

# **INFORMATION HANDOUT**

## **ENCROACHMENT UNDER PERMIT**

CITY OF SAN LEANDRO

Letter to City Manager dated 9/25/2013 informing of work to be performed on City Right of Way.

## **UNDERGROUND CLASSIFICATION**

STATE OF CALIFORNIA

DIVISION OF OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

MINING AND TUNNELING UNIT

CLASSIFICATION NO. C051-001-14T dated 1/28/2014

with request form for mandated pre-job conference

Jurisdiction Letter dated 6/1/2010

## **MATERIALS INFORMATION**

PRELIMINARY SITE INVESTIGATION REPORT

Including LEAD INVESTIGATION REPORT

Dated 12/2013

FOUNDATION REPORT

Dated 1/23/2014

**ROUTE: 04-Ala-580-R33.4**

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF RIGHT OF WAY

111 GRAND AVENUE

P. O. BOX 23440, MS -11A

OAKLAND, CA 94623-0440

PHONE (510) 622-0801

FAX (510) 286-5379

TTY (711)

*Flex your power!  
Be energy efficient!*

September 25, 2013

4-Ala-580-P.M. 33.4

E.A. 2G8602

Project No. 04 1200 0009

San Leandro City Hall  
Attn: Chris Zapata, City Manager  
835 East 14<sup>th</sup> Street  
San Leandro, CA 94577

Dear Mr. Zapata,

The California Department of Transportation (Caltrans) will be repairing the storm damage on the Interstate 580 Benedict Drive off-ramp in 2014/2015. Currently the left lane of the off-ramp has settled and is causing cracking. To repair this, the Caltrans will construct a soldier pile and wood lagging wall next to the left shoulder. The wall will be buried in place. During construction the left lane will be closed.

As part of the project the Caltrans will remove the existing traffic island at the end of the off-ramp to Benedict Drive to facilitate traffic turning during construction. The existing island lies within both State right of way and City right of way. Once construction is finished the island will be rebuilt on State right of way. The City's right of way will be filled in with mix asphalt and become part of the City's paved roadway.

The highlighted area, as shown on the attached map, will be considered as an encroachment under permit in the City's right of way.

If you have any questions, please contact Right of Way Agent Alexandra Feuchter at (510) 622-0801.

Sincerely,

A handwritten signature in cursive script that reads "Allison G. Paich".

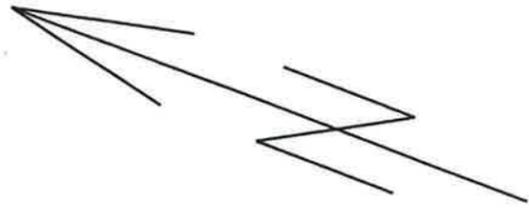
ALLISON G. PAICH

District Office Chief

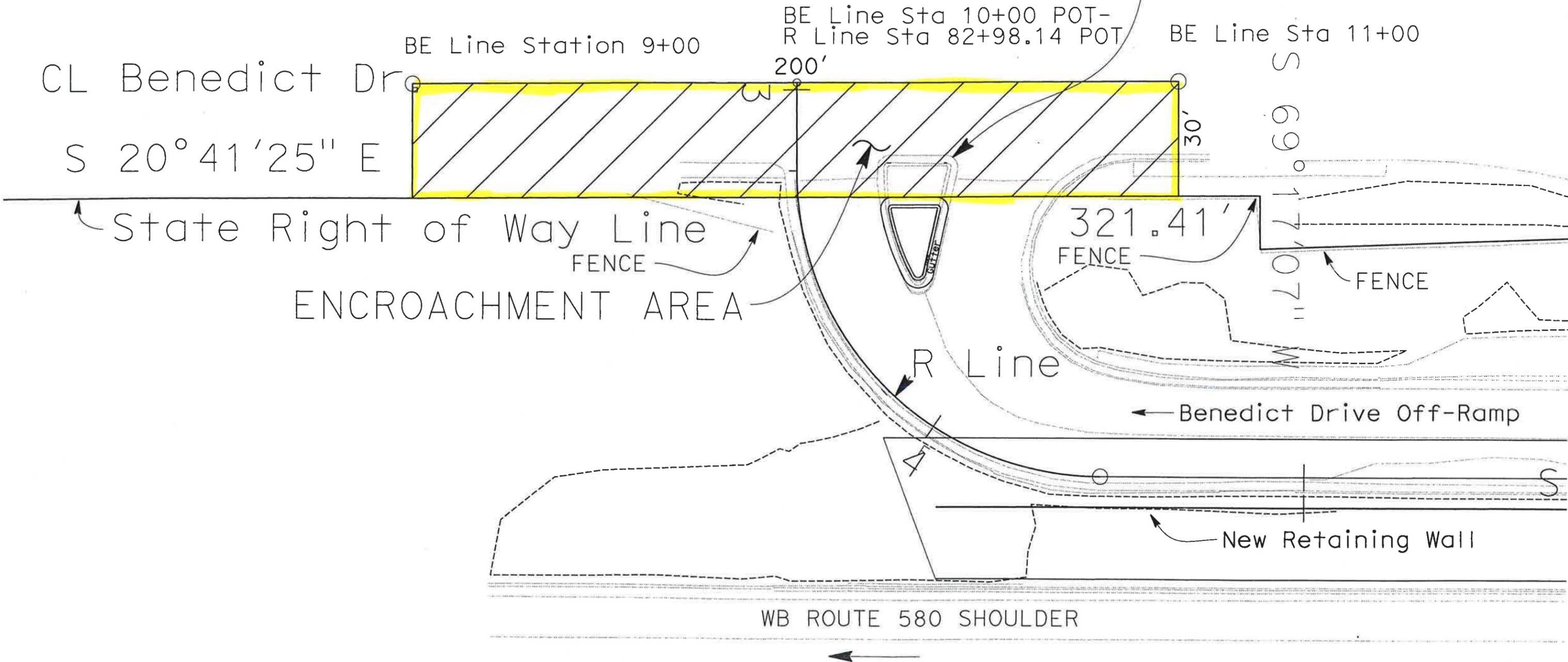
R/W Acquisition and

Project Management Services

Attachment



Remove Concrete Island and Gutter.  
Pave with Hot Mix Asphalt outside  
of State Right of Way.



**PRELIMINARY PLANS**  
SUBJECT TO REVISIONS

DEPARTMENT OF INDUSTRIAL RELATIONS  
DIVISION OF OCCUPATIONAL SAFETY AND HEALTH  
MINING AND TUNNELING UNIT

2424 Arden Way, Suite 125  
Sacramento, California 95825  
doshM&Tsac@dir.ca.gov



Telephone (916) 574-2540  
FAX (916) 574-2542

January 28, 2014

California Department of Transportation  
DESIGN EAST, ALAMEDA COUNTY, 11<sup>th</sup> Floor  
PO Box 23660  
Oakland, CA 94623

Attention: Paul Snyder, Project Engineer

Subject: Underground Classification No. C051-001-14T  
Classification: Potentially Gassy With Special Conditions  
Project: Benedict Drive Soldier Pile Wall, San Leandro

The information provided to this office relative to the above project has been reviewed. On the basis of this analysis, an Underground Classification of "Potentially Gassy With Special Conditions" has been assigned to the tunnel identified on your submittal. Please retain the original Classification for your records and deliver a true and correct copy of the Classification to the tunnel contractor for posting at the job site.

When the contractor who will be performing the work is selected, please advise them to notify this office to schedule the mandated Pre-Job Conference with the Division prior to commencing any activity associated with boring of the tunnel. A Pre-Job Request Form is enclosed.

Should you have another bore under construction that is not required to have an Underground Classification (i.e.: less than 30 inches in diameter), please contact the Mining and Tunneling Unit prior to any employee entry of such a space.

If you have any questions on this subject, please contact this office at your earliest convenience.

Sincerely,



Douglas Patterson  
Senior Engineer

enc: Classification  
Pre-Job Request Form

cc: Paul\_Snyder@dot.ca.gov  
RBrockman@dir.ca.gov



State of California

Department of Industrial Relations

DIVISION OF OCCUPATIONAL SAFETY AND HEALTH  
MINING AND TUNNELING UNIT

# Underground Classification

**C051-001-14T**

**CALIFORNIA DEPARTMENT OF TRANSPORTATION**

of **DESIGN EAST, ALAMEDA COUNTY, 11TH FLOOR, PO BOX 23660; OAKLAND, CA 94623**

at **BENEDICT DRIVE SOLDIER PILE WALL**

has been classified as **\*\*\* POTENTIALLY GASSY WITH SPECIAL CONDITIONS \*\*\***

as required by the California Labor Code § 7955.

The Division shall be notified if sufficient quantities of flammable gas or vapors have been encountered underground. Classifications are based on the California Labor Code Part 9, Tunnel Safety Orders and Mine Safety Orders.

### **\*\*\*SPECIAL CONDITIONS\*\*\***

- 1. A Certified Gas Tester shall perform pre-entry and continuous monitoring of the underground environment to measure Oxygen and detect explosive, flammable, and toxic gasses whenever an employee is working in the underground environment.**
- 2. Mechanical ventilation shall provide for continuous exhaust of fumes and air at any time an employee is working in the underground environment. The primary ventilation fans must be located outside of the underground environment and shall be reversible by a single switch near the fan location.**
- 3. The Division shall be notified immediately if any Flammable Gas or Petroleum Vapor exceeds 5% of the Lower Explosive Limit.**
- 4. All utilities that may be in conflict with the project shall be identified and physically located (potholed) prior to the start of project operations.**

### **GAS MAIN, WATER LINE AND CONCRETE DRAIN**

**The fifty-eight 30-inch diameter 22-foot deep drilled shafts alongside Route 580, located at the intersection of Sherry Court & Benedict Drive in San Leandro, Alameda County**

This classification shall be conspicuously posted at the place of employment.

  
\_\_\_\_\_  
Douglas Patterson, Senior Engineer

January 28, 2014

# REQUEST FOR PRE-JOB (TUNNEL)

## ATTACH COPY OF CLASSIFICATION AND DIESEL PERMIT

Company Name: \_\_\_\_\_

Phone \_\_\_\_\_ FAX: \_\_\_\_\_

**DATE FAXED:** \_\_\_\_\_

*PLEASE NOTE: THE BORING CONTRACTOR SHOULD SCHEDULE THE PREJOB AS FAR IN ADVANCE AS POSSIBLE - AT LEAST 3-4 DAYS IN ADVANCE. THE DIVISION REQUIRES THE JOB TO BE SET UP WHEN THE FIELD ENGINEER ARRIVES FOR THE PREJOB. THIS MEANS THAT THE BORE PIT HAS BEEN DUG AND PROPERLY GUARDED, THE CRANE IS IN PLACE AND READY TO LIFT, THE BORING MACHINE IS IN THE PIT AND READY TO GO, AND THE CREW IS READY TO BEGIN BORING THE TUNNEL. IF THERE IS A DELAY IN SETTING UP THE JOB, THE BORING CONTRACTOR SHOULD CONTACT THE DIVISION IMMEDIATELY.*

**PRE-JOB REQUEST DATE & TIME:** \_\_\_\_\_

**ON-SITE SUPERVISOR & CELL NO.:** \_\_\_\_\_

**CLASSIFICATION #:** \_\_\_\_\_ **DIESEL PERMIT #:** \_\_\_\_\_

**BORE DIAMETER AND LENGTH:** \_\_\_\_\_ (Diameter) \_\_\_\_\_ (Length)

**IS BORE ENTRY ANTICIPATED?** YES NO  
(Circle One)

*You MUST contact the Division if entry is planned, REGARDLESS of the bore diameter.*

**MANNER OF EXCAVATION:** \_\_\_\_\_

**JOB-SITE LOCATION AND DIRECTIONS:** \_\_\_\_\_

**GENERAL CONTRACTOR:** \_\_\_\_\_

**SUBMITTED BY:** \_\_\_\_\_

**REVIEWED BY:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

Mining & Tunneling Unit, District 1  
2424 Arden Way, Suite 125  
Sacramento, California 95825-2400  
(916) 574-2540; FAX: (916) 574-2542

Mining & Tunneling Unit, District 2  
6150 Van Nuys Blvd., Suite 310  
Van Nuys, California 91401-3333  
(818) 901-5420; FAX: (818) 901-5579

Mining & Tunneling Unit, District 3  
464 West Fourth Street, Suite 354  
San Bernardino, California 92401-1442  
(909) 383-6782; FAX: (909) 388-7132

DEPARTMENT OF INDUSTRIAL RELATIONS  
DIVISION OF OCCUPATIONAL SAFETY  
AND HEALTH ADMINISTRATION  
MINING AND TUNNELING UNIT HEADQUARTERS  
1367 E. LASSEN AVENUE, SUITE B-4  
CHICO, CA 95973  
(530) 895-6938 FAX (530) 895-6941



June 1, 2010

Subject: Jurisdiction at Vertically Bored Construction Shafts

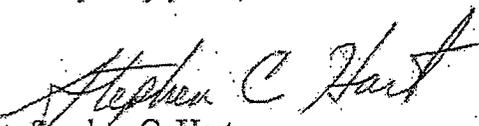
To Whom It May Concern:

In response to several California Appeals Board decisions, the Cal/OSHA Mining and Tunneling Unit has modified the application of jurisdiction which applies to vertically-bored construction shafts. Until Title 8 is permanently changed, the following interim policy shall be in effect:

1. Vertically-bored construction shafts less than 20-feet deep, whether men are inside or not, will fall under the jurisdiction of the Construction Safety Orders (CSOs) and other applicable provisions of Title 8.
2. Vertically-bored construction shafts deeper than 20-feet, where men do not enter the shaft, will fall under the jurisdiction of the CSOs (no Classification, Pre-Job, Gas Tester, or Safety Representative is required) and other applicable provisions of Title 8.
3. Vertically-bored construction shafts deeper than 20-feet, where men enter the shaft to perform work, will fall under the jurisdiction of the Tunnel Safety Orders and other applicable provisions of Title 8.

All construction shaft inspections by Cal/OSHA personnel will be performed with these jurisdictional constraints in mind. If there are any questions regarding this interim policy, please contact an M&T Senior Engineer or myself.

Very truly yours,

  
Stephen C. Hart  
Principal Safety Engineer  
DOSH Mining and Tunneling Unit

cc. All M&T Senior Engineers

# PRELIMINARY SITE INVESTIGATION REPORT



## BENEDICT DRIVE STORM DAMAGE REPAIR SAN LEANDRO, CALIFORNIA

PREPARED FOR:  
CALIFORNIA DEPARTMENT OF TRANSPORTATION  
DISTRICT 4  
OFFICE OF ENVIRONMENTAL ENGINEERING  
111 GRAND AVENUE, MS8C  
OAKLAND, CA 94612



PREPARED BY:  
GEOCON CONSULTANTS, INC.  
6671 BRISA STREET  
LIVERMORE, CA 94550



GEOCON PROJECT NO. E8560-02-49  
CALTRANS EA 04-2G8601  
CALTRANS PROJECT # 04-1200-0009-1

DECEMBER 2013

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- B. Laboratory Reports and Chain-of-Custody Documentation
- C. Metal Statistical Analysis

## REPORT LIMITATIONS

This report has been prepared exclusively for the State of California Department of Transportation (Caltrans) District 4. The information contained herein is only valid as of the date of the report and will require an update to reflect additional information obtained.

This report is not a comprehensive site characterization and should not be construed as such. The findings as presented in this report are predicated on the results of the limited sampling and laboratory testing performed. In addition, the information obtained is not intended to address potential impacts related to sources other than those specified herein. Therefore, the report should be deemed conclusive with respect to only the information obtained. We make no warranty, express or implied, with respect to the content of this report or any subsequent reports, correspondence or consultation. Geocon strived to perform the services summarized herein in accordance with the local standard of care in the geographic region at the time the services were rendered.

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

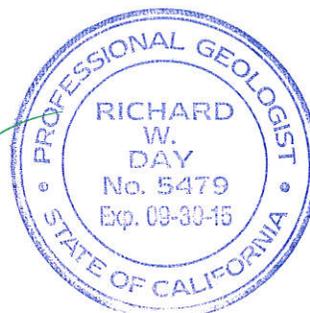
### GEOCON CONSULTANTS, INC.



Luann Beadle  
Senior Staff Scientist



Richard Day, CEG, CHG  
Senior Geologist



### CALIFORNIA DEPARTMENT OF TRANSPORTATION – DISTRICT 4 OFFICE OF ENVIRONMENTAL ENGINEERING

Reviewed By:

Recommended By:

Approved By:

Keith Fang  
Task Order Manager

Chris Wilson, PE  
District Branch Chief

Allen Baradar, PE  
District Office Chief

## PROJECT TEAM

<b>Contact</b>	<b>Affiliation</b>	<b>Responsibility</b>
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Keith Fang 510.622.8795 510.286.5639 fax <a href="mailto:keith.fang@dot.ca.gov">keith.fang@dot.ca.gov</a>	Caltrans – District 4 Environmental Engineering 111 Grand Avenue, MS8C Oakland, CA 94612	Task Order Manager
Richard Day, CEG, CHG Luann Beadle 925.371.5900 925.371.5915 fax <a href="mailto:livermore@geoconinc.com">livermore@geoconinc.com</a>	Geocon Consultants, Inc. 6671 Brisa Street Livermore, CA 94550 ( <i>Caltrans Consultant</i> )	Project Management Sample Collection Field QA/QC Investigation Report
Doug Krause, CIH 530.758.6397 530.758.6506 fax <a href="mailto:dkrause@pacbell.net">dkrause@pacbell.net</a>	Krause & Associates 216 F. Street Suite 162 Davis, CA 95616 ( <i>Geocon Subconsultant</i> )	Health and Safety
Baojia Ke 510.895.3675 510.895.3680 fax <a href="mailto:sanleandrolab@emsl.com">sanleandrolab@emsl.com</a>	EMSL Analytical, Inc. 2235 Polvorosa Ave., Suite 230 San Leandro, CA 94577 ( <i>Geocon Subcontractor</i> )	Soil Sample Analysis
Jose Tenorio, Jr. 702.307.2659 702.307.2691 fax <a href="mailto:jojo@atl-labs.com">jojo@atl-labs.com</a>	Advanced Technology Laboratories 3151 Post Road Las Vegas, NV 89118 ( <i>Geocon Subcontractor</i> )	Soil Sample Analysis

# PRELIMINARY SITE INVESTIGATION REPORT

## 1.0 INTRODUCTION

This Preliminary Site Investigation Report for the Benedict Drive off-ramp from westbound Interstate 580 (I-580) settlement repair project in San Leandro, Alameda County, California was prepared by Geocon Consultants, Inc. under California Department of Transportation (Caltrans) Contract No. 04A3578 and Task Order No. 49 (TO-49), EA 04-2G8601.

### 1.1 Project Description and Proposed Improvements

Settlement of the slope along westbound I-580 has resulted in roadway damage and proposed activities include the excavation of soil for slope stabilization work and repair of the roadway. The project includes repairing the left lane of the Benedict Drive off-ramp. Work will take place within Caltrans right-of-way. The project location is depicted on the attached Vicinity Map, Figure 1.

### 1.2 General Objectives

The purpose of the site investigation was to evaluate concentrations of California Assessment Manual 17 (CAM 17) metals, particularly aeriually-deposited lead (ADL), total petroleum hydrocarbons as diesel (TPHd), as motor oil (TPHmo), and as gasoline (TPHg), benzene, toluene, ethylbenzene, and total xylenes (BTEX), and naturally-occurring asbestos (NOA) in soil within the project limits.

The information obtained from this investigation will be used by Caltrans to evaluate soil handling practices, worker health and safety, and soil and groundwater reuse and disposal options.

## 2.0 BACKGROUND

### 2.1 Hazardous Waste Determination Criteria

Regulatory criteria to classify a waste as California hazardous for handling and disposal purposes are contained in the CCR, Title 22, Division 4.5, Chapter 11, Article 3, §66261.24. Criteria to classify a waste as Resource, Conservation, and Recovery Act (RCRA) hazardous are contained in Chapter 40 of the Code of Federal Regulations (40 CFR), Section 261.

For waste containing metals, the waste is classified as California hazardous when: 1) the representative total metal content equals or exceeds the respective Total Threshold Limit Concentration (TTLC); or 2) the representative soluble metal content equals or exceeds the respective Soluble Threshold Limit Concentration (STLC) based on the standard Waste Extraction Test (WET). A waste has the potential of exceeding the STLC when the waste's total metal content is greater than or equal to ten times the

respective STLC value since the WET uses a 1:10 dilution ratio. Hence, when a total metal is detected at a concentration greater than or equal to ten times the respective STLC, and assuming that 100 percent of the total metals are soluble, soluble metal analysis is required. A material is classified as RCRA hazardous, or Federal hazardous, when the representative soluble metal content equals or exceeds the Federal regulatory level based on the Toxicity Characteristic Leaching Procedure (TCLP).

The above regulatory criteria are based on chemical concentrations. Wastes may also be classified as hazardous based on other criteria such as ignitability and corrosivity; however, for the purposes of this investigation, toxicity (i.e., representative lead concentrations) is the primary factor considered for waste classification since waste generated during the construction activities would not likely warrant testing for ignitability or other criteria. Waste that is classified as either California hazardous or RCRA hazardous requires management as a hazardous waste.

## **2.2 DTSC Variance**

The DTSC issued a statewide Variance effective July 1, 2009, regarding the management of ADL-impacted soils within Caltrans right-of-way. Under the Variance, soil that originates from Caltrans right-of-way and is classified as a non-RCRA hazardous waste (i.e., California hazardous waste), based primarily on ADL content (i.e., total lead  $\geq 1,000$  mg/kg and/or soluble WET lead  $\geq 5$  mg/l), may be suitable for reuse within Caltrans right-of-way. ADL soil that is classified as a RCRA hazardous waste is not eligible for reuse under the Variance and must be disposed of as a RCRA hazardous waste (Caltrans Type Z-3).

ADL soil reused under the Variance must always be at least five feet above the highest groundwater elevation and, depending on lead concentrations, must be covered with at least one foot of non-hazardous soil or a pavement structure. The ADL soil may not be placed in areas where it might contact groundwater or surface water (such as streams and rivers), and must be buried in locations that are protected from erosion that may result from storm water run-on and run-off.

Review of the statewide Variance indicates the following conditions regarding the reuse and management of ADL-impacted soil as fill material for construction and maintenance operations. If ADL soil meets the Variance criteria but is not intended to be reused within Caltrans right-of-way, then the excavated soil must be disposed of as a California hazardous waste (Caltrans Type Z-2). A copy of the Variance is presented as Appendix A.

**Caltrans Type Y-1:** ADL soil exhibiting a total lead concentration less than or equal to 1,411 milligrams per kilogram (mg/kg), a DI-WET (WET using deionized water as extractant) lead concentration less than or equal to 1.5 milligrams per liter (mg/l), and a pH value greater than or equal to 5.5 may be reused within the same Caltrans corridor and must be covered with at least one foot of non-hazardous soil.

**Caltrans Type Y-2:** ADL soil exhibiting a total lead concentration less than or equal to 1,411 mg/kg, a DI-WET lead concentration less than or equal to 1.5 mg/l, and a pH value greater than 5 and less than 5.5 may be reused within the same Caltrans corridor and must be covered and protected from infiltration by a pavement structure.

ADL soil exhibiting a total lead concentration less than or equal to 1,411 mg/kg, a DI-WET lead concentration greater than 1.5 mg/l and less than or equal to 150 mg/l, and a pH value greater than 5 may be reused within the same Caltrans corridor and must be covered and protected from infiltration by a pavement structure.

ADL soil exhibiting a total lead concentration greater than 1,411 mg/kg and less than or equal to 3,397 mg/kg, a DI-WET lead concentration less than or equal to 150 mg/l, and a pH value greater than 5 may be reused within the same Caltrans corridor and must be covered and protected from infiltration by a pavement structure.

**Caltrans Type Z-2:** ADL soil exhibiting a total lead concentration greater than 3,397 mg/kg, a DI-WET lead concentration greater than 150 mg/l, or a pH value less than or equal to 5 is not eligible for reuse under the Variance and must be disposed of as a California hazardous waste.

**Caltrans Type Z-3:** ADL soil exhibiting a TCLP lead concentration greater than or equal to 5 mg/l is not eligible for reuse under the Variance and must be disposed of as a RCRA hazardous waste.

### **2.3 Environmental Screening Levels**

The San Francisco Bay Regional Water Quality Control Board (SFRWQCB) has prepared a technical report entitled *Screening For Environmental Concerns At Sites With Contaminated Soil and Groundwater, Interim Final* (updated May 2013), which presents Environmental Screening Levels (ESLs) for soil, groundwater, soil gas, and surface water, to assist in evaluating sites impacted by releases of hazardous chemicals. The ESLs are conservative values for more than 100 commonly detected contaminants which may be used to compare with environmental data collected at a site. “The ESLs are intended to help expedite the identification and evaluation of potential environmental concerns at sites where contamination has been identified. Data collected at a site can be directly compared to the ESLs, and the need for additional actions quickly determined” (RWQCB May 2013).

ESLs are strictly risk assessment tools and “not intended to serve as a rule to determine if a waste is hazardous under the state or federal regulations (RWQCB May 2013).”

Residential and commercial/industrial land use ESLs are commonly used by contractors, soil trucking companies, and private and commercial land owners as default acceptance criteria to evaluate suitability of import soil material. The following ESL tables were used for this characterization:

- Table A. Shallow Soil ( $\leq 3$ m bgs), Groundwater is a Current or Potential Source of Drinking Water
- Table K-3. Direct Exposure Soil Screening Levels, Construction/Trench Worker Exposure Scenario

The respective ESLs are listed at the end of Tables 3 and 4 for comparative purposes.

## **2.4 Naturally Occurring Asbestos**

As defined in current California Air Resources Board (CARB) rules, serpentine material refers to any material that contains at least 10% serpentine, and asbestos-containing serpentine refers to serpentine materials with an asbestos content greater than 5% as determined by CARB Test Method 435 (CARB 435). The use of serpentine material for road surfacing is prohibited in California by Title 17 of the California Code of Regulations (CCR) Section 93106, Asbestos Airborne Toxic Control Measure (ATCM) for Surfacing Application (ATCM 93106), unless the material has been tested and determined to have an asbestos content of less than 0.25%. Materials found to contain asbestos of 0.25% or more are considered to be designated waste if transported offsite, requiring disposal at a landfill facility designated to accept asbestos waste. Alternatively, asbestos-containing materials may be reused onsite if buried beneath a minimum 6 inches of soil.

The CARB specifies mitigation practices for construction, grading, quarrying, and surface mining operations that contain natural occurrences of asbestos outlined in Title 17, Section 93105, Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations (ATCM 93105). Based on Part (e) Subpart (2) of ATCM 93105 an asbestos dust mitigation plan is required and must be implemented for a project if NOA is disturbed after the start of construction. Additionally, ATCM 93105 specifies that the air pollution control district (APCD) must be notified and an asbestos dust mitigation plan submitted to the APCD. The ATCM states that air monitoring may be required on the property. NOA potentially poses a health hazard when it becomes an airborne particulate.

The construction/maintenance activities mentioned above could disturb NOA-laden debris and soil, thereby potentially creating an airborne hazard. Mitigation practices can reduce the risk of exposure to airborne NOA containing dust. Dust suppression practices include wetting the materials being disturbed and wearing approved respirators with high-efficiency particulate air (HEPA) filters during construction activities.

### **3.0 SCOPE OF SERVICES**

The scope of services performed under TO-49, EA 04-2G8601 included the following:

#### **3.1 Pre-field Activities**

- Prepared the Preliminary Site Investigation Workplan and Health and Safety Plan, dated July 2013.
- Retained the services of Advanced Technology Laboratories, Las Vegas (ATL-LV), a Caltrans-approved and California-certified analytical laboratory, to perform the chemical analyses of soil samples.
- Retained the services of EMSL, Inc., a Caltrans-approved and California-certified analytical laboratory, to perform the asbestos analysis of soil samples.
- Notified Underground Service Alert (USA) at least 48 hours prior to field work.

#### **3.2 Field Activities**

The field investigation was performed on July 12, 2013, by Geocon staff. The following field activities were performed during the sampling efforts:

- Advanced nine soil borings at the project location using hand-auger drilling techniques. The borings were advanced to a maximum depth of 7 feet.
- Collected 45 soil samples and one equipment rinse blank.

All samples were transported to California-certified environmental laboratories for analysis under standard chain-of-custody (COC) documentation.

### **4.0 INVESTIGATIVE METHODS**

#### **4.1 Sampling Procedures**

Soil samples were collected using hand-auger sampling techniques from nine boring locations identified by the Caltrans TO Manager. Boring coordinates are presented on Table 1 and locations are shown on the Site Plan, Figure 2.

Soil samples were transferred from the hand-auger bucket to stainless steel tubes and sealed with Teflon tape and plastic end caps prior to being stored in a chest cooled with ice.

Sample containers were labeled and transported to a Caltrans-approved, certified environmental laboratory using standard COC documentation. Soil borings were back-filled to surface with soil cuttings.

Geocon provided QA/QC procedures during the field activities. These procedures included washing the sampling equipment with a Liqui-Nox® solution followed by a double rinse with deionized water. The equipment rinse blank was collected by pouring deionized water over the cleaned sampling equipment and collecting it into a sample container for laboratory analysis. Decontamination water was disposed of to the ground surface within Caltrans right-of-way in a manner not to create runoff, and away from drain inlets or potential water bodies.

## 4.2 Laboratory Analyses

Laboratory analyses were performed by ATL-LV and EMSL under standard turnaround-time (TAT) per the Task Order Manager. The laboratory reports and COC documentation are included in Appendix B.

The soil samples were analyzed as follows:

- 10 samples for CAM 17 metals according to Title 22 CCR, EPA Test Methods 6010 ICAP and 7471.
- 35 samples for total lead according to Title 22 CCR, EPA Test Method 6010 ICAP.
- 9 samples with total chromium concentrations equal to or exceeding 50 mg/kg (i.e., equal to or exceeding ten times the STLC of 5.0 mg/l) were further analyzed for WET chromium.
- 6 samples with total lead concentrations equal to or exceeding 50 mg/kg (i.e., equal to or exceeding ten times the STLC of 5.0 mg/l) were further analyzed for WET lead.
- 4 samples with WET lead concentrations equal to or exceeding 5.0 mg/l were further analyzed for DI-WET lead.
- 4 samples with WET lead concentrations equal to or exceeding 5.0 mg/l were further analyzed for TCLP lead.
- 2 samples with total nickel equal to or exceeding 200 mg/kg (i.e., equal to or exceeding ten times the STLC of 20 mg/l) were further analyzed for WET nickel.
- 13 samples for TPHd/mo using EPA Test Method 8015.
- 4 samples for TPHg using EPA Test Method 8015.
- 15 samples for BTEX using to EPA Test Method 8260.
- 7 samples for NOA using CARB 435.
- 4 samples for pH using EPA Test Method 9045C.

The QA/QC equipment rinse blank sample was analyzed for total lead using EPA Test Method 6010 ICAP.

### **4.3 Laboratory QA/QC**

QA/QC procedures were performed for each method of analysis with specificity for each analyte listed in the test method's QA/QC. The laboratory QA/QC procedures included the following:

- One method blank for every ten samples, batch of samples or type of matrix, whichever was more frequent.
- One sample analyzed in duplicate for every ten samples, batch of samples or type of matrix, whichever was more frequent.
- One spiked sample for every ten samples, batch of samples or type of matrix; whichever was more frequent, with spike made at ten times the detection limit or at the analyte level.

Prior to submitting the samples to the laboratory, the COC documentation was reviewed for accuracy and completeness.

## **5.0 INVESTIGATIVE RESULTS**

### **5.1 Subsurface Conditions**

Observations during field activities indicated that soil in the area consisted of fill material with dry clay and sandy gravel to a depth of approximately 3 feet. Dry, dense clay with serpentine was present to a depth of 7 feet. Groundwater was not encountered.

### **5.2 Laboratory Analytical Results**

Laboratory analytical results are presented in Tables 2 through 6 and are summarized below:

- The following metals were not detected above their respective laboratory reporting limits: antimony, beryllium, cadmium, molybdenum, selenium, silver, and thallium
- Total chromium was reported at concentrations ranging from 47 to 170 mg/kg
- WET chromium was reported at concentrations ranging from 0.20 to 0.40 mg/l
- Total lead was reported at concentrations ranging from <0.99 to 510 mg/kg
- WET lead was reported at concentrations ranging from <0.050 to 32 mg/l
- DI-WET lead was reported at concentrations ranging from <0.050 to 0.35 mg/l
- TCLP lead was not detected at or above the reporting limit of 0.25 mg/l
- Total nickel was reported at concentrations ranging from 40 to 210 mg/kg
- WET nickel was reported at concentrations of 1.2 and 3.7 mg/l
- Remaining CAM 17 metals were reported in the samples at total concentrations below ten times their respective STLCs

- TPHd was reported at concentrations ranging from 1.2 to 150 mg/kg
- TPHmo was reported at concentrations ranging from 2.8 to 340 mg/kg
- TPHg was not detected at or above the reporting limit of 1.0 mg/kg
- BTEX was not detected at or above the reporting limits
- NOA was not detected in the samples at or above the target sensitivity of 0.25%

#### QA/QC Sample Results

- Total lead was not detected at or above the laboratory reporting limit of 0.0050 mg/l in the equipment rinse blank sample

### 5.3 Laboratory Quality Assurance/Quality Control

We reviewed the QA/QC results provided with the laboratory analytical reports. The data indicate non-detect results for the method blanks at or above reporting limits. The Matrix Spike (MS) and/or Matrix Spike Duplicate (MSD) were outside recovery criteria for several samples, possibly due to matrix interference; however, the associated laboratory control sample recoveries were acceptable. The relative percent differences (RPD) for MS/MSD were outside of recovery limits for several samples. Remaining samples and internal laboratory QA/QC samples showed acceptable recoveries and relative percent differences (RPDs). Based on this limited data review, no additional qualifications of the soil data are necessary, and the data are of sufficient quality for the purposes of this report.

### 5.4 Statistical Evaluation for Lead Detected in Soil Samples

Statistical methods were applied to the total lead data to evaluate: 1) the upper confidence limits (UCLs) of the arithmetic means of the total lead concentrations for each sampling depth; and 2) if an acceptable correlation between total and WET lead concentrations exists, that would allow the prediction of WET lead concentrations based on calculated UCLs. The lead data for the site were treated as a single sample population for statistical evaluation.

