

INFORMATION HANDOUT

**Los Angeles Regional Water Quality Control Board, Ground Water
Dewatering**

**Hazardous Waste/Waste in Soil and Groundwater Site Investigation Report,
Dated June 2010**

**Geotechnical Design Report for Retaining Wall Nos. 2451, 2452, 2521, and
2578, Dated August 26, 2010**

Foundation Report - Retaining Wall 2433, Dated September 16, 2010

Foundation Report - Calgrove Blvd. UC, Dated September 23, 2010

Foundation Report - Gavin Canyon UC, Dated August 13, 2010

Cal-OSHA M&T Underground Unit Classification



California Regional Water Quality Control Board Los Angeles Region



320 West Fourth Street, Suite 200, Los Angeles, California 90013
(213) 576-6600 • Fax (213) 576-6640
<http://www.waterboards.ca.gov/losangeles>

Linda S. Adams
Acting Secretary for
Environmental Protection

Edmund G. Brown Jr.
Governor

April 07, 2011

Mr. Amir ElSharief, Transportation Engineer
California Department of Transportation
Caltrans District 7
100 S Main Street
Los Angeles, CA 90036

Certified Mail
Return Receipt Requested
Claim No. 7002 0860 0006 4858 9197

Dear Mr. ElSharief:

COVERAGE UNDER GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM AND WASTE DISCHARGE REQUIREMENTS—CALIFORNIA DEPARTMENT OF TRANSPORTATION, INTER-STATE ROUTE 5 / GAVIN CANYON BRIDGE EXPANSION PROJECT, NEWHALL, CALIFORNIA (NPDES NO. CAG994004, CI-9684)

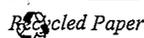
We have completed our review of your application for a permit to discharge groundwater under the National Pollutant Discharge Elimination System (NPDES).

Based on the information provided, the proposed discharge of groundwater from the construction project at the above-referenced facility meets the conditions to be regulated under Order No. R4-2008-0032, *General National Pollutant Discharge Elimination System and Waste Discharge Requirements for Discharges of Groundwater from Construction and Project Dewatering to Surface Waters in Coastal Watersheds of Los Angeles and Ventura Counties*, adopted by this Board on June 5, 2008.

Enclosed are your Waste Discharge Requirements, which also serve as your NPDES permit, consisting of Order No. R4-2008-0032 and Monitoring and Reporting Program No. CI-9684. The discharge limitations in Part V.1.Table 1 of Order No. R4-2008-0032 for the specific constituents listed on the Table with the enclosed Fact Sheet are applicable to your discharge. The groundwater discharge flows into South Fork Creek thence to Santa Clara River. Therefore, discharge limitation in Attachment B.3.j of Order No. R4-2008-0032 is applicable to your discharge. Prior to starting discharge, a representative sample of the effluent shall be obtained and analyzed to determine compliance with the discharge limitations.

The Monitoring and Reporting Program requires you to implement the monitoring program on the effective date of coverage under this permit. All monitoring reports should be sent to the Regional Board, ATTN: Information Technology Unit. When submitting monitoring or technical reports to the Regional Board per these requirements, please include a reference to "Compliance File No. CI-9684 and NPDES No. CAG994004", which will assure that the reports are directed to the appropriate file and staff. Also, please do not combine other reports with your monitoring reports. Submit each type of report as a separate document.

California Environmental Protection Agency



Mr. Amir ElSharief
California Department of Transportation

- 2 -

April 07, 2011

To avoid paying future annual fees, please submit written request for termination of your enrollment under the general permit in a separate letter, when your project has been completed and the permit is no longer needed. Be aware that the annual fee covers the fiscal year billing period beginning July 1 and ending June 30, the following year. You will pay full annual fee if your request for termination is made after the beginning of new fiscal year beginning July 1.

We are sending a copy of Order No. R4-2008-0032 only to the applicant. For those on the mailing list, please refer to the Board Order sent to you previously or download a copy of the Order from our website at http://www.waterboards.ca.gov/losangeles/board_decisions.

If you have any questions, please contact Namiraj Jain at (213) 620-6003.

Sincerely,


Samuel Unger
Executive Officer

Enclosures:

Order No. R4-2008-0032, General NPDES Permit No. CAG994004
Fact Sheet
Monitoring and Reporting Program No. CI-9684

cc: Environmental Protection Agency, Region 9, Permit Section (WTR-5)
State Water Resources Control Board, NPDES_Wastewater@waterboards.ca.gov
U.S. Army Corps of Engineers
NOAA, National Marine Fisheries Service
Department of Interior, U.S. Fish and Wildlife Service
California Department of Fish and Game, Marine Resources, Region 5
California Department of Health Services, Drinking Water and Field Operations Branch
Los Angeles County Department of Public Works, Flood Control and Drainage
Los Angeles County Department of Environmental Program
Jae Kim, Tetrattech

//

California Environmental Protection Agency

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION
320 West 4th Street, Suite 200, Los Angeles, California 90013

**FACT SHEET
WASTE DISCHARGE REQUIREMENTS
FOR**

**CALIFORNIA DEPARTMENT OF TRANSPORTATION
INTER-STATE ROUTE 5 / GAVIN CANYON BRIDGE EXPANSION PROJECT
(ORDER NO. R4-2008-0032)
NPDES NO. CAG994004, SERIES NO.077
CI-9684**

FACILITY ADDRESS

Inter-State Route 5/Gavin Canyon Bridge Expansion Project
Newhall, CA 91321

**FACILITY MAILING
ADDRESS**

100 S. Main Street
Los Angeles, CA 90012

PROJECT DESCRIPTION:

California Department of Transportation (Discharger) proposes to discharge groundwater from freeway expansion project located on Inter-State Route 5 (I-5) between Antelope Valley Freeway Route 14 Connector and Pico Canyon Interchange in the City of Newhall. Discharger plans to add additional truck lanes on I-5. The construction project involves widening of existing bridges. Groundwater will be encountered during the excavation phase of the construction project. The pumped groundwater will be discharged to a nearby storm drain. The site location map is shown in Figure 1.

VOLUME AND DESCRIPTION OF DISCHARGE:

Up to 3,000 gallons per day (gpd) of groundwater will be discharged from the project to the nearby storm drain system at Discharge Point M-001 (Latitude: 34°20'26", Longitude: 118°31'13"). The discharge flows into the Santa Clara River, a water of the United States.

APPLICABLE EFFLUENT LIMITATIONS

Based on the information provided in the NPDES Application Supplemental Requirements, the following constituents listed in the Table below have been determined to show reasonable potential to exist in the discharge. The discharge flows to South Fork Creek a tributary to Santa Clara River. Therefore specific effluent limitation in Attachment B.3.j. of Order No. R4-2008-0032 is applicable to your discharge.

This Table lists the specific constituents and effluent limitations applicable to the discharge.

Constituents	Units	Discharge Limitations	
		Daily Maximum	Monthly Average
Total Suspended Solids	mg/L	150	50
Turbidity	NTU	150	50
BOD ₅ 20°C	mg/L	30	20
Oil and Grease	mg/L	15	10
Settleable Solids	ml/L	0.3	0.1
Sulfides	mg/L	1.0	---
Residual Chlorine	mg/L	0.1	---
Phenols	mg/L	1.0	---
Methylene Blue Active Substances (MBAS)	mg/L	0.5	---
Total Dissolved Solids	mg/L	800	---
Sulfate	mg/L	320	---
Chloride	mg/L	60	---
Boron	mg/L	1.5	---
Nitrogen (nitrate-N + nitrite-N)	mg/L	5	---

FREQUENCY OF DISCHARGE:

The discharge of groundwater will be intermittent and last for about three months.

REUSE OF WATER:

In the vicinity of the project site, there are no landscaped areas that require irrigation using the groundwater discharge. A small volume of the groundwater can be used for dust control and soil compaction within the project area. Since there are no other feasible reuse options, the groundwater will be discharged to the storm drain in compliance with the requirements of the attached Order.

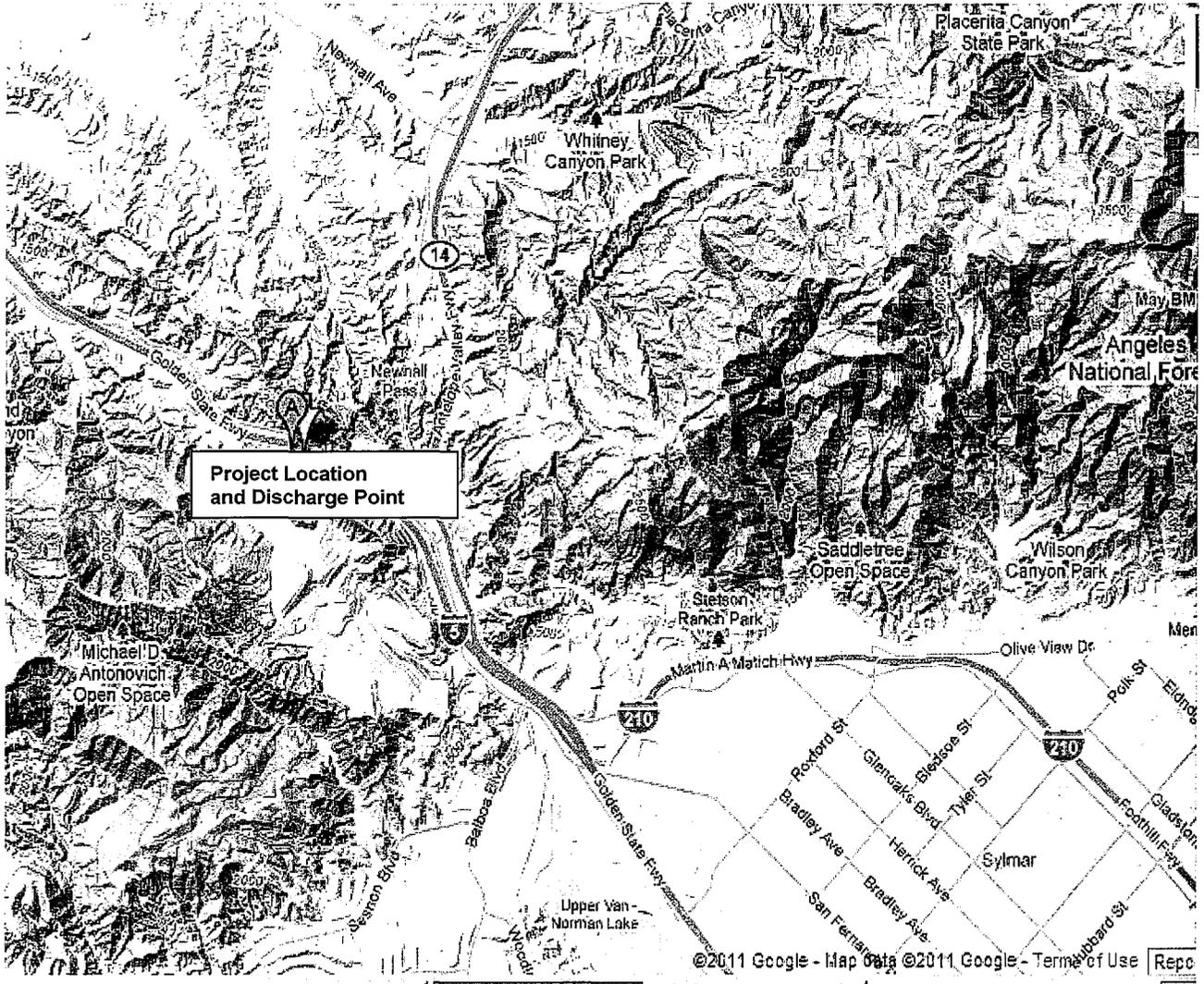


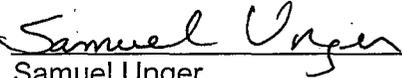
Figure 1. Site Location Map

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

MONITORING AND REPORTING PROGRAM NO. CI-9684
FOR
DISCHARGES OF GROUDWATER FROM CONSTRUCTION AND PROJECT
DEWATERING TO SURFACE WATERS
IN
COASTAL WATERSHEDS OF LOS ANGELES AND VENTURA COUNTIES
(GENERAL NPDES PERMIT NO. CAG994004, SERIES NO.077)

This Order was adopted by the Regional Water Board on:	June 5, 2008
This Order shall become effective on:	April 7, 2011
This Order shall expire on:	June 5, 2013
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Board have classified this discharge as a minor discharge.	

Ordered By:



Samuel Unger
Executive Officer

Date: April 07, 2011

TABLE OF CONTENTS

ATTACHMENT E - Monitoring and Reporting Program (MRP)

Table of Contents	1
I. General Monitoring Provisions	2
II. Monitoring Locations	6
III. Effluent Monitoring Requirements	6
IV. Whole Effluent Toxicity Testing Requirements	7
A. Definition of Toxicity	7
Acute Toxicity	7
B. Acute Toxicity Effluent Monitoring Program	7
C. Reporting	7
V. Land Discharge Monitoring Requirements	9
VI. Reclamation Monitoring Requirements	9
VIII. Other Monitoring Requirements	9
IX. Reporting Requirements	9
A. General Monitoring and Reporting Requirements	9
B. Self Monitoring Reports (SMRs)	9
C. Notification	11
D. Monitoring Frequencies Adjustment	12
E. Discharge Monitoring Reports (DMRS)	12

LIST OF TABLES

Table 1. Monitoring Location	6
Table 2. Monitoring Constituents	6
Table 3. Monitoring Periods and Reporting Schedule	10

Attachment E – Monitoring and Reporting Program (MRP)

The Code of Federal Regulations section 122.48 requires that all NPDES permits specify monitoring and reporting requirements. Water Code Sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements, which implement the federal and California regulations.

I. GENERAL MONITORING PROVISIONS

- A. An effluent sampling station shall be established for Discharge Point M-001 and shall be located where representative samples of that effluent can be obtained. Provisions shall be made to enable visual inspections before discharge. In the event of presence of oil sheen, debris, and/or other objectionable materials or odors, discharge shall not commence until compliance with the requirements is demonstrated. All visual observations shall be included in the monitoring report.
- B. This Regional Board shall be notified in writing of any change in the sampling stations once established or in the methods for determining the quantities of pollutants in the individual waste streams.
- C. Effluent samples shall be taken downstream of any addition to treatment works and prior to mixing with the receiving waters.
- D. This Regional Water Board shall be notified in writing of any change in the sampling stations once established or in the methods for determining the quantities of pollutants in the individual waste streams.
- E. Pollutants shall be analyzed using the analytical methods described in 40 CFR §§136.3, 136.4, and 136.5 (revised May 14, 1999); or, where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or the State Water Board.
- F. Laboratories analyzing effluent samples and receiving water samples shall be certified by the California Department of Public Health Environmental Laboratory Accreditation Program (ELAP) or approved by the Executive Officer and must include QA/QC data in their reports. A copy of the laboratory certification shall be provided each time a new certification and/or renewal of the certification is obtained from ELAP.
- G. For any analyses performed for which no procedure is specified in the USEPA guidelines or in the MRP, the constituent or parameter analyzed and the method or procedure used must be specified in the monitoring report.
- H. Each monitoring report must affirm in writing that "all analyses were conducted at a laboratory certified for such analyses by the Department of Public Health or approved by the Executive Officer and in accordance with current USEPA guideline procedures or as specified in this Monitoring and Reporting Program".

- I. The monitoring reports shall specify the analytical method used, the MDL, and the ML for each pollutant. For the purpose of reporting compliance with numerical limitations, performance goals, and receiving water limitations, analytical data shall be reported by one of the following methods, as appropriate:
 1. An actual numerical value for sample results greater than or equal to the ML; or
 2. "DNQ" if results are greater than or equal to the laboratory's MDL but less than the ML; or,
 3. "ND" for sample results less than the laboratory's MDL with the MDL indicated for the analytical method used.

Analytical data reported as "less than" for the purpose of reporting compliance with permit limitations shall be the same or lower than the permit limit(s) established for the given parameter.

Current MLs (Attachment G) are those published by the State Water Resources Control Board in the *Policy for the Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, March 2, 2000.

- J. Where possible, the MLs employed for effluent analyses shall be lower than the permit limitations established for a given parameter. If the ML value is not below the effluent limitation, then the lowest ML value and its associated analytical method shall be selected for compliance purposes. At least once a year, the Discharger shall submit a list of the analytical methods employed for each test and associated laboratory QA/QC procedures.

The Regional Water Board, in consultation with the State Water Board Quality Assurance Program, shall establish a ML that is not contained in Attachment G to be included in the Discharger's permit in any of the following situations:

1. When the pollutant under consideration is not included in Attachment G;
2. When the Discharger and Regional Water Board agree to include in the permit a test method that is more sensitive than that specified in 40 CFR Part 136 (revised May 14, 1999);
3. When the Discharger agrees to use an ML that is lower than that listed in Attachment G;
4. When the Discharger demonstrates that the calibration standard matrix is sufficiently different from that used to establish the ML in Attachment G, and proposes an appropriate ML for their matrix; or,
5. When the Discharger uses a method whose quantification practices are not consistent with the definition of an ML. Examples of such methods are the USEPA-approved method 1613 for dioxins and furans, method 1624 for volatile

organic substances, and method 1625 for semi-volatile organic substances. In such cases, the Discharger, the Regional Water Board, and the State Water Board shall agree on a lowest quantifiable limit and that limit will substitute for the ML for reporting and compliance determination purposes.

- K. Water/wastewater samples must be analyzed within allowable holding time limits as specified in 40 CFR §136.3. All QA/QC items must be run on the same dates the samples were actually analyzed, and the results shall be reported in the Regional Water Board format, when it becomes available, and submitted with the laboratory reports. Proper chain of custody procedures must be followed, and a copy of the chain of custody shall be submitted with the report.
- L. All analyses shall be accompanied by the chain of custody, including but not limited to data and time of sampling, sample identification, and name of person who performed sampling, date of analysis, name of person who performed analysis, QA/QC data, method detection limits, analytical methods, copy of laboratory certification, and a perjury statement executed by the person responsible for the laboratory.
- M. The Discharger shall calibrate and perform maintenance procedures on all monitoring instruments and to insure accuracy of measurements, or shall insure that both equipment activities will be conducted.
- N. The analytical laboratory shall have an acceptable written quality assurance (QA) plan for laboratory analyses. The annual monitoring report shall also summarize the QA activities for the previous year. Duplicate chemical analyses must be conducted on a minimum of ten percent (10%) of the samples, or at least one sample per sampling period, whichever is greater. A similar frequency shall be maintained for analyzing spiked samples.
- O. When requested by the Regional Water Board or USEPA, the Discharger will participate in the NPDES discharge monitoring report QA performance study. The Discharger must have a success rate equal to or greater than 80%.
- P. For parameters that both monthly average and daily maximum limitations are specified and the monitoring frequency is less than four times a month, the following shall apply. If an analytical result is greater than the monthly average limitation, the Discharger shall collect four additional samples at approximately equal intervals during the month, until compliance with the monthly average limitation has been demonstrated. All five analytical results shall be reported in the monitoring report for that month, or 45 days after results for the additional samples were received, whichever is later. In the event of noncompliance with a monthly average effluent limitation, the sampling frequency for that constituent shall be increased to weekly and shall continue at this level until compliance with the monthly average effluent limitation has been demonstrated. The Discharger shall provide for the approval of the Executive Officer a program to ensure future compliance with the monthly average limitation.

- Q. In the event wastes are transported to a different disposal site during the report period, the following shall be reported in the monitoring report:
1. Types of wastes and quantity of each type;
 2. Name and address for each hauler of wastes (or method of transport if other than by hauling); and
 3. Location of the final point(s) of disposal for each type of waste.
- If no wastes are transported off-site during the reporting period, a statement to that effect shall be submitted.
- R. Each monitoring report shall state whether or not there was any change in the discharge as described in the Order during the reporting period.
- S. All monitoring reports shall include the discharge limitations in the Order, tabulated analytical data, the chain of custody form, and the laboratory report (including but not limited to date and time of sampling, date of analyses, method of analysis and detection limits).
- T. Sample collection requirements (as appropriate)
1. Daily samples shall be collected each day.
 2. Weekly samples shall be collected on a representative day of each week.
 3. Monthly samples shall be collected on a representative day of each month.
 4. Quarterly samples shall be collected in February, May, August, and November.
 5. Semi-annual samples shall be collected in May and November.
 6. Annual samples shall be collected in November.
- U. Before commencing a new discharge, a representative sample of the effluent shall be collected and analyzed for toxicity and for all the constituents listed in Fact Sheet, and the test results must meet all applicable limitations of Order No. R4-2008-0032.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table 1. Monitoring Location

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
Discharge Point 1	M-001	Wastewater effluent before contact with the receiving water and/or dilution by any other water or waste.
Discharge Point 2	M-002	If more than one discharge point is authorized under the General Permit, compliance monitoring locations shall be named M-002, M-003, etc. and shall be located so as to allow collection of wastewater effluent before contact with receiving water and/or dilution by any other water or waste.

III. EFFLUENT MONITORING REQUIREMENTS

- A. The Discharger shall monitor the effluent at Discharge Point M-001 in Table 2 as follows.

Table 2. Monitoring Constituents

Constituent	Unit	Type of Sample	Minimum Frequency of Analysis
Total Waste Flow	gal/day	totalizer	Continuously ¹
pH	pH unit	grab	monthly
Temperature	°F	grab	monthly
Total Suspended Solids	mg/L	grab	monthly
Turbidity	NTU	grab	monthly
BOD ₅ 20°C	mg/L	grab	monthly
Oil and Grease	mg/L	grab	monthly
Settleable Solids	ml/L	grab	monthly
Sulfides	mg/L	grab	monthly
Phenols	mg/L	grab	monthly
Residual Chlorine	mg/L	grab	monthly
Total Dissolved Solids	mg/L	grab	monthly
Sulfate	mg/L	grab	monthly
Chloride	mg/L	grab	monthly
Boron	mg/L	grab	monthly

Constituent	Unit	Type of Sample	Minimum Frequency of Analysis
Nitrogen (nitrate-N + nitrite-N)	mg/L	grab	monthly
Methylene Blue Active Substances (MBAS)	mg/L	grab	monthly
Acute Toxicity	% survival	grab	annually

¹ Record the monthly total flow and report the calculated daily average flow and monthly flow in the quarterly and annual reports, as appropriate.

IV. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. Definition of Toxicity

Acute Toxicity

The MRP requires an annual test for acute toxicity which measures primarily lethal effects that occur over a 96-hour period. Acute toxicity shall be measured in percent survival measured in undiluted (100%) effluent.

B. Acute Toxicity Effluent Monitoring Program

1. The Discharger shall conduct acute toxicity tests on effluent grab samples by methods specified in 40 CFR Part 136 which cites USEPA's *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, Fifth Edition, October 2002, USEPA, Office of Water, Washington D.C. (EPA/821-R-02-012) or a more recent edition to ensure compliance in 100 % effluent.
2. The fathead minnow, *Pimephales promelas*, shall be used as the test species for fresh water discharges and the topsmelt, *Atherinops affinis*, shall be used as the test species for brackish effluent. The method for topsmelt is found in USEPA's *Short-term Method for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms*, First Edition, August 1995 (EPA/600/R-95/136), or a more recent edition.
3. In lieu of conducting the standard acute toxicity testing with the fathead minnow, the Discharger may elect to report the results or endpoint from the first 48 hours of the chronic toxicity test as the results of the acute toxicity test.
4. Accelerated Toxicity Monitoring: If the results of the toxicity test yields a survival of less than 90%, then the frequency of analyses shall increase to monthly until at least three test results have been obtained and full compliance with effluent limitations has been demonstrated, after which the frequency of

analyses shall revert to annually. Results of toxicity tests shall be included in the first monitoring report following sampling.

5. Effluent samples shall be collected after all treatment processes and before discharge to the receiving water.

C. Reporting

1. The Discharger shall submit a full report of the toxicity test results, including any accelerated testing conducted during the month as required by this permit. Test results shall be reported as % survival for acute toxicity test results with the self monitoring reports (SMR) for the month in which the test is conducted.
2. If an initial investigation indicates the source of toxicity and accelerated testing is unnecessary, then those results also shall be submitted with the SMR for the period in which the investigation occurred.
 - a. The full report shall be submitted on or before the end of the month in which the SMR is submitted.
 - b. The full report shall consist of (1) the results; (2) the dates of sample collection and initiation of each toxicity test; (3) the acute toxicity average limit.
3. Test results for toxicity tests also shall be reported according to the appropriate manual chapter on Report Preparation and shall be attached to the SMR. Routine reporting shall include, at a minimum, as applicable, for each test:
 - a. Sample date(s);
 - b. Test initiation date;
 - c. Test species;
 - d. End point values for each dilution (e.g., number of young, growth rate, percent survival);
 - e. Any applicable charts; and,
 - f. Available water quality measurements for each test (e.g., pH, D.O., temperature, conductivity, hardness, salinity, ammonia).
4. The Discharger shall provide a compliance summary, which includes a summary table of toxicity data from all samples collected during that year.

The Discharger shall notify by telephone or electronically, this Regional Water Board of any toxicity exceedance of the limit or trigger within 24 hours of receipt of the results followed by a written report within 14 calendar days of

receipt of the results. The verbal or electronic notification shall include the exceedance and the plan the Discharger has taken or will take to investigate and correct the cause(s) of toxicity. It may also include a status report on any actions required by the permit, with a schedule for actions not yet completed. If no actions have been taken, the reasons shall be given.

V. LAND DISCHARGE MONITORING REQUIREMENTS

Not Applicable.

VI. RECLAMATION MONITORING REQUIREMENTS

Not Applicable.

VII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

Not Applicable.

VIII. OTHER MONITORING REQUIREMENTS

Not Applicable.

IX. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.
2. If there is no discharge during any reporting period, the report shall so state.
3. Each monitoring report shall contain a separate section titled "Summary of Non-Compliance" which discusses the compliance record and corrective actions taken or planned that may be needed to bring the discharge into full compliance with waste discharge requirements. This section shall clearly list all non-compliance with waste discharge requirements, as well as all excursions of effluent limitations.
4. The Discharger shall inform the Regional Water Board well in advance of any proposed construction activity that could potentially affect compliance with applicable requirements.

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality

System (CIWQS) Program Web site
 (<http://www.waterboards.ca.gov/ciwqs/index.html>). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

2. The Discharger shall report in the SMR the results for all monitoring specified in this MRP. The Discharger shall submit SMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.
3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table 3. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On	Monitoring Period	SMR Due Date
Continuous	April 07, 2011	All	Submit with quarterly SMR
Weekly	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday	Submit with quarterly SMR
Monthly	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	1 st day of calendar month through last day of calendar month	Submit with quarterly SMR
Quarterly	Closest of January 1, April 1, July 1, or October 1	January 1 through March 31. April 1 through June 30. July 1 through September 30. October 1 through December 31	45 days from the end of the monitoring period
Annually	January 1	January 1 through December 31	45 days from the end of the monitoring period

4. Reporting Protocols. The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current Method Detection Limit (MDL), as determined by the procedure in Part 136.

The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

- a. Sample results greater than or equal to the RL shall be reported as

measured by the laboratory (i.e., the measured chemical concentration in the sample).

- b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (\pm a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

- c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.
 - d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve.
5. The Discharger shall submit SMRs in accordance with the following requirements:
- a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.
 - b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.
 - c. SMRs must be submitted to the Regional Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the address listed below:

C. Notification

1. The Discharger shall notify the Executive Officer in writing prior to discharge of any chemical that may be toxic to aquatic life. Such notification shall include:
 - a. Name and general composition of the chemical,
 - b. Frequency of use,
 - c. Quantities to be used,
 - d. Proposed discharge concentrations, and,
 - e. EPA registration number, if applicable.

No discharge of such chemical shall be made prior to obtaining the Executive Officer's approval.

2. The Discharger shall notify the Regional Board via telephone and/or fax within 24 hours of noticing an exceedance above the effluent limits in Order No. R4-2008-0032. The Discharger shall provide to the Regional Board within 14 days of observing the exceedance a detailed statement of the actions undertaken or proposed that will bring the discharge into full compliance with the requirements and submit a timetable for correction.

D. Monitoring Frequencies Adjustment

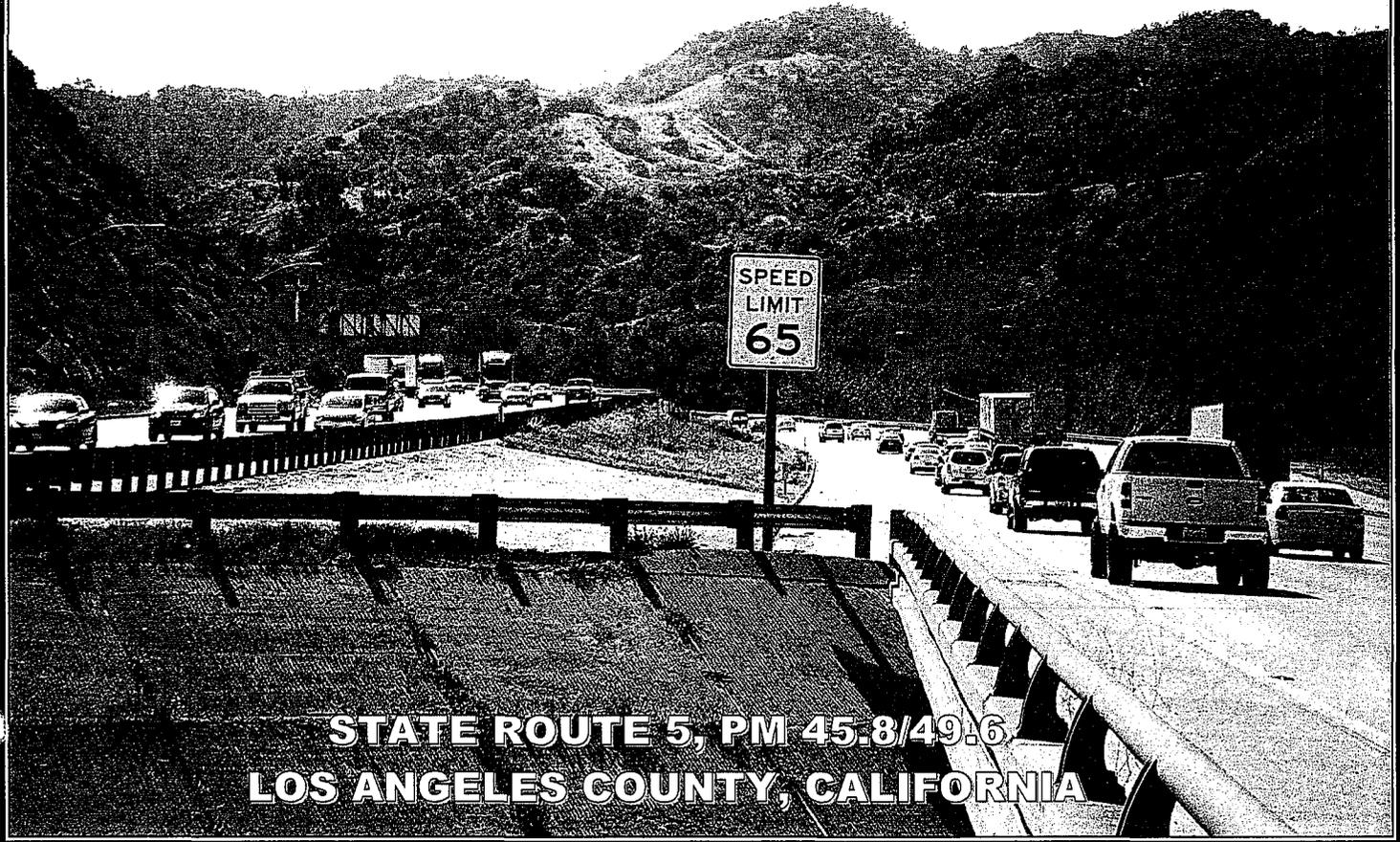
Monitoring frequencies may be adjusted by the Executive Officer to a less frequent basis if the Discharger requests same and the request is backed by statistical trends of monitoring data submitted.

E. Discharge Monitoring Reports (DMRS)

1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit SMRs that will satisfy federal requirements for submittal of Discharge Monitoring Reports (DMRs). Until such notification is given, the Discharger shall submit SMRs in accordance with the requirements described below.
2. SMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharge shall submit the original SMR to the address listed below:

California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

**HAZARDOUS MATERIALS/WASTES IN SOIL AND
GROUNDWATER SITE INVESTIGATION REPORT**

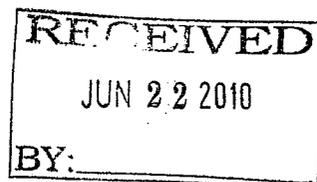


**STATE ROUTE 5, PM 45.8/49.6
LOS ANGELES COUNTY, CALIFORNIA**

PREPARED FOR:
CALIFORNIA DEPARTMENT OF TRANSPORTATION
DISTRICT 7
100 SOUTH MAIN STREET, 12-267
LOS ANGELES, CALIFORNIA

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

CALTRANS CONTRACT 07A2729
TASK ORDER NO. 1
EA No. 07- 2332A1



GEOCON PROJECT NO. S9475-06-01



June 2010



Project No. S9475-06-01
June 16, 2010

Mr. Jack Liu
Caltrans - District 7
Office of Environmental Engineering & Corridor Studies
100 South Main Street, 12-267
Los Angeles, California 90012

Subject: HAZARDOUS MATERIALS/WASTES IN SOIL AND GROUNDWATER
SITE INVESTIGATION REPORT
STATE ROUTE 5, PM 45.8/49.6
LOS ANGELES COUNTY, CALIFORNIA
CONTRACT NO. 07A2729, TASK ORDER NO. 1, EA No. 07-2332A1

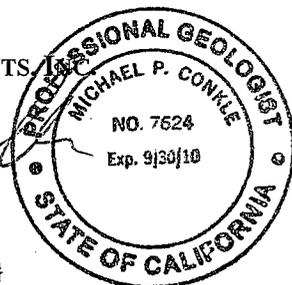
Dear Mr. Liu:

In accordance with Caltrans Contract No. 07A2729 and Task Order No. 1 dated March 23, 2010, Geocon Consultants, Inc. has performed an aerially deposited lead (ADL), petroleum hydrocarbon, and groundwater investigation along State Route 5 from the Route 14 interchange north to the Pico Canyon/Lyons Avenue overcrossing in Los Angeles County, California. The accompanying report summarizes the services performed, including gauging of existing piezometers, groundwater sampling, hand-auger, and hollow-stem auger borings, soil sampling, laboratory analyses, statistical analyses, and global positioning system (GPS) surveying.

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

Please call us if you have questions.

Sincerely,
GEOCON CONSULTANTS, INC.



Michael P. Conkle, PG
Project Manager



John E. Juhrend PE, CEG
Contract Principal

MPC:

(1) Addressee

TABLE OF CONTENTS

Page

EXECUTIVE SUMMARY	i
1. INTRODUCTION	1
1.1 Project Description and Objectives	1
1.2 Scope of Services	2
1.2.1 Pre-field Activities	2
1.2.2 ADL Soil Sampling	2
1.2.3 Hollow-Stem Auger Drilling	2
1.2.4 Groundwater Sampling	3
1.2.5 Laboratory Analyses	3
1.2.6 GPS Surveying	4
1.2.7 Report Preparation	4
2. BACKGROUND	4
2.1 Aerially Deposited Lead in Soil	4
2.2 Hazardous Waste Classification Criteria	5
3. INVESTIGATIVE METHODS	5
3.1 Field Methods	5
3.1.1 Soil Sampling	5
3.1.3 Groundwater Sampling	7
3.2 Deviations from Work Plan	7
4. INVESTIGATIVE RESULTS AND FIELD OBSERVATIONS	7
4.1 Soil and Groundwater Conditions	7
4.2 Soil Analytical Laboratory Results	8
4.3 Groundwater Analytical Laboratory Results	8
4.4 Data Validation	9
5. DATA EVALUATION	10
5.1 Lead	10
5.1.1 Calculating the UCLs for the Arithmetic Mean	10
5.1.2 Correlation of Total and Soluble Lead	12
5.2 Petroleum Hydrocarbons	12
5.3 Metals and VOCs	13
5.4 Groundwater	13
6. CONCLUSIONS AND RECOMMENDATIONS	13
7. REPORT LIMITATIONS	16

TABLE OF CONTENTS (Continued)

Figures:

1. Vicinity Map
- 2 to 6. Boring Location Maps

Tables:

1. Boring Coordinates and Summary of Lead and pH Results
- 2a. Summary of Lead Statistical Analysis – Retaining Wall
- 2b. Summary of Lead Statistical Analysis – Median

Appendices:

- A. Caltrans Task Order No. 1
- B. Laboratory Reports and Chain-of-custody Documentation
- C. Geocon Standard Operating Procedures
- D. Boring Logs
- E. Soil Disposal Manifests
- F. Lead Statistics, Regression Analyses, and Block Diagrams

EXECUTIVE SUMMARY

Geocon Consultants, Inc. has performed an aerially deposited lead (ADL), petroleum hydrocarbon, and groundwater investigation along State Route 5 from the Route 14 interchange, Post Mile (PM) 45.8, north to the Pico Canyon/Lyons Avenue overcrossing, PM 49.6 (the Site), in Los Angeles County, California. The California Department of Transportation (Caltrans) proposes to excavate soil at the Site as part of the planned addition of new truck lanes along Route 5. The objectives of the investigation were to: evaluate soil for the potential presence of ADL within the footprint of a proposed retaining wall near the Weldon Canyon overcrossing and the median of Route 5 between Calgrove Boulevard and Pico Canyon; evaluate the bedrock near the proposed retaining wall near the Weldon Canyon overcrossing and the soil near the Exxon Mobil oil pipeline beneath the Gavin Canyon Bridge for the potential presence of petroleum hydrocarbons; and collect a representative groundwater sample from two existing piezometers to be analyzed for the necessary parameters to obtain a National Pollution Discharge Elimination System (NPDES) permit from the Los Angeles Regional Water Quality Control Board (LARWQCB) for the discharge of groundwater generated during construction dewatering activities.

The information obtained from this investigation will be used by Caltrans to determine soil management (disposal or onsite reuse) and to identify health and safety concerns during proposed construction activities. The groundwater sampling results will be used by Caltrans to assist the construction contractor with evaluation of dewatering water management and disposal options.

ADL soil samples collected from the surface and depths to two feet were analyzed for total lead. Selected samples were further analyzed for soluble lead using the Waste Extraction Test method using citric acid (WET) as the extractant, soluble lead using a modified WET method using de-ionized water (DI-WET) as the extractant, soluble lead using the Toxicity Characteristic Leaching Procedure (TCLP), and/or pH.

Additionally, soil samples collected from depths of 20 to 40 feet in three hollow-stem auger borings were analyzed for the potential presence of petroleum hydrocarbons.

Offsite disposal recommendations were based upon comparison of the total lead 95% UCLs to the California Code of Regulations (CCR) Title 22 Total Threshold Limit Concentration (TTLC) of 1,000 milligrams per kilogram (mg/kg) and predicted WET results to the CCR Title 22 Soluble Threshold Limit Concentration (STLC) of 5.0 milligrams per liter (mg/l). Reuse and disposal options for roadway segments by sampling groups are summarized below.

Retaining Wall (Station 2440 to 2446)

Based upon the calculated UCLs and predicted WET lead concentrations, excavated soil from the surface to a depth of 2.0 feet could be reused or disposed as non-hazardous soil with respect to lead content (Caltrans Type X).

Median (Station 2577 to 2613)

Based upon the calculated UCLs and predicted WET lead concentrations, excavated soil from the surface to a depth of 2.0 feet could be reused or disposed as non-hazardous soil with respect to lead content (Caltrans Type X).

Petroleum Hydrocarbons

Petroleum hydrocarbons were not reported at concentrations equal to or greater than the laboratory reporting limits for any of the samples collected from the hollow-stem auger borings.

Metals and VOCs

One composite soil sample collected from the drums of soil cuttings generated during drilling of the hollow-stem auger borings was analyzed for metals and volatile organic compounds (VOCs) for waste profiling purposes. Concentrations of metals in excess of their respective TTLC or 10-times their respective STLC values were not reported for the composite sample. Concentrations of VOCs greater than or equal to the laboratory reporting limits were not reported for the composite sample.

pH

Analysis of selected soil samples indicate that the pH of the soil ranged from 5.3 to 8.5.

Groundwater

None of the concentrations reported for either of the groundwater samples exceed the NPDES screening level concentrations.

If the concentrations reported in the groundwater samples collected from the piezometers are considered to be representative of the groundwater that will be removed during dewatering activities, the LARWQCB will not likely require pre-treatment of the water prior to discharge into a storm drain system.

Worker Protection

Per Caltrans requirements, contractor(s) should prepare a project-specific Lead Compliance Plan to prevent or minimize worker exposure to lead-impacted soil. The plan should include protocols for environmental and personnel monitoring, requirements for personal protective equipment, and other appropriate health and safety protocols and procedures for the handling of lead-impacted soil.

HAZARDOUS MATERIALS/WASTES IN SOIL AND GROUNDWATER SITE INVESTIGATION

1. INTRODUCTION

1.1 Project Description and Objectives

In accordance with the California Department of Transportation (Caltrans) Contract No. 07A2729 and Task Order (TO) No. 1 (presented in Appendix A), Geocon Consultants, Inc. has performed an aerially deposited lead (ADL), petroleum hydrocarbon, and groundwater investigation along State Route 5 from the Route 14 interchange, Post Mile (PM) 45.8, north to the Pico Canyon/Lyons Avenue overcrossing, PM 49.6, (the Site) in Los Angeles County, California (Figure 1). Caltrans proposes to excavate soil at the Site as part of the planned addition of new truck lanes along Route 5. The proposed roadway improvements include median and outside lane pavement widening, construction of retaining walls, and widening of existing bridges. Based on preliminary site assessments performed by Caltrans, the potential soil contaminants that may be encountered during roadway construction activities include: aerially deposited lead (ADL) in shallow surface soils exposed in the median and shoulders, naturally occurring petroleum hydrocarbons in the rock formation that will be graded for retaining wall construction, and petroleum hydrocarbons in soil adjacent to an Exxon Mobil oil pipeline near proposed new bridge columns.

Additionally, Caltrans intends to construct new bridge columns during widening improvements at the Gavin Canyon Bridge and the Calgrove Boulevard Bridge. Caltrans has installed piezometers near each of the bridges to monitor groundwater levels. Piezometer number 09-R-002 is located in the median behind the north abutment at Calgrove Boulevard. Piezometer number 09-R-102 is located below the bridge, in front of the north abutment at Gavin Canyon. The depths to water provided by Caltrans for these locations are 13.3 feet at Calgrove Boulevard and 46.6 feet at Gavin Canyon. Based on these reported depths of groundwater there is a potential that the new columns will be drilled to depths below groundwater and dewatering may be required.

The objectives of the investigation were to: evaluate soil for the potential presence of ADL within the footprint of a proposed retaining wall near the Weldon Canyon overcrossing and the median of Route 5 between Calgrove Boulevard and Pico Canyon; evaluate the bedrock near the proposed retaining wall near the Weldon Canyon overcrossing and the soil near the Exxon Mobil oil pipeline beneath the Gavin Canyon Bridge for the potential presence of petroleum hydrocarbons; and collect a representative groundwater sample from two existing piezometers to be analyzed for the necessary parameters to obtain a National Pollution Discharge Elimination System (NPDES) permit from the Los Angeles Regional Water Quality Control Board (LARWQCB) for the discharge of groundwater generated during construction dewatering activities.

The information obtained from this investigation will be used by Caltrans to determine soil management (disposal or onsite reuse) and to identify health and safety concerns during proposed construction activities. The groundwater sampling results will be used by Caltrans to assist the construction contractor with evaluation of dewatering water management and disposal options.

1.2 Scope of Services

Geocon performed the following tasks:

1.2.1 Pre-field Activities

- Attended a Task Order meeting on March 30, 2010, to discuss field methods, boring locations, health and safety measures, and the completion schedule.
- Prepared a Health and Safety Plan (HSP) dated April 2010, for the use of personal protective equipment for Geocon employees during the field activities. The HSP specifies the safety procedures for work to be performed at the Site, chemical hazard information, site safety officers, and medical emergency locations.
- Prepared a Work Plan dated April 7, 2010 that outlines the scope of services to be performed.
- Contacted Underground Service Alert (USA) to notify utility companies of the field activities. The USA ticket numbers are A1020049, A1020050, A1020054, A1020077, and A1020081.
- Retained the services of Advanced Technology Laboratories (ATL), a Caltrans-approved, California-licensed laboratory, to perform the sample analyses.
- Retained the services of Gregg Drilling and Testing, a Caltrans-approved drilling subcontractor located in Signal Hill, California, to advance hollow-stem auger borings.
- Retained the services of Belshire Environmental Services to dispose of waste soil generated during hollow-stem auger drilling.

1.2.2 ADL Soil Sampling

A 2.5-inch-diameter hand-auger was used to collect 23 soil samples that were submitted for laboratory analysis from 12 boring locations from within the project limits. Four borings (borings 1092-101 to 1092-104) were advanced, at approximate 300-foot intervals, within the footprint of the proposed retaining wall near the Weldon Canyon overcrossing. Eight borings (borings 1092-105 to 1092-112) were advanced, at approximate 500-foot intervals within the median of northbound Route 5 between Calgrove Boulevard and Pico Canyon/Lyons Avenue. The approximate boring locations are shown on the Boring Location Maps (Figures 2 through 6).

1.2.3 Hollow-Stem Auger Drilling

A hollow-stem auger drilling rig was used to advance one boring (boring 1092-303) near the northern end of the proposed retaining wall near the Weldon Canyon overcrossing, and two borings (borings 1092-301 and 1092-302) near the Exxon Mobil pipeline Exxon Mobil oil pipeline beneath the Gavin

Canyon Bridge. The hollow-stem auger borings were advanced at locations determined in the field during the Task Order meeting on March 30, 2010.

1.2.4 Groundwater Sampling

Water levels were measured and groundwater samples were collected from Caltrans piezometer number 09-R-002, located in the median behind the north abutment at Calgrove Boulevard, and Caltrans piezometer number 09-R-102, located below the bridge, in front of the north abutment at Gavin Canyon.

1.2.5 Laboratory Analyses

Laboratory analyses were performed by ATL under ten-day turn-around-time. Reproductions of the laboratory reports and COC documentation are presented in Appendix B. Samples were analyzed as follows:

- Twenty-three soil samples for total lead using Environmental Protection Agency (EPA) Test Method 6010B.
- Five soil samples with total lead concentrations greater than 50 milligrams per kilogram (mg/kg) (i.e. greater than ten times the Soluble Threshold Limit Concentration (STLC) of than 5.0 milligrams per liter (mg/l)) were further analyzed for soluble lead using the Waste Extraction Test method (WET) by EPA Test Method 7420.
- Three soil samples with WET soluble lead concentrations greater than 5.0 mg/l were further analyzed using a modified WET method using deionized water as the extractant (DI-WET) by EPA Test Method 7420.
- Three soil samples, one soil sample with the highest total lead concentration from the retaining wall borings and two soil samples with the highest total lead concentration from the median borings, were further analyzed for Toxicity Characteristic Leaching Procedure (TCLP) soluble lead by EPA Test Methods 1311/7420 and soil pH by EPA Test Method 9045C.
- Seventeen soil samples for extended range TPH using modified EPA Test Method 8015B.
- One composite soil sample collected from the drums of soil cutting generated during drilling of the hollow-stem auger borings was analyzed for Title 22 metals by EPA Test Method 6010B and volatile organic compounds (VOCs) by EPA Test Method 8260B.
- Two groundwater samples for the following NPDES parameters:
 - Dissolved metals including boron and mercury using EPA Test Methods 3010A, 200.8 and 245.1.
 - Hexavalent chromium using EPA Test Method 218.6.
 - Total cyanide and sulfide using EPA Test Methods SM4500-CN/S.
 - Gas and diesel range total petroleum hydrocarbons (TPHg and TPHd) by modified EPA Test Method 8015B.
 - Ethanol and methanol by EPA Test Method 8015B.
 - VOCs using EPA Test Method 8260B.

