkbox"/> Finger(s)	<input type="checkbox"/>	<input type="checkbox"/> Knee	<input type="checkbox"/>	<input type="checkbox"/> Toe(s)	<input type="checkbox"/>																																										
<input type="checkbox"/> Forearm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Lower Leg	<input type="checkbox"/>																																												
Has the injured employee had a previous similar injury or disability?    Yes <input type="checkbox"/> No <input type="checkbox"/>																																																	

SECTION 5: PROPERTY OR VEHICLE DAMAGE: STANTEC	
Ownership Details (choose one):	<input type="checkbox"/> Rented (attach rental agreement) <input type="checkbox"/> Stantec Owned <input type="checkbox"/> Personal (employee vehicle)
Year, Make, and Model of Vehicle:	Vehicle ID # (VIN)
Nature of damage:	Estimated cost of damage: \$
Description of damaged property:	
Attending police officer (if known):	Badge #:
Copy of police report received	Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, file number: (attach copy of police report)
PROPERTY OR VEHICLE DAMAGE: 3 <sup>RD</sup> PARTY	
Name of owner and contact number:	
Year, Make, and Model of Vehicle:	License Plate Number:
Insurer and Policy Number:	
Injured parties? Yes <input type="checkbox"/> No <input type="checkbox"/>	If yes, describe injuries:
Diagram or photographs attached?	Yes <input type="checkbox"/> No <input type="checkbox"/>

WITNESS INFORMATION - #1	
Name:	Phone Number:
Witness statement provided?	Yes (attached) <input type="checkbox"/> No <input type="checkbox"/>

WITNESS INFORMATION - #2	
Name:	Phone Number:
Witness statement provided?	Yes (attached) <input type="checkbox"/> No <input type="checkbox"/>

SECTION 6: SPILL OR RELEASE	
Substance:	
Quantity:	Employee(s) exposed via: <input type="checkbox"/> Inhalation <input type="checkbox"/> Contact <input type="checkbox"/> Ingestion <input type="checkbox"/> n/a
Off-site impacts observed or anticipated?	Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, describe:
Name of regulatory agencies contacted:	
Contact name, number, date and time of call:	

Canada East (Atlantic) – Neil Clements (506-639-2961); Canada East (ON/QC) – Jim Elkins (613-404-8508); Canada Prairie & Mountain – Yvonne Beattie (780-616-8909); International – Kev Melcalfe (780-231-2185); US Northeast & South – Fred Miller (610-235-7315); US Midwest & Mid-Atlantic – Keith Kuhlmann (740-816-6170); US West – Clint Reuter (818-395-8556)

SECTION 7: ANALYSIS		
IMMEDIATE/DIRECT CAUSES		
<b>A. UNSAFE ACTIONS (check off as many as necessary)</b>		
<input type="checkbox"/> Operating equipment without authority	<input type="checkbox"/> Failing to use personal protective equipment properly	<input type="checkbox"/> Failure to identify hazard or risk
<input type="checkbox"/> Failure to warn	<input type="checkbox"/> Improper loading	<input type="checkbox"/> Inattention
<input type="checkbox"/> Failure to secure	<input type="checkbox"/> Improper placement	<input type="checkbox"/> Failure to communicate
<input type="checkbox"/> Operating at improper speed	<input type="checkbox"/> Improper lifting or handling	<input type="checkbox"/> Other: Specify
<input type="checkbox"/> Making safety devices inoperative	<input type="checkbox"/> Improper position for a task	
<input type="checkbox"/> Removing safety devices	<input type="checkbox"/> Servicing equipment in operation	
<input type="checkbox"/> Using defective/improper equipment	<input type="checkbox"/> Horseplay	
<input type="checkbox"/> Using equipment improperly	<input type="checkbox"/> Failure to follow procedure, policy or practice	
<b>B. UNSAFE CONDITIONS (check off as many as necessary)</b>		
<input type="checkbox"/> Inadequate guards/barriers	<input type="checkbox"/> Radiation exposure	<input type="checkbox"/> Inadequate information/data
<input type="checkbox"/> Improper/inadequate PPE	<input type="checkbox"/> High or low temperature exposures	<input type="checkbox"/> Inadequate preparation/planning
<input type="checkbox"/> Defective tools or equipment	<input type="checkbox"/> Inadequate or excess illumination	<input type="checkbox"/> Inadequate support/assistance
<input type="checkbox"/> Congested work area	<input type="checkbox"/> Inadequate ventilation	<input type="checkbox"/> Road conditions
<input type="checkbox"/> Inadequate warning system	<input type="checkbox"/> Presence of harmful materials	<input type="checkbox"/> Weather conditions
<input type="checkbox"/> Fire and explosion hazards	<input type="checkbox"/> Inadequate instructions/procedures	<input type="checkbox"/> Other: Specify
<input type="checkbox"/> Poor housekeeping; disorder	<input type="checkbox"/> Hazardous environmental conditions; gases, dusts, smokes, fumes, vapours	
<input type="checkbox"/> Noise exposure		
BASIC/ROOT CAUSES		
<b>C. PERSONAL FACTORS (check off as many as necessary)</b>		
<input type="checkbox"/> Inadequate physical capability	<input type="checkbox"/> Mental stress	<input type="checkbox"/> Lack of knowledge
<input type="checkbox"/> Physical stress	<input type="checkbox"/> Lack of skill	<input type="checkbox"/> Other: Specify
<b>D. JOB FACTORS (check off as many as necessary)</b>		
<input type="checkbox"/> Inadequate leadership or supervision	<input type="checkbox"/> Inadequate maintenance (scheduled or preventative)	<input type="checkbox"/> Excessive wear and tear
<input type="checkbox"/> Inadequate engineering	<input type="checkbox"/> Inadequate tools or equipment	<input type="checkbox"/> Inadequate communications
<input type="checkbox"/> Inadequate purchasing	<input type="checkbox"/> Inadequate work standards	<input type="checkbox"/> Improper motivation
<input type="checkbox"/> Abuse or misuse	<input type="checkbox"/> Other: Specify	

SECTION 8: FOLLOW-UP				
<b>Short-term:</b>	<b>Corrective Action</b>	<b>Assigned To</b>	<b>Target Date</b>	<b>Completion Date</b>
<b>Long-term:</b>	<b>Corrective Action</b>	<b>Assigned To</b>	<b>Target Date</b>	<b>Completion Date</b>

Canada East (Atlantic) – Neil Clements (506-639-2961); Canada East (ON/QC) – Jim Elkins (613-404-8508); Canada Prairie & Mountain – Yvonne Beattie (780-616-8909); International – Kev Metcalfe (780-231-2185); US Northeast & South – Fred Miller (610-235-7315); US Midwest & Mid-Atlantic – Keith Kuhlmann (740-816-6170); US West – Clint Reuter (818-395-8556)

REVIEW COMMENTS		
<b>Involved Employee Comments:</b>		
Signature:	Print Name:	Date:
Job Title:		
<b>Lead Investigator Comments:</b>		
Signature:	Print Name:	Date:
Job Title:		
<b>Supervisor/Project Manager:</b>		
Signature:	Print Name:	Date:
Job Title:		
<b>HSE Representative (OSEC/JH&amp;S Committee/RSEC/HSE Manager):</b>		
Signature:	Print Name:	Date:
Job Title:		
<b>Management Review:</b>		
Signature:	Print Name:	Date:
Job Title:		
<b>Client Review (if required):</b>		
Signature:	Print Name:	Date:
Job Title:		
<b>Additional Comments:</b>		

Canada East (Atlantic) – Neil Clements (506-639-2961); Canada East (ON/QC) – Jim Elkins (613-404-8508); Canada Prairie & Mountain – Yvonne Beattie (780-616-8909); International – Kev Metcalfe (780-231-2185); US Northeast & South – Fred Miller (610-235-7315); US Midwest & Mid-Atlantic – Keith Kuhlmann (740-816-6170); US West – Clint Reuter (818-395-8556)

**Contact information.**

Immediately Call Corporate HSE, and Practice & Risk Management, and (if injuries) Human Resources.

Health, Safety & Environment: Call:

Clint Reuter                      Office (626) 584-1599      Cell (818) 395-8556

Practice & Risk Management: Fax unsigned report to (780) 969-2030

Human Resources: **For Injuries Only** contact the Human Resources Rep. for your region:

US East: Jennie Moore

Jennie Moore: Phone: (585) 413-5241, Cell: (585) 613-8022, Fax: (585) 272-7442,

E-Mail: [jennie.moore@stantec.com](mailto:jennie.moore@stantec.com).

US West: Peggy Ramos

Peggy Ramos: Phone: (949) 923-6061, Fax: (949) 923-6015,

E-Mail: [peggy.ramos@stantec.com](mailto:peggy.ramos@stantec.com)

US Mtn Desert: (Arlington, Houston, Midland, Phoenix, Scottsdale, Ponca City SLC): Shannon Drake

Shannon Drake: Phone: (602) 707-4627, Fax (602) 532-7784,

E-Mail: [Shannon.Drake@stantec.com](mailto:Shannon.Drake@stantec.com)

US Mtn Desert: (Dallas, Fort Worth, Denver, Fort Collins, Golden, Las Vegas, Reno, Oklahoma City, Tucson) Sheryl Appelt

Sheryl Appelt: Phone: (602) 707-9495, Fax (602) 926-2217,

E-Mail: [Sheryl.Appelt@stantec.com](mailto:Sheryl.Appelt@stantec.com)

Fax and/or scan-email report to all three.

## VEHICLE COLLISION KIT

### Stantec Vehicle Collision Kit

The following items should be enclosed in an envelope in the glove box of all Stantec vehicles:

- Vehicle Registration Card
- Vehicle Insurance Card with name and phone number of agent
- Name of Preferred Body Shop or Maintenance Facility to take damaged vehicle (usually nearest Dealership)
- Owner's Manual
- Disposable Camera
- Note Pad and Pen

#### WHAT TO DO AFTER A COLLISION:

Auto collisions: Even the most careful drivers may be involved. Knowledge of what to do **after** the collision can make the experience a little less frightening and decrease the chance of unnecessary complications.

#### After a Collision

- Check for injuries. Life and health are more important than damage to vehicles.
- Make note of specific damages to all vehicles involved.
- Write down the names, addresses and license numbers of persons involved in the collision. Also, write a description of the other vehicles.
- Call the police, even if the collision is minor.
- Jot down names and addresses of anyone who may have witnessed the collision. This can prevent disagreement concerning how the collision actually happened.

#### Other Do's and Don'ts

- DO jot down details about the collision, the location, and circumstances such as weather conditions and visibility.
- DO notify your insurance agent about the collision immediately.
- DON'T sign any document unless it is for the police or your insurance agent.

**Remember that a Stantec incident investigation form must also be completed following any collision. The collision must be reported to the Stantec Project Manager in addition to the following people:**

#### Practice and Risk Management :

Fax: 780-969-2030

Clint Reuter

Office (626) 584-1599

Cell (818) 395-8556



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)  
05/01/2015

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER  AON REED STENHOUSE INC. AON RISK SERVICES CENTRAL, INC. 900 - 10025 - 102A AVENUE EDMONTON, AB T5J 0Y2	CONTACT NAME ANDREA OTTO	FAX (A/C, No): 1-312-381-6608	
	PHONE (A/C, No, Ext): 1-952-807-0679	E-MAIL ADDRESS: ANDREA.OTTO@AON.COM	
INSURED  STANTEC CONSULTING SERVICES INC. 25864-F BUSINESS CENTER DRIVE, REDLANDS, CA 92374	INSURER(S) AFFORDING COVERAGE		NAIC #
	INSURER A: ZURICH AMERICAN INSURANCE COMPANY		16535
	INSURER B: SENTRY INSURANCE A MUTUAL COMPANY		24988
	INSURER C: ZURICH INSURANCE COMPANY		
	INSURER D: SENTRY INSURANCE A MUTUAL COMPANY		24988
	INSURER E:		
	INSURER F:		

## COVERAGES

CERTIFICATE NUMBER: 637

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATION MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	GENERAL LIABILITY		GLO5415704  XCU COVER INCLUDED	05/01/15	05/01/16	EACH OCCURRENCE \$ 2,000,000
	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY					DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 300,000
	<input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR					MED EXP (Any one person) \$ 10,000
	<input checked="" type="checkbox"/> CONTRACTUAL/CROSS LIABILITY					PERSONAL & ADV INJURY \$ 2,000,000
	<input checked="" type="checkbox"/> OWNERS & CONTRACTORS PROTECTIVE					GENERAL AGGREGATE \$ 4,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:					PRODUCTS - COM/OP AGG \$ 2,000,000
	POLICY <input checked="" type="checkbox"/> PROJECT <input checked="" type="checkbox"/> LOC					\$
B	AUTOMOBILE LIABILITY		90-17043-08	05/01/15	05/01/16	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000
	<input checked="" type="checkbox"/> ANY AUTO					BODILY INJURY (Per person) \$
	<input type="checkbox"/> ALL OWNED AUTOS	<input type="checkbox"/> SCHEDULED AUTOS				BODILY INJURY (Per accident) \$
	<input type="checkbox"/> HIRED AUTOS	<input type="checkbox"/> NON-OWNED AUTOS				PROPERTY DAMAGE (Per accident) \$
						\$
C	<input checked="" type="checkbox"/> UMBRELLA LIAB	<input checked="" type="checkbox"/> OCCUR	8831307 EXCESS GENERAL, AUTO AND EMPLOYERS LIABILITY (FOLLOW FORM)	05/01/15	05/01/16	EACH OCCURRENCE \$ 5,000,000
	<input checked="" type="checkbox"/> EXCESS LIAB	<input type="checkbox"/> CLAIMS-MADE				AGGREGATE \$ 5,000,000
	<input type="checkbox"/> DED	<input checked="" type="checkbox"/> RETENTION \$10,000				\$
D	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY		90-17043-06	05/01/15	05/01/16	<input checked="" type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTHER
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> N/A				E.L. EACH ACCIDENT \$ 1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below					E.L. DISEASE - EA EMPLOYEE \$ 1,000,000
						E.L. DISEASE - POLICY LIMIT \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

REDLANDS, CA.

## CERTIFICATE HOLDER

## CANCELLATION

TO WHOM IT MAY CONCERN

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

*Andrea R. Otto*

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**APPENDIX B**  
**BORING GPS COORDINATES**

**APPENDIX B**  
**BORING GPS COORDINATES**  
**SITE INVESTIGATION FOR STABILIZING SOIL EROSION**  
**LA-57 (PM R1.95/5.61); LA-210 (PM 37.81/R45.46)**  
**LOS ANGELES COUNTY, CALIFORNIA**  
**EFIS:07-1300-0436 (EA#300301)**  
**TASK ORDER #32**  
**CONTRACT 07A3322**

Boring ID	Latitude <sup>1</sup> (degrees north)	Longitude <sup>1</sup> (degrees west)	Latitude <sup>+</sup> (decimal degrees north)	Longitude <sup>+</sup> (decimal degrees west)
<b>LA-57 (PM R1.95): Diamond Bar Boulevard Undercrossing</b>				
1315-101	33 ° 58 ' 05.465	117 ° 50 ' 55.573	33.96818472	117.84877028
1315-102	33 ° 58 ' 06.532	117 ° 50 ' 57.471	33.96848111	117.84929750
1315-103	33 ° 58 ' 06.231	117 ° 50 ' 55.069	33.96839750	117.84863028
1315-104	33 ° 58 ' 07.475	117 ° 50 ' 56.999	33.96874306	117.84916639
<b>LA-57 (PM 2.52): Cold Spring Lane Undercrossing</b>				
1315-105	33 ° 58 ' 30.773	117 ° 50 ' 35.164	33.97521472	117.84310111
1315-106	33 ° 58 ' 31.913	117 ° 50 ' 37.256	33.97553139	117.84368222
1315-107	33 ° 58 ' 31.166	117 ° 50 ' 34.794	33.97532389	117.84299833
1315-108	33 ° 58 ' 32.440	117 ° 50 ' 37.040	33.97567778	117.84362222
<b>LA-57 (PM 3.17): Pathfinder Road Overcrossing</b>				
1315-109	33 ° 58 ' 02.904	117 ° 50 ' 32.840	33.96747333	117.84245556
1315-110	33 ° 59 ' 02.816	117 ° 50 ' 35.088	33.98411556	117.84308000
1315-111	33 ° 59 ' 04.260	117 ° 50 ' 33.445	33.98451667	117.84262361
1315-112	33 ° 59 ' 04.168	117 ° 50 ' 35.444	33.98449111	117.84317889
<b>LA-57 (PM 4.98): Sunset Crossing Road Undercrossing</b>				
1315-113	34 ° 01 ' 43.161	117 ° 48 ' 40.086	34.02865583	117.81113500
1315-114	34 ° 01 ' 43.973	117 ° 48 ' 42.325	34.02888139	117.81175694
1315-115	34 ° 01 ' 43.905	117 ° 48 ' 39.800	34.02886250	117.81105556
1315-116	34 ° 01 ' 44.625	117 ° 48 ' 41.945	34.02906250	117.81165139
<b>LA-57 (PM 5.61): State Street Overcrossing</b>				
1315-117	34 ° 02 ' 11.504	117 ° 48 ' 21.849	34.03652889	117.80606917
1315-118	34 ° 02 ' 12.410	117 ° 48 ' 23.324	34.03678056	117.80647889
1315-119	34 ° 02 ' 12.440	117 ° 48 ' 21.046	34.03678889	117.80584611
1315-120	34 ° 02 ' 13.027	117 ° 48 ' 22.903	34.03695194	117.80636194

**APPENDIX B**  
**BORING GPS COORDINATES**  
**SITE INVESTIGATION FOR STABILIZING SOIL EROSION**  
**LA-57 (PM R1.95/5.61); LA-210 (PM 37.81/R45.46)**  
**LOS ANGELES COUNTY, CALIFORNIA**  
**EFIS:07-1300-0436 (EA#300301)**  
**TASK ORDER #32**  
**CONTRACT 07A3322**

Boring ID	Latitude <sup>1</sup> (degrees north)	Longitude <sup>1</sup> (degrees west)	Latitude <sup>1</sup> (decimal degrees north)	Longitude <sup>1</sup> (decimal degrees west)
<b>LA-210 (PM 37.86): Irwindale Avenue Overcrossing</b>				
1315-121	34 ° 7 ' 46.278	117 ° 56 ' 2.204	34.12952162	117.93394561
1315-122	34 ° 7 ' 48.035	117 ° 56 ' 1.977	34.13000967	117.93388239
1315-123	34 ° 7 ' 46.821	117 ° 56 ' 0.068	34.12967246	117.93335234
1315-124	34 ° 7 ' 48.509	117 ° 56 ' 0.193	34.13014146	117.93338681
<b>LA-210 (PM R38.58): Zachary Padilla Avenue Overcrossing</b>				
1315-125	34 ° 7 ' 42.524	117 ° 55 ' 19.127	34.12847893	117.92197964
1315-126	34 ° 7 ' 44.092	117 ° 55 ' 19.038	34.12891434	117.92195512
1315-127	34 ° 7 ' 42.183	117 ° 55 ' 17.698	34.12838408	117.92158269
1315-128	34 ° 7 ' 43.774	117 ° 55 ' 17.583	34.12882614	117.92155088
<b>LA-210 (PM 38.96): Vernon Avenue Overcrossing</b>				
1315-129	34 ° 7 ' 34.325	117 ° 54 ' 58.690	34.12620136	117.91630278
1315-130	34 ° 7 ' 36.033	117 ° 54 ' 58.019	34.12667578	117.91611648
1315-131	34 ° 7 ' 33.273	117 ° 54 ' 57.586	34.12590909	117.91599603
1315-132	34 ° 7 ' 34.868	117 ° 54 ' 56.837	34.12635215	117.91578802
<b>LA-210 (PM 44.38): Route 57 Southbound Interchange</b>				
1315-133	34 ° 7 ' 12.846	117 ° 49 ' 24.347	34.12023490	117.82342985
1315-134	34 ° 7 ' 14.555	117 ° 49 ' 21.066	34.12070982	117.82251829
1315-135	34 ° 7 ' 12.821	117 ° 49 ' 23.548	34.12022800	117.82320773
1315-136	34 ° 7 ' 14.207	117 ° 49 ' 20.715	34.12061311	117.82242083

Notes: <sup>1</sup> North American Datum 83 (WGS 84)

**APPENDIX C  
PHOTOGRAPHIC LOG**

STANTEC CONSULTING SERVICES  
PHOTOGRAPHIC RECORD

Client: Caltrans (07A3322-32)

Job Number: 185832032

Site Name: Task Order No. 32

Location: LA-57, PM R1.95/5.61; LA-210, PM 37.81/R45.46

Photographer: S. Edblad/M. Mason

Date: February 10, 2016

Photograph No. 1 & 2



Boring 1315-101 and 1315-102 under the south edge of the Diamond Bar Boulevard Undercrossing (UC) along Route 57 in Los Angeles County.