#### 5.4.1 Calculating the UCLs for the Arithmetic Mean

The upper one-sided 90% and 95% UCLs of the arithmetic mean are defined as the values that, when calculated repeatedly for randomly drawn subsets of site data, equal or exceed the true mean 90% and 95% of the time, respectively. Statistical confidence limits are the classical tool for addressing uncertainties of a distribution mean. The UCLs of the arithmetic mean concentration are used as the mean concentrations because it is not possible to know the true mean due to the essentially infinite number of soil samples that could be collected from a site. The UCLs account for uncertainties due to limited sampling data. As data become less limited at a site, uncertainties decrease, and the UCLs move closer to the true mean.

Non-parametric bootstrap techniques were used to calculate the UCLs. For those samples in which total lead was not detected, a value equal to one-half of the detection limit was used in the UCL calculation. The bootstrap test results are included in Appendix C. The following tables present the calculated UCLs and statistics for the site.

**Borings B1 to B9**

Sample Interval (feet)	Total Lead 90% UCL (mg/kg)	Total Lead 95% UCL (mg/kg)	Total Lead Mean (mg/kg)	Total Lead Minimum (mg/kg)	Total Lead Maximum (mg/kg)
0 to 0.5	159	179	98.6	19	510
1.0 to 1.5	18.7	19.9	14.6	2.2	33
2.0 to 2.5	32.9	37.5	17.2	0.5	120
3.0 to 3.5	3.64	3.93	2.60	0.5	6.9
4.0 to 4.5	2.95	3.16	2.25	0.5	3.6
5.0 to 5.5	NC	NC	1.87	1.4	2.4

NC – Not calculated due to insufficient data set

**5.4.2 Correlation of Total and WET Lead**

Total and corresponding WET lead concentrations are bivariate data with a linear structure. This linear structure should allow for the prediction of WET lead concentrations based on the maximum total lead concentrations presented in the table above.

To estimate the degree of interrelation between total and corresponding WET lead values ( $x$  and  $y$ , respectively), the *correlation coefficient* [ $r$ ] is used. The correlation coefficient is a ratio that ranges from +1 to -1. A *correlation coefficient* of +1 indicates a perfect direct relationship between two variables; a *correlation coefficient* of -1 indicates that one variable changes inversely with relation to the other. Between the two extremes is a spectrum of less-than-perfect relationships, including zero, which indicates the lack of any sort of linear relationship at all. The *correlation coefficient* was calculated for six ( $x$ ,  $y$ ) data points (i.e., soil samples analyzed for both total lead [ $x$ ] and WET lead [ $y$ ]) from the site. The resulting regression analysis yields an acceptable *coefficient of determination* ( $r^2$ ) of 0.8892, which yields a corresponding *correlation coefficient* ( $r$ ) of 0.943.

For the *correlation coefficient* that indicates a linear relationship between total and WET lead concentrations, it is possible to compute the line of dependence or a best-fit line between the two variables. A least squares method was used to find the equation of a best-fit line (regression line) by forcing the y-intercept equal to zero since that is a known point. The equation of the regression line was determined to be  $y = 0.0613(x)$ , where  $x$  represents total lead concentrations and  $y$  represents predicted WET lead concentrations.

This equation was used to estimate the expected WET lead concentrations for the total lead UCLs for the data set (see Section 5.4.1). Regression analysis results and a scatter plot depicting the  $(x, y)$  data points along with the regression line are included in Appendix C. The predicted WET lead concentrations are summarized in Table 6.

## 6.0 CONCLUSIONS

### 6.1 Lead in Soil

The following table summarizes the predicted waste classification for excavated soil based on the calculated weighted averages of the total lead UCLs and predicted WET lead concentrations for data collected from the site. Weighted averages are calculated by using the total lead concentration for each 0.5-foot depth interval as the value for the underlying 0.5-foot depth interval (unless a sample was collected from the underlying depth interval). The total and WET lead calculations are summarized in the following table, and in Table 6.

<b>Excavation Depth</b>	<b>90% UCL Total Lead (mg/kg)</b>	<b>90% UCL Predicted WET Lead (mg/l)</b>	<b>95% UCL Total Lead (mg/kg)</b>	<b>Waste Classification</b>
0 to 1.0 ft	159	<b>9.7</b>	179	<b>Hazardous</b>
<i>Underlying soil (1.0 to 4.5 ft)</i>	<i>16.2</i>	<i>1.0</i>	<i>18.0</i>	<i>Non-hazardous</i>
0 to 2.0 ft	88.9	<b>5.4</b>	99.5	<b>Hazardous</b>
<i>Underlying soil (2.0 to 4.5 ft)</i>	<i>15.2</i>	<i>0.9</i>	<i>17.2</i>	<i>Non-hazardous</i>
0 to 3.0 ft	70.2	4.3	78.8	Non-hazardous
<i>Underlying soil (3.0 to 4.5 ft)</i>	<i>3.4</i>	<i>0.2</i>	<i>3.7</i>	<i>Non-hazardous</i>
0 to 4.0 ft	53.6	3.3	60.1	Non-hazardous
<i>Underlying soil (4.0 to 4.5 ft)</i>	<i>3.0</i>	<i>0.2</i>	<i>3.2</i>	<i>Non-hazardous</i>
0 to 4.5 ft	47.9	2.9	53.8	Non-hazardous

90% UCL applicable for waste classification and onsite reuse; 95% UCL applicable for risk assessment and offsite disposal

Based on the data presented in the above table, soil excavated to a depth of 1.0 foot would be classified as a California hazardous waste since the 90% UCL-predicted WET lead concentration is greater than the lead STLC of 5.0 mg/l. Based on the TCLP lead results, soil excavated to a depth of 1.0 foot would not be classified as a RCRA hazardous waste. Based on the reported DI-WET and pH results, soil excavated from 0 to 1.0 foot may be reused onsite (as Caltrans Type Y-1) in accordance with the DTSC Variance by placing the excavated soil under clean fill or pavement. Underlying soil would be classified as non-hazardous based on lead content.

Alternately, if excavations extend to 3.0 feet or deeper and soil is managed as a whole, excavated soil would be classified as non-hazardous.

## 6.2 Remaining CAM 17 Metals in Soil

With the exception of chromium, lead, and nickel, CAM 17 metals were reported in the samples at total concentrations below ten times their respective STLCs.

Nine samples were reported to contain total chromium at concentrations exceeding ten times the STLC of 5 mg/l. The samples were further analyzed for WET chromium and the reported concentrations ranged from 0.20 to 0.40 mg/l, below the STLC. Accordingly, excavated soil would be classified as non-hazardous based on chromium content.

The samples analyzed from borings B1-0 and B2-4 contained total nickel at a concentration of 210 and 200 mg/kg, respectively, which equals or exceeds ten times the STLC of 20 mg/l. The samples were further analyzed for WET nickel and the reported concentrations were 1.2 and 3.7 mg/l, respectively, below the STLC. Total nickel concentrations in remaining samples were below ten times the STLC. Accordingly, excavated soil would be classified as non-hazardous based on nickel content.

The CAM 17 metal concentrations in site soil were compared to ESLs. Arsenic, cobalt, lead, and nickel were reported at concentrations greater than one or more ESL values.

Reported concentrations of arsenic, cobalt, lead, and nickel exceeded one or more ESL. Non-parametric bootstrap techniques were used to calculate the 95% UCL for each of these metals. Risk assessment characterization is based on the 95% UCL in accordance with the Risk Assessment Guidance for Superfund (RAGS) Volume 1 Documentation for Exposure Assessment.

The UCL calculation results are included in Appendix C. ESLs, UCLs, and published background concentrations for arsenic, cobalt, lead, and nickel are summarized in the following table:

<b>Metal</b>	<b>Maximum</b>	<b>95% UCL</b>	<b>Shallow Soil Residential ESL</b>	<b>Shallow Soil Commercial/ Industrial ESL</b>	<b>Worker Direct Exposure ESL</b>	<b>Published Background Mean<sup>1</sup></b>	<b>Published Background Range <sup>1</sup></b>
Arsenic	5.8	3.40	0.39	0.96	10	3.5	0.6 to 11.0
Cobalt	30	24.9	23	80	49	14.9	2.7 to 46.9
Lead	510	46.0	80	320	320	23.9	12.4 to 97.1
Nickel	210	150	150	150	6,100	57	9 to 509

Concentrations reported in mg/kg

<sup>1</sup> Kearney Foundation of Soil Science, March 1996

The 95% UCL arsenic concentration is greater than the residential and commercial land use ESLs; however, it is less than the construction exposure ESL and within the published background range. The SFRWQCB *November 2007 Update to Environmental Screening Levels (ESLs) Technical Document* states that ambient background concentrations of arsenic typically exceed risk-based screening levels. In such instances, it may be more appropriate to compare site data to regionally specific established background levels.

The 95% UCL cobalt concentration in the soil samples exceeds the shallow soil residential land use ESL; however, it is below the commercial/industrial and construction exposure ESLs and within the published background range.

The 95% UCL lead concentration in soil is below the residential, commercial/industrial, and construction worker direct exposure ESLs and is within the reported background range.

The 95% UCL nickel concentration in the soil samples exceeds the shallow soil residential and commercial/industrial land use ESLs; however, it is below the construction exposure ESL and within the published background range.

Based on the reported results for arsenic, cobalt, lead, and nickel, offsite reuse or disposal of excavated soil may be restricted depending on proposed use.

Metals results for soil samples are summarized in Table 3.

### **6.3 Petroleum Hydrocarbons in Soil**

TPHg or BTEX were not detected above the laboratory reporting limits. TPHmo was reported in soil samples at concentrations below residential land use, commercial/industrial land use, and construction exposure ESLs (SFRWQCB, May 2013, Tables A and K-3). TPHd was reported in one sample at a concentration exceeding the residential land use ESL of 100 mg/kg (B7-2, 150 mg/kg), but below the commercial/industrial land use and the construction exposure ESLs. TPHd has a calculated 95% UCL of 47.7 mg/kg, below the ESLs. A summary of petroleum hydrocarbon concentrations in site soil is presented in Table 4.

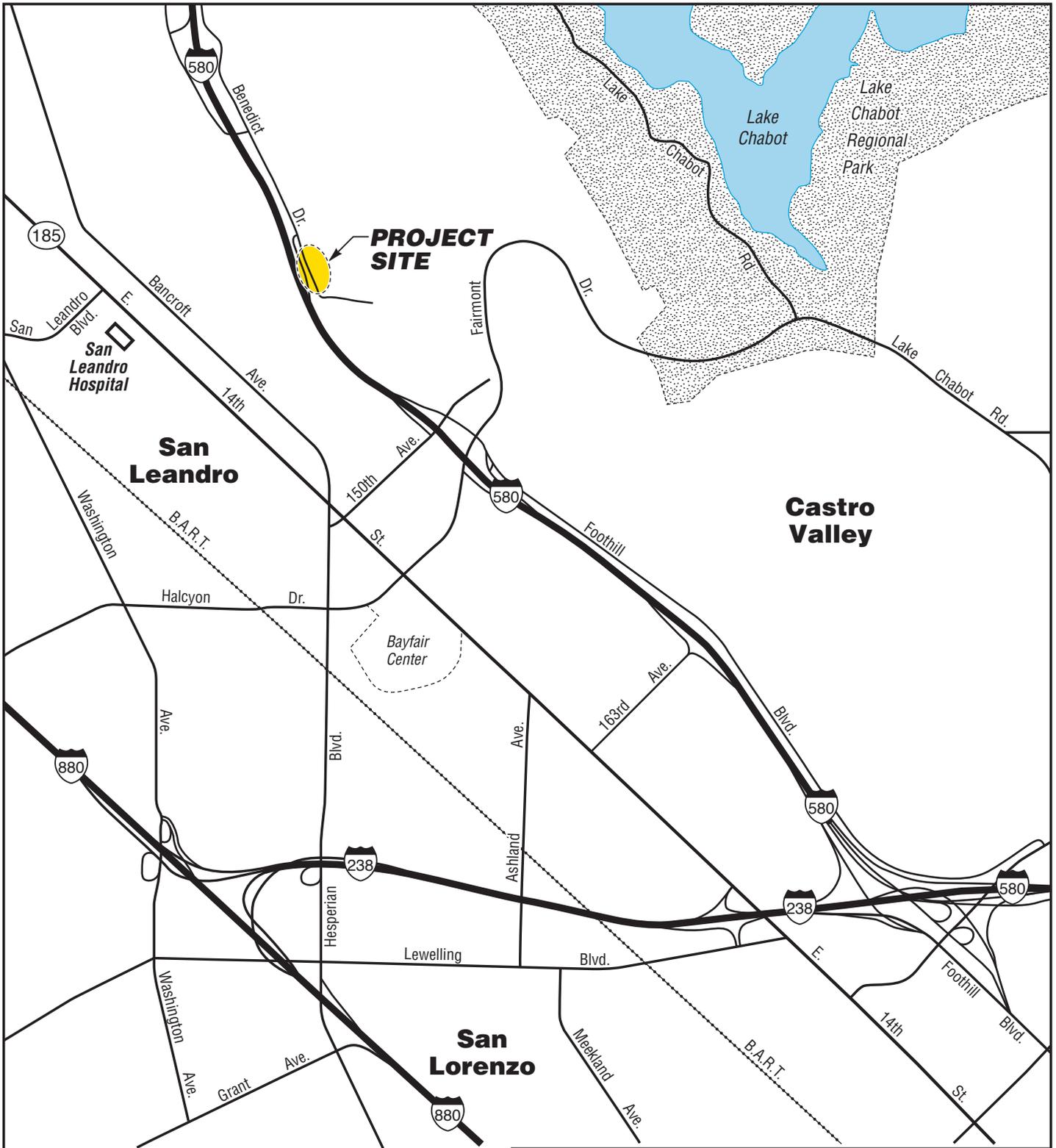
### **6.4 Naturally-Occurring Asbestos in Soil**

Seven soil samples were collected from the site and analyzed for asbestos by CARB Test Method 435 using polarized light microscopy (PLM) with a target analytical sensitivity of 0.25% asbestos. Three samples (B3-1, B7-1, and B8-3) were reported to contain trace (<0.25% chrysotile) asbestos. Asbestos was not detected in the other four samples.

There are no restrictions on the reuse of soil containing NOA at less than 0.25% asbestos if it stays on the site. If soil known to contain NOA at less than 0.25% is disposed of offsite, we recommend that the receiver be notified that the material contains NOA at less than 0.25%. Additionally, it is Caltrans policy that a contractor have an asbestos compliance plan in place on projects where personnel may be in contact with materials known to contain NOA and that wet methods be employed to minimize the potential for airborne asbestos. A summary of NOA results is included in Table 5.

## **6.5 Worker Protection**

The contractor(s) should prepare a project-specific health and safety plan to prevent or minimize worker exposure to metals, hydrocarbons, and NOA in soil. The plan should include protocols for environmental and personnel monitoring, requirements for personal protective equipment, and other health and safety protocols and procedures for the handling of soil.



**GEOCON**  
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ALA-580 Benedict Drive

Alameda County,  
California

**VICINITY MAP**

GEOCON Proj. No. E8560-02-49

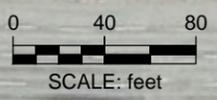
Task Order No. 49

November 2013

Figure 1



**LEGEND:**  
 ● Boring Location



 <p>6671 BRISA STREET, LIVERMORE, CA 94550; PHONE 925 371-5900 - FAX 925 371-5915</p>		
<p>ALA-580 Benedict Drive</p>		
<p>San Leandro, California</p>		<p><b>SITE PLAN</b></p>
<p>GEOCON Proj. No. E8560-02-49</p>		
<p>EA No. 04-2G8601</p>	<p>November 2013</p>	<p>Figure 2</p>

**TABLE 1**  
**Boring Coordinates**  
**Benedict Drive**  
**San Leandro, California**

<b>Boring</b>	<b>Northing</b>	<b>Easting</b>
B1	2,087,993.074	6,089,498.559
B2	2,087,896.334	6,089,515.529
B3	2,087,865.689	6,089,518.047
B4	2,087,799.688	6,089,556.380
B5	2,087,731.953	6,089,580.124
B6	2,087,692.211	6,089,595.355
B7	2,087,620.290	6,089,604.092
B8	2,087,589.199	6,089,629.718
B9	2,087,536.423	6,089,643.727

Coordinates shown in feet, NAD 83, Zone 3

**TABLE 2**  
**Summary of Lead and pH Results**  
**Benedict Drive**  
**San Leandro, California**

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	DI-WET Lead (mg/l)	TCLP Lead (mg/l)	pH
B1-0	0 to 0.5	19	---	---	---	---
B1-1	1 to 1.5	2.5	---	---	---	---
B1-2	2 to 2.5	1.8	---	---	---	---
B1-3	3 to 3.5	1.1	---	---	---	---
B2-0	0 to 0.5	54	4.6	---	---	---
B2-1	1 to 1.5	2.2	---	---	---	---
B2-2	2 to 2.5	<1.0	---	---	---	---
B2-3	3 to 3.5	2.1	---	---	---	---
B2-4	4 to 4.5	3.4	---	---	---	8.2
B2-5	5 to 5.5	1.8	---	---	---	---
B3-0	0 to 0.5	27	---	---	---	---
B3-1	1 to 1.5	25	---	---	---	---
B3-2	2 to 2.5	<1.0	---	---	---	---
B4-0	0 to 0.5	51	5.7	0.33	<0.25	---
B4-1	1 to 1.5	16	---	---	---	---
B4-2	2 to 2.5	<1.0	---	---	---	---
B4-3	3 to 3.5	1.3	---	---	---	---
B4-4	4 to 4.5	<1.0	---	---	---	---
B5-0	0 to 0.5	83	8.1	0.35	<0.25	---
B5-1	1 to 1.5	33	---	---	---	---
B5-2	2 to 2.5	<1.0	---	---	---	7.8
B5-3	3 to 3.5	6.9	---	---	---	---
B5-4	4 to 4.5	3.6	---	---	---	---
B5-5	5 to 5.5	1.4	---	---	---	---
B5-6.5	6.5 to 7	6.4	---	---	---	---
B6-0	0 to 0.5	42	---	---	---	---
B6-1	1 to 1.5	11	---	---	---	---
B6-2	2 to 2.5	2.4	---	---	---	---
B6-3	3 to 3.5	4.5	---	---	---	---
B6-4	4 to 4.5	3.5	---	---	---	---

**TABLE 2**  
**Summary of Lead and pH Results**  
**Benedict Drive**  
**San Leandro, California**

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	DI-WET Lead (mg/l)	TCLP Lead (mg/l)	pH
B7-0*	0 to 0.5	460/510	32	<0.050	<0.25	---
B7-1	1.0 to 1.5	20	---	---	---	---
B7-2	2 to 2.5	27	---	---	---	---
B8-0	0 to 0.5	67	5.1	<0.050	<0.25	---
B8-1	1 to 1.5	14	---	---	---	7.0
B8-2	2 to 2.5	1.5	---	---	---	---
B8-3	3 to 3.5	1.8	---	---	---	---
B8-4	4 to 4.5	2.0	---	---	---	---
B8-5	5 to 5.5	2.4	---	---	---	---
B8-6.5	6.5 to 7	<0.99	---	---	---	---
B9-0	0 to 0.5	34	---	---	---	---
B9-1	1 to 1.5	7.6	---	---	---	---
B9-2	2 to 2.5	120	<0.050	---	---	8.2
B9-3	3 to 3.5	<1.0	---	---	---	---
B9-4	4 to 4.5	<1.0	---	---	---	---
Equipment Blank		<0.0050 mg/l	---			---

Hazardous Waste Criteria

TTLIC (mg/kg)	1,000	---	---	---	---
STLC (mg/l)	---	5.0	---	---	---
TCLP (mg/l)	---	---	---	5.0	---

**Notes:**

mg/kg = Milligrams per kilogram

mg/l = Milligrams per liter

WET = Waste Extraction Test using citric acid as the extraction fluid

DI-WET = Waste Extraction Test using deionized water as the extraction fluid

TTLIC = Total Threshold Limit Concentration

STLC = Soluble Threshold Limit Concentration

TCLP = Toxicity characteristic leaching procedure

460/510 = Primary/Replicate analyses performed for confirmation purposes. The greater result (510 mg/kg) was used in statistical calculations.

**TABLE 3**  
**Summary of CAM 17 Metals Results**  
**Benedict Drive**  
**San Leandro, California**

Sample ID	Sample Depth (ft)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	
B1-0	0 to 0.5	<2.0	5.4	28	<1.0	<1.0	150 <i>0.22</i>	30	64	19	0.10	<1.0	210 <i>1.2</i>	<1.0	<1.0	<1.0	40	23	
B2-4	4 to 4.5	<2.0	5.8	130	<1.0	<1.0	140 <i>0.25</i>	24	49	3.4	<0.10	<1.0	200 <i>3.7</i>	<1.0	<1.0	<1.0	67	35	
B3-2	2 to 2.5	<2.0	2.0	38	<1.0	<1.0	110 <i>0.25</i>	20	62	<1.0	<0.099	<1.0	100	<1.0	<1.0	<1.0	44	15	
B4-1	1 to 1.5	<2.0	1.2	7.1	<1.0	<1.0	47	15	74	16	<0.10	<1.0	40	<1.0	<1.0	<1.0	29	38	
B4-4	4 to 4.5	<2.0	1.9	41	<1.0	<1.0	120 <i>0.21</i>	23	61	<1.0	<0.10	<1.0	82	<1.0	<1.0	<1.0	37	14	
B5-6.5	6.5 to 7	<2.0	1.9	32	<1.0	<1.0	140 <i>0.20</i>	25	61	6.4	<0.10	<1.0	140	<1.0	<1.0	<1.0	44	20	
B6-3	3 to 3.5	<2.0	2.4	43	<1.0	<1.0	150 <i>0.22</i>	25	61	4.5	<0.10	<1.0	140	<1.0	<1.0	<1.0	49	26	
B7-2	2 to 2.5	<2.0	2.0	46	<1.0	<1.0	140 <i>0.27</i>	21	53	27	<0.10	<1.0	130	<1.0	<1.0	<1.0	48	29	
B8-5	5 to 5.5	<2.0	1.3	46	<1.0	<1.0	140 <i>0.25</i>	25	48	2.4	<0.099	<1.0	110	<1.0	<1.0	<1.0	27	13	
B9-1	1 to 1.5	<2.0	1.7	44	<1.0	<1.0	170 <i>0.40</i>	22	47	7.6	<0.099	<1.0	100	<1.0	<1.0	<1.0	32	15	
<u>ESLs</u>																			
Residential Land Use		20	0.39	750	4.0	12	750	23	230	80	6.7	40	150	10	20	0.78	200	600	
Commercial/Industrial Land Use		40	0.96	1,500	8.0	12	750	80	230	320	10	40	150	10	40	10	200	600	
Construction Worker Exposure		120	10	61,000	180	110	460,000	49	12,000	320	27	1,500	6,100	1,500	1,500	3.1	1,500	93,000	
<u>Hazardous Waste Criteria</u>																			
TTLCL (mg/kg)		500	500	10,000	75	100	2,500	8,000	2,500	1,000	20	3,500	2,000	100	500	700	2,400	5,000	
STLCL (mg/l)		15	5.0	100	0.75	1.0	5.0	80	25	5.0	0.2	350	20	1.0	5.0	7.0	24	250	
TCLP (mg/l)		---	5.0	100	---	1.0	6.0	---	---	5.0	0.2	---	---	1.0	5.0	---	---	---	

Notes:

Total metal results are shown in milligrams per kilogram (mg/kg).  
ESL, STLCL and TTLCL values listed for chromium are for Chromium III, as there is no standard for total chromium.  
< = Analyte was not detected above the laboratory reporting limit.  
ESLs = Environmental Screening Levels, Tables A and K-3, SFRWQCB, Revised May 2013.  
TTLCL = total threshold limit concentration  
STLCL = soluble threshold limit concentration  
TCLP = toxicity characteristic leaching procedure  
WET results shown in italics in milligrams per liter (mg/l)

**TABLE 4**  
**Summary of Organics Results**  
**Benedict Drive**  
**San Leandro, California**

Sample ID	Sample Depth (ft)	TPHd (mg/kg)	TPHmo (mg/kg)	TPHg (mg/kg)	BTEX (ug/kg)
B2-0	0 to 0.5	40	140	---	ND
B2-2	2 to 2.5	1.4	2.8	---	ND
B2-4	4 to 4.5	1.2	2.8	<1.0	ND
B4-0	0 to 0.5	24	71	---	ND
B4-1	1 to 1.5	4.2	10	---	ND
B4-3	3 to 3.5	2.3	6.8	<1.0	ND
B5-0	0 to 0.5	24	70	---	ND
B5-2	2 to 2.5	1.6	2.0	---	ND
B5-5	5 to 5.5	2.5	6.9	---	ND
B6-4	4 to 4.5	---	---	<1.0	ND
B7-0	0 to 0.5	92	260	---	ND
B7-2	2 to 2.5	150	340	---	ND
B9-0	0 to 0.5	28	58	---	ND
B9-3	3 to 3.5	2.5	3.1	---	ND
B9-4	4 to 4.5	---	---	<1.0	ND
	<b>ESLs</b>				
	Residential	100	500	100	---
	Commercial/Industrial	500	2,500	500	---
	Construction Exposure	900	28,000	1,800	---

Notes:

mg/kg = milligrams per kilogram

µg/kg = micrograms per kilogram

TPHd = Total petroleum hydrocarbons as diesel

TPHmo = Total petroleum hydrocarbons as motor oil

TPHg = Total petroleum hydrocarbons as gasoline

BTEX = Benzene, toluene, ethylbenzene, and xylenes

--- = Not analyzed or no standard for this compound

< = Not detected above the stated laboratory reporting limit

ND = None detected

ESLs = Environmental Screening Levels, Tables A and K-3, SFRWQCB, Revised May 2013.

**TABLE 5**  
**Summary of NOA Results**  
**Benedict Drive**  
**San Leandro, California**

Sample ID	Sample Depth (feet)	Asbestos Content (% dry weight)
B1-1	1 to 1.5	ND
B3-1	1 to 1.5	<0.25% Chrysotile
B4-2	2 to 2.5	ND
B5-4	4 to 4.5	ND
B6-0	0 to 0.5	ND
B7-1	1 to 1.5	<0.25% Chrysotile
B8-3	3 to 3.5	<0.25% Chrysotile

---

ND = None detected at 0.25% target analytical sensitivity.

**TABLE 6**  
**Summary of Lead Statistical Analysis**  
**Benedict Drive**  
**San Leandro, CA**  
  
**Borings B1 to B9**

**TOTAL LEAD**

	90% UCL	95% UCL
0 to 0.5 ft	159	179
1 to 1.5 ft	18.7	19.9
2 to 2.5 ft	32.9	37.5
3 to 3.5 ft	3.64	3.93
4 to 4.5 ft	2.95	3.16

**EXCAVATION SCENARIOS**

Excavation Depth	Weighted Averages		95% UCL Total Lead (mg/kg)
	90% UCL Total Lead (mg/kg)	WET Lead* (mg/l)	
0 to 1 ft <i>Underlying Soil (1 to 4.5 ft)</i>	159 16.2	9.7 1.0	179 18.0
0 to 2 ft <i>Underlying Soil (2 to 4.5 ft)</i>	88.9 15.2	5.4 0.9	99.5 17.2
0 to 3 ft <i>Underlying Soil (3 to 4.5 ft)</i>	70.2 3.4	4.3 0.2	78.8 3.7
0 to 4 ft <i>Underlying Soil (4 to 4.5 ft)</i>	53.6 3.0	3.3 0.2	60.1 3.2
0 to 4.5 ft	47.9	2.9	53.8

**Notes:**

UCL = Upper Confidence Limit (90% UCL is applicable for waste classification; 95% UCL applicable for risk assessment)

mg/kg = milligrams per kilogram

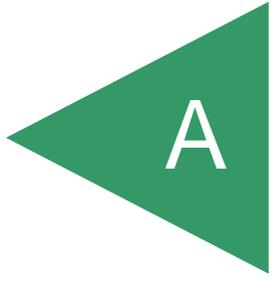
mg/l = milligrams per liter

\* = WET lead concentrations are predicted using slope of regression line,  
where  $y$  = predicted WET lead and  $x$  = total lead.

Regression Line Slope:  $y = 0.0613 x$

APPENDIX

A





*California Environmental Protection Agency  
Department of Toxic Substances Control*

**VARIANCE**

Applicant Names:

Variance No. V09HQSCD006

State of California  
Department of Transportation  
(Caltrans)  
1120 N Street  
Sacramento, California 95814

Effective Date: July 1, 2009

Expiration Date: July 1, 2014

Modification History:

Pursuant to California Health and Safety Code, Section 25143, the Department of Toxic Substances Control hereby issues the attached Variance consisting of 9 pages to the Department of Transportation.

A handwritten signature in cursive script, appearing to read "Beverly Rikala".

Beverly Rikala  
Team Leader, Operating Facilities Team  
Department of Toxic Substances Control

Date: 6/30/09

**VARIANCE**

1. INTRODUCTION.

a) Pursuant to Health and Safety Code, section 25143, the California Department of Toxic Substances Control (DTSC) grants this variance to the applicant below for waste considered to be hazardous solely because of its lead concentrations and as further specified herein.

b) DTSC hereby grants this variance only from the requirements specified herein and only in accordance with all terms and conditions specified herein.

2. IDENTIFYING INFORMATION.

APPLICANT/OWNER/OPERATOR

State of California  
Department of Transportation, (Caltrans)  
All Districts

3. TYPE OF VARIANCE.

Generation, Manifest, Transportation, Storage and Disposal.

4. ISSUANCE AND EXPIRATION DATES.

DATE ISSUED: July 1, 2009      EXPIRATION DATE: July 1, 2014

5. APPLICABLE STATUTES AND REGULATIONS. The hazardous waste that is the subject of this variance is fully regulated under Health and Safety Code, section 25100, et seq. and California Code of Regulations, title 22, division 4.5 except as specifically identified in Section 8 of this variance.

6. DEFINITION. For purposes of this variance, "lead-contaminated soil(s)" shall mean soil that meets the criteria for hazardous waste but contains less than 3397 mg/kg total lead and is hazardous primarily because of aeriially-deposited lead contamination associated with exhaust emissions from the operation of motor vehicles.

7. FINDINGS/DETERMINATIONS. DTSC has determined that the variance applicant meets the requirements set forth in Health and Safety Code, section 25143 for a variance from specific regulatory requirements as outlined in Section 8 of this variance. The specific determinations and findings made by DTSC are as follows:

a) Caltrans intends to excavate, stockpile, transport, bury and cover large volumes of soil associated with highway construction projects. In the more urbanized highway corridors around the State this soil is contaminated with lead, primarily due to historic emissions from automobile exhausts. In situ sampling and laboratory testing has shown that some of the soil contains concentrations of lead in excess of State regulatory thresholds, and thus any generated waste from disturbance of the soil

would be regulated as hazardous waste. Such soil contains a Total Threshold Limit Concentration (TTL) of 1000 milligrams per kilogram (mg/kg) or more lead and/or it meets or exceeds the Soluble Threshold Limit Concentration (STLC) for lead of 5 milligrams per liter (mg/l). A Human Health Risk Assessment prepared for this variance concludes that soil contaminated with elevated concentrations of lead can be managed in a way that presents no significant risk to human health.

b) The lead-contaminated soil will be placed only in Caltrans' right-of-way. Depending on concentration levels, the wastes will be covered with a minimum thickness of one (1) foot of non-hazardous soil or asphalt/concrete cover and will always be at least five (5) feet above the highest groundwater elevation. Caltrans will assure that proper health and safety procedures will be followed for workers, including any persons engaged in maintenance work in areas where the waste has been buried and covered.

c) DTSC finds and requires that the lead-contaminated soil excavated, stockpiled, transported, buried and covered pursuant to this variance is a non-RCRA hazardous waste, and that the waste management activity is insignificant as a potential hazard to human health and safety and the environment, when managed in accordance with the conditions, limitations and other requirements specified in this variance.

8. PROVISIONS WAIVED.

Provided Caltrans meets the terms and conditions of this variance, DTSC waives the hazardous waste management requirements of Health and Safety Code, Chapter 6.5 and California Code of Regulations, title 22 for the lead-contaminated soil that Caltrans reuses in projects that would require Caltrans to obtain a permit for a disposal facility and any other generator requirements that concern the transportation, manifesting, storage and land disposal of hazardous waste.