- Semi-volatile organic compounds (SVOCs) and 1,4-dioxane using EPA Test Methods 3510C/8270C.
- Organochlorine pesticides using EPA Test Methods 3510C/8081A.
- Polychlorinated biphenyls (PCBs) using EPA Test Methods 3510C/8082.
- Biochemical oxygen demand (BOD) using EPA Test Method SM 5210B.
- Oil & grease and total recoverable petroleum hydrocarbons (TRPH) using Test EPA Method 1664.
- N-Nitrosodimethylamine (NDMA) using EPA Test Methods 3520C/1625CM.
- Perchlorate using EPA Test Method 314.0.
- 1,2,3-Trichloropropene (TCP), 1,2-dibromo-3-chloropropane (DBCP), and 1,2-dibromoethane (ethyldibromide; EDB) using EPA Test Method 504.1.
- Total dissolved solids (TDS), suspended solids (SS), and settleable matter using Standard Methods SM2540C/D/F.
- Asbestos by TEM
- Chloride, nitrite, nitrate and sulfate using EPA Test Method 300.0.
- Hardness using Standard Method SM2340C.

1.2.6 GPS Surveying

With the exception of hollow-stem auger borings 1092-301 and 1092-302 the latitude and longitude for each boring location was recorded using a Global Positioning System (GPS) receiver. Borings 1092-301 and 1092-302 were located beneath the bridge at Gavin Canyon where a satellite signal could not be received. Data were recorded using a TopCon GMS-2 hand-held receiver, using State Plane 83 coordinates. The two borings Boring location coordinates in latitude and longitude for the ADL borings are provided in Table 1. The coordinates for the hollow-stem auger boring advanced near the retaining wall are below.

<u>Boring No.</u>	<u>Latitude</u>	<u>Longitude</u>
1092-303	34.34048251	-118.52173533

1.2.7 Report Preparation

This report was prepared as outlined in Contract No. 07A2729 and Task Order No. 1 summarizing the results of the ADL, petroleum hydrocarbons, and groundwater site investigation activities requested by Caltrans.

2. BACKGROUND

2.1 Aerially Deposited Lead in Soil

Testing by Caltrans throughout the State has shown that ADL exists in soil along major highway routes resulting from vehicle exhaust containing lead from the combustion of leaded gasoline. The concentration and distribution of ADL in soil is dependent on many variables, but in general, traffic volume and age of a highway are the primary factors.

2.2 Hazardous Waste Classification 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), §261.

For a waste containing metals, the waste is classified as "California hazardous" when: (1) the total metal content exceeds the Total Threshold Limit Concentration (TTLC); or (2) the soluble metal content exceeds the STLC based on a WET analysis. A material is classified as "RCRA hazardous" when the soluble metal content exceeds the Federal Regulatory Level based on TCLP testing.

The above regulatory criteria are based on toxicity. Wastes may also be classified as hazardous based on other criteria including ignitability, toxicity, corrosivity, and reactivity. However, for the purposes of ADL investigations, toxicity and corrosivity (e.g., chemical concentrations and soil pH values, respectively) are the primary factors considered for waste classification. Waste that is classified as either "California hazardous" or "RCRA hazardous" requires management as a hazardous waste and disposal at an approved disposal facility.

3. INVESTIGATIVE METHODS

3.1 Field Methods

3.1.1 Soil Sampling

The borings advanced during this investigation were assigned a unique ID consisting of a project specific prefix assigned by Caltrans followed by a dash and the boring number. The project specific boring prefix for this project is "1092." Hand-auger borings advanced for the ADL investigation were designated 1092-101 through 1092-112. The three borings advanced with the hollow-stem auger were designated 1092-301, 1092-302, and 1092-303.

Soil sampling and handling methods used to collect samples from borings that were advanced with a hand-auger are outlined in the Geocon Standard Operating Procedure (SOP) *Modified SOP No. 11 - Hand-Augering and Soil Sample Collection/Handling Procedures* presented in Appendix C.

Soil samples collected with the hand-auger were homogenized in the field prior to being placed into laboratory provided samples containers, labeled, and placed in an ice chest subsequent delivery to the laboratory with chain-of-custody documentation. Soil samples were delivered to the analytical laboratory within 48-hours of collection.

Soil sample identification numbers were assigned based on boring number and the 6-inch interval from which the sample was collected. For example, the soil sample designated 1092-101-0-0.5 was

obtained from approximately 0 to 0.5 foot from boring 1092-101.

A hollow-stem auger drilling rig was used to advance two 20-foot-deep borings (1092-301 and 1092-302) near the Exxon Mobil pipeline Exxon Mobil oil pipeline beneath the Gavin Canyon Bridge and one 40-foot-deep boring near the northern end of the proposed retaining wall near the Weldon Canyon overcrossing. Prior to drilling the borings each location was cleared for underground utilities by advancing a hand excavated hole to five feet. Soil samples, from 5-feet to the total depth of the borings, were collected at approximate five-foot intervals with a split-spoon sampler lined with stainless-steel sleeves. One sleeve from each depth interval sampled was capped, labeled, and placed in an ice chest chilled to approximately 4 degrees Celsius for subsequent delivery to the laboratory with chain-of-custody documentation. Soil samples were reviewed by Matthew Curtis, a Professional Geologist with Shaw Environmental, Inc., screened in the field for the potential presence of VOCs with a photo-ionization detector, and described in accordance with the Unified Soil Classification System. Boring logs are presented in Appendix D.

Soil cuttings generated during hollow-stem auger drilling of borings 1092-301, 1092-302, and 1092-303 were placed in four 55-gallon DOT rated drums which were removed by Belshire Environmental Services. One composite soil sample was collected from the drums for waste profiling purposes. The sample was analyzed for VOCs by EPA Test Method 8260B, and Title 22 metals by EPA Test Method 6010B. Based on the analytical results of the composite drum sample and the TPH analytical results from the soil samples collected from the borings, the material was recycled as a non-hazardous waste. Copies of the waste disposal manifests are presented in Appendix E.

Quality Assurance/Quality Control (QA/QC) procedures conducted during the field activities included sampling equipment decontamination prior to each boring advancement, single use of new disposable soil core liners, single use of new re-sealable plastic bags, and sample chain-of-custody documentation. Soil sampling equipment was cleansed between borings by washing the equipment with an Alconox™ solution followed by a double rinse with de-ionized water. Clean hollow-stem auger flights were used for each of the hollow-stem auger borings. Sampling activities were conducted under supervision of Geocon's field manager.

The hand auger borings were backfilled with surface soil from the immediate vicinity of the boring location. The hollow-stem auger borings were backfilled with bentonite. Decontamination water from the ADL investigation was discharged to the ground surface away from surface water bodies or storm drain inlets. Decontamination water from the hollow-stem auger drilling was added to the drums of soil cuttings.

3.1.3 Groundwater Sampling

Groundwater samples were collected from the two Caltrans piezometers on May 5, 2010. Prior to collecting the groundwater samples, water levels in each piezometer were measured using a decontaminated electronic water level indicator. The groundwater samples were collected with new disposable bailers and decanted into appropriate laboratory-supplied containers.

3.2 Deviations from Work Plan

Geocon performed the scope of work as described in the work plan with the exception that ADL boring 1092-111 was not completed to the planned total depth of two feet because refusal conditions were encountered at a depth of one foot due to the presence of cobbles.

4. INVESTIGATIVE RESULTS AND FIELD OBSERVATIONS

4.1 Soil and Groundwater Conditions

The soil conditions encountered in the ADL boreholes generally consisted of loose to moderately dense, dry to slightly moist, light grey brown to dark-brown, silty fine to coarse sand with coarse gravel. Groundwater was not encountered in the hand-auger borings.

The soils in the boring at location 1092-301 consisted of firm, dry, yellowish brown silt with gravel (artificial fill) from the surface to approximately 6 feet. Alluvium consisting of firm, moist, dark brown, silt with varying amounts of sand and gravel was recorded from approximately 6 to 12 feet. Dense, dark yellow brown gravelly sand and sand was recorded between 12 and 20 feet. Groundwater was encountered in boring 1092-301 at a depth of approximately eight feet.

Soils encounter in boring 1092-302 consisted of firm, yellow brown, silt with sand and gravel (artificial fill) to a depth of approximately four feet. Alluvium consisting of firm, moist, olive brown silt with varying amounts of fine to medium sand was recorded from between 4 and 20 feet. Groundwater was encounter in boring 1092-302 at a depth of approximately 11 feet.

Dense to very dense, dry to moist, light yellow brown to dark bluish grey siltstone and sandstone were encountered from the surface to a depth of 40 feet in boring 1092-303. Groundwater was not encountered during drilling of boring 1092-303. No significant odors, elevated PID readings, or staining was noted in the soils excavated during drilling of the hollow-stem auger borings.

Groundwater was measured at depths of 42.98 feet and 12.00 feet below the top of casing in Caltrans piezometers R-09-002 (Calgrove Avenue) and R-09-102 (Gavin Canyon), respectively.

4.2 Soil Analytical Laboratory Results

A summary of the soil results for total lead, WET lead, DI-WET lead, TCLP lead, and pH is presented in Table 1. Reproductions of the laboratory reports and chain-of-custody documentation are presented as Appendix B. Analyses were processed using laboratory ten-business-day turn-around time.

Soil sample analytical results are summarized below (see Section 1.2.5 for analytical methods used):

- Total lead was reported for 16 of the 23 ADL soil samples at concentrations ranging from 5.6 to 160 mg/kg. Total lead was not reported above the laboratory reporting limit of 5.0 mg/kg in the remaining seven samples. Concentrations of total lead greater than 50 mg/kg were reported for five of the samples.
- WET lead was reported for each of the five samples analyzed at concentrations ranging from 2.4 to 9.7 mg/l. Concentrations of WET lead exceeding the STLC of 5.0 mg/l were reported for three of the samples.
- DI-WET lead was reported at a concentration of 0.28 mg/l in one of the samples analyzed. DI-WET lead was not reported above the laboratory reporting limit of 0.25 mg/l for the remaining two samples analyzed.
- TCLP soluble lead was reported at a concentration of 0.31 mg/l in one of the samples analyzed. TCLP soluble lead was not reported above the laboratory reporting limit of 0.25 mg/l for the remaining two samples analyzed.
- Soil pH values ranged from 5.3 to 8.5.

4.3 Groundwater Analytical Laboratory Results

Two groundwater samples were collected from the temporary piezometers and analyzed for screening parameters required to obtain an NPDES permit.

The sample collected from piezometer R-09-002 was reported to contain the following:

- Boron at a concentration of 0.10 mg/l.
- Barium at a concentration of 24 micrograms per liter ($\mu\text{g/l}$).
- Molybdenum at a concentration of 2.1 $\mu\text{g/l}$.
- Vanadium at a concentration of 1.9 $\mu\text{g/l}$.
- Sulfide at a concentration of 0.20 mg/l.
- Chloride at a concentration of 15 mg/l.
- Sulfate at a concentration of 300 mg/l.
- Hardness at a concentration of 130 mg/l.
- Total dissolved solid at a concentration of 560 mg/l.
- Suspended solids at a concentration of 700 mg/l.
- Settleable matter at a concentration of 1.2 mg/l.

The sample collected from piezometer R-09-102 was reported to contain the following:

- Boron at a concentration of 0.45 mg/l.
- Arsenic at a concentration of 1.2 µg/l.
- Barium at a concentration of 29 µg/l.
- Chromium at a concentration of 1.8 µg/l.
- Cobalt at a concentration of 1.3 µg/l.
- Copper at a concentration of 4.3 µg/l.
- Molybdenum at a concentration of 4.0 µg/l.
- Nickel at a concentration of 15 µg/l.
- Selenium at a concentration of 2.3 µg/l.
- Vanadium at a concentration of 1.4 µg/l.
- Sulfide at a concentration of 0.12 mg/l.
- Chloride at a concentration of 73 mg/l.
- Sulfate at a concentration of 1,300 mg/l.
- Hardness at a concentration of 1,300 mg/l.
- Total dissolved solid at a concentration of 2,600 mg/l.
- Suspended solids at a concentration of 600 mg/l.
- Settleable matter at a concentration of 0.98 mg/l.

The following analytes were not reported above their respective laboratory reporting limits for either to the samples: asbestos, BOD, total cyanide, 1,4-dioxane, DBCP, EDB, ethanol, hexavalent chromium, methanol, mercury, NDMA, nitrite, nitrate, Oil & Grease, pesticides, PCBs, perchlorate, SVOCs, TCP, TRPH, TPHg, TPHd, or VOCs. A copy of the laboratory analytical report and chain-of-custody documentation is provided in Appendix B.

4.4 Data Validation

Geocon and ATL use QA/QC measures to minimize and control errors associated with field and laboratory methods. Field QA/QC measures consist of cleaning sampling equipment between each use with a detergent solution followed by successive rinses in tap and de-ionized water.

Laboratory QA/QC measures include the use of matrix spikes, duplicates and method blanks, in addition to calculation of percent recovery and relative percentage difference (RPD). A review of the laboratory QA/QC results indicates satisfactory data reporting, and the data are of sufficient quality for the purposes of this report.

5. DATA EVALUATION

5.1 Lead

The lead data for the Site were treated as two separate sample populations based on geographic location, which consisted of the following groups of soil samples:

- Retaining Wall (Station 2440 to 2446) – Borings 1092-101 to 1092-104
- Median (Station 2577 to 2613) – Borings 1092-105 to 1092-112

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 soluble lead concentrations exists that would allow the prediction of soluble lead concentrations based on calculated UCLs. The statistical methods used are discussed in a book entitled *Statistical Methods for Environmental Pollution Monitoring*, by Richard Gilbert; in an EPA *Technology Support Center Issue* document entitled, *The Lognormal Distribution in Environmental Applications*, by Ashok Singh et. al., dated December 1997; and in a book entitled *An Introduction to the Bootstrap*, by Bradley Efron and Robert J. Tibshirani.

Where UCLs could not be computed for data sets consisting of four or less unique values we used maximum reported total lead concentrations. Maximum values were used for the statistical evaluation of the median sample group depth interval 1.5 to 2.05 feet.

5.1.1 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 therefore 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 used to calculate the UCLs are discussed in the previously referenced EPA document and in *An Introduction to the Bootstrap*. The bootstrap test results are included in Appendix F. Note that maximum reported lead concentrations were used for certain depth intervals due to the small number of samples in the data sets. For those samples in which total lead was not detected at concentrations exceeding the laboratory reporting limit of 5.0 mg/kg, a value equal to one-half of the detection limit was used in the UCL calculation or as the maximum total lead concentration.

Due to small population size, UCLs could not be calculated for individual layers in the Retaining wall borings. The UCLs for combined soil layers were calculated using all of the soil sample results.

The calculated total lead UCLs and predicted WET lead concentrations for the Retaining Wall are summarized in the following table:

Retaining Wall (Station 2440 to 2446)

Combined Layer(s)	Total Lead (mg/kg)	
	90% UCL (mg/kg)	95% UCL (mg/kg)
0 to 2.0 feet	56	61

The predicted WET lead concentrations for the Median samples are based on the maximum and calculated UCL total lead concentrations for each sample interval and weighted averages for combined layers.

Due to small population of unique values, UCLs could not be calculated for the 1.5- to 2.0-foot interval in the Median group so the maximum value was used for that depth interval. 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). For samples where total lead was not detected above the laboratory reporting limit of 5.0 mg/kg, half of the reporting limit value was used. The calculated total lead UCLs and predicted WET lead concentrations for the Median sample groups is summarized in the following table:

Median (Station 2577 to 2613)

Layer	Total Lead (mg/kg)	
	Max/ 90% UCL (mg/kg)	Max/ 95% UCL (mg/kg)
0 to 0.5 foot	54	58
1.5 to 2.0 foot*	66	66
Combined Layers		
0 to 0.5 foot	54	58
0.5 to 2.0 feet	58	61
0 to 1.5 feet	54	58
1.5 to 2.0 feet*	66	66
0 to 2.0 feet	57	60

* - Value is the maximum reported total lead concentration because UCLs could not be calculated due to less than 4 unique values in the data set.

5.1.2 Correlation of Total and Soluble Lead

Total and corresponding WET lead concentrations are bivariate data with a linear structure. This linear structure should allow for the prediction of soluble lead WET concentrations based on the UCLs calculated above in Section 5.1.1.

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 the four of the five (x , y) data points (i.e., soil samples analyzed for both total lead [x] and WET lead [y]). The data point from sample 1092-110-0-0.5 is considered as an outlier and it was not used in the correlation coefficient calculation because the reported ration of total lead to soluble lead exceeds the theoretical maximum concentration achievable with the 10 x dilution used in the WET test method. Additionally we evaluated the total vs. residual WET lead concentrations for the data set. This plot is used to assist in identifying anomalous outliers in the data set by depicting the residual variation after fitting the regression line. The residual value is the difference between the observed value or the variable and the vaule suggested by the regression line. The squared residual is the standardized error value. The data point from sample 1092-110-0-0.5 was the sample which exhibited the highest residual squared value. The resulting *coefficient of determination* (r^2) equaled 0.7906, which yields a corresponding *correlation coefficient* (r) of 0.8892.

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 $y = 0.063(x)$, 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 maximums and UCLs calculated for samples collected from the Site (see Section 5.1.1). Regression analysis results and a scatter plot depicting the (x , y) data points along with the regression line are included in Appendix F.

5.2 Petroleum Hydrocarbons

Soil samples collected from the hollow-stem auger borings were analyzed for TPH. Concentrations of TPH greater than the laboratory reporting limits of 1.0 mg/kg to 10 mg/kg were not reported for the samples analyzed from borings 1092-301, 1092-302, and 1092-303.

5.3 Metals and VOCs

One composite soil sample collected from the drums of soil cuttings generated during drilling of the hollow-stem auger borings was analyzed for metals and VOCs for waste profiling purposes. Concentrations of metals in excess of their respective TTLC or 10-times their respective STLC values were not reported for the composite sample. Concentrations of VOCs greater than or equal to the laboratory reporting limits were not reported for the composite sample.

5.4 Groundwater

The groundwater analytical results were compared to the to the "receiving waters with municipal and domestic supply and/or groundwater recharge beneficial use" Screening Levels for General NPDES Permits, provided as Attachment A in Los Angeles Regional Water Quality Control Board (LARWQCB) Order No. R4-2008-0032, *Waste Discharge Requirements for Discharges of Groundwater from Construction and Project Dewatering to Surface Waters in Coastal Watersheds of Los Angeles and Ventura Counties (General NPDES Permits No. CAG994004)*.

None of the concentrations reported for either of the piezometer samples exceed the screening level concentrations.

6. CONCLUSIONS AND RECOMMENDATIONS

Lead

Waste classifications and onsite reuse for ADL containing soil under the Variance are evaluated based on the 90% UCL of the lead content for the relevant excavation depths; this has historically been considered sufficient to satisfy a good faith effort by the EPA as discussed in SW-846. Risk assessment characterization for offsite disposal is based on the 95% UCL of the lead content in the waste for the relevant depths; this is in accordance with the Risk Assessment Guidance for Superfund (RAGS) Volume 1 Documentation for Exposure Assessment. Disposal and reuse options for each Group are discussed below.

Retaining Wall (Station 2440 to 2446)

The total and predicted WET lead calculations for the Retaining Wall are summarized in Table 2a. Block diagrams are presented in Appendix F.

Combined Layer (s)	Total Lead (mg/kg)		Predicted WET Lead (mg/l)		SOIL TYPE
	90% UCL (mg/kg)	95% UCL (mg/kg)	90% UCL (mg/l)	95% UCL (mg/l)	Surplus Soil
0 to 2.0 feet	56	61	3.5	3.9	Type X

Based upon the calculated UCLs and predicted WET lead concentrations, excavated soil from the surface to a depth of 2.0 feet could be reused or disposed as non-hazardous with respect to lead content.

Median (Station 2577 to 2613)

The total and predicted WET lead calculations for the Median group are summarized in Table 2b. Excavation scenarios by layer are presented below. Block diagrams are presented in Appendix F.

Layer (s)	Total Lead (mg/kg)		Predicted WET Lead (mg/l)		SOIL TYPE
	Max/90% UCL (mg/kg)	Max/95% UCL (mg/kg)	Max/90% UCL (mg/l)	Max/95% UCL (mg/l)	Surplus Soil
0 to 0.5 foot	54	58	3.4	3.6	Type X
<i>0.5 to 2.0 feet</i>	<i>58</i>	<i>61</i>	<i>3.7</i>	<i>3.8</i>	<i>Type X</i>
0 to 1.5 feet	54	58	3.4	3.6	Type X
<i>1.5 to 2.0 feet</i>	<i>66</i>	<i>66</i>	<i>4.2</i>	<i>4.2</i>	<i>Type X</i>
0 to 2.0 feet	57	60	3.6	3.8	Type X

Based upon the calculated UCLs and predicted WET lead concentrations, excavated soil from the surface to a depth of 2.0 feet could be reused or disposed as non-hazardous with respect to lead content.

Petroleum Hydrocarbons

Petroleum hydrocarbons were not reported at concentrations equal to or greater than the laboratory reporting limits for any of the samples collected from the hollow-stem auger borings.

Metals and VOCs

One composite soil sample collected from the drums of soil cuttings generated during drilling of the hollow-stem auger borings was analyzed for metals and VOCs for waste profiling purposes. Concentrations of metals in excess of their respective TTLC or 10-times their respective STLC values were not reported for the composite sample. Concentrations of VOCs greater than or equal to the laboratory reporting limits were not reported for the composite sample.

pH

Analysis of selected soil samples indicate that the pH of the soil ranged from 5.3 to 8.5.

Groundwater

None of the concentrations reported for either of the piezometere samples exceed the NPDES screening level concentrations.

If the concentrations reported in the groundwater samples collected from the piezometers are considered to be representative of the groundwater that will be removed during dewatering activities, the LARWQCB will not likely require pre-treatment of the water prior to discharge into a storm drain system.

Worker Protection

Per Caltrans requirements, contractor(s) should prepare a project-specific Lead Compliance Plan to prevent or minimize worker exposure to lead-impacted soil. The plan should include protocols for environmental and personnel monitoring, requirements for personal protective equipment, and other appropriate health and safety protocols and procedures for the handling of lead-impacted soil.

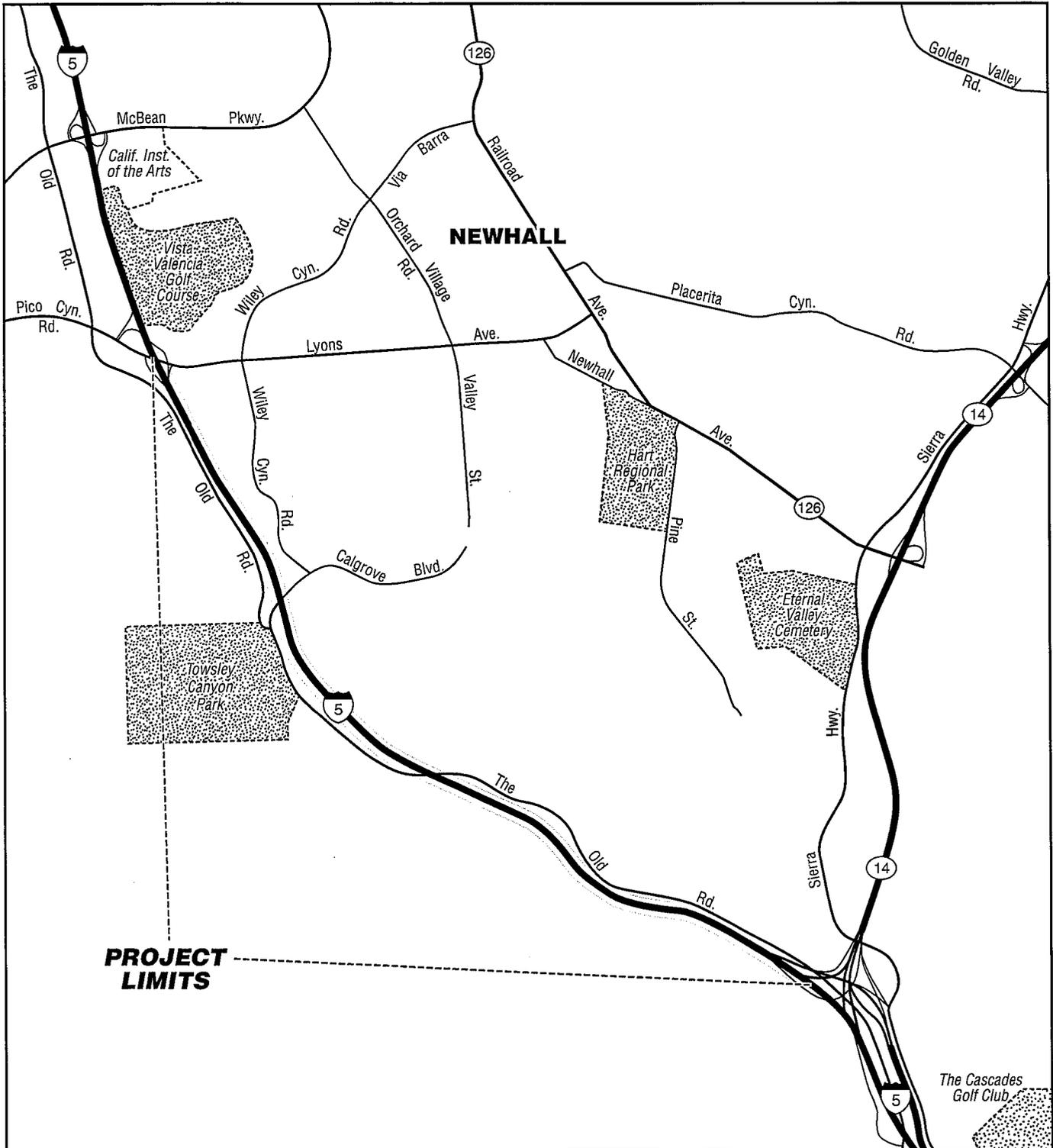
7. REPORT LIMITATIONS

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

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

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

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



PROJECT LIMITS



GEOCON
CONSULTANTS, INC.

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

Interstate 5 Post Mile 45.8 to 49.6

Los Angeles County,
California

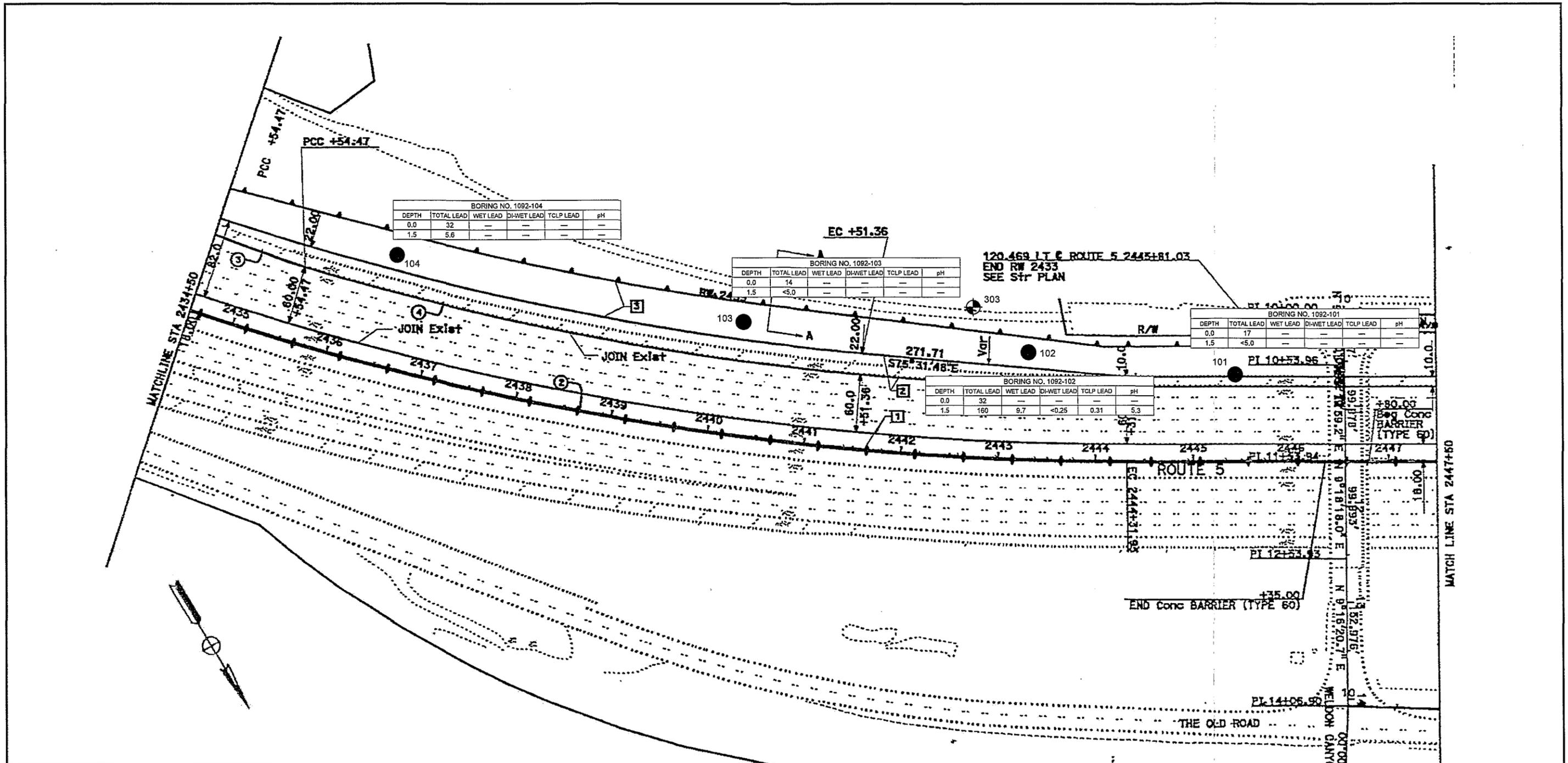
GEOCON Proj. No. S9475-06-01

Task Order No. 1

VICINITY MAP

June 2010

Figure 1



LEGEND

- 302 Approximate Location of HSA Boring
- 104 Approximate Location of Hand Auger Boring:
- TOTAL LEAD - Results in milligrams / kilogram (mg/kg)
- WET, DI-WET, and TCLP - Results in milligrams/liter (mg/l)
- DEPTH - in feet
- <0.25 = Not detected at or above laboratory detection limit indicated
- = Analysis not performed.



PLAN BY: Caltrans District 7

GEOCON
CONSULTANTS, INC.

ENVIRONMENTAL GEOTECHNICAL MATERIALS
3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
PHONE (818) 841-8388 - FAX (818) 841-1704

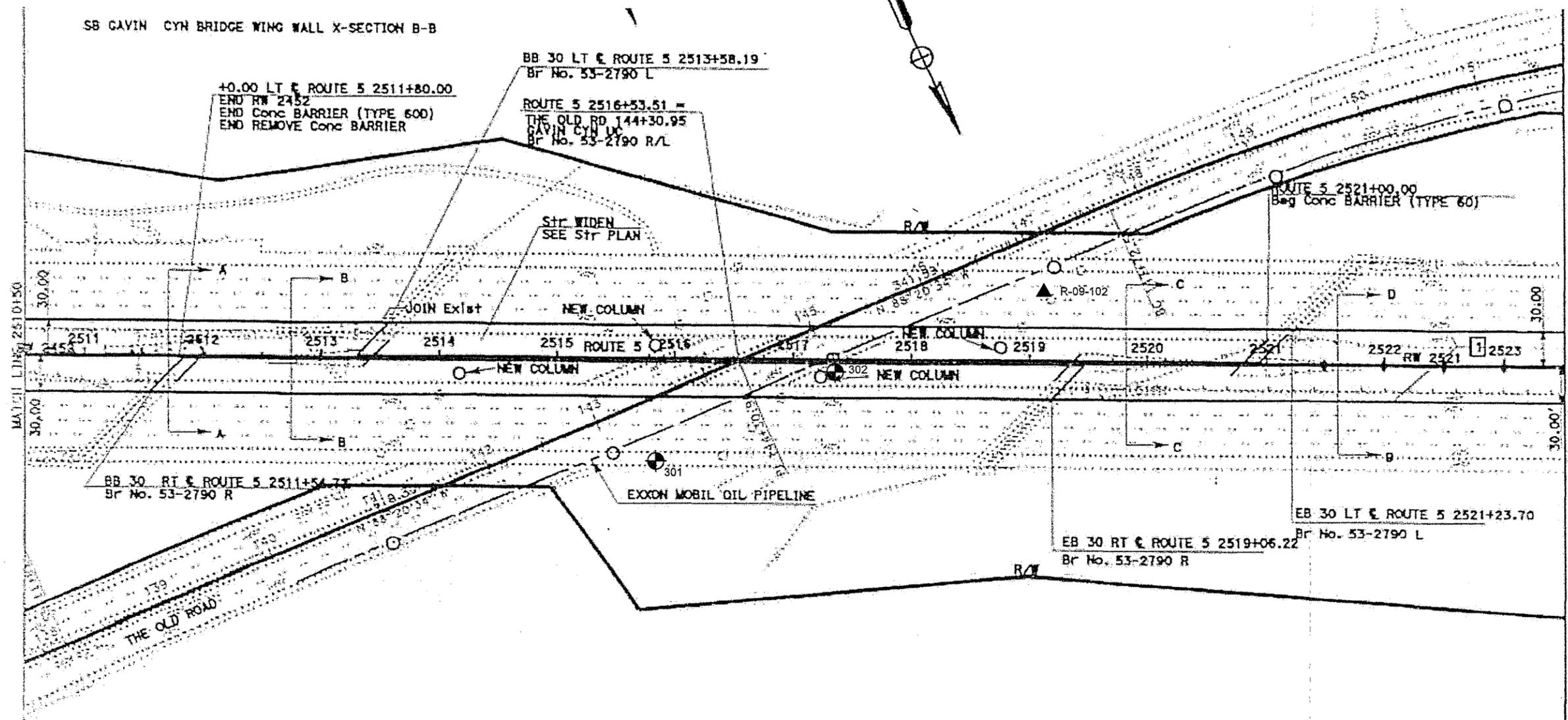
CHL 8000

BORING LOCATION MAP (SHEET L-2)

CALTRANS
STATE ROUTE 5
PM 45.8/49.6
LOS ANGELES COUNTY, CALIFORNIA

JUNE 2010 PROJECT NO. S9475 - 06 - 01 FIG. 2

SB GAVIN CYN BRIDGE WING WALL X-SECTION B-B



LEGEND

- Approximate Location of HSA Boring
- Approximate Location of Caltrans Piezometer



PLAN BY: Caltrans District 7

GEOCON
CONSULTANTS, INC.



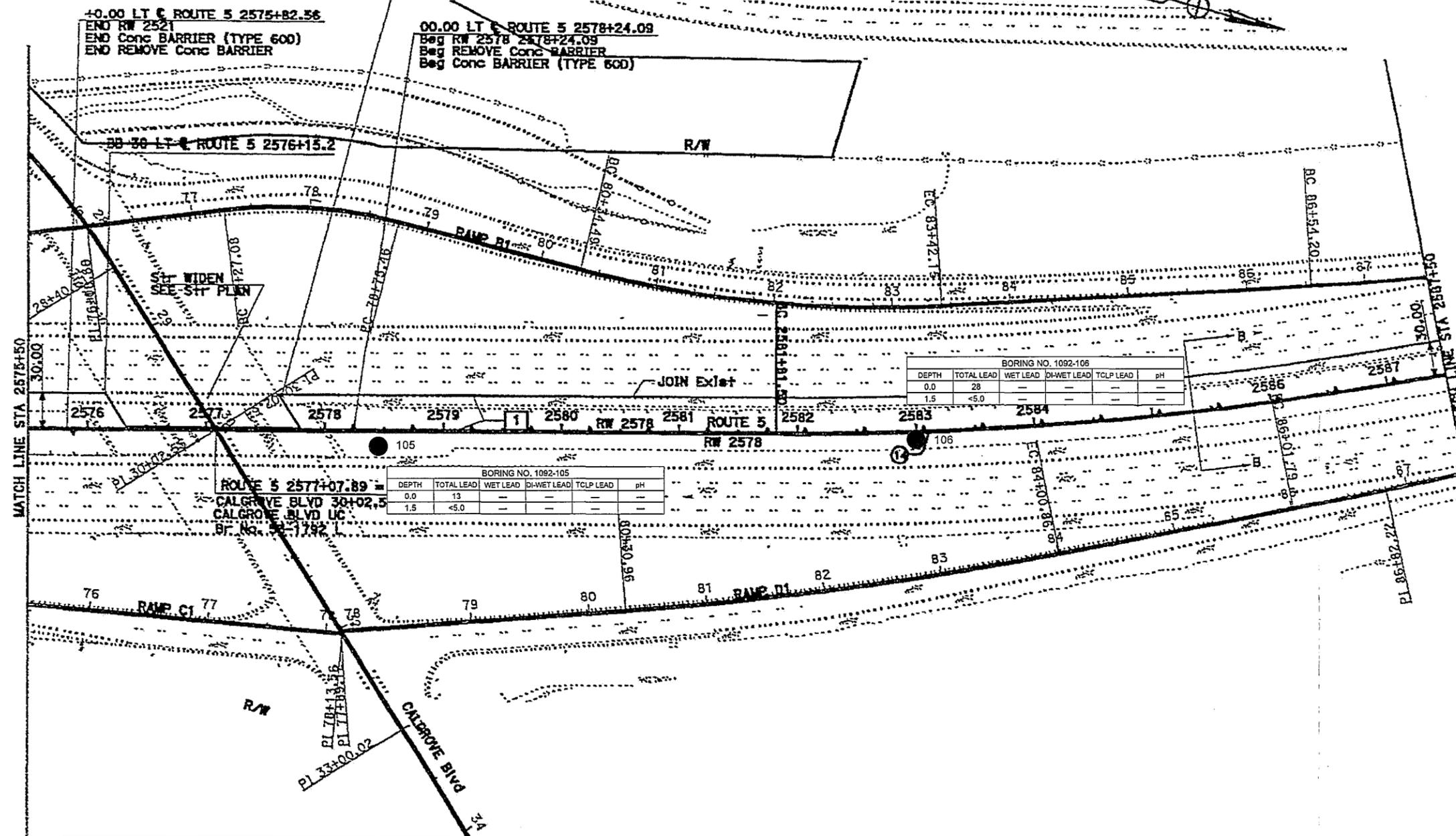
ENVIRONMENTAL GEOTECHNICAL MATERIALS
3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
PHONE (818) 841-8388 - FAX (818) 841-1704

CHL 8000

BORING LOCATION MAP (SHEET L-8)

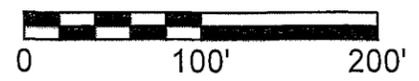
CALTRANS
STATE ROUTE 5
PM 45.8/49.6
LOS ANGELES COUNTY, CALIFORNIA

JUNE 2010 PROJECT NO. S9475 - 06 - 01 FIG. 3



LEGEND

- 106 Approximate Location of Hand Auger Boring:
- TOTAL LEAD - Results in milligrams / kilogram (mg/kg)
- WET, DI-WET, and TCLP - Results in milligrams/liter (mg/l)
- DEPTH - in feet
- <0.25 = Not detected at or above laboratory detection limit indicated
- = Analysis not performed.



PLAN BY: Caltrans District 7

GEOCON
CONSULTANTS, INC.



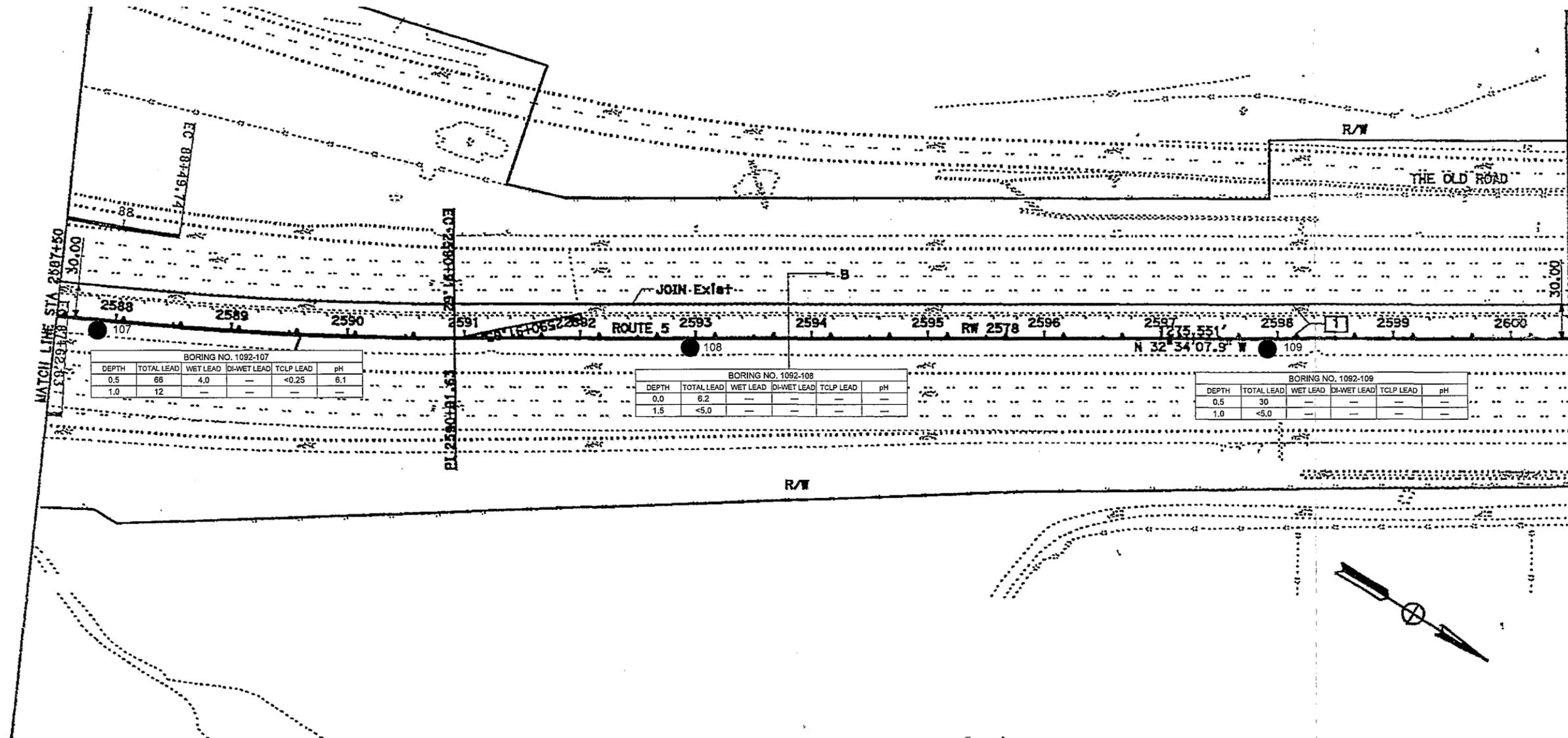
ENVIRONMENTAL GEOTECHNICAL MATERIALS
3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
PHONE (818) 841-8388 - FAX (818) 841-1704

CHL	8000
-----	------

BORING LOCATION MAP (SHEET L-13)

CALTRANS
STATE ROUTE 5
PM 45.8/49.6
LOS ANGELES COUNTY, CALIFORNIA

JUNE 2010	PROJECT NO. S9475 - 06 - 01	FIG. 4
-----------	-----------------------------	--------



LEGEND



Approximate Location of Hand Auger Boring:

TOTAL LEAD - Results in milligrams / kilogram (mg/kg)

WET, DI-WET, and TCLP - Results in milligrams/liter (mg/l)

DEPTH - in feet

<0.25 = Not detected at or above laboratory detection limit indicated

— = Analysis not performed.



PLAN BY: Caltrans District 7

GEOCON
CONSULTANTS, INC.



ENVIRONMENTAL GEOTECHNICAL MATERIALS
3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
PHONE (818) 841-8388 - FAX (818) 841-1704

CHL

8000

BORING LOCATION MAP (SHEET L-14)

CALTRANS

STATE ROUTE 5

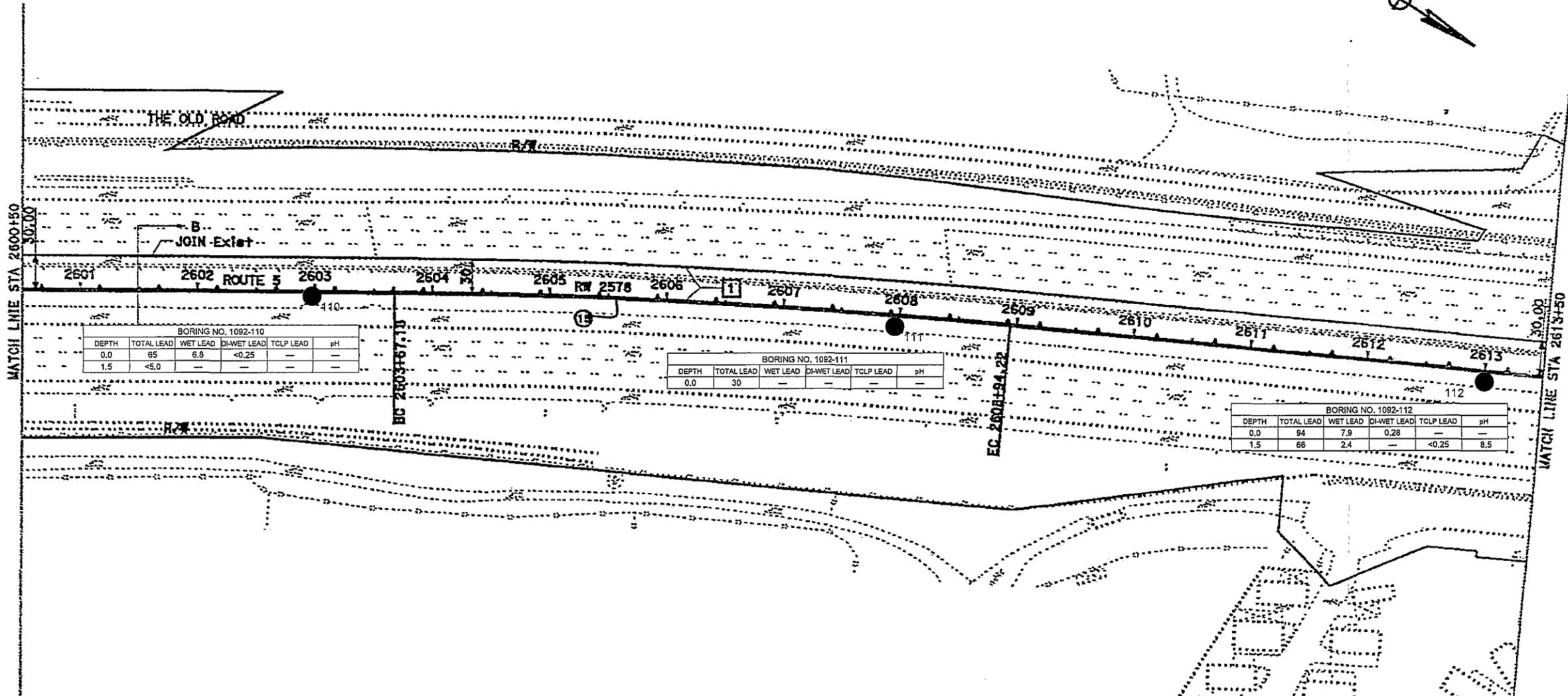
PM 45.8/49.6

LOS ANGELES COUNTY, CALIFORNIA

JUNE 2010

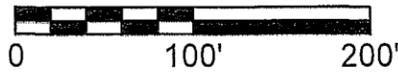
PROJECT NO. S9475 - 06 - 01

FIG. 5



LEGEND

- 112 Approximate Location of Hand Auger Boring:
- TOTAL LEAD - Results in milligrams / kilogram (mg/kg)
- WET, DI-WET, and TCLP - Results in milligrams/liter (mg/l)
- DEPTH - in feet
- <0.25 = Not detected at or above laboratory detection limit indicated
- = Analysis not performed.