Photograph No. 3 & 4



Boring 1315-103 and 1315-104 under the north edge of the Diamond Bar Boulevard UC along Route 57 in Los Angeles County.

STANTEC CONSULTING SERVICES  
PHOTOGRAPHIC RECORD

Client: Caltrans (07A3322-32)

Job Number: 185832032

Site Name: Task Order No. 32

Location: LA-57, PM R1.95/5.61; LA-210, PM 37.81/R45.46

Photographer: S. Edblad/M. Mason

Date: February 10, 2016

Photograph No. 5 & 6



Boring 1315-105 and 1315-106 under the south edge of the Cold Spring Lane UC along Route 57 in Los Angeles County.

Photograph No. 7 & 8



Boring 1315-107 and 1315-108 under the north edge of the Cold Spring Lane UC along Route 57 in Los Angeles County.

STANTEC CONSULTING SERVICES  
PHOTOGRAPHIC RECORD

Client: Caltrans (07A3322-32)	Job Number: 185832032
Site Name: Task Order No. 32	Location: LA-57, PM R1.95/5.61; LA-210, PM 37.81/R45.46
Photographer: S. Edblad/M. Mason	Date: February 10, 2016

Photograph No. 9 & 10



Boring 1315-109 and 1315-110 under the southeast and southwest edge (respectively) of the Pathfinder Road Overcrossing (OC) along Route 57 in Los Angeles County.

Photograph No.11 & 12



Boring 1315-111 and 1315-112 under the northeast and northwest edge (respectively) of the Pathfinder Road OC along Route 57 in Los Angeles County.

STANTEC CONSULTING SERVICES  
PHOTOGRAPHIC RECORD

Client: Caltrans (07A3322-32)

Job Number: 185832032

Site Name: Task Order No. 32

Location: LA-57, PM R1.95/5.61; LA-210, PM 37.81/R45.46

Photographer: S. Edblad/M. Mason

Date: February 10, 2016

Photograph No. 13 & 14



Boring 1315-113 and 1315-114 under the south edge of the Sunset Crossing Road UC along Route 57 in Los Angeles County.

Photograph No. 15 & 16



Boring 1315-115 and 1315-116 under the north edge of the Sunset Crossing Road UC along Route 57 in Los Angeles County.

STANTEC CONSULTING SERVICES  
PHOTOGRAPHIC RECORD

Client: Caltrans (07A3322-32)	Job Number: 185832032
Site Name: Task Order No. 32	Location: LA-57, PM R1.95/5.61; LA-210, PM 37.81/R45.46
Photographer: S. Edblad/M. Mason	Date: February 10, 2016

Photograph No. 17 & 18



Boring 1315-117 and 1315-118 under the southeast and southwest edge (respectively) of the State Street OC along Route 57 in Los Angeles County.

Photograph No. 19 & 20



Boring 1315-119 and 1315-120 under the northeast and northwest edge (respectively) of the State Street OC along Route 57 in Los Angeles County.

STANTEC CONSULTING SERVICES  
PHOTOGRAPHIC RECORD

Client: Caltrans (07A3322-32)

Job Number: 185832032

Site Name: Task Order No. 32

Location: LA-57, PM R1.95/5.61; LA-210, PM 37.81/R45.46

Photographer: S. Edblad/M. Mason

Date: February 10, 2016

Photograph No. 21 & 22



Boring 1315-121 and 1315-122 under the southwest and northwest edge (respectively) of the Irwindale Avenue OC along Route 210 in Los Angeles County.

Photograph No. 23 & 24



Boring 1315-123 and 1315-124 under the southeast and northeast edge (respectively) of the Irwindale Avenue OC along Route 210 in Los Angeles County.

STANTEC CONSULTING SERVICES  
PHOTOGRAPHIC RECORD

Client: Caltrans (07A3322-32)	Job Number: 185832032
Site Name: Task Order No. 32	Location: LA-57, PM R1.95/5.61; LA-210, PM 37.81/R45.46
Photographer: S. Edblad/M. Mason	Date: February 10, 2016

Photograph No. 25 & 26



Boring 1315-125 and 1315-126 under the southwest and northwest edge (respectively) of the Zachary Padilla Avenue OC along Route 210 in Los Angeles County.

Photograph No. 27 & 28



Boring 1315-127 and 1315-128 under the southeast and northeast edge (respectively) of the Zachary Padilla Avenue OC along Route 210 in Los Angeles County.

STANTEC CONSULTING SERVICES  
PHOTOGRAPHIC RECORD

Client: Caltrans (07A3322-32)

Job Number: 185832032

Site Name: Task Order No. 32

Location: LA-57, PM R1.95/5.61; LA-210, PM 37.81/R45.46

Photographer: S. Edblad/M. Mason

Date: February 10, 2016

Photograph No. 29 & 30



Boring 1315-129 and 1315-130 under the southeast and northeast edge (respectively) of the Vernon Avenue OC along Route 210 in Los Angeles County.

Photograph No. 31 & 32



Boring 1315-131 and 1315-132 under the southwest and northwest edge (respectively) of the Vernon Avenue OC along Route 210 in Los Angeles County.

STANTEC CONSULTING SERVICES  
PHOTOGRAPHIC RECORD

Client: Caltrans (07A3322-32)

Job Number: 185832032

Site Name: Task Order No. 32

Location: LA-57, PM R1.95/5.61; LA-210, PM 37.81/R45.46

Photographer: S. Edblad/M. Mason

Date: February 10, 2016

Photograph No. 33 & 34



Boring 1315-133 and 1315-134 under the southwest and northwest edge (respectively) of the Route 57 Southbound Interchange (I/C) along Route 210 in Los Angeles County.

Photograph No. 35 & 36



Boring 1315-135 and 1315-136 under the southeast and northeast edge (respectively) of the Route 57 Southbound I/C along Route 210 in Los Angeles County.

**APPENDIX D  
BORING LOGS**



Project: Caltrans, Contract No. 07A3322, Task Order No. 32  
 Location: LA-57 PM R1.95/5.61; LA-210 PM 37.81/R45.46  
 Project #: 185832032  
 Drilling Start: 0850 02/10/16 Completed: 0856  
 Installation Start: NA Completed: NA  
 Drilling Company: STANTEC  
 Drilling Equipment: HAND AUGER (YA)  
 Drilling Method: HA  
 Sampling Equipment: HA / 80Z GLASS JARS

Boring ID: 1315-101 & 1315-102  
 Page: 1 of  
 Northing: 33° 58' 05.465" N Easting: 117° 50' 55.573" W  
 Latitude: 33° 58' 06.532" N Longitude: 117° 50' 57.971" W  
 Ground Elev (ft): 208.49 M TOE Elev (ft) 211.71 M  
 Initial DTW (ft): NA Borehole Depth (ft): 0.5  
 Static DTW (ft): NA Well Depth (ft): NA  
 Well Casing DIA (in): Borehole Dia (in): 3-4"  
 Logged By: S. EDLAD Checked By:

Time & Depth (ft)	Graphic Log	USCS	Description:	Sample	Time/Sample ID/Method	Measured Recovery (%)	Blow Counts	Headspace (ppm)	Depth (ft)	Well Construction or Borehole Backfill
0			Example: SAND (SP) - olive (2.5Y 5/4), trace (5%) fines, 20-30% fine grained sand, fine to coarse gravel, medium dense, medium plasticity, stiff, moist, no petroleum hydrocarbon odor, no staining							
0	SM		BARE SOIL @ SURFACE SILTY SAND (SM); YELLOWISH BROWN (10YR 5/6); ~30% SILT; FINE TO COARSE GRAINED SAND; ~20% FINE SUBANGULAR GRAVEL; MOIST; NO ODORS OR STAINS; NO ROOTS PLANT DEBRIS.	X	0850 1315-101-0				0	SOIL CUTTINGS
0.5			BOREHOLE TERMINATED @ 0.5' BGS							
0	SM		BARE SOIL @ SURFACE SILTY SAND (SM); YELLOWISH BROWN (10YR 5/6); ~30% SILT; FINE TO COARSE GRAINED SAND; ~20% FINE SUBANGULAR GRAVEL; MOIST; NO STAINS OR ODORS; NO ROOT DEBRIS	X	0856 1315-102-0				0	SOIL CUTTINGS
0.5			BOREHOLE TERMINATED @ 0.5' BGS							

1315-101

2015-102

Project: Caltrans, Contract No. 07A3322, Task Order No. 32  
 Location: LA-57 PM R1.95/5.61; LA-210 PM 37.81/R45.46  
 Project #: 185832032  
 Drilling Start: 0903 02/10/16 Completed: 0914  
 Installation Start: NA Completed: NA  
 Drilling Company: STANTEC  
 Drilling Equipment: HAND AUGER (HA)  
 Drilling Method: HA  
 Sampling Equipment: HA 1-80Z GLASS JARS

Boring ID: 1315-103 & 1315-104  
 Page: 1 of  
 Northing: 33°58'06.231"N Easting: 117°51'55.069"W  
 Latitude: 33°58'07.475"N Longitude: 117°51'56.999"W  
 Ground Elev (ft): 208.22 M TOC Elev (ft): 208.49 M  
 Initial DTW (ft): NA Borehole Depth (ft):  
 Static DTW (ft): NA Well Depth (ft):  
 Well Casing DIA (in): NA Borehole Dia (in):  
 Logged By: S. EDLAD Checked By:



Time & Depth (ft)	Graphic Log	USCS	Description:	Sample	Time/ Sample ID/ Method	Measured Recovery (%)	Blow Counts	Headspace PID (ppm)	Depth (ft)	Well Construction or Borehole Backfill
0			Example: SAND (SP) - olive (2.5Y 5/4), trace (5%) fines, 20-30% fine grained sand, fine to coarse gravel, medium dense, medium plasticity, stiff, moist, no petroleum hydrocarbon odor, no staining							
0		SM	BARRESDIL @ SURFACE SILT SAND (SM); YELLOWISH BROWN (LOTR 5/6); ~30% SILT; FINE TO COARSE GRAINED SAND; ~20% FINE SUBANGULAR GRAVEL; MOIST; NO STAINS OR ODORS; ROOT DEBRIS.	X	0903 1315-103-0				0	SALT SOLUTION
0.5			BOREHOLE TERMINATED @ 0.5 BGS							
0		SM	BARRESDIL @ SURFACE SILT SAND (SM); YELLOWISH BROWN (LOTR 5/6); ~30% SILT; FINE TO COARSE GRAINED SAND; ~20% FINE SUBANGULAR GRAVEL; MOIST; NO STAINS OR ODORS; ROOT DEBRIS.	X	0914 1315-104-0				0	SALT SOLUTION
0.5			BOREHOLE TERMINATED @ 0.5 BGS							

1315-103

1315-104

Project: Caltrans, Contract No. 07A3322, Task Order No. 32  
 Location: LA-57 PM R1.95/5.61; LA-210 PM 37.81/R45.46  
 Project #: 185832032 02/10/16  
 Drilling Start: 0950 Completed: 0955  
 Installation Start: NA Completed: NA  
 Drilling Company: STANTEC  
 Drilling Equipment: HAND AUGER (HA)  
 Drilling Method: HQ  
 Sampling Equipment: MA / 803 GLASS JAR

Boring ID: 1315-105 & 1315-106  
 Page: 1 of  
 Northing: 33°58'30.773"N  
 Latitude: 33°58'31.913"N  
 Ground Elev (ft): 215.86  
 Initial DTW (ft): NA  
 Static DTW (ft): NA  
 Well Casing DIA (in): NA  
 Logged By: S. EDWARDS

 **Stantec**  
 Easting: 117°50'35.164"W  
 Longitude: 117°50'37.256"W  
 TOC Elev (ft): 218.20  
 Borehole Depth (ft): 0.5  
 Well Depth (ft): NA  
 Borehole Dia (in): 3-4  
 Checked By:

Time & Depth (ft)	Graphic log	USCS	Description:	Sample	Time/Sample ID/Method	Measured Recovery (ft)	Blow Counts	Headspace PID (ppm)	Depth (ft)	Well Construction or Borehole Backfill
0			Example: SAND (SP) - olive (2.5Y 5/4), trace (5%) fines, 20-30% fine grained sand, fine to coarse gravel, medium dense, medium plasticity, stiff, moist, no petroleum hydrocarbon odor, no staining							
0	SM		BARE SOIL @ SURFACE SILTY SAND (SM); ~30% SILT; FINE TO COARSE GRAINED SAND; ~20% FINE ANGULAR GRAVEL; YELLOWISH BROWN (10SR 5/4); MOIST; NO STAINS OR ODORS; ROOT DEBRIS.	X	0950 1315-105-0				0	SOIL CUTTING
0.5			BOREHOLE TERMINATED @ 0.5' BGS						0.5	
0	SM		BARE SOIL @ SURFACE SILTY SAND (SM); ~30% SILT; FINE TO COARSE GRAINED SAND; ~20% FINE ANGULAR GRAVEL; YELLOWISH BROWN (10SR 5/4); MOIST; NO STAIN OR ODORS; ROOT DEBRIS	X	0955 1315-106-0				0	SOIL CUTTING
0.5			BOREHOLE TERMINATED @ 0.5' BGS						0.5	

1315-105

1315-106

Project: Caltrans, Contract No. 07A3322, Task Order No. 32  
 Location: LA-57 PM R1.95/5.61; LA-210 PM 37.81/R45.46  
 Project #: 185832032 02/10/16  
 Drilling Start: 1000 Completed: 1005  
 Installation Start: NA Completed: NA  
 Drilling Company: STANTEC  
 Drilling Equipment: HAND AUGER (MA)  
 Drilling Method: MA  
 Sampling Equipment: MA / 2 03 GLASS JAR

Boring ID: 1315-107 & 1315-108  
 Page: 1 of  
 Northing: 33°58'31.166"N Easting: 117°50'34.794"W  
 Latitude: 33°58'32.440"N Longitude: 117°50'37.040"W  
 Ground Elev (ft): 215.93 M TOC Elev (ft): 220.77 M  
 Initial DTW (ft): NA Borehole Depth (ft): 0.5  
 Static DTW (ft): NA Well Depth (ft): NA  
 Well Casing DIA (in): NA Borehole Dia (in): 3-4  
 Logged By: S. BOBLAD Checked By:



Time & Depth (ft)	Graphic log	USCS	Description:	Sample	Time/Sample ID/Method	Measured Recovery (%)	Blow Counts	Headspace (ft)	Depth (ft)	Well Construction or Borehole Backfill
0			Example: SAND (SP) - olive (2.5Y 5/4), trace (5%) fines, 20-30% fine grained sand, fine to coarse gravel, medium dense, medium plasticity, stiff, moist, no petroleum hydrocarbon odor, no staining							
0	SM		<u>BARESOIL @ 50M96E</u> <u>SILTSAND (SM); ~30% SILT;</u> <u>FINE TO COARSE GRAINED SAND;</u> <u>~20% FINE GRAINED SANDS</u> <u>GRAVEL; YELLOWISH BROWN</u> <u>(LOT 5/4); MOIST; NO STAINS</u> <u>OR ODORS; ROOT DEBRIS</u>	X	1000 1315-107-0				0	SOIL CUTTINGS
0.5			BOREHOLE TERMINATED @ 0.5' BOS							
0	SM		<u>BARESOIL @ JOLE90E</u> <u>SILTSAND (SM); ~30% SILT;</u> <u>FINE TO COARSE GRAINED SAND;</u> <u>YELLOWISH BROWN (LOT 5/4);</u> <u>~20% FINE ANGULAR GRAVEL;</u> <u>MOIST; NO STAINS OR ODORS</u>	X	1003 1315-108-0				0	SOIL CUTTINGS
0.5			BOREHOLE TERMINATED @ 0.5' BOS							

1315-107

1315-108



Project: Caltrans, Contract No. 07A3322, Task Order No. 32  
 Location: LA-57 PM R1.95/5.61; LA-210 PM 37.81/R45.46  
 Project #: 185832032 02/10/16  
 Drilling Start: 1100 Completed: 1110  
 Installation Start: NA Completed: NA  
 Drilling Company: STANTEC  
 Drilling Equipment: HAND AUGER (HA)  
 Drilling Method: HA  
 Sampling Equipment: HA/ 8 OZ GLASS JAR