9. SPECIFIC CONDITIONS, LIMITATIONS AND OTHER REQUIREMENTS.

In order for the provisions discussed in section 8 to be waived, lead-contaminated soil must not exceed the contaminant concentrations discussed below and Caltrans management practices must meet all the following conditions:

a) Caltrans implementation of this variance shall comply with all applicable state laws and regulations for water quality control, water quality control plans, waste discharge requirements (including storm water permits), and others issued by the State Water Resources Control Board (SWRCB) and/or a California Regional Water Quality Control Board (RWQCB). Caltrans shall provide written notification to the appropriate RWQCB at least 30 days prior to advertisement for bids of projects that involve invocation of this variance, or as otherwise negotiated with the SWRCB or appropriate RWQCB.

b) The waivers in this variance shall only be applied to lead-contaminated soil that is not a RCRA hazardous waste and is hazardous primarily because of aerially-

deposited lead contamination associated with exhaust emissions from the operation of motor vehicles. The variance is not applicable to any other hazardous waste.

c) Soil containing 1.5 mg/l extractable lead or less (based on a modified waste extraction test using deionized water as the extractant) and 1411 mg/kg or less total lead may be used as fill provided that the lead-contaminated soil is placed a minimum of five (5) feet above the maximum historic water table elevation and covered with at least one (1) foot of nonhazardous soil that will be maintained by Caltrans to prevent future erosion.

d) Soil containing 150 mg/L extractable lead or less (based on a modified waste extraction test using deionized water as the extractant) and 3397 mg/kg or less total lead may be used as fill provided that the lead-contaminated soils are placed a minimum of five (5) feet above the maximum historic water table elevation and protected from infiltration by a pavement structure which will be maintained by Caltrans.

e) Lead-contaminated soil with a pH less than 5.5 but greater than 5.0 shall only be used as fill material under the paved portion of the roadway. Lead-contaminated soil with a pH at or less than 5.0 shall be managed as a hazardous waste.

f) For each project that has the potential to generate waste by disturbing lead-contaminated soil (as defined in 6), Caltrans shall conduct sampling and analysis to adequately characterize the soils containing aerially deposited lead in the areas of planned excavation along the project route. Such sampling and analysis shall include the Toxicity Characteristic Leaching Procedure (TCLP) as prescribed by the United States Environmental Protection Agency to determine whether concentrations of contaminants in soil exceed federal criteria for classification as a hazardous waste.

g) Lead-contaminated soil managed pursuant to this variance shall not be moved outside the designated corridor boundaries (see paragraph t) below. All lead-contaminated soil not buried and covered within the same Caltrans corridor where it originated is not eligible for management under this variance and shall be managed as a hazardous waste.

h) Lead-contaminated soil managed pursuant to this variance shall not be placed in areas where it would become in contact with groundwater or surface water (such as streams and rivers).

i) Lead-contaminated soil managed pursuant to this variance shall be buried and covered only in locations that are protected from erosion that may result from storm water run-on and run-off.

j) The lead-contaminated soil shall be buried and covered in a manner that will prevent accidental or deliberate breach of the asphalt, concrete, and/or cover soil.

k) The presence of lead-contaminated soil shall be incorporated into the projects' as-built drawings. The as-built drawings shall be annotated with the location, representative analytical data, and volume of lead-contaminated soil. The as-built drawings shall also state the depth of the cover. These as-built drawings shall be retained by Caltrans.

l) Caltrans shall ensure that no other hazardous wastes, other than the lead-contaminated hazardous waste soil, are placed in the burial areas.

m) Lead-contaminated soil shall not be buried within ten (10) feet of culverts or locations subject to frequent worker exposure.

n) Excavated lead-contaminated soil not placed into the designated area (fill area, roadbed area) by the end of the working day shall be stockpiled and covered with sheets of polyethylene or at least one foot of non-hazardous soil. The lead-contaminated soil, while stockpiled or under transport, shall be protected from contacting surface water and from being dislodged or transported by wind or storm water. The stockpile covers shall be inspected at least once a week and within 24 hours after rainstorms. If the lead-contaminated soil is stockpiled for more than 4 days from the time of excavation, Caltrans shall restrict public access to the stockpile by using barriers that meet the safety requirements of the construction zone. The lead-contaminated soil shall be stockpiled for no more than 90 days from the time the soil is first excavated. If the contaminated soil is stockpiled beyond the 90 day limit Caltrans shall:

1. notify DTSC in writing of the 90 day exceedance and expected date of removal;
2. perform weekly inspections of the stockpiled material to ensure that there is adequate protection from run-on, runoff, public access, and wind dispersion; and
3. notify DTSC on weekly basis of the stockpile status until the stockpile is removed.

The lead-contaminated soil shall be stockpiled for no more than 180 days from the time the soil is first excavated.

o) Caltrans shall ensure that all stockpiling of lead-contaminated soil remains within the project area of the specified corridor. Stockpiling of lead-contaminated soil within the specified corridor, but outside the project area, is prohibited.

p) Caltrans shall conduct confirmatory sampling of any stockpile area in areas not known or expected to contain lead-contaminated soil after removal of the lead-contaminated soil to ensure that contamination has not been left behind or has not migrated from the stockpiled material to the surrounding soils.

q) Caltrans shall stockpile lead-contaminated soil only on high ground (i.e. no sump areas or low points) so that stockpiled soil will not come in contact with surface

water run-on or run-off.

r) Caltrans shall not stockpile lead-contaminated soil in environmentally and ecologically sensitive areas.

s) Caltrans shall ensure that storm/rain run-off that has come into contact with stockpiled lead-contaminated soil will not flow to storm drains, inlets, or waters of the State.

t) Caltrans may dispose of the lead-contaminated soil only within the operating right-of-way of an existing highway, as defined in Streets and Highways Code, section 23. Caltrans may move lead-contaminated soil from one Caltrans project to another Caltrans project only if the lead-contaminated soil remains within the same designated corridor.

Caltrans shall record any movement of lead-contaminated soil by using a bill of lading. The bill of lading must contain: 1) the US DOT description including shipping name, hazard class and ID number; 2) handling codes; 3) quantity of material; 4) volume of material; 5) date of shipment; 6) origin and destination of shipment; and 7) any specific handling instructions. The bill of lading shall be referenced in and kept on file with the project's as-built drawings. The lead-contaminated soil must be kept covered during transportation.

u) For each specific corridor where this variance is to be implemented, all of the following information shall be submitted in writing to DTSC at least five (5) days before construction of any project begins:

1. plan drawing designating the boundaries of the corridor where lead-contaminated soils will be excavated, stockpiled, buried and covered;
2. a list of the Caltrans projects that the corridor encompasses;
3. a list of Caltrans contractors that will be conducting any phase of work on any project affected by this variance;
4. duration of corridor construction;
5. location where sampling and analytical data used to make lead concentration level determinations are kept (e.g. a particular Caltrans project file);
6. name and phone number (including area code) of project resident engineer and project manager;
7. location where Caltrans and contractor health and safety plan and records are kept;

8. location of project special provisions (including page or section number) for soil excavation, transportation, stockpile, burial and placement of cover material;

9. location of project drawings (including drawing page number) for soil excavation, burial and placement of cover in plan and cross section (for example, "The project plans are located at the resident engineer's office located at 5th and Main Streets, City of Fresno, See pages xxxxx of contract xxx");

10. updated information if a Caltrans project within the corridor is added, changed or deleted; and

11. type of environmental document prepared for each project, date of adoption, document title, Clearing House number and where the document is available for review. A copy of the Caltrans Categorical Exemption, Categorical Exclusion Form, or if filed, the Notice of Exemption for any project shall be submitted to the DTSC Headquarters Project Manager.

v) Changes in location of lead-contaminated soil placement, quantities or protection measures (field changes) shall be noted in the resident engineer's project log within five (5) days of the field change.

w) Caltrans shall ensure that field changes are in compliance with the requirements of this variance.

x) Operational procedures described in the California Environmental Quality Act (CEQA) Special Initial Study shall be followed by Caltrans for activities conducted under this variance.

y) Caltrans shall implement appropriate health and safety procedures to protect its employees and the public, and to prevent or minimize exposure to potentially hazardous wastes. A project-specific health and safety plan must be prepared and implemented. The monitoring and exposure standards shall be based on construction standards for exposure to lead in California Code of Regulations, title 8, section 1532.1.

z) Caltrans shall provide a district Coordinator for this variance. This Coordinator will be the primary point of contact for information flowing to, or received from, DTSC regarding any matter or submission under this variance. Caltrans shall promptly notify DTSC of the name of Coordinator and any change in the Coordinator.

aa) Caltrans shall conduct regular inspections, consistent with Caltrans' Maintenance Division's current Pavement Inspection and Slope Inspection programs, of the locations where lead-contaminated soil has been buried and/or covered pursuant to this variance. If site inspection reveals deterioration of cover so that conditions in the variance are not met, Caltrans shall repair or replace the cover.

bb) Caltrans shall develop and implement a record keeping mechanisms to record and retain permanent records of all locations where lead-contaminated soil has been buried per this variance. The records shall be made available to DTSC.

cc) If areas subject to the terms of this variance are sold, relinquished or abandoned (including roadways), all future property owners shall be notified in writing in advance by Caltrans of the requirements of this variance, and Caltrans shall provide the owner with a copy of the variance. A copy of such a notice shall be sent to DTSC and contain the corridor location and project. Caltrans shall also disclose to DTSC and the new owner the location of areas where lead-contaminated soil has been buried. Future property owners shall be subject to the same requirements as Caltrans.

dd) For the purposes of informing the public about instances where the variance is implemented, Caltrans shall:

1. maintain current fact sheets at all Caltrans resident engineer offices and the Caltrans District office. Caltrans shall make the fact sheets available to anyone expressing an interest in variance-related work.
2. maintain a binder(s) containing copies of all reports submitted to DTSC at the District office. Caltrans shall ensure that the binders are readily accessible to the public.
3. carry out the following actions when it identifies additional projects:
  - (A) notify the public via a display advertisement in a newspaper of general circulation in that area.
  - (B) update and distribute the fact sheet to the mailing list and repository locations.

ee) Lead-contaminated soil may be buried only in areas where access is limited or where lead-contaminated soil is covered and contained by a pavement structure.

ff) Dust containing lead-contaminated soil must be controlled. Water or dust palliative may be applied to control dust. If visible dust migration occurs, all excavation, stockpiling and truck loading and burying must be stopped. The granting of this variance confers no relief on Caltrans from compliance with the laws, regulations and requirements enforced by any local air district or the California Air Resources Board.

gg) Sampling and analysis is required to show the lead-contaminated soil meets the variance criteria. All sampling and analysis must be conducted in accordance with the appropriate methods specified in U.S. EPA SW-846.

hh) DTSC retains the right to require Caltrans or any future owner to remove, and properly dispose of, lead-contaminated soil in the event DTSC determines it is necessary for protection of public health, safety or the environment.

ii) DTSC finds that some projects involving lead-contaminated soil are joint projects between Caltrans and other government entities. In these joint projects, Caltrans may not be the lead agency implementing the project although Caltrans is still involved if the project occurs on its right-of-way.

Caltrans may invoke this variance for joint projects where Caltrans and local government entity are involved provided that 1) the project is within the Caltrans Right-of-Way; 2) Caltrans reviews/ oversees all phases of the project including design, contracting, environmental assessment, construction, operation, and maintenance; and 3) Caltrans oversees the project to verify all variance conditions are complied with. Caltrans will be fully responsible for the variance notification and implementation in these joint projects.

jj) All correspondence shall be directed to the following office:

Hazardous Waste Permitting  
Department of Toxic Substances Control  
8800 Cal Center Drive  
Sacramento, CA 95826

Attn: Caltrans Lead Variance Notification Unit

10. DISCLAIMER.

a) The issuance of this variance does not relieve Caltrans of the responsibility for compliance with Health and Safety Code, chapter 6.5, or the regulations adopted thereunder, and any other laws and regulations other than those specifically identified in Section 8 of this variance. Caltrans is subject to all terms and conditions herein. The granting of this variance confers no relief from compliance with any federal, State or local requirements other than those specifically provided herein.

b) The issuance of this variance does not release Caltrans from any liability associated with the handling of hazardous waste, except as specifically provided herein and subject to all terms and conditions of this variance.

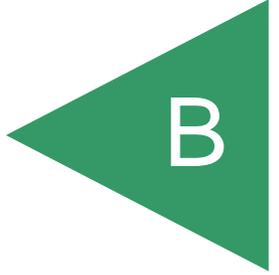
11. VARIANCE MODIFICATION OR REVOCATION. This variance is subject to review at the discretion of DTSC and may be modified or revoked by DTSC upon change of ownership and at any other time pursuant to Health and Safety Code, section 25143.
12. CEQA DETERMINATION. DTSC adopted a Negative Declaration on June 30, 2009.

Approved:

6/30/09  
Date

Beverly Rikala  
Beverly Rikala  
Operating Facilities Team  
Department of Toxic Substances Control

APPENDIX



July 23, 2013

Rick Day  
Geocon Consultants, Inc.  
6671 Brisa Street  
Livermore, CA 94550  
TEL: (925) 371-5900  
FAX: (925) 371-5915

CA-ELAP No.:2676  
NV Cert. No.:NV-009222007A

Workorder No.: N010581

RE: I 580 STORM REPAIR, E8560-02-49

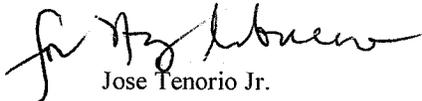
Attention: Rick Day

Enclosed are the results for sample(s) received on July 13, 2013 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,



Jose Tenorio Jr.  
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



**Advanced Technology  
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

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**CLIENT:** Geocon Consultants, Inc.  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab Order:** N010581

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**CASE NARRATIVE**

**SAMPLE RECEIVING/GENERAL COMMENTS:**

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

**Analytical Comments for EPA 6010B\_Soil:**

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

**Analytical Comments for EPA 8015B\_DRO/ORO:**

RPD for Sample and Sample Duplicate is outside criteria ; however, the analytical batch was validated by the Laboratory Control Sample (LCS).



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B1-0
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 9:10:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-001		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**MERCURY BY COLD VAPOR TECHNIQUE**

**EPA 7471**

**EPA 7471A**

RunID: AA1_130715B	QC Batch: 43424			PrepDate: 7/15/2013	Analyst: LCC
Mercury	0.10	0.10	mg/Kg	1	7/15/2013

**ICP METALS**

**EPA 3050B**

**EPA 6010B**

RunID: ICP2_130718B	QC Batch: 43421			PrepDate: 7/16/2013	Analyst: CEI
Antimony	ND	2.0	mg/Kg	1	7/18/2013 09:53 AM
Arsenic	5.4	1.0	mg/Kg	1	7/18/2013 09:53 AM
Barium	28	1.0	mg/Kg	1	7/18/2013 09:53 AM
Beryllium	ND	1.0	mg/Kg	1	7/18/2013 09:53 AM
Cadmium	ND	1.0	mg/Kg	1	7/18/2013 09:53 AM
Chromium	150	1.0	mg/Kg	1	7/18/2013 09:53 AM
Cobalt	30	1.0	mg/Kg	1	7/18/2013 09:53 AM
Copper	64	2.0	mg/Kg	1	7/18/2013 09:53 AM
Lead	19	1.0	mg/Kg	1	7/18/2013 09:53 AM
Molybdenum	ND	1.0	mg/Kg	1	7/18/2013 09:53 AM
Nickel	210	1.0	mg/Kg	1	7/18/2013 09:53 AM
Selenium	ND	1.0	mg/Kg	1	7/18/2013 09:53 AM
Silver	ND	1.0	mg/Kg	1	7/18/2013 09:53 AM
Thallium	ND	1.0	mg/Kg	1	7/18/2013 09:53 AM
Vanadium	40	1.0	mg/Kg	1	7/18/2013 09:53 AM
Zinc	23	1.0	mg/Kg	1	7/18/2013 09:53 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-002

**Client Sample ID:** B1-1  
**Collection Date:** 7/12/2013 9:21:00 AM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS</b>						
	<b>EPA 3050B</b>		<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43427				PrepDate: 7/16/2013	Analyst: CEI
Lead	2.5	1.0		mg/Kg	1	7/16/2013 08:28 PM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-003

**Client Sample ID:** B1-2  
**Collection Date:** 7/12/2013 9:40:00 AM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS</b>						
	<b>EPA 3050B</b>		<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43427				PrepDate: 7/16/2013	Analyst: CEI
Lead	1.8	1.0		mg/Kg	1	7/16/2013 09:03 PM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-004

**Client Sample ID:** B1-3  
**Collection Date:** 7/12/2013 9:46:00 AM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS</b>						
	<b>EPA 3050B</b>		<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43427				PrepDate: 7/16/2013	Analyst: CEI
Lead	1.1	1.0		mg/Kg	1	7/16/2013 09:07 PM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B2-0
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 10:20:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-005		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>DIESEL &amp; MOTOR OIL RANGE ORGANICS BY GC/FID</b>						
<b>EPA 3550B</b>			<b>EPA 8015B</b>			
RunID: GC1_130715B	QC Batch: 43434				PrepDate: 7/15/2013	Analyst: <b>MDM</b>
DRO	40	1.0		mg/Kg	1	7/16/2013 01:10 AM
ORO	140	10		mg/Kg	10	7/15/2013 04:57 PM
Surr: p-Terphenyl	98.2	59-127		%REC	1	7/16/2013 01:10 AM
<b>ICP METALS</b>						
<b>EPA 3050B</b>			<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43427				PrepDate: 7/16/2013	Analyst: <b>CEI</b>
Lead	54	1.0		mg/Kg	1	7/16/2013 09:12 PM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B2-1
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 10:25:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-006		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS</b>						
	<b>EPA 3050B</b>		<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43427			PrepDate: 7/16/2013		Analyst: CEI
Lead	2.2	1.0		mg/Kg	1	7/16/2013 09:17 PM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-007

**Client Sample ID:** B2-2  
**Collection Date:** 7/12/2013 10:26:00 AM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>DIESEL &amp; MOTOR OIL RANGE ORGANICS BY GC/FID</b>						
<b>EPA 3550B</b>			<b>EPA 8015B</b>			
RunID: GC1_130715B	QC Batch: 43434				PrepDate: 7/15/2013	Analyst: <b>MDM</b>
DRO	1.4	1.0		mg/Kg	1	7/15/2013 05:49 PM
ORO	2.8	1.0		mg/Kg	1	7/15/2013 05:49 PM
Surr: p-Terphenyl	96.6	59-127		%REC	1	7/15/2013 05:49 PM
<b>ICP METALS</b>						
<b>EPA 3050B</b>			<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43427				PrepDate: 7/16/2013	Analyst: <b>CEI</b>
Lead	ND	1.0		mg/Kg	1	7/16/2013 09:21 PM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-008

**Client Sample ID:** B2-3  
**Collection Date:** 7/12/2013 10:30:00 AM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS</b>						
	<b>EPA 3050B</b>		<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43427				PrepDate: 7/16/2013	Analyst: CEI
Lead	2.1	1.0		mg/Kg	1	7/16/2013 09:26 PM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



**Advanced Technology Laboratories, Inc.**

**ANALYTICAL RESULTS**

Print Date: 23-Jul-13

<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B2-4
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 10:35:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-009		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>PH</b>						
<b>EPA 9045C</b>						
RunID: WETCHEM_130715C	QC Batch: R89579				PrepDate:	Analyst: LCC
pH	8.2	0.10		pH Units	1	7/15/2013
Temp. at time of pH Analysis	25	0		pH Units	1	7/15/2013
<b>VOLATILE ORGANIC COMPOUNDS BY GC/MS</b>						
<b>EPA 8260B</b>						
RunID: MS1_130715A	QC Batch: D13VS043				PrepDate:	Analyst: QBM
Benzene	ND	5.0		µg/Kg	1	7/15/2013 01:16 PM
Ethylbenzene	ND	5.0		µg/Kg	1	7/15/2013 01:16 PM
m,p-Xylene	ND	10		µg/Kg	1	7/15/2013 01:16 PM
o-Xylene	ND	5.0		µg/Kg	1	7/15/2013 01:16 PM
Toluene	ND	5.0		µg/Kg	1	7/15/2013 01:16 PM
Surr: 1,2-Dichloroethane-d4	91.0	63-139		%REC	1	7/15/2013 01:16 PM
Surr: 4-Bromofluorobenzene	90.7	75-124		%REC	1	7/15/2013 01:16 PM
Surr: Dibromofluoromethane	100	70-133		%REC	1	7/15/2013 01:16 PM
Surr: Toluene-d8	98.0	80-123		%REC	1	7/15/2013 01:16 PM
<b>DIESEL &amp; MOTOR OIL RANGE ORGANICS BY GC/FID</b>						
<b>EPA 3550B</b>						
<b>EPA 8015B</b>						
RunID: GC1_130715B	QC Batch: 43434				PrepDate: 7/15/2013	Analyst: MDM
DRO	1.2	1.0		mg/Kg	1	7/15/2013 06:15 PM
ORO	2.8	1.0		mg/Kg	1	7/15/2013 06:15 PM
Surr: p-Terphenyl	103	59-127		%REC	1	7/15/2013 06:15 PM
<b>GASOLINE RANGE ORGANICS BY GC/FID</b>						
<b>EPA 8015B</b>						
RunID: GC4_130716A	QC Batch: E13VS074				PrepDate:	Analyst: QBM
GRO	ND	1.0		mg/Kg	1	7/16/2013 06:50 PM
Surr: Chlorobenzene - d5	79.5	51-136		%REC	1	7/16/2013 06:50 PM
<b>MERCURY BY COLD VAPOR TECHNIQUE</b>						
<b>EPA 7471</b>						
<b>EPA 7471A</b>						
RunID: AA1_130715B	QC Batch: 43424				PrepDate: 7/15/2013	Analyst: LCC
Mercury	ND	0.10		mg/Kg	1	7/15/2013
<b>ICP METALS</b>						
<b>EPA 3050B</b>						
<b>EPA 6010B</b>						
RunID: ICP2_130718B	QC Batch: 43421				PrepDate: 7/16/2013	Analyst: CEI
Antimony	ND	2.0		mg/Kg	1	7/18/2013 10:57 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



**Advanced Technology Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

**Advanced Technology Laboratories, Inc.**

**ANALYTICAL RESULTS**

Print Date: 23-Jul-13

<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B2-4
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 10:35:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-009		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS</b>						
	<b>EPA 3050B</b>	<b>EPA 6010B</b>				
RunID: ICP2_130718B	QC Batch: 43421			PrepDate:	7/16/2013	Analyst: CEI
Arsenic	5.8	1.0		mg/Kg	1	7/18/2013 10:57 AM
Barium	130	1.0		mg/Kg	1	7/18/2013 10:57 AM
Beryllium	ND	1.0		mg/Kg	1	7/18/2013 10:57 AM
Cadmium	ND	1.0		mg/Kg	1	7/18/2013 10:57 AM
Chromium	140	1.0		mg/Kg	1	7/18/2013 10:57 AM
Cobalt	24	1.0		mg/Kg	1	7/18/2013 10:57 AM
Copper	49	2.0		mg/Kg	1	7/18/2013 10:57 AM
Lead	3.4	1.0		mg/Kg	1	7/18/2013 10:57 AM
Molybdenum	ND	1.0		mg/Kg	1	7/18/2013 10:57 AM
Nickel	200	1.0		mg/Kg	1	7/18/2013 10:57 AM
Selenium	ND	1.0		mg/Kg	1	7/18/2013 10:57 AM
Silver	ND	1.0		mg/Kg	1	7/18/2013 10:57 AM
Thallium	ND	1.0		mg/Kg	1	7/18/2013 10:57 AM
Vanadium	67	1.0		mg/Kg	1	7/18/2013 10:57 AM
Zinc	35	1.0		mg/Kg	1	7/18/2013 10:57 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



**Advanced Technology Laboratories, Inc.**

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<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B2-5
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 10:40:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-010		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS</b>						
	<b>EPA 3050B</b>		<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43427			PrepDate: 7/16/2013	Analyst: CEI	
Lead	1.8	1.0		mg/Kg	1	7/16/2013 09:30 PM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B3-0
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 11:09:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-011		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS</b>						
	<b>EPA 3050B</b>		<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43427			PrepDate: 7/16/2013		Analyst: CEI
Lead	27	1.0		mg/Kg	1	7/16/2013 09:35 PM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B3-1
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 11:22:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-012		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS</b>						
	<b>EPA 3050B</b>		<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43427			PrepDate: 7/16/2013		Analyst: CEI
Lead	25	0.99		mg/Kg	1	7/16/2013 09:39 PM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-013

**Client Sample ID:** B3-2  
**Collection Date:** 7/12/2013 11:27:00 AM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**MERCURY BY COLD VAPOR TECHNIQUE**

**EPA 7471**

**EPA 7471A**

RunID: AA1_130715B	QC Batch: 43424				PrepDate: 7/15/2013	Analyst: LCC
Mercury	ND	0.099		mg/Kg	1	7/15/2013

**ICP METALS**

**EPA 3050B**

**EPA 6010B**

RunID: ICP2_130718B	QC Batch: 43421				PrepDate: 7/16/2013	Analyst: CEI
Antimony	ND	2.0		mg/Kg	1	7/18/2013 11:04 AM
Arsenic	2.0	1.0		mg/Kg	1	7/18/2013 11:04 AM
Barium	38	1.0		mg/Kg	1	7/18/2013 11:04 AM
Beryllium	ND	1.0		mg/Kg	1	7/18/2013 11:04 AM
Cadmium	ND	1.0		mg/Kg	1	7/18/2013 11:04 AM
Chromium	110	1.0		mg/Kg	1	7/18/2013 11:04 AM
Cobalt	20	1.0		mg/Kg	1	7/18/2013 11:04 AM
Copper	62	2.0		mg/Kg	1	7/18/2013 11:04 AM
Lead	ND	1.0		mg/Kg	1	7/18/2013 11:04 AM
Molybdenum	ND	1.0		mg/Kg	1	7/18/2013 11:04 AM
Nickel	100	1.0		mg/Kg	1	7/18/2013 11:04 AM
Selenium	ND	1.0		mg/Kg	1	7/18/2013 11:04 AM
Silver	ND	1.0		mg/Kg	1	7/18/2013 11:04 AM
Thallium	ND	1.0		mg/Kg	1	7/18/2013 11:04 AM
Vanadium	44	1.0		mg/Kg	1	7/18/2013 11:04 AM
Zinc	15	1.0		mg/Kg	1	7/18/2013 11:04 AM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B4-0
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 11:30:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-014		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>DIESEL &amp; MOTOR OIL RANGE ORGANICS BY GC/FID</b>						
<b>EPA 3550B</b>			<b>EPA 8015B</b>			
RunID: GC1_130715B	QC Batch: 43434			PrepDate: 7/15/2013		Analyst: <b>MDM</b>
DRO	24	1.0		mg/Kg	1	7/15/2013 06:46 PM
ORO	71	1.0		mg/Kg	1	7/15/2013 06:46 PM
Surr: p-Terphenyl	95.3	59-127		%REC	1	7/15/2013 06:46 PM
<b>ICP METALS</b>						
<b>EPA 3050B</b>			<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43427			PrepDate: 7/16/2013		Analyst: <b>CEI</b>
Lead	51	1.0		mg/Kg	1	7/16/2013 09:52 PM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B4-1
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 11:35:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-015		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>DIESEL &amp; MOTOR OIL RANGE ORGANICS BY GC/FID</b>						
<b>EPA 3550B</b>			<b>EPA 8015B</b>			
RunID: GC1_130715B	QC Batch: 43434				PrepDate: 7/15/2013	Analyst: <b>MDM</b>
DRO	4.2	1.0		mg/Kg	1	7/15/2013 07:11 PM
ORO	10	1.0		mg/Kg	1	7/15/2013 07:11 PM
Surr: p-Terphenyl	100	59-127		%REC	1	7/15/2013 07:11 PM
<b>MERCURY BY COLD VAPOR TECHNIQUE</b>						
<b>EPA 7471</b>			<b>EPA 7471A</b>			
RunID: AA1_130715B	QC Batch: 43424				PrepDate: 7/15/2013	Analyst: <b>LCC</b>
Mercury	ND	0.10		mg/Kg	1	7/15/2013
<b>ICP METALS</b>						
<b>EPA 3050B</b>			<b>EPA 6010B</b>			
RunID: ICP2_130718B	QC Batch: 43421				PrepDate: 7/16/2013	Analyst: <b>CEI</b>
Antimony	ND	2.0		mg/Kg	1	7/18/2013 11:12 AM
Arsenic	1.2	1.0		mg/Kg	1	7/18/2013 11:12 AM
Barium	7.1	1.0		mg/Kg	1	7/18/2013 11:12 AM
Beryllium	ND	1.0		mg/Kg	1	7/18/2013 11:12 AM
Cadmium	ND	1.0		mg/Kg	1	7/18/2013 11:12 AM
Chromium	47	1.0		mg/Kg	1	7/18/2013 11:12 AM
Cobalt	15	1.0		mg/Kg	1	7/18/2013 11:12 AM
Copper	74	2.0		mg/Kg	1	7/18/2013 11:12 AM
Lead	16	1.0		mg/Kg	1	7/18/2013 11:12 AM
Molybdenum	ND	1.0		mg/Kg	1	7/18/2013 11:12 AM
Nickel	40	1.0		mg/Kg	1	7/18/2013 11:12 AM
Selenium	ND	1.0		mg/Kg	1	7/18/2013 11:12 AM
Silver	ND	1.0		mg/Kg	1	7/18/2013 11:12 AM
Thallium	ND	1.0		mg/Kg	1	7/18/2013 11:12 AM
Vanadium	29	1.0		mg/Kg	1	7/18/2013 11:12 AM
Zinc	38	1.0		mg/Kg	1	7/18/2013 11:12 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B4-2
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 11:40:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-016		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS</b>						
	<b>EPA 3050B</b>		<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43427				PrepDate: 7/16/2013	Analyst: CEI
Lead	ND	1.0		mg/Kg	1	7/16/2013 10:07 PM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B4-3
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 11:45:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-017		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**VOLATILE ORGANIC COMPOUNDS BY GC/MS**

**EPA 8260B**

RunID: MS1_130715A	QC Batch: D13VS043	PrepDate:	Analyst: <b>QBM</b>		
Benzene	ND	5.0	µg/Kg	1	7/15/2013 02:00 PM
Ethylbenzene	ND	5.0	µg/Kg	1	7/15/2013 02:00 PM
m,p-Xylene	ND	10	µg/Kg	1	7/15/2013 02:00 PM
o-Xylene	ND	5.0	µg/Kg	1	7/15/2013 02:00 PM
Toluene	ND	5.0	µg/Kg	1	7/15/2013 02:00 PM
Surr: 1,2-Dichloroethane-d4	82.6	63-139	%REC	1	7/15/2013 02:00 PM
Surr: 4-Bromofluorobenzene	84.4	75-124	%REC	1	7/15/2013 02:00 PM
Surr: Dibromofluoromethane	87.7	70-133	%REC	1	7/15/2013 02:00 PM
Surr: Toluene-d8	89.7	80-123	%REC	1	7/15/2013 02:00 PM

**DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID**

**EPA 3550B**

**EPA 8015B**

RunID: GC1_130715B	QC Batch: 43434	PrepDate: 7/15/2013	Analyst: <b>MDM</b>		
DRO	2.3	1.0	mg/Kg	1	7/15/2013 07:37 PM
ORO	6.8	1.0	mg/Kg	1	7/15/2013 07:37 PM
Surr: p-Terphenyl	104	59-127	%REC	1	7/15/2013 07:37 PM

**GASOLINE RANGE ORGANICS BY GC/FID**

**EPA 8015B**

RunID: GC4_130716A	QC Batch: E13VS074	PrepDate:	Analyst: <b>QBM</b>		
GRO	ND	1.0	mg/Kg	1	7/16/2013 05:18 PM
Surr: Chlorobenzene - d5	104	51-136	%REC	1	7/16/2013 05:18 PM

**ICP METALS**

**EPA 3050B**

**EPA 6010B**

RunID: ICP2_130716C	QC Batch: 43427	PrepDate: 7/16/2013	Analyst: <b>CEI</b>		
Lead	1.3	0.99	mg/Kg	1	7/16/2013 10:12 PM

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



**Advanced Technology Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B4-4
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 11:50:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-018		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**MERCURY BY COLD VAPOR TECHNIQUE**

**EPA 7471**

**EPA 7471A**

RunID: AA1_130715B	QC Batch: 43424	PrepDate: 7/15/2013	Analyst: LCC
Mercury	ND	0.10	mg/Kg
		1	7/15/2013

**ICP METALS**

**EPA 3050B**

**EPA 6010B**

RunID: ICP2_130718B	QC Batch: 43421	PrepDate: 7/16/2013	Analyst: CEI
Antimony	ND	2.0	mg/Kg
Arsenic	1.9	1.0	mg/Kg
Barium	41	1.0	mg/Kg
Beryllium	ND	1.0	mg/Kg
Cadmium	ND	1.0	mg/Kg
Chromium	120	1.0	mg/Kg
Cobalt	23	1.0	mg/Kg
Copper	61	2.0	mg/Kg
Lead	ND	1.0	mg/Kg
Molybdenum	ND	1.0	mg/Kg
Nickel	82	1.0	mg/Kg
Selenium	ND	1.0	mg/Kg
Silver	ND	1.0	mg/Kg
Thallium	ND	1.0	mg/Kg
Vanadium	37	1.0	mg/Kg
Zinc	14	1.0	mg/Kg

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



**Advanced Technology Laboratories, Inc.**

**ANALYTICAL RESULTS**

Print Date: 23-Jul-13

**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-019

**Client Sample ID:** B5-0  
**Collection Date:** 7/12/2013 1:34:00 PM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>DIESEL &amp; MOTOR OIL RANGE ORGANICS BY GC/FID</b>						
<b>EPA 3550B</b>			<b>EPA 8015B</b>			
RunID: GC1_130715B	QC Batch: 43434				PrepDate: 7/15/2013	Analyst: <b>MDM</b>
DRO	24	1.0		mg/Kg	1	7/15/2013 08:03 PM
ORO	70	1.0		mg/Kg	1	7/15/2013 08:03 PM
Surr: p-Terphenyl	92.4	59-127		%REC	1	7/15/2013 08:03 PM
<b>ICP METALS</b>						
<b>EPA 3050B</b>			<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43427				PrepDate: 7/16/2013	Analyst: <b>CEI</b>
Lead	83	1.0		mg/Kg	1	7/16/2013 10:16 PM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



**Advanced Technology  
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-020

**Client Sample ID:** B5-1  
**Collection Date:** 7/12/2013 1:36:00 PM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS</b>						
	<b>EPA 3050B</b>					
	<b>EPA 6010B</b>					
RunID: ICP2_130716C	QC Batch: 43427				PrepDate: 7/16/2013	Analyst: CEI
Lead	33	0.99		mg/Kg	1	7/16/2013 10:21 PM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



**Advanced Technology Laboratories, Inc.**

**ANALYTICAL RESULTS**

Print Date: 23-Jul-13

**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-021

**Client Sample ID:** B5-2  
**Collection Date:** 7/12/2013 1:44:00 PM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**PH**

**EPA 9045C**

RunID: WETCHEM_130715C	QC Batch: R89579				PrepDate:	Analyst: LCC
pH	7.8	0.10		pH Units	1	7/15/2013
Temp. at time of pH Analysis	25	0		pH Units	1	7/15/2013

**DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID**

**EPA 3550B**

**EPA 8015B**

RunID: GC1_130715B	QC Batch: 43434				PrepDate: 7/15/2013	Analyst: MDM
DRO	1.6	1.0		mg/Kg	1	7/15/2013 08:29 PM
ORO	2.0	1.0		mg/Kg	1	7/15/2013 08:29 PM
Surr: p-Terphenyl	115	59-127		%REC	1	7/15/2013 08:29 PM

**ICP METALS**

**EPA 3050B**

**EPA 6010B**

RunID: ICP2_130716C	QC Batch: 43427				PrepDate: 7/16/2013	Analyst: CEI
Lead	ND	1.0		mg/Kg	1	7/16/2013 10:26 PM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



**Advanced Technology Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-022

**Client Sample ID:** B5-3  
**Collection Date:** 7/12/2013 1:47:00 PM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS</b>						
	<b>EPA 3050B</b>		<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43427				PrepDate: 7/16/2013	Analyst: CEI
Lead	6.9	1.0		mg/Kg	1	7/16/2013 10:30 PM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-023