PLAN BY: Caltrans District 7

GEOCON
CONSULTANTS, INC.



ENVIRONMENTAL GEOTECHNICAL MATERIALS
3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
PHONE (818) 841-8388 - FAX (818) 841-1704

CHL	8000
-----	------

BORING LOCATION MAP (SHEET L-15)

CALTRANS
STATE ROUTE 5
PM 45.8/49.6
LOS ANGELES COUNTY, CALIFORNIA

JUNE 2010	PROJECT NO. S9475 - 06 - 01	FIG. 6
-----------	-----------------------------	--------

TABLE 1
 BORING COORDINATES AND SUMMARY OF LEAD AND pH ANALYTICAL RESULTS
 STATE ROUTE 5 PM 45.8/49.6
 LOS ANGELES COUNTY, CALIFORNIA

Sample ID	LATITUDE	LONGITUDE	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	DI-WET Lead (mg/l)	TCLP Lead (mg/l)	pH
Retaining wall								
1092-101-0-0.5	34.34071513	-118.52256914	0-0.5	17				
1092-101-1.5-2.0			1.5-2.0	<5.0				
1092-102-0-0.5	34.34053978	-118.52139051	0-0.5	32				
1092-102-1.5-2.0			1.5-2.0	160	9.7	<0.25	0.31	5.3
1092-103-0-0.5	34.33998083	-118.51958484	0-0.5	14				
1092-103-1.5-2.0			1.5-2.0	<5.0				
1092-104-0-0.5	34.33917300	-118.51800268	0-0.5	32				
1092-104-1.5-2.0			1.5-2.0	5.6				
Median								
1092-105-0-0.5	34.36274321	-118.55530739	0-0.5	13				
1092-105-1.5-2.0			1.5-2.0	<5.0				
1092-106-0-0.5	34.36382197	-118.55564509	0-0.5	28				
1092-106-1.5-2.0			1.5-2.0	<5.0				
1092-107-0-0.5	34.36528314	-118.55636941	0-0.5	66	4.0		<0.25	6.1
1092-107-1.5-2.0			1.5-2.0	12				
1092-108-0-0.5	34.36641939	-118.55721674	0-0.5	6.2				
1092-108-1.5-2.0			1.5-2.0	<5.0				
1092-109-0-0.5	34.36769934	-118.55819980	0-0.5	30				
1092-109-1.5-2.0			1.5-2.0	<5.0				
1092-110-0-0.5	34.36904778	-118.55925070	0-0.5	65	6.8	<0.25		
1092-110-1.5-2.0			1.5-2.0	<5.0				
1092-111-0-0.5	34.37033379	-118.56012727	0-0.5	30				
1092-112-0-0.5	34.37163413	-118.56097698	0-0.5	94	7.9	0.28		
1092-112-1.5-2.0			1.5-2.0	66	2.4		<0.25	8.5

Notes:

- mg/kg = Milligrams per kilogram
- mg/l = Milligrams per liter
- WET = Waste Extraction Test using citric acid as the extraction fluid
- DI-WET = Waste Extraction Test using deionized water as the extraction fluid
- TCLP = Toxicity Characteristic Leaching Procedure
- < = Analyte was not detected above the laboratory reporting limit

TABLE 2A
 SUMMARY OF LEAD STATISTICAL ANALYSIS - RETAINING WALL
 STATE ROUTE 5 PM 45.8/49.6
 LOS ANGELES COUNTY, CALIFORNIA

	Total Lead (mg/kg)		Predicted WET Lead (mg/l)		Surplus Soil
	90% UCL	95% UCL	90% UCL	95% UCL	
Combined Layer(s) 0 to 0.5 foot	56	61	3.5	3.9	Type X

Notes:

mg/kg = milligrams per kilogram

mg/l = milligrams per liter

Type X = Non-hazardous

Soluble (WET) lead concentrations are predicted using slope of regression line,

where y = predicted soluble (WET) lead and x = total lead.

Regression Line Slope: $0.063 x$

TABLE 2B
 SUMMARY OF LEAD STATISTICAL ANALYSIS - MEDIAN
 STATE ROUTE 5 PM 45.8/49.6
 LOS ANGELES COUNTY, CALIFORNIA

	Total Lead (mg/kg)		Predicted WET Lead (mg/l)		Surplus Soil
	Max/ 90% UCL	Max/ 95% UCL	Max/ 90% UCL	Max/ 95% UCL	
Each Layer					
0 to 0.5 foot	54	58	3.4	3.6	Type X
1.5 to 2.0 feet*	66	66	4.2	4.2	Type X
Combined Layer(s)					
0 to 0.5 foot	54	58	3.4	3.6	Type X
0.5 to 2.0 feet	58	61	3.7	3.8	Type X
0 to 1.5 feet	54	58	3.4	3.6	Type X
1.5 to 2.0 feet*	66	66	4.2	4.2	Type X
0 to 4.0 feet	57	60	3.6	3.8	Type X

Notes:

* = Maximum reported value was used because a UCL could not be calculated due to less than four unique values in the data set.

mg/kg = milligrams per kilogram

mg/l = milligrams per liter

Type X = Non-hazardous

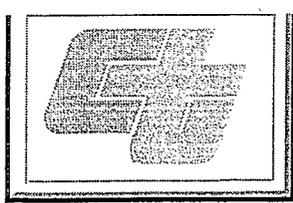
Soluble (WET) lead concentrations are predicted using slope of regression line,

where y = predicted soluble (WET) lead and x = total lead.

Regression Line Slope: $0.063 x$

APPENDIX

A



TASK ORDER NO. 1

Date: March 23, 2010

Contract No. 07A2729

EA: 2332A1

Site Investigation Hazardous Materials/Wastes in Soil and Groundwater

LA-5, PM 45.8/49.6

**From Route 5/14 interchange to Pico Canyon Road/Lyons Avenue
Overcrossing**

I. Task Order Description

A. Purpose

The purpose for this Task Order (TO) is to conduct a detail Site Investigation (SI) on state Route 5 in Los Angeles County. Based upon the preliminary hazardous waste site assessment, the potential hazardous waste contaminations are: aerially deposited lead (ADL), naturally occurring petroleum hydrocarbons, and chemicals and heavy metals in groundwater. This SI includes soil and groundwater sampling and analysis to determine the presence of hazardous chemicals, heavy metals and naturally occurring petroleum hydrocarbons at proposed excavation locations. The SI report can also be used for recommendations on appropriate procedures for handling and disposing of soil and groundwater generated during construction activities.

This SI report will be made available to the construction firm awarded this project so that they will have the necessary data to develop an appropriate Health and Safety Plan (H&SP) and training program for the field staffs as required per Title 8 of the California Code of Regulations (8 CCR).

B. Project Background

The California Department of Transportation ("Department") is currently preparing the Plans, Specifications, and Estimates (PS&E) to add two truck lanes on the southbound direction and one truck lane on the northbound direction on route 5 between Route 14 Connector and Pico Canyon Interchange in Santa Clarita area. The scope of the work consists of median and outside pavement widening, building retaining walls in the median and along the right of way line, and widening of existing bridges. Two piezometer wells 2" in diameter are installed by Department's Geotechnical branch for our use. One well is located at Calgrove Boulevard Bridge (Borehole no. R-09-002) and one well is located at Gavin Canyon Bridge (Borehole no. R-09-002) (see attachment 2). An oil pipeline is located in the vicinity of one of the proposed columns for Gavin Canyon Undercrossing (L-

8). There is an elevation difference starting from Sta. 2451+00.00 in northbound and southbound lanes (see attachment 1). Copies of layout plans and cross sections are provided in attachment 1.

The following technical documents were prepared for the I-5 corridor project and can be available for consultant to use.

1. Initial Site Assessment (ISA)– interstate SR-5 from SR-14 to SR-126 north county combined highway corridor study, Los Angeles County, California dated March 5, 2003 was prepared by DIAZ.YOURMAN & ASSOCIATES for Parsons Transportation Group.
2. Supplemental Initial Site Assessment (S-ISA) report dated July 19, 2007, Interstate I-5 from SR-14 to PARKER ROAD, Los Angeles County, California, EA: 2332E0 was prepared by the Hazardous Waste Branch-North, Caltrans, District 07.

II. Scope of Services

The scope of this TO is to determine hazardous waste (HW) condition at the project location. Scope of this TO shall include, as a minimum, the following:

- Prepare detailed workplan for hazardous waste investigation for contamination of concern such as: Total Petroleum Hydrocarbons (TPHs) in soil due to naturally occurring oil, soil investigation near oil pipeline, and groundwater quality investigation.
- Collect appropriate soil and groundwater samples and conduct appropriate laboratory tests to address TPHs due to naturally occurring oil and groundwater characteristic as required by the Regional Water Quality Control Board (RWQCB).
- Characterize the soils to be excavated.
- Provide recommendations regarding management and handling of excavated soils
- Characterize the groundwater that may be encountered during construction.
- Apply for and obtain the National Pollutant Discharge Elimination System (NPDES) permit from the RWQCB.
- Prepare the SI report.

The Consultant shall submit the required hours and line item cost proposal for the scope of investigation works as described in this TO for review and acceptance by the Department within three (3) working days of receiving this TO request. The cost estimate of this SI should include preparation of detailed workplan, all fieldwork, laboratory work and preparation of the draft and final reports with hours and line item costs in accordance with Attachment No. 2 of the HW Contract 07A2729. After the Department provides comments, the Consultant shall prepare the final cost estimate incorporating with the Department's comments. When the Department approves this final cost estimate and both parties sign this TO, the Consultant may proceed to Task 1.

A. Task 1- Work plan

The Consultant shall prepare a detailed work plan for conducting HW site investigation. The workplan shall include, at a minimum, the following:

- Site reconnaissance and review of available technical documents
- Attend the TO meeting
- Mark borings and perform a geophysical survey
- Evaluation of available area groundwater data
- Evaluation of available area geology data
- Maps/plan of proposed sampling/boring location (BLP), site boundaries, and groundwater flow directions
- Investigation strategy (drilling method) and proposed number and location of borings
- Samples handling procedures
- Methodology of disposing of investigation derived wastes
- Laboratory and field Quality Assurance/Quality Control (QA/QC) procedures
- Laboratory analyses and analytical methodologies
- Schedule for SI and preparation of reports

The workplan shall be submitted to the Department for review. Upon receipt of comments from the Department, the Consultant shall revise and resubmit the document for final acceptance. Two (2) copies of the accepted workplan shall be submitted to the Department as final deliverables. When the Department approves the final SI work plan the Consultant may proceed to Task 2.

B. Task 2- Health and Safety Plan

1. The consultant shall develop and provide a site-specific Health and Safety Plan (H&SP) based on site reconnaissance. The H&SP shall be prepared and approved by a California Certified Industrial Hygienist (CIH).
2. The H&SP shall follow all applicable local, state, and federal regulations. The H&SP shall include all health and safety requirements related to the proposed scope of the project and planned fieldwork activities.
3. The H&SP shall be submitted to the Department for review. Upon receipt of comments from the Department, the Consultant shall revise and resubmit the document for final acceptance.
4. Two (2) copies of the accepted H&SP (with wet-ink signatures of the CIH, the Project Manager, and training certificate of the field staff) shall be submitted to the Department as final deliverables.

C. Task 3 - Traffic Control

1. Based on our field reconnaissance, the proposed investigative area does not require lane closure. The consultant is required to verify the site access conditions prior to accepting this TO and provide adequate traffic control during fieldwork if necessary.
2. In the event that a standard shoulder closure is required for this TO, closure hours shall be between 9:00AM and 3:00PM. The closure hours can be extended provided that the consultant submits an advance written request to the Department prior to commencing the fieldwork.
3. Traffic controls, outside the Caltrans R/W shall be the responsibility of the consultant in coordination with the appropriate local jurisdiction.

D. Task 4 – Site Investigation

1. Field Sampling

a. General Information

All cuttings shall be returned to their corresponding boreholes or properly disposed. Soil samples shall be obtained in an undisturbed state as possible using hand auger, direct push, or hollow stem auger. Please refer to the US EPA SW-846 Test Methods for Evaluating Solid Wastes, Physical & Chemical Methods, Chapter Two, Choosing the Correct Method. The Chain-of-Custody documents shall be properly and legibly filled out with all the required information. All signatures shall be identified with printed names.

b. Sample Locations, Depths, and Collection

As per approved workplan.

c. Underground Services Alert (USA)

The consultant shall obtain an inquiry identification number from USA prior to start of work. Identification number documentation shall be provided to the Department Contract Manager. In Southern California, the Consultant should call 1-800-422-4133. The USA should respond within 48 hours.

d. Hand Auger/Direct Push/ Hollow Stem Auger

Hand Auger, Direct Push, and/or Hollow Stem Auger can be used to collect soil samples and groundwater samples. After samples are collected, label glass jar with boring number, EA number, and sample depth. Record sample identification, time, date of sample collection, matrix type, turn-around-time, container type and other information required in the chain-of-custody. Store soil samples into a cooler to transport it to an Environmental Laboratory Accreditation Program (ELAP) certified laboratory within 24 hours.

e. Decontamination

A clean and decontaminated sampler (e.g., hand auger, split-spoon samplers, etc.) shall be used for each boring location. All sampling equipments shall be properly decontaminated between borings to prevent introduction of any foreign materials and cross contamination.

f. Investigative Derived Wastes (IDW)

Disposable equipment/items such as pans, gloves, pails shall be disposed accordingly. The IDW is not considered hazardous and can be disposed of at a permitted disposal facility. Any disposable equipment/item that is to be disposed of, which can still be re-used will be rendered inoperable prior to disposal in the refuse facility.

2. GPS Data Collection

- a. The location of all borings shall be recorded in the field, using the Department's GPS NAD83 datum. The Consultant will be provided an electronic Microsoft Access 2000

database file to record all investigative data for each boring, sample, and test performed. GPS data shall be recorded in accordance with the allowable format and tolerances required in the Caltrans Surveys Manual. All borings specified in this TO shall be identified by a pre-assigned unique identification number system as described below.

b. Borehole (or Boring) Naming Convention

Boreholes (or borings) shall bear names consisting of a 3-digit unique ID assigned by Caltrans, followed by a dash and the sequential boring number beginning with "101." (Example: for a set of boreholes where the assigned Unique ID is 1001, the borehole names would be 1001-101, 1001-102, 1001-103, etc.)

c. Sample Naming Convention

A sample shall bear the name of the borehole from which it was derived, followed by a dash and the depth of the sample in meters. (In the example above samples taken from borehole 1001-101 at 1.0 foot, 2.0 feet, and 3.0 feet would be named 1001-101-1, 1001-101-2, and 1001-101-3 respectively.)

d. The Unique ID number for this project is as follows:

EA number: <i>2332A1</i>	Unique ID: <i>1092</i>
--------------------------	------------------------

e. The sample data and analytical results shall be recorded in the appropriate tables. Note that the database tables are related such that the borehole data record must be created first followed by sample data records, and finally the analytical result records.

f. GPS data shall be collected at the completion of each borehole sample.

g. The Consultant shall submit the database file in conjunction with the draft SI report submittal. Completion of the data entry into the database is not a substitution for a complete written report. The Consultant must ensure that the information in the final SI report is consistent with the data recorded in the Database. Final electronic file of the GIS database shall be submitted in conjunction with the submittal of an electronic file of the final SI Report.

3. Laboratory Analysis

a. Soil Samples for ADL Concern

i. Soil samples shall be *homogenized* and analyzed for total lead, Total Threshold Limit Concentration (TTLC), using EPA Method 6010 series. EPA Method 6010 can be replaced with EPA Method 7000; however, the Contractor has to obtain prior approval from the Contract Manager. When the total lead level is less than 1000 mg/kg, but greater than or equal to 50 mg/kg, the laboratory shall proceed with soluble lead test, Soluble Threshold Limit Concentration (STLC), by the California Waste Extraction Test (WET) using Citrate Acid as the extractant. A minimum of four (4) or 50 percent of the total number of soil samples having the highest TTLC shall be tested

for STLC. When the STLC is greater than 5.0 mg/l, the laboratory shall proceed with the soluble lead test by WET using de-ionized water (Di-WET) as the extractant.

ii. A minimum of four (4) or 30 percent of the total number of soil samples shall be tested for soluble lead using Toxicity Characteristic Leaching Procedure (TCLP), by EPA Method 1311. The TCLP shall be performed on all samples with 1,000 mg/kg or higher and the sample with the highest total lead concentration.

iii. A minimum of two (2) or 10 percent of the total number of soil samples shall be tested for pH using EPA Method 9045. The samples for pH testing shall be selected from those samples exhibiting the highest total lead test results.

b. Soil Samples for TPHs Concern

Soil samples will be analyzed for the TPH carbon chain ID by EPA method 8015.

c. Soil Samples adjacent to oil pipeline area

Soil samples shall be analyzed for the potential of hazardous waste concerns related to oil.

d. Groundwater Samples for NPDES Permit

Groundwater samples shall be analyzed for the constituents required by the RWQCB for a Construction Dewatering Permit, the purpose of which is to dispose of excess construction water during construction. It is the Consultant's responsibility to ensure that the laboratory selected for testing the water samples is capable of meeting the RWQCB's reporting limits.

e. The laboratory limit on the analysis should be reported as Method Detection Limit (MDL) and as Practical Quantitation Limit (PQL).

f. Please use 5-day or quicker turnaround time for testing all samples depending on test methods.

g. Quality Control and Quality Assurance (QA/QC)

i. Field Quality Assurance/Quality Control (QA/QC)

The work plan shall outline the detail field QA/QC procedures for soil and groundwater sampling. One equipment rinse shall be collected for every chain-of-custody as field QA/QC. Equipment rinse shall be collected by passing de-ionized water in equipment sampler and collected in a laboratory container.

ii. Laboratory Quality Assurance/Quality Control (QA/QC)

The work plan shall outline the detail laboratory QA/QC procedures for soil and groundwater samples. The Contractor shall be responsible for ensuring the laboratory fulfills QA/QC requirements of this TO per contract 07A2729. No extra cost shall be paid for laboratory QA/QC samples. Laboratory QA/QC is included in all bid prices for laboratory items. The Laboratory report shall include a holding timetable with the sample collection date, the sample received date at the laboratory, and the sample extracted and analyzed dates.

III. Reports and/or Meetings

A. Task Order Meeting

The Consultant and Department staff shall meet as often as necessary to ensure that both parties share a common understanding of the TO objectives. Upon executing this TO, the following meetings may be required:

1. An initial TO meeting (when requested) shall be attended by the Consultant's project manager and a registered professional who are responsible for the implementation of this TO. The Consultant prepared work plan shall also be discussed during meeting.
2. Site investigation findings review meeting and final report discussion meeting shall be conducted, if necessary.

B. Deliverables Reports

1. A draft workplan including the boring location plan (BLP) shall be submitted for the Departments' review. Upon approval, two (2) copies of the final workplan for incorporating the Departments' comments shall be submitted. The final workplan shall be available at all times during the fieldwork performed for site investigation.
2. Copy of a Draft H&SP shall be submitted for Departments' review. Upon approval, two (2) copies of the final H&SP, incorporating the Departments' comments shall be submitted. The final H&SP shall be available at all times during the fieldwork performed for the site investigation.
3. Two (2) copies of Draft SI Report shall be submitted to the Department for review and comment. The Draft SI Report shall include all figures, data tables, location maps, conclusions, and laboratory analytical results on soil and groundwater samples. The consultant shall also provide recommendation of soil management alternatives or disposal in accordance with the Health and Safety Code. An incomplete Draft SI Report will NOT be reviewed until Department receives a report deemed appropriate and complete. The GIS Data shall be incorporated in the draft report and the MS Access database file shall be submitted for review as well. The Consultant shall incorporate the Department's comments for subsequent review prior to finalize the report. The report shall be prepared according to the requirements of contract 07A2729.
4. The Consultant shall submit five (5) copies of the final report and one (1) electronic copy of the report. The electronic copy shall bear the registration, seal, and signature as shown in hard copies. The Final Report in its entirety shall be submitted in an electronic format. Text and figures shall be in PDF format including the GIS Spreadsheet results. The final electronic file shall include all appropriate documents presented in the "hard copy," including signature and engineering seal.

IV. Period of Performance

Work under this TO shall begin on March 23, 2010 and completed on June 30, 2010.

V. Task Schedule

Department/ Geocon agree on TO	March 23, 2010
Geocon performs site reconnaissance & mark borings	March 25, 2010
Geocon submits draft workplan and H&SP	April 02, 2010
Department reviews and comments on draft wokplan and H&SP	April 08, 2010
Geocon submits final workplan and H&SP	April 14, 2010
Field sampling	April 19-23, 2010
Preliminary data	May 07, 2010
Geocon submits draft SI report	May 14, 2010
Department reviews and comments on draft report	May 21, 2010
Geocon submits final SI report	May 28, 2010

VI. Cost

The Consultant will be reimbursed for hours worked in accordance with the cost estimate provided in the approved final work plan for this TO 1, Contract No. 07A2729. The Consultant's billing will reference all hours worked to the Departments' WBS. In addition, the Consultant will be reimbursed for direct cost, other than salary costs, that are identified in the approved cost estimate. The total amount payable by the State under this TO 1 shall not exceed the amount of \$ 26,971.46

VII. Task Order Manager

The Project Coordinator from the Department for this TO will be

Jack Liu, Transportation Engineer
Caltrans 07, Office of Environmental Engineering & Corridor Studies
100 South Main Street, 12-267
Los Angeles, CA 90012
Tel.: (213) 897-1350; Fax: (213) 897-1634
E-Mail: Tuanchi_Liu@dot.ca.gov

VIII. Geocon Contract Manager

The Contract Manager for Geocon shall be

Michael Conkle
3303 N. San Fernando Blvd., Suite #100, Burbank, CA 91504
Tel: (818) 841-8388; Fax: (818) 841-1704
E-mail: conkle@geoconinc.com

IX. Signatures

I certify that this Task Order and attachments comply with the provisions of Agreement No. 07A2729, and are necessary for the satisfactory completion of the product(s) contracted for, and that sufficient funding has been encumbered to pay for this work.

Ayubur Rahman
AYUBUR RAHMAN, P.E., Branch Chief
DEPARTMENT CONTRACT MANAGER

3/23/10
DATE

I certify that this Task Order and any Attachments are within the scope of the project and are necessary for the successful completion of the project.

Jack Liu
Jack Liu, P.E.
DEPARTMENT TASK ORDER MANAGER

March 23, 2010
DATE

I, Sam Alameddine, certify by signing below that I have read the "Description of Services" for this Agreement and in my expert opinion:

1. The work described in this Task Order is included in the required services and
2. The work described in this Task Order is an Architectural and Engineering (A&E) service, as defined in Government Code 4525 (d) through (f).

IN WITNESS WHEREOF, this Task Order has been executed under the provisions of Agreement No. 07A2729 between the State of California, Department of Transportation, and Geocon Consultants, Inc. By the signatures below, the parties hereto agree that all terms and conditions of this Task Order 07A2729-01 and Agreement No. 07A2729 shall be in full force and effect.

**STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION**

Geocon Consultants, Inc.

By Sam Alameddine
Sam Alameddine, P.E.
Title: OFFICE CHIEF
Office of Env. Engineering and Corridor Study

By Michael Conkle
Michael Conkle
Title: Project Manager

Date 3/23/10

Date 3/24/10

APPENDIX

B

May 13, 2010



Mike Conkle
Geocon Consultants, Inc.
3303 N. San Fernando Blvd., Suite 100
Burbank, CA 91504
TEL: (818) 841-8388
FAX: (818) 841-1704

ELAP No.: 1838
NELAP No.: 02107CA
NEVADA.: CA-401
CSDLAC No.: 10196

Workorder No.: 111546

RE: Caltrans TO #1, S9475-06-01

Attention: Mike Conkle

Enclosed are the results for sample(s) received on April 30, 2010 by Advanced Technology Laboratories. 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 (562)989-4045 if I can be of further assistance to your company.

Sincerely,

A handwritten signature in black ink, appearing to read "Eddie F. Rodriguez".

Eddie F. Rodriguez
Laboratory Director

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



*Advanced Technology
Laboratories*

1 of 10
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: Geocon Consultants, Inc.
Project: Caltrans TO #1, S9475-06-01
Lab Order: 111546

CASE NARRATIVE

Analytical Comments for Method 6010

RPD for Duplicate (DUP) is outside criteria for sample 111546-023ADUP; however, the Laboratory Control Sample (LCS) validated the analytical batch.

Analytical Comments for Method 7420

Dilution was necessary for sample 111546-004A, due to sample matrix.



LEAD BY ICP
EPA 6010B

ANALYTICAL RESULTS

CLIENT:	Geocon Consultants, Inc.	Lab Order:	111546
Project:	Caltrans TO #1, S9475-06-01	Date Received:	4/30/2010 6:45:00 PM
Project No:		Matrix:	Soil
Analyte:	Lead	Analyst:	SRB

Laboratory ID	Client Sample ID	Results	Units	QC Batch	PQL	DF	Date Collected	Date Analyzed
111546-001A	1092-101-0-0.5	17	mg/Kg	63877	5.0	1	4/30/2010	5/6/2010
111546-002A	1092-101-1.5-2.0	ND	mg/Kg	63877	5.0	1	4/30/2010	5/6/2010
111546-003A	1092-102-0-0.5	32	mg/Kg	63877	5.0	1	4/30/2010	5/6/2010
111546-004A	1092-102-1.5-2.0	160	mg/Kg	63877	5.0	1	4/30/2010	5/6/2010
111546-005A	1092-103-0-0.5	14	mg/Kg	63877	5.0	1	4/30/2010	5/6/2010
111546-006A	1092-103-1.5-2.0	ND	mg/Kg	63877	5.0	1	4/30/2010	5/6/2010
111546-007A	1092-104-0-0.5	32	mg/Kg	63877	5.0	1	4/30/2010	5/6/2010
111546-008A	1092-104-1.5-2.0	5.6	mg/Kg	63877	5.0	1	4/30/2010	5/6/2010
111546-009A	1092-105-0-0.5	13	mg/Kg	63877	5.0	1	4/30/2010	5/6/2010
111546-010A	1092-105-1.5-2.0	ND	mg/Kg	63877	5.0	1	4/30/2010	5/6/2010
111546-011A	1092-106-0-0.5	28	mg/Kg	63877	5.0	1	4/30/2010	5/6/2010
111546-012A	1092-106-1.5-2.0	ND	mg/Kg	63877	5.0	1	4/30/2010	5/6/2010
111546-013A	1092-107-0-0.5	66	mg/Kg	63877	5.0	1	4/30/2010	5/6/2010
111546-014A	1092-107-1.5-2.0	12	mg/Kg	63877	5.0	1	4/30/2010	5/6/2010
111546-015A	1092-108-0-0.5	6.2	mg/Kg	63877	5.0	1	4/30/2010	5/6/2010
111546-016A	1092-108-1.5-2.0	ND	mg/Kg	63877	5.0	1	4/30/2010	5/6/2010
111546-017A	1092-109-0-0.5	30	mg/Kg	63877	5.0	1	4/30/2010	5/6/2010
111546-018A	1092-109-1.5-2.0	ND	mg/Kg	63877	5.0	1	4/30/2010	5/6/2010

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

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562.989.4045 Fax: 562.989.4040

LEAD BY ICP
EPA 6010B

ANALYTICAL RESULTS

CLIENT:	Geocon Consultants, Inc.	Lab Order:	111546
Project:	Caltrans TO #1, S9475-06-01	Date Received	4/30/2010 6:45:00 PM
Project No:		Matrix:	Soil
Analyte:	Lead	Analyst:	SRB

Laboratory ID	Client Sample ID	Results	Units	QC Batch	PQL	DF	Date Collected	Date Analyzed
111546-019A	1092-110-0-0.5	65	mg/Kg	63877	5.0	1	4/30/2010	5/6/2010
111546-020A	1092-110-1.5-2.0	ND	mg/Kg	63877	5.0	1	4/30/2010	5/6/2010
111546-021A	1092-111-0-0.5	30	mg/Kg	63946	5.0	1	4/30/2010	5/6/2010
111546-022A	1092-112-0-0.5	94	mg/Kg	63946	5.0	1	4/30/2010	5/6/2010
111546-023A	1092-112-1.5-2.0	66	mg/Kg	63946	5.0	1	4/30/2010	5/6/2010

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

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562.989.4045 Fax: 562.989.4040

LEAD BY ATOMIC ABSORPTION (STLC)
WET/ EPA 7420

ANALYTICAL RESULTS

CLIENT:	Geocon Consultants, Inc.	Lab Order:	111546
Project:	Caltrans TO #1, S9475-06-01	Date Received:	4/30/2010 6:45:00 PM
Project No:		Matrix:	Soil
Analyte:	Lead	Analyst:	IL

Laboratory ID	Client Sample ID	Results	Units	QC Batch	PQL	DF	Date Collected	Date Analyzed
111546-004A	1092-102-1.5-2.0	9.7	mg/L	63987	0.50	2	4/30/2010	5/12/2010
111546-013A	1092-107-0-0.5	4.0	mg/L	63987	0.25	1	4/30/2010	5/12/2010
111546-019A	1092-110-0-0.5	6.8	mg/L	63987	0.25	1	4/30/2010	5/12/2010
111546-022A	1092-112-0-0.5	7.9	mg/L	63987	0.25	1	4/30/2010	5/12/2010
111546-023A	1092-112-1.5-2.0	2.4	mg/L	63987	0.25	1	4/30/2010	5/12/2010

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

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562.989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
 Work Order: 111546
 Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPB

Sample ID: MB-63877A	SampType: MBLK	TestCode: 6010_SPB	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120938						
Client ID: PBS	Batch ID: 63877	TestNo: EPA 6010B	EPA 3050M	Analysis Date: 5/6/2010	SeqNo: 1930943						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	5.0									

Sample ID: LCS-63877	SampType: LCS	TestCode: 6010_SPB	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120938						
Client ID: LCSS	Batch ID: 63877	TestNo: EPA 6010B	EPA 3050M	Analysis Date: 5/6/2010	SeqNo: 1930944						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	259.012	5.0	250.0	0	104	80	120				

Sample ID: 111546-010A-DUP	SampType: DUP	TestCode: 6010_SPB	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120938						
Client ID: 1092-105-1.5-2.0	Batch ID: 63877	TestNo: EPA 6010B	EPA 3050M	Analysis Date: 5/6/2010	SeqNo: 1930955						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	5.085	5.0						4.521	11.7	20	

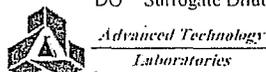
Sample ID: 111546-010A-MS	SampType: MS	TestCode: 6010_SPB	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120938						
Client ID: 1092-105-1.5-2.0	Batch ID: 63877	TestNo: EPA 6010B	EPA 3050M	Analysis Date: 5/6/2010	SeqNo: 1930956						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	91.697	5.0	250.0	4.521	34.9	34	126				

Sample ID: MB-63877B	SampType: MBLK	TestCode: 6010_SPB	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120938						
Client ID: PBS	Batch ID: 63877	TestNo: EPA 6010B	EPA 3050M	Analysis Date: 5/6/2010	SeqNo: 1930957						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	5.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- II 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



CLIENT: Geocon Consultants, Inc.
 Work Order: 111546
 Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPB

Sample ID: 111546-020A-DUP	SampType: DUP	TestCode: 6010_SPB	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120938						
Client ID: 1092-110-1.5-2.0	Batch ID: 63877	TestNo: EPA 6010B	EPA 3050M	Analysis Date: 5/6/2010	SeqNo: 1930968						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 2.536 5.0 3.118 0 20

Sample ID: 111546-020A-MS	SampType: MS	TestCode: 6010_SPB	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120938						
Client ID: 1092-110-1.5-2.0	Batch ID: 63877	TestNo: EPA 6010B	EPA 3050M	Analysis Date: 5/6/2010	SeqNo: 1930969						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 171.968 5.0 250.0 3.118 67.5 34 126

Sample ID: 111546-020A-MSD	SampType: MSD	TestCode: 6010_SPB	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120938						
Client ID: 1092-110-1.5-2.0	Batch ID: 63877	TestNo: EPA 6010B	EPA 3050M	Analysis Date: 5/6/2010	SeqNo: 1930970						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 186.394 5.0 250.0 3.118 73.3 34 126 172.0 8.05 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
- II Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference



Advanced Technology
Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562.989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
 Work Order: 111546
 Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPB

Sample ID: MB-63946A	SampType: MBLK	TestCode: 6010_SPB	Units: mg/Kg	Prep Date: 5/6/2010	RunNo: 120948						
Client ID: PBS	Batch ID: 63946	TestNo: EPA 6010B	EPA 3050M	Analysis Date: 5/6/2010	SeqNo: 1931212						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 5.0

Sample ID: LCS-63946	SampType: LCS	TestCode: 6010_SPB	Units: mg/Kg	Prep Date: 5/6/2010	RunNo: 120948						
Client ID: LCSS	Batch ID: 63946	TestNo: EPA 6010B	EPA 3050M	Analysis Date: 5/6/2010	SeqNo: 1931213						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 271.076 5.0 250.0 0 108 80 120

Sample ID: 111546-023A-DUP	SampType: DUP	TestCode: 6010_SPB	Units: mg/Kg	Prep Date: 5/6/2010	RunNo: 120948						
Client ID: 1092-112-1.5-2.0	Batch ID: 63946	TestNo: EPA 6010B	EPA 3050M	Analysis Date: 5/6/2010	SeqNo: 1931217						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 37.830 5.0 66.38 54.8 20 R

Sample ID: 111546-023A-MS	SampType: MS	TestCode: 6010_SPB	Units: mg/Kg	Prep Date: 5/6/2010	RunNo: 120948						
Client ID: 1092-112-1.5-2.0	Batch ID: 63946	TestNo: EPA 6010B	EPA 3050M	Analysis Date: 5/6/2010	SeqNo: 1931218						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

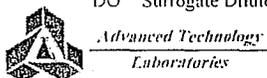
Lead 262.883 5.0 250.0 66.38 78.6 34 126

Sample ID: 111546-023A-MSD	SampType: MSD	TestCode: 6010_SPB	Units: mg/Kg	Prep Date: 5/6/2010	RunNo: 120948						
Client ID: 1092-112-1.5-2.0	Batch ID: 63946	TestNo: EPA 6010B	EPA 3050M	Analysis Date: 5/6/2010	SeqNo: 1931219						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 271.753 5.0 250.0 66.38 82.1 34 126 262.9 3.32 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

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562.989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
 Work Order: 111546
 Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420_ST

Sample ID: MB-63987A	SampType: MBLK	TestCode: 7420_ST	Units: mg/L	Prep Date: 5/10/2010	RunNo: 121094						
Client ID: PBS	Batch ID: 63987	TestNo: WET/ EPA 74 WET		Analysis Date: 5/12/2010	SeqNo: 1933971						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 0.25

Sample ID: LCS-63987	SampType: LCS	TestCode: 7420_ST	Units: mg/L	Prep Date: 5/10/2010	RunNo: 121094						
Client ID: LCSS	Batch ID: 63987	TestNo: WET/ EPA 74 WET		Analysis Date: 5/12/2010	SeqNo: 1933972						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 4.896 0.25 5.000 0 97.9 80 120

Sample ID: 111546-004A-DUP	SampType: DUP	TestCode: 7420_ST	Units: mg/L	Prep Date: 5/10/2010	RunNo: 121094						
Client ID: 1092-102-1.5-2.0	Batch ID: 63987	TestNo: WET/ EPA 74 WET		Analysis Date: 5/12/2010	SeqNo: 1933983						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 9.837 0.50 9.689 1.52 20

Sample ID: 111546-004A-MS	SampType: MS	TestCode: 7420_ST	Units: mg/L	Prep Date: 5/10/2010	RunNo: 121094						
Client ID: 1092-102-1.5-2.0	Batch ID: 63987	TestNo: WET/ EPA 74 WET		Analysis Date: 5/12/2010	SeqNo: 1933984						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

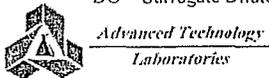
Lead 15.185 0.50 5.000 9.689 110 80 120

Sample ID: MB-63987B	SampType: MBLK	TestCode: 7420_ST	Units: mg/L	Prep Date: 5/10/2010	RunNo: 121094						
Client ID: PBS	Batch ID: 63987	TestNo: WET/ EPA 74 WET		Analysis Date: 5/12/2010	SeqNo: 1933985						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 0.25

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | II 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 | |



CLIENT: Geocon Consultants, Inc.
 Work Order: 111546
 Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420_ST

Sample ID: 111546-023A-DUP	SampType: DUP	TestCode: 7420_ST	Units: mg/L	Prep Date: 5/10/2010	RunNo: 121094						
Client ID: 1092-112-1.5-2.0	Batch ID: 63987	TestNo: WET/ EPA 74 WET		Analysis Date: 5/12/2010	SeqNo: 1933990						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead	2.439	0.25				2.446	0.277	20
------	-------	------	--	--	--	-------	-------	----

Sample ID: 111546-023A-MS	SampType: MS	TestCode: 7420_ST	Units: mg/L	Prep Date: 5/10/2010	RunNo: 121094						
Client ID: 1092-112-1.5-2.0	Batch ID: 63987	TestNo: WET/ EPA 74 WET		Analysis Date: 5/12/2010	SeqNo: 1933991						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead	7.221	0.25	5.000	2.446	95.5	80	120	
------	-------	------	-------	-------	------	----	-----	--

Sample ID: 111546-023A-MSD	SampType: MSD	TestCode: 7420_ST	Units: mg/L	Prep Date: 5/10/2010	RunNo: 121094						
Client ID: 1092-112-1.5-2.0	Batch ID: 63987	TestNo: WET/ EPA 74 WET		Analysis Date: 5/12/2010	SeqNo: 1933992						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead	7.290	0.25	5.000	2.446	96.9	80	120	7.221	0.959	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*

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562.989.4045 Fax: 562.989.4040

CHAIN OF CUSTODY RECORD

 <p>Advanced Technology Laboratories</p> <p>3275 Walnut Avenue Signal Hill, CA 90755 Tel: (562) 989-4045 • Fax: (562) 989-4040</p>		FOR LABORATORY USE ONLY											
		Method of Transport Client <input type="checkbox"/> ATL <input type="checkbox"/> CA OverN <input type="checkbox"/> FedEx <input type="checkbox"/> Other: _____		Sample Condition Upon Receipt 1. CHILLED Y <input type="checkbox"/> N <input type="checkbox"/> 4. SEALED Y <input type="checkbox"/> N <input type="checkbox"/> 2. HEADSPACE (VOA) Y <input type="checkbox"/> N <input type="checkbox"/> 5. # OF SPLS MATCH COC Y <input type="checkbox"/> N <input type="checkbox"/> 3. CONTAINER INTACT Y <input type="checkbox"/> N <input type="checkbox"/> 6. PRESERVED Y <input type="checkbox"/> N <input type="checkbox"/>									
P.O. #: _____ Logged By: _____ Date: _____		Address: 3303 N. SAN FERNANDO BLVD., SUITE 100 City: BURBANK State: CA Zip Code: 91504				Tel: 818-841-8388 Fax: 818-841-1704							
Client: GEOCON Attention: MIKE CONKLE		Project Name: Caltrans TO #1 Project #: S9475-06-01 Sampler: MIKE CONKLE (Signature)											
Relinquished by: (Signature and Printed Name) <i>[Signature]</i> Date: 4/30/10 Time: 1710		Received by: (Signature and Printed Name) <i>[Signature]</i> Date: 4/30/10 Time: 1710											
Relinquished by: (Signature and Printed Name) <i>[Signature]</i> Date: 4/30/10 Time: 1545		Received by: (Signature and Printed Name) <i>[Signature]</i> Date: 4/30/10 Time: 1545											
Relinquished by: (Signature and Printed Name) _____ Date: _____ Time: _____		Received by: (Signature and Printed Name) _____ Date: _____ Time: _____											
I hereby authorize ATL to perform the work indicated below: Project Mgr /Submitter: Mike Conkle <i>[Signature]</i> Date: 4/30/10		Send Report To: Attn: _____ Co: _____ Addr: _____ City: _____ State: _____ Zip: _____		Bill To: Attn: _____ Co: _____ Addr: _____ City: _____ State: _____ Zip: _____		Special Instructions/Comments: CALTRANS CONTRACT 07A2729 Run soluble Lead (STLC) by WET on all samples with Total Lead concentrations equal to or greater than 50 mg/kg.							
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 /ATL workorder /mo (after 1 year)		Circle or Add Analysis(es) Requested TOTAL LEAD _____ SOIL _____ WATER _____ GROUND WATER _____ WASTEWATER _____		SPECIFY APPROPRIATE MATRIX TAT # Type _____ # _____		PRESERVATION QA/QC RTNE <input type="checkbox"/> CT <input type="checkbox"/> SWRCB <input type="checkbox"/> Logcode: _____ OTHER _____ REMARKS							
LAB USE ONLY: Batch #: _____ Lab No. _____		Sample Description Sample ID / Location Date Time		TAT # Type									
111546-21 1092-111-0-0.5 4/30/10 1335 X		22 1092-112-0-0.5 4/30/10 1405 X		23 1092-112-1.5-2.0 4/30/10 1415 X		E 1 J 6 E 1 J 6 E 1 J 6							
■ TAT starts 8AM the following day if samples received after 3 PM		TAT: <input type="checkbox"/> A = Overnight ≤ 24 hrs <input type="checkbox"/> B = Emergency Next Workday <input type="checkbox"/> C = Critical 2 Workdays <input type="checkbox"/> D = Urgent 3 Workdays <input type="checkbox"/> E = Routine 7 Workdays		Preservatives: H=HCl N=HNO ₃ S=H ₂ SO ₄ C=4°C Z=Zn(AC) ₂ O=NaOH T=Na ₂ S ₂ O ₃									
Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Tedlar G=Glass P=Plastic M=Metal													

May 20, 2010



Mike Conkle
Geocon Consultants, Inc.
3303 N. San Fernando Blvd., Suite 100
Burbank, CA 91504

ELAP No.: 1838
NELAP No.: 02107CA
NEVADA.: CA-401
CSDLAC No.: 10196

TEL: (818) 841-8388
FAX: (818) 841-1704

Workorder No.: 111546

RE: Caltrans TO #1, S9475-06-01

Attention: Mike Conkle

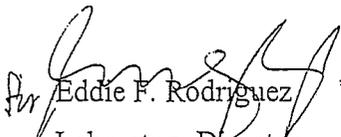
Enclosed are the results for sample(s) received on April 30, 2010 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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 (562)989-4045 if I can be of further assistance to your company.

Sincerely,


Eddie F. Rodriguez
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.



LEAD BY ATOMIC ABSORPTION (TCLP)
EPA 1311/ 7420

ANALYTICAL RESULTS

CLIENT:	Geocon Consultants, Inc.	Lab Order:	111546
Project:	Caltrans TO #1, S9475-06-01	Date Received	4/30/2010 6:45:00 PM
Project No:		Matrix:	Soil
Analyte:	Lead	Analyst:	IL

Laboratory ID	Client Sample ID	Results	Units	QC Batch	PQL	DF	Date Collected	Date Analyzed
111546-004A	1092-102-1.5-2.0	0.31	mg/L	64140	0.25	1	4/30/2010	5/17/2010
111546-013A	1092-107-0-0.5	ND	mg/L	64140	0.25	1	4/30/2010	5/17/2010
111546-023A	1092-112-1.5-2.0	ND	mg/L	64140	0.25	1	4/30/2010	5/17/2010

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		



ANALYTICAL RESULTS

pH
EPA 9045C

CLIENT:	Geocon Consultants, Inc.	Lab Order:	111546
Project:	Caltrans TO #1, S9475-06-01	Date Received	4/30/2010 6:45:00 PM
Project No:		Matrix:	Soil
Analyte:	pH	Analyst:	CBB

Laboratory ID	Client Sample ID	Results	Units	QC Batch	PQL	DF	Date Collected	Date Analyzed
111546-004A	1092-102-1.5-2.0	5.3	pH Units	R121324	0.10	1	4/30/2010	5/19/2010
111546-013A	1092-107-0-0.5	6.1	pH Units	R121324	0.10	1	4/30/2010	5/19/2010
111546-023A	1092-112-1.5-2.0	8.5	pH Units	R121324	0.10	1	4/30/2010	5/19/2010

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

3275 Walnut Avenue

Signal Hill, CA 90755

Tel: 562 989-4045

Fax: 562 989-4040

Advanced Technology Laboratories

Date: 20-May-10

CLIENT: Geocon Consultants, Inc.
Work Order: 111546
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420_TC

Sample ID: MB-64140	SampType: MBLK	TestCode: 7420_TC	Units: mg/L	Prep Date: 5/15/2010	RunNo: 121214						
Client ID: PBS	Batch ID: 64140	TestNo: EPA 1311/ 74 EPA3010A		Analysis Date: 5/17/2010	SeqNo: 1936283						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: MB-64134A TCLP	SampType: MBLK	TestCode: 7420_TC	Units: mg/L	Prep Date: 5/15/2010	RunNo: 121214						
Client ID: PBS	Batch ID: 64140	TestNo: EPA 1311/ 74 EPA3010A		Analysis Date: 5/17/2010	SeqNo: 1936284						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: LCS-64140	SampType: LCS	TestCode: 7420_TC	Units: mg/L	Prep Date: 5/15/2010	RunNo: 121214						
Client ID: LCSS	Batch ID: 64140	TestNo: EPA 1311/ 74 EPA3010A		Analysis Date: 5/17/2010	SeqNo: 1936285						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.916	0.25	1.000	0	91.6	80	120				

Sample ID: 111546-023A-DUP	SampType: DUP	TestCode: 7420_TC	Units: mg/L	Prep Date: 5/15/2010	RunNo: 121214						
Client ID: 1092-112-1.5-2.0	Batch ID: 64140	TestNo: EPA 1311/ 74 EPA3010A		Analysis Date: 5/17/2010	SeqNo: 1936289						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25						0	0	20	

Sample ID: 111546-023A-MS	SampType: MS	TestCode: 7420_TC	Units: mg/L	Prep Date: 5/15/2010	RunNo: 121214						
Client ID: 1092-112-1.5-2.0	Batch ID: 64140	TestNo: EPA 1311/ 74 EPA3010A		Analysis Date: 5/17/2010	SeqNo: 1936290						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.522	0.25	2.500	0	101	70	130				

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

3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: Geocon Consultants, Inc.
Work Order: 111546
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420_TC

Sample ID: 111546-023A-MSD	SampType: MSD	TestCode: 7420_TC	Units: mg/L	Prep Date: 5/15/2010	RunNo: 121214						
Client ID: 1092-112-1.5-2.0	Batch ID: 64140	TestNo: EPA 1311/ 74 EPA3010A		Analysis Date: 5/17/2010	SeqNo: 1936291						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.527	0.25	2.500	0	101	70	130	2.522	0.186	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



Advanced Technology
Laboratories

3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: Geocon Consultants, Inc.
Work Order: 111546
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 9045 S

Sample ID: 111546-023ADUP	SampType: DUP	TestCode: 9045_S	Units: pH Units	Prep Date:	RunNo: 121324						
Client ID: 1092-112-1.5-2.0	Batch ID: R121324	TestNo: EPA 9045C		Analysis Date: 5/19/2010	SeqNo: 1938814						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.550	0.10						8.460	1.06	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 | | |

May 26, 2010



Mike Conkle
Geocon Consultants, Inc.
3303 N. San Fernando Blvd., Suite 100
Burbank, CA 91504

ELAP No.: 1838
NELAP No.: 02107CA
NEVADA.: CA-401

GSDLAC No.: 10196

TEL: (818) 841-8388
FAX: (818) 841-1704

Workorder No.: 111546

RE: Caltrans TO #1, S9475-06-01

Attention: Mike Conkle

Enclosed are the results for sample(s) received on April 30, 2010 by Advanced Technology Laboratories. 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 (562)989-4045 if I can be of further assistance to your company.