Boring ID: 1315-109 & 1315-111  
 Page: 1 of \_\_\_\_\_  
 Northing: 33°59'02.904"N Easting: 117°50'32.840"W  
 Latitude: 33°59'04.260"N Longitude: 117°50'33.445"W  
 Ground Elev (ft): 286.30 M TOC Elev (ft): 237.36 M  
 Initial DTW (ft): NA Borehole Depth (ft): 0.5  
 Static DTW (ft): NA Well Depth (ft): NA  
 Well Casing DIA (in): NA Borehole Dia (in): 3-4  
 Logged By: S. EDLAD Checked By: \_\_\_\_\_

Time & Depth (ft)	Graphic Log	USCS	Description:	Sample	Time/ Sample ID/ Method	Measured Recovery (%)	Blow Counts	Standard Penetration Test (SPT) (blows)	Depth (ft)	Well Construction or Borehole Backfill
0			Example: SAND (SP) - olive (2.5Y 5/4), trace (5%) fines, 20-30% fine grained sand, fine to coarse gravel, medium dense, medium plasticity, stiff, moist, no petroleum hydrocarbon odor, no staining							
0		SM	<u>BAREBORN @ SURFACE</u> <u>SILT SAND (SM); TAUWISH BROWN (10SR 5/4); ~30% SILT; FINE TO COARSE GRAINED SAND; ~40% FINE ANGULAR GRAVEL; MOIST; NO STAINS OR ODDORS</u>		<u>1103</u> <u>1315-109-0</u>				0	<u>SOIL CUTTINGS</u>
0.5			<u>BOREHOLE TERMINATED @ 0.5' BGS</u>							
0		SM	<u>BAREBORN @ SOILFACE</u> <u>SILT SAND (SM); TAUWISH BROWN (10SR 5/4); ~30% SILT; FINE TO COARSE GRAINED SAND; ~40% FINE ANGULAR GRAVEL; MOIST; NO STAINS OR ODDORS</u>		<u>1108</u> <u>1315-109-0</u>				0	<u>SOIL CUTTINGS</u>
0.5			<u>BOREHOLE TERMINATED @ 0.5' BGS</u>							

1315-109

1315-111



Project: Caltrans, Contract No. 07A3322, Task Order No. 32  
 Location: LA-57 PM R1.95/5.61; LA-210 PM 37.81/R45.46  
 Project #: 185832032  
 Drilling Start: 1045 02/10/16 Completed: 1050  
 Installation Start: NA Completed: NA  
 Drilling Company: STANTEC  
 Drilling Equipment: HAND AUGER (HA)  
 Drilling Method: HA  
 Sampling Equipment: HA/ 80Z GLASS JAR

Boring ID: 1315-110 & 1315-112  
 Page: 1 of  
 Northing: 33°59'02.816"N Easting: 117°50'35.088"W  
 Latitude: 33°59'04.168"N Longitude: 117°50'35.444"W  
 Ground Elev (ft): 237.82M TOC Elev (ft): 238.51M  
 Initial DTW (ft): NA Borehole Depth (ft): 0.5  
 Static DTW (ft): NA Well Depth (ft): NA  
 Well Casing DIA (in): NA Borehole Dia (in): 3-4  
 Logged By: S. ROBLAP Checked By:

Time & Depth (ft)	Graphic Log	USCS	Description:	Sample	Time/Sample ID/Method	Measured Recovery (%)	Blow Counts	Headspace P.I.D. (ppm)	Depth (ft)	Well Construction or Borehole Backfill
0	SM		Example: SAND (SP) - olive (2.5Y 5/4), trace (5%) fines, 20-30% fine grained sand, fine to coarse gravel, medium dense, medium plasticity, stiff, moist, no petroleum hydrocarbon odor, no staining							
0			BARE SOIL @ SURFACE							
0			SILT SAND (SM); YELLOWISH BROWN (APR 5/4); ~30% SILT; FINE TO COARSE GRAINED SAND; ~20% FINE ANGULAR GRAVEL; MOIST; NO STAINS OR ODORS	X	1045 1315-110-0					SOIL CUTTINGS
0.5			BOREHOLE TERMINATED @ 0.5' BGS							
0	SM		BARE SOIL @ SURFACE							
0			SILT SAND (SM); YELLOWISH BROWN (APR 5/4); ~30% SILT; FINE TO COARSE GRAINED SAND; ~20% FINE ANGULAR GRAVEL; MOIST; NO STAINS OR ODORS	X	1048 1315-112-0					SOIL CUTTINGS
0.5			BOREHOLE TERMINATED @ 0.5' BGS							

1315-110

1315-112



Project: Caltrans, Contract No. 07A3322, Task Order No. 32  
 Location: LA-57 PM R1.95/5.61; LA-210 PM 37.81/R45.46  
 Project #: 185832032 *02/10/16*  
 Drilling Start: *1205* Completed: *1210*  
 Installation Start: NA Completed: NA  
 Drilling Company: *STANTEC*  
 Drilling Equipment: *HAND AUGER (HA)*  
 Drilling Method: *HA*  
 Sampling Equipment: *HA | 8 0 8 JAR*

Boring ID: 1315-113 & 1315-114  
 Page: 1 of  
 Northing: *34°01'43.161"N* Easting: *117°48'40.086"W*  
 Latitude: *34°01'43.978"N* Longitude: *117°48'42.325"W*  
 Ground Elev (ft): *206.14M* TOC Elev (ft): *207.80M*  
 Initial DTW (ft): *NA* Borehole Depth (ft): *0.5*  
 Static DTW (ft): *NA* Well Depth (ft): *NA*  
 Well Casing DIA (in): Borehole Dia (in): *3-4"*  
 Logged By: *S. BOBLAD* Checked By:

Time & Depth (ft)	Graphic log	USCS	Description	Sample	Time / Sample ID / Method	Measured Recovery (%)	Blow Counts	Voidspace (%)	Depth (ft)	Well Construction or Borehole Backfill
0	<i>ML</i>		<i>BARE SOIL @ SURFACE (SHALE)</i>						0	
0	<i>ML</i>		<i>SANDY SILT (ML) ~50% SILT; ~40% LEAN CLAY; FINE TO COARSE GRAINED SAND; TRACE FINE GRAVEL; DARK YELLOWISH BROWN (10YR 4/6); MOIST; NO STAINS OR ODORS</i>		<i>1210</i> <i>1315-113-0</i>				0	<i>Silty &amp; fine silts</i>
0.5			<i>BOREHOLE TERMINATED @ 0.5' BGS</i>						0.5	
0	<i>SM</i>		<i>BARE SOIL @ SURFACE (SHALE)</i>						0	
0	<i>SM</i>		<i>SILT SAND (SM); YELLOWISH BROWN (10YR 5/6); ~30% SILT; FINE TO COARSE GRAINED SAND; ~20% SHALE GRAVEL (PLATS/ANGULAR); MOIST; NO STAINS OR ODORS</i>		<i>1208</i> <i>1315-114-0</i>				0	<i>Silty silts</i>
0.5			<i>BOREHOLE TERMINATED @ 0.5' BGS</i>						0.5	

1315-113

1315-114

*Silty & fine silts*

*Silty silts*

Project: Caltrans, Contract No. 07A3322, Task Order No. 32  
 Location: LA-57 PM R1.95/5.61; LA-210 PM 37.81/R45.46  
 Project #: 185832032 *02/10/16*  
 Drilling Start: *1215* Completed: *1220*  
 Installation Start: NA Completed: NA  
 Drilling Company: *STANTEC*  
 Drilling Equipment: *HAND AUGER*  
 Drilling Method:  
 Sampling Equipment:

Boring ID: 1315-115 & 1315-116  
 Page: 1 of  
 Northing: *39°01'43.905"N* Easting: *117°48'39.800"W*  
 Latitude: *39°01'44.625"N* Longitude: *117°48'41.945"W*  
 Ground Elev (ft): *204.74M* TOC Elev (ft): *207.07M*  
 Initial DTW (ft): Borehole Depth (ft):  
 Static DTW (ft): Well Depth (ft):  
 Well Casing DIA (in): Borehole Dia (in):  
 Logged By: Checked By:



Time & Depth (ft)	Graphic Log	USCS	Description:	Sample	Time/ Sample ID/ Method	Measured Recovery (%)	Blow Counts	Voidspace (%)	Depth (ft)	Well Construction or Borehole Backfill
0	<i>ML</i>		<i>BARE SOIL @ SURFACE (SHALE)</i>						0	
0	<i>SM</i>		<i>SANDY SILT (ML); <sup>CLAY</sup> YELLOWISH BROWN (10TR 516); ~50% SILT; ~10% LEAN CLAY; FINE TO COARSE GRAINED SAND; TRACE FINE GRAVEL; MOIST; NO STAINS OR ODORS</i>		<i>1215 1315-115-0</i>				0	<i>SOIL CUTTINGS</i>
0.5			<i>BORERIDER TERMINATED @ 0.5' BGS</i>						0.5	
0	<i>SM</i>		<i>BARE SOIL @ SURFACE (SHALE)</i>						0	
0			<i>SILT SAND (SM); YELLOWISH BROWN (10TR 516); ~30% SILT; FINE TO COARSE GRAINED SAND; ~20% SHALE GRAVEL (PLATTANER); MOIST; NO STAINS OR ODORS</i>		<i>1218 1315-116-0</i>				0	<i>SOIL CUTTINGS</i>
0.5			<i>BORERIDER TERMINATED @ 0.5' BGS</i>						0.5	

1315-115

1315-116

Project: Caltrans, Contract No. 07A3322, Task Order No. 32  
 Location: LA-57 PM R1.95/5.61; LA-210 PM 37.81/R45.46  
 Project #: 185832032 02/10/16  
 Drilling Start: 1310 Completed: 1324  
 Installation Start: NA Completed: NA  
 Drilling Company: STANTEC  
 Drilling Equipment: HAND AUGER (HA)  
 Drilling Method: HA  
 Sampling Equipment: HA / 8 OZ GLASS JAR

Boring ID: 1315-117 & 1315-119  
 Page: 1 of \_\_\_\_\_  
 Northing: 34°02'11.504"N  
 Latitude: 34°02'12.440"N  
 Ground Elev (ft): 219.69 M  
 Initial DTW (ft): NA  
 Static DTW (ft): NA  
 Well Casing DIA (in): NA  
 Logged By: S. BOBLAD



Easting: 117°48'21.849"W  
 Longitude: 117°48'21.046"W  
 TOC Elev (ft): 219.41 M  
 Borehole Depth (ft): 0.5  
 Well Depth (ft): NA  
 Borehole Dia (in): 3-4  
 Checked By: \_\_\_\_\_

Time & Depth (ft)	Graphic Log	USCS	Description:	Sample	Time/Sample ID/Method	Measured Recovery (%)	Blow Counts	Headspace PID (ppm)	Depth (ft)	Well Construction or Borehole Backfill
0			Example: SAND (SP) - olive (2.5Y 5/4), trace (5%) fines, 20-30% fine grained sand, fine to coarse gravel, medium dense, medium plasticity, stiff, moist, no petroleum hydrocarbon odor, no staining							
0			<u>BARE SOIL @ SURFACE</u>							
0			<u>ML SANDS SILT (ML); TAUROWNISH BROWN (10YR 5/6); ~50% SILT; ~30% LEAN CLAY; FINE TO COARSE GRAINED SAND; TRACE FINE ANGULAR GRAVEL; MOIST; NON-PLASTIC; NO STAINS OR ODORS; ROOT DEBRIS</u>	<u>X</u>	<u>1310</u> <u>1315-117-0</u>					<u>PAV CUTTINGS</u>
0.5			<u>BOREHOLE TERMINATED @ 0.5' BGS</u>							
0			<u>BARE SOIL @ SURFACE</u>							
0			<u>ML SANDS SILT (ML); TAUROWNISH BROWN (10YR 5/6); ~50% SILT; 10% LEAN CLAY; FINE TO COARSE GRAINED SAND; TRACE FINE ANGULAR GRAVEL; MOIST; NON-PLASTIC; NO STAINS OR ODORS; ROOT DEBRIS</u>	<u>X</u>	<u>1324</u> <u>1315-119-0</u>					<u>PAV CUTTINGS</u>
0.5			<u>BOREHOLE TERMINATED @ 0.5' BGS</u>							

1315-117

1315-119

Project: Caltrans, Contract No. 07A3322, Task Order No. 32  
 Location: LA-57 PM R1.95/5.61; LA-210 PM 37.81/R45.46  
 Project #: 185832032 02/10/16  
 Drilling Start: 1315 Completed: 1330  
 Installation Start: NA Completed: NA  
 Drilling Company: STANTEC  
 Drilling Equipment: HAND AUGERED (HA)  
 Drilling Method: HA  
 Sampling Equipment: HA 1 8 OZ GLASS JAR

Boring ID: 1315-118 & 1315-120  
 Page: 1 of \_\_\_\_\_  
 Northing: 34°02'12.410"N  
 Latitude: 89°02'13.027"N  
 Ground Elev (ft): 223.46M  
 Initial DTW (ft): NA  
 Static DTW (ft): NA  
 Well Casing DIA (in): NA  
 Logged By: S-EDBLAD



Easting: 117°48'23.324"W  
 Longitude: 17°048'22.903"W  
 TOC Elev (ft): 220.81M  
 Borehole Depth (ft): 0.5  
 Well Depth (ft): NA  
 Borehole Dia (in): 3-4  
 Checked By: \_\_\_\_\_

Time & Depth (ft)	Graphic Log	USCS	Description:	Sample	Time/Sample ID/Method	Measured Recovery (%)	Blow Counts	Headspace PID (ppm)	Depth (ft)	Well Construction or Borehole Backfill
0			Example: SAND (SP) - olive (2.5Y 5/4), trace (5%) fines, 20-30% fine grained sand, fine to coarse gravel, medium dense, medium plasticity, stiff, moist, no petroleum hydrocarbon odor, no staining							
0			<u>BARE SOIL @ SURFACE</u>						0	<u>SOIL CUTTINGS</u>
0			<u>ML SANDS SILT (ML); TENUOUS BROWN (10SR 5/4); ~50% SILT; ~10% LEAN CLAY; FINE TO COARSE GRAINED SAND; TRACE FINE ANGULAR GRAVEL, MOST; NO STAINS OR ODORS</u>		<u>1315</u>				0	
1					<u>1315-118-D</u>				1	
2									2	
3									3	
4									4	
5									5	
0			<u>BOREHOLE TERMINATED @ 0.5' BGS</u>							
0			<u>BARE SOIL @ SURFACE</u>						0	<u>SOIL CUTTINGS</u>
0			<u>ML SANDS SILT (ML); TENUOUS BROWN (10SR 5/4); ~50% SILT; ~10% LEAN CLAY; FINE TO COARSE GRAINED SAND; ~10% FINE ANGULAR GRAVEL; MOST; NO STAINS OR ODORS</u>		<u>1330</u>				0	
1					<u>1315-120-D</u>				1	
2									2	
3									3	
4									4	
5									5	
0			<u>BOREHOLE TERMINATED @ 0.5' BGS</u>							

1315-118

1315-120

















**APPENDIX E**  
**ANALYTICAL LABORATORY REPORTS and CHAIN-OF-CUSTODY RECORDS**



February 22, 2016

Anne Perez  
Stantec  
290 Conejo Ridge Avenue, Suite 200  
Thousand Oaks, CA 91361  
Tel: (805) 230-1266  
Fax:(805) 230-1277

ELAP No.: 1838  
CSDLAC No.: 10196  
ORELAP No.: CA300003  
TCEQ No. : T104704502

Re: ATL Work Order Number : 1600584  
Client Reference : 185832032, Task 200.0004, Caltrans 07A3322-32

Enclosed are the results for sample(s) received on February 11, 2016 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. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.

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## Certificate of Analysis

Stantec  
290 Conejo Ridge Avenue, Suite 200  
Thousand Oaks , CA 91361

Project Number : 185832032, Task 200.0004, Caltrans 07A3322-32  
Report To : Anne Perez  
Reported : 02/22/2016

### SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
1315-101-0	1600584-01	Soil	2/10/16 8:50	2/11/16 11:33
1315-102-0	1600584-02	Soil	2/10/16 8:56	2/11/16 11:33
1315-103-0	1600584-03	Soil	2/10/16 9:03	2/11/16 11:33
1315-104-0	1600584-04	Soil	2/10/16 9:14	2/11/16 11:33
1315-105-0	1600584-05	Soil	2/10/16 9:50	2/11/16 11:33
1315-106-0	1600584-06	Soil	2/10/16 9:55	2/11/16 11:33
1315-107-0	1600584-07	Soil	2/10/16 10:00	2/11/16 11:33
1315-108-0	1600584-08	Soil	2/10/16 10:03	2/11/16 11:33
1315-109-0	1600584-09	Soil	2/10/16 11:03	2/11/16 11:33
1315-110-0	1600584-10	Soil	2/10/16 10:45	2/11/16 11:33
1315-111-0	1600584-11	Soil	2/10/16 11:08	2/11/16 11:33
1315-112-0	1600584-12	Soil	2/10/16 10:48	2/11/16 11:33
EBA1-021016	1600584-13	Aqueous	2/10/16 12:00	2/11/16 11:33
1315-113-0	1600584-14	Soil	2/10/16 12:10	2/11/16 11:33
1315-114-0	1600584-15	Soil	2/10/16 12:08	2/11/16 11:33
1315-115-0	1600584-16	Soil	2/10/16 12:15	2/11/16 11:33
1315-116-0	1600584-17	Soil	2/10/16 12:18	2/11/16 11:33
1315-117-0	1600584-18	Soil	2/10/16 13:10	2/11/16 11:33
1315-118-0	1600584-19	Soil	2/10/16 13:15	2/11/16 11:33
1315-119-0	1600584-20	Soil	2/10/16 13:24	2/11/16 11:33
1315-120-0	1600584-21	Soil	2/10/16 13:30	2/11/16 11:33
EBA2-021016	1600584-22	Aqueous	2/10/16 13:55	2/11/16 11:33
1315-121-0	1600584-23	Soil	2/10/16 10:25	2/11/16 11:33
1315-122-0	1600584-24	Soil	2/10/16 10:20	2/11/16 11:33
1315-123-0	1600584-25	Soil	2/10/16 10:55	2/11/16 11:33
1315-124-0	1600584-26	Soil	2/10/16 10:20	2/11/16 11:33
1315-125-0	1600584-27	Soil	2/10/16 11:20	2/11/16 11:33
1315-126-0	1600584-28	Soil	2/10/16 9:50	2/11/16 11:33
1315-127-0	1600584-29	Soil	2/10/16 11:25	2/11/16 11:33
1315-128-0	1600584-30	Soil	2/10/16 9:45	2/11/16 11:33
1315-129-0	1600584-31	Soil	2/10/16 11:45	2/11/16 11:33
1315-130-0	1600584-32	Soil	2/10/16 9:20	2/11/16 11:33
1315-131-0	1600584-33	Soil	2/10/16 11:50	2/11/16 11:33
1315-132-0	1600584-34	Soil	2/10/16 9:15	2/11/16 11:33