**Client Sample ID:** B5-4  
**Collection Date:** 7/12/2013 1:53:00 PM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS</b>						
	<b>EPA 3050B</b>		<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43427				PrepDate: 7/16/2013	Analyst: CEI
Lead	3.6	1.0		mg/Kg	1	7/16/2013 10:34 PM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-024

**Client Sample ID:** B5-5  
**Collection Date:** 7/12/2013 2:00:00 PM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>DIESEL &amp; MOTOR OIL RANGE ORGANICS BY GC/FID</b>						
<b>EPA 3550B</b>			<b>EPA 8015B</b>			
RunID: GC1_130715B	QC Batch: 43434				PrepDate: 7/15/2013	Analyst: <b>MDM</b>
DRO	2.5	1.0		mg/Kg	1	7/15/2013 08:54 PM
ORO	6.9	1.0		mg/Kg	1	7/15/2013 08:54 PM
Surr: p-Terphenyl	102	59-127		%REC	1	7/15/2013 08:54 PM
<b>ICP METALS</b>						
<b>EPA 3050B</b>			<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43427				PrepDate: 7/16/2013	Analyst: <b>CEI</b>
Lead	1.4	1.0		mg/Kg	1	7/16/2013 10:57 PM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B5-6.5
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 2:05:00 PM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-025		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**MERCURY BY COLD VAPOR TECHNIQUE**

**EPA 7471**

**EPA 7471A**

RunID: AA1_130715B	QC Batch: 43424				PrepDate: 7/15/2013	Analyst: LCC
Mercury	ND	0.10		mg/Kg	1	7/15/2013

**ICP METALS**

**EPA 3050B**

**EPA 6010B**

RunID: ICP2_130718B	QC Batch: 43421				PrepDate: 7/16/2013	Analyst: CEI
Antimony	ND	2.0		mg/Kg	1	7/18/2013 11:27 AM
Arsenic	1.9	1.0		mg/Kg	1	7/18/2013 11:27 AM
Barium	32	1.0		mg/Kg	1	7/18/2013 11:27 AM
Beryllium	ND	1.0		mg/Kg	1	7/18/2013 11:27 AM
Cadmium	ND	1.0		mg/Kg	1	7/18/2013 11:27 AM
Chromium	140	1.0		mg/Kg	1	7/18/2013 11:27 AM
Cobalt	25	1.0		mg/Kg	1	7/18/2013 11:27 AM
Copper	61	2.0		mg/Kg	1	7/18/2013 11:27 AM
Lead	6.4	1.0		mg/Kg	1	7/18/2013 11:27 AM
Molybdenum	ND	1.0		mg/Kg	1	7/18/2013 11:27 AM
Nickel	140	1.0		mg/Kg	1	7/18/2013 11:27 AM
Selenium	ND	1.0		mg/Kg	1	7/18/2013 11:27 AM
Silver	ND	1.0		mg/Kg	1	7/18/2013 11:27 AM
Thallium	ND	1.0		mg/Kg	1	7/18/2013 11:27 AM
Vanadium	44	1.0		mg/Kg	1	7/18/2013 11:27 AM
Zinc	20	1.0		mg/Kg	1	7/18/2013 11:27 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-026

**Client Sample ID:** B6-0  
**Collection Date:** 7/12/2013 1:35:00 PM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS</b>						
	<b>EPA 3050B</b>					
	<b>EPA 6010B</b>					
RunID: ICP2_130716C	QC Batch: 43427				PrepDate: 7/16/2013	Analyst: CEI
Lead	42	1.0		mg/Kg	1	7/16/2013 11:01 PM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-027

**Client Sample ID:** B6-1  
**Collection Date:** 7/12/2013 1:40:00 PM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS</b>						
	<b>EPA 3050B</b>				<b>EPA 6010B</b>	
RunID: ICP2_130716C	QC Batch: 43428				PrepDate: 7/16/2013	Analyst: CEI
Lead	11	0.93		mg/Kg	1	7/16/2013 11:20 PM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-028

**Client Sample ID:** B6-2  
**Collection Date:** 7/12/2013 1:45:00 PM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS</b>						
	<b>EPA 3050B</b>		<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43428				PrepDate: 7/16/2013	Analyst: CEI
Lead	2.4	1.0		mg/Kg	1	7/16/2013 11:56 PM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B6-3
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 1:50:00 PM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-029		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**MERCURY BY COLD VAPOR TECHNIQUE**

**EPA 7471**

**EPA 7471A**

RunID: AA1_130715B	QC Batch: 43424			PrepDate: 7/15/2013	Analyst: LCC
Mercury	ND	0.10	mg/Kg	1	7/15/2013

**ICP METALS**

**EPA 3050B**

**EPA 6010B**

RunID: ICP2_130718B	QC Batch: 43421			PrepDate: 7/16/2013	Analyst: CEI
Antimony	ND	2.0	mg/Kg	1	7/18/2013 12:26 PM
Arsenic	2.4	1.0	mg/Kg	1	7/18/2013 12:26 PM
Barium	43	1.0	mg/Kg	1	7/18/2013 12:26 PM
Beryllium	ND	1.0	mg/Kg	1	7/18/2013 12:26 PM
Cadmium	ND	1.0	mg/Kg	1	7/18/2013 12:26 PM
Chromium	150	1.0	mg/Kg	1	7/18/2013 12:26 PM
Cobalt	25	1.0	mg/Kg	1	7/18/2013 12:26 PM
Copper	61	2.0	mg/Kg	1	7/18/2013 12:26 PM
Lead	4.5	1.0	mg/Kg	1	7/18/2013 12:26 PM
Molybdenum	ND	1.0	mg/Kg	1	7/18/2013 12:26 PM
Nickel	140	1.0	mg/Kg	1	7/18/2013 12:26 PM
Selenium	ND	1.0	mg/Kg	1	7/18/2013 12:26 PM
Silver	ND	1.0	mg/Kg	1	7/18/2013 12:26 PM
Thallium	ND	1.0	mg/Kg	1	7/18/2013 12:26 PM
Vanadium	49	1.0	mg/Kg	1	7/18/2013 12:26 PM
Zinc	26	1.0	mg/Kg	1	7/18/2013 12:26 PM

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B6-4
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 1:55:00 PM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-030		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**VOLATILE ORGANIC COMPOUNDS BY GC/MS**

**EPA 8260B**

RunID: MS1_130715A	QC Batch: D13VS043				PrepDate:	Analyst: QBM
Benzene	ND	5.0		µg/Kg	1	7/15/2013 03:06 PM
Ethylbenzene	ND	5.0		µg/Kg	1	7/15/2013 03:06 PM
m,p-Xylene	ND	10		µg/Kg	1	7/15/2013 03:06 PM
o-Xylene	ND	5.0		µg/Kg	1	7/15/2013 03:06 PM
Toluene	ND	5.0		µg/Kg	1	7/15/2013 03:06 PM
Surr: 1,2-Dichloroethane-d4	83.1	63-139		%REC	1	7/15/2013 03:06 PM
Surr: 4-Bromofluorobenzene	84.1	75-124		%REC	1	7/15/2013 03:06 PM
Surr: Dibromofluoromethane	89.5	70-133		%REC	1	7/15/2013 03:06 PM
Surr: Toluene-d8	90.6	80-123		%REC	1	7/15/2013 03:06 PM

**GASOLINE RANGE ORGANICS BY GC/FID**

**EPA 8015B**

RunID: GC4_130716A	QC Batch: E13VS074				PrepDate:	Analyst: QBM
GRO	ND	1.0		mg/Kg	1	7/16/2013 04:47 PM
Surr: Chlorobenzene - d5	108	51-136		%REC	1	7/16/2013 04:47 PM

**ICP METALS**

**EPA 3050B**

**EPA 6010B**

RunID: ICP2_130716C	QC Batch: 43428				PrepDate: 7/16/2013	Analyst: CEI
Lead	3.5	1.0		mg/Kg	1	7/17/2013 12:00 AM

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-031

**Client Sample ID:** B7-0  
**Collection Date:** 7/12/2013 12:48:00 PM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>DIESEL &amp; MOTOR OIL RANGE ORGANICS BY GC/FID</b>						
<b>EPA 3550B</b>			<b>EPA 8015B</b>			
RunID: GC1_130715B	QC Batch: 43434				PrepDate: 7/15/2013	Analyst: <b>MDM</b>
DRO	92	1.0		mg/Kg	1	7/15/2013 11:02 PM
ORO	260	1.0		mg/Kg	1	7/15/2013 11:02 PM
Surr: p-Terphenyl	102	59-127		%REC	1	7/15/2013 11:02 PM
<b>ICP METALS</b>						
<b>EPA 3050B</b>			<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43428				PrepDate: 7/16/2013	Analyst: <b>CEI</b>
Lead	460	0.99		mg/Kg	1	7/17/2013 12:04 AM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B7-1
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 12:50:00 PM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-032		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS</b>						
	<b>EPA 3050B</b>		<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43428				PrepDate: 7/16/2013	Analyst: CEI
Lead	20	1.0		mg/Kg	1	7/17/2013 12:10 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B7-2
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 12:57:00 PM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-033		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>DIESEL &amp; MOTOR OIL RANGE ORGANICS BY GC/FID</b>						
<b>EPA 3550B</b>			<b>EPA 8015B</b>			
RunID: GC1_130715B	QC Batch: 43434			PrepDate: 7/15/2013		Analyst: <b>MDM</b>
DRO	150	1.0		mg/Kg	1	7/15/2013 11:54 PM
ORO	340	1.0		mg/Kg	1	7/15/2013 11:54 PM
Surr: p-Terphenyl	108	59-127		%REC	1	7/15/2013 11:54 PM
<b>MERCURY BY COLD VAPOR TECHNIQUE</b>						
<b>EPA 7471</b>			<b>EPA 7471A</b>			
RunID: AA1_130715B	QC Batch: 43424			PrepDate: 7/15/2013		Analyst: <b>LCC</b>
Mercury	ND	0.10		mg/Kg	1	7/15/2013
<b>ICP METALS</b>						
<b>EPA 3050B</b>			<b>EPA 6010B</b>			
RunID: ICP2_130718B	QC Batch: 43421			PrepDate: 7/16/2013		Analyst: <b>CEI</b>
Antimony	ND	2.0		mg/Kg	1	7/18/2013 12:31 PM
Arsenic	2.0	1.0		mg/Kg	1	7/18/2013 12:31 PM
Barium	46	1.0		mg/Kg	1	7/18/2013 12:31 PM
Beryllium	ND	1.0		mg/Kg	1	7/18/2013 12:31 PM
Cadmium	ND	1.0		mg/Kg	1	7/18/2013 12:31 PM
Chromium	140	1.0		mg/Kg	1	7/18/2013 12:31 PM
Cobalt	21	1.0		mg/Kg	1	7/18/2013 12:31 PM
Copper	53	2.0		mg/Kg	1	7/18/2013 12:31 PM
Lead	27	1.0		mg/Kg	1	7/18/2013 12:31 PM
Molybdenum	ND	1.0		mg/Kg	1	7/18/2013 12:31 PM
Nickel	130	1.0		mg/Kg	1	7/18/2013 12:31 PM
Selenium	ND	1.0		mg/Kg	1	7/18/2013 12:31 PM
Silver	ND	1.0		mg/Kg	1	7/18/2013 12:31 PM
Thallium	ND	1.0		mg/Kg	1	7/18/2013 12:31 PM
Vanadium	48	1.0		mg/Kg	1	7/18/2013 12:31 PM
Zinc	29	1.0		mg/Kg	1	7/18/2013 12:31 PM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-034

**Client Sample ID:** B8-0  
**Collection Date:** 7/12/2013 12:10:00 PM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS</b>						
	<b>EPA 3050B</b>		<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43428				PrepDate: 7/16/2013	Analyst: CEI
Lead	67	1.0		mg/Kg	1	7/17/2013 12:14 AM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out





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**ANALYTICAL RESULTS**

Print Date: 23-Jul-13

<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B8-2
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 12:30:00 PM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-036		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS</b>						
	<b>EPA 3050B</b>		<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43428			PrepDate:	7/16/2013	Analyst: CEI
Lead	1.5	1.0		mg/Kg	1	7/17/2013 12:24 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-037

**Client Sample ID:** B8-3  
**Collection Date:** 7/12/2013 12:40:00 PM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS</b>						
	<b>EPA 3050B</b>			<b>EPA 6010B</b>		
RunID: ICP2_130716C	QC Batch: 43428			PrepDate: 7/16/2013		Analyst: CEI
Lead	1.8	1.0		mg/Kg	1	7/17/2013 12:28 AM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-038

**Client Sample ID:** B8-4  
**Collection Date:** 7/12/2013 12:45:00 PM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS</b>						
	<b>EPA 3050B</b>		<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43428				PrepDate: 7/16/2013	Analyst: CEI
Lead	2.0	1.0		mg/Kg	1	7/17/2013 12:32 AM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B8-5
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 12:55:00 PM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-039		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**MERCURY BY COLD VAPOR TECHNIQUE**

**EPA 7471**

**EPA 7471A**

RunID: AA1_130715B	QC Batch: 43424	PrepDate: 7/15/2013	Analyst: LCC
Mercury	ND	0.099	mg/Kg
		1	7/15/2013

**ICP METALS**

**EPA 3050B**

**EPA 6010B**

RunID: ICP2_130718B	QC Batch: 43421	PrepDate: 7/16/2013	Analyst: CEI
Antimony	ND	2.0	mg/Kg
Arsenic	1.3	1.0	mg/Kg
Barium	46	1.0	mg/Kg
Beryllium	ND	1.0	mg/Kg
Cadmium	ND	1.0	mg/Kg
Chromium	140	1.0	mg/Kg
Cobalt	25	1.0	mg/Kg
Copper	48	2.0	mg/Kg
Lead	2.4	1.0	mg/Kg
Molybdenum	ND	1.0	mg/Kg
Nickel	110	1.0	mg/Kg
Selenium	ND	1.0	mg/Kg
Silver	ND	1.0	mg/Kg
Thallium	ND	1.0	mg/Kg
Vanadium	27	1.0	mg/Kg
Zinc	13	1.0	mg/Kg

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



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**ANALYTICAL RESULTS**

Print Date: 23-Jul-13

**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-040

**Client Sample ID:** B8-6.5  
**Collection Date:** 7/12/2013 1:00:00 PM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS</b>						
	<b>EPA 3050B</b>		<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43428			PrepDate: 7/16/2013		Analyst: CEI
Lead	ND	0.99		mg/Kg	1	7/17/2013 12:46 AM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



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**ANALYTICAL RESULTS**

Print Date: 23-Jul-13

**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-041

**Client Sample ID:** B9-0  
**Collection Date:** 7/12/2013 9:20:00 AM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>DIESEL &amp; MOTOR OIL RANGE ORGANICS BY GC/FID</b>						
<b>EPA 3550B</b>			<b>EPA 8015B</b>			
RunID: GC1_130715B	QC Batch: 43434				PrepDate: 7/15/2013	Analyst: <b>MDM</b>
DRO	28	1.0		mg/Kg	1	7/16/2013 12:19 AM
ORO	58	1.0		mg/Kg	1	7/16/2013 12:19 AM
Surr: p-Terphenyl	112	59-127		%REC	1	7/16/2013 12:19 AM
<b>ICP METALS</b>						
<b>EPA 3050B</b>			<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43428				PrepDate: 7/16/2013	Analyst: <b>CEI</b>
Lead	34	1.0		mg/Kg	1	7/17/2013 12:59 AM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



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<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B9-1
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 9:30:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-042		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**MERCURY BY COLD VAPOR TECHNIQUE**

**EPA 7471**

**EPA 7471A**

RunID: AA1_130715B	QC Batch: 43424			PrepDate: 7/15/2013	Analyst: LCC
Mercury	ND	0.099	mg/Kg	1	7/15/2013

**ICP METALS**

**EPA 3050B**

**EPA 6010B**

RunID: ICP2_130718B	QC Batch: 43421			PrepDate: 7/16/2013	Analyst: CEI
Antimony	ND	2.0	mg/Kg	1	7/18/2013 12:46 PM
Arsenic	1.7	1.0	mg/Kg	1	7/18/2013 12:46 PM
Barium	44	1.0	mg/Kg	1	7/18/2013 12:46 PM
Beryllium	ND	1.0	mg/Kg	1	7/18/2013 12:46 PM
Cadmium	ND	1.0	mg/Kg	1	7/18/2013 12:46 PM
Chromium	170	1.0	mg/Kg	1	7/18/2013 12:46 PM
Cobalt	22	1.0	mg/Kg	1	7/18/2013 12:46 PM
Copper	47	2.0	mg/Kg	1	7/18/2013 12:46 PM
Lead	7.6	1.0	mg/Kg	1	7/18/2013 12:46 PM
Molybdenum	ND	1.0	mg/Kg	1	7/18/2013 12:46 PM
Nickel	100	1.0	mg/Kg	1	7/18/2013 12:46 PM
Selenium	ND	1.0	mg/Kg	1	7/18/2013 12:46 PM
Silver	ND	1.0	mg/Kg	1	7/18/2013 12:46 PM
Thallium	ND	1.0	mg/Kg	1	7/18/2013 12:46 PM
Vanadium	32	1.0	mg/Kg	1	7/18/2013 12:46 PM
Zinc	15	1.0	mg/Kg	1	7/18/2013 12:46 PM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		





**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-044

**Client Sample ID:** B9-3  
**Collection Date:** 7/12/2013 9:40:00 AM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>DIESEL &amp; MOTOR OIL RANGE ORGANICS BY GC/FID</b>						
<b>EPA 3550B</b>			<b>EPA 8015B</b>			
RunID: GC1_130715B	QC Batch: 43434				PrepDate: 7/15/2013	Analyst: <b>MDM</b>
DRO	2.5	1.0		mg/Kg	1	7/16/2013 12:44 AM
ORO	3.1	1.0		mg/Kg	1	7/16/2013 12:44 AM
Surr: p-Terphenyl	122	59-127		%REC	1	7/16/2013 12:44 AM
<b>ICP METALS</b>						
<b>EPA 3050B</b>			<b>EPA 6010B</b>			
RunID: ICP2_130716C	QC Batch: 43428				PrepDate: 7/16/2013	Analyst: <b>CEI</b>
Lead	ND	1.0		mg/Kg	1	7/17/2013 01:09 AM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B9-4
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 9:45:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-045		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**VOLATILE ORGANIC COMPOUNDS BY GC/MS**

**EPA 8260B**

RunID: MS1_130715A	QC Batch: D13VS043	PrepDate:	Analyst: <b>QBM</b>		
Benzene	ND	5.0	µg/Kg	1	7/15/2013 03:28 PM
Ethylbenzene	ND	5.0	µg/Kg	1	7/15/2013 03:28 PM
m,p-Xylene	ND	10	µg/Kg	1	7/15/2013 03:28 PM
o-Xylene	ND	5.0	µg/Kg	1	7/15/2013 03:28 PM
Toluene	ND	5.0	µg/Kg	1	7/15/2013 03:28 PM
Surr: 1,2-Dichloroethane-d4	81.6	63-139	%REC	1	7/15/2013 03:28 PM
Surr: 4-Bromofluorobenzene	80.7	75-124	%REC	1	7/15/2013 03:28 PM
Surr: Dibromofluoromethane	83.6	70-133	%REC	1	7/15/2013 03:28 PM
Surr: Toluene-d8	84.8	80-123	%REC	1	7/15/2013 03:28 PM

**GASOLINE RANGE ORGANICS BY GC/FID**

**EPA 8015B**

RunID: GC4_130716A	QC Batch: E13VS074	PrepDate:	Analyst: <b>QBM</b>		
GRO	ND	1.0	mg/Kg	1	7/16/2013 11:05 AM
Surr: Chlorobenzene - d5	110	51-136	%REC	1	7/16/2013 11:05 AM

**ICP METALS**

**EPA 3050B**

**EPA 6010B**

RunID: ICP2_130716C	QC Batch: 43428	PrepDate:	7/16/2013	Analyst: <b>CEI</b>	
Lead	ND	1.0	mg/Kg	1	7/17/2013 01:13 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-046

**Client Sample ID:** EQUIP BLANK  
**Collection Date:** 7/12/2013 3:30:00 PM  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS</b>						
	<b>EPA 3010A</b>				<b>EPA 6010B</b>	
RunID: ICP2_130719C	QC Batch: 43453				PrepDate: 7/17/2013	Analyst: WLS
Lead	ND	0.0050		mg/L	1	7/19/2013 06:43 PM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49

**ANALYTICAL QC SUMMARY REPORT**

**TestCode: 6010\_S**

Sample ID: <b>MB1-43421</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/16/2013</b>	RunNo: <b>89654</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43421</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/18/2013</b>	SeqNo: <b>1616961</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0									
Arsenic	0.174	1.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Chromium	ND	1.0									
Cobalt	ND	1.0									
Copper	ND	2.0									
Lead	ND	1.0									
Molybdenum	ND	1.0									
Nickel	ND	1.0									
Selenium	ND	1.0									
Silver	ND	1.0									
Thallium	ND	1.0									
Vanadium	ND	1.0									
Zinc	ND	1.0									

Sample ID: <b>MB2-43421</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/16/2013</b>	RunNo: <b>89654</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43421</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/18/2013</b>	SeqNo: <b>1616962</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0									
Arsenic	0.174	1.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Chromium	ND	1.0									
Cobalt	ND	1.0									

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference



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**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010\_S**

Sample ID: <b>MB2-43421</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/16/2013</b>	RunNo: <b>89654</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43421</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/18/2013</b>	SeqNo: <b>1616962</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	ND	2.0									
Lead	ND	1.0									
Molybdenum	ND	1.0									
Nickel	ND	1.0									
Selenium	ND	1.0									
Silver	ND	1.0									
Thallium	0.161	1.0									
Vanadium	ND	1.0									
Zinc	ND	1.0									

Sample ID: <b>LCS-43421</b>	SampType: <b>LCS</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/16/2013</b>	RunNo: <b>89654</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>43421</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/18/2013</b>	SeqNo: <b>1616963</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	49.962	2.0	49.78	0	100	80	120				
Arsenic	48.952	1.0	49.78	0	98.3	80	120				
Barium	50.492	1.0	49.78	0	101	80	120				
Beryllium	50.121	1.0	49.78	0	101	80	120				
Cadmium	48.657	1.0	49.78	0	97.8	80	120				
Chromium	49.782	1.0	49.78	0	100	80	120				
Cobalt	48.471	1.0	49.78	0	97.4	80	120				
Copper	51.661	2.0	49.78	0	104	80	120				
Lead	49.464	1.0	49.78	0	99.4	80	120				
Molybdenum	49.292	1.0	49.78	0	99.0	80	120				
Nickel	48.132	1.0	49.78	0	96.7	80	120				
Selenium	45.140	1.0	49.78	0	90.7	80	120				
Silver	50.060	1.0	49.78	0	101	80	120				
Thallium	47.578	1.0	49.78	0	95.6	80	120				
Vanadium	51.201	1.0	49.78	0	103	80	120				
Zinc	49.988	1.0	49.78	0	100	80	120				

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



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**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010\_S**

Sample ID: <b>N010571-001C-DUP</b>		SampType: <b>DUP</b>		TestCode: <b>6010_S</b>		Units: <b>mg/Kg</b>		Prep Date: <b>7/16/2013</b>		RunNo: <b>89654</b>	
Client ID: <b>ZZZZZZ</b>		Batch ID: <b>43421</b>		TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/18/2013</b>		SeqNo: <b>1616965</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0						0	0	20	
Arsenic	3.532	1.0						3.800	7.30	20	
Barium	132.501	1.0						122.6	7.80	20	
Beryllium	0.328	1.0						0.3386	0	20	
Cadmium	ND	1.0						0	0	20	
Chromium	8.440	1.0						8.511	0.836	20	
Cobalt	4.766	1.0						5.329	11.1	20	
Copper	9.628	2.0						10.66	10.2	20	
Lead	4.517	1.0						5.423	18.2	20	
Molybdenum	ND	1.0						0	0	20	
Nickel	8.910	1.0						10.42	15.6	20	
Selenium	ND	1.0						0	0	20	
Silver	ND	1.0						0	0	20	
Thallium	ND	1.0						0	0	20	
Vanadium	22.359	1.0						23.66	5.64	20	
Zinc	19.962	1.0						22.07	10.0	20	

Sample ID: <b>N010571-001C-MS</b>		SampType: <b>MS</b>		TestCode: <b>6010_S</b>		Units: <b>mg/Kg</b>		Prep Date: <b>7/16/2013</b>		RunNo: <b>89654</b>	
Client ID: <b>ZZZZZZ</b>		Batch ID: <b>43421</b>		TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/18/2013</b>		SeqNo: <b>1616966</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	27.355	2.0	49.83	0	54.9	75	125				S
Arsenic	43.205	1.0	49.83	3.800	79.1	75	125				
Barium	184.299	1.0	49.83	122.6	124	75	125				
Beryllium	39.123	1.0	49.83	0.3386	77.8	75	125				
Cadmium	35.968	1.0	49.83	0	72.2	75	125				S
Chromium	47.739	1.0	49.83	8.511	78.7	75	125				
Cobalt	41.372	1.0	49.83	5.329	72.3	75	125				S
Copper	53.007	2.0	49.83	10.66	85.0	75	125				
Lead	42.937	1.0	49.83	5.423	75.3	75	125				

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



**Advanced Technology  
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010\_S**

Sample ID: <b>N010571-001C-MS</b>	SampType: <b>MS</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/16/2013</b>	RunNo: <b>89654</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43421</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/18/2013</b>	SeqNo: <b>1616966</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	35.714	1.0	49.83	0	71.7	75	125				S
Nickel	46.034	1.0	49.83	10.42	71.5	75	125				S
Selenium	35.342	1.0	49.83	0	70.9	75	125				S
Silver	38.941	1.0	49.83	0	78.2	75	125				S
Thallium	33.034	1.0	49.83	0	66.3	75	125				S
Vanadium	68.048	1.0	49.83	23.66	89.1	75	125				S
Zinc	58.036	1.0	49.83	22.07	72.2	75	125				S

Sample ID: <b>N010581-001A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/16/2013</b>	RunNo: <b>89654</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43421</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/18/2013</b>	SeqNo: <b>1616969</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0						0	0	20	
Arsenic	5.653	1.0						5.372	5.10	20	
Barium	28.653	1.0						27.68	3.46	20	
Beryllium	ND	1.0						0	0	20	
Cadmium	ND	1.0						0	0	20	
Chromium	176.285	1.0						148.0	17.4	20	
Cobalt	32.054	1.0						30.43	5.21	20	
Copper	77.527	2.0						64.07	19.0	20	
Lead	25.152	1.0						19.31	26.3	20	R
Molybdenum	ND	1.0						0	0	20	
Nickel	213.433	1.0						210.4	1.45	20	
Selenium	ND	1.0						0	0	20	
Silver	ND	1.0						0	0	20	
Thallium	ND	1.0						0	0	20	
Vanadium	40.231	1.0						39.60	1.58	20	
Zinc	21.903	1.0						23.17	5.64	20	

**Qualifiers:**

- |   |  |  |
|---|--|--|
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| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



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 Work Order: N010581  
 Project: I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010\_S

Sample ID: N010581-001A-MSD		SampType: MSD		TestCode: 6010_S		Units: mg/Kg		Prep Date: 7/16/2013		RunNo: 89654	
Client ID: ZZZZZZ		Batch ID: 43421		TestNo: EPA 6010B EPA 3050B		Analysis Date: 7/18/2013		SeqNo: 1616975			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	14.506	2.0	49.78	0	29.1	75	125	15.01	3.44	20	S
Arsenic	48.440	1.0	49.78	5.372	86.5	75	125	49.32	1.79	20	
Barium	68.684	1.0	49.78	27.68	82.4	75	125	69.77	1.57	20	
Beryllium	43.553	1.0	49.78	0	87.5	75	125	44.13	1.32	20	
Cadmium	36.009	1.0	49.78	0	72.3	75	125	36.53	1.42	20	S
Chromium	234.343	1.0	49.78	148.0	173	75	125	238.0	1.57	20	S
Cobalt	65.349	1.0	49.78	30.43	70.2	75	125	66.37	1.55	20	S
Copper	121.219	2.0	49.78	64.07	115	75	125	122.4	0.939	20	
Lead	57.485	1.0	49.78	19.31	76.7	75	125	58.25	1.32	20	
Molybdenum	36.123	1.0	49.78	0	72.6	75	125	36.47	0.964	20	S
Nickel	237.758	1.0	49.78	210.4	55.0	75	125	240.9	1.31	20	S
Selenium	38.578	1.0	49.78	0	77.5	75	125	38.95	0.954	20	
Silver	45.288	1.0	49.78	0	91.0	75	125	45.98	1.52	20	
Thallium	31.264	1.0	49.78	0	62.8	75	125	31.68	1.33	20	S
Vanadium	87.867	1.0	49.78	39.60	97.0	75	125	89.26	1.57	20	
Zinc	56.330	1.0	49.78	23.17	66.6	75	125	57.11	1.38	20	S

Sample ID: N010581-001A-MS		SampType: MS		TestCode: 6010_S		Units: mg/Kg		Prep Date: 7/16/2013		RunNo: 89654	
Client ID: ZZZZZZ		Batch ID: 43421		TestNo: EPA 6010B EPA 3050B		Analysis Date: 7/18/2013		SeqNo: 1616975			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	15.014	2.0	50.15	0	29.9	75	125				S
Arsenic	49.317	1.0	50.15	5.372	87.6	75	125				
Barium	69.770	1.0	50.15	27.68	83.9	75	125				
Beryllium	44.132	1.0	50.15	0	88.0	75	125				
Cadmium	36.526	1.0	50.15	0	72.8	75	125				S
Chromium	238.046	1.0	50.15	148.0	180	75	125				S
Cobalt	66.372	1.0	50.15	30.43	71.7	75	125				S
Copper	122.362	2.0	50.15	64.07	116	75	125				
Lead	58.248	1.0	50.15	19.31	77.6	75	125				

**Qualifiers:**

- |   |  |  |
|---|--|--|
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**Work Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010\_S**

Sample ID: <b>N010581-001A-MS</b>	SampType: <b>MS</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/16/2013</b>	RunNo: <b>89654</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43421</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/18/2013</b>	SeqNo: <b>1616976</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	36.473	1.0	50.15	0	72.7	75	125				S
Nickel	240.895	1.0	50.15	210.4	60.9	75	125				S
Selenium	38.948	1.0	50.15	0	77.7	75	125				
Silver	45.981	1.0	50.15	0	91.7	75	125				
Thallium	31.683	1.0	50.15	0	63.2	75	125				S
Vanadium	89.257	1.0	50.15	39.60	99.0	75	125				
Zinc	57.111	1.0	50.15	23.17	67.7	75	125				S

**Qualifiers:**

- |   |  |  |
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**Project:** I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010\_S**

Sample ID: <b>MB2-43427</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/16/2013</b>	RunNo: <b>89605</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43427</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/16/2013</b>	SeqNo: <b>1613835</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 1.0

Sample ID: <b>LCS-43427</b>	SampType: <b>LCS</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/16/2013</b>	RunNo: <b>89605</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>43427</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/16/2013</b>	SeqNo: <b>1613836</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 48.045 0.99 49.65 0 96.8 80 120

Sample ID: <b>MB1-43427</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/16/2013</b>	RunNo: <b>89605</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43427</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/16/2013</b>	SeqNo: <b>1613837</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 1.0

Sample ID: <b>N010581-002A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/16/2013</b>	RunNo: <b>89605</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>43427</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/16/2013</b>	SeqNo: <b>1613839</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

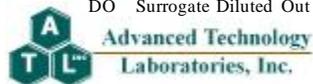
Lead 2.313 1.0 2.534 9.11 20

Sample ID: <b>N010581-002A-MS</b>	SampType: <b>MS</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/16/2013</b>	RunNo: <b>89605</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>43427</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/16/2013</b>	SeqNo: <b>1613842</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 41.367 1.0 50.30 2.534 77.2 75 125

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
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| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



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**Work Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010\_S**

Sample ID: <b>N010581-002A-MSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/16/2013</b>	RunNo: <b>89605</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43427</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/16/2013</b>	SeqNo: <b>1613845</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	36.340	0.99	49.55	2.534	68.2	75	125	41.37	12.9	20	S

Sample ID: <b>N010581-014A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/16/2013</b>	RunNo: <b>89605</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43427</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/16/2013</b>	SeqNo: <b>1613858</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	46.821	0.99						51.14	8.81	20	

Sample ID: <b>N010581-014A-MS</b>	SampType: <b>MS</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/16/2013</b>	RunNo: <b>89605</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43427</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/16/2013</b>	SeqNo: <b>1613859</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	85.464	1.0	49.85	51.14	68.9	75	125				S

**Qualifiers:**

- |   |  |  |
|---|--|--|
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## ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010\_S**

Sample ID: <b>MB1-43428</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/16/2013</b>	RunNo: <b>89605</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43428</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/16/2013</b>	SeqNo: <b>1613873</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 1.0

Sample ID: <b>MB2-43428</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/16/2013</b>	RunNo: <b>89605</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43428</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/16/2013</b>	SeqNo: <b>1613874</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 1.0

Sample ID: <b>LCS-43428</b>	SampType: <b>LCS</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/16/2013</b>	RunNo: <b>89605</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>43428</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/16/2013</b>	SeqNo: <b>1613875</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 50.585 1.0 50.51 0 100 80 120

Sample ID: <b>N010581-027A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/16/2013</b>	RunNo: <b>89605</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>43428</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/16/2013</b>	SeqNo: <b>1613877</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 13.638 1.0 10.82 23.0 20 R

Sample ID: <b>N010581-027A-MS</b>	SampType: <b>MS</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/16/2013</b>	RunNo: <b>89605</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>43428</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/16/2013</b>	SeqNo: <b>1613880</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 41.894 1.0 49.85 10.82 62.3 75 125 S

**Qualifiers:**

- |   |  |  |
|---|--|--|
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**Work Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010\_S**

Sample ID: <b>N010581-027A-MSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/16/2013</b>	RunNo: <b>89605</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>43428</b>	TestNo: <b>EPA 6010B EPA 3050B</b>	Analysis Date: <b>7/16/2013</b>	SeqNo: <b>1613883</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	43.148	1.0	50.51	10.82	64.0	75	125	41.89	2.95	20	S

Sample ID: <b>N010581-040A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/16/2013</b>	RunNo: <b>89605</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>43428</b>	TestNo: <b>EPA 6010B EPA 3050B</b>	Analysis Date: <b>7/17/2013</b>	SeqNo: <b>1613897</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.292	1.0						0.2065	0	20	