Sincerely,

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

Eddie F. Rodriguez
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.



ANALYTICAL RESULTS

**LEAD BY ATOMIC ABSORPTION
WET DI/ EPA 7420**

CLIENT:	Geocon Consultants, Inc.	Lab Order:	111546
Project:	Caltrans TO #1, S9475-06-01	Date Received:	4/30/2010 6:45:00 PM
Project No:		Matrix:	Soil
Analyte:	Lead	Analyst:	IL

Laboratory ID	Client Sample ID	Results	Units	QC Batch	PQL	DF	Date Collected	Date Analyzed
111546-004A	1092-102-1.5-2.0	ND	mg/L	64288	0.25	1	4/30/2010	5/26/2010
111546-019A	1092-110-0-0.5	ND	mg/L	64288	0.25	1	4/30/2010	5/26/2010
111546-022A	1092-112-0-0.5	0.28	mg/L	64288	0.25	1	4/30/2010	5/26/2010

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

Date: 26-May-10

CLIENT: Geocon Consultants, Inc.
Work Order: 111546
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420 DI_GEOCON

Sample ID	SampType	TestCode	Units	Prep Date	RunNo	Client ID	Batch ID	TestNo	Analysis Date	SeqNo	Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
MB-64288A	MBLK	7420_DI_GE	mg/L	5/24/2010	121489	PBS	64288	WET DI/ EPA WET	5/26/2010	1942086	Lead	ND	0.25											
LCS-64288	LCS	7420_DI_GE	mg/L	5/24/2010	121489	LCSS	64288	WET DI/ EPA WET	5/26/2010	1942087	Lead	5.084	0.25	5.000	0	102	80	120						
111546-022A-DUP	DUP	7420_DI_GE	mg/L	5/24/2010	121489	1092-112-0-0.5	64288	WET DI/ EPA WET	5/26/2010	1942091	Lead	0.253	0.25						0.2850	11.7	20			
111546-022A-MS	MS	7420_DI_GE	mg/L	5/24/2010	121489	1092-112-0-0.5	64288	WET DI/ EPA WET	5/26/2010	1942092	Lead	5.129	0.25	5.000	0.2850	96.9	70	130						
111546-022A-MSD	MSD	7420_DI_GE	mg/L	5/24/2010	121489	1092-112-0-0.5	64288	WET DI/ EPA WET	5/26/2010	1942093	Lead	5.173	0.25	5.000	0.2850	97.8	70	130	5.129	0.844	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

Diane Galvan

From: Mike Conkle [conkle@geoconinc.com]
Sent: Friday, May 21, 2010 10:20 AM
To: Diane Galvan
Subject: RE: Additional Results/EDD - Caltrans TO #1 (111546)

I'm sorry; I thought I sent that request to you. We need to run the 3 samples with WET results greater than or equal to 5.0 by DI-WET.

May 10, 2010



Mike Conkle
Geocon Consultants, Inc.
3303 N. San Fernando Blvd., Suite 100
Burbank, CA 91504

ELAP No.: 1838
NELAP No.: 02107CA
NEVADA.: CA-401
CSDLAC No.: 10196

TEL: (818) 841-8388
FAX: (818) 841-1704

Workorder No.: 111545

RE: Caltrans TO #1, S9475-06-01

Attention: Mike Conkle

Enclosed are the results for sample(s) received on April 30, 2010 by Advanced Technology Laboratories . 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 (562)989-4045 if I can be of further assistance to your company.

Sincerely,

Eddie F. Rodriguez
Laboratory Director

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



CLIENT: Geocon Consultants, Inc.
Project: Caltrans TO #1, S9475-06-01
Lab Order: 111545

CASE NARRATIVE

Analytical Comments for Method 6010

RPD for Duplicate (DUP) is outside criteria for sample 111545-017ADUP; however, the Laboratory Control Sample (LCS) validated the analytical batch.

Analytical Comments for Method 8015 (HCID)

Surrogate recovery biased high for samples 111545-001A, 111545-004A, 111545-009A, 111545-010A, 111545-011A, 111545-014A, 111545-015A and 111545-016A, possibly due to matrix interferences.



Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 10-May-10

CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	1092-301-5-6'
Lab Order:	111545	Collection Date:	4/30/2010 9:20:00 AM
Project:	Caltrans TO #1, S9475-06-01	Matrix:	SOIL
Lab ID:	111545-001A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

HYDROCARBON CHAIN IDENTIFICATION

LUFT

EPA 8015B(M)

RunID:	GC16_100505B	QC Batch:	63931	PrepDate:	5/5/2010	Analyst:	CBR
T/R Hydrocarbons:	C8-C10	ND	10	mg/Kg	1	5/5/2010	10:45 PM
T/R Hydrocarbons:	C10-C18	ND	10	mg/Kg	1	5/5/2010	10:45 PM
T/R Hydrocarbons:	C18-C28	ND	10	mg/Kg	1	5/5/2010	10:45 PM
T/R Hydrocarbons:	C28-C36	ND	10	mg/Kg	1	5/5/2010	10:45 PM
T/R Hydrocarbons:	C36-C40	ND	10	mg/Kg	1	5/5/2010	10:45 PM
T/R Hydrocarbons:	C8-C40 Total	ND	10	mg/Kg	1	5/5/2010	10:45 PM
Surr:	p-Terphenyl	158	63-152	S %REC	1	5/5/2010	10:45 PM

HYDROCARBON CHAIN IDENTIFICATION

EPA 8015B

RunID:	GC2_100503A	QC Batch:	E10VS112	PrepDate:		Analyst:	DDL
T/R Hydrocarbons:	C6-C12	ND	1.0	mg/Kg	1	5/3/2010	11:14 AM
Surr:	Bromofluorobenzene (FID)	110	56-137	%REC	1	5/3/2010	11:14 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		



Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 10-May-10

CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	1092-301-10-11'
Lab Order:	111545	Collection Date:	4/30/2010 9:30:00 AM
Project:	Caltrans TO #1, S9475-06-01	Matrix:	SOIL
Lab ID:	111545-002A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

HYDROCARBON CHAIN IDENTIFICATION

LUFT		EPA 8015B(M)				
RunID:	GC16_100505B	QC Batch:	63931	PrepDate:	5/5/2010	Analyst: CBR
T/R Hydrocarbons:	C8-C10	ND	10	mg/Kg	1	5/5/2010 10:55 PM
T/R Hydrocarbons:	C10-C18	ND	10	mg/Kg	1	5/5/2010 10:55 PM
T/R Hydrocarbons:	C18-C28	ND	10	mg/Kg	1	5/5/2010 10:55 PM
T/R Hydrocarbons:	C28-C36	ND	10	mg/Kg	1	5/5/2010 10:55 PM
T/R Hydrocarbons:	C36-C40	ND	10	mg/Kg	1	5/5/2010 10:55 PM
T/R Hydrocarbons:	C8-C40 Total	ND	10	mg/Kg	1	5/5/2010 10:55 PM
Surr:	p-Terphenyl	150	63-152	%REC	1	5/5/2010 10:55 PM

HYDROCARBON CHAIN IDENTIFICATION

		EPA 8015B				
RunID:	GC2_100503A	QC Batch:	E10VS112	PrepDate:		Analyst: DDL
T/R Hydrocarbons:	C6-C12	ND	1.0	mg/Kg	1	5/3/2010 11:28 AM
Surr:	Bromofluorobenzene (FID)	107	56-137	%REC	1	5/3/2010 11:28 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		



Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 10-May-10

CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	1092-301-15-16'
Lab Order:	111545	Collection Date:	4/30/2010 9:40:00 AM
Project:	Caltrans TO #1, S9475-06-01	Matrix:	SOIL
Lab ID:	111545-003A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

HYDROCARBON CHAIN IDENTIFICATION

LUFT

EPA 8015B(M)

RunID: GC16_100505B	QC Batch: 63931	PrepDate: 5/5/2010	Analyst: CBR		
T/R Hydrocarbons: C8-C10	ND	10	mg/Kg	1	5/5/2010 11:04 PM
T/R Hydrocarbons: C10-C18	ND	10	mg/Kg	1	5/5/2010 11:04 PM
T/R Hydrocarbons: C18-C28	ND	10	mg/Kg	1	5/5/2010 11:04 PM
T/R Hydrocarbons: C28-C36	ND	10	mg/Kg	1	5/5/2010 11:04 PM
T/R Hydrocarbons: C36-C40	ND	10	mg/Kg	1	5/5/2010 11:04 PM
T/R Hydrocarbons: C8-C40 Total	ND	10	mg/Kg	1	5/5/2010 11:04 PM
Surr: p-Terphenyl	136	63-152	%REC	1	5/5/2010 11:04 PM

HYDROCARBON CHAIN IDENTIFICATION

EPA 8015B

RunID: GC2_100503A	QC Batch: E10VS112	PrepDate:	Analyst: DDL		
T/R Hydrocarbons: C6-C12	ND	1.0	mg/Kg	1	5/3/2010 11:43 AM
Surr: Bromofluorobenzene (FID)	106	56-137	%REC	1	5/3/2010 11:43 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		



Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 10-May-10

CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	1092-301-20-21
Lab Order:	111545	Collection Date:	4/30/2010 9:50:00 AM
Project:	Caltrans TO #1, S9475-06-01	Matrix:	SOIL
Lab ID:	111545-004A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

HYDROCARBON CHAIN IDENTIFICATION

LUFT		EPA 8015B(M)				
RunID:	GC16_100505B	QC Batch:	63931	PrepDate:	5/5/2010	Analyst: CBR
T/R Hydrocarbons:	C8-C10	ND	10	mg/Kg	1	5/5/2010 11:13 PM
T/R Hydrocarbons:	C10-C18	ND	10	mg/Kg	1	5/5/2010 11:13 PM
T/R Hydrocarbons:	C18-C28	ND	10	mg/Kg	1	5/5/2010 11:13 PM
T/R Hydrocarbons:	C28-C36	ND	10	mg/Kg	1	5/5/2010 11:13 PM
T/R Hydrocarbons:	C36-C40	ND	10	mg/Kg	1	5/5/2010 11:13 PM
T/R Hydrocarbons:	C8-C40 Total	ND	10	mg/Kg	1	5/5/2010 11:13 PM
Surr:	p-Terphenyl	160	63-152	S %REC	1	5/5/2010 11:13 PM

HYDROCARBON CHAIN IDENTIFICATION

		EPA 8015B				
RunID:	GC2_100503A	QC Batch:	E10VS112	PrepDate:		Analyst: DDL
T/R Hydrocarbons:	C6-C12	ND	1.0	mg/Kg	1	5/3/2010 11:58 AM
Surr:	Bromofluorobenzene (FID)	116	56-137	%REC	1	5/3/2010 11:58 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.	Client Sample ID:	1092-302-5-6
Lab Order:	111545	Collection Date:	4/30/2010 11:02:00 AM
Project:	Caltrans TO #1, S9475-06-01	Matrix:	SOIL
Lab ID:	111545-005A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

HYDROCARBON CHAIN IDENTIFICATION

LUFT

EPA 8015B(M)

RunID:	GC16_100505B	QC Batch:	63931	PrepDate:	5/5/2010	Analyst:	CBR
T/R Hydrocarbons:	C8-C10	ND	10	mg/Kg	1	5/5/2010 11:22 PM	
T/R Hydrocarbons:	C10-C18	ND	10	mg/Kg	1	5/5/2010 11:22 PM	
T/R Hydrocarbons:	C18-C28	ND	10	mg/Kg	1	5/5/2010 11:22 PM	
T/R Hydrocarbons:	C28-C36	ND	10	mg/Kg	1	5/5/2010 11:22 PM	
T/R Hydrocarbons:	C36-C40	ND	10	mg/Kg	1	5/5/2010 11:22 PM	
T/R Hydrocarbons:	C8-C40 Total	ND	10	mg/Kg	1	5/5/2010 11:22 PM	
Surr:	p-Terphenyl	133	63-152	%REC	1	5/5/2010 11:22 PM	

HYDROCARBON CHAIN IDENTIFICATION

EPA 8015B

RunID:	GC2_100503A	QC Batch:	E10VS112	PrepDate:		Analyst:	DDL
T/R Hydrocarbons:	C6-C12	ND	1.0	mg/Kg	1	5/3/2010 12:12 PM	
Surr:	Bromofluorobenzene (FID)	108	56-137	%REC	1	5/3/2010 12:12 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

ANALYTICAL RESULTS

Print Date: 10-May-10

CLIENT: Geocon Consultants, Inc. Client Sample ID: 1092-302-10-11
 Lab Order: 111545 Collection Date: 4/30/2010 11:05:00 AM
 Project: Caltrans TO #1, S9475-06-01 Matrix: SOIL
 Lab ID: 111545-006A

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

HYDROCARBON-CHAIN IDENTIFICATION

LUFT

EPA 8015B(M)

RunID: GC16_100505B	QC Batch: 63931				PrepDate: 5/5/2010	Analyst: CBR
T/R Hydrocarbons: C8-C10	ND	10		mg/Kg	1	5/5/2010 11:31 PM
T/R Hydrocarbons: C10-C18	ND	10		mg/Kg	1	5/5/2010 11:31 PM
T/R Hydrocarbons: C18-C28	ND	10		mg/Kg	1	5/5/2010 11:31 PM
T/R Hydrocarbons: C28-C36	ND	10		mg/Kg	1	5/5/2010 11:31 PM
T/R Hydrocarbons: C36-C40	ND	10		mg/Kg	1	5/5/2010 11:31 PM
T/R Hydrocarbons: C8-C40 Total	ND	10		mg/Kg	1	5/5/2010 11:31 PM
Surr: p-Terphenyl	134	63-152		%REC	1	5/5/2010 11:31 PM

HYDROCARBON CHAIN IDENTIFICATION

EPA 8015B

RunID: GC2_100503A	QC Batch: E10VS112				PrepDate:	Analyst: DDL
T/R Hydrocarbons: C6-C12	ND	1.0		mg/Kg	1	5/3/2010 12:27 PM
Surr: Bromofluorobenzene (FID)	109	56-137		%REC	1	5/3/2010 12:27 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.	Client Sample ID:	1092-302-15-16
Lab Order:	111545	Collection Date:	4/30/2010 11:10:00 AM
Project:	Caltrans TO #1, S9475-06-01	Matrix:	SOIL
Lab ID:	111545-007A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

HYDROCARBON-CHAIN IDENTIFICATION

LUFT

EPA 8015B(M)

RunID:	GC16_100505B	QC Batch:	63931	PrepDate:	5/5/2010	Analyst:	CBR
T/R Hydrocarbons:	C8-C10	ND	10	mg/Kg	1	5/5/2010 11:41 PM	
T/R Hydrocarbons:	C10-C18	ND	10	mg/Kg	1	5/5/2010 11:41 PM	
T/R Hydrocarbons:	C18-C28	ND	10	mg/Kg	1	5/5/2010 11:41 PM	
T/R Hydrocarbons:	C28-C36	ND	10	mg/Kg	1	5/5/2010 11:41 PM	
T/R Hydrocarbons:	C36-C40	ND	10	mg/Kg	1	5/5/2010 11:41 PM	
T/R Hydrocarbons:	C8-C40 Total	ND	10	mg/Kg	1	5/5/2010 11:41 PM	
Surr:	p-Terphenyl	146	63-152	%REC	1	5/5/2010 11:41 PM	

HYDROCARBON CHAIN IDENTIFICATION

EPA 8015B

RunID:	GC2_100503A	QC Batch:	E10VS112	PrepDate:		Analyst:	DDL
T/R Hydrocarbons:	C6-C12	ND	1.0	mg/Kg	1	5/3/2010 12:42 PM	
Surr:	Bromofluorobenzene (FID)	113	56-137	%REC	1	5/3/2010 12:42 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

ANALYTICAL RESULTS

Print Date: 10-May-10

CLIENT: Geocon Consultants, Inc. Client Sample ID: 1092-302-20-21
 Lab Order: 111545 Collection Date: 4/30/2010 11:18:00 AM
 Project: Caltrans TO #1, S9475-06-01 Matrix: SOIL
 Lab ID: 111545-008A

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

HYDROCARBON CHAIN IDENTIFICATION

LUFT

EPA 8015B(M)

RunID: GC16_100505B	QC Batch: 63931				PrepDate: 5/5/2010	Analyst: CBR
T/R Hydrocarbons: C8-C10	ND	10		mg/Kg	1	5/6/2010 12:18 AM
T/R Hydrocarbons: C10-C18	ND	10		mg/Kg	1	5/6/2010 12:18 AM
T/R Hydrocarbons: C18-C28	ND	10		mg/Kg	1	5/6/2010 12:18 AM
T/R Hydrocarbons: C28-C36	ND	10		mg/Kg	1	5/6/2010 12:18 AM
T/R Hydrocarbons: C36-C40	ND	10		mg/Kg	1	5/6/2010 12:18 AM
T/R Hydrocarbons: C8-C40 Total	ND	10		mg/Kg	1	5/6/2010 12:18 AM
Surr: p-Terphenyl	137	63-152		%REC	1	5/6/2010 12:18 AM

HYDROCARBON CHAIN IDENTIFICATION

EPA 8015B

RunID: GC2_100503A	QC Batch: E10VS112				PrepDate:	Analyst: DDL
T/R Hydrocarbons: C6-C12	ND	1.0		mg/Kg	1	5/3/2010 12:56 PM
Surr: Bromofluorobenzene (FID)	113	56-137		%REC	1	5/3/2010 12:56 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		



CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	1092-303-6-7
Lab Order:	111545	Collection Date:	4/30/2010 12:25:00 PM
Project:	Caltrans TO #1, S9475-06-01	Matrix:	SOIL
Lab ID:	111545-009A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

HYDROCARBON CHAIN IDENTIFICATION

LUFT

EPA 8015B(M)

RunID:	GC16_100505B	QC Batch:	63931	PrepDate:	5/5/2010	Analyst:	CBR
T/R Hydrocarbons:	C8-C10	ND	10	mg/Kg	1	5/6/2010 12:09 AM	
T/R Hydrocarbons:	C10-C18	ND	10	mg/Kg	1	5/6/2010 12:09 AM	
T/R Hydrocarbons:	C18-C28	ND	10	mg/Kg	1	5/6/2010 12:09 AM	
T/R Hydrocarbons:	C28-C36	ND	10	mg/Kg	1	5/6/2010 12:09 AM	
T/R Hydrocarbons:	C36-C40	ND	10	mg/Kg	1	5/6/2010 12:09 AM	
T/R Hydrocarbons:	C8-C40 Total	ND	10	mg/Kg	1	5/6/2010 12:09 AM	
Surr:	p-Terphenyl	163	63-152	S %REC	1	5/6/2010 12:09 AM	

HYDROCARBON CHAIN IDENTIFICATION

EPA 8015B

RunID:	GC2_100504A	QC Batch:	E10VS113	PrepDate:		Analyst:	DDL
T/R Hydrocarbons:	C6-C12	ND	1.0	mg/Kg	1	5/4/2010 11:12 PM	
Surr:	Bromofluorobenzene (FID)	106	56-137	%REC	1	5/4/2010 11:12 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

ANALYTICAL RESULTS

Print Date: 10-May-10

CLIENT: Geocon Consultants, Inc. Client Sample ID: 1092-303-10-11
 Lab Order: 111545 Collection Date: 4/30/2010 12:35:00 PM
 Project: Caltrans TO #1, S9475-06-01 Matrix: SOIL
 Lab ID: 111545-010A

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

HYDROCARBON CHAIN IDENTIFICATION

LUFT

EPA 8015B(M)

RunID:	GC16_100505B	QC Batch:	63931	PrepDate:	5/5/2010	Analyst:	CBR
T/R Hydrocarbons:	C8-C10	ND	10	mg/Kg	1	5/5/2010	11:50 PM
T/R Hydrocarbons:	C10-C18	ND	10	mg/Kg	1	5/5/2010	11:50 PM
T/R Hydrocarbons:	C18-C28	ND	10	mg/Kg	1	5/5/2010	11:50 PM
T/R Hydrocarbons:	C28-C36	ND	10	mg/Kg	1	5/5/2010	11:50 PM
T/R Hydrocarbons:	C36-C40	ND	10	mg/Kg	1	5/5/2010	11:50 PM
T/R Hydrocarbons:	C8-C40 Total	ND	10	mg/Kg	1	5/5/2010	11:50 PM
Surr:	p-Terphenyl	152	63-152	%REC	1	5/5/2010	11:50 PM

HYDROCARBON CHAIN IDENTIFICATION

EPA 8015B

RunID:	GC2_100503A	QC Batch:	E10VS112	PrepDate:		Analyst:	DDL
T/R Hydrocarbons:	C6-C12	ND	1.0	mg/Kg	1	5/3/2010	01:11 PM
Surr:	Bromofluorobenzene (FID)	110	56-137	%REC	1	5/3/2010	01:11 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.	Client Sample ID:	1092-303-15-16
Lab Order:	111545	Collection Date:	4/30/2010 12:42:00 PM
Project:	Caltrans TO #1, S9475-06-01	Matrix:	SOIL
Lab ID:	111545-011A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

HYDROCARBON CHAIN IDENTIFICATION

LUFT

EPA 8015B(M)

RunID:	GC16_100505D	QC Batch:	63932	PrepDate:	5/5/2010	Analyst:	CBR
T/R Hydrocarbons:	C8-C10	ND	10	mg/Kg	1	5/6/2010 04:22 AM	
T/R Hydrocarbons:	C10-C18	ND	10	mg/Kg	1	5/6/2010 04:22 AM	
T/R Hydrocarbons:	C18-C28	ND	10	mg/Kg	1	5/6/2010 04:22 AM	
T/R Hydrocarbons:	C28-C36	ND	10	mg/Kg	1	5/6/2010 04:22 AM	
T/R Hydrocarbons:	C36-C40	ND	10	mg/Kg	1	5/6/2010 04:22 AM	
T/R Hydrocarbons:	C8-C40 Total	ND	10	mg/Kg	1	5/6/2010 04:22 AM	
Surr:	p-Terphenyl	159	63-152	%REC	1	5/6/2010 04:22 AM	

HYDROCARBON CHAIN IDENTIFICATION

EPA 8015B

RunID:	GC2_100503A	QC Batch:	E10VS112	PrepDate:		Analyst:	DDL
T/R Hydrocarbons:	C6-C12	ND	1.0	mg/Kg	1	5/3/2010 01:26 PM	
Surr:	Bromofluorobenzene (FID)	117	56-137	%REC	1	5/3/2010 01:26 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

ANALYTICAL RESULTS

Print Date: 10-May-10

CLIENT: Geocon Consultants, Inc. Client Sample ID: 1092-303-20-21
 Lab Order: 111545 Collection Date: 4/30/2010 12:55:00 PM
 Project: Caltrans TO #1, S9475-06-01 Matrix: SOIL
 Lab ID: 111545-012A

Analyses Result PQL Qual Units DF Date Analyzed

HYDROCARBON CHAIN IDENTIFICATION

LUFT

EPA 8015B(M)

RunID: GC16_100505D QC Batch: 63932 PrepDate: 5/5/2010 Analyst: CBR
 T/R Hydrocarbons: C8-C10 ND 10 mg/Kg 1 5/6/2010 04:32 AM
 T/R Hydrocarbons: C10-C18 ND 10 mg/Kg 1 5/6/2010 04:32 AM
 T/R Hydrocarbons: C18-C28 ND 10 mg/Kg 1 5/6/2010 04:32 AM
 T/R Hydrocarbons: C28-C36 ND 10 mg/Kg 1 5/6/2010 04:32 AM
 T/R Hydrocarbons: C36-C40 ND 10 mg/Kg 1 5/6/2010 04:32 AM
 T/R Hydrocarbons: C8-C40 Total ND 10 mg/Kg 1 5/6/2010 04:32 AM
 Surr: p-Terphenyl 147 63-152 %REC 1 5/6/2010 04:32 AM

HYDROCARBON CHAIN IDENTIFICATION

EPA 8015B

RunID: GC2_100504A QC Batch: E10VS113 PrepDate: Analyst: DDL
 T/R Hydrocarbons: C6-C12 ND 1.0 mg/Kg 1 5/4/2010 11:27 PM
 Surr: Bromofluorobenzene (FID) 105 56-137 %REC 1 5/4/2010 11:27 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.	Client Sample ID:	1092-303-25-26
Lab Order:	111545	Collection Date:	4/30/2010 1:05:00 PM
Project:	Caltrans TO #1, S9475-06-01	Matrix:	SOIL
Lab ID:	111545-013A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

HYDROCARBON CHAIN IDENTIFICATION

LUFT

EPA 8015B(M)

RunID:	GC16_100505D	QC Batch:	63932	PrepDate:	5/5/2010	Analyst:	CBR
T/R Hydrocarbons:	C8-C10	ND	10	mg/Kg	1	5/6/2010	04:41 AM
T/R Hydrocarbons:	C10-C18	ND	10	mg/Kg	1	5/6/2010	04:41 AM
T/R Hydrocarbons:	C18-C28	ND	10	mg/Kg	1	5/6/2010	04:41 AM
T/R Hydrocarbons:	C28-C36	ND	10	mg/Kg	1	5/6/2010	04:41 AM
T/R Hydrocarbons:	C36-C40	ND	10	mg/Kg	1	5/6/2010	04:41 AM
T/R Hydrocarbons:	C8-C40 Total	ND	10	mg/Kg	1	5/6/2010	04:41 AM
Surr:	p-Terphenyl	123	63-152	%REC	1	5/6/2010	04:41 AM

HYDROCARBON CHAIN IDENTIFICATION

EPA 8015B

RunID:	GC2_100504A	QC Batch:	E10VS113	PrepDate:		Analyst:	DDL
T/R Hydrocarbons:	C6-C12	ND	1.0	mg/Kg	1	5/4/2010	11:42 PM
Surr:	Bromofluorobenzene (FID)	105	56-137	%REC	1	5/4/2010	11:42 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

ANALYTICAL RESULTS

Print Date: 10-May-10

CLIENT: Geocon Consultants, Inc. Client Sample ID: 1092-303-30-31
 Lab Order: 111545 Collection Date: 4/30/2010 1:18:00 PM
 Project: Caltrans TO #1, S9475-06-01 Matrix: SOIL
 Lab ID: 111545-014A

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

HYDROCARBON CHAIN IDENTIFICATION

LUFT

EPA 8015B(M)

RunID: GC16_100505D	QC Batch: 63932				PrepDate: 5/5/2010	Analyst: CBR
T/R Hydrocarbons: C8-C10	ND	10		mg/Kg	1	5/6/2010 04:50 AM
T/R Hydrocarbons: C10-C18	ND	10		mg/Kg	1	5/6/2010 04:50 AM
T/R Hydrocarbons: C18-C28	ND	10		mg/Kg	1	5/6/2010 04:50 AM
T/R Hydrocarbons: C28-C36	ND	10		mg/Kg	1	5/6/2010 04:50 AM
T/R Hydrocarbons: C36-C40	ND	10		mg/Kg	1	5/6/2010 04:50 AM
T/R Hydrocarbons: C8-C40 Total	ND	10		mg/Kg	1	5/6/2010 04:50 AM
Surr: p-Terphenyl	162	63-152	S	%REC	1	5/6/2010 04:50 AM

HYDROCARBON CHAIN IDENTIFICATION

EPA 8015B

RunID: GC2_100504A	QC Batch: E10VS113				PrepDate:	Analyst: DDL
T/R Hydrocarbons: C6-C12	ND	1.0		mg/Kg	1	5/4/2010 11:56 PM
Surr: Bromofluorobenzene (FID)	105	56-137		%REC	1	5/4/2010 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		



CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	1092-303-35-36
Lab Order:	111545	Collection Date:	4/30/2010 1:30:00 PM
Project:	Caltrans TO #1, S9475-06-01	Matrix:	SOIL
Lab ID:	111545-015A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

HYDROCARBON CHAIN IDENTIFICATION

LUFT

EPA 8015B(M)

RunID:	GC16_100505D	QC Batch:	63932	PrepDate:	5/5/2010	Analyst:	CBR
T/R Hydrocarbons:	C8-C10	ND	10	mg/Kg	1	5/6/2010 04:59 AM	
T/R Hydrocarbons:	C10-C18	ND	10	mg/Kg	1	5/6/2010 04:59 AM	
T/R Hydrocarbons:	C18-C28	ND	10	mg/Kg	1	5/6/2010 04:59 AM	
T/R Hydrocarbons:	C28-C36	ND	10	mg/Kg	1	5/6/2010 04:59 AM	
T/R Hydrocarbons:	C36-C40	ND	10	mg/Kg	1	5/6/2010 04:59 AM	
T/R Hydrocarbons:	C8-C40 Total	ND	10	mg/Kg	1	5/6/2010 04:59 AM	
Surr:	p-Terphenyl	154	63-152	%REC	1	5/6/2010 04:59 AM	

HYDROCARBON CHAIN IDENTIFICATION

EPA 8015B

RunID:	GC2_100504A	QC Batch:	E10VS113	PrepDate:		Analyst:	DDL
T/R Hydrocarbons:	C6-C12	ND	1.0	mg/Kg	1	5/5/2010 12:11 AM	
Surr:	Bromofluorobenzene (FID)	103	56-137	%REC	1	5/5/2010 12:11 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		



Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 10-May-10

CLIENT: Geocon Consultants, Inc. Client Sample ID: 1092-303-40
 Lab Order: 111545 Collection Date: 4/30/2010 1:35:00 PM
 Project: Caltrans TO #1, S9475-06-01 Matrix: SOIL
 Lab ID: 111545-016A

Analyses Result PQL Qual Units DF Date Analyzed

HYDROCARBON CHAIN IDENTIFICATION

LUFT

EPA 8015B(M)

RunID: GC16_100505D QC Batch: 63932 PrepDate: 5/5/2010 Analyst: CBR
 T/R Hydrocarbons: C8-C10 ND 10 mg/Kg 1 5/6/2010 05:08 AM
 T/R Hydrocarbons: C10-C18 ND 10 mg/Kg 1 5/6/2010 05:08 AM
 T/R Hydrocarbons: C18-C28 ND 10 mg/Kg 1 5/6/2010 05:08 AM
 T/R Hydrocarbons: C28-C36 ND 10 mg/Kg 1 5/6/2010 05:08 AM
 T/R Hydrocarbons: C36-C40 ND 10 mg/Kg 1 5/6/2010 05:08 AM
 T/R Hydrocarbons: C8-C40 Total ND 10 mg/Kg 1 5/6/2010 05:08 AM
 Surr: p-Terphenyl 153 63-152 S %REC 1 5/6/2010 05:08 AM

HYDROCARBON CHAIN IDENTIFICATION

EPA 8015B

RunID: GC2_100504A QC Batch: E10VS113 PrepDate: Analyst: DDL
 T/R Hydrocarbons: C6-C12 ND 1.0 mg/Kg 1 5/5/2010 12:26 AM
 Surr: Bromofluorobenzene (FID) 106 56-137 %REC 1 5/5/2010 12:26 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



Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 10-May-10

CLIENT: Geocon Consultants, Inc. Client Sample ID: 1092-300 COMP
 Lab Order: 111545 Collection Date: 4/30/2010 1:50:00 PM
 Project: Caltrans TO #1, S9475-06-01 Matrix: SOIL
 Lab ID: 111545-017A

Analyses Result PQL Qual Units DF Date Analyzed

ICP-METALS

EPA 3050B

EPA 6010B

RunID:	ICP8_100505F	QC Batch:	63927	PrepDate:	5/5/2010	Analyst:	SRB
Antimony	ND	2.0	mg/Kg	1	5/5/2010 05:23 PM		
Arsenic	ND	1.0	mg/Kg	1	5/5/2010 05:23 PM		
Barium	71	1.0	mg/Kg	1	5/5/2010 05:23 PM		
Beryllium	ND	1.0	mg/Kg	1	5/5/2010 05:23 PM		
Cadmium	ND	1.0	mg/Kg	1	5/5/2010 05:23 PM		
Chromium	8.0	1.0	mg/Kg	1	5/5/2010 05:23 PM		
Cobalt	4.2	1.0	mg/Kg	1	5/5/2010 05:23 PM		
Copper	5.9	2.0	mg/Kg	1	5/5/2010 05:23 PM		
Lead	2.2	1.0	mg/Kg	1	5/5/2010 05:23 PM		
Molybdenum	ND	1.0	mg/Kg	1	5/5/2010 05:23 PM		
Nickel	5.8	1.0	mg/Kg	1	5/5/2010 05:23 PM		
Selenium	ND	1.0	mg/Kg	1	5/5/2010 05:23 PM		
Silver	ND	1.0	mg/Kg	1	5/5/2010 05:23 PM		
Thallium	ND	1.0	mg/Kg	1	5/5/2010 05:23 PM		
Vanadium	17	1.0	mg/Kg	1	5/5/2010 05:23 PM		
Zinc	21	1.0	mg/Kg	1	5/5/2010 05:23 PM		

MERCURY BY COLD VAPOR TECHNIQUE

EPA 7471A

RunID:	AA1_100506A	QC Batch:	63928	PrepDate:	5/5/2010	Analyst:	IL
Mercury	ND	0.10	mg/Kg	1	5/6/2010 10:52 AM		

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID:	MS5_100505A	QC Batch:	T10VS074	PrepDate:	Analyst:	BD
1,1,1,2-Tetrachloroethane	ND	5.0	µg/Kg	1	5/5/2010 10:46 PM	
1,1,1-Trichloroethane	ND	5.0	µg/Kg	1	5/5/2010 10:46 PM	
1,1,2,2-Tetrachloroethane	ND	5.0	µg/Kg	1	5/5/2010 10:46 PM	
1,1,2-Trichloroethane	ND	5.0	µg/Kg	1	5/5/2010 10:46 PM	
1,1-Dichloroethane	ND	5.0	µg/Kg	1	5/5/2010 10:46 PM	
1,1-Dichloroethene	ND	5.0	µg/Kg	1	5/5/2010 10:46 PM	
1,1-Dichloropropene	ND	5.0	µg/Kg	1	5/5/2010 10:46 PM	
1,2,3-Trichlorobenzene	ND	5.0	µg/Kg	1	5/5/2010 10:46 PM	
1,2,3-Trichloropropane	ND	5.0	µg/Kg	1	5/5/2010 10:46 PM	
1,2,4-Trichlorobenzene	ND	5.0	µg/Kg	1	5/5/2010 10:46 PM	
1,2,4-Trimethylbenzene	ND	5.0	µg/Kg	1	5/5/2010 10:46 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

ANALYTICAL RESULTS

Print Date: 10-May-10

CLIENT: Geocon Consultants, Inc. Client Sample ID: 1092-300 COMP
 Lab Order: 111545 Collection Date: 4/30/2010 1:50:00 PM
 Project: Caltrans TO #1, S9475-06-01 Matrix: SOIL
 Lab ID: 111545-017A

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: MS5_100505A	QC Batch: T10VS074	PrepDate:	Analyst: BD
1,2-Dibromo-3-chloropropane	ND	10	µg/Kg 1 5/5/2010 10:46 PM
1,2-Dibromoethane	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
1,2-Dichlorobenzene	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
1,2-Dichloroethane	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
1,2-Dichloropropane	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
1,3,5-Trimethylbenzene	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
1,3-Dichlorobenzene	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
1,3-Dichloropropane	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
1,4-Dichlorobenzene	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
2,2-Dichloropropane	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
2-Chlorotoluene	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
4-Chlorotoluene	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
4-Isopropyltoluene	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
Benzene	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
Bromobenzene	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
Bromodichloromethane	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
Bromoform	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
Bromomethane	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
Carbon tetrachloride	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
Chlorobenzene	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
Chloroethane	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
Chloroform	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
Chloromethane	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
cis-1,2-Dichloroethene	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
cis-1,3-Dichloropropene	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
Dibromochloromethane	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
Dibromomethane	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
Dichlorodifluoromethane	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
Ethylbenzene	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
Hexachlorobutadiene	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
Isopropylbenzene	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
m,p-Xylene	ND	10	µg/Kg 1 5/5/2010 10:46 PM
Methylene chloride	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
n-Butylbenzene	ND	5.0	µg/Kg 1 5/5/2010 10:46 PM
n-Propylbenzene	ND	5.0	µg/Kg 1 5/5/2010 10:46 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.	Client Sample ID:	1092-300 COMP
Lab Order:	111545	Collection Date:	4/30/2010 1:50:00 PM
Project:	Caltrans TO #1, S9475-06-01	Matrix:	SOIL
Lab ID:	111545-017A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID:	MS5_100505A	QC Batch:	T10VS074	PrepDate:		Analyst:	BD
Naphthalene	ND	5.0	µg/Kg	1		5/5/2010 10:46 PM	
o-Xylene	ND	5.0	µg/Kg	1		5/5/2010 10:46 PM	
sec-Butylbenzene	ND	5.0	µg/Kg	1		5/5/2010 10:46 PM	
Styrene	ND	5.0	µg/Kg	1		5/5/2010 10:46 PM	
tert-Butylbenzene	ND	5.0	µg/Kg	1		5/5/2010 10:46 PM	
Tetrachloroethene	ND	5.0	µg/Kg	1		5/5/2010 10:46 PM	
Toluene	ND	5.0	µg/Kg	1		5/5/2010 10:46 PM	
trans-1,2-Dichloroethene	ND	5.0	µg/Kg	1		5/5/2010 10:46 PM	
Trichloroethene	ND	5.0	µg/Kg	1		5/5/2010 10:46 PM	
Trichlorofluoromethane	ND	5.0	µg/Kg	1		5/5/2010 10:46 PM	
Vinyl chloride	ND	5.0	µg/Kg	1		5/5/2010 10:46 PM	
Surr: 1,2-Dichloroethane-d4	86.0	70-130	%REC	1		5/5/2010 10:46 PM	
Surr: 4-Bromofluorobenzene	92.0	70-130	%REC	1		5/5/2010 10:46 PM	
Surr: Dibromofluoromethane	90.6	70-130	%REC	1		5/5/2010 10:46 PM	
Surr: Toluene-d8	90.6	70-130	%REC	1		5/5/2010 10:46 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

Date: 10-May-10

CLIENT: Geocon Consultants, Inc.
Work Order: 111545
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010 S

Table with 13 columns: Analyte, Result, PQL, SPK value, SPK Ref Val, %REC, LowLimit, HighLimit, RPD Ref Val, %RPD, RPDLimit, Qual. Rows include Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc.

Table with 13 columns: Analyte, Result, PQL, SPK value, SPK Ref Val, %REC, LowLimit, HighLimit, RPD Ref Val, %RPD, RPDLimit, Qual. Rows include Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt.