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Reported : 02/22/2016

1315-133-0	1600584-35	Soil	2/10/16 8:30	2/11/16 11:33
1315-134-0	1600584-36	Soil	2/10/16 8:25	2/11/16 11:33
1315-135-0	1600584-37	Soil	2/10/16 8:35	2/11/16 11:33
1315-136-0	1600584-38	Soil	2/10/16 8:40	2/11/16 11:33
EBB-021016	1600584-39	Aqueous	2/10/16 11:55	2/11/16 11:33



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Project Number : 185832032, Task 200.0004, Caltrans 07A3322-32  
 Report To : Anne Perez  
 Reported : 02/22/2016

## Lead by ICP-AES EPA 6010B

Analyte: Lead

Analyst: RR

Laboratory ID	Client Sample ID	Result	Units	PQL	MDL	Dilution	Batch	Prepared	Date/Time		Notes
									Analized		
1600584-01	1315-101-0	13	mg/kg	1.0	0.16	1	B6B0514	02/17/2016	02/18/16 11:02		
1600584-02	1315-102-0	30	mg/kg	1.0	0.16	1	B6B0514	02/17/2016	02/18/16 11:03		
1600584-03	1315-103-0	26	mg/kg	1.0	0.16	1	B6B0514	02/17/2016	02/18/16 11:03		
1600584-04	1315-104-0	10	mg/kg	1.0	0.16	1	B6B0514	02/17/2016	02/18/16 11:04		
1600584-05	1315-105-0	19	mg/kg	1.0	0.16	1	B6B0514	02/17/2016	02/18/16 11:05		
1600584-06	1315-106-0	12	mg/kg	1.0	0.16	1	B6B0514	02/17/2016	02/18/16 11:06		
1600584-07	1315-107-0	18	mg/kg	1.0	0.16	1	B6B0514	02/17/2016	02/18/16 11:07		
1600584-08	1315-108-0	14	mg/kg	1.0	0.16	1	B6B0514	02/17/2016	02/18/16 11:10		
1600584-09	1315-109-0	30	mg/kg	1.0	0.16	1	B6B0514	02/17/2016	02/18/16 11:10		
1600584-10	1315-110-0	8.5	mg/kg	1.0	0.16	1	B6B0514	02/17/2016	02/18/16 11:11		
1600584-11	1315-111-0	9.2	mg/kg	1.0	0.16	1	B6B0514	02/17/2016	02/18/16 11:14		
1600584-12	1315-112-0	8.2	mg/kg	1.0	0.16	1	B6B0514	02/17/2016	02/18/16 11:16		
1600584-14	1315-113-0	320	mg/kg	1.0	0.16	1	B6B0514	02/17/2016	02/18/16 11:17		
1600584-15	1315-114-0	230	mg/kg	1.0	0.16	1	B6B0514	02/17/2016	02/18/16 11:18		
1600584-16	1315-115-0	50	mg/kg	1.0	0.16	1	B6B0514	02/17/2016	02/18/16 11:18		
1600584-17	1315-116-0	91	mg/kg	1.0	0.16	1	B6B0514	02/17/2016	02/18/16 11:21		
1600584-18	1315-117-0	12	mg/kg	1.0	0.16	1	B6B0514	02/17/2016	02/18/16 11:22		
1600584-19	1315-118-0	43	mg/kg	1.0	0.16	1	B6B0514	02/17/2016	02/18/16 11:23		
1600584-20	1315-119-0	49	mg/kg	1.0	0.16	1	B6B0514	02/17/2016	02/18/16 11:23		
1600584-21	1315-120-0	71	mg/kg	1.0	0.16	1	B6B0514	02/17/2016	02/18/16 11:24		
1600584-23	1315-121-0	58	mg/kg	1.0	0.16	1	B6B0515	02/17/2016	02/18/16 11:33		
1600584-24	1315-122-0	440	mg/kg	1.0	0.16	1	B6B0515	02/17/2016	02/18/16 11:33		
1600584-25	1315-123-0	170	mg/kg	1.0	0.16	1	B6B0515	02/17/2016	02/18/16 11:34		
1600584-26	1315-124-0	180	mg/kg	1.0	0.16	1	B6B0515	02/17/2016	02/18/16 11:35		
1600584-27	1315-125-0	380	mg/kg	1.0	0.16	1	B6B0515	02/17/2016	02/18/16 11:35		
1600584-28	1315-126-0	85	mg/kg	1.0	0.16	1	B6B0515	02/17/2016	02/18/16 11:36		
1600584-29	1315-127-0	200	mg/kg	1.0	0.16	1	B6B0515	02/17/2016	02/18/16 11:37		
1600584-30	1315-128-0	270	mg/kg	1.0	0.16	1	B6B0515	02/17/2016	02/18/16 11:38		
1600584-31	1315-129-0	120	mg/kg	1.0	0.16	1	B6B0515	02/17/2016	02/18/16 11:38		
1600584-32	1315-130-0	250	mg/kg	1.0	0.16	1	B6B0515	02/17/2016	02/18/16 11:52		



# Certificate of Analysis

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Project Number : 185832032, Task 200.0004, Caltrans 07A3322-32  
Report To : Anne Perez  
Reported : 02/22/2016

## Lead by ICP-AES EPA 6010B

Analyte: Lead

Analyst: RR

Laboratory ID	Client Sample ID	Result	Units	PQL	MDL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1600584-33	1315-131-0	34	mg/kg	1.0	0.16	1	B6B0515	02/17/2016	02/18/16 11:54	
1600584-34	1315-132-0	370	mg/kg	1.0	0.16	1	B6B0515	02/17/2016	02/18/16 11:55	
1600584-35	1315-133-0	79	mg/kg	1.0	0.16	1	B6B0515	02/17/2016	02/18/16 11:55	
1600584-36	1315-134-0	59	mg/kg	1.0	0.16	1	B6B0515	02/17/2016	02/18/16 11:56	
1600584-37	1315-135-0	41	mg/kg	1.0	0.16	1	B6B0515	02/17/2016	02/18/16 11:57	
1600584-38	1315-136-0	9.1	mg/kg	1.0	0.16	1	B6B0515	02/17/2016	02/18/16 11:58	



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 Thousand Oaks , CA 91361

Project Number : 185832032, Task 200.0004, Caltrans 07A3322-32  
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 Reported : 02/22/2016

## TCLP Metals by ICP-AES EPA 6010B

Analyte: Lead

Analyst: RR

Laboratory ID	Client Sample ID	Result	Units	PQL	MDL	Dilution	Batch	Prepared	Date/Time		Notes
									Analized		
1600584-01	1315-101-0	ND	mg/L	0.050	0.0019	1	B6B0567	02/18/2016	02/18/16 14:27		
1600584-02	1315-102-0	0.018	mg/L	0.050	0.0019	1	B6B0567	02/18/2016	02/18/16 14:29		J
1600584-03	1315-103-0	0.011	mg/L	0.050	0.0019	1	B6B0567	02/18/2016	02/18/16 14:32		J
1600584-04	1315-104-0	ND	mg/L	0.050	0.0019	1	B6B0567	02/18/2016	02/18/16 14:39		
1600584-05	1315-105-0	0.0042	mg/L	0.050	0.0019	1	B6B0567	02/18/2016	02/18/16 14:41		J
1600584-06	1315-106-0	ND	mg/L	0.050	0.0019	1	B6B0567	02/18/2016	02/18/16 14:47		
1600584-07	1315-107-0	ND	mg/L	0.050	0.0019	1	B6B0567	02/18/2016	02/18/16 14:50		
1600584-08	1315-108-0	ND	mg/L	0.050	0.0019	1	B6B0567	02/18/2016	02/18/16 14:52		
1600584-09	1315-109-0	0.0070	mg/L	0.050	0.0019	1	B6B0567	02/18/2016	02/18/16 14:55		J
1600584-10	1315-110-0	ND	mg/L	0.050	0.0019	1	B6B0567	02/18/2016	02/18/16 14:57		
1600584-11	1315-111-0	ND	mg/L	0.050	0.0019	1	B6B0567	02/18/2016	02/18/16 14:59		
1600584-12	1315-112-0	ND	mg/L	0.050	0.0019	1	B6B0567	02/18/2016	02/18/16 15:02		
1600584-14	1315-113-0	0.31	mg/L	0.050	0.0019	1	B6B0567	02/18/2016	02/18/16 15:04		
1600584-15	1315-114-0	0.19	mg/L	0.050	0.0019	1	B6B0568	02/18/2016	02/18/16 15:17		
1600584-16	1315-115-0	0.019	mg/L	0.050	0.0019	1	B6B0568	02/18/2016	02/18/16 15:26		J
1600584-17	1315-116-0	0.055	mg/L	0.050	0.0019	1	B6B0568	02/18/2016	02/18/16 15:28		
1600584-18	1315-117-0	ND	mg/L	0.050	0.0019	1	B6B0568	02/18/2016	02/18/16 15:31		
1600584-19	1315-118-0	0.028	mg/L	0.050	0.0019	1	B6B0568	02/18/2016	02/18/16 15:37		J
1600584-20	1315-119-0	0.014	mg/L	0.050	0.0019	1	B6B0568	02/18/2016	02/18/16 15:40		J
1600584-21	1315-120-0	0.013	mg/L	0.050	0.0019	1	B6B0568	02/18/2016	02/18/16 15:43		J
1600584-23	1315-121-0	0.026	mg/L	0.050	0.0019	1	B6B0568	02/18/2016	02/18/16 15:45		J
1600584-24	1315-122-0	0.39	mg/L	0.050	0.0019	1	B6B0568	02/18/2016	02/18/16 15:48		
1600584-25	1315-123-0	0.19	mg/L	0.050	0.0019	1	B6B0568	02/18/2016	02/18/16 15:50		
1600584-26	1315-124-0	0.25	mg/L	0.050	0.0019	1	B6B0568	02/18/2016	02/18/16 15:57		
1600584-27	1315-125-0	0.61	mg/L	0.25	0.0095	5	B6B0568	02/18/2016	02/18/16 16:25		D5
1600584-28	1315-126-0	0.043	mg/L	0.050	0.0019	1	B6B0568	02/18/2016	02/18/16 16:06		J
1600584-29	1315-127-0	0.48	mg/L	0.050	0.0019	1	B6B0568	02/18/2016	02/18/16 16:08		
1600584-30	1315-128-0	0.49	mg/L	0.050	0.0019	1	B6B0568	02/18/2016	02/18/16 16:11		
1600584-31	1315-129-0	0.22	mg/L	0.050	0.0019	1	B6B0568	02/18/2016	02/18/16 16:13		
1600584-32	1315-130-0	0.28	mg/L	0.050	0.0019	1	B6B0568	02/18/2016	02/18/16 16:15		



# Certificate of Analysis

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Project Number : 185832032, Task 200.0004, Caltrans 07A3322-32  
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 Reported : 02/22/2016

## TCLP Metals by ICP-AES EPA 6010B

**Analyte: Lead**

**Analyst: RR**

Laboratory ID	Client Sample ID	Result	Units	PQL	MDL	Dilution	Batch	Prepared	Date/Time		Notes
									Analized		
1600584-33	1315-131-0	<b>0.069</b>	mg/L	0.050	0.0019	1	B6B0568	02/18/2016	02/18/16	16:18	
1600584-34	1315-132-0	<b>0.42</b>	mg/L	0.050	0.0019	1	B6B0568	02/18/2016	02/18/16	16:20	
1600584-35	1315-133-0	<b>0.053</b>	mg/L	0.050	0.0019	1	B6B0568	02/18/2016	02/18/16	16:22	
1600584-36	1315-134-0	<b>0.022</b>	mg/L	0.050	0.0019	1	B6B0525	02/17/2016	02/17/16	17:18	J
1600584-37	1315-135-0	<b>0.020</b>	mg/L	0.050	0.0019	1	B6B0525	02/17/2016	02/17/16	17:24	J
1600584-38	1315-136-0	<b>ND</b>	mg/L	0.050	0.0019	1	B6B0525	02/17/2016	02/17/16	17:26	



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Report To : Anne Perez

Reported : 02/22/2016

### STLC Metals by ICP-AES by EPA 6010B

Analyte: Lead

Analyst: RR

Laboratory ID	Client Sample ID	Result	Units	PQL	MDL	Dilution	Batch	Prepared	Date/Time		Notes
									Analized		
1600584-01	1315-101-0	0.33	mg/L	1.0	0.038	20	B6B0537	02/17/2016	02/18/16 09:10	J	
1600584-02	1315-102-0	1.6	mg/L	1.0	0.038	20	B6B0537	02/17/2016	02/18/16 09:14		
1600584-03	1315-103-0	1.4	mg/L	1.0	0.038	20	B6B0537	02/17/2016	02/18/16 09:18		
1600584-04	1315-104-0	0.30	mg/L	1.0	0.038	20	B6B0537	02/17/2016	02/18/16 09:22	J	
1600584-05	1315-105-0	0.76	mg/L	1.0	0.038	20	B6B0537	02/17/2016	02/18/16 09:26	J	
1600584-06	1315-106-0	0.66	mg/L	1.0	0.038	20	B6B0537	02/17/2016	02/18/16 09:30	J	
1600584-07	1315-107-0	0.62	mg/L	1.0	0.038	20	B6B0537	02/17/2016	02/18/16 09:34	J	
1600584-08	1315-108-0	0.45	mg/L	1.0	0.038	20	B6B0537	02/17/2016	02/18/16 09:45	J	
1600584-09	1315-109-0	1.7	mg/L	1.0	0.038	20	B6B0537	02/17/2016	02/18/16 09:49		
1600584-10	1315-110-0	0.30	mg/L	1.0	0.038	20	B6B0537	02/17/2016	02/18/16 09:53	J	
1600584-11	1315-111-0	0.58	mg/L	1.0	0.038	20	B6B0537	02/17/2016	02/18/16 10:09	J	
1600584-12	1315-112-0	0.22	mg/L	1.0	0.038	20	B6B0537	02/17/2016	02/18/16 10:13	J	
1600584-14	1315-113-0	16	mg/L	1.0	0.038	20	B6B0537	02/17/2016	02/18/16 10:16		
1600584-15	1315-114-0	13	mg/L	1.0	0.038	20	B6B0537	02/17/2016	02/18/16 10:20		
1600584-16	1315-115-0	2.8	mg/L	1.0	0.038	20	B6B0537	02/17/2016	02/18/16 10:32		
1600584-17	1315-116-0	4.2	mg/L	1.0	0.038	20	B6B0537	02/17/2016	02/18/16 10:36		
1600584-18	1315-117-0	ND	mg/L	1.0	0.038	20	B6B0537	02/17/2016	02/18/16 10:40		
1600584-19	1315-118-0	1.9	mg/L	1.0	0.038	20	B6B0537	02/17/2016	02/18/16 10:44		
1600584-20	1315-119-0	3.6	mg/L	1.0	0.038	20	B6B0537	02/17/2016	02/18/16 10:48		
1600584-21	1315-120-0	0.72	mg/L	1.0	0.038	20	B6B0537	02/17/2016	02/18/16 10:52	J	
1600584-23	1315-121-0	3.4	mg/L	1.0	0.038	20	B6B0538	02/17/2016	02/18/16 11:23		
1600584-24	1315-122-0	28	mg/L	1.0	0.038	20	B6B0538	02/17/2016	02/18/16 11:26		
1600584-25	1315-123-0	9.4	mg/L	1.0	0.038	20	B6B0538	02/17/2016	02/18/16 11:31		
1600584-26	1315-124-0	12	mg/L	1.0	0.038	20	B6B0538	02/17/2016	02/18/16 11:35		
1600584-27	1315-125-0	24	mg/L	1.0	0.038	20	B6B0538	02/17/2016	02/18/16 11:38		
1600584-28	1315-126-0	5.3	mg/L	1.0	0.038	20	B6B0538	02/17/2016	02/18/16 11:43		
1600584-29	1315-127-0	15	mg/L	1.0	0.038	20	B6B0538	02/17/2016	02/18/16 11:46		
1600584-30	1315-128-0	16	mg/L	1.0	0.038	20	B6B0538	02/17/2016	02/18/16 11:58		
1600584-31	1315-129-0	7.7	mg/L	1.0	0.038	20	B6B0538	02/17/2016	02/18/16 12:02		
1600584-32	1315-130-0	17	mg/L	1.0	0.038	20	B6B0538	02/17/2016	02/18/16 12:06		



## Certificate of Analysis

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Project Number : 185832032, Task 200.0004, Caltrans 07A3322-32  
Report To : Anne Perez  
Reported : 02/22/2016

### STLC Metals by ICP-AES by EPA 6010B

Analyte: Lead

Analyst: RR

Laboratory ID	Client Sample ID	Result	Units	PQL	MDL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1600584-33	1315-131-0	2.6	mg/L	1.0	0.038	20	B6B0538	02/17/2016	02/18/16 12:22	
1600584-34	1315-132-0	22	mg/L	1.0	0.038	20	B6B0538	02/17/2016	02/18/16 12:25	
1600584-35	1315-133-0	4.4	mg/L	1.0	0.038	20	B6B0538	02/17/2016	02/18/16 12:30	
1600584-36	1315-134-0	2.9	mg/L	1.0	0.038	20	B6B0538	02/17/2016	02/18/16 12:34	
1600584-37	1315-135-0	2.6	mg/L	1.0	0.038	20	B6B0538	02/17/2016	02/18/16 12:45	
1600584-38	1315-136-0	0.30	mg/L	1.0	0.038	20	B6B0538	02/17/2016	02/18/16 12:49	J

### Mercury by AA (Cold Vapor) EPA 7470A

Analyte: Mercury

Analyst: SB

Laboratory ID	Client Sample ID	Result	Units	PQL	MDL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1600584-13	EBA1-021016	ND	ug/L	0.20	0.15	1	B6B0512	02/17/2016	02/17/16 14:12	
1600584-22	EBA2-021016	ND	ug/L	0.20	0.15	1	B6B0512	02/17/2016	02/17/16 14:14	
1600584-39	EBB-021016	ND	ug/L	0.20	0.15	1	B6B0512	02/17/2016	02/17/16 14:16	