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



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**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010\_W**

Sample ID: <b>MB-43453</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>7/17/2013</b>	RunNo: <b>89673</b>						
Client ID: <b>PBW</b>	Batch ID: <b>43453</b>	TestNo: <b>EPA 6010B</b>	<b>EPA 3010A</b>	Analysis Date: <b>7/19/2013</b>	SeqNo: <b>1617997</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 0.0050

Sample ID: <b>LCS-43453</b>	SampType: <b>LCS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>7/17/2013</b>	RunNo: <b>89673</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>43453</b>	TestNo: <b>EPA 6010B</b>	<b>EPA 3010A</b>	Analysis Date: <b>7/19/2013</b>	SeqNo: <b>1617998</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 0.474 0.0050 0.5000 0 94.8 85 115

Sample ID: <b>N010581-046A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>7/17/2013</b>	RunNo: <b>89673</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>43453</b>	TestNo: <b>EPA 6010B</b>	<b>EPA 3010A</b>	Analysis Date: <b>7/19/2013</b>	SeqNo: <b>1618002</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 0.0050 0 0 20

Sample ID: <b>N010581-046A-MS</b>	SampType: <b>MS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>7/17/2013</b>	RunNo: <b>89673</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>43453</b>	TestNo: <b>EPA 6010B</b>	<b>EPA 3010A</b>	Analysis Date: <b>7/19/2013</b>	SeqNo: <b>1618005</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

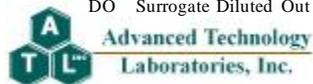
Lead 0.476 0.0050 0.5000 0 95.3 75 125

Sample ID: <b>N010581-046A-MSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>7/17/2013</b>	RunNo: <b>89673</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>43453</b>	TestNo: <b>EPA 6010B</b>	<b>EPA 3010A</b>	Analysis Date: <b>7/19/2013</b>	SeqNo: <b>1618006</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 0.478 0.0050 0.5000 0 95.7 75 125 0.4764 0.397 20

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



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**Work Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 7471\_S**

Sample ID: <b>LCS-43424</b>	SampType: <b>LCS</b>	TestCode: <b>7471_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/15/2013</b>	RunNo: <b>89581</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>43424</b>	TestNo: <b>EPA 7471A</b>	<b>EPA 7471</b>	Analysis Date: <b>7/15/2013</b>	SeqNo: <b>1612602</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.380	0.10	0.4209	0	90.2	80	120				

Sample ID: <b>MB1-43424</b>	SampType: <b>MBLK</b>	TestCode: <b>7471_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/15/2013</b>	RunNo: <b>89581</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43424</b>	TestNo: <b>EPA 7471A</b>	<b>EPA 7471</b>	Analysis Date: <b>7/15/2013</b>	SeqNo: <b>1612604</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.10									

Sample ID: <b>MB2-43424</b>	SampType: <b>MBLK</b>	TestCode: <b>7471_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/15/2013</b>	RunNo: <b>89581</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43424</b>	TestNo: <b>EPA 7471A</b>	<b>EPA 7471</b>	Analysis Date: <b>7/15/2013</b>	SeqNo: <b>1612606</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.10									

Sample ID: <b>N010581-001A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>7471_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/15/2013</b>	RunNo: <b>89581</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>43424</b>	TestNo: <b>EPA 7471A</b>	<b>EPA 7471</b>	Analysis Date: <b>7/15/2013</b>	SeqNo: <b>1612609</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.063	0.10						0.1020	0	20	

Sample ID: <b>N010581-001A-MS</b>	SampType: <b>MS</b>	TestCode: <b>7471_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/15/2013</b>	RunNo: <b>89581</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>43424</b>	TestNo: <b>EPA 7471A</b>	<b>EPA 7471</b>	Analysis Date: <b>7/15/2013</b>	SeqNo: <b>1612610</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.447	0.10	0.4223	0.1020	81.6	75	125				

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



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**Project:** I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 7471\_S**

Sample ID: <b>N010581-001A-MSD</b>	SampType: <b>MSD</b>	TestCode: <b>7471_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/15/2013</b>	RunNo: <b>89581</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43424</b>	TestNo: <b>EPA 7471A EPA 7471</b>	Analysis Date: <b>7/15/2013</b>	SeqNo: <b>1612611</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.474	0.098	0.4099	0.1020	90.9	75	125	0.4467	6.03	20	

Sample ID: <b>N010581-042A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>7471_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/15/2013</b>	RunNo: <b>89581</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43424</b>	TestNo: <b>EPA 7471A EPA 7471</b>	Analysis Date: <b>7/15/2013</b>	SeqNo: <b>1612621</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.10						0	0	20	

Sample ID: <b>N010581-042A-MS</b>	SampType: <b>MS</b>	TestCode: <b>7471_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/15/2013</b>	RunNo: <b>89581</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43424</b>	TestNo: <b>EPA 7471A EPA 7471</b>	Analysis Date: <b>7/15/2013</b>	SeqNo: <b>1612622</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.436	0.10	0.4209	0	103	75	125				

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



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**Project:** I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8015\_S\_DM LL**

Sample ID: <b>LCS-43434</b>	SampType: <b>LCS</b>	TestCode: <b>8015_S_DM L</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/15/2013</b>	RunNo: <b>89578</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>43434</b>	TestNo: <b>EPA 8015B EPA 3550B</b>		Analysis Date: <b>7/15/2013</b>	SeqNo: <b>1612479</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

DRO	71.795	1.0	83.30	0	86.2	52	126				
Surr: p-Terphenyl	6.933		6.670		104	59	127				

Sample ID: <b>MB1-43434</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_S_DM L</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/15/2013</b>	RunNo: <b>89578</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43434</b>	TestNo: <b>EPA 8015B EPA 3550B</b>		Analysis Date: <b>7/15/2013</b>	SeqNo: <b>1612480</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

DRO	ND	1.0									
ORO	ND	1.0									
Surr: p-Terphenyl	6.506		6.670		97.5	59	127				

Sample ID: <b>N010581-005A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>8015_S_DM L</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/15/2013</b>	RunNo: <b>89578</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>43434</b>	TestNo: <b>EPA 8015B EPA 3550B</b>		Analysis Date: <b>7/15/2013</b>	SeqNo: <b>1612483</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

ORO	735.839	10						142.6	135	20	R
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Sample ID: <b>MB2-43434</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_S_DM L</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/15/2013</b>	RunNo: <b>89578</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43434</b>	TestNo: <b>EPA 8015B EPA 3550B</b>		Analysis Date: <b>7/15/2013</b>	SeqNo: <b>1612492</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

DRO	ND	1.0									
ORO	ND	1.0									
Surr: p-Terphenyl	7.983		6.670		120	59	127				

Sample ID: <b>N010581-031A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>8015_S_DM L</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/15/2013</b>	RunNo: <b>89578</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>43434</b>	TestNo: <b>EPA 8015B EPA 3550B</b>		Analysis Date: <b>7/15/2013</b>	SeqNo: <b>1612494</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



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**Work Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8015\_S\_DM LL**

Sample ID: <b>N010581-031A-DUP</b>		SampType: <b>DUP</b>		TestCode: <b>8015_S_DM L</b> Units: <b>mg/Kg</b>			Prep Date: <b>7/15/2013</b>		RunNo: <b>89578</b>		
Client ID: <b>ZZZZZZ</b>		Batch ID: <b>43434</b>		TestNo: <b>EPA 8015B EPA 3550B</b>			Analysis Date: <b>7/15/2013</b>		SeqNo: <b>1612494</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	87.240	1.0						92.28	5.61	20	
ORO	239.650	1.0						260.5	8.33	20	
Surr: p-Terphenyl	7.024		6.679		105	59	127		0		

Sample ID: <b>N010581-005A-DUP</b>		SampType: <b>DUP</b>		TestCode: <b>8015_S_DM L</b> Units: <b>mg/Kg</b>			Prep Date: <b>7/15/2013</b>		RunNo: <b>89578</b>		
Client ID: <b>ZZZZZZ</b>		Batch ID: <b>43434</b>		TestNo: <b>EPA 8015B EPA 3550B</b>			Analysis Date: <b>7/16/2013</b>		SeqNo: <b>1612499</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	199.309	1.0						39.86	133	20	R
Surr: p-Terphenyl	4.776		6.657		71.7	59	127		0		

Sample ID: <b>N010581-014A-MS</b>		SampType: <b>MS</b>		TestCode: <b>8015_S_DM L</b> Units: <b>mg/Kg</b>			Prep Date: <b>7/15/2013</b>		RunNo: <b>89578</b>		
Client ID: <b>ZZZZZZ</b>		Batch ID: <b>43434</b>		TestNo: <b>EPA 8015B EPA 3550B</b>			Analysis Date: <b>7/16/2013</b>		SeqNo: <b>1612500</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	92.962	1.0	83.27	23.74	83.1	13	129				
Surr: p-Terphenyl	6.545		6.668		98.2	59	127				

Sample ID: <b>N010581-014A-MSD</b>		SampType: <b>MSD</b>		TestCode: <b>8015_S_DM L</b> Units: <b>mg/Kg</b>			Prep Date: <b>7/15/2013</b>		RunNo: <b>89578</b>		
Client ID: <b>ZZZZZZ</b>		Batch ID: <b>43434</b>		TestNo: <b>EPA 8015B EPA 3550B</b>			Analysis Date: <b>7/16/2013</b>		SeqNo: <b>1612501</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	93.970	1.0	83.36	23.74	84.2	13	129	92.96	1.08	20	
Surr: p-Terphenyl	6.738		6.674		101	59	127		0		

Sample ID: <b>N010581-044A-MS</b>		SampType: <b>MS</b>		TestCode: <b>8015_S_DM L</b> Units: <b>mg/Kg</b>			Prep Date: <b>7/15/2013</b>		RunNo: <b>89578</b>		
Client ID: <b>ZZZZZZ</b>		Batch ID: <b>43434</b>		TestNo: <b>EPA 8015B EPA 3550B</b>			Analysis Date: <b>7/16/2013</b>		SeqNo: <b>1612502</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
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| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



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**Project:** I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8015\_S\_DM LL**

Sample ID: <b>N010581-044A-MS</b>	SampType: <b>MS</b>	TestCode: <b>8015_S_DM L</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/15/2013</b>	RunNo: <b>89578</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>43434</b>	TestNo: <b>EPA 8015B EPA 3550B</b>		Analysis Date: <b>7/16/2013</b>	SeqNo: <b>1612502</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	82.271	1.0	83.13	2.482	96.0	13	129				
Surr: p-Terphenyl	7.896		6.657		119	59	127				

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



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## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8015GAS\_S**

Sample ID: <b>E130716LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8015GAS_S</b>	Units: <b>mg/Kg</b>	Prep Date:	RunNo: <b>89597</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>E13VS074</b>	TestNo: <b>EPA 8015B</b>		Analysis Date: <b>7/16/2013</b>	SeqNo: <b>1613476</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	5.126	1.0	5.000	0	103	77	122				
Surr: Chlorobenzene - d5	112.520		100.0		113	51	136				

Sample ID: <b>E130716MB1</b>	SampType: <b>MBLK</b>	TestCode: <b>8015GAS_S</b>	Units: <b>mg/Kg</b>	Prep Date:	RunNo: <b>89597</b>						
Client ID: <b>PBS</b>	Batch ID: <b>E13VS074</b>	TestNo: <b>EPA 8015B</b>		Analysis Date: <b>7/16/2013</b>	SeqNo: <b>1613477</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.073	1.0									
Surr: Chlorobenzene - d5	116.421		100.0		116	51	136				

Sample ID: <b>N010582-041ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>8015GAS_S</b>	Units: <b>mg/Kg</b>	Prep Date:	RunNo: <b>89597</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>E13VS074</b>	TestNo: <b>EPA 8015B</b>		Analysis Date: <b>7/16/2013</b>	SeqNo: <b>1613480</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.052	1.0						0.06200	0	20	
Surr: Chlorobenzene - d5	117.207		100.0		117	51	136		0		

Sample ID: <b>N010581-045AMS</b>	SampType: <b>MS</b>	TestCode: <b>8015GAS_S</b>	Units: <b>mg/Kg</b>	Prep Date:	RunNo: <b>89597</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>E13VS074</b>	TestNo: <b>EPA 8015B</b>		Analysis Date: <b>7/16/2013</b>	SeqNo: <b>1613481</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.812	1.0	5.000	0.05100	95.2	41	132				
Surr: Chlorobenzene - d5	97.336		100.0		97.3	51	136				

Sample ID: <b>N010581-045AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>8015GAS_S</b>	Units: <b>mg/Kg</b>	Prep Date:	RunNo: <b>89597</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>E13VS074</b>	TestNo: <b>EPA 8015B</b>		Analysis Date: <b>7/16/2013</b>	SeqNo: <b>1613482</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	5.017	1.0	5.000	0.05100	99.3	41	132	4.812	4.17	20	

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



**Advanced Technology  
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8015GAS\_S**

Sample ID: <b>N010581-045AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>8015GAS_S</b>	Units: <b>mg/Kg</b>	Prep Date:	RunNo: <b>89597</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>E13VS074</b>	TestNo: <b>EPA 8015B</b>		Analysis Date: <b>7/16/2013</b>	SeqNo: <b>1613482</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Chlorobenzene - d5	104.586		100.0		105	51	136		0		

Sample ID: <b>E130716MB2</b>	SampType: <b>MBLK</b>	TestCode: <b>8015GAS_S</b>	Units: <b>mg/Kg</b>	Prep Date:	RunNo: <b>89597</b>						
Client ID: <b>PBS</b>	Batch ID: <b>E13VS074</b>	TestNo: <b>EPA 8015B</b>		Analysis Date: <b>7/16/2013</b>	SeqNo: <b>1613491</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.051	1.0									
Surr: Chlorobenzene - d5	119.789		100.0		120	51	136				

Sample ID: <b>N010592-002ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>8015GAS_S</b>	Units: <b>mg/Kg</b>	Prep Date:	RunNo: <b>89597</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>E13VS074</b>	TestNo: <b>EPA 8015B</b>		Analysis Date: <b>7/16/2013</b>	SeqNo: <b>1613494</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.054	1.0						0.05500	0	20	
Surr: Chlorobenzene - d5	108.747		100.0		109	51	136		0		

Sample ID: <b>N010592-005AMS</b>	SampType: <b>MS</b>	TestCode: <b>8015GAS_S</b>	Units: <b>mg/Kg</b>	Prep Date:	RunNo: <b>89597</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>E13VS074</b>	TestNo: <b>EPA 8015B</b>		Analysis Date: <b>7/16/2013</b>	SeqNo: <b>1613496</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.665	1.0	5.000	0.05900	92.1	41	132				
Surr: Chlorobenzene - d5	96.305		100.0		96.3	51	136				

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



**Advanced Technology  
Laboratories, Inc.**

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**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260SOIL**

Sample ID: <b>D130715LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8260SOIL</b>	Units: <b>µg/Kg</b>	Prep Date:	RunNo: <b>89569</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>D13VS043</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>7/15/2013</b>	SeqNo: <b>1612967</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	41.840	5.0	40.00	0	105	80	120				
Ethylbenzene	38.300	5.0	40.00	0	95.8	80	120				
m,p-Xylene	78.560	10	80.00	0	98.2	80	121				
o-Xylene	40.380	5.0	40.00	0	101	80	120				
Toluene	40.680	5.0	40.00	0	102	80	120				
Surr: 1,2-Dichloroethane-d4	46.080		50.00		92.2	63	139				
Surr: 4-Bromofluorobenzene	48.930		50.00		97.9	75	124				
Surr: Dibromofluoromethane	50.480		50.00		101	70	133				
Surr: Toluene-d8	49.600		50.00		99.2	80	123				

Sample ID: <b>D130715MB3</b>	SampType: <b>MBLK</b>	TestCode: <b>8260SOIL</b>	Units: <b>µg/Kg</b>	Prep Date:	RunNo: <b>89569</b>						
Client ID: <b>PBS</b>	Batch ID: <b>D13VS043</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>7/15/2013</b>	SeqNo: <b>1612970</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	5.0									
Ethylbenzene	ND	5.0									
m,p-Xylene	ND	10									
o-Xylene	ND	5.0									
Toluene	ND	5.0									
Surr: 1,2-Dichloroethane-d4	40.070		50.00		80.1	63	139				
Surr: 4-Bromofluorobenzene	41.060		50.00		82.1	75	124				
Surr: Dibromofluoromethane	43.680		50.00		87.4	70	133				
Surr: Toluene-d8	45.640		50.00		91.3	80	123				

Sample ID: <b>N010581-009ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>8260SOIL</b>	Units: <b>µg/Kg</b>	Prep Date:	RunNo: <b>89569</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>D13VS043</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>7/15/2013</b>	SeqNo: <b>1612972</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	5.0						0	0	20	
Ethylbenzene	ND	5.0						0	0	20	

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



**Advanced Technology  
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3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260SOIL**

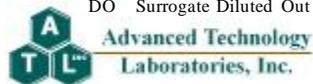
Sample ID: <b>N010581-009ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>8260SOIL</b>	Units: <b>µg/Kg</b>	Prep Date:	RunNo: <b>89569</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>D13VS043</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>7/15/2013</b>	SeqNo: <b>1612972</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
m,p-Xylene	ND	10						0	0	20	
o-Xylene	ND	5.0						0	0	20	
Toluene	ND	5.0						0	0	20	
Surr: 1,2-Dichloroethane-d4	39.930		50.00		79.9	63	139		0		
Surr: 4-Bromofluorobenzene	40.440		50.00		80.9	75	124		0		
Surr: Dibromofluoromethane	42.760		50.00		85.5	70	133		0		
Surr: Toluene-d8	43.890		50.00		87.8	80	123		0		

Sample ID: <b>N010581-017AMS</b>	SampType: <b>MS</b>	TestCode: <b>8260SOIL</b>	Units: <b>µg/Kg</b>	Prep Date:	RunNo: <b>89569</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>D13VS043</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>7/15/2013</b>	SeqNo: <b>1612974</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	39.590	5.0	40.00	0	99.0	72	122				
Ethylbenzene	36.220	5.0	40.00	0	90.6	65	120				
m,p-Xylene	74.530	10	80.00	0	93.2	65	120				
o-Xylene	37.730	5.0	40.00	0	94.3	67	118				
Toluene	38.030	5.0	40.00	0	95.1	68	120				
Surr: 1,2-Dichloroethane-d4	44.510		50.00		89.0	63	139				
Surr: 4-Bromofluorobenzene	45.680		50.00		91.4	75	124				
Surr: Dibromofluoromethane	48.890		50.00		97.8	70	133				
Surr: Toluene-d8	47.000		50.00		94.0	80	123				

Sample ID: <b>N010581-017AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>8260SOIL</b>	Units: <b>µg/Kg</b>	Prep Date:	RunNo: <b>89569</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>D13VS043</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>7/15/2013</b>	SeqNo: <b>1612975</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	40.460	5.0	40.00	0	101	72	122	39.59	2.17	20	
Ethylbenzene	37.640	5.0	40.00	0	94.1	65	120	36.22	3.85	20	
m,p-Xylene	77.130	10	80.00	0	96.4	65	120	74.53	3.43	20	
o-Xylene	39.000	5.0	40.00	0	97.5	67	118	37.73	3.31	20	

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



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**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260SOIL**

Sample ID: <b>N010581-017AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>8260SOIL</b>	Units: <b>µg/Kg</b>	Prep Date:	RunNo: <b>89569</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>D13VS043</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>7/15/2013</b>	SeqNo: <b>1612975</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	38.740	5.0	40.00	0	96.9	68	120	38.03	1.85	20	
Surr: 1,2-Dichloroethane-d4	41.480		50.00		83.0	63	139		0		
Surr: 4-Bromofluorobenzene	44.100		50.00		88.2	75	124		0		
Surr: Dibromofluoromethane	44.300		50.00		88.6	70	133		0		
Surr: Toluene-d8	43.870		50.00		87.7	80	123		0		

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



**Advanced Technology  
Laboratories, Inc.**

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**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 9045\_S**

Sample ID: <b>N010581-021ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>9045_S</b>	Units: <b>pH Units</b>	Prep Date:	RunNo: <b>89579</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R89579</b>	TestNo: <b>EPA 9045C</b>	Analysis Date: <b>7/15/2013</b>	SeqNo: <b>1612505</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.830	0.10						7.850	0.255	20	
Temp. at time of pH Analysis	25.000	0						25.00	0	0	

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



**Advanced Technology  
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

# CHAIN OF CUSTODY RECORD

**ADVANCED TECHNOLOGY LABORATORIES**  
 3275 Walnut Ave., Signal Hill, CA 90755  
 Tel: (562) 989-4045 • Fax: (562) 989-4040

**Client:** Geocon Consultants, Inc.  
**Attn:** L. DAY, L. BEADLE  
**Project Name:** I 580 STEAM REPAIR

**Method of Transport:**  
 Client  ATL  OnTrac  
 FedEx  GSO  
 Other: \_\_\_\_\_

**Sample Condition Upon Receipt:**  
 1. CHILLED  12.50°C  Y  N  4. CUSTODY SEAL  Y  N   
 2. HEADSPACE (VOA)  Y  N  5. # OF SPLS MATCH COC  Y  N   
 3. CONTAINER INTACT  Y  N  6. PRESERVED  Y  N

**Quote #:** \_\_\_\_\_ **Quote #:** \_\_\_\_\_  
**Logged By:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**NOTE:** Please include your Quote No. to ensure proper pricing of your project.

**FOR LABORATORY USE ONLY:**

**Address:** 6671 Brisa Street, City: Livemore, State: CA, Zip Code: 94550  
 TEL: (925) 371-5900 FAX: (925) 371-5915

**Project #:** E5560-02-49 **Sampler:** C. McFARRETT, L. CARAVANO **Signature:** Charles McFarrett  
**Date:** 7-12-13 **Time:** 1700 **Received by:** (Signature and Printed Name) CHARLES MCFARRETT **Date:** 7/12/13 **Time:** 0915

**Relinquished by:** (Signature and Printed Name) \_\_\_\_\_ **Date:** \_\_\_\_\_  
**Relinquished by:** (Signature and Printed Name) \_\_\_\_\_ **Date:** \_\_\_\_\_  
**Relinquished by:** (Signature and Printed Name) \_\_\_\_\_ **Date:** \_\_\_\_\_

**Special Instructions/Comments:** \_\_\_\_\_

**Send Report To:**  
**Attn:** A/A **City:** \_\_\_\_\_ **State:** \_\_\_\_\_ **Zip:** \_\_\_\_\_  
**Co:** A/A **City:** \_\_\_\_\_ **State:** \_\_\_\_\_ **Zip:** \_\_\_\_\_  
**Addr:** \_\_\_\_\_ **City:** \_\_\_\_\_ **State:** \_\_\_\_\_ **Zip:** \_\_\_\_\_  
**City:** \_\_\_\_\_ **State:** \_\_\_\_\_ **Zip:** \_\_\_\_\_

**Circle or Add Analysis(es) Requested:**  
 8015B (Total Metals)   
 8015B (GRO) / 8021 (BTEX)   
 8015B (DRO) / 8021 (BTEX)   
 8270C (BNA)   
 8280B (Volatiles)   
 8082 (PCB)   
 8091A (Pesticides)   
 8091B (Pesticides)   
 8091C (Pesticides)   
 8091D (Pesticides)   
 8091E (Pesticides)   
 8091F (Pesticides)   
 8091G (Pesticides)   
 8091H (Pesticides)   
 8091I (Pesticides)   
 8091J (Pesticides)   
 8091K (Pesticides)   
 8091L (Pesticides)   
 8091M (Pesticides)   
 8091N (Pesticides)   
 8091O (Pesticides)   
 8091P (Pesticides)   
 8091Q (Pesticides)   
 8091R (Pesticides)   
 8091S (Pesticides)   
 8091T (Pesticides)   
 8091U (Pesticides)   
 8091V (Pesticides)   
 8091W (Pesticides)   
 8091X (Pesticides)   
 8091Y (Pesticides)   
 8091Z (Pesticides)

LAB USE ONLY: Batch # / Lab No.	Sample Description	Sample I.D. / Location	Date	Time	SPECIFY APPROPRIATE MATRIX		PRESERVATION	REMARKS
					TAT #	Container(s) Type		
N010561-1	B1-0		7-12-13	0910				
2	-1			0921				
3	-2			40				
4	-3			46				
5	B2-0			1020				
6	-1			25				
7	-2			26				
8	-3			30				
9	-4			35				
10	-5			40				

**QA/QC:**  
 RTIME  CT  Legal   
 SWRCB  Logcode  OTHER

**Preservatives:**  
 H=HCl N=HNO<sub>3</sub> S=H<sub>2</sub>SO<sub>4</sub> C=-4°C  
 Z=Zn(AC)<sub>2</sub> O=NaOH T=Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>

**Container Types:** T=Tube V=VOA L=Liter  
**Emergency Next workday:**  B=  C=Critical  D=Urgent  E=Routine  
 A=Overnight ≤ 24 hrs  2 Workdays  3 Workdays  7 Workdays  
 P=Pint J=Jar B=Bedlar G=Glass P=Plastic M=Metal

**DISTRIBUTION:** White with report, Yellow to folder, Pink to submitter.



# CHAIN OF CUSTODY RECORD

**ADVANCED TECHNOLOGY LABORATORIES**  
 3275 Walnut Ave., Signal Hill, CA 90755  
 Tel: (562) 989-4045 • Fax: (562) 989-4040

**FOR LABORATORY USE ONLY:**  
 Sample Condition Upon Receipt  
 1. CHILLED  Y  N  4. CUSTODY SEAL  Y  N   
 2. HEADSPACE (VOA)  Y  N  5. # OF SPLS MATCH COC  Y  N   
 3. CONTAINER INTACT  Y  N  6. PRESERVED  Y  N

P.O.#: \_\_\_\_\_ Quote #: \_\_\_\_\_  
 Method of Transport  Client  ATL  OnTrac  
 FedEx  GSO  Other: \_\_\_\_\_  
 Logged By: \_\_\_\_\_ Date: \_\_\_\_\_

NOTE: Please include your Quote No. to ensure proper pricing of your project.

**Geocon Consultants, Inc.**  
 Address: 6671 Brisa Street, City: Livemore, State: CA, Zip Code: 94550  
 TEL: (925) 371-5900 FAX: (925) 371-5915

Attn: R. DAY, L. BEAOLE Project #: E5560-02-49 Sampler: C.M., L.L.  
 Relinquished by: (Signature and Printed Name) CHRIS MEARLT Date: 7-12-13 Time: 1700  
 Relinquished by: (Signature and Printed Name) CHRIS MEARLT Date: 7-12-13 Time: 0915  
 Relinquished by: (Signature and Printed Name) \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Special Instructions/Comments: \_\_\_\_\_

Bill To: \_\_\_\_\_  
 Attn: A/A  
 Co: \_\_\_\_\_  
 Addr: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Send Report To: \_\_\_\_\_  
 Attn: A/A  
 Co: \_\_\_\_\_  
 Addr: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

**Sample/Records - Archival & Disposal**  
 Unless otherwise requested by client, all samples will be disposed 45 days after receipt and records will be disposed 1 year after submittal of final report.

**Storage Fees (applies when storage is requested):**  
 • Sample : \$2.00 / sample / mo (after 45 days)  
 • Records : \$1.00 / ATL workorder / mo (after 1 year)

LAB USE ONLY: Batch #:	Lab No.	Sample I.D. / Location	Date	Time	SPECIFY APPROPRIATE MATRIX		Container(s)	TAT #	Type	REMARKS
					DRINKING WATER	GROUND WATER				
NO 10581-21	B5-2		7-12-13	1344				1	1	
22	B5-3			147						
23	-4			53						
24	-5			1400						
25	-6.5			1105						
26	B6-0			1335						
27	-1			140						
28	-2			145						
29	-3			50						
30	-4			55						

Circle or Add Analysis(es) Requested:  
 8081A (Pesticides)  8082 (PCB)  8270C (Nitrates)  8010B (BNA)  8015B (Total Metal)  8015B (DRO) / 8021 (BTEX)  TITLE 22 / CAM 17 (6010/1700)  PH EPA 8160  SOIL  SEDIMENT  SOLID  DRINKING WATER  GROUND WATER  WASTEWATER  STORMWATER  AQUEOUS

Preservatives:  
 H=Hcl N=HNO<sub>3</sub> S=H<sub>2</sub>SO<sub>4</sub> C=4°C  
 Z=Zn(Ac)<sub>2</sub> O=NaOH T=Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>

Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Becliar G=Glass P=Plastic M=Metal  
 TAT:  A= Overnight ≤ 24 hrs  B= Emergency Next workday  C= 2 Workdays  D= 3 Workdays  E= 7 Workdays  Routine





## Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. 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 instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 7/13/2013 Workorder: N010581  
 Rep sample Temp (Deg C): 13.20 IR Gun ID: 1  
 Temp Blank:  Yes  No  
 Carrier name: Golden State Overnight  
 Last 4 digits of Tracking No.: 2996 Packing Material Used: None  
 Cooling process:  Ice  Ice Pack  Dry Ice  Other  None

### Sample Receipt Checklist

- |   |   |  |   |
|---|---|--|---|
| 1. Shipping container/cooler in good condition?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Present <input type="checkbox"/>            |
| 2. Custody seals intact, signed, dated on shipping container/cooler?                    | Yes <input type="checkbox"/>            | No <input type="checkbox"/>            | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles?  | Yes <input type="checkbox"/>            | No <input type="checkbox"/>            | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| 5. Sampler's name present in COC?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| 6. Chain of custody signed when relinquished and received?                              | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| 7. Chain of custody agrees with sample labels?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| 8. Samples in proper container/bottle?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| 9. Sample containers intact?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| 10. Sufficient sample volume for indicated test?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| 11. All samples received within holding time?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |   |
| 12. Temperature of rep sample or Temp Blank within acceptable limit?                    | Yes <input type="checkbox"/>            | No <input checked="" type="checkbox"/> | NA <input type="checkbox"/>                     |
| 13. Water - VOA vials have zero headspace?  | Yes <input type="checkbox"/>            | No <input type="checkbox"/>            | NA <input checked="" type="checkbox"/>          |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input type="checkbox"/>            | No <input checked="" type="checkbox"/> | NA <input type="checkbox"/>                     |
| 15. Did the bottle labels indicate correct preservatives used?                          | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | NA <input type="checkbox"/>                     |
| 16. Were there Non-Conformance issues at login?<br>Was Client notified?                 | Yes <input type="checkbox"/>            | No <input type="checkbox"/>            | NA <input checked="" type="checkbox"/>          |
|   | Yes <input type="checkbox"/>            | No <input type="checkbox"/>            | NA <input checked="" type="checkbox"/>          |

Comments: Temperature is outside acceptable limit. pH of equipment blank was adjusted to <2.0.

Checklist Completed By QBM for: TMC 7/15/13

Reviewed By: [Signature]

	<b>&lt; WebShip &gt; &gt; &gt; &gt;</b> <b>800-322-5555 www.gso.com</b>	
<b>Ship From:</b> GEOCON - LIVERMORE OFFICE GEOCON, INC. 6671 BRISA STREET LIVERMORE, CA 94550	<b>Tracking #:</b> 522262996 	<b>SDS</b>
<b>Ship To:</b> <b>SAMPLE RECEIVING</b> <b>ADVANCED TECHNOLOGY LABS -</b> <b>LAS VEGAS</b> <b>3151 W. POST ROAD</b> <b>LAS VEGAS, NV 89118</b>	<b>LVS</b> <b>LAS VEGAS</b>	
<b>COD:</b> \$0.00	<b>D89103A</b>  13992639	
<b>Reference:</b> E8560-02-49		
<b>Delivery Instructions:</b>		
<b>Signature Type:</b> SIGNATURE REQUIRED	<small>Print Date : 07/12/13 16:49 PM</small>	

**Package 1 of 1**

 Print All


**LABEL INSTRUCTIONS:**

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.

STEP 1 - Use the "Send Label to Printer" button on this page to print the shipping label on a laser or inkjet printer.

STEP 2 - Fold this page in half.

STEP 3 - Securely attach this label to your package, do not cover the barcode.

STEP 4 - Request an on-call pickup for your package, if you do not have scheduled daily pickup service or Drop-off your package at the nearest GSO drop box. Locate nearest GSO dropbox locations using this link.

**ADDITIONAL OPTIONS:**


**TERMS AND CONDITIONS:**

By giving us your shipment to deliver, you agree to all the service terms and conditions described in this section. Our liability for loss or damage to any package is limited to your actual damages or \$100 whichever is less, unless you pay for and declare a higher authorized value. If you declare a higher value and pay the additional charge, our liability will be the lesser of your declared value or the actual value of your loss or damage. In any event, we will not be liable for any damage, whether direct, incidental, special or consequential, in excess of the declared value of a shipment whether or not we had knowledge that such damage might be incurred including but not limited to loss of income or profit. We will not be liable for your acts or omissions, including but not limited to improper or insufficient packaging, securing, marking or addressing. Also, we will not be liable if you or the recipient violates any of the terms of our agreement. We will not be liable for loss, damage or delay caused by events we cannot control, including but not limited to acts of God, perils of the air, weather conditions, act of public enemies, war, strikes, or civil commotion. The highest declared value for our GSO Priority Letter or GSO Priority Package is \$500. For other shipments the highest declared value is \$10,000 unless your package contains items of "extraordinary value", in which case the highest declared value we allow is \$500. Items of "extraordinary value" include, but not limited to, artwork, jewelry, furs, precious metals, tickets, negotiable instruments and other items with intrinsic value.