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: 111545
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: LCS-63927	SampType: LCS	TestCode: 6010_S	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120923						
Client ID: LCSS	Batch ID: 63927	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 5/5/2010	SeqNo: 1930584						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	46.513	2.0	50.00	0	93.0	80	120				
Lead	46.583	1.0	50.00	0	93.2	80	120				
Molybdenum	47.293	1.0	50.00	0	94.6	80	120				
Nickel	45.977	1.0	50.00	0	92.0	80	120				
Selenium	42.120	1.0	50.00	0	84.2	80	120				
Silver	45.121	1.0	50.00	0	90.2	80	120				
Thallium	46.639	1.0	50.00	0	93.3	80	120				
Vanadium	46.811	1.0	50.00	0.02310	93.6	80	120				
Zinc	45.219	1.0	50.00	0	90.4	80	120				

Sample ID: 111545-017A-DUP	SampType: DUP	TestCode: 6010_S	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120923						
Client ID: 1092-300 COMP	Batch ID: 63927	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 5/5/2010	SeqNo: 1930586						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.306	2.0						0	0	20	
Arsenic	ND	1.0						0	0	20	
Barium	73.390	1.0						71.01	3.29	20	
Beryllium	ND	1.0						0	0	20	
Cadmium	0.185	1.0						0.1868	0	20	
Chromium	11.710	1.0						8.025	37.3	20	R
Cobalt	4.093	1.0						4.164	1.74	20	
Copper	5.776	2.0						5.935	2.71	20	
Lead	2.283	1.0						2.202	3.65	20	
Molybdenum	0.722	1.0						0.6777	0	20	
Nickel	6.399	1.0						5.826	9.37	20	
Selenium	ND	1.0						0	0	20	
Silver	ND	1.0						0	0	20	
Thallium	0.233	1.0						0	0	20	
Vanadium	16.420	1.0						17.00	3.44	20	
Zinc	21.826	1.0						21.01	3.81	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: 111545
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010 S

Sample ID: 111545-017A-MS	SampType: MS	TestCode: 6010_S	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120923						
Client ID: 1092-300 COMP	Batch ID: 63927	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 5/5/2010	SeqNo: 1930587						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	94.738	2.0	125.0	0	75.8	32	105				
Arsenic	100.726	1.0	125.0	0	80.6	49	106				
Barium	167.789	1.0	125.0	71.01	77.4	31	133				
Beryllium	101.279	1.0	125.0	0	81.0	56	106				
Cadmium	98.526	1.0	125.0	0.1868	78.7	51	103				
Chromium	111.396	1.0	125.0	8.025	82.7	45	114				
Cobalt	103.620	1.0	125.0	4.164	79.6	52	106				
Copper	116.280	2.0	125.0	5.935	88.3	54	125				
Lead	103.407	1.0	125.0	2.202	81.0	34	126				
Molybdenum	104.738	1.0	125.0	0.6777	83.2	54	106				
Nickel	106.618	1.0	125.0	5.826	80.6	45	111				
Selenium	95.997	1.0	125.0	0	76.8	47	104				
Silver	101.293	1.0	125.0	0	81.0	56	112				
Thallium	101.559	1.0	125.0	0	81.2	46	101				
Vanadium	121.514	1.0	125.0	17.00	83.6	54	114				
Zinc	117.539	1.0	125.0	21.01	77.2	28	125				

Sample ID: 111545-017A-MSD	SampType: MSD	TestCode: 6010_S	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120923						
Client ID: 1092-300 COMP	Batch ID: 63927	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 5/5/2010	SeqNo: 1930588						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	91.708	2.0	125.0	0	73.4	32	105	94.74	3.25	20	
Arsenic	98.328	1.0	125.0	0	78.7	49	106	100.7	2.41	20	
Barium	170.273	1.0	125.0	71.01	79.4	31	133	167.8	1.47	20	
Beryllium	101.219	1.0	125.0	0	81.0	56	106	101.3	0.0596	20	
Cadmium	99.261	1.0	125.0	0.1868	79.3	51	103	98.53	0.743	20	
Chromium	112.201	1.0	125.0	8.025	83.3	45	114	111.4	0.720	20	
Cobalt	103.887	1.0	125.0	4.164	79.8	52	106	103.6	0.257	20	
Copper	115.498	2.0	125.0	5.935	87.7	54	125	116.3	0.675	20	
Lead	102.202	1.0	125.0	2.202	80.0	34	126	103.4	1.17	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: 111545
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: 111545-017A-MSD	SampType: MSD	TestCode: 6010_S	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120923
Client ID: 1092-300 COMP	Batch ID: 63927	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 5/5/2010	SeqNo: 1930588

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	102.508	1.0	125.0	0.6777	81.5	54	106	104.7	2.15	20	
Nickel	105.604	1.0	125.0	5.826	79.8	45	111	106.6	0.955	20	
Selenium	94.635	1.0	125.0	0	75.7	47	104	96.00	1.43	20	
Silver	100.011	1.0	125.0	0	80.0	56	112	101.3	1.27	20	
Thallium	99.810	1.0	125.0	0	79.8	46	101	101.6	1.74	20	
Vanadium	119.783	1.0	125.0	17.00	82.2	54	114	121.5	1.43	20	
Zinc	119.039	1.0	125.0	21.01	78.4	28	125	117.5	1.27	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: 111545
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7471_S

Sample ID: MB-63928	SampType: MBLK	TestCode: 7471_S	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120932						
Client ID: PBS	Batch ID: 63928	TestNo: EPA 7471A		Analysis Date: 5/6/2010	SeqNo: 1930879						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury ND 0.10

Sample ID: LCS-63928	SampType: LCS	TestCode: 7471_S	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120932						
Client ID: LCSS	Batch ID: 63928	TestNo: EPA 7471A		Analysis Date: 5/6/2010	SeqNo: 1930880						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.812 0.10 0.8300 0 97.9 80 120

Sample ID: 111545-017A-MS	SampType: MS	TestCode: 7471_S	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120932						
Client ID: 1092-300 COMP	Batch ID: 63928	TestNo: EPA 7471A		Analysis Date: 5/6/2010	SeqNo: 1930881						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.863 0.10 0.8300 0 104 70 130

Sample ID: 111545-017A-MSD	SampType: MSD	TestCode: 7471_S	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120932						
Client ID: 1092-300 COMP	Batch ID: 63928	TestNo: EPA 7471A		Analysis Date: 5/6/2010	SeqNo: 1930882						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.882 0.10 0.8300 0 106 70 130 0.8628 2.23 20

Sample ID: 111545-017A-DUP	SampType: DUP	TestCode: 7471_S	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120932						
Client ID: 1092-300 COMP	Batch ID: 63928	TestNo: EPA 7471A		Analysis Date: 5/6/2010	SeqNo: 1930884						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury ND 0.10 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 | |



CLIENT: Geocon Consultants, Inc.
Work Order: 111545
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260 S

Sample ID: K100505LCS1	SampType: LCS	TestCode: 8260_S	Units: µg/Kg	Prep Date:	RunNo: 120951						
Client ID: LCSS	Batch ID: T10VS074	TestNo: EPA 8260B		Analysis Date: 5/5/2010	SeqNo: 1931905						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	51.220	5.0	50.00	0	102	70	130				
Benzene	106.030	5.0	100.0	0	106	70	130				
Chlorobenzene	53.400	5.0	50.00	0	107	82	130				
MTBE	55.540	5.0	50.00	0	111	70	130				
Toluene	104.950	5.0	100.0	0	105	70	130				
Trichloroethene	52.350	5.0	50.00	0	105	77	130				
Surr: 1,2-Dichloroethane-d4	39.590		50.00		79.2	70	130				
Surr: 4-Bromofluorobenzene	45.920		50.00		91.8	70	130				
Surr: Dibromofluoromethane	42.550		50.00		85.1	70	130				
Surr: Toluene-d8	44.800		50.00		89.6	70	130				

Sample ID: 111584-001AMS	SampType: MS	TestCode: 8260_S	Units: µg/Kg	Prep Date:	RunNo: 120951						
Client ID: ZZZZZZ	Batch ID: T10VS074	TestNo: EPA 8260B		Analysis Date: 5/5/2010	SeqNo: 1931906						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	54.600	5.0	50.00	0	109	70	130				
Benzene	108.790	5.0	100.0	0	109	70	130				
Chlorobenzene	53.110	5.0	50.00	0	106	70	130				
Toluene	108.950	5.0	100.0	0	109	70	130				
Trichloroethene	57.130	5.0	50.00	0	114	70	130				
Surr: 1,2-Dichloroethane-d4	38.780		50.00		77.6	70	130				
Surr: 4-Bromofluorobenzene	45.210		50.00		90.4	70	130				
Surr: Dibromofluoromethane	42.280		50.00		84.6	70	130				
Surr: Toluene-d8	44.070		50.00		88.1	70	130				

Sample ID: 111584-001AMSD	SampType: MSD	TestCode: 8260_S	Units: µg/Kg	Prep Date:	RunNo: 120951						
Client ID: ZZZZZZ	Batch ID: T10VS074	TestNo: EPA 8260B		Analysis Date: 5/5/2010	SeqNo: 1931907						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	55.450	5.0	50.00	0	111	70	130	54.60	1.54	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
- II Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference



CLIENT: Geocon Consultants, Inc.
Work Order: 111545
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S

Sample ID: 111584-001AMSD	SampType: MSD	TestCode: 8260_S	Units: µg/Kg	Prep Date:	RunNo: 120951						
Client ID: ZZZZZZ	Batch ID: T10VS074	TestNo: EPA 8260B		Analysis Date: 5/5/2010	SeqNo: 1931907						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	106.450	5.0	100.0	0	106	70	130	108.8	2.17	20	
Chlorobenzene	51.890	5.0	50.00	0	104	70	130	53.11	2.32	20	
Toluene	106.800	5.0	100.0	0	107	70	130	109.0	1.99	20	
Trichloroethene	55.330	5.0	50.00	0	111	70	130	57.13	3.20	20	
Surr: 1,2-Dichloroethane-d4	39.970		50.00		79.9	70	130		0	0	
Surr: 4-Bromofluorobenzene	45.570		50.00		91.1	70	130		0	0	
Surr: Dibromofluoromethane	43.280		50.00		86.6	70	130		0	0	
Surr: Toluene-d8	43.670		50.00		87.3	70	130		0	0	

Sample ID: K100505MB2	SampType: MBLK	TestCode: 8260_S	Units: µg/Kg	Prep Date:	RunNo: 120951						
Client ID: PBS	Batch ID: T10VS074	TestNo: EPA 8260B		Analysis Date: 5/5/2010	SeqNo: 1931908						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	5.0									
1,1,1-Trichloroethane	ND	5.0									
1,1,2,2-Tetrachloroethane	ND	5.0									
1,1,2-Trichloroethane	ND	5.0									
1,1-Dichloroethane	ND	5.0									
1,1-Dichloroethene	ND	5.0									
1,1-Dichloropropene	ND	5.0									
1,2,3-Trichlorobenzene	ND	5.0									
1,2,3-Trichloropropane	ND	5.0									
1,2,4-Trichlorobenzene	ND	5.0									
1,2,4-Trimethylbenzene	ND	5.0									
1,2-Dibromo-3-chloropropane	ND	10									
1,2-Dibromoethane	ND	5.0									
1,2-Dichlorobenzene	ND	5.0									
1,2-Dichloroethane	ND	5.0									
1,2-Dichloropropane	ND	5.0									
1,3,5-Trimethylbenzene	ND	5.0									

Qualifiers:

- D Analyte detected in the associated Method Blank
- E Value above quantitation range
- II 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



CLIENT: Geocon Consultants, Inc.
Work Order: 111545
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S

Sample ID: K100505MB2	SampType: MBLK	TestCode: 8260_S	Units: µg/Kg	Prep Date:	RunNo: 120951
Client ID: PBS	Batch ID: T10VS074	TestNo: EPA 8260B		Analysis Date: 5/5/2010	SeqNo: 1931908

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	ND	5.0									
1,3-Dichloropropane	ND	5.0									
1,4-Dichlorobenzene	ND	5.0									
2,2-Dichloropropane	ND	5.0									
2-Chlorotoluene	ND	5.0									
4-Chlorotoluene	ND	5.0									
4-Isopropyltoluene	ND	5.0									
Benzene	ND	5.0									
Bromobenzene	ND	5.0									
Bromodichloromethane	ND	5.0									
Bromoform	ND	5.0									
Bromomethane	ND	5.0									
Carbon tetrachloride	ND	5.0									
Chlorobenzene	ND	5.0									
Chloroethane	ND	5.0									
Chloroform	ND	5.0									
Chloromethane	ND	5.0									
cis-1,2-Dichloroethene	ND	5.0									
cis-1,3-Dichloropropene	ND	5.0									
Dibromochloromethane	ND	5.0									
Dibromomethane	ND	5.0									
Dichlorodifluoromethane	ND	5.0									
Ethylbenzene	ND	5.0									
Hexachlorobutadiene	ND	5.0									
Isopropylbenzene	ND	5.0									
m,p-Xylene	ND	10									
Methylene chloride	ND	5.0									
n-Butylbenzene	ND	5.0									
n-Propylbenzene	ND	5.0									
Naphthalene	ND	5.0									

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



CLIENT: Geocon Consultants, Inc.
Work Order: 111545
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S

Sample ID: K100505MB2	SampType: MBLK	TestCode: 8260_S	Units: µg/Kg	Prep Date:	RunNo: 120951						
Client ID: PBS	Batch ID: T10VS074	TestNo: EPA 8260B		Analysis Date: 5/5/2010	SeqNo: 1931908						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	ND	5.0									
sec-Butylbenzene	ND	5.0									
Styrene	ND	5.0									
tert-Butylbenzene	ND	5.0									
Tetrachloroethene	ND	5.0									
Toluene	ND	5.0									
trans-1,2-Dichloroethene	ND	5.0									
Trichloroethene	ND	5.0									
Trichlorofluoromethane	ND	5.0									
Vinyl chloride	ND	5.0									
Surr: 1,2-Dichloroethane-d4	40.490		50.00		81.0	70	130				
Surr: 4-Bromofluorobenzene	45.300		50.00		90.6	70	130				
Surr: Dibromofluoromethane	41.520		50.00		83.0	70	130				
Surr: Toluene-d8	44.600		50.00		89.2	70	130				

Sample ID: 111584-001ADUP	SampType: DUP	TestCode: 8260_S	Units: µg/Kg	Prep Date:	RunNo: 120981						
Client ID: ZZZZZZ	Batch ID: T10VS074	TestNo: EPA 8260B		Analysis Date: 5/6/2010	SeqNo: 1932036						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	5.0						0	0	20	
1,1,1-Trichloroethane	ND	5.0						0	0	20	
1,1,2,2-Tetrachloroethane	ND	5.0						0	0	20	
1,1,2-Trichloroethane	ND	5.0						0	0	20	
1,1-Dichloroethane	ND	5.0						0	0	20	
1,1-Dichloroethene	ND	5.0						0	0	20	
1,1-Dichloropropene	ND	5.0						0	0	20	
1,2,3-Trichlorobenzene	ND	5.0						0	0	20	
1,2,3-Trichloropropane	ND	5.0						0	0	20	
1,2,4-Trichlorobenzene	ND	5.0						0	0	20	
1,2,4-Trimethylbenzene	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 | |



CLIENT: Geocon Consultants, Inc.
Work Order: 111545
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S

Sample ID: 111584-001ADUP	SampType: DUP	TestCode: 8260_S	Units: µg/Kg	Prep Date:	RunNo: 120981						
Client ID: ZZZZZZ	Batch ID: T10VS074	TestNo: EPA 8260B		Analysis Date: 5/6/2010	SeqNo: 1932036						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromo-3-chloropropane	ND	10						0	0	20	
1,2-Dibromoethane	ND	5.0						0	0	20	
1,2-Dichlorobenzene	ND	5.0						0	0	20	
1,2-Dichloroethane	ND	5.0						0	0	20	
1,2-Dichloropropane	ND	5.0						0	0	20	
1,3,5-Trimethylbenzene	ND	5.0						0	0	20	
1,3-Dichlorobenzene	ND	5.0						0	0	20	
1,3-Dichloropropane	ND	5.0						0	0	20	
1,4-Dichlorobenzene	ND	5.0						0	0	20	
2,2-Dichloropropane	ND	5.0						0	0	20	
2-Chlorotoluene	ND	5.0						0	0	20	
4-Chlorotoluene	ND	5.0						0	0	20	
4-Isopropyltoluene	ND	5.0						0	0	20	
Benzene	ND	5.0						0	0	20	
Bromobenzene	ND	5.0						0	0	20	
Bromodichloromethane	ND	5.0						0	0	20	
Bromoform	ND	5.0						0	0	20	
Bromomethane	ND	5.0						0	0	20	
Carbon tetrachloride	ND	5.0						0	0	20	
Chlorobenzene	ND	5.0						0	0	20	
Chloroethane	ND	5.0						0	0	20	
Chloroform	ND	5.0						0	0	20	
Chloromethane	ND	5.0						0	0	20	
cis-1,2-Dichloroethene	ND	5.0						0	0	20	
cis-1,3-Dichloropropene	ND	5.0						0	0	20	
Dibromochloromethane	ND	5.0						0	0	20	
Dibromomethane	ND	5.0						0	0	20	
Dichlorodifluoromethane	ND	5.0						0	0	20	
Ethylbenzene	ND	5.0						0	0	20	
Hexachlorobutadiene	ND	5.0						0	0	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: 111545
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_S

Sample ID: 111584-001ADUP	SampType: DUP	TestCode: 8260_S	Units: µg/Kg	Prep Date:	RunNo: 120981						
Client ID: ZZZZZZ	Batch ID: T10VS074	TestNo: EPA 8260B		Analysis Date: 5/6/2010	SeqNo: 1932036						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Isopropylbenzene	ND	5.0						0	0	20	
m,p-Xylene	ND	10						0	0	20	
Methylene chloride	ND	5.0						0	0	20	
n-Butylbenzene	ND	5.0						0	0	20	
n-Propylbenzene	ND	5.0						0	0	20	
Naphthalene	ND	5.0						0	0	20	
o-Xylene	ND	5.0						0	0	20	
sec-Butylbenzene	ND	5.0						0	0	20	
Styrene	ND	5.0						0	0	20	
tert-Butylbenzene	ND	5.0						0	0	20	
Tetrachloroethene	ND	5.0						0	0	20	
Toluene	ND	5.0						0	0	20	
trans-1,2-Dichloroethene	ND	5.0						0	0	20	
Trichloroethene	ND	5.0						0	0	20	
Trichlorofluoromethane	ND	5.0						0	0	20	
Vinyl chloride	ND	5.0						0	0	20	
Surr: 1,2-Dichloroethane-d4	48.240		50.00		96.5	70	130		0	20	
Surr: 4-Bromofluorobenzene	47.710		50.00		95.4	70	130		0	20	
Surr: Dibromofluoromethane	48.490		50.00		97.0	70	130		0	20	
Surr: Toluene-d8	48.900		50.00		97.8	70	130		0	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



Advanced Technology Laboratories

Date: 10-May-10

CLIENT: Geocon Consultants, Inc.
Work Order: 111545
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

BatchID: 63931

Sample ID: MB-63931	SampType: MBLK	TestCode: 8015_S_DM	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120927						
Client ID: PBS	Batch ID: 63931	TestNo: EPA 8015B(M LUFT		Analysis Date: 5/5/2010	SeqNo: 1930684						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	ND	10									
ORO	ND	10									
Surr: p-Terphenyl	119.860		80.00		150	63	152				

Sample ID: LCS-63931	SampType: LCS	TestCode: 8015_S_DM	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120927						
Client ID: LCSS	Batch ID: 63931	TestNo: EPA 8015B(M LUFT		Analysis Date: 5/5/2010	SeqNo: 1930685						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	1328.150	10	1000	0	133	76	139				
Surr: p-Terphenyl	116.820		80.00		146	63	152				

Sample ID: 111545-006AMS	SampType: MS	TestCode: 8015_S_DM	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120927						
Client ID: 1092-302-10-11	Batch ID: 63931	TestNo: EPA 8015B(M LUFT		Analysis Date: 5/5/2010	SeqNo: 1930688						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	1413.070	10	1000	0	141	60	158				
Surr: p-Terphenyl	118.560		80.00		148	63	152				

Sample ID: 111545-006ADUP	SampType: DUP	TestCode: 8015_S_DM	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120927						
Client ID: 1092-302-10-11	Batch ID: 63931	TestNo: EPA 8015B(M LUFT		Analysis Date: 5/5/2010	SeqNo: 1930688						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	ND	10						0	0	20	
ORO	ND	10						0	0	20	
Surr: p-Terphenyl	109.660		80.00		137	63	152		0	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



CLIENT: Geocon Consultants, Inc.
Work Order: 111545
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

BatchID: 63931

Sample ID: 111545-006AMSD	SampType: MSD	TestCode: 8015_S_DM	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120927						
Client ID: 1092-302-10-11	Batch ID: 63931	TestNo: EPA 8015B(M LUFT		Analysis Date: 5/6/2010	SeqNo: 1930708						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	1323.620	10	1000	0	132	60	158	1413	6.54	20	
Surr: p-Terphenyl	112.350		80.00		140	63	152		0	0	

Sample ID: MB-63931	SampType: MBLK	TestCode: 8015_S_DSL	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120927						
Client ID: PBS	Batch ID: 63931	TestNo: EPA 8015B(M LUFT		Analysis Date: 5/5/2010	SeqNo: 1931024						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	ND	10									
Surr: p-Terphenyl	119.860		80.00		150	63	152				

Sample ID: LCS-63931	SampType: LCS	TestCode: 8015_S_DSL	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120927						
Client ID: LCSS	Batch ID: 63931	TestNo: EPA 8015B(M LUFT		Analysis Date: 5/5/2010	SeqNo: 1931025						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	1328.150	10	1000	0	133	76	139				
Surr: p-Terphenyl	116.820		80.00		146	63	152				

Sample ID: 111545-006AMS	SampType: MS	TestCode: 8015_S_DSL	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120927						
Client ID: 1092-302-10-11	Batch ID: 63931	TestNo: EPA 8015B(M LUFT		Analysis Date: 5/5/2010	SeqNo: 1931026						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	1413.070	10	1000	0	141	60	158				
Surr: p-Terphenyl	118.560		80.00		148	63	152				

Sample ID: 111545-006AMSD	SampType: MSD	TestCode: 8015_S_DSL	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120927						
Client ID: 1092-302-10-11	Batch ID: 63931	TestNo: EPA 8015B(M LUFT		Analysis Date: 5/6/2010	SeqNo: 1931048						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	1323.620	10	1000	0	132	60	158	1413	6.54	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: 111545
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

BatchID: 63931

Sample ID: 111545-006AMSD	SampType: MSD	TestCode: 8015_S_DSL	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120927						
Client ID: 1092-302-10-11	Batch ID: 63931	TestNo: EPA 8015B(M LUFT		Analysis Date: 5/6/2010	SeqNo: 1931048						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Surr: p-Terphenyl	112.350		80.00		140	63	152		0	0	
-------------------	---------	--	-------	--	-----	----	-----	--	---	---	--

Sample ID: MB-63931	SampType: MBLK	TestCode: HC_S_ATL	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120927						
Client ID: PBS	Batch ID: 63931	TestNo: EPA 8015B(M LUFT		Analysis Date: 5/5/2010	SeqNo: 1930713						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

T/R Hydrocarbons: C8-C10	ND	10									
T/R Hydrocarbons: C10-C18	ND	10									
T/R Hydrocarbons: C18-C28	ND	10									
T/R Hydrocarbons: C28-C36	ND	10									
T/R Hydrocarbons: C36-C40	ND	10									
T/R Hydrocarbons: C8-C40 Total	ND	10									
Surr: p-Terphenyl	119.860		80.00		150	63	152				

Sample ID: 111545-006ADUP	SampType: DUP	TestCode: HC_S_ATL	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120927						
Client ID: 1092-302-10-11	Batch ID: 63931	TestNo: EPA 8015B(M LUFT		Analysis Date: 5/5/2010	SeqNo: 1930717						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

T/R Hydrocarbons: C8-C10	ND	10						0	0	20	
T/R Hydrocarbons: C10-C18	ND	10						0	0	20	
T/R Hydrocarbons: C18-C28	ND	10						0	0	20	
T/R Hydrocarbons: C28-C36	ND	10						0	0	20	
T/R Hydrocarbons: C36-C40	ND	10						0	0	20	
T/R Hydrocarbons: C8-C40 Total	ND	10						0	0	20	
Surr: p-Terphenyl	109.660		80.00		137	63	152		0	0	

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | II 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 | |



CLIENT: Geocon Consultants, Inc.
Work Order: 111545
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

BatchID: 63932

Sample ID: 111544-013AMSD	SampType: MSD	TestCode: 8015_S_DM	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120983						
Client ID: ZZZZZZ	Batch ID: 63932	TestNo: EPA 8015B(M LUFT		Analysis Date: 5/6/2010	SeqNo: 1932089						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

DRO	1329.030	10	1000	0	133	60	158	1154	14.1	20	
Surr: p-Terphenyl	110.880		80.00		139	63	152		0	0	

Sample ID: 111545-014ADUP	SampType: DUP	TestCode: 8015_S_DM	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120983						
Client ID: 1092-303-30-31	Batch ID: 63932	TestNo: EPA 8015B(M LUFT		Analysis Date: 5/6/2010	SeqNo: 1932090						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

DRO	ND	10						0	0	20	
ORO	ND	10						0	0	20	
Surr: p-Terphenyl	105.840		80.00		132	63	152		0	0	

Sample ID: MB-63932	SampType: MBLK	TestCode: 8015_S_DM	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120983						
Client ID: PBS	Batch ID: 63932	TestNo: EPA 8015B(M LUFT		Analysis Date: 5/10/2010	SeqNo: 1932464						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

DRO	ND	10									
ORO	ND	10									
Surr: p-Terphenyl	107.920		80.00		135	63	152				

Sample ID: LCS-63932	SampType: LCS	TestCode: 8015_S_DM	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120983						
Client ID: LCSS	Batch ID: 63932	TestNo: EPA 8015B(M LUFT		Analysis Date: 5/10/2010	SeqNo: 1932465						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

DRO	1202.220	10	1000	0	120	76	139				
Surr: p-Terphenyl	112.850		80.00		141	63	152				

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 | |



CLIENT: Geocon Consultants, Inc.
Work Order: 111545
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

BatchID: 63932

Sample ID: 111544-013AMS	SampType: MS	TestCode: 8015_S_DM	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120983						
Client ID: ZZZZZZ	Batch ID: 63932	TestNo: EPA 8015B(M LUFT		Analysis Date: 5/10/2010	SeqNo: 1932466						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	1154.420	10	1000	0	115	60	158				
Surr: p-Terphenyl	106.300		80.00		133	63	152				

Sample ID: 111545-014ADUP	SampType: DUP	TestCode: HC_S_ATL	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120983						
Client ID: 1092-303-30-31	Batch ID: 63932	TestNo: EPA 8015B(M LUFT		Analysis Date: 5/6/2010	SeqNo: 1932114						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C8-C10	ND	10						0	0	20	
T/R Hydrocarbons: C10-C18	ND	10						0	0	20	
T/R Hydrocarbons: C18-C28	ND	10						0	0	20	
T/R Hydrocarbons: C28-C36	ND	10						0	0	20	
T/R Hydrocarbons: C36-C40	ND	10						0	0	20	
T/R Hydrocarbons: C8-C40 Total	ND	10						0	0	20	
Surr: p-Terphenyl	105.840		80.00		132	63	152		0	0	

Sample ID: MB-63932	SampType: MBLK	TestCode: HC_S_ATL	Units: mg/Kg	Prep Date: 5/5/2010	RunNo: 120983						
Client ID: PBS	Batch ID: 63932	TestNo: EPA 8015B(M LUFT		Analysis Date: 5/10/2010	SeqNo: 1932491						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C8-C10	ND	10									
T/R Hydrocarbons: C10-C18	ND	10									
T/R Hydrocarbons: C18-C28	ND	10									
T/R Hydrocarbons: C28-C36	ND	10									
T/R Hydrocarbons: C36-C40	ND	10									
T/R Hydrocarbons: C8-C40 Total	ND	10									
Surr: p-Terphenyl	107.920		80.00		135	63	152				

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: 111545
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

BatchID: E10VS112

Sample ID: E100503LCS2	SampType: LCS	TestCode: HC_S_VOA1	Units: mg/Kg	Prep Date:	RunNo: 120833						
Client ID: LCSS	Batch ID: E10VS112	TestNo: EPA 8015B		Analysis Date: 5/3/2010	SeqNo: 1929889						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C12	4.843	1.0	5.000	0	96.9	70	130				
Surr: Bromofluorobenzene (FID)	118.713		100.0		119	56	137				

Sample ID: E100503MB1	SampType: MBLK	TestCode: HC_S_VOA1	Units: mg/Kg	Prep Date:	RunNo: 120833						
Client ID: PBS	Batch ID: E10VS112	TestNo: EPA 8015B		Analysis Date: 5/3/2010	SeqNo: 1929890						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C12	ND	1.0									
Surr: Bromofluorobenzene (FID)	105.996		100.0		106	56	137				

Sample ID: 111543-005ADUP	SampType: DUP	TestCode: HC_S_VOA1	Units: mg/Kg	Prep Date:	RunNo: 120833						
Client ID: ZZZZZZ	Batch ID: E10VS112	TestNo: EPA 8015B		Analysis Date: 5/3/2010	SeqNo: 1929902						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C12	ND	1.0						0	0	20	
Surr: Bromofluorobenzene (FID)	107.030		100.0		107	56	137		0	0	

Sample ID: 111543-005AMS	SampType: MS	TestCode: HC_S_VOA1	Units: mg/Kg	Prep Date:	RunNo: 120833						
Client ID: ZZZZZZ	Batch ID: E10VS112	TestNo: EPA 8015B		Analysis Date: 5/3/2010	SeqNo: 1929903						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C12	4.646	1.0	5.000	0	92.9	40	121				
Surr: Bromofluorobenzene (FID)	115.869		100.0		116	56	137				

Sample ID: 111543-005AMSD	SampType: MSD	TestCode: HC_S_VOA1	Units: mg/Kg	Prep Date:	RunNo: 120833						
Client ID: ZZZZZZ	Batch ID: E10VS112	TestNo: EPA 8015B		Analysis Date: 5/3/2010	SeqNo: 1929904						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C12	4.530	1.0	5.000	0	90.6	40	121	4.646	2.53	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
- II Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference



CLIENT: Geocon Consultants, Inc.
Work Order: 111545
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

BatchID: E10VS112

Sample ID: 111543-005AMSD	SampType: MSD	TestCode: HC_S_VOA1	Units: mg/Kg	Prep Date:	RunNo: 120833						
Client ID: ZZZZZZ	Batch ID: E10VS112	TestNo: EPA 8015B		Analysis Date: 5/3/2010	SeqNo: 1929904						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (FID)	115.206		100.0		115	56	137		0	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



CLIENT: Geocon Consultants, Inc.
Work Order: 111545
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

BatchID: E10VS113

Sample ID: E100504LCS2	SampType: LCS	TestCode: HC_S_VOA1	Units: mg/Kg	Prep Date:	RunNo: 120883						
Client ID: LCSS	Batch ID: E10VS113	TestNo: EPA 8015B		Analysis Date: 5/4/2010	SeqNo: 1929823						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C12	4.910	1.0	5.000	0	98.2	70	130				
Surr: Bromofluorobenzene (FID)	121.914		100.0		122	56	137				

Sample ID: E100504MB1	SampType: MBLK	TestCode: HC_S_VOA1	Units: mg/Kg	Prep Date:	RunNo: 120883						
Client ID: PBS	Batch ID: E10VS113	TestNo: EPA 8015B		Analysis Date: 5/4/2010	SeqNo: 1929824						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C12	ND	1.0									
Surr: Bromofluorobenzene (FID)	100.640		100.0		101	56	137				

Sample ID: 111573-001ADUP	SampType: DUP	TestCode: HC_S_VOA1	Units: mg/Kg	Prep Date:	RunNo: 120883						
Client ID: ZZZZZZ	Batch ID: E10VS113	TestNo: EPA 8015B		Analysis Date: 5/4/2010	SeqNo: 1929826						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C12	ND	1.0						0	0	20	
Surr: Bromofluorobenzene (FID)	104.179		100.0		104	56	137		0	0	

Sample ID: 111573-007AMS	SampType: MS	TestCode: HC_S_VOA1	Units: mg/Kg	Prep Date:	RunNo: 120883						
Client ID: ZZZZZZ	Batch ID: E10VS113	TestNo: EPA 8015B		Analysis Date: 5/4/2010	SeqNo: 1929828						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C12	3.325	1.0	5.000	0	66.5	40	121				
Surr: Bromofluorobenzene (FID)	91.914		100.0		91.9	56	137				

Sample ID: 111573-007AMSD	SampType: MSD	TestCode: HC_S_VOA1	Units: mg/Kg	Prep Date:	RunNo: 120883						
Client ID: ZZZZZZ	Batch ID: E10VS113	TestNo: EPA 8015B		Analysis Date: 5/4/2010	SeqNo: 1929829						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C12	3.489	1.0	5.000	0	69.8	40	121	3.325	4.81	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: 111545
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

BatchID: E10VS113

Sample ID: 111573-007AMSD	SampType: MSD	TestCode: HC_S_VOA1	Units: mg/Kg	Prep Date:	RunNo: 120883						
Client ID: ZZZZZZ	Batch ID: E10VS113	TestNo: EPA 8015B		Analysis Date: 5/4/2010	SeqNo: 1929829						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (FID)	97.963		100.0		98.0	56	137		0	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

CHAIN OF CUSTODY RECORD



**Advanced Technology
Laboratories**

3275 Walnut Avenue
Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

FOR LABORATORY USE ONLY

P.O. #: _____	Method of Transport Client <input type="checkbox"/> ATL <input checked="" type="checkbox"/> CA OverN <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other: _____	Sample Condition Upon Receipt 1. CHILLED 5-9 <input checked="" type="checkbox"/> N <input type="checkbox"/> 4. SEALED <input type="checkbox"/> N <input type="checkbox"/> 2. HEADSPACE (VOA) <input checked="" type="checkbox"/> N <input type="checkbox"/> 5. # OF SPLS MATCH COC <input checked="" type="checkbox"/> N <input type="checkbox"/> 3. CONTAINER INTACT <input checked="" type="checkbox"/> N <input type="checkbox"/> 6. PRESERVED <input type="checkbox"/> N <input checked="" type="checkbox"/>
Logged By: <u>[Signature]</u>	Date: <u>5/1/10</u>	

Client: GEOCON Attention: MIKE CONKLE	Address: 3303 N. SAN FERNANDO BLVD., SUITE 100 City: BURBANK State: CA Zip Code: 91504	Tel: 818-841-8388 Fax: 818-841-1704
--	---	--

Project Name: Caltrans TO #1	Project #: S9475-06-01	Sampler: MIKE CONKLE (Signature)
------------------------------	------------------------	----------------------------------

Relinquished by: (Signature and Printed Name) <u>[Signature]</u>	Date: <u>4/30/10</u>	Time: <u>1215</u>	Received by: (Signature and Printed Name) <u>[Signature]</u>	Date: <u>4/30/10</u>	Time: <u>1730</u>
Relinquished by: (Signature and Printed Name) <u>[Signature]</u>	Date: <u>4/30/10</u>	Time: <u>1845</u>	Received by: (Signature and Printed Name) <u>[Signature]</u>	Date: <u>4/30/10</u>	Time: <u>1845</u>

I hereby authorize ATL to perform the work indicated below: Project Mgr /Submitter: Mike Conkle <u>4/30/10</u> Print Name Date	Send Report To: Attn: _____ Co: _____ Addr: _____ City: _____ State: _____ Zip: _____	Bill To: Attn: _____ Co: _____ Addr: _____ City: _____ State: _____ Zip: _____	Special Instructions/Comments: CALTRANS CONTRACT 07A2729
---	---	--	---

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 /ATL workorder /mo (after 1 year)

I T E M	LAB USE ONLY:		Sample Description				TOTAL LEAD Pb (C6-C10)	SPECIFY APPROPRIATE MATRIX				TAT	#	Type	PRESERVATION	REMARKS	
	Batch #:	Lab No.	Sample ID / Location	Date	Time	SOIL		WATER	GROUND WATER	WASTEWATER							
	111545-001		1092-301-5-6'	4/30/10	920	X							E	1	M	T	
	2		1092-301-10-11'		930												
	3		1092-301-15-16'		940												
	4		1092-301-20-21		950												
	5		1092-302-5-6		1102												
	6		1092-302-10-11		1105												
	7		1092-302-15-16		1110												
	8		1092-302-20-21		1118												
	9		1092-303-6-7		1220												
	10		1092-303-10-11		1235												

<input type="checkbox"/> TAT starts RAM the following day if sample received after 3 PM	TAT: <input type="checkbox"/> A = Overnight ≤ 24 hrs <input type="checkbox"/> B = Emergency Next Workday <input type="checkbox"/> C = Critical 2 Workdays <input type="checkbox"/> D = Urgent 3 Workdays <input type="checkbox"/> E = Routine 7 Workdays	Preservatives: H=HCl N=HNO3 S=H2SO4 C=4°C Z=Zn(AC)2 C i T=Na2S2O3
Container Types: T=Tube V=VOA L=Liter P=Pir.	Jar B=Tedlar G=Glass P=Plastic M=Metal	

CHAIN OF CUSTODY RECORD



**Advanced Technology
Laboratories**

3275 Walnut Avenue
Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

FOR LABORATORY USE ONLY

P.O. #:	Method of Transport	Sample Condition Upon Receipt	
Logged By: _____ Date: _____	Client <input type="checkbox"/> ATL <input checked="" type="checkbox"/> CA OverN <input type="checkbox"/> FedEx <input type="checkbox"/> Other: _____	1. CHILLED <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> 4. SEALED <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> 2. HEADSPACE (VOA) <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> 5. # OF SPLS MATCH COC <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> 3. CONTAINER INTACT <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> 6. PRESERVED <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>	

Client: GEOCON Attention: MIKE CONKLE	Address: 3303 N. SAN FERNANDO BLVD., SUITE 100 City: BURBANK State: CA Zip Code: 91504	Tel: 818-841-8388 Fax: 818-841-1704
--	---	--

Project Name: Caltrans TO #1 Project #: S9475-06-01 Sampler: MIKE CONKLE (Signature)

Relinquished by: (Signature and Printed Name) <i>[Signature]</i>	Date: 4/30/10	Time: 1715	Received by: (Signature and Printed Name) <i>[Signature]</i>	Date: 4/30/10	Time: 1720
Relinquished by: (Signature and Printed Name) <i>[Signature]</i>	Date: 4/30/10	Time: 1845	Received by: (Signature and Printed Name) <i>[Signature]</i>	Date: 4/30/10	Time: 1845

I hereby authorize ATL to perform the work indicated below: Project Mgr /Submitter: Mike Conkle Print Name: _____ Date: 4/30/10 Signature: <i>[Signature]</i>	Send Report To: Attn: _____ Co: _____ Addr: _____ City: _____ State: _____ Zip: _____	Bill To: Attn: _____ Co: _____ Addr: _____ City: _____ State: _____ Zip: _____	Special Instructions/Comments: CALTRANS CONTRACT 07A2729
--	---	--	---

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 /ATL workorder /mo (after 1 year)

LAB USE ONLY:	Sample Description	Date	Time	Circle or Add Analysis(es) Requested	SPECIFY APPROPRIATE MATRIX								TAT	#	Type	PRESERVATION	REMARKS	
					SOIL	WATER	GROUND WATER	WASTEWATER	OTHER	OTHER	OTHER	OTHER						
11	1092-303-15-16	4/30/10	1242	X														
12	1092-303-20-21		1255	X														
13	1092-303-25-26		1305	X														
14	1092-303-30-31		1318	X														
15	1092-303-35-36		1330	X														
16	1092-303-40		1335	X														
17	1092-300 COMP		1350	X X												JG		

■ TAT starts 8AM the following day if samples received after 3 PM	TAT: <input type="checkbox"/> A = Overnight ≤ 24 hrs <input type="checkbox"/> B = Emergency Next Workday <input type="checkbox"/> C = Critical 2 Workdays <input type="checkbox"/> D = Urgent 3 Workdays <input type="checkbox"/> E = Routine 7 Workdays	Preservatives: H=HCl N=HNO ₃ S=H ₂ SO ₄ C=4°C Z=Zn(AC) ₂ O=NaOH T=Na ₂ S ₂ O ₃
Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Tedlar G=Glass P=Plastic M=Metal		

Fernando Diwa

From: conkle [conkle@geoconinc.com]
Sent: Monday, May 03, 2010 8:40 AM
To: Carmen Aguila
Cc: Diane Galvan
Subject: Geocon project S9475-06-01

Hi Carmen,

For the samples we sent in on Friday the chain of custody is marked "metals" – I wanted to let you know that we need CAM 17 metals on those samples. Let me know if you have questions.

Michael Conkle, PG
Senior Geologist

GEOCON

3303 N. San Fernando Blvd., Suite 100
Burbank, California 91504
Tel (818) 841-8388 Fax (818) 841-1704 Mobile (213) 503-7841

Please visit our new website: <http://www.geoconinc.com>



GEOTECHNICAL - ENVIRONMENTAL - MATERIALS

Bakersfield Burbank Carson City Livermore Murrieta Portland Sacramento San Diego

CONFIDENTIALITY NOTICE: This e-mail may contain confidential and privileged material for the sole use of the Intended recipient(s). Any review, use, distribution or disclosure by others is strictly prohibited. If you have received this communication in error, please notify the sender immediately by e-mail and delete the message and any file attachments from your computer. Thank you.

5/3/2010

May 11, 2010



Mike Conkle
Geocon Consultants, Inc.
3303 N. San Fernando Blvd., Suite 100
Burbank, CA 91504
TEL: (818) 841-8388
FAX: (818) 841-1704

ELAP No.: 1838
NELAP No.: 02107CA
NEVADA.: CA-401
CSDLAC No.: 10196

Workorder No.: 111587

RE: Caltrans TO #1, S9475-06-01

Attention: Mike Conkle

Enclosed are the results for sample(s) received on May 04, 2010 by Advanced Technology Laboratories. 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 (562)989-4045 if I can be of further assistance to your company.

Sincerely,

A handwritten signature in black ink, appearing to read "Eddie F. Rodriguez".

Eddie F. Rodriguez
Laboratory Director

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



CLIENT: Geocon Consultants, Inc.
Project: Caltrans TO #1, S9475-06-01
Lab Order: 111587

CASE NARRATIVE

Samples for Hexavalent Chromium (218.6) were subcontracted to Advanced Technology Laboratories-Las Vegas with ELAP Cert.# 2676.

Samples for NDMA (1625) were subcontracted to Calscience Environmental Laboratories, Inc with ELAP Cert.# 1230.

Samples for EDB, DBCO and TCP (504) were subcontracted to Associated Laboratory with ELAP Cert.# 1338.

Samples for BOD (SM5210) were subcontracted to American Scientific Laboratories with ELAP Cert.# 2200.

Samples for Asbestos TEM were subcontracted to AmeriSci Los Angeles with ELAP Cert.# 2322.

Analytical Comments for Method SM2340C

Dilution was necessary for samples 111587-001R and 111587-002R, due to sample matrix.

Matrix Spike (MS) and /or Matrix Spike Duplicate (MSD) are/is outside recovery criteria for samples 111587-002RMS and 111587-002RMSD; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

Analytical Comments for Method 200.8

Dilution was necessary for samples 111587-001L and 111587-002L, due to sample matrix.

Analytical Comments for Method 300

Dilution was necessary for samples 111587-001H and 111587-002H, due to sample matrix.

Analytical Comments for Method 314

Dilution was necessary for sample 111587-002H, due to sample matrix.



CLIENT: Geocon Consultants, Inc.
Project: Caltrans TO #1, S9475-06-01
Lab Order: 111587

CASE NARRATIVE

Analytical Comments for Method SM4500-S=D

Dilution was necessary for samples 111587-001K and 111587-002K, due to sample matrix.

Analytical Comments for Method 6010

Matrix Spike (MS) and /or Matrix Spike Duplicate (MSD) are/is outside recovery criteria for sample 111601-015CMS; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

RPD for Matrix Spike (MS)/Matrix Spike Duplicate (MSD) is outside criteria for sample 111601-015CMSD; however, the analytical batch was validated by the Laboratory Control Sample (LCS).



Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 11-May-10

CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	R-09-002
Lab Order:	111587	Collection Date:	5/4/2010 12:00:00 PM
Project:	Caltrans TO #1, S9475-06-01	Matrix:	GROUNDWATER
Lab ID:	111587-001		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3010A		EPA 6010B			
RunID: ICP8_100507E	QC Batch: 63968			PrepDate: 5/7/2010		Analyst: SRB
Boron	0.10	0.10		mg/L	1	5/7/2010 04:14 PM
OIL & GREASE						
	EPA 1664_HEM					
RunID: WETCHEM2_100507A	QC Batch: 63977			PrepDate: 5/7/2010		Analyst: CBB
Oil & Grease	ND	4.3		mg/L	1	5/7/2010
TOTAL PETROLEUM HYDROCARBONS						
	EPA 1664_SGT/HEM					
RunID: WETCHEM2_100507B	QC Batch: 63984			PrepDate: 5/7/2010		Analyst: CBB
Total Petroleum Hydrocarbons	ND	2.1		mg/L	1	5/7/2010
DISSOLVED METALS BY ICPMS						
	EPA 200.8		EPA 200.8			
RunID: ICP7_100510A	QC Batch: 63995			PrepDate: 5/10/2010		Analyst: SRB
Antimony	ND	0.50		µg/L	1	5/10/2010 01:05 PM
Arsenic	ND	1.0		µg/L	1	5/10/2010 01:05 PM
Barium	24	1.0		µg/L	1	5/10/2010 01:05 PM
Beryllium	ND	10		µg/L	20	5/10/2010 04:04 PM
Cadmium	ND	0.50		µg/L	1	5/10/2010 01:05 PM
Chromium	ND	0.50		µg/L	1	5/10/2010 01:05 PM
Cobalt	ND	0.50		µg/L	1	5/10/2010 01:05 PM
Copper	ND	1.0		µg/L	1	5/10/2010 01:05 PM
Lead	ND	1.0		µg/L	1	5/10/2010 01:05 PM
Molybdenum	2.1	0.50		µg/L	1	5/10/2010 01:05 PM
Nickel	ND	1.0		µg/L	1	5/10/2010 01:05 PM
Selenium	ND	0.50		µg/L	1	5/10/2010 01:05 PM
Silver	ND	0.50		µg/L	1	5/10/2010 01:05 PM
Thallium	ND	0.50		µg/L	1	5/10/2010 01:05 PM
Vanadium	1.9	1.0		µg/L	1	5/10/2010 01:05 PM
Zinc	ND	10		µg/L	1	5/10/2010 01:05 PM
CYANIDE, TOTAL						
	SM4500-CN E					
RunID: WETCHEM3_100510A	QC Batch: 63993			PrepDate: 5/7/2010		Analyst: MFP
Cyanide	ND	0.010		mg/L	1	5/10/2010

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

ANALYTICAL RESULTS

Print Date: 11-May-10

CLIENT: Geocon Consultants, Inc.
 Lab Order: 111587
 Project: Caltrans TO #1, S9475-06-01
 Lab ID: 111587-001

Client Sample ID: R-09-002
 Collection Date: 5/4/2010 12:00:00 PM
 Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
SULFIDE, TOTAL						
SM4500-S= D						
RunID: WETCHEM3_100510B	QC Batch: R121038				PrepDate:	Analyst: MFP
Sulfide	0.20	0.15		mg/L	15	5/10/2010
NON-HALOGENATED ORGANICS BY GC/FID						
EPA 8015B						
RunID: GC3_100511A	QC Batch: R121033				PrepDate:	Analyst: CBR
Ethanol	ND	1.0		mg/L	1	5/11/2010 09:34 AM
Methanol	ND	1.0		mg/L	1	5/11/2010 09:34 AM
DIESEL RANGE ORGANICS BY GC/FID						
EPA 3510C						
EPA 8015B(M)						
RunID: GC16_100506B	QC Batch: 63913				PrepDate: 5/4/2010	Analyst: CBR
DRO	ND	0.21		mg/L	1	5/7/2010 02:45 AM
Surr: p-Terphenyl	92.0	36-126		%REC	1	5/7/2010 02:45 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3510C						
EPA 8081A						
RunID: GC9_100510A	QC Batch: 63980				PrepDate: 5/7/2010	Analyst: SMH
4,4'-DDD	ND	0.050		µg/L	1	5/10/2010 12:40 PM
4,4'-DDE	ND	0.050		µg/L	1	5/10/2010 12:40 PM
4,4'-DDT	ND	0.050		µg/L	1	5/10/2010 12:40 PM
Aldrin	ND	0.025		µg/L	1	5/10/2010 12:40 PM
alpha-BHC	ND	0.025		µg/L	1	5/10/2010 12:40 PM
alpha-Chlordane	ND	0.025		µg/L	1	5/10/2010 12:40 PM
beta-BHC	ND	0.025		µg/L	1	5/10/2010 12:40 PM
Chlordane	ND	0.25		µg/L	1	5/10/2010 12:40 PM
delta-BHC	ND	0.025		µg/L	1	5/10/2010 12:40 PM
Dieldrin	ND	0.050		µg/L	1	5/10/2010 12:40 PM
Endosulfan I	ND	0.025		µg/L	1	5/10/2010 12:40 PM
Endosulfan II	ND	0.050		µg/L	1	5/10/2010 12:40 PM
Endosulfan sulfate	ND	0.050		µg/L	1	5/10/2010 12:40 PM
Endrin	ND	0.050		µg/L	1	5/10/2010 12:40 PM
Endrin aldehyde	ND	0.050		µg/L	1	5/10/2010 12:40 PM
Endrin ketone	ND	0.050		µg/L	1	5/10/2010 12:40 PM
gamma-BHC	ND	0.025		µg/L	1	5/10/2010 12:40 PM
gamma-Chlordane	ND	0.025		µg/L	1	5/10/2010 12:40 PM
Heptachlor	ND	0.025		µg/L	1	5/10/2010 12:40 PM
Heptachlor epoxide	ND	0.025		µg/L	1	5/10/2010 12:40 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

ANALYTICAL RESULTS

Print Date: 11-May-10

CLIENT: Geocon Consultants, Inc. Client Sample ID: R-09-002
 Lab Order: 111587 Collection Date: 5/4/2010 12:00:00 PM
 Project: Caltrans TO #1, S9475-06-01 Matrix: GROUNDWATER
 Lab ID: 111587-001

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

ORGANOCHLORINE PESTICIDES BY GC/ECD

EPA 3510C		EPA 8081A	
RunID: GC9_100510A	QC Batch: 63980	PrepDate: 5/7/2010	Analyst: SMH
Methoxychlor	ND	0.25	µg/L
Toxaphene	ND	2.5	µg/L
Surr: Decachlorobiphenyl	73.5	33-125	%REC
Surr: Tetrachloro-m-xylene	75.2	47-109	%REC

PCBS BY GC/ECD

EPA 3510C		EPA 8082	
RunID: GC4_100510A	QC Batch: 63980	PrepDate: 5/7/2010	Analyst: BB
Aroclor 1016	ND	0.50	µg/L
Aroclor 1221	ND	1.0	µg/L
Aroclor 1232	ND	0.50	µg/L
Aroclor 1242	ND	0.50	µg/L
Aroclor 1248	ND	0.50	µg/L
Aroclor 1254	ND	0.50	µg/L
Aroclor 1260	ND	0.50	µg/L
Aroclor 1262	ND	0.50	µg/L
Aroclor 1268	ND	0.50	µg/L
Surr: Decachlorobiphenyl	84.1	26-112	%REC
Surr: Tetrachloro-m-xylene	85.7	48-130	%REC

GASOLINE RANGE ORGANICS BY GC/FID

EPA 8015B(M)	
RunID: GC2_100506B	QC Batch: E10VW023
GRO	ND 0.20 mg/L
Surr: Bromofluorobenzene (FID)	104 70-130 %REC

PERCHLORATE BY ION CHROMATOGRAPHY

EPA 314.0	
RunID: IC4_100505A	QC Batch: R120920
Perchlorate	ND 2.0 µg/L

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0	
RunID: IC3_100505A	QC Batch: R120925
Chloride	15 0.50 mg/L

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

ANALYTICAL RESULTS

Print Date: 11-May-10

CLIENT: Geocon Consultants, Inc. Client Sample ID: R-09-002
 Lab Order: 111587 Collection Date: 5/4/2010 12:00:00 PM
 Project: Caltrans TO #1, S9475-06-01 Matrix: GROUNDWATER
 Lab ID: 111587-001