### Mercury by AA (Cold Vapor) EPA 7471A

Analyte: Mercury

Analyst: SB

Laboratory ID	Client Sample ID	Result	Units	PQL	MDL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1600584-02	1315-102-0	0.04	mg/kg	0.10	0.009	1	B6B0520	02/17/2016	02/17/16 14:44	J
1600584-05	1315-105-0	0.03	mg/kg	0.10	0.009	1	B6B0520	02/17/2016	02/17/16 14:54	J
1600584-10	1315-110-0	0.04	mg/kg	0.10	0.009	1	B6B0520	02/17/2016	02/17/16 14:56	J
1600584-17	1315-116-0	0.05	mg/kg	0.10	0.009	1	B6B0520	02/17/2016	02/17/16 14:58	J
1600584-21	1315-120-0	0.12	mg/kg	0.10	0.009	1	B6B0520	02/17/2016	02/17/16 15:04	
1600584-26	1315-124-0	0.05	mg/kg	0.10	0.009	1	B6B0520	02/17/2016	02/17/16 15:06	J
1600584-27	1315-125-0	0.07	mg/kg	0.10	0.009	1	B6B0520	02/17/2016	02/17/16 15:08	J
1600584-34	1315-132-0	0.05	mg/kg	0.10	0.009	1	B6B0520	02/17/2016	02/17/16 15:10	J
1600584-35	1315-133-0	0.05	mg/kg	0.10	0.009	1	B6B0520	02/17/2016	02/17/16 15:12	J



## Certificate of Analysis

Stantec  
 290 Conejo Ridge Avenue, Suite 200  
 Thousand Oaks , CA 91361

Project Number : 185832032, Task 200.0004, Caltrans 07A3322-32  
 Report To : Anne Perez  
 Reported : 02/22/2016

### pH by EPA 9045C

Analyte: pH

Analyst: LA

Laboratory ID	Client Sample ID	Result	Units	PQL	MDL	Dilution	Batch	Prepared	Date/Time		Notes
									Analized		
1600584-02	1315-102-0	6.7	pH Units	0.10	0.10	1	B6B0473	02/16/2016	02/16/16	16:15	
1600584-05	1315-105-0	7.0	pH Units	0.10	0.10	1	B6B0473	02/16/2016	02/16/16	16:15	
1600584-10	1315-110-0	7.4	pH Units	0.10	0.10	1	B6B0473	02/16/2016	02/16/16	16:15	
1600584-17	1315-116-0	7.7	pH Units	0.10	0.10	1	B6B0473	02/16/2016	02/16/16	16:15	
1600584-21	1315-120-0	7.5	pH Units	0.10	0.10	1	B6B0473	02/16/2016	02/16/16	16:15	
1600584-26	1315-124-0	7.5	pH Units	0.10	0.10	1	B6B0473	02/16/2016	02/16/16	16:15	
1600584-27	1315-125-0	7.4	pH Units	0.10	0.10	1	B6B0473	02/16/2016	02/16/16	16:15	
1600584-34	1315-132-0	7.1	pH Units	0.10	0.10	1	B6B0473	02/16/2016	02/16/16	16:15	
1600584-35	1315-133-0	8.8	pH Units	0.10	0.10	1	B6B0473	02/16/2016	02/16/16	16:15	

### Client Sample ID 1315-102-0

Lab ID: 1600584-02

### Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time		Notes
							Analized		
<b>Antimony</b>	<b>0.81</b>	2.0	0.21	1	B6B0516	02/17/2016	02/17/16	18:05	J
<b>Arsenic</b>	<b>4.3</b>	1.0	0.55	1	B6B0516	02/17/2016	02/17/16	18:05	
<b>Barium</b>	<b>81</b>	1.0	0.04	1	B6B0516	02/17/2016	02/17/16	18:05	
<b>Beryllium</b>	<b>0.43</b>	1.0	0.05	1	B6B0516	02/17/2016	02/17/16	18:04	J
<b>Cadmium</b>	<b>1.0</b>	1.0	0.06	1	B6B0516	02/17/2016	02/17/16	18:05	
<b>Chromium</b>	<b>9.7</b>	1.0	0.19	1	B6B0516	02/17/2016	02/17/16	18:05	
<b>Cobalt</b>	<b>4.1</b>	1.0	0.11	1	B6B0516	02/17/2016	02/17/16	18:05	
<b>Copper</b>	<b>14</b>	2.0	0.12	1	B6B0516	02/17/2016	02/17/16	18:05	
<b>Molybdenum</b>	<b>3.3</b>	1.0	0.04	1	B6B0516	02/17/2016	02/17/16	18:05	
<b>Nickel</b>	<b>15</b>	1.0	0.10	1	B6B0516	02/17/2016	02/17/16	18:05	
<b>Selenium</b>	<b>1.2</b>	1.0	0.32	1	B6B0516	02/17/2016	02/17/16	18:05	
Silver	ND	1.0	0.12	1	B6B0516	02/17/2016	02/17/16	18:05	
Thallium	ND	1.0	0.36	1	B6B0516	02/17/2016	02/17/16	18:05	
<b>Vanadium</b>	<b>21</b>	1.0	0.20	1	B6B0516	02/17/2016	02/17/16	18:05	
<b>Zinc</b>	<b>54</b>	1.0	0.49	1	B6B0516	02/17/2016	02/17/16	18:05	



### Certificate of Analysis

Stantec  
290 Conejo Ridge Avenue, Suite 200  
Thousand Oaks , CA 91361

Project Number : 185832032, Task 200.0004, Caltrans 07A3322-32  
Report To : Anne Perez  
Reported : 02/22/2016

**Client Sample ID 1315-105-0**

**Lab ID: 1600584-05**

**Title 22 Metals by ICP-AES EPA 6010B**

**Analyst: RR**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	0.40	2.0	0.21	1	B6B0516	02/17/2016	02/17/16 18:18	J
Arsenic	3.4	1.0	0.55	1	B6B0516	02/17/2016	02/17/16 18:18	
Barium	85	1.0	0.04	1	B6B0516	02/17/2016	02/17/16 18:18	
Beryllium	0.40	1.0	0.05	1	B6B0516	02/17/2016	02/17/16 18:17	J
Cadmium	1.4	1.0	0.06	1	B6B0516	02/17/2016	02/17/16 18:18	
Chromium	8.3	1.0	0.19	1	B6B0516	02/17/2016	02/17/16 18:18	
Cobalt	4.3	1.0	0.11	1	B6B0516	02/17/2016	02/17/16 18:18	
Copper	11	2.0	0.12	1	B6B0516	02/17/2016	02/17/16 18:18	
Molybdenum	1.9	1.0	0.04	1	B6B0516	02/17/2016	02/17/16 18:18	
Nickel	13	1.0	0.10	1	B6B0516	02/17/2016	02/17/16 18:18	
Selenium	1.1	1.0	0.32	1	B6B0516	02/17/2016	02/17/16 18:18	
Silver	ND	1.0	0.12	1	B6B0516	02/17/2016	02/17/16 18:18	
Thallium	ND	1.0	0.36	1	B6B0516	02/17/2016	02/17/16 18:18	
Vanadium	19	1.0	0.20	1	B6B0516	02/17/2016	02/17/16 18:18	
Zinc	49	1.0	0.49	1	B6B0516	02/17/2016	02/17/16 18:18	

**Client Sample ID 1315-110-0**

**Lab ID: 1600584-10**

**Title 22 Metals by ICP-AES EPA 6010B**

**Analyst: RR**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	0.21	2.0	0.21	1	B6B0516	02/17/2016	02/17/16 18:22	J
Arsenic	4.7	1.0	0.55	1	B6B0516	02/17/2016	02/17/16 18:22	
Barium	86	1.0	0.04	1	B6B0516	02/17/2016	02/17/16 18:21	
Beryllium	0.42	1.0	0.05	1	B6B0516	02/17/2016	02/17/16 18:20	J
Cadmium	0.70	1.0	0.06	1	B6B0516	02/17/2016	02/17/16 18:22	J
Chromium	8.4	1.0	0.19	1	B6B0516	02/17/2016	02/17/16 18:21	
Cobalt	4.9	1.0	0.11	1	B6B0516	02/17/2016	02/17/16 18:22	
Copper	16	2.0	0.12	1	B6B0516	02/17/2016	02/17/16 18:21	
Molybdenum	1.7	1.0	0.04	1	B6B0516	02/17/2016	02/17/16 18:21	
Nickel	12	1.0	0.10	1	B6B0516	02/17/2016	02/17/16 18:22	
Selenium	0.92	1.0	0.32	1	B6B0516	02/17/2016	02/17/16 18:22	J
Silver	ND	1.0	0.12	1	B6B0516	02/17/2016	02/17/16 18:21	
Thallium	ND	1.0	0.36	1	B6B0516	02/17/2016	02/17/16 18:22	
Vanadium	22	1.0	0.20	1	B6B0516	02/17/2016	02/17/16 18:21	
Zinc	58	1.0	0.49	1	B6B0516	02/17/2016	02/17/16 18:21	



# Certificate of Analysis

Stantec  
 290 Conejo Ridge Avenue, Suite 200  
 Thousand Oaks , CA 91361

Project Number : 185832032, Task 200.0004, Caltrans 07A3322-32  
 Report To : Anne Perez  
 Reported : 02/22/2016

**Client Sample ID EBA1-021016**

**Lab ID: 1600584-13**

**Title 22 Metals by ICP-AES EPA 6010B**

**Analyst: RR**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	0.010	0.0073	1	B6B0507	02/17/2016	02/17/16 15:16	
Arsenic	ND	0.010	0.0084	1	B6B0507	02/17/2016	02/17/16 15:16	
Barium	ND	0.0030	0.0003	1	B6B0507	02/17/2016	02/17/16 15:16	
<b>Beryllium</b>	<b>0.0003</b>	0.0030	0.0002	1	B6B0507	02/17/2016	02/17/16 15:15	J
Cadmium	ND	0.0030	0.0004	1	B6B0507	02/17/2016	02/17/16 15:16	
<b>Chromium</b>	<b>0.0024</b>	0.0030	0.0004	1	B6B0507	02/17/2016	02/17/16 15:16	J
Cobalt	ND	0.0030	0.0004	1	B6B0507	02/17/2016	02/17/16 15:16	
<b>Copper</b>	<b>0.0026</b>	0.0090	0.0014	1	B6B0507	02/17/2016	02/17/16 15:16	J
Lead	ND	0.0050	0.0019	1	B6B0507	02/17/2016	02/17/16 15:16	
<b>Molybdenum</b>	<b>0.0010</b>	0.0050	0.0006	1	B6B0507	02/17/2016	02/17/16 15:16	J
<b>Nickel</b>	<b>0.0018</b>	0.0050	0.0011	1	B6B0507	02/17/2016	02/17/16 15:16	J
Selenium	ND	0.010	0.0065	1	B6B0507	02/17/2016	02/17/16 15:16	
Silver	ND	0.0030	0.0012	1	B6B0507	02/17/2016	02/17/16 15:16	
Thallium	ND	0.015	0.0037	1	B6B0507	02/17/2016	02/17/16 15:16	
Vanadium	ND	0.0030	0.0017	1	B6B0507	02/17/2016	02/17/16 15:16	
Zinc	ND	0.025	0.0087	1	B6B0507	02/17/2016	02/17/16 15:16	



### Certificate of Analysis

Stantec  
290 Conejo Ridge Avenue, Suite 200  
Thousand Oaks , CA 91361

Project Number : 185832032, Task 200.0004, Caltrans 07A3322-32  
Report To : Anne Perez  
Reported : 02/22/2016

**Client Sample ID 1315-116-0**  
**Lab ID: 1600584-17**

**Title 22 Metals by ICP-AES EPA 6010B**

**Analyst: RR**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	0.36	2.0	0.21	1	B6B0516	02/17/2016	02/17/16 18:25	J
Arsenic	8.8	1.0	0.55	1	B6B0516	02/17/2016	02/17/16 18:25	
Barium	110	1.0	0.04	1	B6B0516	02/17/2016	02/17/16 18:25	
Beryllium	0.57	1.0	0.05	1	B6B0516	02/17/2016	02/17/16 18:24	J
Cadmium	2.7	1.0	0.06	1	B6B0516	02/17/2016	02/17/16 18:25	
Chromium	15	1.0	0.19	1	B6B0516	02/17/2016	02/17/16 18:25	
Cobalt	4.5	1.0	0.11	1	B6B0516	02/17/2016	02/17/16 18:25	
Copper	25	2.0	0.12	1	B6B0516	02/17/2016	02/17/16 18:25	
Molybdenum	8.1	1.0	0.04	1	B6B0516	02/17/2016	02/17/16 18:25	
Nickel	27	1.0	0.10	1	B6B0516	02/17/2016	02/17/16 18:25	
Selenium	2.1	1.0	0.32	1	B6B0516	02/17/2016	02/17/16 18:25	
Silver	ND	1.0	0.12	1	B6B0516	02/17/2016	02/17/16 18:25	
Thallium	ND	1.0	0.36	1	B6B0516	02/17/2016	02/17/16 18:25	
Vanadium	30	1.0	0.20	1	B6B0516	02/17/2016	02/17/16 18:25	
Zinc	330	1.0	0.49	1	B6B0516	02/17/2016	02/17/16 18:25	

**Client Sample ID 1315-120-0**  
**Lab ID: 1600584-21**

**Title 22 Metals by ICP-AES EPA 6010B**

**Analyst: RR**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	0.21	1	B6B0516	02/17/2016	02/17/16 18:28	
Arsenic	17	1.0	0.55	1	B6B0516	02/17/2016	02/17/16 18:28	
Barium	100	1.0	0.04	1	B6B0516	02/17/2016	02/17/16 18:28	
Beryllium	0.50	1.0	0.05	1	B6B0516	02/17/2016	02/17/16 18:27	J
Cadmium	1.2	1.0	0.06	1	B6B0516	02/17/2016	02/17/16 18:28	
Chromium	15	1.0	0.19	1	B6B0516	02/17/2016	02/17/16 18:28	
Cobalt	4.7	1.0	0.11	1	B6B0516	02/17/2016	02/17/16 18:28	
Copper	23	2.0	0.12	1	B6B0516	02/17/2016	02/17/16 18:28	
Molybdenum	2.8	1.0	0.04	1	B6B0516	02/17/2016	02/17/16 18:28	
Nickel	19	1.0	0.10	1	B6B0516	02/17/2016	02/17/16 18:28	
Selenium	1.7	1.0	0.32	1	B6B0516	02/17/2016	02/17/16 18:28	
Silver	ND	1.0	0.12	1	B6B0516	02/17/2016	02/17/16 18:28	
Thallium	ND	1.0	0.36	1	B6B0516	02/17/2016	02/17/16 18:28	
Vanadium	30	1.0	0.20	1	B6B0516	02/17/2016	02/17/16 18:28	
Zinc	81	1.0	0.49	1	B6B0516	02/17/2016	02/17/16 18:28	



## Certificate of Analysis

Stantec  
290 Conejo Ridge Avenue, Suite 200  
Thousand Oaks, CA 91361

Project Number : 185832032, Task 200.0004, Caltrans 07A3322-32  
Report To : Anne Perez  
Reported : 02/22/2016

**Client Sample ID EBA2-021016**

**Lab ID: 1600584-22**

**Title 22 Metals by ICP-AES EPA 6010B**

**Analyst: RR**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	0.010	0.0073	1	B6B0507	02/17/2016	02/17/16 15:30	
Arsenic	ND	0.010	0.0084	1	B6B0507	02/17/2016	02/17/16 15:30	
<b>Barium</b>	<b>0.0013</b>	0.0030	0.0003	1	B6B0507	02/17/2016	02/17/16 15:30	J
<b>Beryllium</b>	<b>0.0002</b>	0.0030	0.0002	1	B6B0507	02/17/2016	02/17/16 15:29	J
Cadmium	ND	0.0030	0.0004	1	B6B0507	02/17/2016	02/17/16 15:30	
<b>Chromium</b>	<b>0.0036</b>	0.0030	0.0004	1	B6B0507	02/17/2016	02/17/16 15:30	
Cobalt	ND	0.0030	0.0004	1	B6B0507	02/17/2016	02/17/16 15:30	
<b>Copper</b>	<b>0.0041</b>	0.0090	0.0014	1	B6B0507	02/17/2016	02/17/16 15:29	J
Lead	ND	0.0050	0.0019	1	B6B0507	02/17/2016	02/17/16 15:30	
<b>Molybdenum</b>	<b>0.0014</b>	0.0050	0.0006	1	B6B0507	02/17/2016	02/17/16 15:30	J
<b>Nickel</b>	<b>0.0024</b>	0.0050	0.0011	1	B6B0507	02/17/2016	02/17/16 15:30	J
Selenium	ND	0.010	0.0065	1	B6B0507	02/17/2016	02/17/16 15:30	
Silver	ND	0.0030	0.0012	1	B6B0507	02/17/2016	02/17/16 15:29	
<b>Thallium</b>	<b>0.0037</b>	0.015	0.0037	1	B6B0507	02/17/2016	02/17/16 15:30	J
Vanadium	ND	0.0030	0.0017	1	B6B0507	02/17/2016	02/17/16 15:29	
Zinc	ND	0.025	0.0087	1	B6B0507	02/17/2016	02/17/16 15:30	



### Certificate of Analysis

Stantec  
290 Conejo Ridge Avenue, Suite 200  
Thousand Oaks , CA 91361

Project Number : 185832032, Task 200.0004, Caltrans 07A3322-32  
Report To : Anne Perez  
Reported : 02/22/2016

**Client Sample ID 1315-124-0**  
**Lab ID: 1600584-26**

**Title 22 Metals by ICP-AES EPA 6010B**

**Analyst: RR**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	0.78	2.0	0.21	1	B6B0516	02/17/2016	02/17/16 18:38	J
Arsenic	3.9	1.0	0.55	1	B6B0516	02/17/2016	02/17/16 18:38	
Barium	77	1.0	0.04	1	B6B0516	02/17/2016	02/17/16 18:38	
Beryllium	0.41	1.0	0.05	1	B6B0516	02/17/2016	02/17/16 18:37	J
Cadmium	0.47	1.0	0.06	1	B6B0516	02/17/2016	02/17/16 18:38	J
Chromium	13	1.0	0.19	1	B6B0516	02/17/2016	02/17/16 18:38	
Cobalt	4.8	1.0	0.11	1	B6B0516	02/17/2016	02/17/16 18:38	
Copper	36	2.0	0.12	1	B6B0516	02/17/2016	02/17/16 18:38	
Molybdenum	1.1	1.0	0.04	1	B6B0516	02/17/2016	02/17/16 18:38	
Nickel	16	1.0	0.10	1	B6B0516	02/17/2016	02/17/16 18:38	
Selenium	1.1	1.0	0.32	1	B6B0516	02/17/2016	02/17/16 18:38	
Silver	ND	1.0	0.12	1	B6B0516	02/17/2016	02/17/16 18:38	
Thallium	ND	1.0	0.36	1	B6B0516	02/17/2016	02/17/16 18:38	
Vanadium	17	1.0	0.20	1	B6B0516	02/17/2016	02/17/16 18:38	
Zinc	350	1.0	0.49	1	B6B0516	02/17/2016	02/17/16 18:38	