July 29, 2013

Rick Day  
Geocon Consultants, Inc.  
6671 Brisa Street  
Livermore, CA 94550  
TEL: (925) 371-5900  
FAX: (925) 371-5915

CA-ELAP No.:2676  
NV Cert. No.:NV-009222007A

Workorder No.: N010581

RE: I 580 STORM REPAIR, E8560-02-49

Attention: Rick Day

Enclosed are the results for sample(s) received on July 13, 2013 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

This is an amended report. Please disregard all previous documentation that corresponds to the page(s) enclosed.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,



Jose Tenorio Jr.  
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



**Advanced Technology  
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B7-0
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 12:48:00 PM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-031		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS</b>						
	<b>EPA 3050B</b>		<b>EPA 6010B</b>			
RunID: ICP2_130725B	QC Batch: 43521			PrepDate: 7/25/2013		Analyst: CEI
Lead	510	1.0		mg/Kg	1	7/25/2013 02:16 PM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010\_S**

Sample ID: <b>MB-43521</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/25/2013</b>	RunNo: <b>89722</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43521</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/25/2013</b>	SeqNo: <b>1619622</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 1.0

Sample ID: <b>LCS-43521</b>	SampType: <b>LCS</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/25/2013</b>	RunNo: <b>89722</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>43521</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/25/2013</b>	SeqNo: <b>1619623</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 45.412 1.0 50.00 0 90.8 80 120

Sample ID: <b>N010581-031A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/25/2013</b>	RunNo: <b>89722</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43521</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/25/2013</b>	SeqNo: <b>1619627</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 535.079 0.99 513.8 4.06 20

Sample ID: <b>N010581-031A-MS</b>	SampType: <b>MS</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/25/2013</b>	RunNo: <b>89722</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43521</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/25/2013</b>	SeqNo: <b>1619628</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 515.478 0.99 49.60 513.8 3.45 75 125 S

Sample ID: <b>N010581-031A-MSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/25/2013</b>	RunNo: <b>89722</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43521</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>7/25/2013</b>	SeqNo: <b>1619629</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 554.847 1.0 50.20 513.8 81.8 75 125 515.5 7.36 20

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



**Advanced Technology  
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

July 31, 2013

Rick Day  
Geocon Consultants, Inc.  
6671 Brisa Street  
Livermore, CA 94550

TEL: (925) 371-5900  
FAX: (925) 371-5915

CA-ELAP No.:2676  
NV Cert. No.:NV-009222007A

Workorder No.: N010581

RE: I 580 STORM REPAIR, E8560-02-49

Attention: Rick Day

Enclosed are the results for sample(s) received on July 13, 2013 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

This is an addendum report. Please incorporate with documentation previously submitted.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,



Jose Tenorio Jr.  
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



**Advanced Technology  
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

**CLIENT:** Geocon Consultants, Inc.

**Client Sample ID:** B1-0

**Lab Order:** N010581

**Collection Date:** 7/12/2013 9:10:00 AM

**Project:** I 580 STORM REPAIR, E8560-02-49

**Matrix:** SOIL

**Lab ID:** N010581-001A

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2_130729A	QC Batch: R89753	PrepDate:	Analyst: CEI
Chromium	0.22	0.050 mg/L	5
			7/29/2013 10:41 AM

**Qualifiers:**

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B2-0
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 10:20:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-005A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2_130729A	QC Batch: R89753	PrepDate:	Analyst: CEI
Lead	4.6	0.050 mg/L	5
			7/29/2013 12:11 PM

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B2-4
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 10:35:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-009A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2_130729A	QC Batch: R89753	PrepDate:	Analyst: <b>CEI</b>
Chromium	0.25	0.050	mg/L
			5
			7/29/2013 10:53 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B3-2
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 11:27:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-013A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2_130729A	QC Batch: R89753	PrepDate:	Analyst: CEI
Chromium	0.25	0.050	mg/L
			5
			7/29/2013 10:57 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B4-0
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 11:30:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-014A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2_130729A	QC Batch: R89753	PrepDate:	Analyst: CEI
Lead	5.7	0.050	mg/L
			5
			7/29/2013 11:05 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B4-4
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 11:50:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-018A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2_130729A	QC Batch: R89753	PrepDate:	Analyst: CEI
Chromium	0.21	0.050	mg/L
			5
			7/29/2013 11:18 AM

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B5-0
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 1:34:00 PM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-019A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2_130729A	QC Batch: R89753	PrepDate:	Analyst: CEI
Lead	8.1	0.050	mg/L
			5
			7/29/2013 11:23 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B5-6.5
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 2:05:00 PM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-025A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2_130729A	QC Batch: R89753	PrepDate:	Analyst: CEI		
Chromium	0.20	0.050	mg/L	5	7/29/2013 11:28 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B6-3
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 1:50:00 PM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-029A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2_130729A	QC Batch: R89753	PrepDate:	Analyst: CEI
Chromium	0.22	0.050	mg/L
			5
			7/29/2013 11:32 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B7-0
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 12:48:00 PM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-031A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2_130729A	QC Batch: R89753	PrepDate:	Analyst: CEI
Lead	32	0.050 mg/L	5
			7/29/2013 11:36 AM

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



**CLIENT:** Geocon Consultants, Inc.

**Client Sample ID:** B7-2

**Lab Order:** N010581

**Collection Date:** 7/12/2013 12:57:00 PM

**Project:** I 580 STORM REPAIR, E8560-02-49

**Matrix:** SOIL

**Lab ID:** N010581-033A

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2\_130729A

QC Batch: R89753

PrepDate:

Analyst: CEI

Chromium

0.27

0.050

mg/L

5

7/29/2013 11:41 AM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
 DO Surrogate Diluted Out



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B8-0
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 12:10:00 PM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-034A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2_130729A	QC Batch: R89753	PrepDate:	Analyst: CEI
Lead	5.1	0.050	mg/L
		5	7/29/2013 11:45 AM

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B8-5
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 12:55:00 PM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-039A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2_130729A	QC Batch: R89753	PrepDate:	Analyst: CEI
Chromium	0.25	0.050	mg/L
			5
			7/29/2013 11:50 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B9-1
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 9:30:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-042A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2_130729A	QC Batch: R89753	PrepDate:	Analyst: CEI		
Chromium	0.40	0.050	mg/L	5	7/29/2013 11:54 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B9-2
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 9:35:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-043A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2_130729A	QC Batch: R89753	PrepDate:	Analyst: CEI
Lead	ND	0.050 mg/L	5
			7/29/2013 11:58 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



**ANALYTICAL QC SUMMARY REPORT**

**CLIENT:** Geocon Consultants, Inc.

**Work Order:** N010581

**Project:** I 580 STORM REPAIR, E8560-02-49

**TestCode:** 6010\_ST

Sample ID: <b>MB-R89753</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_ST</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>89753</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R89753</b>	TestNo: <b>WET/EPA 60</b>		Analysis Date: <b>7/29/2013</b>	SeqNo: <b>1620978</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	0.010									
Lead	ND	0.010									

Sample ID: <b>LCS-R89753</b>	SampType: <b>LCS</b>	TestCode: <b>6010_ST</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>89753</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>R89753</b>	TestNo: <b>WET/EPA 60</b>		Analysis Date: <b>7/29/2013</b>	SeqNo: <b>1620979</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.471	0.010	0.5000	0	94.1	85	115				
Lead	0.474	0.010	0.5000	0	94.8	85	115				

Sample ID: <b>MB1-43515</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_ST</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>89753</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R89753</b>	TestNo: <b>WET/EPA 60</b>		Analysis Date: <b>7/29/2013</b>	SeqNo: <b>1620980</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.003	0.050									
Lead	ND	0.050									

Sample ID: <b>MB2-43515</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_ST</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>89753</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R89753</b>	TestNo: <b>WET/EPA 60</b>		Analysis Date: <b>7/29/2013</b>	SeqNo: <b>1620981</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.003	0.050									
Lead	ND	0.050									

Sample ID: <b>N010581-005A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>6010_ST</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>89753</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R89753</b>	TestNo: <b>WET/EPA 60</b>		Analysis Date: <b>7/29/2013</b>	SeqNo: <b>1621003</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.003	0.050									
Lead	ND	0.050									

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49

# ANALYTICAL QC SUMMARY REPORT

**TestCode:** 6010\_ST

Sample ID: <b>N010581-005A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>6010_ST</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>89753</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R89753</b>	TestNo: <b>WET/EPA 60</b>		Analysis Date: <b>7/29/2013</b>	SeqNo: <b>1621003</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.139	0.050						0.1516	8.77	20	
Lead	12.385	0.050						4.635	91.1	20	R

Sample ID: <b>N010581-005A-MS</b>	SampType: <b>MS</b>	TestCode: <b>6010_ST</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>89753</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R89753</b>	TestNo: <b>WET/EPA 60</b>		Analysis Date: <b>7/29/2013</b>	SeqNo: <b>1621004</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	2.573	0.050	2.500	0.1516	96.9	75	125				
Lead	6.984	0.050	2.500	4.635	94.0	75	125				

Sample ID: <b>N010581-005A-MSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_ST</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>89753</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R89753</b>	TestNo: <b>WET/EPA 60</b>		Analysis Date: <b>7/29/2013</b>	SeqNo: <b>1621005</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	2.561	0.050	2.500	0.1516	96.4	75	125	2.573	0.452	20	
Lead	6.905	0.050	2.500	4.635	90.8	75	125	6.984	1.13	20	

Sample ID: <b>N010581-033A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>6010_ST</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>89753</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R89753</b>	TestNo: <b>WET/EPA 60</b>		Analysis Date: <b>7/29/2013</b>	SeqNo: <b>1621006</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.357	0.050						0.2661	29.2	20	R
Lead	1.498	0.050						1.495	0.212	20	

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

## Nancy Sibucan

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**From:** Luann Beadle [[beadle@geoconinc.com](mailto:beadle@geoconinc.com)]  
**Sent:** Wednesday, July 24, 2013 8:53 AM  
**To:** Advanced Technology Labs, Inc.  
**Subject:** Lab Order N010581

Hi ATL,

We had several samples with results  $\geq 10XSTLC$ . Could you please run WET analyses on the following samples for chromium and lead, as indicated on the chart below?

N010581-013A	B3-2	Chromium	110
N010581-018A	B4-4	Chromium	120
N010581-009A	B2-4	Chromium	140
N010581-025A	B5-6.5	Chromium	140
N010581-033A	B7-2	Chromium	140
N010581-039A	B8-5	Chromium	140
N010581-001A	B1-0	Chromium	150
N010581-029A	B6-3	Chromium	150
N010581-042A	B9-1	Chromium	170
N010581-014A	B4-0	Lead	51
N010581-005A	B2-0	Lead	54
N010581-034A	B8-0	Lead	67
N010581-019A	B5-0	Lead	83
N010581-043A	B9-2	Lead	120
N010581-031A	B7-0	Lead	460

Also, please re-homogenize and re-analyze sample B7-0. It is inconsistent with the remaining data.

All on a regular TAT.

Thank you,

Luann



**Luann Beadle** | Senior Staff Scientist  
**Geocon Consultants, Inc.**

6671 Brisa Street, Livermore, CA 94550

Office: 925.371.5900, ext. 403 Direct: 925.961.5272 Mobile: 925.395.1669

[beadle@geoconinc.com](mailto:beadle@geoconinc.com)

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August 08, 2013

Rick Day  
Geocon Consultants, Inc.  
6671 Brisa Street  
Livermore, CA 94550

TEL: (925) 371-5900  
FAX: (925) 371-5915

CA-ELAP No.:2676  
NV Cert. No.:NV-009222007A

Workorder No.: N010581

RE: I 580 STORM REPAIR, E8560-02-49

Attention: Rick Day

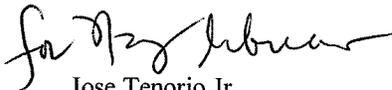
Enclosed are the results for sample(s) received on July 13, 2013 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

This is an addendum report. Please incorporate with documentation previously submitted.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,



Jose Tenorio Jr.  
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



**Advanced Technology  
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

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**CLIENT:** Geocon Consultants, Inc.  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab Order:** N010581

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**CASE NARRATIVE**

Analytical Comments for EPA 6010B\_STDI:

RPD for Sample and Sample Duplicate is outside criteria ; however, the analytical batch was validated by the Laboratory Control Sample (LCS).



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B4-0
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 11:30:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-014		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY WET DI EXTRACTION**

**WET DI/ EPA 6010B**

RunID: ICP2_130808A	QC Batch: R89895	PrepDate:	Analyst: admin
Lead	0.33	0.050	mg/L
		1	8/8/2013 11:12 AM

**LEAD BY TCLP EXTRACTION**

**EPA 3010A**

**EPA 1311/ 6010B**

RunID: ICP2_130806C	QC Batch: 43607	PrepDate:	8/6/2013	Analyst: CEI
Lead	ND	0.25	mg/L	1
				8/6/2013 06:14 PM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-019

**Client Sample ID:** B5-0  
**Collection Date:** 7/12/2013 1:34:00 PM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY WET DI EXTRACTION**

**WET DI/ EPA 6010B**

RunID: ICP2_130808A	QC Batch: R89895	PrepDate:	Analyst: admin
Lead	0.35	0.050 mg/L	1
			8/8/2013 11:16 AM

**LEAD BY TCLP EXTRACTION**

**EPA 3010A**

**EPA 1311/ 6010B**

RunID: ICP2_130806C	QC Batch: 43607	PrepDate: 8/6/2013	Analyst: CEI
Lead	ND	0.25 mg/L	1
			8/6/2013 06:47 PM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49  
**Lab ID:** N010581-031

**Client Sample ID:** B7-0  
**Collection Date:** 7/12/2013 12:48:00 PM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY WET DI EXTRACTION**

**WET DI/ EPA 6010B**

RunID: ICP2_130808A	QC Batch: R89895	PrepDate:	Analyst: admin
Lead	ND	0.050 mg/L	1
			8/8/2013 11:19 AM

**LEAD BY TCLP EXTRACTION**

**EPA 3010A**

**EPA 1311/ 6010B**

RunID: ICP2_130806C	QC Batch: 43607	PrepDate:	8/6/2013	Analyst: CEI
Lead	ND	0.25 mg/L	1	8/6/2013 06:51 PM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B8-0
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 12:10:00 PM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-034		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>ICP METALS BY WET DI EXTRACTION</b>						
				<b>WET DI/ EPA 6010B</b>		
RunID: ICP2_130808A	QC Batch: R89895			PrepDate:		Analyst: admin
Lead	ND	0.050		mg/L	1	8/8/2013 11:23 AM
<b>LEAD BY TCLP EXTRACTION</b>						
		<b>EPA 3010A</b>	<b>EPA 1311/ 6010B</b>			
RunID: ICP2_130806C	QC Batch: 43607			PrepDate:	8/6/2013	Analyst: CEI
Lead	ND	0.25		mg/L	1	8/6/2013 06:56 PM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49

**ANALYTICAL QC SUMMARY REPORT**

**TestCode: 6010\_STDI**

Sample ID:	SampType:	TestCode:	Units:	Prep Date:	RunNo:						
<b>MB-R89895</b>	<b>MBLK</b>	<b>6010_STDI</b>	<b>mg/L</b>		<b>89895</b>						
<b>Client ID: PBW</b>	<b>Batch ID: R89895</b>	<b>TestNo: WET DI/ EPA</b>		<b>Analysis Date: 8/8/2013</b>	<b>SeqNo: 1627881</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.050									
<b>Sample ID: LCS-R89895</b>	<b>LCS</b>	<b>6010_STDI</b>	<b>mg/L</b>		<b>RunNo: 89895</b>						
<b>Client ID: LCSW</b>	<b>Batch ID: R89895</b>	<b>TestNo: WET DI/ EPA</b>		<b>Analysis Date: 8/8/2013</b>	<b>SeqNo: 1627882</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.509	0.050	0.5000	0	102	85	115				
<b>Sample ID: MB-43584</b>	<b>MBLK</b>	<b>6010_STDI</b>	<b>mg/L</b>		<b>RunNo: 89895</b>						
<b>Client ID: PBW</b>	<b>Batch ID: R89895</b>	<b>TestNo: WET DI/ EPA</b>		<b>Analysis Date: 8/8/2013</b>	<b>SeqNo: 1627883</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.050									
<b>Sample ID: MB2-43584</b>	<b>MBLK</b>	<b>6010_STDI</b>	<b>mg/L</b>		<b>RunNo: 89895</b>						
<b>Client ID: PBW</b>	<b>Batch ID: R89895</b>	<b>TestNo: WET DI/ EPA</b>		<b>Analysis Date: 8/8/2013</b>	<b>SeqNo: 1627884</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.050									
<b>Sample ID: N010582-025A-DUP</b>	<b>DUP</b>	<b>6010_STDI</b>	<b>mg/L</b>		<b>RunNo: 89895</b>						
<b>Client ID: ZZZZZZ</b>	<b>Batch ID: R89895</b>	<b>TestNo: WET DI/ EPA</b>		<b>Analysis Date: 8/8/2013</b>	<b>SeqNo: 1627898</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.162	0.050						1.828	16.8	20	

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference



**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010\_STDI**

Sample ID: <b>N010582-032A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>6010_STDI</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>89895</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R89895</b>	TestNo: <b>WET DI/ EPA</b>		Analysis Date: <b>8/8/2013</b>	SeqNo: <b>1627905</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	1.269	0.050						0.7671	49.3	20	R

Sample ID: <b>N010582-032A-MS</b>	SampType: <b>MS</b>	TestCode: <b>6010_STDI</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>89895</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R89895</b>	TestNo: <b>WET DI/ EPA</b>		Analysis Date: <b>8/8/2013</b>	SeqNo: <b>1627906</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	1.789	0.10	1.000	0.7671	102	75	125				

Sample ID: <b>N010582-025A-MS</b>	SampType: <b>MS</b>	TestCode: <b>6010_STDI</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>89895</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R89895</b>	TestNo: <b>WET DI/ EPA</b>		Analysis Date: <b>8/8/2013</b>	SeqNo: <b>1627911</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.779	0.10	1.000	1.828	95.1	75	125				

Sample ID: <b>N010582-025A-MSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_STDI</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>89895</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R89895</b>	TestNo: <b>WET DI/ EPA</b>		Analysis Date: <b>8/8/2013</b>	SeqNo: <b>1627912</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.786	0.10	1.000	1.828	95.8	75	125	2.779	0.265	20	

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



**Advanced Technology  
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010\_TCPB**

Sample ID: <b>MB-43607</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_TCPB</b>	Units: <b>mg/L</b>	Prep Date: <b>8/6/2013</b>	RunNo: <b>89866</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43607</b>	TestNo: <b>EPA 1311/ 60 EPA 3010A</b>		Analysis Date: <b>8/6/2013</b>	SeqNo: <b>1626173</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 0.25

Sample ID: <b>MB-43583_TC</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_TCPB</b>	Units: <b>mg/L</b>	Prep Date: <b>8/6/2013</b>	RunNo: <b>89866</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43607</b>	TestNo: <b>EPA 1311/ 60 EPA 3010A</b>		Analysis Date: <b>8/6/2013</b>	SeqNo: <b>1626174</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 0.25

Sample ID: <b>MB2-43583_TC</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_TCPB</b>	Units: <b>mg/L</b>	Prep Date: <b>8/6/2013</b>	RunNo: <b>89866</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43607</b>	TestNo: <b>EPA 1311/ 60 EPA 3010A</b>		Analysis Date: <b>8/6/2013</b>	SeqNo: <b>1626175</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 0.25

Sample ID: <b>LCS-43607</b>	SampType: <b>LCS</b>	TestCode: <b>6010_TCPB</b>	Units: <b>mg/L</b>	Prep Date: <b>8/6/2013</b>	RunNo: <b>89866</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>43607</b>	TestNo: <b>EPA 1311/ 60 EPA 3010A</b>		Analysis Date: <b>8/6/2013</b>	SeqNo: <b>1626176</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 0.522 0.25 0.5000 0 104 85 115

Sample ID: <b>N010581-014A-MS</b>	SampType: <b>MS</b>	TestCode: <b>6010_TCPB</b>	Units: <b>mg/L</b>	Prep Date: <b>8/6/2013</b>	RunNo: <b>89866</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>43607</b>	TestNo: <b>EPA 1311/ 60 EPA 3010A</b>		Analysis Date: <b>8/6/2013</b>	SeqNo: <b>1626190</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 0.513 0.25 0.5000 0.02590 97.3 75 125

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



**Advanced Technology  
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010\_TCPB**

Sample ID: <b>N010581-014A-MSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_TCPB</b>	Units: <b>mg/L</b>	Prep Date: <b>8/6/2013</b>	RunNo: <b>89866</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43607</b>	TestNo: <b>EPA 1311/ 60 EPA 3010A</b>		Analysis Date: <b>8/6/2013</b>	SeqNo: <b>1626192</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.511	0.25	0.5000	0.02590	97.0	75	125	0.5126	0.351	20	

Sample ID: <b>N010582-024A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>6010_TCPB</b>	Units: <b>mg/L</b>	Prep Date: <b>8/6/2013</b>	RunNo: <b>89866</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43607</b>	TestNo: <b>EPA 1311/ 60 EPA 3010A</b>		Analysis Date: <b>8/6/2013</b>	SeqNo: <b>1626202</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.079	0.25						0.08468	0	20	

Sample ID: <b>N010582-025A-MS</b>	SampType: <b>MS</b>	TestCode: <b>6010_TCPB</b>	Units: <b>mg/L</b>	Prep Date: <b>8/6/2013</b>	RunNo: <b>89866</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43607</b>	TestNo: <b>EPA 1311/ 60 EPA 3010A</b>		Analysis Date: <b>8/6/2013</b>	SeqNo: <b>1626204</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.911	0.25	0.5000	0.4771	86.8	75	125				

Sample ID: <b>N010582-026A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>6010_TCPB</b>	Units: <b>mg/L</b>	Prep Date: <b>8/6/2013</b>	RunNo: <b>89866</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43607</b>	TestNo: <b>EPA 1311/ 60 EPA 3010A</b>		Analysis Date: <b>8/6/2013</b>	SeqNo: <b>1626206</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.086	0.25						0.1147	0	20	

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



**Advanced Technology  
Laboratories, Inc.**

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## Glen S. Gesmundo

---

**From:** Luann Beadle [beadle@geoconinc.com]  
**Sent:** Thursday, August 01, 2013 8:52 AM  
**To:** 'ATLInc Reports'  
**Subject:** RE: I 580 STORM REPAIR, E8560-02-49 ( ATL No. N010581) Addendum report for STLC

Please analyze the following samples for DI-WET and TCLP:

B4-0, B5-0, B7-0, and B8-0

Regular TAT,  
Thanks,  
Luann

---

**From:** ATLInc Reports [<mailto:reports@atl-labs.com>]  
**Sent:** Wednesday, July 31, 2013 1:26 PM  
**To:** [day@geoconinc.com](mailto:day@geoconinc.com); [beadle@geoconinc.com](mailto:beadle@geoconinc.com)  
**Cc:** [livermore@geoconinc.com](mailto:livermore@geoconinc.com)  
**Subject:** I 580 STORM REPAIR, E8560-02-49 ( ATL No. N010581) Addendum report for STLC

Enclosed is an addendum report for STLC for the above project.

Thanks,

**Glen Gesmundo**



3151 W. Post Road Las Vegas, NV 89118  
[www.atl-labs.com](http://www.atl-labs.com)  
Tel: (702) 307-2659 Ext. 406  
Fax: (702) 307-2691

*Advanced Technology Laboratories, Inc.* is a full-service woman owned environmental laboratory providing organic and inorganic analyses of soil, water, wastewater, storm water and hazardous waste samples. *ATL Inc* is certified by the State of California, NELAP, and the State of Nevada. It is also a certified UDBE, SBE and DBE. *ATL Inc* takes pride in providing our customers with quick turnaround time, excellent customer service and defensible data while offering very competitive rates.



3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

October 21, 2013

Rick Day  
Geocon Consultants, Inc.  
6671 Brisa Street  
Livermore, CA 94550  
TEL: (925) 371-5900  
FAX: (925) 371-5915

CA-ELAP No.: 2676  
NV Cert. No.: NV-009222007A

Workorder No.: N010581

RE: I 580 STORM REPAIR, E8560-02-49

Attention: Rick Day

Enclosed are the results for sample(s) received on July 13, 2013 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

This is an addendum report. Please incorporate with documentation previously submitted.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,



Jose Tenorio Jr.  
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



**Advanced Technology  
Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B1-0
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 9:10:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-001A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2_131018A	QC Batch: R90823	PrepDate: 10/14/2013	Analyst: CEI
Nickel	1.2	0.050	mg/L
		5	10/18/2013 10:32 AM

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B2-4
<b>Lab Order:</b>	N010581	<b>Collection Date:</b>	7/12/2013 10:35:00 AM
<b>Project:</b>	I 580 STORM REPAIR, E8560-02-49	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N010581-009A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2_131018A	QC Batch: R90823	PrepDate: 10/14/2013	Analyst: CEI
Nickel	3.7	0.050	mg/L
		5	10/18/2013 10:58 AM

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010\_ST**

Sample ID: <b>MB-R90823</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_ST</b>	Units: <b>mg/L</b>	Prep Date: <b>4/24/2013</b>	RunNo: <b>90823</b>
Client ID: <b>PBS</b>	Batch ID: <b>R90823</b>	TestNo: <b>WET/ EPA 60</b>		Analysis Date: <b>10/18/2013</b>	SeqNo: <b>1667389</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nickel	ND	0.010			
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Sample ID: <b>MB-44114</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_ST</b>	Units: <b>mg/L</b>	Prep Date: <b>10/14/2013</b>	RunNo: <b>90823</b>
Client ID: <b>PBS</b>	Batch ID: <b>R90823</b>	TestNo: <b>WET/ EPA 60</b>		Analysis Date: <b>10/18/2013</b>	SeqNo: <b>1667390</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nickel	0.020	0.050			
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Sample ID: <b>LCS-R90823</b>	SampType: <b>LCS</b>	TestCode: <b>6010_ST</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>90823</b>
Client ID: <b>LCSS</b>	Batch ID: <b>R90823</b>	TestNo: <b>WET/ EPA 60</b>		Analysis Date: <b>10/18/2013</b>	SeqNo: <b>1667391</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nickel	0.513	0.010	0.5000	0	103	85	115
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Sample ID: <b>N010581-001A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>6010_ST</b>	Units: <b>mg/L</b>	Prep Date: <b>10/14/2013</b>	RunNo: <b>90823</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R90823</b>	TestNo: <b>WET/ EPA 60</b>		Analysis Date: <b>10/18/2013</b>	SeqNo: <b>1667393</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nickel	1.304	0.050			1.226	6.14	20
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Sample ID: <b>N010581-001A-MS</b>	SampType: <b>MS</b>	TestCode: <b>6010_ST</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>90823</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R90823</b>	TestNo: <b>WET/ EPA 60</b>		Analysis Date: <b>10/18/2013</b>	SeqNo: <b>1667395</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nickel	3.636	0.050	2.500	1.226	96.4	75	125
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**Qualifiers:**

B Analyte detected in the associated Method Blank	E Value above quantitation range	H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	S Spike/Surrogate outside of limits due to matrix interference



**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N010581  
**Project:** I 580 STORM REPAIR, E8560-02-49

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 6010\_ST

Sample ID: <b>N010581-001A-MSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_ST</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>90823</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R90823</b>	TestNo: <b>WET/ EPA 60</b>	Analysis Date: <b>10/18/2013</b>	SeqNo: <b>1667396</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nickel	3.433	0.050	2.500	1.226	88.3	75	125	3.636	5.75	20	

**Qualifiers:**

B Analyte detected in the associated Method Blank  
ND Not Detected at the Reporting Limit

E Value above quantitation range  
R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded  
S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out  
**Advanced Technology**

Calculations are based on raw values



**Laboratories, Inc.**

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

## Glen S. Gesmundo

---

**From:** Luann Beadle [beadle@geoconinc.com]  
**Sent:** Friday, October 11, 2013 9:55 AM  
**To:** Advanced Technology Labs, Inc.  
**Subject:** Lab Order N010581 TO-49 Benedict

Hi ATL,

Could you please run WET nickel on samples B1-0 and B2-4? 5-day TAT, please.

Thanks,  
Luann



**Luann Beadle** | Senior Staff Scientist  
**Geocon Consultants, Inc.**  
6671 Brisa Street, Livermore, CA 94550  
Office: 925.371.5900, ext. 403 Direct: 925.961.5272 Mobile: 925.395.1669  
[beadle@geoconinc.com](mailto:beadle@geoconinc.com)

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**EMSL Analytical, Inc**

2235 Polvorosa Ave , Suite 230, San Leandro, CA 94577

Phone/Fax: (510) 895-3675 / (510) 895-3680

<http://www.emsl.com>

[sanleandrolab@emsl.com](mailto:sanleandrolab@emsl.com)

EMSL Order:	091311246
CustomerID:	GECN21
CustomerPO:	
ProjectID:	E8560-06-**

Attn: **Rick Day**  
**Geocon Consultants, Inc.**  
**6671 Brisa Street**

**Livermore, CA 94550**

Phone: (925) 371-5900  
Fax: (925) 371-5915  
Received: 07/16/13 3:00 PM  
Analysis Date: 7/30/2013  
Collected: 7/12/2013

Project: **E8560-02-49 / BENEDICT DRIVE**

**Test Report: PLM Analysis of Bulk Samples for Asbestos via EPA 600/R-93/116 Method with CARB 435 Prep (Milling) Level A for 0.25% Target Analytical Sensitivity**

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
B1-1 <i>091311246-0001</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	<b>None Detected</b>
B3-1 <i>091311246-0002</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	<b>&lt;0.25% Chrysotile</b>
B4-2 <i>091311246-0003</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	<b>None Detected</b>
B5-4 <i>091311246-0004</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	<b>None Detected</b>
B6-0 <i>091311246-0005</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	<b>None Detected</b>
B7-1 <i>091311246-0006</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	<b>&lt;0.25% Chrysotile</b>
B8-3 <i>091311246-0007</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	<b>&lt;0.25% Chrysotile</b>

Analyst(s)  
Matthew Batongbacal (7)

  
Baojia Ke, Laboratory Manager  
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc San Leandro, CA

Initial report from 07/30/2013 14:51:47



EMSL ANALYTICAL, INC.  
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### Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

**#091311246**

EMSL ANALYTICAL, INC.  
2235 POLVOROSA DR., STE. 230  
SAN LEANDRO, CA 94577  
PHONE: (510) 895-3675  
FAX: (510) 895-3680

Company: **GECON**

Street: **6671 BRISA ST**

City: **LIVERMORE** State/Province: **CA** Zip/Postal Code: **94550** Country: **USA**

Report To (Name): **R. DAY, L. BEADLE, C. MERRITT** Fax #: **925 371-5915**

Telephone #: **925-371-5900** Email Address: **ON FILE**

Project Name/Number: \_\_\_\_\_ U.S. State Samples Taken: \_\_\_\_\_

Please Provide Results:  Fax  Email  Purchase Order: \_\_\_\_\_

Turnaround Time (TAT) Options\* - Please Check

3 Hour  6 Hour  24 Hour  48 Hour  72 Hour  96 Hour  1 Week  2 Week

\*For TEM Air 3 hours/6 hours, please call ahead to schedule. \*There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.