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY						
				EPA 300.0		
RunID: IC3_100505A	QC Batch: R120925			PrepDate:		Analyst: JSD
Nitrogen, Nitrite	ND	0.10		mg/L	1	5/5/2010 11:40 AM
ANIONS BY ION CHROMATOGRAPHY						
				EPA 300.0		
RunID: IC3_100505A	QC Batch: R120925			PrepDate:		Analyst: JSD
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	5/5/2010 11:40 AM
ANIONS BY ION CHROMATOGRAPHY						
				EPA 300.0		
RunID: IC3_100505A	QC Batch: R120925			PrepDate:		Analyst: JSD
Sulfate	300	20		mg/L	20	5/5/2010 12:14 PM
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 245.1		
RunID: AA1_100510F	QC Batch: 63967			PrepDate:	5/7/2010	Analyst: IL
Mercury	ND	0.20		µg/L	1	5/10/2010 02:03 PM
1,4-DIOXANE BY GC/MS: ISOTOPE DILUTION TECHNIQUE						
				EPA 3510C		
				EPA 8270C(M)		
RunID: MS 13_100504B	QC Batch: 63880			PrepDate:	5/4/2010	Analyst: DMP
1,4-Dioxane	ND	2.0		µg/L	1	5/5/2010 01:10 PM
Surr: 1,2-Dichlorobenzene-d4	77.5	46-97		%REC	1	5/5/2010 01:10 PM
Surr: 2,4,6-Tribromophenol	92.8	59-124		%REC	1	5/5/2010 01:10 PM
Surr: 2-Chlorophenol-d4	63.6	49-93		%REC	1	5/5/2010 01:10 PM
Surr: 2-Fluorobiphenyl	80.2	57-107		%REC	1	5/5/2010 01:10 PM
Surr: 2-Fluorophenol	37.6	27-60		%REC	1	5/5/2010 01:10 PM
Surr: 4-Terphenyl-d14	90.0	69-132		%REC	1	5/5/2010 01:10 PM
Surr: Nitrobenzene-d5	79.6	52-107		%REC	1	5/5/2010 01:10 PM
Surr: Phenol-d5	27.7	15-50		%REC	1	5/5/2010 01:10 PM
SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS						
				EPA 3510C		
				EPA 8270C		
RunID: MS 13_100504A	QC Batch: 63880			PrepDate:	5/4/2010	Analyst: DMP
1,2,4-Trichlorobenzene	ND	10		µg/L	1	5/5/2010 01:10 PM
1,2-Dichlorobenzene	ND	10		µg/L	1	5/5/2010 01:10 PM
1,3-Dichlorobenzene	ND	10		µg/L	1	5/5/2010 01:10 PM
1,4-Dichlorobenzene	ND	10		µg/L	1	5/5/2010 01:10 PM
2,4,5-Trichlorophenol	ND	10		µg/L	1	5/5/2010 01:10 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

ANALYTICAL RESULTS

Print Date: 11-May-10

CLIENT: Geocon Consultants, Inc. Client Sample ID: R-09-002
 Lab Order: 111587 Collection Date: 5/4/2010 12:00:00 PM
 Project: Caltrans TO #1, S9475-06-01 Matrix: GROUNDWATER
 Lab ID: 111587-001

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3510C

EPA 8270C

RunID:	MS 13_100504A	QC Batch:	63880	PrepDate:	5/4/2010	Analyst:	DMP
2,4,6-Trichlorophenol	ND	10	µg/L	1	5/5/2010 01:10 PM		
2,4-Dichlorophenol	ND	10	µg/L	1	5/5/2010 01:10 PM		
2,4-Dimethylphenol	ND	10	µg/L	1	5/5/2010 01:10 PM		
2,4-Dinitrophenol	ND	50	µg/L	1	5/5/2010 01:10 PM		
2,4-Dinitrotoluene	ND	10	µg/L	1	5/5/2010 01:10 PM		
2,6-Dinitrotoluene	ND	10	µg/L	1	5/5/2010 01:10 PM		
2-Chloronaphthalene	ND	10	µg/L	1	5/5/2010 01:10 PM		
2-Chlorophenol	ND	10	µg/L	1	5/5/2010 01:10 PM		
2-Methylnaphthalene	ND	10	µg/L	1	5/5/2010 01:10 PM		
2-Methylphenol	ND	10	µg/L	1	5/5/2010 01:10 PM		
2-Nitroaniline	ND	50	µg/L	1	5/5/2010 01:10 PM		
2-Nitrophenol	ND	10	µg/L	1	5/5/2010 01:10 PM		
3,3'-Dichlorobenzidine	ND	20	µg/L	1	5/5/2010 01:10 PM		
3-Nitroaniline	ND	50	µg/L	1	5/5/2010 01:10 PM		
4,6-Dinitro-2-methylphenol	ND	50	µg/L	1	5/5/2010 01:10 PM		
4-Bromophenyl-phenylether	ND	10	µg/L	1	5/5/2010 01:10 PM		
4-Chloro-3-methylphenol	ND	50	µg/L	1	5/5/2010 01:10 PM		
4-Chloroaniline	ND	20	µg/L	1	5/5/2010 01:10 PM		
4-Chlorophenyl-phenylether	ND	10	µg/L	1	5/5/2010 01:10 PM		
4-Methylphenol	ND	10	µg/L	1	5/5/2010 01:10 PM		
4-Nitroaniline	ND	20	µg/L	1	5/5/2010 01:10 PM		
4-Nitrophenol	ND	50	µg/L	1	5/5/2010 01:10 PM		
Acenaphthene	ND	10	µg/L	1	5/5/2010 01:10 PM		
Acenaphthylene	ND	10	µg/L	1	5/5/2010 01:10 PM		
Anthracene	ND	10	µg/L	1	5/5/2010 01:10 PM		
Benzidine (M)	ND	50	µg/L	1	5/5/2010 01:10 PM		
Benzo(a)anthracene	ND	10	µg/L	1	5/5/2010 01:10 PM		
Benzo(a)pyrene	ND	10	µg/L	1	5/5/2010 01:10 PM		
Benzo(b)fluoranthene	ND	10	µg/L	1	5/5/2010 01:10 PM		
Benzo(g,h,i)perylene	ND	10	µg/L	1	5/5/2010 01:10 PM		
Benzo(k)fluoranthene	ND	10	µg/L	1	5/5/2010 01:10 PM		
Benzoic acid	ND	50	µg/L	1	5/5/2010 01:10 PM		
Benzyl alcohol	ND	20	µg/L	1	5/5/2010 01:10 PM		
Bis(2-chloroethoxy)methane	ND	10	µg/L	1	5/5/2010 01:10 PM		
Bis(2-chloroethyl)ether	ND	10	µg/L	1	5/5/2010 01:10 PM		
Bis(2-chloroisopropyl)ether	ND	10	µg/L	1	5/5/2010 01:10 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

ANALYTICAL RESULTS

Print Date: 11-May-10

CLIENT: Geocon Consultants, Inc. Client Sample ID: R-09-002
 Lab Order: 111587 Collection Date: 5/4/2010 12:00:00 PM
 Project: Caltrans TO #1, S9475-06-01 Matrix: GROUNDWATER
 Lab ID: 111587-001

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS						
EPA 3510C			EPA 8270C			
RunID: MS 13_100504A	QC Batch: 63880				PrepDate: 5/4/2010	Analyst: DMP
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	5/5/2010 01:10 PM
Butylbenzylphthalate	ND	10		µg/L	1	5/5/2010 01:10 PM
Chrysene	ND	10		µg/L	1	5/5/2010 01:10 PM
Di-n-butylphthalate	ND	10		µg/L	1	5/5/2010 01:10 PM
Di-n-octylphthalate	ND	10		µg/L	1	5/5/2010 01:10 PM
Dibenz(a,h)anthracene	ND	10		µg/L	1	5/5/2010 01:10 PM
Dibenzofuran	ND	10		µg/L	1	5/5/2010 01:10 PM
Diethylphthalate	ND	10		µg/L	1	5/5/2010 01:10 PM
Dimethylphthalate	ND	10		µg/L	1	5/5/2010 01:10 PM
Fluoranthene	ND	10		µg/L	1	5/5/2010 01:10 PM
Fluorene	ND	10		µg/L	1	5/5/2010 01:10 PM
Hexachlorobenzene	ND	10		µg/L	1	5/5/2010 01:10 PM
Hexachlorobutadiene	ND	20		µg/L	1	5/5/2010 01:10 PM
Hexachlorocyclopentadiene	ND	10		µg/L	1	5/5/2010 01:10 PM
Hexachloroethane	ND	10		µg/L	1	5/5/2010 01:10 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	5/5/2010 01:10 PM
Isophorone	ND	10		µg/L	1	5/5/2010 01:10 PM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	5/5/2010 01:10 PM
N-Nitrosodiphenylamine	ND	10		µg/L	1	5/5/2010 01:10 PM
Naphthalene	ND	10		µg/L	1	5/5/2010 01:10 PM
Nitrobenzene	ND	10		µg/L	1	5/5/2010 01:10 PM
Pentachlorophenol	ND	50		µg/L	1	5/5/2010 01:10 PM
Phenanthrene	ND	10		µg/L	1	5/5/2010 01:10 PM
Phenol	ND	10		µg/L	1	5/5/2010 01:10 PM
Pyrene	ND	10		µg/L	1	5/5/2010 01:10 PM
Surr: 1,2-Dichlorobenzene-d4	77.5	46-97		%REC	1	5/5/2010 01:10 PM
Surr: 2,4,6-Tribromophenol	92.8	59-124		%REC	1	5/5/2010 01:10 PM
Surr: 2-Chlorophenol-d4	63.6	49-93		%REC	1	5/5/2010 01:10 PM
Surr: 2-Fluorobiphenyl	80.4	57-107		%REC	1	5/5/2010 01:10 PM
Surr: 2-Fluorophenol	37.6	27-60		%REC	1	5/5/2010 01:10 PM
Surr: 4-Terphenyl-d14	90.0	69-132		%REC	1	5/5/2010 01:10 PM
Surr: Nitrobenzene-d5	79.9	52-107		%REC	1	5/5/2010 01:10 PM
Surr: Phenol-d5	27.8	15-50		%REC	1	5/5/2010 01:10 PM

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: MS11_100505A QC Batch: A10VW101 PrepDate: Analyst: SLL

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

ANALYTICAL RESULTS

Print Date: 11-May-10

CLIENT: Geocon Consultants, Inc. Client Sample ID: R-09-002
 Lab Order: 111587 Collection Date: 5/4/2010 12:00:00 PM
 Project: Caltrans TO #1, S9475-06-01 Matrix: GROUNDWATER
 Lab ID: 111587-001

Analyses Result PQL Qual Units DF Date Analyzed

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID:	MS11_100505A	QC Batch:	A10VW101	PrepDate:	Analyst:	SLL
1,1,1,2-Tetrachloroethane	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
1,1,1-Trichloroethane	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
1,1,2-Trichloroethane	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
1,1-Dichloroethane	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
1,1-Dichloroethene	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
1,1-Dichloropropene	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
1,2,3-Trichlorobenzene	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
1,2,3-Trichloropropane	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
1,2,4-Trichlorobenzene	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
1,2,4-Trimethylbenzene	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
1,2-Dibromo-3-chloropropane	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
1,2-Dibromoethane	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
1,2-Dichlorobenzene	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
1,2-Dichloroethane	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
1,2-Dichloropropane	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
1,3,5-Trimethylbenzene	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
1,3-Dichlorobenzene	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
1,3-Dichloropropane	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
1,4-Dichlorobenzene	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
2,2-Dichloropropane	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
2-Chlorotoluene	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
4-Chlorotoluene	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
4-Isopropyltoluene	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
Benzene	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
Bromobenzene	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
Bromodichloromethane	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
Bromoform	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
Bromomethane	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
Carbon tetrachloride	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
Chlorobenzene	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
Chloroethane	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
Chloroform	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
Chloromethane	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
cis-1,2-Dichloroethene	ND	0.50	µg/L	1	5/5/2010 10:30 AM	
cis-1,3-Dichloropropene	ND	0.50	µg/L	1	5/5/2010 10:30 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



Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 11-May-10

CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	R-09-002
Lab Order:	111587	Collection Date:	5/4/2010 12:00:00 PM
Project:	Caltrans TO #1, S9475-06-01	Matrix:	GROUNDWATER
Lab ID:	111587-001		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: MS11_100505A	QC Batch: A10VW101	PrepDate:	Analyst: SLL		
Dibromochloromethane	ND	0.50	µg/L	1	5/5/2010 10:30 AM
Dibromomethane	ND	0.50	µg/L	1	5/5/2010 10:30 AM
Dichlorodifluoromethane	ND	0.50	µg/L	1	5/5/2010 10:30 AM
Ethylbenzene	ND	0.50	µg/L	1	5/5/2010 10:30 AM
Hexachlorobutadiene	ND	0.50	µg/L	1	5/5/2010 10:30 AM
Isopropylbenzene	ND	0.50	µg/L	1	5/5/2010 10:30 AM
m,p-Xylene	ND	1.0	µg/L	1	5/5/2010 10:30 AM
Methylene chloride	ND	1.0	µg/L	1	5/5/2010 10:30 AM
n-Butylbenzene	ND	0.50	µg/L	1	5/5/2010 10:30 AM
n-Propylbenzene	ND	0.50	µg/L	1	5/5/2010 10:30 AM
Naphthalene	ND	0.50	µg/L	1	5/5/2010 10:30 AM
o-Xylene	ND	0.50	µg/L	1	5/5/2010 10:30 AM
sec-Butylbenzene	ND	0.50	µg/L	1	5/5/2010 10:30 AM
Styrene	ND	0.50	µg/L	1	5/5/2010 10:30 AM
tert-Butylbenzene	ND	0.50	µg/L	1	5/5/2010 10:30 AM
Tetrachloroethene	ND	0.50	µg/L	1	5/5/2010 10:30 AM
Toluene	ND	0.50	µg/L	1	5/5/2010 10:30 AM
trans-1,2-Dichloroethene	ND	0.50	µg/L	1	5/5/2010 10:30 AM
Trichloroethene	ND	0.50	µg/L	1	5/5/2010 10:30 AM
Trichlorofluoromethane	ND	0.50	µg/L	1	5/5/2010 10:30 AM
Vinyl chloride	ND	0.50	µg/L	1	5/5/2010 10:30 AM
Surr: 1,2-Dichloroethane-d4	95.2	70-130	%REC	1	5/5/2010 10:30 AM
Surr: 4-Bromofluorobenzene	93.5	70-130	%REC	1	5/5/2010 10:30 AM
Surr: Dibromofluoromethane	97.6	70-130	%REC	1	5/5/2010 10:30 AM
Surr: Toluene-d8	100	70-130	%REC	1	5/5/2010 10:30 AM

HARDNESS AS CALCIUM CARBONATE

SM2340C

RunID: WETCHEM_100510E	QC Batch: R121036	PrepDate: 5/10/2010	Analyst: CBB		
Hardness (As CaCO3)	130	4.0	mg/L	2	5/10/2010

TOTAL FILTERABLE RESIDUE

SM2540C

RunID: WETCHEM_100510A	QC Batch: 64011	PrepDate: 5/7/2010	Analyst: CBB		
Total Dissolved Solids (Residue, Filterable)	560	13	mg/L	1	5/10/2010 10:00 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		



Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 11-May-10

CLIENT: Geocon Consultants, Inc.
 Lab Order: 111587
 Project: Caltrans TO #1, S9475-06-01
 Lab ID: 111587-001

Client Sample ID: R-09-002
 Collection Date: 5/4/2010 12:00:00 PM
 Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE						
				SM2540D		
RunID: WETCHEM_100505C	QC Batch: 63935				PrepDate: 5/5/2010	Analyst: CBB
Suspended Solids (Residue, Non-Filterable)	700	10		mg/L	1	5/5/2010 04:30 PM
SETTLABLE MATTER						
				SM2540F		
RunID: WETCHEM_100505A	QC Batch: 63916				PrepDate: 5/5/2010	Analyst: CBB
Settleable Matter	1.2	0.099		ml/L	1	5/5/2010 09:50 AM

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



Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 11-May-10

CLIENT: Geocon Consultants, Inc. Client Sample ID: R-09-102
 Lab Order: 111587 Collection Date: 5/4/2010 3:00:00 PM
 Project: Caltrans TO #1, S9475-06-01 Matrix: GROUNDWATER
 Lab ID: 111587-002

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

ICP METALS

EPA 3010A		EPA 6010B				
RunID: ICP8_100507E	QC Batch: 63968			PrepDate: 5/7/2010	Analyst: SRB	
Boron	0.45	0.10	mg/L	1		5/7/2010 04:18 PM

OIL & GREASE

EPA 1664_HEM						
RunID: WETCHEM2_100507A	QC Batch: 63977			PrepDate: 5/7/2010	Analyst: CBB	
Oil & Grease	ND	4.3	mg/L	1		5/7/2010

TOTAL PETROLEUM HYDROCARBONS

EPA 1664_SGT/HEM						
RunID: WETCHEM2_100507B	QC Batch: 63984			PrepDate: 5/7/2010	Analyst: CBB	
Total Petroleum Hydrocarbons	ND	2.1	mg/L	1		5/7/2010

DISSOLVED METALS BY ICPMS

EPA 200.8		EPA 200.8				
RunID: ICP7_100510A	QC Batch: 63995			PrepDate: 5/10/2010	Analyst: SRB	
Antimony	ND	0.50	µg/L	1		5/10/2010 01:18 PM
Arsenic	1.2	1.0	µg/L	1		5/10/2010 01:18 PM
Barium	29	1.0	µg/L	1		5/10/2010 01:18 PM
Beryllium	ND	10	µg/L	20		5/10/2010 04:16 PM
Cadmium	ND	0.50	µg/L	1		5/10/2010 01:18 PM
Chromium	1.8	0.50	µg/L	1		5/10/2010 01:18 PM
Cobalt	1.3	0.50	µg/L	1		5/10/2010 01:18 PM
Copper	4.3	1.0	µg/L	1		5/10/2010 01:18 PM
Lead	ND	1.0	µg/L	1		5/10/2010 01:18 PM
Molybdenum	4.0	0.50	µg/L	1		5/10/2010 01:18 PM
Nickel	15	1.0	µg/L	1		5/10/2010 01:18 PM
Selenium	2.3	0.50	µg/L	1		5/10/2010 01:18 PM
Silver	ND	0.50	µg/L	1		5/10/2010 01:18 PM
Thallium	ND	0.50	µg/L	1		5/10/2010 01:18 PM
Vanadium	1.4	1.0	µg/L	1		5/10/2010 01:18 PM
Zinc	ND	10	µg/L	1		5/10/2010 01:18 PM

CYANIDE, TOTAL

SM4500-CN E						
RunID: WETCHEM3_100510A	QC Batch: 63993			PrepDate: 5/7/2010	Analyst: MFP	
Cyanide	ND	0.010	mg/L	1		5/10/2010

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

ANALYTICAL RESULTS

Print Date: 11-May-10

CLIENT: Geocon Consultants, Inc.
 Lab Order: 111587
 Project: Caltrans TO #1, S9475-06-01
 Lab ID: 111587-002

Client Sample ID: R-09-102
 Collection Date: 5/4/2010 3:00:00 PM
 Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
SULFIDE, TOTAL						
				SM4500-S= D		
RunID: WETCHEM3_100510B	QC Batch: R121038			PrepDate:		Analyst: MFP
Sulfide	0.12	0.075		mg/L	7.5	5/10/2010
NON-HALOGENATED ORGANICS BY GC/FID						
				EPA 8015B		
RunID: GC3_100511A	QC Batch: R121033			PrepDate:		Analyst: CBR
Ethanol	ND	1.0		mg/L	1	5/11/2010 09:45 AM
Methanol	ND	1.0		mg/L	1	5/11/2010 09:45 AM
DIESEL RANGE ORGANICS BY GC/FID						
				EPA 3510C EPA 8015B(M)		
RunID: GC16_100506B	QC Batch: 63913			PrepDate:	5/4/2010	Analyst: CBR
DRO	ND	0.22		mg/L	1	5/7/2010 02:54 AM
Surr: p-Terphenyl	107	36-126		%REC	1	5/7/2010 02:54 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
				EPA 3510C EPA 8081A		
RunID: GC9_100510A	QC Batch: 63980			PrepDate:	5/7/2010	Analyst: SMH
4,4'-DDD	ND	0.050		µg/L	1	5/10/2010 12:54 PM
4,4'-DDE	ND	0.050		µg/L	1	5/10/2010 12:54 PM
4,4'-DDT	ND	0.050		µg/L	1	5/10/2010 12:54 PM
Aldrin	ND	0.025		µg/L	1	5/10/2010 12:54 PM
alpha-BHC	ND	0.025		µg/L	1	5/10/2010 12:54 PM
alpha-Chlordane	ND	0.025		µg/L	1	5/10/2010 12:54 PM
beta-BHC	ND	0.025		µg/L	1	5/10/2010 12:54 PM
Chlordane	ND	0.25		µg/L	1	5/10/2010 12:54 PM
delta-BHC	ND	0.025		µg/L	1	5/10/2010 12:54 PM
Dieldrin	ND	0.050		µg/L	1	5/10/2010 12:54 PM
Endosulfan I	ND	0.025		µg/L	1	5/10/2010 12:54 PM
Endosulfan II	ND	0.050		µg/L	1	5/10/2010 12:54 PM
Endosulfan sulfate	ND	0.050		µg/L	1	5/10/2010 12:54 PM
Endrin	ND	0.050		µg/L	1	5/10/2010 12:54 PM
Endrin aldehyde	ND	0.050		µg/L	1	5/10/2010 12:54 PM
Endrin ketone	ND	0.050		µg/L	1	5/10/2010 12:54 PM
gamma-BHC	ND	0.025		µg/L	1	5/10/2010 12:54 PM
gamma-Chlordane	ND	0.025		µg/L	1	5/10/2010 12:54 PM
Heptachlor	ND	0.025		µg/L	1	5/10/2010 12:54 PM
Heptachlor epoxide	ND	0.025		µg/L	1	5/10/2010 12:54 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

ANALYTICAL RESULTS

Print Date: 11-May-10

CLIENT: Geocon Consultants, Inc. Client Sample ID: R-09-102
 Lab Order: 111587 Collection Date: 5/4/2010 3:00:00 PM
 Project: Caltrans TO #1, S9475-06-01 Matrix: GROUNDWATER
 Lab ID: 111587-002

Analyses Result PQL Qual Units DF Date Analyzed

ORGANOCHLORINE PESTICIDES BY GC/ECD

EPA 3510C

EPA 8081A

RunID: GC9_100510A QC Batch: 63980 PrepDate: 5/7/2010 Analyst: SMH
 Methoxychlor ND 0.25 µg/L 1 5/10/2010 12:54 PM
 Toxaphene ND 2.5 µg/L 1 5/10/2010 12:54 PM
 Surr: Decachlorobiphenyl 82.5 33-125 %REC 1 5/10/2010 12:54 PM
 Surr: Tetrachloro-m-xylene 80.9 47-109 %REC 1 5/10/2010 12:54 PM

PCBS BY GC/ECD

EPA 3510C

EPA 8082

RunID: GC4_100510A QC Batch: 63980 PrepDate: 5/7/2010 Analyst: BB
 Aroclor 1016 ND 0.50 µg/L 1 5/10/2010 01:43 PM
 Aroclor 1221 ND 1.0 µg/L 1 5/10/2010 01:43 PM
 Aroclor 1232 ND 0.50 µg/L 1 5/10/2010 01:43 PM
 Aroclor 1242 ND 0.50 µg/L 1 5/10/2010 01:43 PM
 Aroclor 1248 ND 0.50 µg/L 1 5/10/2010 01:43 PM
 Aroclor 1254 ND 0.50 µg/L 1 5/10/2010 01:43 PM
 Aroclor 1260 ND 0.50 µg/L 1 5/10/2010 01:43 PM
 Aroclor 1262 ND 0.50 µg/L 1 5/10/2010 01:43 PM
 Aroclor 1268 ND 0.50 µg/L 1 5/10/2010 01:43 PM
 Surr: Decachlorobiphenyl 87.7 26-112 %REC 1 5/10/2010 01:43 PM
 Surr: Tetrachloro-m-xylene 89.2 48-130 %REC 1 5/10/2010 01:43 PM

GASOLINE RANGE ORGANICS BY GC/FID

EPA 8015B(M)

RunID: GC2_100506B QC Batch: E10VW023 PrepDate: Analyst: CL
 GRO ND 0.20 mg/L 1 5/6/2010 09:46 PM
 Surr: Bromofluorobenzene (FID) 107 70-130 %REC 1 5/6/2010 09:46 PM

PERCHLORATE BY ION CHROMATOGRAPHY

EPA 314.0

RunID: IC4_100505A QC Batch: R120920 PrepDate: Analyst: JSD
 Perchlorate ND 4.0 µg/L 2 5/5/2010 03:58 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC3_100505A QC Batch: R120925 PrepDate: Analyst: JSD
 Chloride 73 10 mg/L 20 5/5/2010 12:03 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



Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 11-May-10

CLIENT: Geocon Consultants, Inc. Client Sample ID: R-09-102
 Lab Order: 111587 Collection Date: 5/4/2010 3:00:00 PM
 Project: Caltrans TO #1, S9475-06-01 Matrix: GROUNDWATER
 Lab ID: 111587-002

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC3_100505A	QC Batch: R120925				PrepDate:	Analyst: JSD
Nitrogen, Nitrite	ND	2.0		mg/L	20	5/5/2010 12:03 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC3_100505A	QC Batch: R120925				PrepDate:	Analyst: JSD
Nitrogen, Nitrate (As N)	ND	2.0		mg/L	20	5/5/2010 12:03 PM

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: IC3_100505A	QC Batch: R120925				PrepDate:	Analyst: JSD
Sulfate	1300	100		mg/L	100	5/5/2010 01:41 PM

DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE

EPA 245.1

RunID: AA1_100510F	QC Batch: 63967				PrepDate: 5/7/2010	Analyst: IL
Mercury	ND	0.20		µg/L	1	5/10/2010 01:58 PM

1,4-DIOXANE BY GC/MS: ISOTOPE DILUTION TECHNIQUE

EPA 3510C

EPA 8270C(M)

RunID: MS 13_100504B	QC Batch: 63880				PrepDate: 5/4/2010	Analyst: DMP
1,4-Dioxane	ND	2.0		µg/L	1	5/5/2010 01:37 PM
Surr: 1,2-Dichlorobenzene-d4	76.0	46-97		%REC	1	5/5/2010 01:37 PM
Surr: 2,4,6-Tribromophenol	91.1	59-124		%REC	1	5/5/2010 01:37 PM
Surr: 2-Chlorophenol-d4	64.8	49-93		%REC	1	5/5/2010 01:37 PM
Surr: 2-Fluorobiphenyl	79.4	57-107		%REC	1	5/5/2010 01:37 PM
Surr: 2-Fluorophenol	38.1	27-60		%REC	1	5/5/2010 01:37 PM
Surr: 4-Terphenyl-d14	89.3	69-132		%REC	1	5/5/2010 01:37 PM
Surr: Nitrobenzene-d5	80.1	52-107		%REC	1	5/5/2010 01:37 PM
Surr: Phenol-d5	28.3	15-50		%REC	1	5/5/2010 01:37 PM

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3510C

EPA 8270C

RunID: MS 13_100504A	QC Batch: 63880				PrepDate: 5/4/2010	Analyst: DMP
1,2,4-Trichlorobenzene	ND	10		µg/L	1	5/5/2010 01:37 PM
1,2-Dichlorobenzene	ND	10		µg/L	1	5/5/2010 01:37 PM
1,3-Dichlorobenzene	ND	10		µg/L	1	5/5/2010 01:37 PM
1,4-Dichlorobenzene	ND	10		µg/L	1	5/5/2010 01:37 PM
2,4,5-Trichlorophenol	ND	10		µg/L	1	5/5/2010 01:37 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.	Client Sample ID:	R-09-102
Lab Order:	111587	Collection Date:	5/4/2010 3:00:00 PM
Project:	Caltrans TO #1, S9475-06-01	Matrix:	GROUNDWATER
Lab ID:	111587-002		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3510C

EPA 8270C

RunID: MS 13_100504A	QC Batch: 63880	PrepDate: 5/4/2010	Analyst: DMP
2,4,6-Trichlorophenol	ND	10	µg/L 1 5/5/2010 01:37 PM
2,4-Dichlorophenol	ND	10	µg/L 1 5/5/2010 01:37 PM
2,4-Dimethylphenol	ND	10	µg/L 1 5/5/2010 01:37 PM
2,4-Dinitrophenol	ND	50	µg/L 1 5/5/2010 01:37 PM
2,4-Dinitrotoluene	ND	10	µg/L 1 5/5/2010 01:37 PM
2,6-Dinitrotoluene	ND	10	µg/L 1 5/5/2010 01:37 PM
2-Chloronaphthalene	ND	10	µg/L 1 5/5/2010 01:37 PM
2-Chlorophenol	ND	10	µg/L 1 5/5/2010 01:37 PM
2-Methylnaphthalene	ND	10	µg/L 1 5/5/2010 01:37 PM
2-Methylphenol	ND	10	µg/L 1 5/5/2010 01:37 PM
2-Nitroaniline	ND	50	µg/L 1 5/5/2010 01:37 PM
2-Nitrophenol	ND	10	µg/L 1 5/5/2010 01:37 PM
3,3'-Dichlorobenzidine	ND	20	µg/L 1 5/5/2010 01:37 PM
3-Nitroaniline	ND	50	µg/L 1 5/5/2010 01:37 PM
4,6-Dinitro-2-methylphenol	ND	50	µg/L 1 5/5/2010 01:37 PM
4-Bromophenyl-phenylether	ND	10	µg/L 1 5/5/2010 01:37 PM
4-Chloro-3-methylphenol	ND	50	µg/L 1 5/5/2010 01:37 PM
4-Chloroaniline	ND	20	µg/L 1 5/5/2010 01:37 PM
4-Chlorophenyl-phenylether	ND	10	µg/L 1 5/5/2010 01:37 PM
4-Methylphenol	ND	10	µg/L 1 5/5/2010 01:37 PM
4-Nitroaniline	ND	20	µg/L 1 5/5/2010 01:37 PM
4-Nitrophenol	ND	50	µg/L 1 5/5/2010 01:37 PM
Acenaphthene	ND	10	µg/L 1 5/5/2010 01:37 PM
Acenaphthylene	ND	10	µg/L 1 5/5/2010 01:37 PM
Anthracene	ND	10	µg/L 1 5/5/2010 01:37 PM
Benzidine (M)	ND	50	µg/L 1 5/5/2010 01:37 PM
Benzo(a)anthracene	ND	10	µg/L 1 5/5/2010 01:37 PM
Benzo(a)pyrene	ND	10	µg/L 1 5/5/2010 01:37 PM
Benzo(b)fluoranthene	ND	10	µg/L 1 5/5/2010 01:37 PM
Benzo(g,h,i)perylene	ND	10	µg/L 1 5/5/2010 01:37 PM
Benzo(k)fluoranthene	ND	10	µg/L 1 5/5/2010 01:37 PM
Benzoic acid	ND	50	µg/L 1 5/5/2010 01:37 PM
Benzyl alcohol	ND	20	µg/L 1 5/5/2010 01:37 PM
Bis(2-chloroethoxy)methane	ND	10	µg/L 1 5/5/2010 01:37 PM
Bis(2-chloroethyl)ether	ND	10	µg/L 1 5/5/2010 01:37 PM
Bis(2-chloroisopropyl)ether	ND	10	µg/L 1 5/5/2010 01:37 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

ANALYTICAL RESULTS

Print Date: 11-May-10

CLIENT:	Geocon Consultants, Inc.	Client Sample ID:	R-09-102
Lab Order:	111587	Collection Date:	5/4/2010 3:00:00 PM
Project:	Caltrans TO #1, S9475-06-01	Matrix:	GROUNDWATER
Lab ID:	111587-002		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 3510C

EPA 8270C

RunID:	MS 13_100504A	QC Batch:	63880	PrepDate:	5/4/2010	Analyst:	DMP
	Bis(2-ethylhexyl)phthalate	ND	10	µg/L	1	5/5/2010 01:37 PM	
	Butylbenzylphthalate	ND	10	µg/L	1	5/5/2010 01:37 PM	
	Chrysene	ND	10	µg/L	1	5/5/2010 01:37 PM	
	Di-n-butylphthalate	ND	10	µg/L	1	5/5/2010 01:37 PM	
	Di-n-octylphthalate	ND	10	µg/L	1	5/5/2010 01:37 PM	
	Dibenz(a,h)anthracene	ND	10	µg/L	1	5/5/2010 01:37 PM	
	Dibenzofuran	ND	10	µg/L	1	5/5/2010 01:37 PM	
	Diethylphthalate	ND	10	µg/L	1	5/5/2010 01:37 PM	
	Dimethylphthalate	ND	10	µg/L	1	5/5/2010 01:37 PM	
	Fluoranthene	ND	10	µg/L	1	5/5/2010 01:37 PM	
	Fluorene	ND	10	µg/L	1	5/5/2010 01:37 PM	
	Hexachlorobenzene	ND	10	µg/L	1	5/5/2010 01:37 PM	
	Hexachlorobutadiene	ND	20	µg/L	1	5/5/2010 01:37 PM	
	Hexachlorocyclopentadiene	ND	10	µg/L	1	5/5/2010 01:37 PM	
	Hexachloroethane	ND	10	µg/L	1	5/5/2010 01:37 PM	
	Indeno(1,2,3-cd)pyrene	ND	10	µg/L	1	5/5/2010 01:37 PM	
	Isophorone	ND	10	µg/L	1	5/5/2010 01:37 PM	
	N-Nitrosodi-n-propylamine	ND	10	µg/L	1	5/5/2010 01:37 PM	
	N-Nitrosodiphenylamine	ND	10	µg/L	1	5/5/2010 01:37 PM	
	Naphthalene	ND	10	µg/L	1	5/5/2010 01:37 PM	
	Nitrobenzene	ND	10	µg/L	1	5/5/2010 01:37 PM	
	Pentachlorophenol	ND	50	µg/L	1	5/5/2010 01:37 PM	
	Phenanthrene	ND	10	µg/L	1	5/5/2010 01:37 PM	
	Phenol	ND	10	µg/L	1	5/5/2010 01:37 PM	
	Pyrene	ND	10	µg/L	1	5/5/2010 01:37 PM	
	Surr: 1,2-Dichlorobenzene-d4	76.0	46-97	%REC	1	5/5/2010 01:37 PM	
	Surr: 2,4,6-Tribromophenol	91.1	59-124	%REC	1	5/5/2010 01:37 PM	
	Surr: 2-Chlorophenol-d4	64.8	49-93	%REC	1	5/5/2010 01:37 PM	
	Surr: 2-Fluorobiphenyl	79.5	57-107	%REC	1	5/5/2010 01:37 PM	
	Surr: 2-Fluorophenol	38.1	27-60	%REC	1	5/5/2010 01:37 PM	
	Surr: 4-Terphenyl-d14	89.3	69-132	%REC	1	5/5/2010 01:37 PM	
	Surr: Nitrobenzene-d5	80.4	52-107	%REC	1	5/5/2010 01:37 PM	
	Surr: Phenol-d5	28.3	15-50	%REC	1	5/5/2010 01:37 PM	

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID:	MS11_100505A	QC Batch:	A10VW101	PrepDate:	Analyst:	SLL
--------	--------------	-----------	----------	-----------	----------	-----

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

ANALYTICAL RESULTS

Print Date: 11-May-10

CLIENT: Geocon Consultants, Inc.
 Lab Order: 111587
 Project: Caltrans TO #1, S9475-06-01
 Lab ID: 111587-002

Client Sample ID: R-09-102
 Collection Date: 5/4/2010 3:00:00 PM
 Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: MS11_100505A	QC Batch: A10VW101	PrepDate:	Analyst: SLL		
1,1,1,2-Tetrachloroethane	ND	0.50	µg/L	1	5/5/2010 11:12 AM
1,1,1-Trichloroethane	ND	0.50	µg/L	1	5/5/2010 11:12 AM
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L	1	5/5/2010 11:12 AM
1,1,2-Trichloroethane	ND	0.50	µg/L	1	5/5/2010 11:12 AM
1,1-Dichloroethane	ND	0.50	µg/L	1	5/5/2010 11:12 AM
1,1-Dichloroethene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
1,1-Dichloropropene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
1,2,3-Trichlorobenzene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
1,2,3-Trichloropropane	ND	0.50	µg/L	1	5/5/2010 11:12 AM
1,2,4-Trichlorobenzene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
1,2,4-Trimethylbenzene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
1,2-Dibromo-3-chloropropane	ND	0.50	µg/L	1	5/5/2010 11:12 AM
1,2-Dibromoethane	ND	0.50	µg/L	1	5/5/2010 11:12 AM
1,2-Dichlorobenzene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
1,2-Dichloroethane	ND	0.50	µg/L	1	5/5/2010 11:12 AM
1,2-Dichloropropane	ND	0.50	µg/L	1	5/5/2010 11:12 AM
1,3,5-Trimethylbenzene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
1,3-Dichlorobenzene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
1,3-Dichloropropane	ND	0.50	µg/L	1	5/5/2010 11:12 AM
1,4-Dichlorobenzene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
2,2-Dichloropropane	ND	0.50	µg/L	1	5/5/2010 11:12 AM
2-Chlorotoluene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
4-Chlorotoluene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
4-Isopropyltoluene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
Benzene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
Bromobenzene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
Bromodichloromethane	ND	0.50	µg/L	1	5/5/2010 11:12 AM
Bromoform	ND	0.50	µg/L	1	5/5/2010 11:12 AM
Bromomethane	ND	0.50	µg/L	1	5/5/2010 11:12 AM
Carbon tetrachloride	ND	0.50	µg/L	1	5/5/2010 11:12 AM
Chlorobenzene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
Chloroethane	ND	0.50	µg/L	1	5/5/2010 11:12 AM
Chloroform	ND	0.50	µg/L	1	5/5/2010 11:12 AM
Chloromethane	ND	0.50	µg/L	1	5/5/2010 11:12 AM
cis-1,2-Dichloroethene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
cis-1,3-Dichloropropene	ND	0.50	µg/L	1	5/5/2010 11:12 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		



Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 11-May-10

CLIENT: Geocon Consultants, Inc.
 Lab Order: 111587
 Project: Caltrans TO #1, S9475-06-01
 Lab ID: 111587-002

Client Sample ID: R-09-102
 Collection Date: 5/4/2010 3:00:00 PM
 Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: MS11_100505A	QC Batch: A10VW101	PrepDate:	Analyst: SLL		
Dibromochloromethane	ND	0.50	µg/L	1	5/5/2010 11:12 AM
Dibromomethane	ND	0.50	µg/L	1	5/5/2010 11:12 AM
Dichlorodifluoromethane	ND	0.50	µg/L	1	5/5/2010 11:12 AM
Ethylbenzene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
Hexachlorobutadiene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
Isopropylbenzene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
m,p-Xylene	ND	1.0	µg/L	1	5/5/2010 11:12 AM
Methylene chloride	ND	1.0	µg/L	1	5/5/2010 11:12 AM
n-Butylbenzene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
n-Propylbenzene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
Naphthalene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
o-Xylene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
sec-Butylbenzene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
Styrene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
tert-Butylbenzene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
Tetrachloroethene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
Toluene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
trans-1,2-Dichloroethene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
Trichloroethene	ND	0.50	µg/L	1	5/5/2010 11:12 AM
Trichlorofluoromethane	ND	0.50	µg/L	1	5/5/2010 11:12 AM
Vinyl chloride	ND	0.50	µg/L	1	5/5/2010 11:12 AM
Surr: 1,2-Dichloroethane-d4	95.8	70-130	%REC	1	5/5/2010 11:12 AM
Surr: 4-Bromofluorobenzene	92.2	70-130	%REC	1	5/5/2010 11:12 AM
Surr: Dibromofluoromethane	99.3	70-130	%REC	1	5/5/2010 11:12 AM
Surr: Toluene-d8	99.6	70-130	%REC	1	5/5/2010 11:12 AM

HARDNESS AS CALCIUM CARBONATE

SM2340C

RunID: WETCHEM_100510E	QC Batch: R121036	PrepDate: 5/10/2010	Analyst: CBB		
Hardness (As CaCO3)	1300	20	mg/L	10	5/10/2010

TOTAL FILTERABLE RESIDUE

SM2540C

RunID: WETCHEM_100510A	QC Batch: 64011	PrepDate: 5/7/2010	Analyst: CBB		
Total Dissolved Solids (Residue, Filterable)	2600	20	mg/L	1	5/10/2010 10:00 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: 111587
 Project: Caltrans TO #1, S9475-06-01
 Lab ID: 111587-002

Client Sample ID: R-09-102
 Collection Date: 5/4/2010 3:00:00 PM
 Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

TOTAL NON-FILTERABLE RESIDUE

SM2540D

RunID: WETCHEM_100505C	QC Batch: 63935				PrepDate: 5/5/2010	Analyst: CBB
Suspended Solids (Residue, Non-Filterable)	600	10		mg/L	1	5/5/2010 04:30 PM

SETTLABLE MATTER

SM2540F

RunID: WETCHEM_100505A	QC Batch: 63916				PrepDate: 5/5/2010	Analyst: CBB
Settleable Matter	0.98	0.098		ml/L	1	5/5/2010 09:50 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





Advanced Technology Laboratories

Date: 11-May-10

CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 130.2_2340C_W

Sample ID: MB-R121036	SampType: MBLK	TestCode: 130.2_2340C	Units: mg/L	Prep Date: 5/10/2010	RunNo: 121036						
Client ID: PBW	Batch ID: R121036	TestNo: SM2340C		Analysis Date: 5/10/2010	SeqNo: 1932962						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hardness (As CaCO3)	ND	2.0									
---------------------	----	-----	--	--	--	--	--	--	--	--	--

Sample ID: LCS-R121036	SampType: LCS	TestCode: 130.2_2340C	Units: mg/L	Prep Date: 5/10/2010	RunNo: 121036						
Client ID: LCSW	Batch ID: R121036	TestNo: SM2340C		Analysis Date: 5/10/2010	SeqNo: 1932963						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hardness (As CaCO3)	50.100	2.0	50.00	0	100	80	120				
---------------------	--------	-----	-------	---	-----	----	-----	--	--	--	--

Sample ID: 111587-001RDUP	SampType: DUP	TestCode: 130.2_2340C	Units: mg/L	Prep Date: 5/10/2010	RunNo: 121036						
Client ID: R-09-002	Batch ID: R121036	TestNo: SM2340C		Analysis Date: 5/10/2010	SeqNo: 1932967						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hardness (As CaCO3)	128.143	4.0						127.7	0.312	30	
---------------------	---------	-----	--	--	--	--	--	-------	-------	----	--

Sample ID: 111587-002RMS	SampType: MS	TestCode: 130.2_2340C	Units: mg/L	Prep Date: 5/10/2010	RunNo: 121036						
Client ID: R-09-102	Batch ID: R121036	TestNo: SM2340C		Analysis Date: 5/10/2010	SeqNo: 1932969						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hardness (As CaCO3)	2568.852	40	1000	1335	123	80	120				S
---------------------	----------	----	------	------	-----	----	-----	--	--	--	---

Sample ID: 111587-002RMSD	SampType: MSD	TestCode: 130.2_2340C	Units: mg/L	Prep Date: 5/10/2010	RunNo: 121036						
Client ID: R-09-102	Batch ID: R121036	TestNo: SM2340C		Analysis Date: 5/10/2010	SeqNo: 1932970						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hardness (As CaCO3)	2572.844	40	1000	1335	124	80	120	2569	0.155	20	S
---------------------	----------	----	------	------	-----	----	-----	------	-------	----	---

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: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: 111587-001H-DUP	SampType: DUP	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 5/7/2010	RunNo: 121024						
Client ID: R-09-002	Batch ID: 64011	TestNo: SM2540C		Analysis Date: 5/10/2010	SeqNo: 1932862						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		584.000	13					558.7	4.43	10	

Sample ID: 111587-002H-DUP	SampType: DUP	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 5/7/2010	RunNo: 121024						
Client ID: R-09-102	Batch ID: 64011	TestNo: SM2540C		Analysis Date: 5/10/2010	SeqNo: 1932864						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		2532.000	20					2552	0.787	10	

Sample ID: LCS-64011	SampType: LCS	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 5/7/2010	RunNo: 121024						
Client ID: LCSW	Batch ID: 64011	TestNo: SM2540C		Analysis Date: 5/10/2010	SeqNo: 1932865						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		987.000	10	970.0	0	102	80	120			

Sample ID: MB-64011	SampType: MBLK	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 5/7/2010	RunNo: 121024						
Client ID: PBW	Batch ID: 64011	TestNo: SM2540C		Analysis Date: 5/10/2010	SeqNo: 1932866						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		ND	10								

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: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID:	SampType:	TestCode:	Units:	Prep Date:	RunNo:						
111587-001H-DUP	DUP	160.2_2540D	mg/L	5/5/2010	120922						
Client ID: R-09-002	Batch ID: 63935	TestNo: SM2540D		Analysis Date: 5/5/2010	SeqNo: 1930566						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter)	721.000	10						704.0	2.39	10	

Sample ID:	SampType:	TestCode:	Units:	Prep Date:	RunNo:						
LCS-63935	LCS	160.2_2540D	mg/L	5/5/2010	120922						
Client ID: LCSW	Batch ID: 63935	TestNo: SM2540D		Analysis Date: 5/5/2010	SeqNo: 1930568						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter)	99.000	10	96.60	0	102	80	120				

Sample ID:	SampType:	TestCode:	Units:	Prep Date:	RunNo:						
MB-63935	MBLK	160.2_2540D	mg/L	5/5/2010	120922						
Client ID: PBW	Batch ID: 63935	TestNo: SM2540D		Analysis Date: 5/5/2010	SeqNo: 1930569						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter)	ND	10									

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 | |



CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.5_2540F_W

Sample ID: MB-63916	SampType: MBLK	TestCode: 160.5_2540F_ Units: ml/L	Prep Date: 5/5/2010	RunNo: 120884							
Client ID: PBW	Batch ID: 63916	TestNo: SM2540F	Analysis Date: 5/5/2010	SeqNo: 1929688							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Settleable Matter	ND	0.10									

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: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 1664_HEM_W

Sample ID:	SampType:	TestCode:	Units:	Prep Date:	RunNo:						
MB-63977	MBLK	1664_HEM_	mg/L	5/7/2010	120985						
Client ID: PBW	Batch ID: 63977	TestNo: EPA 1664_H		Analysis Date: 5/7/2010	SeqNo: 1932149						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Oil & Grease	ND	4.0									

Sample ID:	SampType:	TestCode:	Units:	Prep Date:	RunNo:						
LCS-63977	LCS	1664_HEM_	mg/L	5/7/2010	120985						
Client ID: LCSW	Batch ID: 63977	TestNo: EPA 1664_H		Analysis Date: 5/7/2010	SeqNo: 1932150						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Oil & Grease	39.300	4.0	40.00	0	98.3	78	114				

Sample ID:	SampType:	TestCode:	Units:	Prep Date:	RunNo:						
111587-001G-DUP	DUP	1664_HEM_	mg/L	5/7/2010	120985						
Client ID: R-09-002	Batch ID: 63977	TestNo: EPA 1664_H		Analysis Date: 5/7/2010	SeqNo: 1932153						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Oil & Grease	0.978	4.3						1.064	0	20	

Sample ID:	SampType:	TestCode:	Units:	Prep Date:	RunNo:						
111587-002G-DUP	DUP	1664_HEM_	mg/L	5/7/2010	120985						
Client ID: R-09-102	Batch ID: 63977	TestNo: EPA 1664_H		Analysis Date: 5/7/2010	SeqNo: 1932155						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Oil & Grease	0.968	4.3						0.9574	0	20	