**Client Sample ID 1315-125-0**  
**Lab ID: 1600584-27**

**Title 22 Metals by ICP-AES EPA 6010B**

**Analyst: RR**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	1.0	2.0	0.21	1	B6B0516	02/17/2016	02/17/16 18:42	J
Arsenic	3.5	1.0	0.55	1	B6B0516	02/17/2016	02/17/16 18:42	
Barium	110	1.0	0.04	1	B6B0516	02/17/2016	02/17/16 18:41	
Beryllium	0.44	1.0	0.05	1	B6B0516	02/17/2016	02/17/16 18:41	J
Cadmium	0.72	1.0	0.06	1	B6B0516	02/17/2016	02/17/16 18:42	J
Chromium	17	1.0	0.19	1	B6B0516	02/17/2016	02/17/16 18:41	
Cobalt	5.6	1.0	0.11	1	B6B0516	02/17/2016	02/17/16 18:42	
Copper	57	2.0	0.12	1	B6B0516	02/17/2016	02/17/16 18:41	
Molybdenum	2.2	1.0	0.04	1	B6B0516	02/17/2016	02/17/16 18:41	
Nickel	16	1.0	0.10	1	B6B0516	02/17/2016	02/17/16 18:42	
Selenium	1.0	1.0	0.32	1	B6B0516	02/17/2016	02/17/16 18:42	
Silver	ND	1.0	0.12	1	B6B0516	02/17/2016	02/17/16 18:41	
Thallium	ND	1.0	0.36	1	B6B0516	02/17/2016	02/17/16 18:42	
Vanadium	19	1.0	0.20	1	B6B0516	02/17/2016	02/17/16 18:41	
Zinc	390	1.0	0.49	1	B6B0516	02/17/2016	02/17/16 18:41	



### Certificate of Analysis

Stantec  
290 Conejo Ridge Avenue, Suite 200  
Thousand Oaks , CA 91361

Project Number : 185832032, Task 200.0004, Caltrans 07A3322-32  
Report To : Anne Perez  
Reported : 02/22/2016

**Client Sample ID 1315-132-0**

**Lab ID: 1600584-34**

**Title 22 Metals by ICP-AES EPA 6010B**

**Analyst: RR**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	0.85	2.0	0.21	1	B6B0516	02/17/2016	02/17/16 18:45	J
Arsenic	4.1	1.0	0.55	1	B6B0516	02/17/2016	02/17/16 18:45	
Barium	92	1.0	0.04	1	B6B0516	02/17/2016	02/17/16 18:45	
Beryllium	0.44	1.0	0.05	1	B6B0516	02/17/2016	02/17/16 18:44	J
Cadmium	0.60	1.0	0.06	1	B6B0516	02/17/2016	02/17/16 18:45	J
Chromium	13	1.0	0.19	1	B6B0516	02/17/2016	02/17/16 18:45	
Cobalt	5.6	1.0	0.11	1	B6B0516	02/17/2016	02/17/16 18:45	
Copper	42	2.0	0.12	1	B6B0516	02/17/2016	02/17/16 18:45	
Molybdenum	0.77	1.0	0.04	1	B6B0516	02/17/2016	02/17/16 18:45	J
Nickel	13	1.0	0.10	1	B6B0516	02/17/2016	02/17/16 18:45	
Selenium	1.1	1.0	0.32	1	B6B0516	02/17/2016	02/17/16 18:45	
Silver	ND	1.0	0.12	1	B6B0516	02/17/2016	02/17/16 18:45	
Thallium	ND	1.0	0.36	1	B6B0516	02/17/2016	02/17/16 18:45	
Vanadium	20	1.0	0.20	1	B6B0516	02/17/2016	02/17/16 18:45	
Zinc	430	1.0	0.49	1	B6B0516	02/17/2016	02/17/16 18:45	

**Client Sample ID 1315-133-0**

**Lab ID: 1600584-35**

**Title 22 Metals by ICP-AES EPA 6010B**

**Analyst: RR**

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	1.1	2.0	0.21	1	B6B0516	02/17/2016	02/17/16 18:49	J
Arsenic	5.0	1.0	0.55	1	B6B0516	02/17/2016	02/17/16 18:49	
Barium	95	1.0	0.04	1	B6B0516	02/17/2016	02/17/16 18:48	
Beryllium	0.61	1.0	0.05	1	B6B0516	02/17/2016	02/17/16 18:48	J
Cadmium	0.45	1.0	0.06	1	B6B0516	02/17/2016	02/17/16 18:49	J
Chromium	13	1.0	0.19	1	B6B0516	02/17/2016	02/17/16 18:48	
Cobalt	6.4	1.0	0.11	1	B6B0516	02/17/2016	02/17/16 18:49	
Copper	32	2.0	0.12	1	B6B0516	02/17/2016	02/17/16 18:48	
Molybdenum	1.1	1.0	0.04	1	B6B0516	02/17/2016	02/17/16 18:48	
Nickel	12	1.0	0.10	1	B6B0516	02/17/2016	02/17/16 18:49	
Selenium	1.3	1.0	0.32	1	B6B0516	02/17/2016	02/17/16 18:49	
Silver	ND	1.0	0.12	1	B6B0516	02/17/2016	02/17/16 18:48	
Thallium	ND	1.0	0.36	1	B6B0516	02/17/2016	02/17/16 18:49	
Vanadium	25	1.0	0.20	1	B6B0516	02/17/2016	02/17/16 18:48	
Zinc	270	1.0	0.49	1	B6B0516	02/17/2016	02/17/16 18:48	



# Certificate of Analysis

Stantec  
 290 Conejo Ridge Avenue, Suite 200  
 Thousand Oaks , CA 91361

Project Number : 185832032, Task 200.0004, Caltrans 07A3322-32  
 Report To : Anne Perez  
 Reported : 02/22/2016

**Client Sample ID EBB-021016**

**Lab ID: 1600584-39**

**Title 22 Metals by ICP-AES EPA 6010B**

**Analyst: RR**

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	0.010	0.0073	1	B6B0507	02/17/2016	02/17/16 15:34	
Arsenic	ND	0.010	0.0084	1	B6B0507	02/17/2016	02/17/16 15:34	
Barium	ND	0.0030	0.0003	1	B6B0507	02/17/2016	02/17/16 15:34	
Beryllium	ND	0.0030	0.0002	1	B6B0507	02/17/2016	02/17/16 15:33	
Cadmium	ND	0.0030	0.0004	1	B6B0507	02/17/2016	02/17/16 15:34	
<b>Chromium</b>	<b>0.0018</b>	0.0030	0.0004	1	B6B0507	02/17/2016	02/17/16 15:34	J
Cobalt	ND	0.0030	0.0004	1	B6B0507	02/17/2016	02/17/16 15:34	
<b>Copper</b>	<b>0.0021</b>	0.0090	0.0014	1	B6B0507	02/17/2016	02/17/16 15:33	J
Lead	ND	0.0050	0.0019	1	B6B0507	02/17/2016	02/17/16 15:34	
<b>Molybdenum</b>	<b>0.0008</b>	0.0050	0.0006	1	B6B0507	02/17/2016	02/17/16 15:34	J
<b>Nickel</b>	<b>0.0013</b>	0.0050	0.0011	1	B6B0507	02/17/2016	02/17/16 15:34	J
Selenium	ND	0.010	0.0065	1	B6B0507	02/17/2016	02/17/16 15:34	
Silver	ND	0.0030	0.0012	1	B6B0507	02/17/2016	02/17/16 15:33	
Thallium	ND	0.015	0.0037	1	B6B0507	02/17/2016	02/17/16 15:34	
Vanadium	ND	0.0030	0.0017	1	B6B0507	02/17/2016	02/17/16 15:33	
Zinc	ND	0.025	0.0087	1	B6B0507	02/17/2016	02/17/16 15:34	



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Project Number : 185832032, Task 200.0004, Caltrans 07A3322-32  
Report To : Anne Perez  
Reported : 02/22/2016

### QUALITY CONTROL SECTION

#### Title 22 Metals 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
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**Batch B6B0507 - EPA 3010A\_W**

**Blank (B6B0507-BLK1)**

Prepared: 2/17/2016 Analyzed: 2/17/2016

Antimony	ND	0.010			NR				
Arsenic	ND	0.010			NR				
Barium	ND	0.0030			NR				
Beryllium	ND	0.0030			NR				
Cadmium	ND	0.0030			NR				
Chromium	0.001427	0.0030			NR				J
Cobalt	ND	0.0030			NR				
Copper	0.002889	0.0090			NR				J
Lead	0.001997	0.0050			NR				J
Molybdenum	0.000757	0.0050			NR				J
Nickel	0.002445	0.0050			NR				J
Selenium	ND	0.010			NR				
Silver	ND	0.0030			NR				
Thallium	ND	0.015			NR				
Vanadium	ND	0.0030			NR				
Zinc	ND	0.025			NR				

**LCS (B6B0507-BS1)**

Prepared: 2/17/2016 Analyzed: 2/17/2016

Antimony	0.994753	0.010	1.00000		99.5	80 - 120			
Arsenic	0.965740	0.010	1.00000		96.6	80 - 120			
Barium	1.04001	0.0030	1.00000		104	80 - 120			
Beryllium	1.03218	0.0030	1.00000		103	80 - 120			
Cadmium	1.01504	0.0030	1.00000		102	80 - 120			
Chromium	1.04327	0.0030	1.00000		104	80 - 120			
Cobalt	1.01864	0.0030	1.00000		102	80 - 120			
Copper	1.02001	0.0090	1.00000		102	80 - 120			
Lead	1.04324	0.0050	1.00000		104	80 - 120			
Molybdenum	1.01075	0.0050	1.00000		101	80 - 120			
Nickel	1.02162	0.0050	1.00000		102	80 - 120			
Selenium	0.934350	0.010	1.00000		93.4	80 - 120			
Silver	1.00219	0.0030	1.00000		100	80 - 120			
Thallium	0.995822	0.015	1.00000		99.6	80 - 120			
Vanadium	1.02342	0.0030	1.00000		102	80 - 120			
Zinc	0.996195	0.025	1.00000		99.6	80 - 120			

**Duplicate (B6B0507-DUP1)**

Source: 1600584-13

Prepared: 2/17/2016 Analyzed: 2/17/2016

Antimony	ND	0.010		ND	NR			20	
Arsenic	ND	0.010		ND	NR			20	
Barium	ND	0.0030		ND	NR			20	
Beryllium	ND	0.0030		0.000260	NR			20	
Cadmium	ND	0.0030		ND	NR			20	
Chromium	0.001808	0.0030		0.002411	NR		28.5	20	R, J
Cobalt	ND	0.0030		ND	NR			20	



## Certificate of Analysis

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Thousand Oaks, CA 91361

Project Number : 185832032, Task 200.0004, Caltrans 07A3322-32

Report To : Anne Perez

Reported : 02/22/2016

### Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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**Batch B6B0507 - EPA 3010A\_W (continued)**

**Duplicate (B6B0507-DUP1) - Continued**

**Source: 1600584-13**

Prepared: 2/17/2016 Analyzed: 2/17/2016

Copper	0.002245	0.0090		2.5588E-3	NR		13.1	20	J
Lead	ND	0.0050		ND	NR			20	
Molybdenum	0.000778	0.0050		0.000972	NR		22.1	20	R, J
Nickel	0.001922	0.0050		1.8422E-3	NR		4.25	20	J
Selenium	ND	0.010		ND	NR			20	
Silver	ND	0.0030		ND	NR			20	
Thallium	ND	0.015		ND	NR			20	
Vanadium	ND	0.0030		ND	NR			20	
Zinc	ND	0.025		ND	NR			20	

**Matrix Spike (B6B0507-MS1)**

**Source: 1600584-13**

Prepared: 2/17/2016 Analyzed: 2/17/2016

Antimony	2.23483	0.010	2.50000	ND	89.4	71 - 129			
Arsenic	2.17285	0.010	2.50000	ND	86.9	80 - 128			
Barium	2.36250	0.0030	2.50000	ND	94.5	77 - 124			
Beryllium	2.44483	0.0030	2.50000	0.000260	97.8	88 - 116			
Cadmium	2.28862	0.0030	2.50000	ND	91.5	83 - 116			
Chromium	2.38895	0.0030	2.50000	0.002411	95.5	86 - 116			
Cobalt	2.30918	0.0030	2.50000	ND	92.4	83 - 117			
Copper	2.31450	0.0090	2.50000	2.5588E-3	92.5	87 - 121			
Lead	2.32441	0.0050	2.50000	ND	93.0	85 - 114			
Molybdenum	2.18669	0.0050	2.50000	0.000972	87.4	81 - 117			
Nickel	2.32025	0.0050	2.50000	1.8422E-3	92.7	76 - 121			
Selenium	2.09397	0.010	2.50000	ND	83.8	77 - 125			
Silver	2.35910	0.0030	2.50000	ND	94.4	77 - 129			
Thallium	2.24587	0.015	2.50000	ND	89.8	51 - 140			
Vanadium	2.33292	0.0030	2.50000	ND	93.3	86 - 120			
Zinc	2.26802	0.025	2.50000	ND	90.7	75 - 123			

**Matrix Spike Dup (B6B0507-MSD1)**

**Source: 1600584-13**

Prepared: 2/17/2016 Analyzed: 2/17/2016

Antimony	2.28041	0.010	2.50000	ND	91.2	71 - 129	2.02	20	
Arsenic	2.20861	0.010	2.50000	ND	88.3	80 - 128	1.63	20	
Barium	2.40489	0.0030	2.50000	ND	96.2	77 - 124	1.78	20	
Beryllium	2.42561	0.0030	2.50000	0.000260	97.0	88 - 116	0.789	20	
Cadmium	2.33786	0.0030	2.50000	ND	93.5	83 - 116	2.13	20	
Chromium	2.43106	0.0030	2.50000	0.002411	97.1	86 - 116	1.75	20	
Cobalt	2.35012	0.0030	2.50000	ND	94.0	83 - 117	1.76	20	
Copper	2.36068	0.0090	2.50000	2.5588E-3	94.3	87 - 121	1.98	20	
Lead	2.36292	0.0050	2.50000	ND	94.5	85 - 114	1.64	20	
Molybdenum	2.22938	0.0050	2.50000	0.000972	89.1	81 - 117	1.93	20	
Nickel	2.35941	0.0050	2.50000	1.8422E-3	94.3	76 - 121	1.67	20	
Selenium	2.16509	0.010	2.50000	ND	86.6	77 - 125	3.34	20	
Silver	2.40025	0.0030	2.50000	ND	96.0	77 - 129	1.73	20	
Thallium	2.28630	0.015	2.50000	ND	91.5	51 - 140	1.78	20	
Vanadium	2.38039	0.0030	2.50000	ND	95.2	86 - 120	2.01	20	
Zinc	2.31217	0.025	2.50000	ND	92.5	75 - 123	1.93	20	



## Certificate of Analysis

Stantec  
290 Conejo Ridge Avenue, Suite 200  
Thousand Oaks, CA 91361

Project Number : 185832032, Task 200.0004, Caltrans 07A3322-32  
Report To : Anne Perez  
Reported : 02/22/2016

### Title 22 Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
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**Batch B6B0516 - EPA 3050B\_S**

**Blank (B6B0516-BLK1)**

Prepared: 2/17/2016 Analyzed: 2/17/2016

Antimony	ND	2.0			NR			
Arsenic	ND	1.0			NR			
Barium	ND	1.0			NR			
Beryllium	ND	1.0			NR			
Cadmium	ND	1.0			NR			
Chromium	ND	1.0			NR			
Cobalt	ND	1.0			NR			
Copper	0.180011	2.0			NR			J
Molybdenum	0.092275	1.0			NR			J
Nickel	0.174735	1.0			NR			J
Selenium	ND	1.0			NR			
Silver	ND	1.0			NR			
Thallium	ND	1.0			NR			
Vanadium	ND	1.0			NR			
Zinc	ND	1.0			NR			

**LCS (B6B0516-BS1)**

Prepared: 2/17/2016 Analyzed: 2/17/2016

Antimony	44.3251	2.0	50.0000	88.7	80 - 120			
Arsenic	43.7266	1.0	50.0000	87.5	80 - 120			
Barium	49.1085	1.0	50.0000	98.2	80 - 120			
Beryllium	48.4860	1.0	50.0000	97.0	80 - 120			
Cadmium	46.9657	1.0	50.0000	93.9	80 - 120			
Chromium	46.1637	1.0	50.0000	92.3	80 - 120			
Cobalt	47.6753	1.0	50.0000	95.4	80 - 120			
Copper	48.2802	2.0	50.0000	96.6	80 - 120			
Molybdenum	47.3825	1.0	50.0000	94.8	80 - 120			
Nickel	47.6589	1.0	50.0000	95.3	80 - 120			
Selenium	40.6737	1.0	50.0000	81.3	80 - 120			
Silver	46.9671	1.0	50.0000	93.9	80 - 120			
Thallium	43.6192	1.0	50.0000	87.2	80 - 120			
Vanadium	48.9131	1.0	50.0000	97.8	80 - 120			
Zinc	46.2560	1.0	50.0000	92.5	80 - 120			

**Duplicate (B6B0516-DUP1)**

**Source: 1600584-02**

Prepared: 2/17/2016 Analyzed: 2/17/2016

Antimony	0.342625	2.0	0.805838	NR	80.7	20	R, J
Arsenic	3.94729	1.0	4.28026	NR	8.09	20	
Barium	95.1142	1.0	80.6724	NR	16.4	20	
Beryllium	0.425375	1.0	0.430555	NR	1.21	20	J
Cadmium	1.12911	1.0	1.00557	NR	11.6	20	
Chromium	10.4290	1.0	9.72570	NR	6.98	20	
Cobalt	4.48444	1.0	4.09450	NR	9.09	20	
Copper	14.9633	2.0	14.0583	NR	6.24	20	
Molybdenum	4.14855	1.0	3.32086	NR	22.2	20	R
Nickel	16.3110	1.0	15.0040	NR	8.35	20	
Selenium	1.33687	1.0	1.18452	NR	12.1	20	
Silver	ND	1.0	ND	NR		20	
Thallium	ND	1.0	ND	NR		20	



## Certificate of Analysis

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Project Number : 185832032, Task 200.0004, Caltrans 07A3322-32