<p><b>PCM - Air</b></p> <p><input type="checkbox"/> NIOSH 7400</p> <p><input type="checkbox"/> w/ OSHA 8hr. TWA</p> <p><b>PLM - Bulk (reporting limit)</b></p> <p><input type="checkbox"/> PLM EPA 600/R-93/116 (&lt;1%)</p> <p><input type="checkbox"/> PLM EPA NOB (&lt;1%)</p> <p>Point Count</p> <p><input type="checkbox"/> 400 (&lt;0.25%) <input type="checkbox"/> 1000 (&lt;0.1%)</p> <p>Point Count w/Gravimetric</p> <p><input type="checkbox"/> 400 (&lt;0.25%) <input type="checkbox"/> 1000 (&lt;0.1%)</p> <p><input type="checkbox"/> NYS 198.1 (friable in NY)</p> <p><input type="checkbox"/> NYS 198.6 NOB (non-friable-NY)</p> <p><input type="checkbox"/> NIOSH 9002 (&lt;1%)</p>	<p><b>TEM - Air</b> <input type="checkbox"/> 4-4.5hr TAT (AHERA only)</p> <p><input type="checkbox"/> AHERA 40 CFR, Part 763</p> <p><input type="checkbox"/> NIOSH 7402</p> <p><input type="checkbox"/> EPA Level II</p> <p><input type="checkbox"/> ISO 10312</p> <p><b>TEM - Bulk</b></p> <p><input type="checkbox"/> TEM EPA NOB</p> <p><input type="checkbox"/> NYS NOB 198.4 (non-friable-NY)</p> <p><input type="checkbox"/> Chatfield SOP</p> <p><input type="checkbox"/> TEM Mass Analysis-EPA 600 sec. 2.5</p> <p><b>TEM - Water:</b> EPA 100.2</p> <p>Fibers &gt;10µm <input type="checkbox"/> Waste <input type="checkbox"/> Drinking</p> <p>All Fiber Sizes <input type="checkbox"/> Waste <input type="checkbox"/> Drinking</p>	<p><b>TEM- Dust</b></p> <p><input type="checkbox"/> Microvac - ASTM D 5755</p> <p><input type="checkbox"/> Wipe - ASTM D6480</p> <p><input type="checkbox"/> Carpet Sonication (EPA 600/J-93/167)</p> <p><b>Soil/Rock/Vermiculite</b></p> <p><input checked="" type="checkbox"/> PLM CARB 435 - A (0.25% sensitivity)</p> <p><input type="checkbox"/> PLM CARB 435 - B (0.1% sensitivity)</p> <p><input type="checkbox"/> TEM CARB 435 - B (0.1% sensitivity)</p> <p><input type="checkbox"/> TEM CARB 435 - C (0.01% sensitivity)</p> <p><input type="checkbox"/> EPA Protocol (Semi-Quantitative)</p> <p><input type="checkbox"/> EPA Protocol (Quantitative)</p> <p><b>Other:</b></p> <p><input type="checkbox"/></p>
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Check For Positive Stop - Clearly Identify Homogenous Group

Samplers Name: \_\_\_\_\_ Samplers Signature: \_\_\_\_\_

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
	B1-1		7-12-13 0900
	B3-1		1500
	B4-2		
	B5-4		
	B6-0		
	B7-1		
	B8-3		

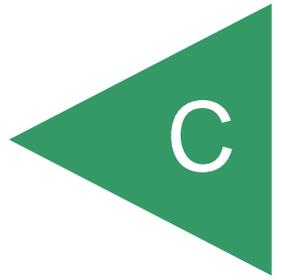
Client Sample # (s): **B1 TO B8** Total # of Samples: **7**

Relinquished (Client): **CHRIS MERRITT** Date: **7-16-13** Time: \_\_\_\_\_

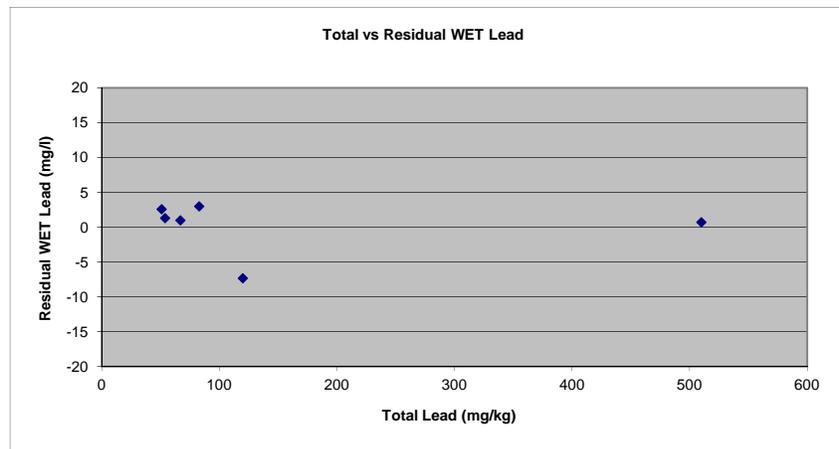
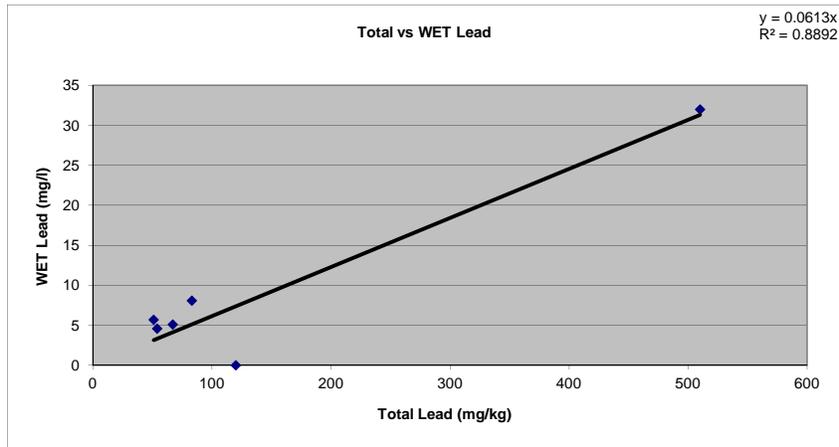
Received (Lab): \_\_\_\_\_ Date: **RECEIVED JUL 18 2013** Time: **3pm**

Comments/Special Instructions: **WI Angel**

APPENDIX



Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	Residual WET Lead (mg/l)	Squared Residual WET Lead (mg/l)
B7-0	0 to 0.5	510	32	0.71	0.51
B8-0	0 to 0.5	67	5.1	0.99	0.98
B2-0	0 to 0.5	54	4.6	1.29	1.66
B4-0	0 to 0.5	51	5.7	2.57	6.61
B5-0	0 to 0.5	83	8.1	3.01	9.05
B9-2	2 to 2.5	120	0.025	-7.34	53.83



**As - Site**

Number of Valid Observations	10
Number of Distinct Observations	8
Minimum	1.2
Maximum	5.8
Mean	2.56
Median	1.95
SD	1.642
Variance	2.696
Coefficient of Variation	0.641
Skewness	1.595
Mean of log data	0.797
SD of log data	0.53
<b>95% Standard Bootstrap UCL</b>	<b>3.40</b>

**Co -Site**

Number of Valid Observations	10
Number of Distinct Observations	8
Minimum	15
Maximum	30
Mean	23
Median	23.5
SD	3.944
Variance	15.56
Coefficient of Variation	0.171
Skewness	-0.407
Mean of log data	3.121
SD of log data	0.184
<b>95% Standard Bootstrap UCL</b>	<b>24.9</b>

**Ni - Site**

Number of Valid Observations	10
Number of Distinct Observations	8
Minimum	40
Maximum	210
Mean	125.2
Median	120
SD	51.5
Variance	2653
Coefficient of Variation	0.411
Skewness	0.305
Mean of log data	4.74
SD of log data	0.475
<b>95% Standard Bootstrap UCL</b>	<b>150</b>

**Pb - Site**

Number of Valid Observations	45
Number of Distinct Observations	34
Minimum	0.5
Maximum	510
Mean	27.1
Median	3.5
SD	77.77
Variance	6049
Coefficient of Variation	2.875
Skewness	5.727
Mean of log data	1.671
SD of log data	1.791
<b>95% Standard Bootstrap UCL</b>	<b>46.0</b>

**TPHd**

Number of Valid Observations	13
Number of Distinct Observations	11
Minimum	1.2
Maximum	150
Mean	28.8
Median	4.2
SD	44.53
Variance	1983
Coefficient of Variation	1.549
Skewness	2.126
Mean of log data	2.154
SD of log data	1.707
<b>95% Standard Bootstrap UCL</b>	<b>47.7</b>

**Pb - 0 to 0.5**

Number of Valid Observations	9
Number of Distinct Observations	9
Minimum	19
Maximum	510
Mean	98.6
Median	51
SD	155.6
Variance	24198
Coefficient of Variation	1.578
Skewness	2.908
Mean of log data	4
SD of log data	1
<b>90% Standard Bootstrap UCL</b>	<b>159</b>
<b>95% Standard Bootstrap UCL</b>	<b>179</b>

**Pb - 1 to 1.5**

Number of Valid Observations	9
Number of Distinct Observations	9
Minimum	2.2
Maximum	33
Mean	14.6
Median	14
SD	10.25
Variance	105
Coefficient of Variation	0.703
Skewness	0.519
Mean of log data	2.362
SD of log data	0.958
<b>90% Standard Bootstrap UCL</b>	<b>18.7</b>
<b>95% Standard Bootstrap UCL</b>	<b>19.9</b>

**Pb - 2 to 2.5**

Number of Valid Observations	9
Number of Distinct Observations	6
Minimum	0.5
Maximum	120
Mean	17.2
Median	1.5
SD	39.5
Variance	1560
Coefficient of Variation	2.298
Skewness	2.76
Mean of log data	0.798
SD of log data	1.977
<b>90% Standard Bootstrap UCL</b>	<b>32.9</b>
<b>95% Standard Bootstrap UCL</b>	<b>37.5</b>

**Pb - 3 to 3.5**

Number of Valid Observations	7
Number of Distinct Observations	7
Minimum	0.5
Maximum	6.9
Mean	2.60
Median	1.8
SD	2.285
Variance	5.223
Coefficient of Variation	0.879
Skewness	1.386
Mean of log data	0.633
SD of log data	0.88
<b>90% Standard Bootstrap UCL</b>	<b>3.64</b>
<b>95% Standard Bootstrap UCL</b>	<b>3.93</b>

**Pb - 4 to 4.5**

Number of Valid Observations	6
Number of Distinct Observations	5
Minimum	0.5
Maximum	3.6
Mean	2.25
Median	2.7
SD	1.476
Variance	2.179
Coefficient of Variation	0.656
Skewness	-0.448
Mean of log data	0.511
SD of log data	0.958
<b>90% Standard Bootstrap UCL</b>	<b>2.95</b>
<b>95% Standard Bootstrap UCL</b>	<b>3.16</b>

**Pb - 5 to 5.5**

Number of Valid Observations	3
Number of Distinct Observations	3
Minimum	1.4
Maximum	2.4
Mean	1.87

# Memorandum

*Flex your power!  
Be energy efficient!*

To: MS. KELLY HOLDEN  
Office Chief  
Bridge Design-West

Date: January 23, 2014

Attention: G. Danke

File: 04-ALA-580 PM 33.4  
EA: 04-2G8600  
EFIS 0412000009  
Benedict Drive Off-Ramp

From: DAVID NESBITT   
Transportation Engineer  
Office of Geotechnical Design – West  
Geotechnical Services  
Division of Engineering Services

MAHMOOD MOMENZADEH   
Chief, Branch C  
Office of Geotechnical Design – West  
Geotechnical Services  
Division of Engineering Services

MATTHEW GAFFNEY   
Engineering Geologist  
Office of Geotechnical Design – West  
Geotechnical Services  
Division of Engineering Services

CHRIS RISDEN   
Chief, Branch B  
Office of Geotechnical Design – West  
Geotechnical Services  
Division of Engineering Services

Subject: **FOUNDATION REPORT**

## SCOPE OF WORK

This Foundation Report (FR) supersedes the Foundation Report dated June 11, 2013. The Foundation Report provides our geotechnical recommendations for the proposed repair of the Benedict Drive Westbound Off-ramp on Route 580. The scope of work included the following:

- Field reconnaissance to observe and document site conditions.
- Review of geology open-files and as-built plans.
- Subsurface exploration consisting of two vertical borings in April 2012. Cone Penetrometer Tests were conducted in October 2012.
- Installation of one Slope Inclinator (SI) and one piezometer. Periodic readings of the SI and piezometer were recorded.
- Soil samples were retrieved from the drilled soil borings. Selected soil samples were sent to the Translab in Sacramento for analyses.
- Engineering analyses and the development of foundation recommendations.

MS. KELLY HOLDEN  
Attn: G. Danke  
January 23, 2014  
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## **PROJECT DESCRIPTION**

The project is located at the Benedict Drive off-ramp from westbound Route 580 in the City of San Leandro, Alameda County (Figure 1). The Benedict Drive off-ramp is a single lane exit on Route 580, but widens to two lanes for the most of the length of the off-ramp. The off-ramp increases in elevation relative to westbound Route 580, with a maximum height of approximately 25 ft above Route 580. This section of Route 580 was constructed in the mid-1960's. A retaining wall was constructed between westbound Route 580 and the Benedict Drive off-ramp during original construction. There has been constant creeping of the shoulder resulting in continuous maintenance repairs of the left lane of the off-ramp. The length of the cracking and settlement of the left lane is approximately 380 ft. It appears the slope above the retaining wall is slowly creeping down towards Route 580.

## **FIELD INVESTIGATION**

A subsurface investigation was conducted from April 3 to April 4, 2012. The subsurface investigation consisted of drilling two vertical soil borings; RW-12-001 and RW-12-002. In situ Standard Penetration Test (SPT) blow counts were recorded at 5-foot interval to evaluate the consistency of the on-site soils. Soil samples were collected from the SPT sampler, and retained for identification. Selected soil samples were transported to the Caltrans Geotechnical Laboratory in Sacramento for testing.

Soil boring RW-12-001 was drilled to a depth of 36.5 ft and a piezometer was installed. Soil boring RW-12-002 was drilled to a depth of 41.5 ft and a slope inclinometer (SI) was installed. Slope Inclinometer readings indicate that a slide plane exists at approximately 12-ft below the existing ground surface.

A piezometer casing was set at 35.6 feet below grade to measure groundwater in boring RW-12-001. Groundwater measurements were conducted on April 20, May 10, June 14, August 16, and October 4, 2012. All readings reported dry casing to a depth of 35.6 ft. Slope Inclinometer readings are located in Appendix A.

In addition to the drilled soil borings, five Cone Penetrometer Tests (CPT) were conducted in October 2012 to better define the soil condition along the distressed road alignment. Results of the CPTs are included in the Log-Of-Test borings in Appendix B.

## **LABORATORY TESTING**

Selected soil samples retrieved from the borings were tested to evaluate the properties pertinent to our analyses. The types of laboratory tests performed include the following:

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Attn: G. Danke

January 23, 2014

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- Atterberg Limits (AASHTO T 89, AASHTO T 90).
- Moisture Content (AASHTO T 265, ASTM D 2216).
- Corrosion Content California Test Methods (CTM 643, CTM 442, CTM 417).
- Mechanical Analysis (ASTM D 422)

Laboratory test results are located in Appendix C.

### **EXISTING STRUCTURES**

There is an existing retaining wall located in between the shoulder of westbound Route 580 and the Benedict Drive off ramp. The as-built plans for the retaining wall indicate it was built during the original construction of the freeway at this location. The retaining wall has a maximum height of 16 ft, and is supported on Cast-In-Drilled-Hole (CIDH) piles. A visual inspection of the retaining wall indicated no signs of damage or movement.

There is also an existing 4 inches gas line crossing the Benedict off-ramp which is within the limits of the proposed soldier pile wall.

### **SITE GEOLOGICAL INFORMATION**

#### **Climate**

The climate of Alameda County is characterized by cool, wet winters and warm, dry summers. The San Francisco Bay borders the county on the west and controls temperatures throughout the year, minimizing extremes between the seasons. The eastern half of the county, separated from the western half by rolling coastal hills, is drier with greater temperature extremes. The average temperature for Hayward, near the project area, is 58.0° F, with a low of 49.7° F in January and a high of 65.4° F in September. Humidity in the region is generally low, with winter having the highest humidity and fall the lowest. Winds are generally out of the west and below 10 miles per hour. The strongest winds are associated with cold winter storms and westerly summer breezes drawn in by the warmer eastern interior. Rainfall is greatest during the winter with annual totals averaging 26.3 inches/year in San Leandro. November through March are the wettest months throughout the year averaging 4.33 inches, with January being the wettest of these with 5.20 inches. April through October being the dry season average 0.56 inches with August being the driest month of the year averaging 0.06 inches.

#### **Topography & Drainage**

The project area lies on the eastern edge of a broad, flat plain that slopes gently east to west toward the San Francisco Bay. This plain is bordered on the east by gently sloping northwest-trending foothills that separate the bay from the Coast Ranges and the Central Valley farther to the east. Route 580 follows roughly the toe of slope of the East Bay Hills through San Leandro

and much of Oakland. The Benedict Drive off-ramp gently rises from an elevation of 56 feet at its origination and terminates at an elevation of approximately 110 feet, over a distance of 1,100 feet. A 450 feet long retaining wall separates Route 580 from the elevated Benedict off-ramp. The walls southern end is at ground level and rises to a maximum height of approximately 15 feet.

Drainage through the project area is roughly east to west toward the San Francisco Bay. The nearest major creek is San Leandro Creek, approximately ¼ mile to the north of the project area.

### **Regional Geology**

Located within the Coast Range geomorphic province of California, the geology of the region consists of northwest-trending ridges, gently sloping hills, intermountain valleys, and large, elongated depressions. The San Andreas Fault system, the most prominent geologic feature in the area, includes the San Andreas Fault as well as numerous splays, including the Hayward and Calaveras Faults, which together take up strain between the northward migrating Pacific plate and the southward (relatively) moving North American plate.

The major faults within the system are predominantly right-lateral, strike-slip faults with some compressional component, and these act together to form the prominent ridges and valleys. The San Francisco Bay, a partially filled northwest-trending depression extending from the Santa Clara Valley in the south to the Petaluma Valley in the north, is a direct result of these fault interactions.

Cretaceous sedimentary rocks of the Great Valley Sequence and Jurassic, Cretaceous, and Tertiary sedimentary and metamorphic rocks of the Franciscan Group dominate the region. Great Valley Sequence rocks represent the filling of long, roughly north/south-trending marine basins which were present during the un-roofing of the Sierra Nevada to the east. Franciscan Group rocks are generally melange material created by the sub-duction of the Pacific plate beneath the North American plate. It consists of blocks of low to high-grade metamorphic rocks contained in a sheared shale matrix with minor unmetamorphosed clastic and chemical sedimentary blocks.

### **Site Geology**

The project area sits just at the base of the East Bay Hills and is underlain by alluvium deposited as fans during the Holocene and Pleistocene, as published geologic maps indicate (Figure 2).<sup>1</sup> . As-built plans and preliminary boring logs that were drilled in April 2012 show that the area around Benedict Drive is characterized by stiff to very stiff fine-grained sediments: lean to fat clays, ranging from gravelly clays with sand, sandy clays, and sandy silty clays.

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<sup>1</sup> Ibid.

## Soils

The soil that is located at the project site are "...xerorthents-Altamont complex, 30 to 50 percent slopes."<sup>2</sup> Refer to Soil Map (Figure 3). (The USDA, NRCS; Custom Soil Resource Report for Alameda County, California; 2012 can be supplied upon request.)

## SCOUR EVALUATION

Scour is not anticipated to be an issue for this site, because there is no watercourse running through the site.

## CORROSION EVALUATION

One sample was collected from boring RW-12-002 for corrosion testing. The test result indicated that the sample is not corrosive to foundation elements.

**Table 1 Corrosivity Test Result**

Boring No.	Depth	Minimum Resistivity (ohm-cm)	pH	Chloride (ppm)	Sulfate (ppm)
RW-12-002	12-15 ft	936	8.37	-	-

## SEISMIC RECOMMENDATIONS

### Faulting and Seismicity

The project site is located within a seismically active region dominated by the northwest trending San Andreas Fault. Several other faults that parallel the San Andreas make up the larger San Andreas Fault system and separate the Pacific Plate on the west from the North American Plate to the east. The San Andreas Fault system can be thought of as a diffuse plate boundary at which strain is spread across a wide region. There are larger, well-known faults within the system that tend to be the most active; however, there are other unnamed faults that are not mapped that may produce moderate earthquakes.

There are numerous active faults within the San Francisco Bay Area that have the potential to produce large earthquakes, such as: Calaveras Fault zone (Northern Calaveras Section) and the San Andreas Fault zone (Peninsula Section), approximately 9.2 east and 18.2 miles west of the project site, respectively (Figure 4).<sup>3</sup> The closest of these faults is the Hayward Fault zone, both

<sup>2</sup> <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

<sup>3</sup> California State Department of Transportation Fault Database, 2007,  
[http://www.dot.ca.gov/hq/esc/earthquake\\_engineering/SDC\\_site/](http://www.dot.ca.gov/hq/esc/earthquake_engineering/SDC_site/)

the Northern and Southern sections, which are within a half mile of the project site. The Hayward Fault is a right-lateral strike-slip fault that dips 90 degrees relative to horizontal. Based on the Caltrans ARS Online Application, the Hayward Fault zone (Northern Section); Fault No. 353 is the controlling fault for this project. Table 2 presents the Hayward Fault zone seismic data. Data are from Caltrans 2007 Seismic Hazard Report. Maximum Credible Earthquakes are given in Mw (moment magnitude) and are a function of the length and width of a fault zone and not of recent or historical events.

**Table 2: Seismic Data**

FAULT	Fault No.	Distance (Miles)	Fault Type	Maximum Credible Earthquake	Peak Ground Acceleration
Hayward fault zone (Northern section)	353	0.5	Right Lateral Strike Slip	7.3	0.47g
Hayward fault zone (Southern Hayward section)	354	0.5	Right Lateral Strike Slip	7.4	0.46 g
Probabilistic Model Period	USGS Seismic Hazard Map(2008) 975 Year Return				0.70g

**Seismic Hazards**

Potential seismic hazards in such an active region include primary surface rupture, a seismic fault creep, and the secondary effects due to strong ground shaking. The following describes the hazards that may be encountered during either a surface rupture or ground shaking event and possible mitigation procedures to use during design and/or construction (Figure 5).

**Primary Seismic Hazards**

Surface rupture and fault creep:

There are no active faults that cross the project limits, therefore, fault rupture and fault creep are not considered to pose a hazard to the project.

**Secondary Seismic Hazards**

Ground shaking:

The potential for strong ground shaking in the project area during the life of the project is high and will affect both roadways and structures. Loose, saturated soils pose the greatest threat

during episodes of strong shaking. The following lists are possible hazards that may be caused by strong ground shaking and the probability of their occurrence within the project limits:

Liquefaction:

Liquefaction, a phenomenon in which soils lose all shear strength and turns essentially into a fluid momentarily, is considered low in the project area. Potentially liquefiable deposits are generally composed of clean sand with a high ratio of void space. Subsurface sampling indicated stiff to very stiff clays, stiff to very stiff gravelly clays with sand, and medium dense to very dense clayey gravel with sand. The subsurface conditions suggest a low potential for liquefaction.

**SUBSURFACE AND GROUNDWATER CONDITIONS**

The soil encountered during the subsurface investigation, as interpreted from boring RW-12-001 consists approximately of a 15 ft layer of stiff to very stiff gravelly clay with sand, which is underlain by a medium dense to very dense layer of clayey gravel with sand.

The soil encountered during the subsurface investigation, as interpreted from boring RW-12-002 consists approximately of a 15 ft layer of stiff gravelly clay with sand, which is underlain by a layer of stiff to very stiff clay.

Groundwater was not measured during the drilling operation due to the drilling method. The drill method was rotary wash, which circulates water during the drilling operation. The piezometer was installed to a depth of 35.6 ft, and no groundwater has been measured (dry).

**GEOTECHNICAL RECOMMENDATIONS**

**Wall Type and Construction Method**

The most viable repair strategy for this location is to construct a soldier beam and lagging wall, because of its narrow footprint and the close proximity of the existing retaining wall. Considering the conditions of the roadway and the existing slope, a wall with an approximate length of 400-ft. would be required. Based on the preliminary general plan sheet, the wall begins at Station 84+19.63 and ends at Station 88+21.00 on the "R" line. The wall would be offset approximately 3-ft. from the curb of the left lane. The wall shall be designed for a cantilever height of 12 ft. We recommend the removal of material in front of the wall to a depth of 7-ft, and develop a bench at that depth. We recommend that the slope in front of the wall be rebuilt with a slope of 2(H): 1(V).

The wall is constructed by developing a working bench 7-ft down from the top of the slope, and cutting a back slope from the center line of the two lanes. The cut slope shall not be steeper than

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Attn: G. Danke  
January 23, 2014  
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1V:1H. Soldier beam piles will be installed in the drill holes located as shown on the plans. A maximum pile spacing of 7 ft is recommended. The pile spacing may slightly vary where the gas line crosses the wall to allow a minimum drill hole offset of 4 ft from the gas line. Use of heavy construction equipment shall be avoided over and near the vicinity of the gas line. The wall backfill shall be lightweight aggregate in accordance with the Caltrans Special Provisions.

### **Design Parameters**

The soldier pile wall should be designed using the lateral earth pressure diagram, Figure 5.5.5.6-1 of Section 5, Retaining Walls, from the Bridge Design Specifications (August 2004). This figure is attached in Appendix D.

Based on the site conditions and proposed construction summarized above, we recommend the following requirements/criteria for the proposed soldier beam and lagging wall design:

- Assume a design height of 12-ft and a horizontal back slope. The minimum embedment length is 18.5 ft, and a minimum total pile length of 30.5 ft.
- For soil material behind the wall (active zone) extending 0.15 H below the wall base, use the following soil parameters: internal friction angle,  $\phi = 20^\circ$ , cohesion,  $c = 50$  psf, and a soil total unit weight,  $\gamma = 125$  lbs/ft<sup>3</sup>. For zone 2, the active zone below zone 1, and the passive in front of the wall below 12 ft wall height, use the following soil parameters: internal friction angle,  $\phi = 30^\circ$ , cohesion,  $c = 50$  psf, and a soil total unit weight,  $\gamma = 130$  lbs/ft<sup>3</sup>. Use an arching factor of 0.08\*(friction angle noted above).
- Calculate passive pressure against the piles using the log spiral method with a friction angle,  $\phi = 30^\circ$ , cohesion,  $c = 50$  psf, and a unit weight  $\gamma$  of 125 lbs/ft<sup>3</sup>. For design purposes, use a minimum bench width of 5-ft. at the base of the retaining wall, followed by a 2(H): 1(V) slope.
- Because of the potential for high ground acceleration, the seismic stability of the wall should be checked. For seismic earth pressure against the wall/piles, use a triangular pressure distribution with depth for a maximum pressure of 38 H psf, where H is the full design height.

### **Drainage**

We recommend that Class 8 rock slope protection fabric be placed behind the vertical face of the wall lagging to limit the piping of fines. No special drainage is needed since drainage is facilitated by the use of wood lagging without having any other permanent facing.

### **CONSTRUCTION CONSIDERATIONS AND REQUIREMENTS**

MS. KELLY HOLDEN  
Attn: G. Danke  
January 23, 2014  
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The following construction considerations and requirements should be included in the design and construction specifications for the proposed wall.

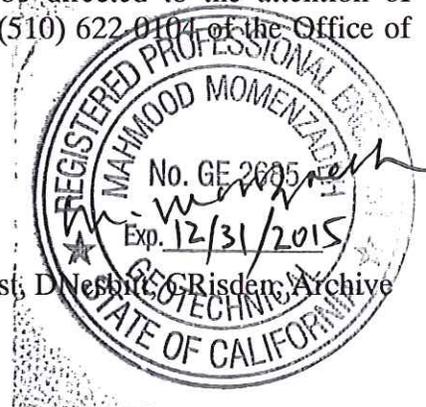
- After the "bench" has been graded, the soldier piles should be installed in accordance with Section 49-4 of the most current Caltrans Standard Specifications.
- Drilling and concrete placement for soldier pile construction shall be staggered. No two adjacent holes can be open at the same time. Drilled holes for soldier piles can't be left open overnight.
- The installation of the soldier piles must be completed prior to the placement of any temporary fill required for a construction bench behind the face of wall. No fill shall be placed on the slide area before all piles and lagging are in place.
- During the drilling operation for the proposed soldier beam piles, we believe that some caving of the drilled holes will likely occur. Thus, use of temporary casing is required. Based on the piezometer readings, only localized groundwater may be anticipated.
- If constructed during the rainy season, suitable drainage measures shall be used and are the responsibility of the contractor.
- All temporary cuts shall conform to Cal-OSHA requirements in general, and shall be no steeper than 1V:1H.
- Ensure that material used for backfill behind the soldier pile wall conforms to the special provisions for lightweight aggregate. A slope can be constructed with excavated material from the site in front of the soldier pile wall at a 2 (H): 1(V) slope. All earthwork shall be in accordance to Section 19 of the most current Caltrans Standard Specifications.

Any questions regarding the above recommendations should be directed to the attention of Mahmood Momenzadeh at (510) 286-5732 or David Nesbitt at (510) 622-0104 of the Office of Geotechnical Design-West.

\* \* \* \* \*

Attachments:

c: TPokrywka, GDanke, MMomenzadeh, SRajendra, JHaghparast, DNesbitt, GRisden, Archive



MS. KELLY HOLDEN  
Attn: G. Danke  
January 23, 2014  
Page 10

DNesbitt/dn

**References:**

*"Caltrans improves mobility across California"*

MS. KELLY HOLDEN

Attn: G. Danke

January 23, 2014

Page 11

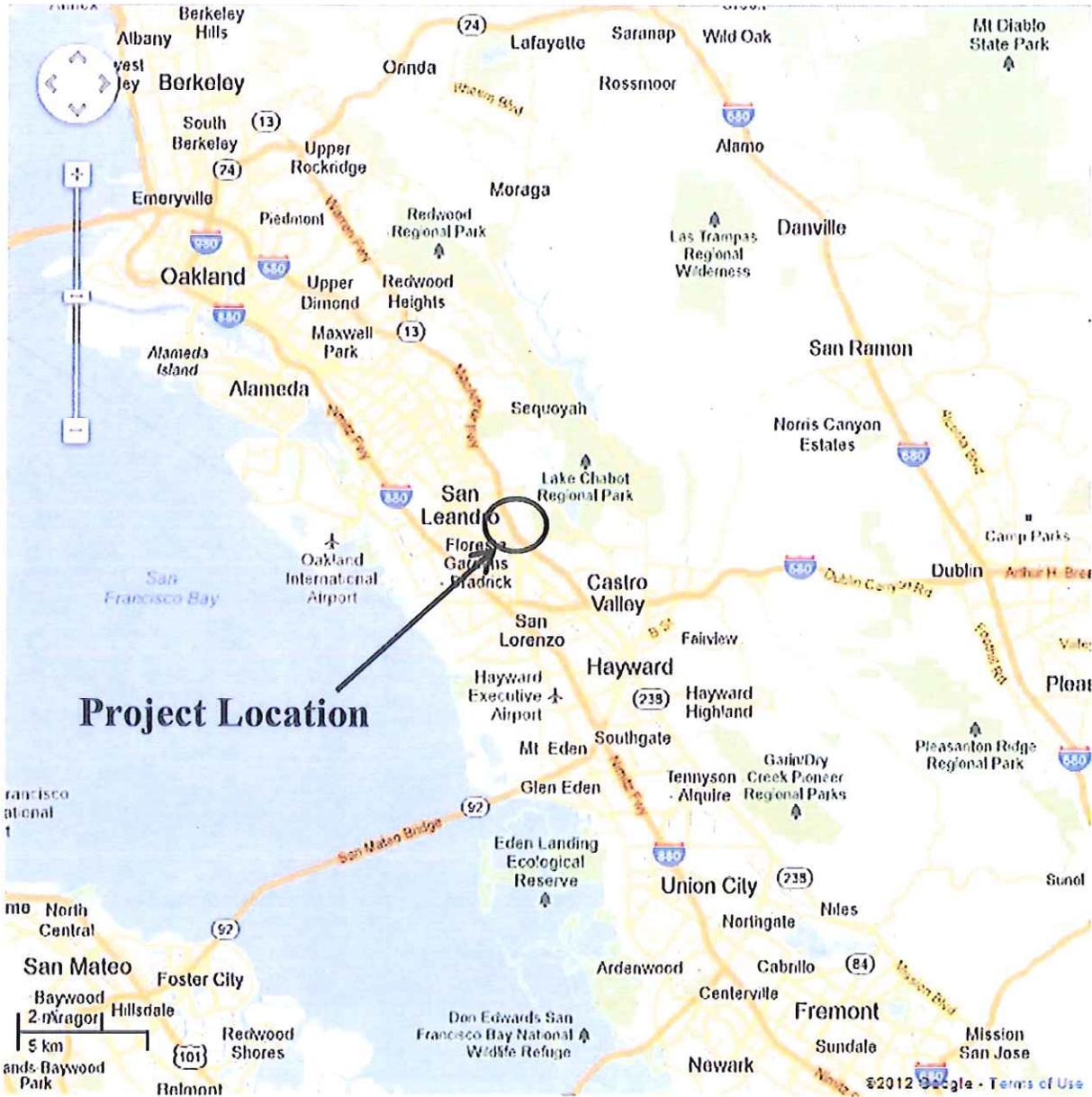
California State Department of Transportation Fault Database, 2007,  
[http://www.dot.ca.gov/hq/esc/earthquake\\_engineering/SDC\\_site/](http://www.dot.ca.gov/hq/esc/earthquake_engineering/SDC_site/)

Graymer, R.W., Jones, D.L., Brabb, E.E., 1996, Preliminary geologic map emphasizing bedrock formations in Alameda County, California: A digital database, USGS Open File Report 96-252

Mualchin, L., 1996, Technical report to accompany the California seismic hazard map, California Department of Transportation, Engineering Service Center.

U.S. Geological Survey and California Geological Survey, 2006, Quaternary fault and fold database for the United States, 12/01/2008, from USGS web site:  
<http://earthquakes.usgs.gov/regional/qfaults/>

Welch, L.E., 1975, Soil Survey of Alameda County, California, western part, United States Department of Agriculture



**Project Location**

North

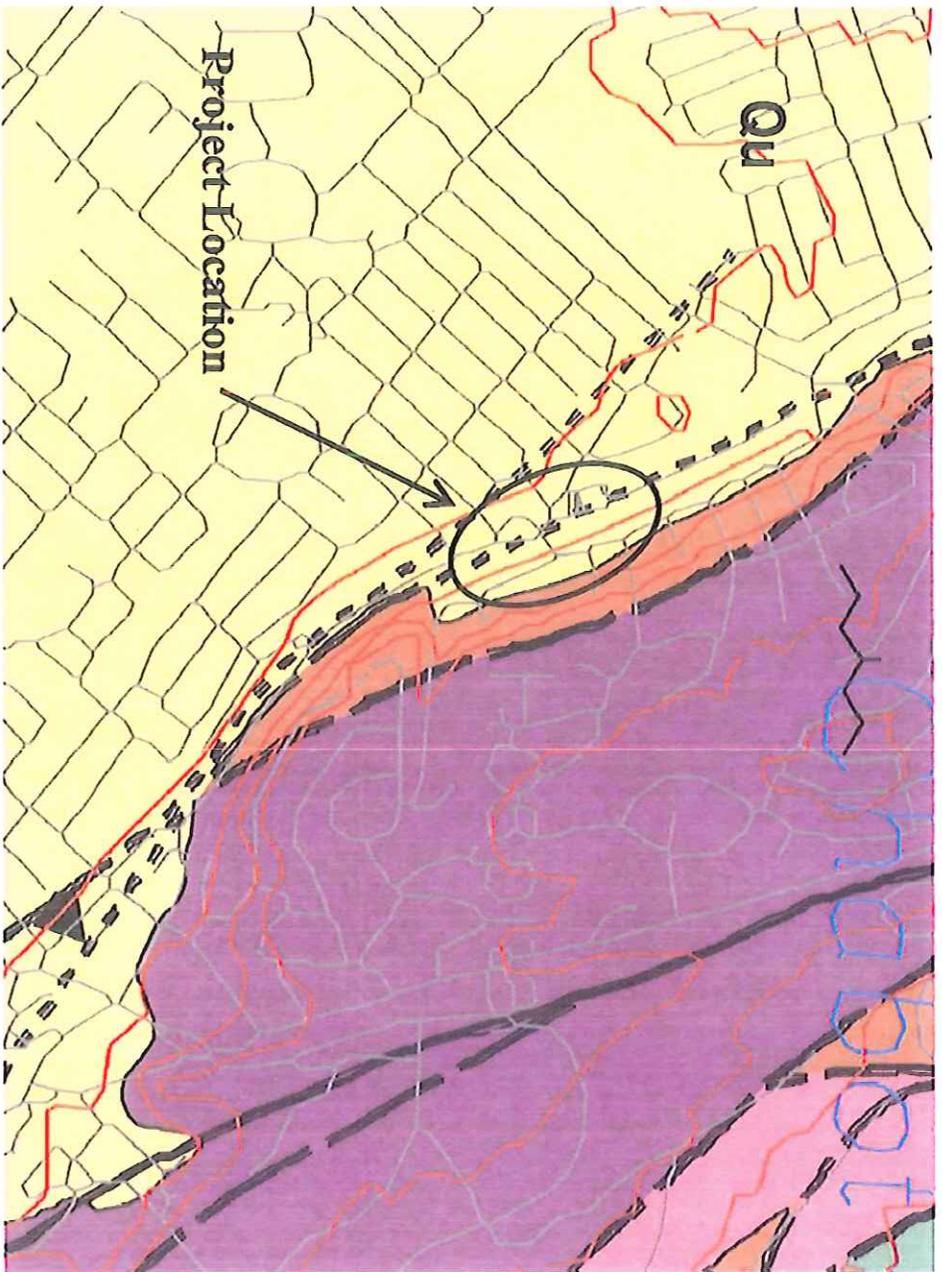
**DIVISION OF  
ENGINEERING SERVICES**  
GEOTECHNICAL SERVICES  
GEOTECHNICAL DESIGN - WEST -  
BRANCH B



**Figure 1 - Location Map**

**04-ALA-580**  
**0412000009-0**

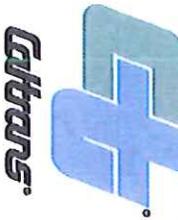
**PM 33.4**  
**January 2014**



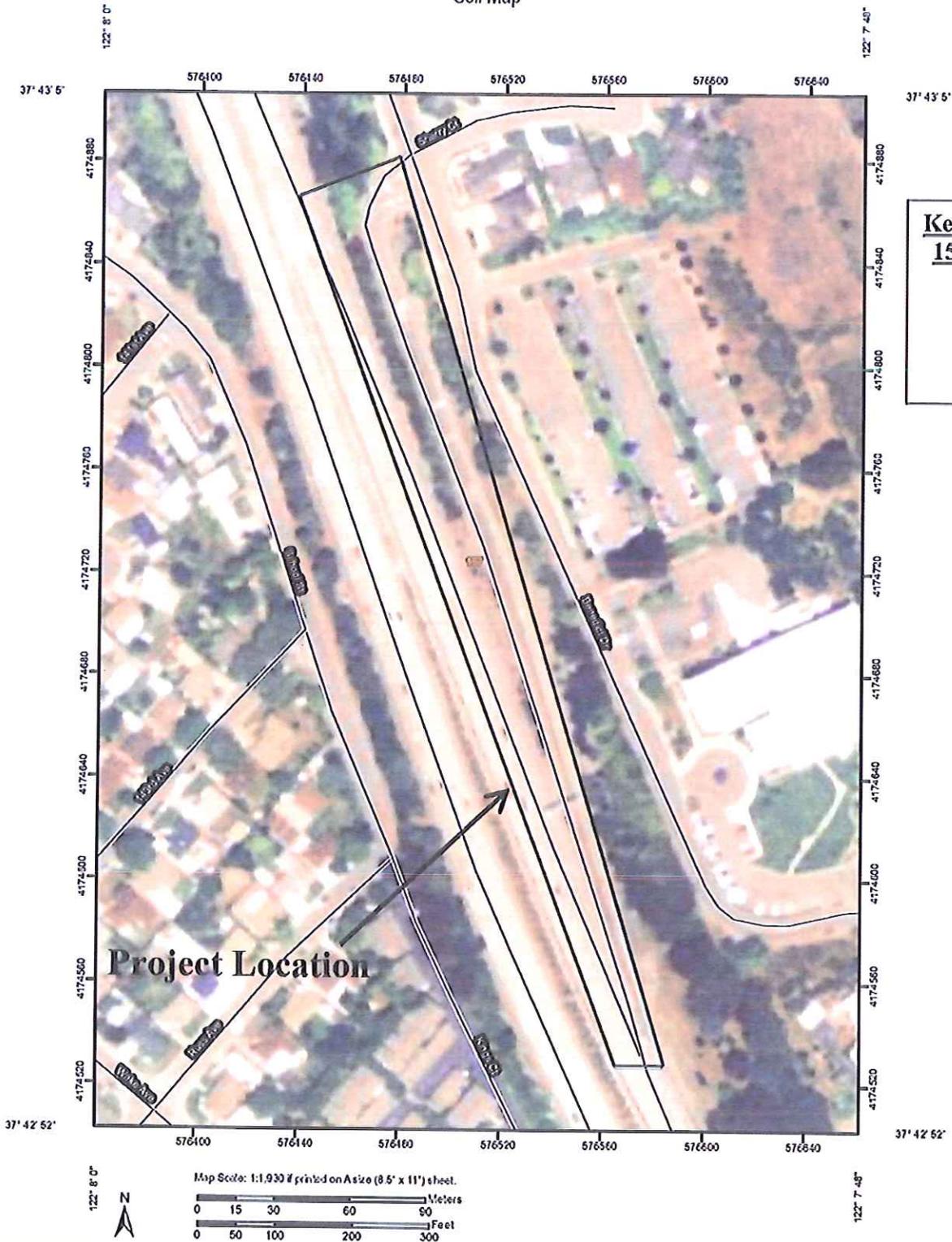
- KEY**
- Qu Undivided surficial deposits
  - Jsv Keratophyre and quartz keratophyre
  - Jpb Pillow basalt
  - Jb Basalt and diabase
  - Jgb Gabbro



MAP TAKEN FROM: USGS Preliminary geologic map emphasizing bedrock formations in Alameda County, California: A digital database by Graymer, Et al, Open-File Report 96-252

<p><u>SCALE</u></p> <p>Not to Scale</p>		<p><b>Engineering Service Center</b>          DIVISION OF ENGINEERING SERVICES          OFFICE OF GEOTECHNICAL SERVICES          GEOTECHNICAL DESIGN BRANCH (WEST) – BRANCH B</p>				
<p><b>Figure 2 - GEOLOGY MAP</b></p>		<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;">04-ALA-580</td> <td style="width: 50%; border: none;">PM 33.4</td> </tr> <tr> <td style="width: 50%; border: none;">0412000009-0</td> <td style="width: 50%; border: none;">January 2014</td> </tr> </table>	04-ALA-580	PM 33.4	0412000009-0	January 2014
04-ALA-580	PM 33.4					
0412000009-0	January 2014					

Custom Soil Resource Report  
Soil Map



**Key**  
**157** - xerorthents-  
 Altamont  
 complex, 30  
 to 50 percent  
 slopes

DIVISION OF  
 ENGINEERING SERVICES  
 GEOTECHNICAL SERVICES  
 GEOTECHNICAL DESIGN - WEST -  
 BRANCH B

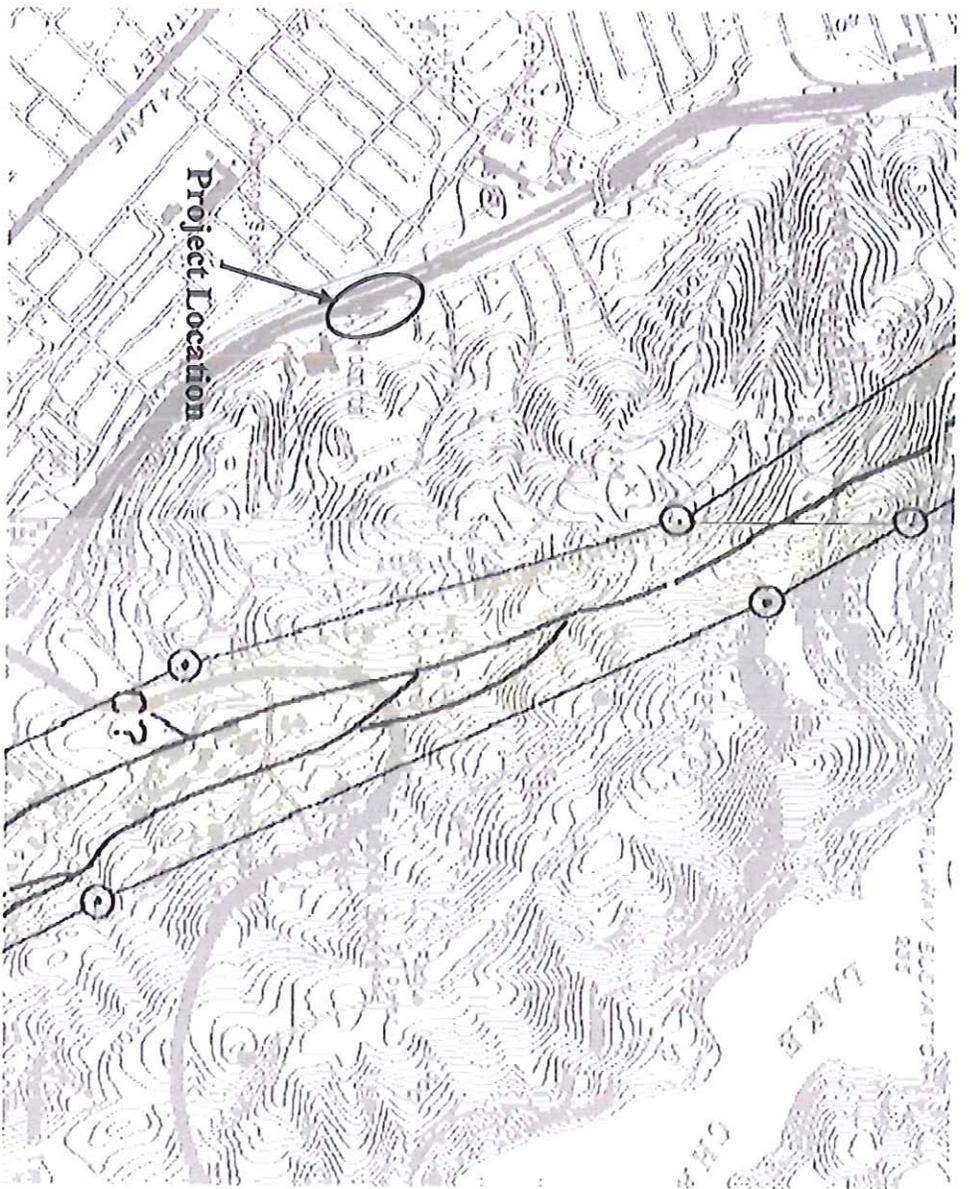


**Figure 3 - Soil Map**

ALA 580  
 0412000009-0

PM 33.4  
 January 2014





**MAP EXPLANATION**

**Potentially Active Faults**

Faults considered to have been active during Holocene time are to have a relatively high potential for surface rupture. Solid line where accuracy is long dash where approximately located, short dash where inferred, circles where concealed, stars (?) indicates locations uncertain, evidence of structure offset indicated by Y&S or earthquake-associated event or C for collapse from caused by creep or possible creep.

**Special Studies Zone Boundaries**

These are delineated as straight-line segments that connect circles turning points so as to define special studies zone segments.  
 ---○--- Sawtooth projection of zone boundary.



CGS, Alquist-Priolo Earthquake  
 Fault Zone Maps, Hayward and  
 San Leandro Quadrangles, 1982  
 Scale No Scale  
[http://www.quake.ca.gov/gmaps/a/p/ap\\_maps.htm](http://www.quake.ca.gov/gmaps/a/p/ap_maps.htm)

**DIVISION OF  
 ENGINEERING SERVICES  
 GEOTECHNICAL SERVICES  
 GEOTECHNICAL DESIGN - WEST -  
 BRANCH B**

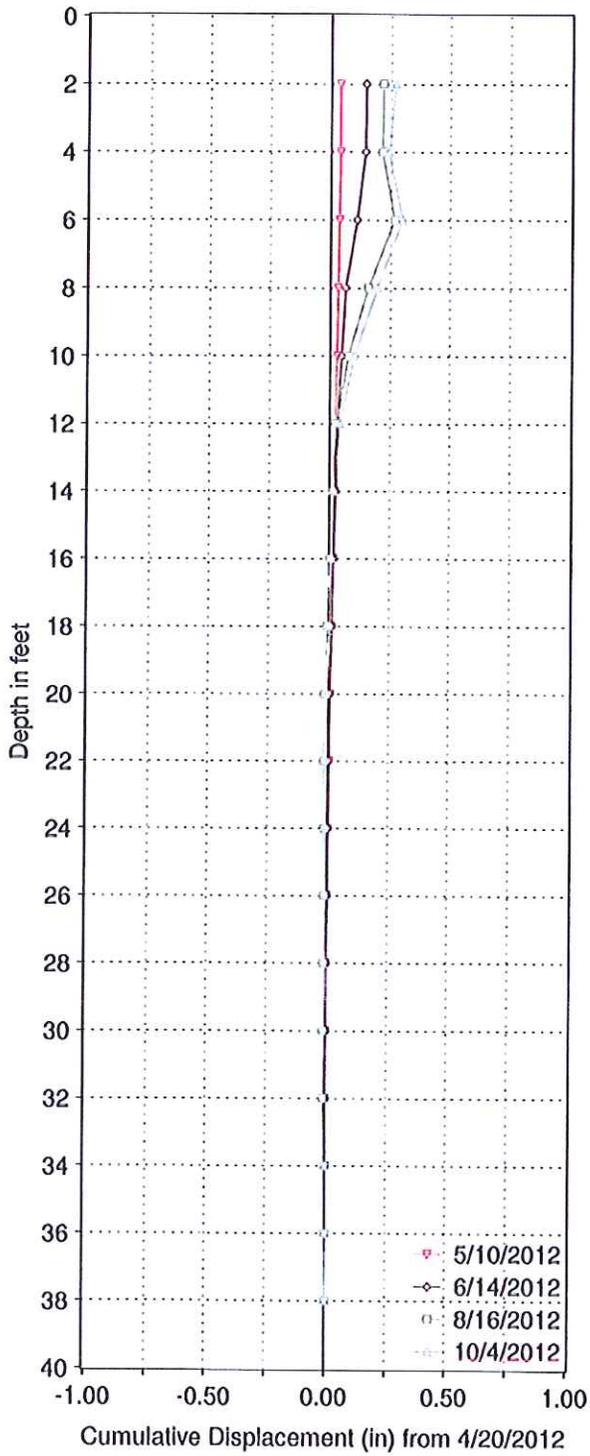


**Figure 5 - Alquist-Priolo Fault Zone Map**

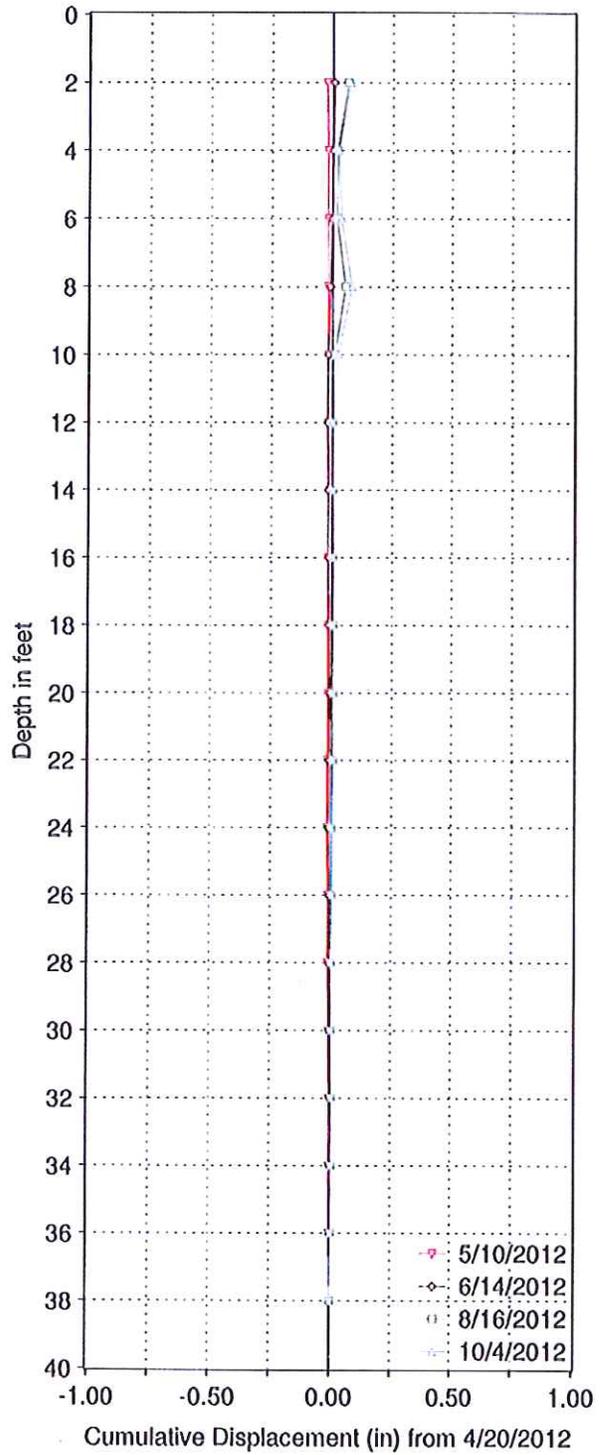
04-ALA-580 PM 33.4  
 0412000009-0 January 2014

# APPENDEIX A

BENEDR RW12-002, A-Axis



BENEDR RW12-002, B-Axis



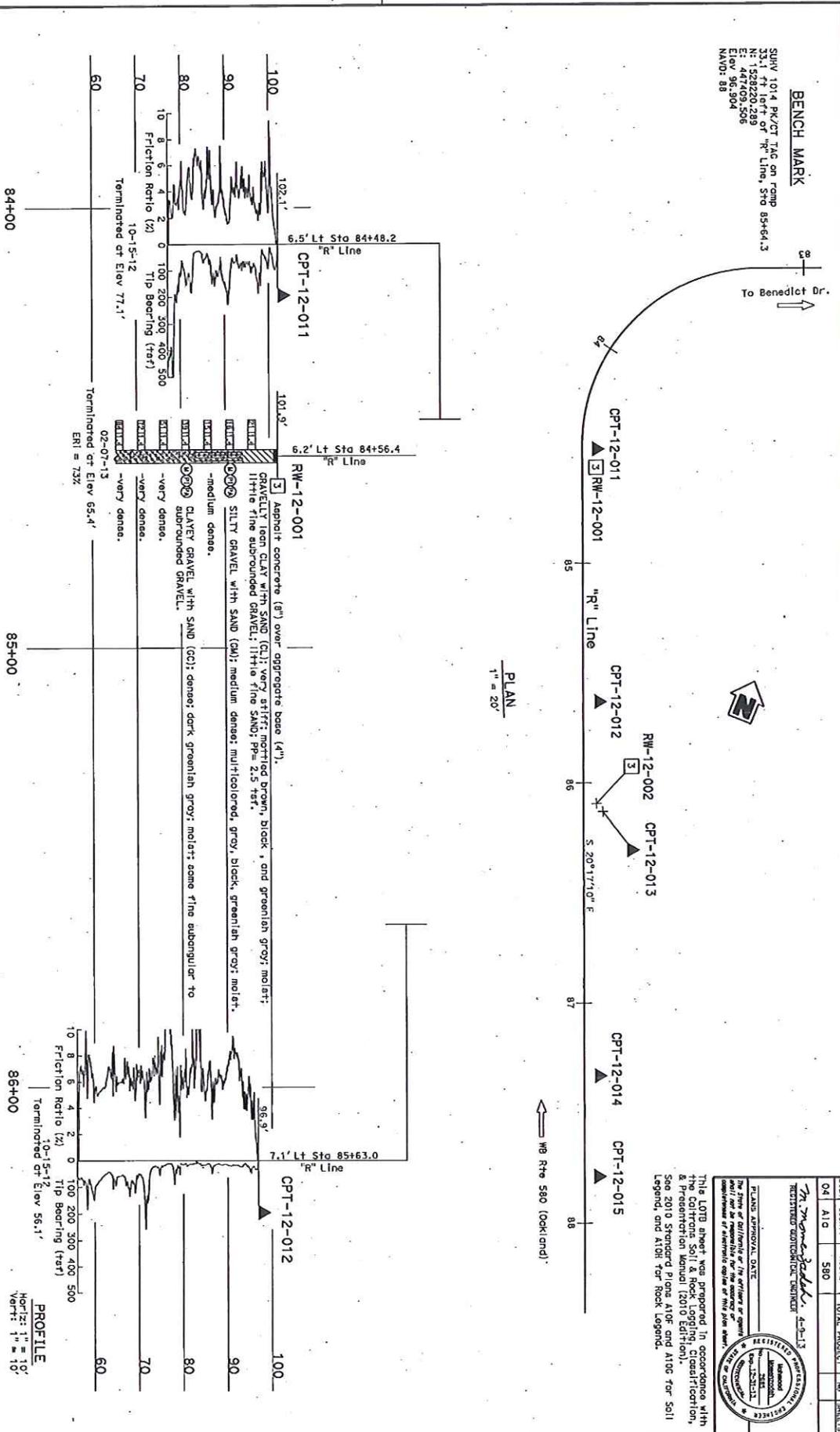
BENEDICT DRIVE  
04-ALA-580-PM 33.5

## **APPENDEIX B**

**BENCH MARK**  
 SUBV 1014 PK/CT TAC on ramp  
 33.1 ft left of "R" Line, Sta 85+64.3  
 N: 1528220.289  
 E: 4561029.206  
 NAVD: 89

To Benedict Dr.

PLAN  
 1" = 20'



ENGINEERING SERVICES		MATERIALS AND GEOTECHNICAL SERVICES		STATE OF CALIFORNIA		DIVISION OF ENGINEERING SERVICES		BENEDICT DRIVE OFF-RAMP	
FUNCTIONAL SUPERVISOR NAME: T. Polczynski		FIELD INVESTIGATION SVT CONDUCTED BY: J. Moore		DEPARTMENT OF TRANSPORTATION		STRUCTURE DESIGN		LOG OF TEST BORINGS 1 OF 3	
DRAWN BY: R. Nguyen		FIELD INVESTIGATION SVT D. Needham		PROJECT NUMBER & PHASE: 04120000911		CONTRACT NO.: 04-C20801		DRAWN BY: [Signature]	
CHECKED BY: J. Moore		D. Needham		PROJECT NUMBER & PHASE: 04120000911		CONTRACT NO.: 04-C20801		DATE PLOTTED: 03-APR-2013	
DATE PLOTTED: 03-APR-2013		DATE PLOTTED: 03-APR-2013		DATE PLOTTED: 03-APR-2013		DATE PLOTTED: 03-APR-2013		DATE PLOTTED: 03-APR-2013	

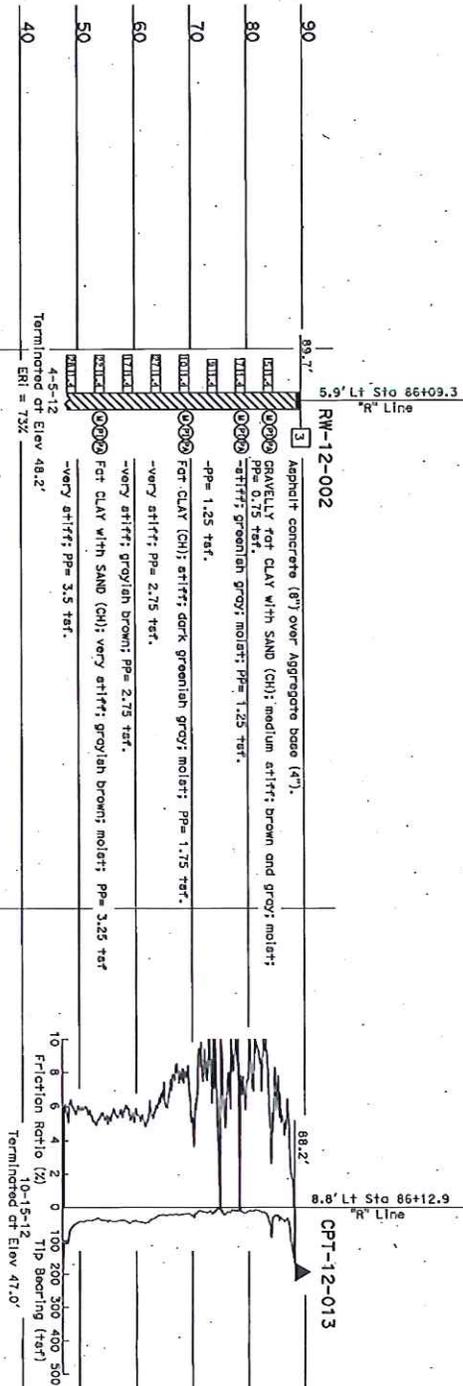
PLANS APPROVAL DATE: \_\_\_\_\_

REGISTERED PROFESSIONAL ENGINEER  
 No. \_\_\_\_\_  
 State of California

REGISTERED PROFESSIONAL GEOTECHNICAL ENGINEER  
 No. \_\_\_\_\_  
 State of California

THESE PLANS WERE PREPARED BY THE OFFICE OF ENGINEERING SERVICES, DIVISION OF TRANSPORTATION, CALIFORNIA DEPARTMENT OF TRANSPORTATION, 1201 STREET BLVD, SACRAMENTO, CALIFORNIA 95811. SEE 2010 STANDARD PLANS AND LOGS AND A100 FOR SOIL LOGS AND A181 FOR TEST LOGS.

FOR PLAN VIEW, SEE  
"LOG OF TEST BORINGS 1 OF 3"



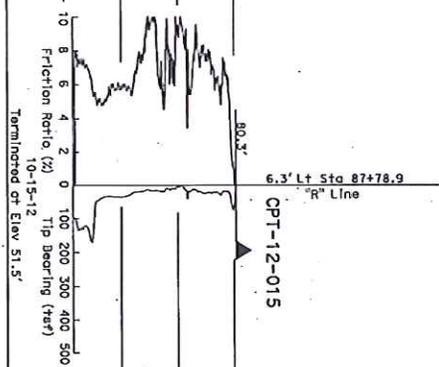
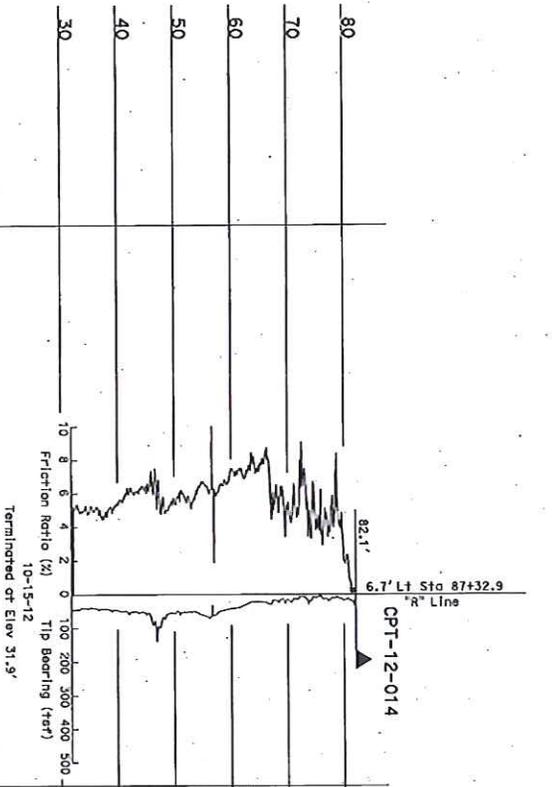
<b>ENGINEERING SERVICES</b>		<b>MATERIALS AND GEOTECHNICAL SERVICES</b>		<b>STATE OF CALIFORNIA</b>		<b>DIVISION OF ENGINEERING SERVICES</b>		<b>BENEDICT DRIVE OFF-RAMP</b>	
FUNCTIONAL SUPERVISION NAME: T. POLYCHAK		DESIGNED BY: F. NGUYEN CHECKED BY: J. MOORE		DEPARTMENT OF TRANSPORTATION		STRUCTURE DESIGN		LOG OF TEST BORINGS 2 OF 3	
DATE: 04/23/2013		DATE: 04/23/2013		PROJECT NUMBER & PHASE: 04-12000001		CONTRACT NO.: 04-20B001		SHEET NO. 2 OF 3	
DRAWN BY: J. MOORE		FIELD INVESTIGATION BY: D. WEDBITT		PROJECT FILE: 04-12000001		CONTRACT NO.: 04-20B001		SHEET NO. 2 OF 3	

REGISTERED PROFESSIONAL ENGINEER  
 No. 12345  
 State of California  
 Seal of the State Board of Professional Engineers and Land Surveyors

PLANS APPROVAL DATE: 4-23-13

This LOG sheet was prepared in accordance with the California Soil & Rock Sampling Standard, Section 2010 State Standard Plans A105 and A106 for S011 Legend, and A108 for Rock Legend.

FOR PLAN VIEW, SEE  
"LOG OF TEST BORINGS 1 OF 3"



PROFILE  
Horiz: 1" = 5'  
Vert: 1" = 10'

ENGINEERING SERVICES		MATERIALS AND GEOTECHNICAL SERVICES		STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION		DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH X		LOG OF TEST BORINGS 3 OF 3	
FUNCTIONAL SUPERVISION NAME: T. POJYCHAK	DESIGNED BY: F. NUOVENI	FIELD INVESTIGATION BY: D. NEADITT	PROJECT NUMBER & PHASE: 0412000001	DATE: 3/24/13	CONTRACT NO.: 04-208001	PROJECT NO.: 04-208001	DATE PLOTTED: 09-APR-2013	TIME PLOTTED: 14:51	DATE PLOTTED: 09-APR-2013
CONTRACT NO. OF TEST BORING SHEET									

DIST	COUNTY	ROUTE	POST MILES	SHEET TOTAL
04	Alameda	580	TOTAL PROJECT	TOTAL SHEETS

REGISTERED PROFESSIONAL ENGINEER  
No. 42013  
M. J. ...  
CIVIL ENGINEER

PLANS APPROVAL DATE: \_\_\_\_\_

This LOG sheet was prepared in accordance with the California Standard Specifications (2010 Edition). See 2010 Standard Plans A10F and A10G for Soil Legend and A10H for Rock Legend.

## **APPENDEIX C**



CALIFORNIA DEPARTMENT OF TRANSPORTATION  
 GEOTECHNICAL LABORATORY

GL TRACKING NO : 12-032  
 Dist - EA: 04-2G8600  
 Report Date: June 28, 2012  
 Page: 1/1

### CLASSIFICATION TEST SUMMARY

SAMPLE ID	% FINER THAN																ATTERBERG LIMITS			AS RECEIVED		Gs	
	3"	2 1/2"	2"	1 1/2"	1"	3/4"	1/2"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200	5µ	1µ	LL	PI	Y <sub>c</sub> (pcf)	% <sub>m</sub>		
RW-12-001_2				100	89	87	80	75	61	55	48	42	36	30	26	9	4	37	9			18.3	
RW-12-001_4						100	93	82	56	46	40	36	33	29	25	16	11	50	25			14.5	
RW-12-002_1							100	99	73	70	68	65	62	58	54	33	28	63	36			25.6	
RW-12-002_2																							
RW-12-002_4				100	94		88	86	74	72	69	66	63	59	55	36	29	57	32			23.3	
RW-12-002_7									100	99	97	95	92	90	87	65	47	64	37			30.5	
								100	97	95	94	92	89	86	82	54	44	67	43			24.8	

# APPENDEIX D

For temporary walls with vertical elements embedded in granular soil or rock and retaining cohesive soil, Figures 5.5.5.6-1 and 5.5.5.6-2 may be used to determine the lateral earth pressure distributions on the embedded portion of the vertical elements and Figure 5.5.5.6-4 may be used to determine the lateral earth pressure distribution due to the retained cohesive soil.

The lateral earth pressure distributions in Figures 5.5.5.6-1 thru 5.5.5.6-4 shown acting on the embedded portion of vertical wall elements shall be applied to the effective width,  $b'$ , of discrete vertical wall elements. See Article 5.7.6 for effective widths of discrete vertical wall elements to be used.

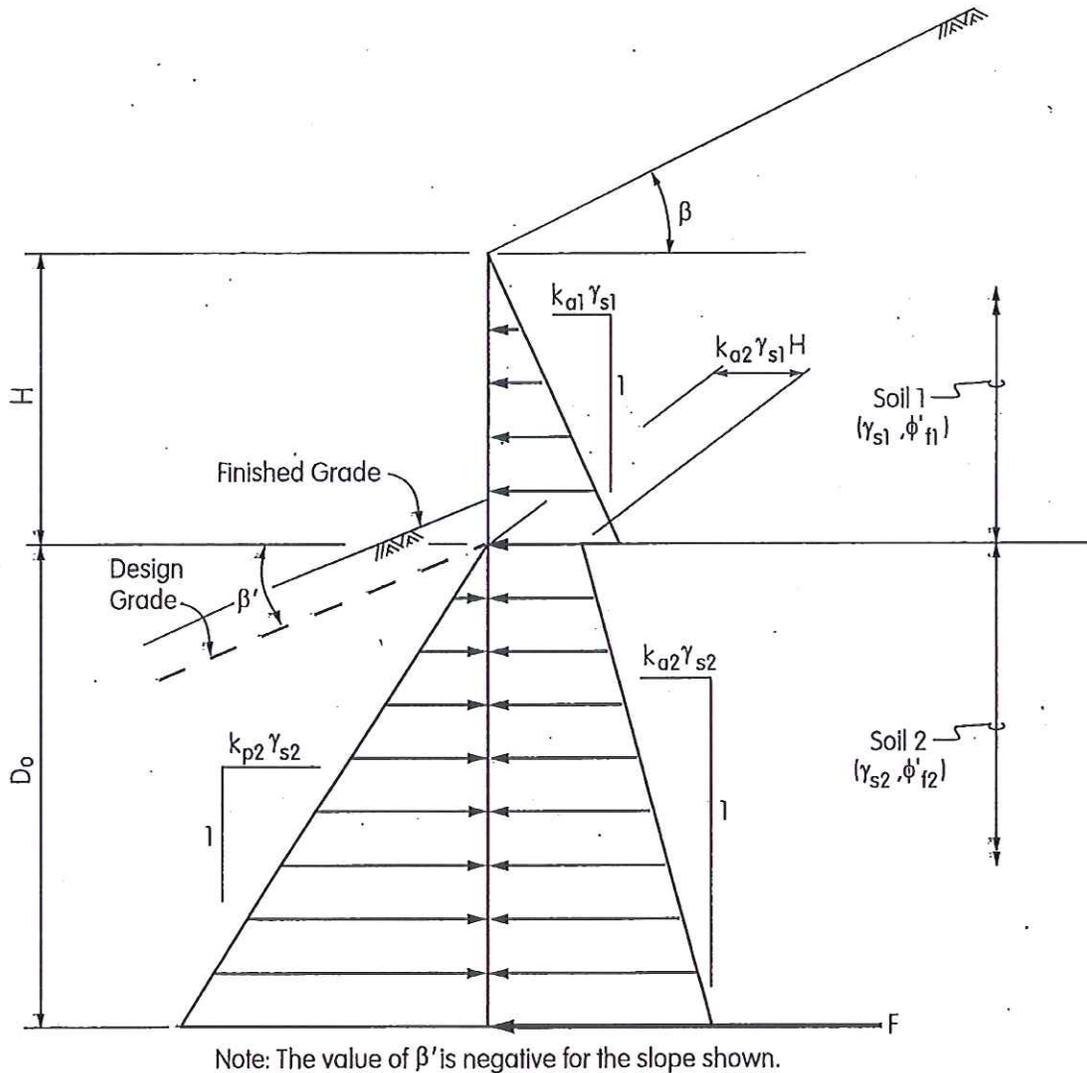


Figure 5.5.5.6-1 Simplified Lateral Earth Pressure Distributions for Permanent Non-gravity Cantilevered Walls with Vertical Wall Elements Embedded in Granular Soil and Retaining Granular Soil