Report To : Anne Perez

Reported : 02/22/2016

### Title 22 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 B6B0516 - EPA 3050B\_S (continued)**

**Duplicate (B6B0516-DUP1) - Continued**

Source: 1600584-02

Prepared: 2/17/2016 Analyzed: 2/17/2016

Vanadium	23.3354	1.0		20.6436	NR		12.2	20	
Zinc	60.1562	1.0		53.7668	NR		11.2	20	

**Matrix Spike (B6B0516-MS1)**

Source: 1600584-02

Prepared: 2/17/2016 Analyzed: 2/17/2016

Antimony	80.3101	2.0	125.000	0.805838	63.6	28 - 106			
Arsenic	99.0396	1.0	125.000	4.28026	75.8	57 - 109			
Barium	197.549	1.0	125.000	80.6724	93.5	18 - 159			
Beryllium	104.588	1.0	125.000	0.430555	83.3	61 - 107			
Cadmium	96.6818	1.0	125.000	1.00557	76.5	53 - 104			
Chromium	109.138	1.0	125.000	9.72570	79.5	53 - 121			
Cobalt	103.362	1.0	125.000	4.09450	79.4	55 - 109			
Copper	130.080	2.0	125.000	14.0583	92.8	58 - 124			
Molybdenum	100.011	1.0	125.000	3.32086	77.4	57 - 108			
Nickel	114.923	1.0	125.000	15.0040	79.9	44 - 122			
Selenium	89.9834	1.0	125.000	1.18452	71.0	54 - 104			
Silver	109.116	1.0	125.000	ND	87.3	60 - 112			
Thallium	91.8890	1.0	125.000	ND	73.5	50 - 103			
Vanadium	133.081	1.0	125.000	20.6436	89.9	54 - 123			
Zinc	151.953	1.0	125.000	53.7668	78.5	29 - 132			

**Matrix Spike Dup (B6B0516-MSD1)**

Source: 1600584-02

Prepared: 2/17/2016 Analyzed: 2/17/2016

Antimony	77.2466	2.0	125.000	0.805838	61.2	28 - 106	3.89	20	
Arsenic	95.7665	1.0	125.000	4.28026	73.2	57 - 109	3.36	20	
Barium	197.150	1.0	125.000	80.6724	93.2	18 - 159	0.202	20	
Beryllium	99.9493	1.0	125.000	0.430555	79.6	61 - 107	4.54	20	
Cadmium	93.8694	1.0	125.000	1.00557	74.3	53 - 104	2.95	20	
Chromium	105.400	1.0	125.000	9.72570	76.5	53 - 121	3.48	20	
Cobalt	100.202	1.0	125.000	4.09450	76.9	55 - 109	3.10	20	
Copper	123.627	2.0	125.000	14.0583	87.7	58 - 124	5.09	20	
Molybdenum	97.6176	1.0	125.000	3.32086	75.4	57 - 108	2.42	20	
Nickel	112.939	1.0	125.000	15.0040	78.3	44 - 122	1.74	20	
Selenium	87.5444	1.0	125.000	1.18452	69.1	54 - 104	2.75	20	
Silver	104.531	1.0	125.000	ND	83.6	60 - 112	4.29	20	
Thallium	89.3294	1.0	125.000	ND	71.5	50 - 103	2.82	20	
Vanadium	127.543	1.0	125.000	20.6436	85.5	54 - 123	4.25	20	
Zinc	146.315	1.0	125.000	53.7668	74.0	29 - 132	3.78	20	



## Certificate of Analysis

Stantec  
 290 Conejo Ridge Avenue, Suite 200  
 Thousand Oaks , CA 91361

Project Number : 185832032, Task 200.0004, Caltrans 07A3322-32  
 Report To : Anne Perez  
 Reported : 02/22/2016

### 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
<b>Batch B6B0514 - EPA 3050 Modified_S</b>									
<b>Blank (B6B0514-BLK1)</b>									
Lead	ND	1.0							Prepared: 2/17/2016 Analyzed: 2/18/2016 NR
<b>Blank (B6B0514-BLK2)</b>									
Lead	ND	1.0							Prepared: 2/17/2016 Analyzed: 2/18/2016 NR
<b>LCS (B6B0514-BS1)</b>									
Lead	51.9188	1.0	50.0000		104	80 - 120			Prepared: 2/17/2016 Analyzed: 2/18/2016
<b>Duplicate (B6B0514-DUP1)</b>									
									<b>Source: 1600584-21</b> Prepared: 2/17/2016 Analyzed: 2/18/2016
Lead	45.1975	1.0		70.7562	NR		44.1	20	R
<b>Duplicate (B6B0514-DUP2)</b>									
									<b>Source: 1600584-10</b> Prepared: 2/17/2016 Analyzed: 2/18/2016
Lead	8.50016	1.0		8.53960	NR		0.463	20	
<b>Matrix Spike (B6B0514-MS1)</b>									
									<b>Source: 1600584-21</b> Prepared: 2/17/2016 Analyzed: 2/18/2016
Lead	248.379	1.0	250.000	70.7562	71.0	35 - 129			
<b>Matrix Spike (B6B0514-MS2)</b>									
									<b>Source: 1600584-10</b> Prepared: 2/17/2016 Analyzed: 2/18/2016
Lead	216.510	1.0	250.000	8.53960	83.2	35 - 129			
<b>Matrix Spike Dup (B6B0514-MSD1)</b>									
									<b>Source: 1600584-21</b> Prepared: 2/17/2016 Analyzed: 2/18/2016
Lead	236.392	1.0	250.000	70.7562	66.3	35 - 129	4.95	20	



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 Reported : 02/22/2016

### Lead by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
<b>Batch B6B0515 - EPA 3050 Modified_S</b>								
<b>Blank (B6B0515-BLK1)</b>								
Lead	ND	1.0						Prepared: 2/17/2016 Analyzed: 2/18/2016 NR
<b>Blank (B6B0515-BLK2)</b>								
Lead	ND	1.0						Prepared: 2/17/2016 Analyzed: 2/18/2016 NR
<b>LCS (B6B0515-BS1)</b>								
Lead	50.8745	1.0	50.0000		102      80 - 120			Prepared: 2/17/2016 Analyzed: 2/18/2016
<b>Duplicate (B6B0515-DUP1)</b>								
Lead	9.35358	1.0		9.06764			3.10      20	Source: 1600584-38 Prepared: 2/17/2016 Analyzed: 2/18/2016
<b>Duplicate (B6B0515-DUP2)</b>								
Lead	286.937	1.0		246.674			15.1      20	Source: 1600584-32 Prepared: 2/17/2016 Analyzed: 2/18/2016
<b>Matrix Spike (B6B0515-MS1)</b>								
Lead	220.886	1.0	250.000	9.06764	84.7      35 - 129			Source: 1600584-38 Prepared: 2/17/2016 Analyzed: 2/18/2016
<b>Matrix Spike (B6B0515-MS2)</b>								
Lead	478.806	1.0	250.000	246.674	92.9      35 - 129			Source: 1600584-32 Prepared: 2/17/2016 Analyzed: 2/18/2016
<b>Matrix Spike Dup (B6B0515-MSD1)</b>								
Lead	226.748	1.0	250.000	9.06764	87.1      35 - 129	2.62	20	Source: 1600584-38 Prepared: 2/17/2016 Analyzed: 2/18/2016



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Project Number : 185832032, Task 200.0004, Caltrans 07A3322-32  
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 Reported : 02/22/2016

### TCLP Metals 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
<b>Batch B6B0525 - EPA 3010A_S</b>									
<b>Blank (B6B0525-BLK1)</b>									
Lead	ND	0.050							Prepared: 2/17/2016 Analyzed: 2/17/2016 NR
<b>LCS (B6B0525-BS1)</b>									
Lead	0.858174	0.050	1.00000		85.8	80 - 120			Prepared: 2/17/2016 Analyzed: 2/17/2016
<b>Matrix Spike (B6B0525-MS1)</b>									
Lead	2.01019	0.050	2.50000	0.021661	79.5	77 - 121			Source: 1600584-36 Prepared: 2/17/2016 Analyzed: 2/17/2016
<b>Matrix Spike Dup (B6B0525-MSD1)</b>									
Lead	2.00232	0.050	2.50000	0.021661	79.2	77 - 121	0.393	20	Prepared: 2/17/2016 Analyzed: 2/17/2016



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 Report To : Anne Perez  
 Reported : 02/22/2016

### TCLP Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
<b>Batch B6B0567 - EPA 3010A_S</b>								
<b>Blank (B6B0567-BLK1)</b>								
Lead	ND	0.050						Prepared: 2/18/2016 Analyzed: 2/18/2016 NR
<b>Blank (B6B0567-BLK2)</b>								
Lead	ND	0.050						Prepared: 2/18/2016 Analyzed: 2/18/2016 NR
<b>LCS (B6B0567-BS1)</b>								
Lead	0.952342	0.050	1.00000		95.2 80 - 120			Prepared: 2/18/2016 Analyzed: 2/18/2016
<b>Duplicate (B6B0567-DUP1)</b>								
Lead	0.050858	0.050		0.066002	NR	25.9	20	Source: 1600211-19 Prepared: 2/18/2016 Analyzed: 2/18/2016 R
<b>Duplicate (B6B0567-DUP2)</b>								
Lead	0.010898	0.050		0.010803	NR	0.877	20	Source: 1600584-03 Prepared: 2/18/2016 Analyzed: 2/18/2016 J
<b>Matrix Spike (B6B0567-MS1)</b>								
Lead	2.14700	0.050	2.50000	0.066002	83.2 77 - 121			Source: 1600211-19 Prepared: 2/18/2016 Analyzed: 2/18/2016
<b>Matrix Spike (B6B0567-MS2)</b>								
Lead	2.07738	0.050	2.50000	0.010803	82.7 77 - 121			Source: 1600584-03 Prepared: 2/18/2016 Analyzed: 2/18/2016
<b>Matrix Spike Dup (B6B0567-MSD1)</b>								
Lead	2.15743	0.050	2.50000	0.066002	83.7 77 - 121	0.485	20	Source: 1600211-19 Prepared: 2/18/2016 Analyzed: 2/18/2016



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 Reported : 02/22/2016

### TCLP Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
<b>Batch B6B0568 - EPA 3010A_S</b>								
<b>Blank (B6B0568-BLK1)</b>								
Lead	ND	0.050						Prepared: 2/18/2016 Analyzed: 2/18/2016 NR
<b>Blank (B6B0568-BLK2)</b>								
Lead	ND	0.050						Prepared: 2/18/2016 Analyzed: 2/18/2016 NR
<b>LCS (B6B0568-BS1)</b>								
Lead	0.925713	0.050	1.00000		92.6 80 - 120			Prepared: 2/18/2016 Analyzed: 2/18/2016
<b>Duplicate (B6B0568-DUP1)</b>								
Lead	0.189369	0.050		0.191562	NR	1.15	20	Source: 1600584-15 Prepared: 2/18/2016 Analyzed: 2/18/2016
<b>Duplicate (B6B0568-DUP2)</b>								
Lead	0.180494	0.050		0.192934	NR	6.66	20	Source: 1600584-25 Prepared: 2/18/2016 Analyzed: 2/18/2016
<b>Matrix Spike (B6B0568-MS1)</b>								
Lead	2.04643	0.050	2.50000	0.191562	74.2 77 - 121			Source: 1600584-15 Prepared: 2/18/2016 Analyzed: 2/18/2016 M1
<b>Matrix Spike (B6B0568-MS2)</b>								
Lead	2.40953	0.050	2.50000	0.192934	88.7 77 - 121			Source: 1600584-25 Prepared: 2/18/2016 Analyzed: 2/18/2016
<b>Matrix Spike Dup (B6B0568-MSD1)</b>								
Lead	2.06702	0.050	2.50000	0.191562	75.0 77 - 121	1.00	20	Source: 1600584-15 Prepared: 2/18/2016 Analyzed: 2/18/2016 M1



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 Report To : Anne Perez  
 Reported : 02/22/2016

### STLC Metals by ICP-AES by EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
<b>Batch B6B0537 - STLC_S Extraction</b>								
<b>Blank (B6B0537-BLK1)</b>								
Lead	ND	1.0						
				Prepared: 2/17/2016 Analyzed: 2/18/2016				
<b>Blank (B6B0537-BLK2)</b>								
Lead	ND	1.0						
				Prepared: 2/17/2016 Analyzed: 2/18/2016				
<b>LCS (B6B0537-BS1)</b>								
Lead	1.85154		2.00000		92.6	80 - 120		
				Prepared: 2/17/2016 Analyzed: 2/18/2016				
<b>Duplicate (B6B0537-DUP1)</b>								
Lead	0.307829	1.0		0.298517	NR		3.07	20 J
				Prepared: 2/17/2016 Analyzed: 2/18/2016				
<b>Duplicate (B6B0537-DUP2)</b>								
Lead	0.723581	1.0		0.715343	NR		1.14	20 J
				Prepared: 2/17/2016 Analyzed: 2/18/2016				
<b>Matrix Spike (B6B0537-MS1)</b>								
Lead	2.45023		2.50000	0.298517	86.1	44 - 130		
				Prepared: 2/17/2016 Analyzed: 2/18/2016				
<b>Matrix Spike (B6B0537-MS2)</b>								
Lead	2.92365		2.50000	0.715343	88.3	44 - 130		
				Prepared: 2/17/2016 Analyzed: 2/18/2016				
<b>Matrix Spike Dup (B6B0537-MSD1)</b>								
Lead	2.58916		2.50000	0.298517	91.6	44 - 130	5.51	20



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Project Number : 185832032, Task 200.0004, Caltrans 07A3322-32  
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 Reported : 02/22/2016

### STLC Metals by ICP-AES by EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
<b>Batch B6B0538 - STLC_S Extraction</b>								
<b>Blank (B6B0538-BLK1)</b>				Prepared: 2/17/2016 Analyzed: 2/18/2016				
Lead	ND	1.0			NR			
<b>Blank (B6B0538-BLK2)</b>				Prepared: 2/17/2016 Analyzed: 2/18/2016				
Lead	ND	1.0			NR			
<b>LCS (B6B0538-BS1)</b>				Prepared: 2/17/2016 Analyzed: 2/18/2016				
Lead	1.86875		2.00000		93.4 80 - 120			
<b>Duplicate (B6B0538-DUP1)</b>		<b>Source: 1600584-32</b>			Prepared: 2/17/2016 Analyzed: 2/18/2016			
Lead	18.2781	1.0		17.0873	NR	6.73	20	
<b>Duplicate (B6B0538-DUP2)</b>		<b>Source: 1600584-38</b>			Prepared: 2/17/2016 Analyzed: 2/18/2016			
Lead	0.303796	1.0		0.297252	NR	2.18	20	J
<b>Matrix Spike (B6B0538-MS1)</b>		<b>Source: 1600584-32</b>			Prepared: 2/17/2016 Analyzed: 2/18/2016			
Lead	19.1164		2.50000	17.0873	81.2 44 - 130			
<b>Matrix Spike (B6B0538-MS2)</b>		<b>Source: 1600584-38</b>			Prepared: 2/17/2016 Analyzed: 2/18/2016			
Lead	2.61911		2.50000	0.297252	92.9 44 - 130			
<b>Matrix Spike Dup (B6B0538-MSD1)</b>		<b>Source: 1600584-32</b>			Prepared: 2/17/2016 Analyzed: 2/18/2016			
Lead	19.5880		2.50000	17.0873	100 44 - 130	2.44	20	



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 Thousand Oaks, CA 91361

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 Reported : 02/22/2016

### Mercury by AA (Cold Vapor) EPA 7470A - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
<b>Batch B6B0512 - EPA 245.1/7470_W</b>								
<b>Blank (B6B0512-BLK1)</b>								
Mercury	ND	0.20			NR			Prepared: 2/17/2016 Analyzed: 2/17/2016
<b>LCS (B6B0512-BS1)</b>								
Mercury	10.9262	0.20	10.0000		109 80 - 120			Prepared: 2/17/2016 Analyzed: 2/17/2016
<b>Duplicate (B6B0512-DUP1)</b>								
Mercury	ND	0.20		ND	NR		20	Source: 1600561-01 Prepared: 2/17/2016 Analyzed: 2/17/2016
<b>Matrix Spike (B6B0512-MS1)</b>								
Mercury	10.2915	0.20	10.0000	ND	103 70 - 130			Source: 1600561-01 Prepared: 2/17/2016 Analyzed: 2/17/2016
<b>Matrix Spike Dup (B6B0512-MSD1)</b>								
Mercury	10.3512	0.20	10.0000	ND	104 70 - 130	0.578	20	Source: 1600561-01 Prepared: 2/17/2016 Analyzed: 2/17/2016
<b>Post Spike (B6B0512-PS1)</b>								
Mercury	5.22483		5.00000	ND	104 85 - 115			Source: 1600561-01 Prepared: 2/17/2016 Analyzed: 2/17/2016





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## pH by EPA 9045C - Quality Control

Analyte	Result (pH Units)	PQL (pH Units)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes
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### Batch B6B0473 - Prep\_WC1\_S

#### Duplicate (B6B0473-DUP1)

Source: 1600584-02

Prepared: 2/16/2016 Analyzed: 2/16/2016

pH	6.21000	0.10		6.71000	NR		7.74	20	
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Report To : Anne Perez  
Reported : 02/22/2016

### Notes and Definitions

R	RPD value outside acceptance criteria. Calculation is based on raw values.
M1	Matrix spike recovery outside of acceptance limit. The analytical batch was validated by the laboratory control sample.
J	Analyte detected below the Practical Quantitation Limit but above or equal to the Method Detection Limit. Result is an estimated concentration.
D5	Sample diluted due to failing internal standard in the original run.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

- Notes:
- (1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
  - (2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.
  - (3) Results are wet unless otherwise specified.







STANTEC CHAIN-OF-CUSTODY RECORD

COC #

Page 3 of 4

FIELD OFFICE INFORMATION		PROJECT INFORMATION		ANALYSIS / METHOD REQUEST										REMARKS / PRECAUTIONS						
OFFICE: Stantec - Thousand Oaks Send Report to: Stantec 290 Conejo Ridge Avenue Thousand Oaks CA 91361 Telephone: (805) 230-1266 Fax/E-Mail: anne.perez@stantec.com kristy.edblad@stantec.com		Project No.: 185832032 Task: 200.0004 Project Name: Caltrans 07A3322-32 Project Manager: Anne Perez Laboratory: Advanced Technology Laboratories 3275 Walnut Avenue Signal Hill CA 90755		Number of Containers Total Lead Cal-WET Chrc (Lead) TCLP (Lead) Title 22 Metals PH										TAT Normal <input checked="" type="checkbox"/> Rush <input type="checkbox"/> Other: <input type="checkbox"/> REPORTING REQUIREMENTS MB & SURGS <input type="checkbox"/> Dup/MS/MSD <input type="checkbox"/> Raw Data <input type="checkbox"/> CLP Rpt <input type="checkbox"/> EDD <input checked="" type="checkbox"/> Other: <input type="checkbox"/>						
Sample No./ Identification	Date	Time	Matrix *	Container & Size **	Preservative	Total Lead	Cal-WET Chrc (Lead)	TCLP (Lead)	Title 22 Metals	PH										
1315-123-0	02/10/16	1055	SOIL	8 B02	NONE	X	X	X	X	X										
1315-124-0		1020																		
1315-125-0		1120																		
1315-126-0		0950																		
1315-127-0		1125																		
1315-128-0		0945																		
1315-129-0		1145																		
1315-130-0		0920																		
1315-131-0		1150																		
1315-132-0		0915																		
1315-133-0		0830																		
1315-134-0		0825																		

Possible Hazard Identification  
 Non-Hazardous  Flammable  Skin Irritant  Poison B  Unknown  Sample Disposal

Disposal by Lab  Archive for  Return to Client  Months

Shipment Method: LAB PICK-UP Airbill Number:

Signature	Print Name	Company	Date	Time
<i>[Signature]</i>	SCOTT BOBLAD	STANTEC	02/10/16	1630
<i>[Signature]</i>	JOCELYNE	APR	2/11/16	1633
<i>[Signature]</i>	JOCELYNE	APR	2/11/16	1418
<i>[Signature]</i>	V. ARMAN	APR	2/11/16	1418
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

\* Matrix Key: AQ = Aqueous AR = Air SO = Soil WA = Waste OT = Other  
 \*\* Container: A = Amber C = Clear Glass V = VOA S = Soil Jar O = Orbo T = Tedlar B = Brass P = Plastic OT = Other



  
**ADVANCED TECHNOLOGY**  
 LABORATORIES

**Sample Receipt Acknowledgement**

**Work Order # 1600584**

<b>Client:</b> Stantec - Thousand Oaks	<b>Project Manager:</b> Rachelle Arada
<b>Project:</b> 185832032, Task: 200.0004, Caltrans 07A3322-32	<b>Project Number:</b> 185832032, Task 200.0004, Caltrans 07A3322-32

**Report To:**  
 Stantec  
 Anne Perez  
 290 Conejo Ridge Avenue, Suite 200  
 Thousand Oaks, CA 91361  
 Phone: (805) 230-1266  
 Fax: (805) 230-1277

**Invoice To:**  
 Stantec  
 Anne Perez  
 290 Conejo Ridge Avenue, Suite 200  
 Thousand Oaks, CA 91361  
 Phone : (805) 230-1266  
 Fax: (805) 230-1277

Date Due: 02/18/16 17:00 (5 day TAT)	Date Received: 02/11/16 11:33
Received By: Ron Diwa	Date Logged In: 02/12/16 19:38
Logged In By: Carmen Aguila	Shipped by: ATL

Please review the checklist below. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues. If you have any questions or further instructions, please contact your Project Manager at (562) 989-4045.

Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Default Cooler      Temp: 5.1 °C
Sample(s) received on blue ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Cooler temperature within acceptance limit?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Shipping container received in good condition?	Not Applicable		
Custody seals present on shipping container?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Custody seals intact on shipping container?	Not Applicable		
Custody seals present on sample bottles?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Custody seals intact on sample bottles?	Not Applicable		
Chain of Custody (COC) present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sampler name present in COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
COC signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
COC agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample amount for indicated tests?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Water for VOC -- Were VOA vials submitted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Water samples submitted?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
VOA vials for VOC meet headspace criteria?	Not Applicable		
Water samples meet preservation criteria?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

**Sample Receipt Comments:**

**APPENDIX F  
DATA VALIDATION RECORDS**

## APPENDIX F

### DATA VALIDATION REPORT

#### STABILIZING SOIL EROSION

LA-57 (PM R1.95/5.61); LA-210, (PM 37.81/R45.46)  
Caltrans Contract Number 07A3322, Task Order #32  
EA Number: 300301 (EFIS: 07-0000-0436); WBS: 235  
Los Angeles County, California

The data validation procedure is based on the principles of the *U.S. EPA National Functional Guidelines* and U.S. EPA Region 9 requirements and is designed to ensure completeness and adequacy of the data set. Samples were collected and submitted for analysis to Advanced Technology Laboratories (ATL) in Signal Hill, California. Samples were analyzed for Total Title 22 Metals, Lead, STLC Lead and TCLP Lead by SW 846 6010B, Mercury by 7471A/7470A and pH by 9045C.

The Data Validation Reports/Checklists summarize compounds that were qualified and are attached to this summary. Data was validated based on Regional EPA and *U.S. EPA National Functional Guidelines*. Data validation was performed in accordance with the Scope of Work. Data validation was performed to ensure the quality of project data. One analytical report and associated addenda was validated:

- 1600584.

The data were validated and reviewed for the following:

- Completeness of data deliverables (chain of custody records, laboratory data, laboratory quality assurance and quality control (QA/QC) data);
- Sample holding time;
- Sample preservation;
- Blank data (method, trip, and equipment);
- Laboratory control sample (LCS) recovery;
- Laboratory duplicate sample precision;
- Matrix spike/matrix spike duplicate (MS/MSD) recovery;
- Field duplicate precision, and
- Overall data assessment.

The following summarizes the results of the validation:

1. Data Completeness: Data for 36 solid samples and 3 equipment blanks were collected February 10, 2016 were validated. Samples specified for analysis on the chain of custodies were analyzed as specified. The project goal of 90 percent completeness was achieved.
2. Sample Hold Times: All samples were analyzed within sample hold times.

3. Sample Preservation: All samples were preserved in appropriate containers and preservative.
4. Method Blanks: Several metals analytes (chromium, copper, lead, molybdenum and nickel) were reported in method blanks at very low concentrations. Associated sample results below the blank concentration are validated to non-detect and flagged "UJB". Sample results greater than the blank concentration are flagged "JB". The detection limit is changed to the blank concentration. Sample results greater than 10 times the blank concentration require no qualifying action.

Reason Code - MB

5. Equipment Blanks: Several metals were reported in equipment blanks at very low levels, and may be reflective of laboratory method blank detections, field artifact associated with dust, incomplete decontamination or artifact from contact with metal sampling equipment. Sample results greater than 10 times the blank concentration require no qualifying action.
6. Laboratory Control Samples: All LCS samples reported percent recoveries within method and/or laboratory limits.
7. Laboratory Duplicate Samples: Laboratory duplicate samples were reported within the relative percent difference (RPD) control limit of 20 percent except for the following:
  - a. 6010B batch B6B0516 – Laboratory duplicate RPD above  $\pm 20\%$  limit for Molybdenum (22%). Associated sample result flagged "J" for 1315-102-0 only.
  - b. 6010B batch B6B0514 – Laboratory duplicate RPD above  $\pm 20\%$  limit for Lead (44%). Associated result flagged "J" for 1315-120-0 only.

Reason Code – LDUP

The discrepancy appears to be related to natural sample heterogeneity and the data were qualified as indicated above, but not rejected.

8. Matrix Spike and Spike Duplicates: Matrix spike and duplicate samples were analyzed to assess accuracy and to evaluate matrix effects on data analysis. The percent recoveries and RPDs were found to within laboratory-determined control limits except:

- a. 6010B batch B6B0568 – Matrix Spike %R below the 77% to 121% limit for TCLP Lead (74%). Associated sample result flagged “J” for 1315-114-0 only.

Reason Code – MS

- b. 7471A batch B6B0520 – Post digestion spike %R above  $\pm 15\%$  limit for Mercury. All associated sample result flagged “J” if positive.

Reason Code – PDS

9. No Field Duplicate was collected.

10. Data were considered “useable” and marked as such in the tables provided and that it was validated according to the EPA and scope of work. No results are qualified as “rejected”. The Data Validation Reports/Checklists summarize compounds that were qualified and are attached to this summary. Additionally, data qualifiers and the reason codes associated with the qualifier are in Tables 1 and 2.

**Stantec Analytical Validation Report/Checklist**

**Report No. 022416-EC-01**

Project Name: Caltrans 07A TO-32		Project Number: 185832032	
Stantec Validator: Elizabeth Crowley		Laboratory: ATL, Signal Hill, CA	
Date Validated: 02/23/16		Laboratory Project Numbers: 1600584	
Sample Start-End Date: 02/10/16		Laboratory Report Dates: 02/22/16	
Parameters Validated: Total Metals, STLC Lead, and TCLP Lead by EPA SW-846 6010B, Mercury by 7470A/7471A and pH by 9045C			
Samples Validated: 36 solid field samples and 3 Equipment Blanks			
<b>VALIDATION CRITERIA CHECK</b>			
Validation Flags Applicable to this Review:			
<b>U</b>	The analyte was analyzed for, but not detected above the reported sample quantitation limit.		
<b>J</b>	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.		
<b>UJ</b>	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.		
<b>NJ</b>	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.		
<b>R</b>	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.		
<b>B</b>	The analyte was detected in the method, field and/or trip blank.		
1.	Were all the analyses requested for the samples submitted with each COC completed by the lab?	Yes X	No
Comments: Additional analyses are dependent on initial analyses results, all required analyses reported.			
2.	Did the laboratory identify any non-conformances related to the analytical result?	Yes X	No
Comments: Refer to laboratory report for dilution and minor issues.			
3.	Were sample Chain-of-Custody forms complete?	Yes X	No
Comments:			
4.	Were samples received in good condition and at the appropriate temperature?	Yes X	No
Comments:			
5.	Were sample holding times met?	Yes X	No
Comments:			
6.	Were correct concentration units reported?	Yes X	No
Comments: Results reported in both mg/Kg and mg/L depending on the analytical method and/or matrix.			
7.	Were detections found in laboratory blank samples?	Yes X	No

<p>Comments: 6010B batch B6B0516 – Copper = 0.18 mg/kg, Molybdenum = 0.09 mg/kg and Nickel = 0.17 mg/kg.  Batch B6B0507 – Chromium = 0.0014 mg/L, Copper = 0.0029 mg/L, Lead = 0.0020 mg/L, Molybdenum = 0.0008 mg/L and Nickel = 0.0024 mg/L.  Sample results below the blank concentration are validated to non-detect and flagged “UJB”. Sample results greater than the blank concentration are flagged “JB”. The detection limit changed to the blank concentration. Sample results greater than 10 times the blank concentration require no qualifying action.  Reason Code – MB</p>		
8. Were detections found in field blank, equipment rinse blank, and/or trip blank samples?	Yes X	No
<p>Comments: EBA1 – Beryllium = 0.0003 mg/L, Chromium = 0.0024 mg/L and Molybdenum = 0.0010 mg/L.  EBA2 - Barium = 0.0013 mg/L, Beryllium = 0.0002 mg/L, Chromium = 0.0036 mg/L, Copper = 0.0041 mg/L, Molybdenum = 0.0014 mg/L and Thallium = 0.0037 mg/L.  EBB – Chromium = 0.0018 mg/L.  Associated sample results are greater than 10 times the blank concentrations. No qualifying action required.</p>		
9. Were instrument calibrations within method criteria?	Yes NA	No
<p>Comments: Level II data package and validation, no data provided.</p>		
10. Were surrogate recoveries within control limits?	Yes NA	No
<p>Comments:</p>		
11. Were laboratory control (LC/LD) sample recoveries within control limits?	Yes X	No
<p>Comments:</p>		
12. Were site specific matrix spike (MS/MD) recoveries within control limits?	Yes	No X
<p>Comments: 6010B batch B6B0568 - %Rs below 77% to 121% limits for TCLP Lead (74%). Associated result flagged “J” for 1315-114-0 only.  Reason Code – MS</p>		
13. Were RPDs within control limits?	Yes	No X
<p>Comments: 6010B batch B6B0516 – Laboratory duplicate RPD above ±20% limit for Molybdenum (22%). Associated result flagged “J” for 1315-102-0 only.   Batch B6B514 – Laboratory duplicate RPD above ±20% limit for Lead. Associated result flagged “J” for 1315-120-0 only.  Reason Code – LDUP</p>		
14. Were dilutions required on any samples?	Yes X	No
<p>Comments: No qualifying action required.</p>		
15. Were Tentatively Identified Compounds (TIC) present?	Yes X	No

Comments: Sample results below the reporting limit do not possess the degree of qualitative or quantitative confidence required. The value may be a false positive and is an estimated value and is flagged "NJ". Reason Code – SQL			
16. Were organic system performance criteria met?	NA	Yes	No
Comments: Level II data package, no data provided.			
17. Were GC/MS internal standards within method criteria?	NA	Yes	No
Comments: Level II data package, no data provided.			
18. Were inorganic system performance criteria met?		Yes	No X
Comments: 7471A batch B6B0520 – Post digestion spike above ±15% limit for Mercury. Associated sample results flagged "J" if positive. Reason Code – PDS			
19. Were blind field duplicates collected? If so, discuss the precision (RPD) of the results.		Yes	No X
Duplicate Sample Nos.			
Comments:			
20. Were at least 10 percent of the hard copy results compared to the Electronic Data Deliverable Results?	Yes X	No	Initials EAC
Comments:			
21. Other:		Yes	No X
Comments:			
<b>PRECISION, ACCURACY, METHOD COMPLIANCE AND COMPLETENESS ASSESSMENT</b>			
Precision:	Acceptable X	Unacceptable	Initials EAC
Comments: Data usable as qualified.			
Sensitivity:	Acceptable X	Unacceptable	Initials EAC
Comments: Samples analyzed at lowest levels possible to achieve required screening limits.			
Accuracy:	Acceptable X	Unacceptable	Initials EAC
Comments: Data usable as qualified.			
Representativeness:	Acceptable X	Unacceptable	Initials EAC
Comments:			

Method Compliance:	Acceptable X	Unacceptable	Initials EAC
Comments:			
Completeness:	Acceptable X	Unacceptable	Initials EAC
Comments: No data are rejected.			

II. City of Diamond Bar Business License and  
Encroachment Permit Application



# Business License Application

Community Development Department ~ 21810 Copley Drive ~ Diamond Bar, CA 91765 ~ (909) 839-7030 ~ www.DiamondBarCA.gov

<b>Check the Box that Applies:</b>	<b>Staff Use Only Business License #:</b>
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- |  |  |   |
|--|--|---|
| <input type="checkbox"/> New Business (Zoning Clearance Required): \$53.77               | <input type="checkbox"/> Business Located Out of City: \$11  | <input type="checkbox"/> New Home Based Business License (Zoning Clearance Required): \$53.77 |
| <input type="checkbox"/> Non-Profit Business: Fee Waived with Proof of Non-Profit Status | <input type="checkbox"/> Business Requiring Background Check(s) (Complete back of application form)*: \$311 Per Person | <input type="checkbox"/> Change of Location (Zoning Clearance Required): \$53.77              |
| <input type="checkbox"/> Business License Renewal: \$11                                  | <input type="checkbox"/> Business License Renewal for Businesses Requiring Background Checks*: \$23                    | <input type="checkbox"/> Change of Business Name or Ownership Only: \$11                      |

**Pursuant to SB 1186, all fees include a State-mandated \$1 fee to fund accessibility programs for disabled persons.**

**\*See reverse for a list of businesses requiring background checks**

## BUSINESS INFORMATION

Business Name: \_\_\_\_\_ Business Phone: \_\_\_\_\_

Description of Business Activities: \_\_\_\_\_

# of Employees: \_\_\_\_\_

Business Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Mailing Address (If Different From Above): \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

E-mail: \_\_\_\_\_ Website: \_\_\_\_\_

**After Hours Contact:** \_\_\_\_\_ **Phone:** \_\_\_\_\_

## PLEASE READ, SIGN AND DATE

I declare, under penalty of perjury under the laws of the State of California, that the information provided in this application is true and correct. I understand that the issuance of a business license does not constitute approval of land use, and that I am responsible for compliance with the City's zoning, building, health and safety requirements and all other applicable laws prior to the commencement of business.

Business Owner \_\_\_\_\_ Owner 2 (If Applicable) \_\_\_\_\_

Print Name: \_\_\_\_\_ Print Name: \_\_\_\_\_

Title: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_

<b><u>STAFF USE ONLY</u></b>	
Classification Code: _____	Amount Paid: _____
Zoning Approval: _____	Processed By: _____
Comments: _____	Date Processed: _____



## ENCROACHMENT PERMIT APPLICATION

**City of Diamond Bar**  
**Public Works | Engineering Department**  
 21810 Copley Drive, Diamond Bar California 91765

The undersigned hereby makes application to construct specific improvements on public streets at the location described below with the understanding all work is subject to the provisions of the City of Diamond Bar Municipal Code and an approved Street Construction Permit.

Permittee shall indemnify and hold harmless City (including of its officers, employees and agents) from and against all claims, causes of action, liabilities, losses and damages for injuries to persons and property, including reasonable costs of defense and attorney and expert fees, arising from Permittee's work described in and undertaken under and pursuant to this Permit. Permittee shall promptly pay the amount of any judgement rendered against City (including its officers, employees and agents) for any such indemnified claims, and reasonable costs and attorney and expert fees incurred by City in the defense if such claims.

Traffic Control devices shall be installed per MUTCD and W.A.T.C.H. Handbook before start of construction.

**This permit shall expire Ninety (90) days after the date of issuance unless otherwise indicated below.**

A 30 day extension may be obtained at the discretion of the City Engineer with payment of an extension fee or any other fee that may be required. The City Engineer reserves the right to terminate any permit.

**PROPOSED CONSTRUCTION:**  
**(Describe and show sketch if appropriate)**

**IMPORTANT NOTICE**

Section 4216/4217 of the Government Code requires a DigAlert Identification Number be issued before a "Permit to Excavate" will be valid. For your DigAlert I.D. Number Call Underground Service Alert  
 TOLL FREE 1-800-422-4133  
 Two working days before you dig

**LOCATION OF WORK:**

_____ Signature of Applicant	_____ Date
_____ Applicant (Print)	_____ Contractor
_____ Address, City, Zip Code	_____ Address, City, Zip Code
_____ Telephone (Office & 24 hr. Emergency Numbers)	_____ Telephone (Office & 24 hr. Emergency Numbers)

PERMIT NO. \_\_\_\_\_

DATE ISSUED \_\_\_\_\_

PLAN CHECK FEE:

PERMIT ISSUANCE FEE:

TOTAL FEE:

PROCESSED BY:

DATE:

**WORK INITIATED BEFORE CALLING FOR INSPECTION UNDER THIS PERMIT IS SUBJECT TO REMOVAL AND RECONSTRUCTION.**

**CALL (909) 839-7040 AT LEAST 24 HOURS BEFORE STARTING WORK.**