Sample ID:	SampType:	TestCode:	Units:	Prep Date:	RunNo:						
MB-63977-MS	MS	1664_HEM_	mg/L	5/7/2010	120985						
Client ID: ZZZZZZ	Batch ID: 63977	TestNo: EPA 1664_H		Analysis Date: 5/7/2010	SeqNo: 1932156						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Oil & Grease	39.300	4.0	40.00	0	98.3	78	114				

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: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 1664_HEM_W

Sample ID: MB-63977-MSD	SampType: MSD	TestCode: 1664_HEM_	Units: mg/L	Prep Date: 5/7/2010	RunNo: 120985						
Client ID: ZZZZZZ	Batch ID: 63977	TestNo: EPA 1664_H		Analysis Date: 5/7/2010	SeqNo: 1932157						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Oil & Grease	40.000	4.0	40.00	0	100	78	114	39.30	1.77	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: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 1664_SGT/HEM_W

Sample ID: MB-63984	SampType: MBLK	TestCode: 1664_SGT/HE	Units: mg/L	Prep Date: 5/7/2010	RunNo: 120986						
Client ID: PBW	Batch ID: 63984	TestNo: EPA 1664_S		Analysis Date: 5/7/2010	SeqNo: 1932158						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Petroleum Hydrocarbons ND 2.0

Sample ID: LCS-63984	SampType: LCS	TestCode: 1664_SGT/HE	Units: mg/L	Prep Date: 5/7/2010	RunNo: 120986						
Client ID: LCSW	Batch ID: 63984	TestNo: EPA 1664_S		Analysis Date: 5/7/2010	SeqNo: 1932159						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Petroleum Hydrocarbons 17.000 2.0 20.00 0 85.0 78 114

Sample ID: 111587-001G-DUP	SampType: DUP	TestCode: 1664_SGT/HE	Units: mg/L	Prep Date: 5/7/2010	RunNo: 120986						
Client ID: R-09-002	Batch ID: 63984	TestNo: EPA 1664_S		Analysis Date: 5/7/2010	SeqNo: 1932162						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Petroleum Hydrocarbons 0.761 2.2 0.7447 0 20

Sample ID: 111587-002G-DUP	SampType: DUP	TestCode: 1664_SGT/HE	Units: mg/L	Prep Date: 5/7/2010	RunNo: 120986						
Client ID: R-09-102	Batch ID: 63984	TestNo: EPA 1664_S		Analysis Date: 5/7/2010	SeqNo: 1932164						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Petroleum Hydrocarbons 0.753 2.2 0.6383 0 20

Sample ID: MB-63984-MS	SampType: MS	TestCode: 1664_SGT/HE	Units: mg/L	Prep Date: 5/7/2010	RunNo: 120986						
Client ID: ZZZZZZ	Batch ID: 63984	TestNo: EPA 1664_S		Analysis Date: 5/7/2010	SeqNo: 1932165						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Petroleum Hydrocarbons 19.000 2.0 20.00 0 95.0 78 114

Qualifiers:

- B Analyte detected in the associated Method Blank
 - E Value above quantitation range
 - II 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



CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 1664_SGT/HEM_W

Sample ID: MB-63984-MSD	SampType: MSD	TestCode: 1664_SGT/HE	Units: mg/L	Prep Date: 5/7/2010	RunNo: 120986						
Client ID: ZZZZZZ	Batch ID: 63984	TestNo: EPA 1664_S		Analysis Date: 5/7/2010	SeqNo: 1932166						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Petroleum Hydrocarbons	17.400	2.0	20.00	0	87.0	78	114	19.00	8.79	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: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID: LCS-63995	SampType: LCS	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 5/10/2010	RunNo: 121027						
Client ID: LCSW	Batch ID: 63995	TestNo: EPA 200.8	EPA 200.8	Analysis Date: 5/10/2010	SeqNo: 1932906						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.763	0.50	10.00	0	97.6	85	115				
Arsenic	9.810	1.0	10.00	0	98.1	85	115				
Barium	9.848	1.0	10.00	0	98.5	85	115				
Cadmium	9.933	0.50	10.00	0	99.3	85	115				
Chromium	9.820	0.50	10.00	0	98.2	85	115				
Cobalt	9.725	0.50	10.00	0	97.3	85	115				
Copper	9.895	1.0	10.00	0	99.0	85	115				
Lead	9.974	1.0	10.00	0	99.7	85	115				
Molybdenum	9.831	0.50	10.00	0	98.3	85	115				
Nickel	9.049	1.0	10.00	0	90.5	85	115				
Selenium	9.894	0.50	10.00	0	98.9	85	115				
Silver	9.816	0.50	10.00	0	98.2	85	115				
Thallium	9.945	0.50	10.00	0	99.4	85	115				
Vanadium	9.771	1.0	10.00	0	97.7	85	115				
Zinc	99.237	10	100.0	0	99.2	85	115				

Sample ID: 111587-001L-MS	SampType: MS	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 5/10/2010	RunNo: 121027						
Client ID: R-09-002	Batch ID: 63995	TestNo: EPA 200.8	EPA 200.8	Analysis Date: 5/10/2010	SeqNo: 1932908						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.546	0.50	10.00	0	95.5	70	130				
Arsenic	10.768	1.0	10.00	0.7260	100	70	130				
Barium	33.878	1.0	10.00	23.93	99.5	70	130				
Cadmium	9.445	0.50	10.00	0	94.4	70	130				
Chromium	8.871	0.50	10.00	0.2130	86.6	70	130				
Cobalt	9.011	0.50	10.00	0.3270	86.8	70	130				
Copper	9.072	1.0	10.00	0.6780	83.9	70	130				
Lead	9.019	1.0	10.00	0	90.2	70	130				
Molybdenum	11.830	0.50	10.00	2.138	96.9	70	130				
Nickel	9.070	1.0	10.00	0.6860	83.8	70	130				

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: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID: 111587-001L-MS	SampType: MS	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 5/10/2010	RunNo: 121027						
Client ID: R-09-002	Batch ID: 63995	TestNo: EPA 200.8	EPA 200.8	Analysis Date: 5/10/2010	SeqNo: 1932908						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Selenium	10.958	0.50	10.00	0	110	70	130				
Silver	8.223	0.50	10.00	0	82.2	70	130				
Thallium	8.997	0.50	10.00	0	90.0	70	130				
Vanadium	10.882	1.0	10.00	1.868	90.1	70	130				
Zinc	89.874	10	100.0	0	89.9	70	130				

Sample ID: 111587-001L-MSD	SampType: MSD	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 5/10/2010	RunNo: 121027						
Client ID: R-09-002	Batch ID: 63995	TestNo: EPA 200.8	EPA 200.8	Analysis Date: 5/10/2010	SeqNo: 1932909						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	9.628	0.50	10.00	0	96.3	70	130	9.546	0.855	20	
Arsenic	10.918	1.0	10.00	0.7260	102	70	130	10.77	1.38	20	
Barium	33.005	1.0	10.00	23.93	90.8	70	130	33.88	2.61	20	
Cadmium	9.359	0.50	10.00	0	93.6	70	130	9.445	0.915	20	
Chromium	9.046	0.50	10.00	0.2130	88.3	70	130	8.871	1.95	20	
Cobalt	8.937	0.50	10.00	0.3270	86.1	70	130	9.011	0.825	20	
Copper	9.061	1.0	10.00	0.6780	83.8	70	130	9.072	0.121	20	
Lead	8.898	1.0	10.00	0	89.0	70	130	9.019	1.35	20	
Molybdenum	11.731	0.50	10.00	2.138	95.9	70	130	11.83	0.840	20	
Nickel	8.997	1.0	10.00	0.6860	83.1	70	130	9.070	0.808	20	
Selenium	10.940	0.50	10.00	0	109	70	130	10.96	0.164	20	
Silver	8.233	0.50	10.00	0	82.3	70	130	8.223	0.122	20	
Thallium	8.862	0.50	10.00	0	88.6	70	130	8.997	1.51	20	
Vanadium	11.023	1.0	10.00	1.868	91.6	70	130	10.88	1.29	20	
Zinc	89.769	10	100.0	0	89.8	70	130	89.87	0.117	20	

Sample ID: 111587-002L-DUP	SampType: DUP	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 5/10/2010	RunNo: 121027						
Client ID: R-09-102	Batch ID: 63995	TestNo: EPA 200.8	EPA 200.8	Analysis Date: 5/10/2010	SeqNo: 1932911						
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 | |



CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID: 111587-002L-DUP	SampType: DUP	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 5/10/2010	RunNo: 121027						
Client ID: R-09-102	Batch ID: 63995	TestNo: EPA 200.8	EPA 200.8	Analysis Date: 5/10/2010	SeqNo: 1932911						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.250	0.50						0.3800	0	20	
Arsenic	1.235	1.0						1.187	3.96	20	
Barium	27.933	1.0						28.60	2.35	20	
Cadmium	0.093	0.50						0.09500	0	20	
Chromium	1.753	0.50						1.751	0.114	20	
Cobalt	1.294	0.50						1.327	2.52	20	
Copper	4.248	1.0						4.288	0.937	20	
Lead	ND	1.0						0	0	20	
Molybdenum	3.950	0.50						4.039	2.23	20	
Nickel	15.358	1.0						15.28	0.509	20	
Selenium	2.353	0.50						2.329	1.03	20	
Silver	ND	0.50						0	0	20	
Thallium	ND	0.50						0	0	20	
Vanadium	1.434	1.0						1.444	0.695	20	
Zinc	4.116	10						4.285	0	20	

Sample ID: MB-63995	SampType: MBLK	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 5/10/2010	RunNo: 121027						
Client ID: PBW	Batch ID: 63995	TestNo: EPA 200.8	EPA 200.8	Analysis Date: 5/10/2010	SeqNo: 1932912						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.50									
Arsenic	ND	1.0									
Barium	ND	1.0									
Cadmium	ND	0.50									
Chromium	ND	0.50									
Cobalt	ND	0.50									
Copper	ND	1.0									
Lead	ND	1.0									
Molybdenum	ND	0.50									
Nickel	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



CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID: MB-63995	SampType: MBLK	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 5/10/2010	RunNo: 121027						
Client ID: PBW	Batch ID: 63995	TestNo: EPA 200.8	EPA 200.8	Analysis Date: 5/10/2010	SeqNo: 1932912						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Selenium	ND	0.50									
Silver	ND	0.50									
Thallium	ND	0.50									
Vanadium	ND	1.0									
Zinc	ND	10									

Sample ID: MB-63995	SampType: MBLK	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 5/10/2010	RunNo: 121028						
Client ID: PBW	Batch ID: 63995	TestNo: EPA 200.8	EPA 200.8	Analysis Date: 5/10/2010	SeqNo: 1932913						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Beryllium	ND	0.50									
-----------	----	------	--	--	--	--	--	--	--	--	--

Sample ID: LCS-63995	SampType: LCS	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 5/10/2010	RunNo: 121028						
Client ID: LCSW	Batch ID: 63995	TestNo: EPA 200.8	EPA 200.8	Analysis Date: 5/10/2010	SeqNo: 1932914						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Beryllium	9.700	0.50	10.00	0	97.0	85	115				
-----------	-------	------	-------	---	------	----	-----	--	--	--	--

Sample ID: 111587-001L-MS	SampType: MS	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 5/10/2010	RunNo: 121028						
Client ID: R-09-002	Batch ID: 63995	TestNo: EPA 200.8	EPA 200.8	Analysis Date: 5/10/2010	SeqNo: 1932916						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Beryllium	8.380	10	10.00	0	83.8	70	130				
-----------	-------	----	-------	---	------	----	-----	--	--	--	--

Sample ID: 111587-001L-MSD	SampType: MSD	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 5/10/2010	RunNo: 121028						
Client ID: R-09-002	Batch ID: 63995	TestNo: EPA 200.8	EPA 200.8	Analysis Date: 5/10/2010	SeqNo: 1932917						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Beryllium	7.920	10	10.00	0	79.2	70	130	8.380	0	20	
-----------	-------	----	-------	---	------	----	-----	-------	---	----	--

Qualifiers:

- | | | | | | |
|----|---|---|--------------------------------------|----|--|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | II | 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 | | |



CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID: 111587-002L-DUP	SampType: DUP	TestCode: 200.8_WDISS	Units: µg/L	Prep Date: 5/10/2010	RunNo: 121028						
Client ID: R-09-102	Batch ID: 63995	TestNo: EPA 200.8	EPA 200.8	Analysis Date: 5/10/2010	SeqNo: 1932919						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	ND	10						0	0	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: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 245.1_WD

Sample ID: MB-63967	SampType: MBLK	TestCode: 245.1_WD	Units: µg/L	Prep Date: 5/7/2010	RunNo: 121010						
Client ID: PBW	Batch ID: 63967	TestNo: EPA 245.1		Analysis Date: 5/10/2010	SeqNo: 1932666						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury ND 0.20

Sample ID: LCS-63967	SampType: LCS	TestCode: 245.1_WD	Units: µg/L	Prep Date: 5/7/2010	RunNo: 121010						
Client ID: LCSW	Batch ID: 63967	TestNo: EPA 245.1		Analysis Date: 5/10/2010	SeqNo: 1932667						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 10.750 0.20 10.00 0 108 85 115

Sample ID: 111587-002L-MS	SampType: MS	TestCode: 245.1_WD	Units: µg/L	Prep Date: 5/7/2010	RunNo: 121010						
Client ID: R-09-102	Batch ID: 63967	TestNo: EPA 245.1		Analysis Date: 5/10/2010	SeqNo: 1932668						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 10.530 0.20 10.00 0 105 70 130

Sample ID: 111587-002L-MSD	SampType: MSD	TestCode: 245.1_WD	Units: µg/L	Prep Date: 5/7/2010	RunNo: 121010						
Client ID: R-09-102	Batch ID: 63967	TestNo: EPA 245.1		Analysis Date: 5/10/2010	SeqNo: 1932669						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 10.564 0.20 10.00 0 106 70 130 10.53 0.326 20

Sample ID: 111587-002L-DUP	SampType: DUP	TestCode: 245.1_WD	Units: µg/L	Prep Date: 5/7/2010	RunNo: 121010						
Client ID: R-09-102	Batch ID: 63967	TestNo: EPA 245.1		Analysis Date: 5/10/2010	SeqNo: 1932671						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury ND 0.20 0 0 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: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CL

Sample ID: MB-R120925	SampType: MBLK	TestCode: 300_W_CL	Units: mg/L	Prep Date:	RunNo: 120925						
Client ID: PBW	Batch ID: R120925	TestNo: EPA 300.0		Analysis Date: 5/5/2010	SeqNo: 1930644						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride ND 0.50

Sample ID: LCS-R120925	SampType: LCS	TestCode: 300_W_CL	Units: mg/L	Prep Date:	RunNo: 120925						
Client ID: LCSW	Batch ID: R120925	TestNo: EPA 300.0		Analysis Date: 5/5/2010	SeqNo: 1930645						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride 1.063 0.50 1.000 0 106 90 110

Sample ID: 111587-001H-DUP	SampType: DUP	TestCode: 300_W_CL	Units: mg/L	Prep Date:	RunNo: 120925						
Client ID: R-09-002	Batch ID: R120925	TestNo: EPA 300.0		Analysis Date: 5/5/2010	SeqNo: 1930647						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride 14.998 0.50 14.99 0.0420 20

Sample ID: 111587-001H-MS	SampType: MS	TestCode: 300_W_CL	Units: mg/L	Prep Date:	RunNo: 120925						
Client ID: R-09-002	Batch ID: R120925	TestNo: EPA 300.0		Analysis Date: 5/5/2010	SeqNo: 1930649						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride 70.410 10 50.00 14.99 111 80 120

Sample ID: 111587-001H-MSD	SampType: MSD	TestCode: 300_W_CL	Units: mg/L	Prep Date:	RunNo: 120925						
Client ID: R-09-002	Batch ID: R120925	TestNo: EPA 300.0		Analysis Date: 5/5/2010	SeqNo: 1930650						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride 69.742 10 50.00 14.99 110 80 120 70.41 0.953 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: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_NO2

Sample ID: MB-R120925	SampType: MBLK	TestCode: 300_W_NO2	Units: mg/L	Prep Date:	RunNo: 120925						
Client ID: PBW	Batch ID: R120925	TestNo: EPA 300.0		Analysis Date: 5/5/2010	SeqNo: 1930651						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrogen, Nitrite ND 0.10

Sample ID: LCS-R120925	SampType: LCS	TestCode: 300_W_NO2	Units: mg/L	Prep Date:	RunNo: 120925						
Client ID: LCSW	Batch ID: R120925	TestNo: EPA 300.0		Analysis Date: 5/5/2010	SeqNo: 1930652						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrogen, Nitrite 0.987 0.10 1.000 0 98.7 90 110

Sample ID: 111587-001H-DUP	SampType: DUP	TestCode: 300_W_NO2	Units: mg/L	Prep Date:	RunNo: 120925						
Client ID: R-09-002	Batch ID: R120925	TestNo: EPA 300.0		Analysis Date: 5/5/2010	SeqNo: 1930654						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrogen, Nitrite ND 0.10 0 0 20

Sample ID: 111587-001H-MS	SampType: MS	TestCode: 300_W_NO2	Units: mg/L	Prep Date:	RunNo: 120925						
Client ID: R-09-002	Batch ID: R120925	TestNo: EPA 300.0		Analysis Date: 5/5/2010	SeqNo: 1930656						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrogen, Nitrite 55.824 2.0 50.00 0 112 80 120

Sample ID: 111587-001H-MSD	SampType: MSD	TestCode: 300_W_NO2	Units: mg/L	Prep Date:	RunNo: 120925						
Client ID: R-09-002	Batch ID: R120925	TestNo: EPA 300.0		Analysis Date: 5/5/2010	SeqNo: 1930657						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrogen, Nitrite 55.374 2.0 50.00 0 111 80 120 55.82 0.809 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: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_NO3

Sample ID: MB-R120925	SampType: MBLK	TestCode: 300_W_NO3	Units: mg/L	Prep Date:	RunNo: 120925						
Client ID: PBW	Batch ID: R120925	TestNo: EPA 300.0		Analysis Date: 5/5/2010	SeqNo: 1930658						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrogen, Nitrate (As N) ND 0.10

Sample ID: LCS-R120925	SampType: LCS	TestCode: 300_W_NO3	Units: mg/L	Prep Date:	RunNo: 120925						
Client ID: LCSW	Batch ID: R120925	TestNo: EPA 300.0		Analysis Date: 5/5/2010	SeqNo: 1930659						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrogen, Nitrate (As N) 1.006 0.10 1.000 0 101 90 110

Sample ID: 111587-001H-DUP	SampType: DUP	TestCode: 300_W_NO3	Units: mg/L	Prep Date:	RunNo: 120925						
Client ID: R-09-002	Batch ID: R120925	TestNo: EPA 300.0		Analysis Date: 5/5/2010	SeqNo: 1930661						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrogen, Nitrate (As N) ND 0.10 0 0 20

Sample ID: 111587-001H-MS	SampType: MS	TestCode: 300_W_NO3	Units: mg/L	Prep Date:	RunNo: 120925						
Client ID: R-09-002	Batch ID: R120925	TestNo: EPA 300.0		Analysis Date: 5/5/2010	SeqNo: 1930663						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrogen, Nitrate (As N) 57.370 2.0 50.00 0 115 80 120

Sample ID: 111587-001H-MSD	SampType: MSD	TestCode: 300_W_NO3	Units: mg/L	Prep Date:	RunNo: 120925						
Client ID: R-09-002	Batch ID: R120925	TestNo: EPA 300.0		Analysis Date: 5/5/2010	SeqNo: 1930664						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrogen, Nitrate (As N) 56.722 2.0 50.00 0 113 80 120 57.37 1.14 20

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | FI 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 | |



CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4

Sample ID: MB-R120925	SampType: MBLK	TestCode: 300_W_SO4	Units: mg/L	Prep Date:	RunNo: 120925						
Client ID: PBW	Batch ID: R120925	TestNo: EPA 300.0		Analysis Date: 5/5/2010	SeqNo: 1930665						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	1.0									

Sample ID: LCS-R120925	SampType: LCS	TestCode: 300_W_SO4	Units: mg/L	Prep Date:	RunNo: 120925						
Client ID: LCSW	Batch ID: R120925	TestNo: EPA 300.0		Analysis Date: 5/5/2010	SeqNo: 1930666						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1.941	1.0	2.000	0	97.0	90	110				

Sample ID: 111587-001H-DUP	SampType: DUP	TestCode: 300_W_SO4	Units: mg/L	Prep Date:	RunNo: 120925						
Client ID: R-09-002	Batch ID: R120925	TestNo: EPA 300.0		Analysis Date: 5/5/2010	SeqNo: 1930668						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	299.572	20						298.4	0.377	20	

Sample ID: 111587-001H-MS	SampType: MS	TestCode: 300_W_SO4	Units: mg/L	Prep Date:	RunNo: 120925						
Client ID: R-09-002	Batch ID: R120925	TestNo: EPA 300.0		Analysis Date: 5/5/2010	SeqNo: 1930669						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	407.936	20	100.0	298.4	109	80	120				

Sample ID: 111587-001H-MSD	SampType: MSD	TestCode: 300_W_SO4	Units: mg/L	Prep Date:	RunNo: 120925						
Client ID: R-09-002	Batch ID: R120925	TestNo: EPA 300.0		Analysis Date: 5/5/2010	SeqNo: 1930670						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	403.502	20	100.0	298.4	105	80	120	407.9	1.09	20	

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | II 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 | |



CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 314_W

Sample ID	SampType	TestCode	Units	Prep Date	RunNo						
MB-R120920	MBLK	314_W	µg/L		120920						
Client ID: PBW	Batch ID: R120920	TestNo: EPA 314.0		Analysis Date: 5/5/2010	SeqNo: 1930549						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Perchlorate	ND	2.0									
LCS-R120920	LCS	314_W	µg/L		120920						
Client ID: LCSW	Batch ID: R120920	TestNo: EPA 314.0		Analysis Date: 5/5/2010	SeqNo: 1930550						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Perchlorate	24.387	2.0	25.00	0	97.5	85	115				
111587-001H-DUP	DUP	314_W	µg/L		120920						
Client ID: R-09-002	Batch ID: R120920	TestNo: EPA 314.0		Analysis Date: 5/5/2010	SeqNo: 1930552						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Perchlorate	ND	2.0						0	0	15	
111587-001H-MS	MS	314_W	µg/L		120920						
Client ID: R-09-002	Batch ID: R120920	TestNo: EPA 314.0		Analysis Date: 5/5/2010	SeqNo: 1930553						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Perchlorate	9.638	2.0	10.00	0	96.4	80	120				
111587-001H-MSD	MSD	314_W	µg/L		120920						
Client ID: R-09-002	Batch ID: R120920	TestNo: EPA 314.0		Analysis Date: 5/5/2010	SeqNo: 1930554						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Perchlorate	9.721	2.0	10.00	0	97.2	80	120	9.638	0.862	15	

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
- II Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference



CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 335.2_4500CNE_W

Sample ID: 111587-001J-DUP	SampType: DUP	TestCode: 335.2_4500C	Units: mg/L	Prep Date: 5/7/2010	RunNo: 121014						
Client ID: R-09-002	Batch ID: 63993	TestNo: SM4500-CN E		Analysis Date: 5/10/2010	SeqNo: 1932782						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Cyanide	ND	0.010						0	0	30	
---------	----	-------	--	--	--	--	--	---	---	----	--

Sample ID: 111590-005B-MS	SampType: MS	TestCode: 335.2_4500C	Units: mg/L	Prep Date: 5/7/2010	RunNo: 121014						
Client ID: ZZZZZZ	Batch ID: 63993	TestNo: SM4500-CN E		Analysis Date: 5/10/2010	SeqNo: 1932787						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Cyanide	0.400	0.010	0.4000	0	100	80	120				
---------	-------	-------	--------	---	-----	----	-----	--	--	--	--

Sample ID: 111590-005B-MSD	SampType: MSD	TestCode: 335.2_4500C	Units: mg/L	Prep Date: 5/7/2010	RunNo: 121014						
Client ID: ZZZZZZ	Batch ID: 63993	TestNo: SM4500-CN E		Analysis Date: 5/10/2010	SeqNo: 1932788						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Cyanide	0.408	0.010	0.4000	0	102	80	120	0.4000	1.98	20	
---------	-------	-------	--------	---	-----	----	-----	--------	------	----	--

Sample ID: LCS-63993	SampType: LCS	TestCode: 335.2_4500C	Units: mg/L	Prep Date: 5/7/2010	RunNo: 121014						
Client ID: LCSW	Batch ID: 63993	TestNo: SM4500-CN E		Analysis Date: 5/10/2010	SeqNo: 1932793						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Cyanide	0.406	0.010	0.4000	0	102	80	120				
---------	-------	-------	--------	---	-----	----	-----	--	--	--	--

Sample ID: MB-63993	SampType: MBLK	TestCode: 335.2_4500C	Units: mg/L	Prep Date: 5/7/2010	RunNo: 121014						
Client ID: PBW	Batch ID: 63993	TestNo: SM4500-CN E		Analysis Date: 5/10/2010	SeqNo: 1932794						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Cyanide	ND	0.010									
---------	----	-------	--	--	--	--	--	--	--	--	--

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
- II Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference



CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 376.2_4500S2_WT

Sample ID:	SampType:	TestCode:	Units:	Prep Date:	RunNo:						
LCS-R121038	LCS	376.2_4500S2	mg/L		121038						
Client ID: LCSW	Batch ID: R121038	TestNo: SM4500-S= D		Analysis Date: 5/10/2010	SeqNo: 1933084						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	0.097	0.010	0.1000	0	96.9	80	120				

Sample ID:	SampType:	TestCode:	Units:	Prep Date:	RunNo:						
MB-R121038	MBLK	376.2_4500S2	mg/L		121038						
Client ID: PBW	Batch ID: R121038	TestNo: SM4500-S= D		Analysis Date: 5/10/2010	SeqNo: 1933085						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	ND	0.010									

Sample ID:	SampType:	TestCode:	Units:	Prep Date:	RunNo:						
111587-002K-DUP	DUP	376.2_4500S2	mg/L		121038						
Client ID: R-09-102	Batch ID: R121038	TestNo: SM4500-S= D		Analysis Date: 5/10/2010	SeqNo: 1933088						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	0.118	0.075						0.1200	1.89	30	

Sample ID:	SampType:	TestCode:	Units:	Prep Date:	RunNo:						
111587-002K-MS	MS	376.2_4500S2	mg/L		121038						
Client ID: R-09-102	Batch ID: R121038	TestNo: SM4500-S= D		Analysis Date: 5/10/2010	SeqNo: 1933089						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	0.693	0.075	0.7500	0.1200	76.4	70	120				

Sample ID:	SampType:	TestCode:	Units:	Prep Date:	RunNo:						
111587-002K-MSD	MSD	376.2_4500S2	mg/L		121038						
Client ID: R-09-102	Batch ID: R121038	TestNo: SM4500-S= D		Analysis Date: 5/10/2010	SeqNo: 1933090						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	0.716	0.075	0.7500	0.1200	79.4	70	120	0.6930	3.19	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: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_W

Sample ID: MB-63968	SampType: MBLK	TestCode: 6010_W	Units: mg/L	Prep Date: 5/7/2010	RunNo: 120991						
Client ID: PBW	Batch ID: 63968	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 5/7/2010	SeqNo: 1932372						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron ND 0.10

Sample ID: LCS-63968	SampType: LCS	TestCode: 6010_W	Units: mg/L	Prep Date: 5/7/2010	RunNo: 120991						
Client ID: LCSW	Batch ID: 63968	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 5/7/2010	SeqNo: 1932373						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron 9.515 0.10 10.00 0 95.1 85 115

Sample ID: 111601-015C-DUP	SampType: DUP	TestCode: 6010_W	Units: mg/L	Prep Date: 5/7/2010	RunNo: 120991						
Client ID: ZZZZZZ	Batch ID: 63968	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 5/7/2010	SeqNo: 1932378						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron 0.237 0.10 0.2045 14.8 20

Sample ID: 111601-015C-MS	SampType: MS	TestCode: 6010_W	Units: mg/L	Prep Date: 5/7/2010	RunNo: 120991						
Client ID: ZZZZZZ	Batch ID: 63968	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 5/7/2010	SeqNo: 1932379						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron 7.774 0.10 10.00 0.2045 75.7 78 121 S

Sample ID: 111601-015C-MSD	SampType: MSD	TestCode: 6010_W	Units: mg/L	Prep Date: 5/7/2010	RunNo: 120991						
Client ID: ZZZZZZ	Batch ID: 63968	TestNo: EPA 6010B	EPA 3010A	Analysis Date: 5/7/2010	SeqNo: 1932380						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron 9.873 0.10 10.00 0.2045 96.7 78 121 7.774 23.8 20 R

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 | | |



CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #I, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_ALC

Sample ID: MB-R121033	SampType: MBLK	TestCode: 8015_W_ALC	Units: mg/L	Prep Date:	RunNo: 121033						
Client ID: PBW	Batch ID: R121033	TestNo: EPA 8015B		Analysis Date: 5/11/2010	SeqNo: 1933128						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Ethanol	ND	1.0									
Methanol	ND	1.0									

Sample ID: LCS-R121033	SampType: LCS	TestCode: 8015_W_ALC	Units: mg/L	Prep Date:	RunNo: 121033						
Client ID: LCSW	Batch ID: R121033	TestNo: EPA 8015B		Analysis Date: 5/11/2010	SeqNo: 1933129						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Ethanol	525.619	1.0	500.0	0	105	70	130				
Methanol	515.548	1.0	500.0	0	103	70	130				

Sample ID: MB-R121033MS	SampType: MS	TestCode: 8015_W_ALC	Units: mg/L	Prep Date:	RunNo: 121033						
Client ID: ZZZZZZ	Batch ID: R121033	TestNo: EPA 8015B		Analysis Date: 5/11/2010	SeqNo: 1933130						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Ethanol	531.464	1.0	500.0	0	106	70	130				
Methanol	525.295	1.0	500.0	0	105	70	130				

Sample ID: MB-R121033MSD	SampType: MSD	TestCode: 8015_W_ALC	Units: mg/L	Prep Date:	RunNo: 121033						
Client ID: ZZZZZZ	Batch ID: R121033	TestNo: EPA 8015B		Analysis Date: 5/11/2010	SeqNo: 1933131						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Ethanol	527.001	1.0	500.0	0	105	70	130	531.5	0.843	30	
Methanol	528.751	1.0	500.0	0	106	70	130	525.3	0.656	30	

Qualifiers:

- | | | |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range | II 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 | |



CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_DSL H

Sample ID: MB-63913	SampType: MBLK	TestCode: 8015_W_DSL	Units: mg/L	Prep Date: 5/4/2010	RunNo: 120959						
Client ID: PBW	Batch ID: 63913	TestNo: EPA 8015B(M EPA 3510C		Analysis Date: 5/7/2010	SeqNo: 1931524						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

DRO	ND	0.20									
Surr: p-Terphenyl	0.068		0.08000		85.3	36	126				

Sample ID: LCS-63913	SampType: LCS	TestCode: 8015_W_DSL	Units: mg/L	Prep Date: 5/4/2010	RunNo: 120959						
Client ID: LCSW	Batch ID: 63913	TestNo: EPA 8015B(M EPA 3510C		Analysis Date: 5/7/2010	SeqNo: 1931525						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

DRO	0.838	0.20	1.000	0	83.8	52	128				
Surr: p-Terphenyl	0.081		0.08000		101	36	126				

Sample ID: MB-63913MS	SampType: MS	TestCode: 8015_W_DSL	Units: mg/L	Prep Date: 5/4/2010	RunNo: 120959						
Client ID: ZZZZZZ	Batch ID: 63913	TestNo: EPA 8015B(M EPA 3510C		Analysis Date: 5/7/2010	SeqNo: 1931526						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

DRO	0.837	0.20	1.000	0	83.7	52	128				
Surr: p-Terphenyl	0.081		0.08000		101	36	126				

Sample ID: MB-63913MSD	SampType: MSD	TestCode: 8015_W_DSL	Units: mg/L	Prep Date: 5/4/2010	RunNo: 120959						
Client ID: ZZZZZZ	Batch ID: 63913	TestNo: EPA 8015B(M EPA 3510C		Analysis Date: 5/7/2010	SeqNo: 1931527						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

DRO	0.906	0.20	1.000	0	90.6	52	128	0.8374	7.89	20	
Surr: p-Terphenyl	0.086		0.08000		108	36	126		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 | |



CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_G PRES

Sample ID: E100506LCS2	SampType: LCS	TestCode: 8015_W_G P	Units: mg/L	Prep Date:	RunNo: 120965						
Client ID: LCSW	Batch ID: E10VW023	TestNo: EPA 8015B(M)		Analysis Date: 5/6/2010	SeqNo: 1931721						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.897	0.20	1.000	0	89.7	70	130				
Surr: Bromofluorobenzene (FID)	104.734		100.0		105	70	130				

Sample ID: E100506MB2MS	SampType: MS	TestCode: 8015_W_G P	Units: mg/L	Prep Date:	RunNo: 120965						
Client ID: ZZZZZZ	Batch ID: E10VW023	TestNo: EPA 8015B(M)		Analysis Date: 5/6/2010	SeqNo: 1931723						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.988	0.20	1.000	0	98.8	70	130				
Surr: Bromofluorobenzene (FID)	107.586		100.0		108	70	130				

Sample ID: E100506MB2MSD	SampType: MSD	TestCode: 8015_W_G P	Units: mg/L	Prep Date:	RunNo: 120965						
Client ID: ZZZZZZ	Batch ID: E10VW023	TestNo: EPA 8015B(M)		Analysis Date: 5/6/2010	SeqNo: 1931724						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.974	0.20	1.000	0	97.4	70	130	0.9880	1.43	20	
Surr: Bromofluorobenzene (FID)	104.221		100.0		104	70	130		0	0	

Sample ID: E100506MB2	SampType: MBLK	TestCode: 8015_W_G P	Units: mg/L	Prep Date:	RunNo: 120965						
Client ID: PBW	Batch ID: E10VW023	TestNo: EPA 8015B(M)		Analysis Date: 5/6/2010	SeqNo: 1931725						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	0.20									
Surr: Bromofluorobenzene (FID)	103.383		100.0		103	70	130				

Sample ID: 111587-001BDUP	SampType: DUP	TestCode: 8015_W_G P	Units: mg/L	Prep Date:	RunNo: 120978						
Client ID: R-09-002	Batch ID: E10VW023	TestNo: EPA 8015B(M)		Analysis Date: 5/7/2010	SeqNo: 1932013						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	0.20						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 | | |



CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_G PRES

Sample ID: 111587-001BDUP	SampType: DUP	TestCode: 8015_W_G P	Units: mg/L	Prep Date:	RunNo: 120978						
Client ID: R-09-002	Batch ID: E10VW023	TestNo: EPA 8015B(M)		Analysis Date: 5/7/2010	SeqNo: 1932013						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (FID)	101.455		100.0		101	70	130		0	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



CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_W

Sample ID: MB-63980	SampType: MBLK	TestCode: 8081_W	Units: µg/L	Prep Date: 5/7/2010	RunNo: 121021						
Client ID: PBW	Batch ID: 63980	TestNo: EPA 8081A	EPA 3510C	Analysis Date: 5/10/2010	SeqNo: 1932825						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4'-DDD	ND	0.050									
4,4'-DDE	ND	0.050									
4,4'-DDT	ND	0.050									
Aldrin	ND	0.025									
alpha-BHC	ND	0.025									
alpha-Chlordane	ND	0.025									
beta-BHC	ND	0.025									
Chlordane	ND	0.25									
delta-BHC	ND	0.025									
Dieldrin	ND	0.050									
Endosulfan I	ND	0.025									
Endosulfan II	ND	0.050									
Endosulfan sulfate	ND	0.050									
Endrin	ND	0.050									
Endrin aldehyde	ND	0.050									
Endrin ketone	ND	0.050									
gamma-BHC	ND	0.025									
gamma-Chlordane	ND	0.025									
Heptachlor	ND	0.025									
Heptachlor epoxide	ND	0.025									
Methoxychlor	ND	0.25									
Toxaphene	ND	2.5									
Surr: Tetrachloro-m-xylene	0.391		0.5000		78.3	47	109				
Surr: Decachlorobiphenyl	0.377		0.5000		75.4	33	125				

Sample ID: LCS-63980	SampType: LCS	TestCode: 8081_W	Units: µg/L	Prep Date: 5/7/2010	RunNo: 121021						
Client ID: LCSW	Batch ID: 63980	TestNo: EPA 8081A	EPA 3510C	Analysis Date: 5/10/2010	SeqNo: 1932834						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aldrin	0.500	0.025	0.5000	0	100	55	111				

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: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_W

Sample ID: LCS-63980	SampType: LCS	TestCode: 8081_W	Units: µg/L	Prep Date: 5/7/2010	RunNo: 121021						
Client ID: LCSW	Batch ID: 63980	TestNo: EPA 8081A	EPA 3510C	Analysis Date: 5/10/2010	SeqNo: 1932834						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Dieldrin	0.503	0.050	0.5000	0	101	54	112				
Endrin	0.486	0.050	0.5000	0	97.1	51	120				
gamma-BHC	0.504	0.025	0.5000	0	101	54	111				
Heptachlor	0.542	0.025	0.5000	0	108	50	111				
Surr: Tetrachloro-m-xylene	0.464		0.5000		92.8	47	109				
Surr: Decachlorobiphenyl	0.458		0.5000		91.6	33	125				

Sample ID: MB-63980MS	SampType: MS	TestCode: 8081_W	Units: µg/L	Prep Date: 5/7/2010	RunNo: 121021						
Client ID: ZZZZZZ	Batch ID: 63980	TestNo: EPA 8081A	EPA 3510C	Analysis Date: 5/10/2010	SeqNo: 1932835						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

4,4'-DDT	0.427	0.050	0.5000	0	85.4	45	111				
Aldrin	0.494	0.025	0.5000	0	98.9	55	111				
Dieldrin	0.499	0.050	0.5000	0	99.8	54	112				
Endrin	0.480	0.050	0.5000	0	96.1	51	120				
gamma-BHC	0.503	0.025	0.5000	0	101	54	111				
Heptachlor	0.543	0.025	0.5000	0	109	50	111				
Surr: Tetrachloro-m-xylene	0.474		0.5000		94.8	47	109				
Surr: Decachlorobiphenyl	0.455		0.5000		91.1	33	125				

Sample ID: MB-63980MSD	SampType: MSD	TestCode: 8081_W	Units: µg/L	Prep Date: 5/7/2010	RunNo: 121021						
Client ID: ZZZZZZ	Batch ID: 63980	TestNo: EPA 8081A	EPA 3510C	Analysis Date: 5/10/2010	SeqNo: 1932836						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

4,4'-DDT	0.420	0.050	0.5000	0	84.0	45	111	0.4269	1.60	20	
Aldrin	0.484	0.025	0.5000	0	96.9	55	111	0.4943	2.04	20	
Dieldrin	0.480	0.050	0.5000	0	96.0	54	112	0.4989	3.91	20	
Endrin	0.482	0.050	0.5000	0	96.4	51	120	0.4805	0.330	20	
gamma-BHC	0.498	0.025	0.5000	0	99.6	54	111	0.5028	0.919	20	
Heptachlor	0.519	0.025	0.5000	0	104	50	111	0.5434	4.59	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: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_W

Sample ID: MB-63980MSD	SampType: MSD	TestCode: 8081_W	Units: µg/L	Prep Date: 5/7/2010	RunNo: 121021						
Client ID: ZZZZZZ	Batch ID: 63980	TestNo: EPA 8081A	EPA 3510C	Analysis Date: 5/10/2010	SeqNo: 1932836						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Tetrachloro-m-xylene	0.465		0.5000		93.1	47	109		0	0	
Surr: Decachlorobiphenyl	0.451		0.5000		90.2	33	125		0	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



CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8082_W

Sample ID: MB-63980	SampType: MBLK	TestCode: 8082_W	Units: µg/L	Prep Date: 5/7/2010	RunNo: 121016
Client ID: PBW	Batch ID: 63980	TestNo: EPA 8082	EPA 3510C	Analysis Date: 5/10/2010	SeqNo: 1932717

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.50									
Aroclor 1221	ND	1.0									
Aroclor 1232	ND	0.50									
Aroclor 1242	ND	0.50									
Aroclor 1248	ND	0.50									
Aroclor 1254	ND	0.50									
Aroclor 1260	ND	0.50									
Aroclor 1262	ND	0.50									
Aroclor 1268	ND	0.50									
Surr: Decachlorobiphenyl	0.378		0.5000		75.7	26	112				
Surr: Tetrachloro-m-xylene	0.444		0.5000		88.9	48	130				

Sample ID: LCSA-63980	SampType: LCS	TestCode: 8082_W	Units: µg/L	Prep Date: 5/7/2010	RunNo: 121016
Client ID: LCSW	Batch ID: 63980	TestNo: EPA 8082	EPA 3510C	Analysis Date: 5/10/2010	SeqNo: 1932718

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	3.464	0.50	5.000	0	69.3	54	97				
Aroclor 1260	3.258	0.50	5.000	0	65.2	56	103				
Surr: Decachlorobiphenyl	0.397		0.5000		79.5	26	112				
Surr: Tetrachloro-m-xylene	0.464		0.5000		92.8	48	130				

Sample ID: MB-63980MSA	SampType: MS	TestCode: 8082_W	Units: µg/L	Prep Date: 5/7/2010	RunNo: 121016
Client ID: ZZZZZZ	Batch ID: 63980	TestNo: EPA 8082	EPA 3510C	Analysis Date: 5/10/2010	SeqNo: 1932719

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	3.499	0.50	5.000	0	70.0	54	97				
Aroclor 1260	3.310	0.50	5.000	0	66.2	56	103				
Surr: Decachlorobiphenyl	0.402		0.5000		80.4	26	112				
Surr: Tetrachloro-m-xylene	0.466		0.5000		93.1	48	130				

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: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8082_W

Sample ID: MB-63980MSDA	SampType: MSD	TestCode: 8082_W	Units: µg/L	Prep Date: 5/7/2010	RunNo: 121016						
Client ID: ZZZZZZ	Batch ID: 63980	TestNo: EPA 8082	EPA 3510C	Analysis Date: 5/10/2010	SeqNo: 1932720						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	3.468	0.50	5.000	0	69.4	54	97	3.499	0.870	20	
Aroclor 1260	3.335	0.50	5.000	0	66.7	56	103	3.310	0.742	20	
Surr: Decachlorobiphenyl	0.406		0.5000		81.2	26	112		0	0	
Surr: Tetrachloro-m-xylene	0.466		0.5000		93.3	48	130		0	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



CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: A100505LCS1	SampType: LCS	TestCode: 8260_WP_LL	Units: µg/L	Prep Date:	RunNo: 120989						
Client ID: LCSW	Batch ID: A10VW101	TestNo: EPA 8260B		Analysis Date: 5/5/2010	SeqNo: 1932260						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

1,1-Dichloroethene	20.950	0.50	20.00	0	105	70	130				
Benzene	33.920	0.50	40.00	0	84.8	70	130				
Chlorobenzene	17.920	0.50	20.00	0	89.6	70	130				
MTBE	20.230	0.50	20.00	0	101	70	130				
Toluene	35.350	0.50	40.00	0	88.4	70	130				
Trichloroethene	17.030	0.50	20.00	0	85.2	70	130				
Surr: 1,2-Dichloroethane-d4	23.540		25.00		94.2	70	130				
Surr: 4-Bromofluorobenzene	22.930		25.00		91.7	70	130				
Surr: Dibromofluoromethane	23.290		25.00		93.2	70	130				
Surr: Toluene-d8	24.340		25.00		97.4	70	130				

Sample ID: A100505MB2MS	SampType: MS	TestCode: 8260_WP_LL	Units: µg/L	Prep Date:	RunNo: 120989						
Client ID: ZZZZZZ	Batch ID: A10VW101	TestNo: EPA 8260B		Analysis Date: 5/5/2010	SeqNo: 1932261						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

1,1-Dichloroethene	20.030	0.50	20.00	0	100	70	130				
Benzene	33.540	0.50	40.00	0	83.9	70	130				
Chlorobenzene	17.590	0.50	20.00	0	88.0	70	130				
Toluene	35.040	0.50	40.00	0	87.6	70	130				
Trichloroethene	17.020	0.50	20.00	0	85.1	70	130				
Surr: 1,2-Dichloroethane-d4	24.630		25.00		98.5	70	130				
Surr: 4-Bromofluorobenzene	22.970		25.00		91.9	70	130				
Surr: Dibromofluoromethane	24.380		25.00		97.5	70	130				
Surr: Toluene-d8	25.000		25.00		100	70	130				

Sample ID: A100505MB2MSD	SampType: MSD	TestCode: 8260_WP_LL	Units: µg/L	Prep Date:	RunNo: 120989						
Client ID: ZZZZZZ	Batch ID: A10VW101	TestNo: EPA 8260B		Analysis Date: 5/5/2010	SeqNo: 1932262						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

1,1-Dichloroethene	21.840	0.50	20.00	0	109	70	130	20.03	8.65	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: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: A100505MB2MSD	SampType: MSD	TestCode: 8260_WP_LL	Units: µg/L	Prep Date:	RunNo: 120989						
Client ID: ZZZZZZ	Batch ID: A10VW101	TestNo: EPA 8260B		Analysis Date: 5/5/2010	SeqNo: 1932262						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	34.840	0.50	40.00	0	87.1	70	130	33.54	3.80	20	
Chlorobenzene	18.270	0.50	20.00	0	91.4	70	130	17.59	3.79	20	
Toluene	36.300	0.50	40.00	0	90.8	70	130	35.04	3.53	20	
Trichloroethene	17.720	0.50	20.00	0	88.6	70	130	17.02	4.03	20	
Surr: 1,2-Dichloroethane-d4	24.700		25.00		98.8	70	130		0	0	
Surr: 4-Bromofluorobenzene	23.870		25.00		95.5	70	130		0	0	
Surr: Dibromofluoromethane	24.790		25.00		99.2	70	130		0	0	
Surr: Toluene-d8	25.110		25.00		100	70	130		0	0	

Sample ID: A100505MB2	SampType: MBLK	TestCode: 8260_WP_LL	Units: µg/L	Prep Date:	RunNo: 120989						
Client ID: PBW	Batch ID: A10VW101	TestNo: EPA 8260B		Analysis Date: 5/5/2010	SeqNo: 1932263						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	0.50									
1,1,1-Trichloroethane	ND	0.50									
1,1,2,2-Tetrachloroethane	ND	0.50									
1,1,2-Trichloroethane	ND	0.50									
1,1-Dichloroethane	ND	0.50									
1,1-Dichloroethene	ND	0.50									
1,1-Dichloropropene	ND	0.50									
1,2,3-Trichlorobenzene	ND	0.50									
1,2,3-Trichloropropane	ND	0.50									
1,2,4-Trichlorobenzene	ND	0.50									
1,2,4-Trimethylbenzene	ND	0.50									
1,2-Dibromo-3-chloropropane	ND	0.50									
1,2-Dibromoethane	ND	0.50									
1,2-Dichlorobenzene	ND	0.50									
1,2-Dichloroethane	ND	0.50									
1,2-Dichloropropane	ND	0.50									
1,3,5-Trimethylbenzene	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
 - E Value above quantitation range
 - II 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



CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: A100505MB2	SampType: MBLK	TestCode: 8260_WP_LL	Units: µg/L	Prep Date:	RunNo: 120989						
Client ID: PBW	Batch ID: A10VW101	TestNo: EPA 8260B		Analysis Date: 5/5/2010	SeqNo: 1932263						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

1,3-Dichlorobenzene	ND	0.50									
1,3-Dichloropropane	ND	0.50									
1,4-Dichlorobenzene	ND	0.50									
2,2-Dichloropropane	ND	0.50									
2-Chlorotoluene	ND	0.50									
4-Chlorotoluene	ND	0.50									
4-Isopropyltoluene	ND	0.50									
Benzene	ND	0.50									
Bromobenzene	ND	0.50									
Bromodichloromethane	ND	0.50									
Bromoform	ND	0.50									
Bromomethane	ND	0.50									
Carbon tetrachloride	ND	0.50									
Chlorobenzene	ND	0.50									
Chloroethane	ND	0.50									
Chloroform	ND	0.50									
Chloromethane	ND	0.50									
cis-1,2-Dichloroethene	ND	0.50									
cis-1,3-Dichloropropene	ND	0.50									
Dibromochloromethane	ND	0.50									
Dibromomethane	ND	0.50									
Dichlorodifluoromethane	ND	0.50									
Ethylbenzene	ND	0.50									
Hexachlorobutadiene	ND	0.50									
Isopropylbenzene	ND	0.50									
m,p-Xylene	ND	1.0									
Methylene chloride	ND	1.0									
n-Butylbenzene	ND	0.50									
n-Propylbenzene	ND	0.50									
Naphthalene	ND	0.50									

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: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: A100505MB2	SampType: MBLK	TestCode: 8260_WP_LL	Units: µg/L	Prep Date:	RunNo: 120989						
Client ID: PBW	Batch ID: A10VW101	TestNo: EPA 8260B		Analysis Date: 5/5/2010	SeqNo: 1932263						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	ND	0.50									
sec-Butylbenzene	ND	0.50									
Styrene	ND	0.50									
tert-Butylbenzene	ND	0.50									
Tetrachloroethene	ND	0.50									
Toluene	ND	0.50									
trans-1,2-Dichloroethene	ND	0.50									
Trichloroethene	ND	0.50									
Trichlorofluoromethane	ND	0.50									
Vinyl chloride	ND	0.50									
Surr: 1,2-Dichloroethane-d4	23.840		25.00		95.4	70	130				
Surr: 4-Bromofluorobenzene	23.310		25.00		93.2	70	130				
Surr: Dibromofluoromethane	24.470		25.00		97.9	70	130				
Surr: Toluene-d8	24.970		25.00		99.9	70	130				

Sample ID: 111587-001A	SampType: DUP	TestCode: 8260_WP_LL	Units: µg/L	Prep Date:	RunNo: 120989						
Client ID: R-09-002	Batch ID: A10VW101	TestNo: EPA 8260B		Analysis Date: 5/5/2010	SeqNo: 1932265						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	0.50						0	0	20	
1,1,1-Trichloroethane	ND	0.50						0	0	20	
1,1,2,2-Tetrachloroethane	ND	0.50						0	0	20	
1,1,2-Trichloroethane	ND	0.50						0	0	20	
1,1-Dichloroethane	ND	0.50						0	0	20	
1,1-Dichloroethene	ND	0.50						0	0	20	
1,1-Dichloropropene	ND	0.50						0	0	20	
1,2,3-Trichlorobenzene	ND	0.50						0	0	20	
1,2,3-Trichloropropane	ND	0.50						0	0	20	
1,2,4-Trichlorobenzene	ND	0.50						0	0	20	
1,2,4-Trimethylbenzene	ND	0.50						0	0	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: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: 111587-001A	SampType: DUP	TestCode: 8260_WP_LL	Units: µg/L	Prep Date:	RunNo: 120989						
Client ID: R-09-002	Batch ID: A10VW101	TestNo: EPA 8260B		Analysis Date: 5/5/2010	SeqNo: 1932265						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromo-3-chloropropane	ND	0.50						0	0	20	
1,2-Dibromoethane	ND	0.50						0	0	20	
1,2-Dichlorobenzene	ND	0.50						0	0	20	
1,2-Dichloroethane	ND	0.50						0	0	20	
1,2-Dichloropropane	ND	0.50						0	0	20	
1,3,5-Trimethylbenzene	ND	0.50						0	0	20	
1,3-Dichlorobenzene	ND	0.50						0	0	20	
1,3-Dichloropropane	ND	0.50						0	0	20	
1,4-Dichlorobenzene	ND	0.50						0	0	20	
2,2-Dichloropropane	ND	0.50						0	0	20	
2-Chlorotoluene	ND	0.50						0	0	20	
4-Chlorotoluene	ND	0.50						0	0	20	
4-Isopropyltoluene	ND	0.50						0	0	20	
Benzene	ND	0.50						0	0	20	
Bromobenzene	ND	0.50						0	0	20	
Bromodichloromethane	ND	0.50						0	0	20	
Bromoform	ND	0.50						0	0	20	
Bromomethane	ND	0.50						0	0	20	
Carbon tetrachloride	ND	0.50						0	0	20	
Chlorobenzene	ND	0.50						0	0	20	
Chloroethane	ND	0.50						0	0	20	
Chloroform	ND	0.50						0	0	20	
Chloromethane	ND	0.50						0	0	20	
cis-1,2-Dichloroethene	ND	0.50						0	0	20	
cis-1,3-Dichloropropene	ND	0.50						0	0	20	
Dibromochloromethane	ND	0.50						0	0	20	
Dibromomethane	ND	0.50						0	0	20	
Dichlorodifluoromethane	ND	0.50						0	0	20	
Ethylbenzene	ND	0.50						0	0	20	
Hexachlorobutadiene	ND	0.50						0	0	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: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_LL

Sample ID: 111587-001A	SampType: DUP	TestCode: 8260_WP_LL	Units: µg/L	Prep Date:	RunNo: 120989						
Client ID: R-09-002	Batch ID: A10VW101	TestNo: EPA 8260B		Analysis Date: 5/5/2010	SeqNo: 1932265						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Isopropylbenzene	ND	0.50						0	0	20	
m,p-Xylene	ND	1.0						0	0	20	
Methylene chloride	ND	1.0						0	0	20	
n-Butylbenzene	ND	0.50						0	0	20	
n-Propylbenzene	ND	0.50						0	0	20	
Naphthalene	ND	0.50						0	0	20	
o-Xylene	ND	0.50						0	0	20	
sec-Butylbenzene	ND	0.50						0	0	20	
Styrene	ND	0.50						0	0	20	
tert-Butylbenzene	ND	0.50						0	0	20	
Tetrachloroethene	ND	0.50						0	0	20	
Toluene	ND	0.50						0	0	20	
trans-1,2-Dichloroethene	ND	0.50						0	0	20	
Trichloroethene	ND	0.50						0	0	20	
Trichlorofluoromethane	ND	0.50						0	0	20	
Vinyl chloride	ND	0.50						0	0	20	
Surr: 1,2-Dichloroethane-d4	24.220		25.00		96.9	70	130		0	20	
Surr: 4-Bromofluorobenzene	23.300		25.00		93.2	70	130		0	20	
Surr: Dibromofluoromethane	24.880		25.00		99.5	70	130		0	20	
Surr: Toluene-d8	24.910		25.00		99.6	70	130		0	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: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Dioxane_W

Sample ID: LCS-63880	SampType: LCS	TestCode: 8270_Dioxan	Units: µg/L	Prep Date: 5/4/2010	RunNo: 120879						
Client ID: LCSW	Batch ID: 63880	TestNo: EPA 8270C(M EPA 3510C		Analysis Date: 5/4/2010	SeqNo: 1929642						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,4-Dioxane	102.960	2.0	100.0	0	103	70	130				
Surr: 1,2-Dichlorobenzene-d4	64.370		100.0		64.4	42	98				
Surr: 2,4,6-Tribromophenol	85.050		100.0		85.0	60	128				
Surr: 2-Chlorophenol-d4	48.560		100.0		48.6	43	102				
Surr: 2-Fluorobiphenyl	73.440		100.0		73.4	50	108				
Surr: 2-Fluorophenol	29.290		100.0		29.3	22	69				
Surr: 4-Terphenyl-d14	92.290		100.0		92.3	66	130				
Surr: Nitrobenzene-d5	68.640		100.0		68.6	47	117				
Surr: Phenol-d5	22.980		100.0		23.0	16	50				

Sample ID: MB-63880MS	SampType: MS	TestCode: 8270_Dioxan	Units: µg/L	Prep Date: 5/4/2010	RunNo: 120879						
Client ID: ZZZZZZ	Batch ID: 63880	TestNo: EPA 8270C(M EPA 3510C		Analysis Date: 5/4/2010	SeqNo: 1929643						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,4-Dioxane	99.140	2.0	100.0	0	99.1	70	130				
Surr: 1,2-Dichlorobenzene-d4	69.520		100.0		69.5	42	98				
Surr: 2,4,6-Tribromophenol	93.510		100.0		93.5	60	128				
Surr: 2-Chlorophenol-d4	55.600		100.0		55.6	43	102				
Surr: 2-Fluorobiphenyl	79.730		100.0		79.7	50	108				
Surr: 2-Fluorophenol	33.080		100.0		33.1	22	69				
Surr: 4-Terphenyl-d14	96.580		100.0		96.6	66	130				
Surr: Nitrobenzene-d5	74.780		100.0		74.8	47	117				
Surr: Phenol-d5	25.120		100.0		25.1	16	50				

Sample ID: MB-63880MSD	SampType: MSD	TestCode: 8270_Dioxan	Units: µg/L	Prep Date: 5/4/2010	RunNo: 120879						
Client ID: ZZZZZZ	Batch ID: 63880	TestNo: EPA 8270C(M EPA 3510C		Analysis Date: 5/4/2010	SeqNo: 1929644						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,4-Dioxane	100.580	2.0	100.0	0	101	70	130	99.14	1.44	20	
Surr: 1,2-Dichlorobenzene-d4	61.670		100.0		61.7	42	98		0	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



CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Dioxane_W

Sample ID: MB-63880MSD	SampType: MSD	TestCode: 8270_Dioxan	Units: µg/L	Prep Date: 5/4/2010	RunNo: 120879						
Client ID: ZZZZZZ	Batch ID: 63880	TestNo: EPA 8270C(M EPA 3510C		Analysis Date: 5/4/2010	SeqNo: 1929644						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	91.010		100.0		91.0	60	128		0	0	
Surr: 2-Chlorophenol-d4	50.300		100.0		50.3	43	102		0	0	
Surr: 2-Fluorobiphenyl	73.040		100.0		73.0	50	108		0	0	
Surr: 2-Fluorophenol	29.540		100.0		29.5	22	69		0	0	
Surr: 4-Terphenyl-d14	95.180		100.0		95.2	66	130		0	0	
Surr: Nitrobenzene-d5	67.280		100.0		67.3	47	117		0	0	
Surr: Phenol-d5	23.430		100.0		23.4	16	50		0	0	

Sample ID: MB-63880	SampType: MBLK	TestCode: 8270_Dioxan	Units: µg/L	Prep Date: 5/4/2010	RunNo: 120879						
Client ID: PBW	Batch ID: 63880	TestNo: EPA 8270C(M EPA 3510C		Analysis Date: 5/4/2010	SeqNo: 1929645						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,4-Dioxane	ND	2.0									
Surr: 1,2-Dichlorobenzene-d4	71.310		100.0		71.3	42	98				
Surr: 2,4,6-Tribromophenol	76.390		100.0		76.4	60	128				
Surr: 2-Chlorophenol-d4	56.550		100.0		56.6	43	102				
Surr: 2-Fluorobiphenyl	76.180		100.0		76.2	50	108				
Surr: 2-Fluorophenol	33.940		100.0		33.9	22	69				
Surr: 4-Terphenyl-d14	83.570		100.0		83.6	66	130				
Surr: Nitrobenzene-d5	74.490		100.0		74.5	47	117				
Surr: Phenol-d5	26.040		100.0		26.0	16	50				

Sample ID: 111587-002DDUP	SampType: DUP	TestCode: 8270_Dioxan	Units: µg/L	Prep Date: 5/4/2010	RunNo: 120879						
Client ID: R-09-102	Batch ID: 63880	TestNo: EPA 8270C(M EPA 3510C		Analysis Date: 5/5/2010	SeqNo: 1930229						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,4-Dioxane	ND	2.0						0	0	20	
Surr: 1,2-Dichlorobenzene-d4	76.990		100.0		77.0	46	97		0	0	
Surr: 2,4,6-Tribromophenol	92.800		100.0		92.8	59	124		0	0	
Surr: 2-Chlorophenol-d4	67.620		100.0		67.6	49	93		0	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
- II Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference



CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_Dioxane_W

Sample ID: 111587-002DDUP	SampType: DUP	TestCode: 8270_Dioxan	Units: µg/L	Prep Date: 5/4/2010	RunNo: 120879						
Client ID: R-09-102	Batch ID: 63880	TestNo: EPA 8270C(M EPA 3510C		Analysis Date: 5/5/2010	SeqNo: 1930229						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	79.730		100.0		79.7	57	107		0	0	
Surr: 2-Fluorophenol	38.990		100.0		39.0	27	60		0	0	
Surr: 4-Terphenyl-d14	89.310		100.0		89.3	69	132		0	0	
Surr: Nitrobenzene-d5	81.790		100.0		81.8	52	107		0	0	
Surr: Phenol-d5	28.860		100.0		28.9	15	50		0	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



CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_W_FULL

Sample ID: MB-63880MS	SampType: MS	TestCode: 8270_W_FUL	Units: µg/L	Prep Date: 5/4/2010	RunNo: 120855						
Client ID: ZZZZZZ	Batch ID: 63880	TestNo: EPA 8270C	EPA 3510C	Analysis Date: 5/4/2010	SeqNo: 1929286						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	79.560	10	100.0	0	79.6	60	106				
1,4-Dichlorobenzene	74.940	10	100.0	0	74.9	52	98				
2,4-Dinitrotoluene	104.330	10	100.0	0	104	81	123				
2-Chlorophenol	53.460	10	100.0	0	53.5	46	105				
4-Chloro-3-methylphenol	70.420	50	100.0	0	70.4	51	140				
4-Nitrophenol	33.560	50	100.0	0	33.6	20	74				
Acenaphthene	87.980	10	100.0	0	88.0	64	119				
N-Nitrosodi-n-propylamine	84.110	10	100.0	0	84.1	65	117				
Pentachlorophenol	86.140	50	100.0	0	86.1	55	142				
Phenol	24.500	10	100.0	0	24.5	18	52				
Pyrene	98.590	10	100.0	0	98.6	73	120				
Surr: 1,2-Dichlorobenzene-d4	69.520		100.0		69.5	46	97				
Surr: 2,4,6-Tribromophenol	93.510		100.0		93.5	59	124				
Surr: 2-Chlorophenol-d4	55.560		100.0		55.6	49	93				
Surr: 2-Fluorobiphenyl	79.880		100.0		79.9	57	107				
Surr: 2-Fluorophenol	33.040		100.0		33.0	27	60				
Surr: 4-Terphenyl-d14	96.580		100.0		96.6	69	132				
Surr: Nitrobenzene-d5	75.060		100.0		75.1	52	107				
Surr: Phenol-d5	25.160		100.0		25.2	15	50				

Sample ID: MB-63880MSD	SampType: MSD	TestCode: 8270_W_FUL	Units: µg/L	Prep Date: 5/4/2010	RunNo: 120855						
Client ID: ZZZZZZ	Batch ID: 63880	TestNo: EPA 8270C	EPA 3510C	Analysis Date: 5/4/2010	SeqNo: 1929287						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	70.320	10	100.0	0	70.3	60	106	79.56	12.3	20	
1,4-Dichlorobenzene	66.250	10	100.0	0	66.2	52	98	74.94	12.3	20	
2,4-Dinitrotoluene	99.960	10	100.0	0	100	81	123	104.3	4.28	20	
2-Chlorophenol	47.980	10	100.0	0	48.0	46	105	53.46	10.8	20	
4-Chloro-3-methylphenol	65.250	50	100.0	0	65.2	51	140	70.42	7.62	20	
4-Nitrophenol	33.220	50	100.0	0	33.2	20	74	33.56	0	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: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_W_FULL

Sample ID: MB-63880MSD	SampType: MSD	TestCode: 8270_W_FUL	Units: µg/L	Prep Date: 5/4/2010	RunNo: 120855						
Client ID: ZZZZZZ	Batch ID: 63880	TestNo: EPA 8270C	EPA 3510C	Analysis Date: 5/4/2010	SeqNo: 1929287						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	81.650	10	100.0	0	81.7	64	119	87.98	7.46	20	
N-Nitrosodi-n-propylamine	76.610	10	100.0	0	76.6	65	117	84.11	9.33	20	
Pentachlorophenol	82.360	50	100.0	0	82.4	55	142	86.14	4.49	20	
Phenol	23.190	10	100.0	0	23.2	18	52	24.50	5.49	20	
Pyrene	91.580	10	100.0	0	91.6	73	120	98.59	7.37	20	
Surr: 1,2-Dichlorobenzene-d4	61.670		100.0		61.7	46	97		0	0	
Surr: 2,4,6-Tribromophenol	91.010		100.0		91.0	59	124		0	0	
Surr: 2-Chlorophenol-d4	50.260		100.0		50.3	49	93		0	0	
Surr: 2-Fluorobiphenyl	73.180		100.0		73.2	57	107		0	0	
Surr: 2-Fluorophenol	29.500		100.0		29.5	27	60		0	0	
Surr: 4-Terphenyl-d14	95.180		100.0		95.2	69	132		0	0	
Surr: Nitrobenzene-d5	67.530		100.0		67.5	52	107		0	0	
Surr: Phenol-d5	23.470		100.0		23.5	15	50		0	0	

Sample ID: MB-63880	SampType: MBLK	TestCode: 8270_W_FUL	Units: µg/L	Prep Date: 5/4/2010	RunNo: 120855						
Client ID: PBW	Batch ID: 63880	TestNo: EPA 8270C	EPA 3510C	Analysis Date: 5/4/2010	SeqNo: 1929288						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	10									
1,2-Dichlorobenzene	ND	10									
1,3-Dichlorobenzene	ND	10									
1,4-Dichlorobenzene	ND	10									
2,4,5-Trichlorophenol	ND	10									
2,4,6-Trichlorophenol	ND	10									
2,4-Dichlorophenol	ND	10									
2,4-Dimethylphenol	ND	10									
2,4-Dinitrophenol	ND	50									
2,4-Dinitrotoluene	ND	10									
2,6-Dinitrotoluene	ND	10									
2-Chloronaphthalene	ND	10									

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 | | |



CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_W_FULL

Sample ID: MB-63880	SampType: MBLK	TestCode: 8270_W_FUL	Units: µg/L	Prep Date: 5/4/2010	RunNo: 120855						
Client ID: PBW	Batch ID: 63880	TestNo: EPA 8270C	EPA 3510C	Analysis Date: 5/4/2010	SeqNo: 1929288						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Chlorophenol	ND	10									
2-Methylnaphthalene	ND	10									
2-Methylphenol	ND	10									
2-Nitroaniline	ND	50									
2-Nitrophenol	ND	10									
3,3'-Dichlorobenzidine	ND	20									
3-Nitroaniline	ND	50									
4,6-Dinitro-2-methylphenol	ND	50									
4-Bromophenyl-phenylether	ND	10									
4-Chloro-3-methylphenol	ND	50									
4-Chloroaniline	ND	20									
4-Chlorophenyl-phenylether	ND	10									
4-Methylphenol	ND	10									
4-Nitroaniline	ND	20									
4-Nitrophenol	ND	50									
Acenaphthene	ND	10									
Acenaphthylene	ND	10									
Anthracene	ND	10									
Benzidine (M)	ND	50									
Benzo(a)anthracene	ND	10									
Benzo(a)pyrene	ND	10									
Benzo(b)fluoranthene	ND	10									
Benzo(g,h,i)perylene	ND	10									
Benzo(k)fluoranthene	ND	10									
Benzoic acid	ND	50									
Benzyl alcohol	ND	20									
Bis(2-chloroethoxy)methane	ND	10									
Bis(2-chloroethyl)ether	ND	10									
Bis(2-chloroisopropyl)ether	ND	10									
Bis(2-ethylhexyl)phthalate	ND	10									

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 | | |



CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_W_FULL

Sample ID: MB-63880	SampType: MBLK	TestCode: 8270_W_FULL	Units: µg/L	Prep Date: 5/4/2010	RunNo: 120855						
Client ID: PBW	Batch ID: 63880	TestNo: EPA 8270C EPA 3510C		Analysis Date: 5/4/2010	SeqNo: 1929288						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Butylbenzylphthalate	ND	10									
Chrysene	ND	10									
Di-n-butylphthalate	ND	10									
Di-n-octylphthalate	ND	10									
Dibenz(a,h)anthracene	ND	10									
Dibenzofuran	ND	10									
Diethylphthalate	ND	10									
Dimethylphthalate	ND	10									
Fluoranthene	ND	10									
Fluorene	ND	10									
Hexachlorobenzene	ND	10									
Hexachlorobutadiene	ND	20									
Hexachlorocyclopentadiene	ND	10									
Hexachloroethane	ND	10									
Indeno(1,2,3-cd)pyrene	ND	10									
Isophorone	ND	10									
N-Nitrosodi-n-propylamine	ND	10									
N-Nitrosodiphenylamine	ND	10									
Naphthalene	ND	10									
Nitrobenzene	ND	10									
Pentachlorophenol	ND	50									
Phenanthrene	ND	10									
Phenol	ND	10									
Pyrene	ND	10									
Surr: 1,2-Dichlorobenzene-d4	71.310		100.0		71.3	46	97				
Surr: 2,4,6-Tribromophenol	76.390		100.0		76.4	59	124				
Surr: 2-Chlorophenol-d4	56.510		100.0		56.5	49	93				
Surr: 2-Fluorobiphenyl	76.320		100.0		76.3	57	107				
Surr: 2-Fluorophenol	33.900		100.0		33.9	27	60				
Surr: 4-Terphenyl-d14	83.570		100.0		83.6	69	132				

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 | | |



CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_W_FULL

Sample ID: MB-63880	SampType: MBLK	TestCode: 8270_W_FUL	Units: µg/L	Prep Date: 5/4/2010	RunNo: 120855						
Client ID: PBW	Batch ID: 63880	TestNo: EPA 8270C	EPA 3510C	Analysis Date: 5/4/2010	SeqNo: 1929288						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	74.770		100.0		74.8	52	107				
Surr: Phenol-d5	26.090		100.0		26.1	15	50				

Sample ID: LCS-63880	SampType: LCS	TestCode: 8270_W_FUL	Units: µg/L	Prep Date: 5/4/2010	RunNo: 120855						
Client ID: LCSW	Batch ID: 63880	TestNo: EPA 8270C	EPA 3510C	Analysis Date: 5/4/2010	SeqNo: 1929504						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	70.990	10	100.0	0	71.0	60	106				
1,4-Dichlorobenzene	66.090	10	100.0	0	66.1	52	98				
2,4-Dinitrotoluene	99.040	10	100.0	0	99.0	81	123				
2-Chlorophenol	48.160	10	100.0	0	48.2	46	105				
4-Chloro-3-methylphenol	65.780	50	100.0	0	65.8	51	140				
4-Nitrophenol	33.100	50	100.0	0	33.1	20	74				
Acenaphthene	80.900	10	100.0	0	80.9	64	119				
N-Nitrosodi-n-propylamine	77.610	10	100.0	0	77.6	65	117				
Pentachlorophenol	83.130	50	100.0	0	83.1	55	142				
Phenol	23.450	10	100.0	0	23.4	18	52				
Pyrene	91.710	10	100.0	0	91.7	73	120				
Surr: 1,2-Dichlorobenzene-d4	61.280		100.0		61.3	46	97				
Surr: 2,4,6-Tribromophenol	90.480		100.0		90.5	59	124				
Surr: 2-Chlorophenol-d4	50.320		100.0		50.3	49	93				
Surr: 2-Fluorobiphenyl	72.690		100.0		72.7	57	107				
Surr: 2-Fluorophenol	29.620		100.0		29.6	27	60				
Surr: 4-Terphenyl-d14	95.440		100.0		95.4	69	132				
Surr: Nitrobenzene-d5	68.300		100.0		68.3	52	107				
Surr: Phenol-d5	23.710		100.0		23.7	15	50				

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



CLIENT: Geocon Consultants, Inc.
Work Order: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_W_FULL

Sample ID: 111587-002DDUP	SampType: DUP	TestCode: 8270_W_FUL	Units: µg/L	Prep Date: 5/4/2010	RunNo: 120855						
Client ID: R-09-102	Batch ID: 63880	TestNo: EPA 8270C	EPA 3510C	Analysis Date: 5/5/2010	SeqNo: 1930276						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	10						0	0	20	
1,2-Dichlorobenzene	ND	10						0	0	20	
1,2-Diphenylhydrazine	ND	10						0	0	20	
1,3-Dichlorobenzene	ND	10						0	0	20	
1,4-Dichlorobenzene	ND	10						0	0	20	
1,4-Dioxane	ND	10						0	0	20	
2,4,5-Trichlorophenol	ND	10						0	0	20	
2,4,6-Trichlorophenol	ND	10						0	0	20	
2,4-Dichlorophenol	ND	10						0	0	20	
2,4-Dimethylphenol	ND	10						0	0	20	
2,4-Dinitrophenol	ND	50						0	0	20	
2,4-Dinitrotoluene	ND	10						0	0	20	
2,6-Dinitrotoluene	ND	10						0	0	20	
2-Chloronaphthalene	ND	10						0	0	20	
2-Chlorophenol	ND	10						0	0	20	
2-Methylnaphthalene	ND	10						0	0	20	
2-Methylphenol	ND	10						0	0	20	
2-Nitroaniline	ND	50						0	0	20	
2-Nitrophenol	ND	10						0	0	20	
3,3'-Dichlorobenzidine	ND	20						0	0	20	
3-Nitroaniline	ND	50						0	0	20	
4,6-Dinitro-2-methylphenol	ND	50						0	0	20	
4-Bromophenyl-phenylether	ND	10						0	0	20	
4-Chloro-3-methylphenol	ND	50						0	0	20	
4-Chloroaniline	ND	20						0	0	20	
4-Chlorophenyl-phenylether	ND	10						0	0	20	
3/4-Methylphenol	ND	10						0	0	0	
4-Methylphenol	ND	10						0	0	20	
4-Nitroaniline	ND	20						0	0	20	
4-Nitrophenol	ND	50						0	0	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: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_W_FULL

Sample ID: 111587-002DDUP	SampType: DUP	TestCode: 8270_W_FUL	Units: µg/L	Prep Date: 5/4/2010	RunNo: 120855						
Client ID: R-09-102	Batch ID: 63880	TestNo: EPA 8270C	EPA 3510C	Analysis Date: 5/5/2010	SeqNo: 1930276						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	ND	10						0	0	20	
Acenaphthylene	ND	10						0	0	20	
Aniline	ND	10						0	0	20	
Anthracene	ND	10						0	0	20	
Benzidine (M)	ND	50						0	0	20	
Benzo(a)anthracene	ND	10						0	0	20	
Benzo(a)pyrene	ND	10						0	0	20	
Benzo(b)fluoranthene	ND	10						0	0	20	
Benzo(g,h,i)perylene	ND	10						0	0	20	
Benzo(k)fluoranthene	ND	10						0	0	20	
Benzoic acid	ND	50						0	0	20	
Benzyl alcohol	ND	20						0	0	20	
Bis(2-chloroethoxy)methane	ND	10						0	0	20	
Bis(2-chloroethyl)ether	ND	10						0	0	20	
Bis(2-chloroisopropyl)ether	ND	10						0	0	20	
Bis(2-ethylhexyl)phthalate	ND	10						0	0	20	
Butylbenzylphthalate	ND	10						0	0	20	
Carbazole	ND	10						0	0	20	
Chrysene	ND	10						0	0	20	
Di-n-butylphthalate	ND	10						0	0	20	
Di-n-octylphthalate	ND	10						0	0	20	
Dibenz(a,h)anthracene	ND	10						0	0	20	
Dibenzofuran	ND	10						0	0	20	
Diethylphthalate	ND	10						0	0	20	
Dimethylphthalate	ND	10						0	0	20	
Fluoranthene	ND	10						0	0	20	
Fluorene	ND	10						0	0	20	
Hexachlorobenzene	ND	10						0	0	20	
Hexachlorobutadiene	ND	20						0	0	20	
Hexachlorocyclopentadiene	ND	10						0	0	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: 111587
Project: Caltrans TO #1, S9475-06-01

ANALYTICAL QC SUMMARY REPORT

TestCode: 8270_W_FULL

Sample ID: 111587-002DDUP	SampType: DUP	TestCode: 8270_W_FUL	Units: µg/L	Prep Date: 5/4/2010	RunNo: 120855						
Client ID: R-09-102	Batch ID: 63880	TestNo: EPA 8270C	EPA 3510C	Analysis Date: 5/5/2010	SeqNo: 1930276						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachloroethane	ND	10						0	0	20	
Indeno(1,2,3-cd)pyrene	ND	10						0	0	20	
Isophorone	ND	10						0	0	20	
N-Nitrosodi-n-propylamine	ND	10						0	0	20	
N-Nitrosodimethylamine	ND	50						0	0	20	
N-Nitrosodiphenylamine	ND	10						0	0	20	
Naphthalene	ND	10						0	0	20	
Nitrobenzene	ND	10						0	0	20	
Pentachlorophenol	ND	50						0	0	20	
Phenanthrene	ND	10						0	0	20	
Phenol	ND	10						0	0	20	
Pyrene	ND	10						0	0	20	
Pyridine	ND	50						0	0	20	
Surr: 1,2-Dichlorobenzene-d4	76.990		100.0		77.0	46	97		0	0	
Surr: 2,4,6-Tribromophenol	92.800		100.0		92.8	59	124		0	0	
Surr: 2-Chlorophenol-d4	67.560		100.0		67.6	49	93		0	0	
Surr: 2-Fluorobiphenyl	79.880		100.0		79.9	57	107		0	0	
Surr: 2-Fluorophenol	38.950		100.0		39.0	27	60		0	0	
Surr: 4-Terphenyl-d14	89.310		100.0		89.3	69	132		0	0	
Surr: Nitrobenzene-d5	82.090		100.0		82.1	52	107		0	0	
Surr: Phenol-d5	28.920		100.0		28.9	15	50		0	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

May 14, 2010

Diane Galvan
Advanced Technology Laboratories
3283 Walnut Ave
Signal Hill, CA 90755
TEL: (562) 989-4045
FAX: (562) 989-4040

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

Workorder No.: N004108

RE: 111587

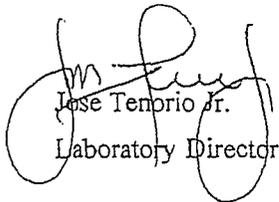
Attention: Diane Galvan

Enclosed are the results for sample(s) received on May 06, 2010 by Advanced Technology Laboratories - Las Vegas . 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 and the case narrative are an integral part of this analytical report and cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



*Advanced Technology
Laboratories*

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

CLIENT: Advanced Technology Laboratories
Project: 111587
Lab Order: N004108

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..



CLIENT:	Advanced Technology Laboratories	Client Sample ID:	111587-001Q / R-09-002
Lab Order:	N004108	Collection Date:	5/4/2010 12:00:00 PM
Project:	111587	Matrix:	GROUND WATER
Lab ID:	N004108-001		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC						
				EPA 218.6		
RunID: IC1_100507B	QC Batch: R76634			PrepDate:		Analyst: QBM
Hexavalent Chromium	ND	0.20		µg/L	1	5/7/2010 03:53 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:	Advanced Technology Laboratories	Client Sample ID:	111587-002Q / R-09-102
Lab Order:	N004108	Collection Date:	5/4/2010 3:00:00 PM
Project:	111587	Matrix:	GROUND WATER
Lab ID:	N004108-002		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC						
				EPA 218.6		
RunID: IC1_100507B	QC Batch: R76634			PrepDate:		Analyst: QBM
Hexavalent Chromium	ND	0.20		µg/L	1	5/7/2010 04:03 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: Advanced Technology Laboratories
 Work Order: N004108
 Project: 111587

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_W

Sample ID: MB-R76634	SampType: MBLK	TestCode: 218.6_W	Units: µg/L	Prep Date:	RunNo: 76634						
Client ID: PBW	Batch ID: R76634	TestNo: EPA 218.6		Analysis Date: 5/7/2010	SeqNo: 1180739						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	ND	0.20									
---------------------	----	------	--	--	--	--	--	--	--	--	--

Sample ID: LCS-R76634	SampType: LCS	TestCode: 218.6_W	Units: µg/L	Prep Date:	RunNo: 76634						
Client ID: LCSW	Batch ID: R76634	TestNo: EPA 218.6		Analysis Date: 5/7/2010	SeqNo: 1180740						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	5.171	0.20	5.000	0	103	90	110				
---------------------	-------	------	-------	---	-----	----	-----	--	--	--	--

Sample ID: N004108-001ADUP	SampType: DUP	TestCode: 218.6_W	Units: µg/L	Prep Date:	RunNo: 76634						
Client ID: ZZZZZZ	Batch ID: R76634	TestNo: EPA 218.6		Analysis Date: 5/7/2010	SeqNo: 1180743						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	ND	0.20						0	0	20	
---------------------	----	------	--	--	--	--	--	---	---	----	--

Sample ID: N004108-001AMS	SampType: MS	TestCode: 218.6_W	Units: µg/L	Prep Date:	RunNo: 76634						
Client ID: ZZZZZZ	Batch ID: R76634	TestNo: EPA 218.6		Analysis Date: 5/7/2010	SeqNo: 1180744						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	5.344	0.20	5.000	0	107	90	110				
---------------------	-------	------	-------	---	-----	----	-----	--	--	--	--

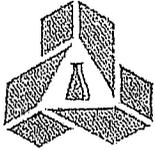
Sample ID: N004108-001AMSD	SampType: MSD	TestCode: 218.6_W	Units: µg/L	Prep Date:	RunNo: 76634						
Client ID: ZZZZZZ	Batch ID: R76634	TestNo: EPA 218.6		Analysis Date: 5/7/2010	SeqNo: 1180745						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	5.391	0.20	5.000	0	108	90	110	5.344	0.876	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





Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755-5225

www.atlglobal.com

TEL: (562) 989-4045

FAX: (562) 989-4040

CHAIN-OF-CUSTODY RECORD

QC Level: CT

Subcontractor:

ADVANCED TECHNOLOGY LABORATORIES
3151 W. Post Road
Las Vegas, NV 89118

TEL: (702) 307-2659
FAX: (702) 307-2691
Acct #:

Field Sampler: MIKE CONKLE

04-May-10

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests	
				EPA 218.6	
111587-001Q / R-09-002	Groundwater	5/4/2010 12:00:00 PM	4OZP	1	NDA100 -1
111587-002Q / R-09-102	Groundwater	5/4/2010 3:00:00 PM	4OZP	1	↓ -2

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: SC05521

Please fax results by: 5-DAY TAT

PLEASE SEND REPORT TO DIANE GALVAN

	Date/Time		Date/Time
Relinquished by: <i>[Signature]</i>	5/4/10	Received by: ONTRAC DIV 102 P3C55035	5/5/10
Relinquished by: <i>[Signature]</i>		Received by: CARBARTIN <i>[Signature]</i>	5/10/10

2.7°C
w/ ICE

Advanced Technology Laboratories - Las Vegas

Please review the checklist below. Any NO and/or NA 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 (562) 989-4045.

Sample Receipt Checklist

Client Name: ATL

Date Time Received: 5/6/2010 2:27:01 PM

Work Order Number: N004108

Received by: MBC

Cooler Temp (Deg C): 2.7

Checklist completed by:

Signature

Date

Reviewed by:

Initials

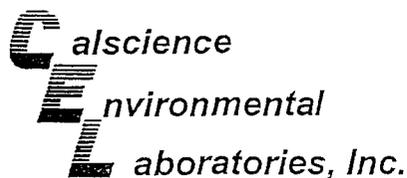
Date

Carrier name: OnTrac

- | | | | |
|---|---|-----------------------------|---|
| 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 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. Container/Temp Blank temperature within acceptance limit? | Yes <input checked="" type="checkbox"/> | No <input 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? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |

Example: pH > 12 for (CN,S); pH<2 for Metals

Comments:



May 19, 2010

Diane Galvan
Advanced Technology Laboratories
3275 Walnut Street
Signal Hill, CA 90755-5225

Subject: **Calscience Work Order No.:** 10-05-0258
Client Reference: 111587

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 5/5/2010 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

A handwritten signature in cursive script that reads "Amanda Porter".

Calscience Environmental
Laboratories, Inc.
Amanda Porter
Project Manager

Analytical Report



Advanced Technology Laboratories
 3275 Walnut Street
 Signal Hill, CA 90755-5225

Date Received: 05/05/10
 Work Order No: 10-05-0258
 Preparation: EPA 3520C
 Method: EPA 1625CM

Project: 111587

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
111587-001N / R-09-002	10-05-0258-1-A	05/04/10 12:00	Aqueous	GC/MS H	05/10/10	05/13/10 16:01	100510L06

Parameter	Result	RL	DF	Qual	Units
N-Nitrosodimethylamine	ND	2.0	1		ng/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Dichlorobenzene-d4	61	50-130			

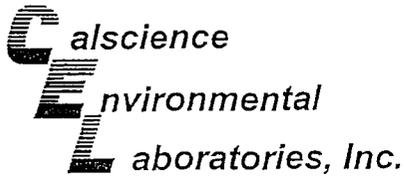
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
111587-002N / R-09-102	10-05-0258-2-A	05/04/10 15:00	Aqueous	GC/MS H	05/10/10	05/13/10 16:27	100510L06

Parameter	Result	RL	DF	Qual	Units
N-Nitrosodimethylamine	ND	2.0	1		ng/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Dichlorobenzene-d4	64	50-130			

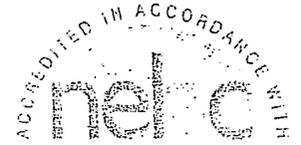
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-07-027-529	N/A	Aqueous	GC/MS H	05/10/10	05/13/10 13:51	100510L06

Parameter	Result	RL	DF	Qual	Units
N-Nitrosodimethylamine	ND	2.0	1		ng/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Dichlorobenzene-d4	54	50-130			

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



Quality Control - LCS/LCS Duplicate



Advanced Technology Laboratories
 3275 Walnut Street
 Signal Hill, CA 90755-5225

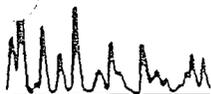
Date Received: N/A
 Work Order No: 10-05-0258
 Preparation: EPA 3520C
 Method: EPA 1625CM

Project: 111587

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
.099-07-027-529	Aqueous	GC/MS H	05/10/10	05/13/10	100510L06

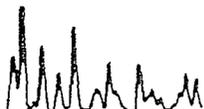
Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
N-Nitrosodimethylamine	88	88	50-130	1	0-20	

RPD - Relative Percent Difference, CL - Control Limit



Work Order Number: 10-05-0258

<u>Qualifier</u>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported without further clarification.
B	Analyte was present in the associated method blank.
E	Concentration exceeds the calibration range.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis. Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture.





Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755-5225

www.atlglobal.com

TEL: (562) 989-4045

FAX: (562) 989-4040

CHAIN-OF-CUSTODY RECORD

02

Page 1 of 1

QC Level: CT

Subcontractor:

Calscience Environmental Laboratories, Inc.

7440 Lincoln Way

Garden Grove, CA 928411432

TEL: (714) 895-5494

FAX: (714) 894-7501

Acct #:

Field Sampler: MIKE CONKLE

04-May-10

1
2

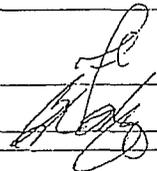
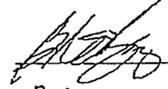
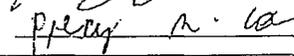
Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				EPA 1625		
111587-001N / R-09-002	Groundwater	5/4/2010 12:00:00 PM	32OZA	1		
111587-002N / R-09-102	Groundwater	5/4/2010 3:00:00 PM	32OZA	1		

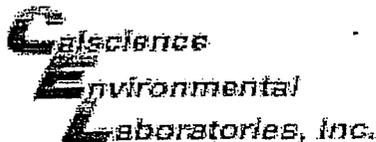
General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: SC05518

Please fax results by: NORMAL TAT

PLEASE SEND REPORT TO DIANE GALVAN

	Date/Time		Date/Time
Relinquished by: 	5/4/10	Received by: 	5/3/10 9:50
Relinquished by: 	5/5/10 10:16	Received by: 	5/5/10 10:16 49:50 5/5/10



WORK ORDER #: 10-05- 2 5 8

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: ATL

DATE: 05/05/10

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0°C – 6.0°C, not frozen)

Temperature 3.9 °C + 0.5°C (CF) = 4.4 °C Blank Sample

Sample(s) outside temperature criteria (PM/APM contacted by: _____).

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature: Air Filter Metals Only PCBs Only Initial: PS

CUSTODY SEALS INTACT:

Cooler _____ No (Not Intact) Not Present N/A Initial: PS

Sample _____ No (Not Intact) Not Present Initial: PS

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
<input type="checkbox"/> No analysis requested. <input type="checkbox"/> Not relinquished. <input type="checkbox"/> No date/time relinquished.			
Sampler's name indicated on COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and good condition.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper containers and sufficient volume for analyses requested.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analyses received within holding time.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper preservation noted on COC or sample container.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Tedlar bag(s) free of condensation.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CONTAINER TYPE:

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (____) EnCores® TerraCores® _____

Water: VOA VOAh VOAna₂ 125AGB 125AGBh 125AGBp 1AGB 1AGBna₂ 1AGBs

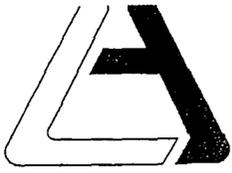
500AGB 500AGJ 500AGJs 250AGB 250CGB 250CGBs 1PB 500PB 500PBna

250PB 250PBn 125PB 125PBzanna 100PJ 100PJna₂ 1AGJ _____ _____

Air: Tedlar® Summa® Other: _____ Trip Blank Lot#: _____ Labeled/Checked by: PS

Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope Reviewed by: WJC

Preservative: h: HCL n: HNO₃ na₂: Na₂S₂O₃ na: NaOH p: H₃PO₄ s: H₂SO₄ zanna: ZnAc₂+NaOH f: Field-filtered Scanned by: PS



ASSOCIATED LABORATORIES

806 North Batavia - Orange, California 92868 - 714/771-6900

FAX 714/538-1209

CLIENT Advanced Technology Labs (5153)
ATTN: Diane Galvan
3275 Walnut Street
Signal Hill, CA 90807

LAB REQUEST 254257

REPORTED 05/27/2010

RECEIVED 05/05/2010

PROJECT P.O. #SC05520

SUBMITTER Client

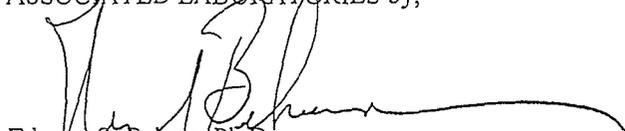
COMMENTS

This laboratory request covers the following listed samples which were analyzed for the parameters indicated on the attached Analytical Result Report. All analyses were conducted using the appropriate methods as indicated on the report. This cover letter is an integral part of the final report.

<u>Order No.</u>	<u>Client Sample Identification</u>
1077677	111587-001P / R-09-002
1077678	111587-002P / R-09-102
1077679	Laboratory Method Blank

Thank you for the opportunity to be of service to your company. Please feel free to call if there are any questions regarding this report or if we can be of further service.

ASSOCIATED LABORATORIES by,


Edward S. Behate, Ph.D.
Vice President

NOTE: Unless notified in writing, all samples will be discarded by appropriate disposal protocol 30 days from date reported.

The reports of the Associated Laboratories are confidential property of our clients and may not be reproduced or used for publication in part or in full without our written permission. This is for the mutual protection of the public, our clients, and ourselves.

TESTING & CONSULTING
Chemical
Microbiological
Environmental

Order #: 1077677

Client Sample ID: 111587-001P / R-09-002

Matrix: WATER

Date Sampled: 05/04/2010

Time Sampled: 12:00

Analyte	Result	DLR	Units	Date/Analyst
---------	--------	-----	-------	--------------

504.1 - EDB, DBCP and TCP in Drinking Water

1,2,3-Trichloropropane	ND	0.1	ug/L	05/21/10 RB
1,2-Dibromo-3-Chloropropane	ND	0.01	ug/L	05/21/10 RB
1,2-Dibromoethane	ND	0.02	ug/L	05/21/10 RB

Order #: 1077678

Client Sample ID: 111587-002P / R-09-102

Matrix: WATER

Date Sampled: 05/04/2010

Time Sampled: 15:00

Analyte	Result	DLR	Units	Date/Analyst
---------	--------	-----	-------	--------------

504.1 - EDB, DBCP and TCP in Drinking Water

1,2,3-Trichloropropane	ND	0.1	ug/L	05/21/10 RB
1,2-Dibromo-3-Chloropropane	ND	0.01	ug/L	05/21/10 RB
1,2-Dibromoethane	ND	0.02	ug/L	05/21/10 RB

Order #: 1077679

Client Sample ID: Laboratory Method Blank

Matrix: WATER

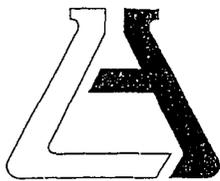
Analyte	Result	DLR	Units	Date/Analyst
---------	--------	-----	-------	--------------

504.1 - EDB, DBCP and TCP in Drinking Water

1,2,3-Trichloropropane	ND	0.1	ug/L	05/20/10 RB
1,2-Dibromo-3-Chloropropane	ND	0.01	ug/L	05/20/10 RB
1,2-Dibromoethane	ND	0.02	ug/L	05/20/10 RB

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit





ASSOCIATED LABORATORIES

806 North Batavia - Orange, California 92868 - 714-771-6900

FAX 714-538-1209

SAMPLE ACCEPTANCE CHECKLIST

Section 1
 Client: ATL Project: P077 SC05520
 Date Received: 5-5-10 Sampler's Name: Yes No
 Sample(s) received in cooler: Yes No (Skip Section 2)
 Shipping Information: _____

Section 2
 Was the cooler packed with: Ice Ice Packs Bubble Wrap Styrofoam
 Paper None Other _____
 Cooler or box temperature: 2.0^oc
 (Acceptance range is 2 to 6 Deg. C.)

Section 3	YES /	NO	N/A
Was a COC received?	✓		
Is it properly completed? (IDs, sampling date and time, signature, test)	✓		
Were custody seals present?		✓	
If Yes - were they intact?		✓	
Were all samples sealed in plastic bags?	✓		
Did all samples arrive intact? If no, indicate below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were correct containers used for the tests required?	✓		
Was a sufficient amount of sample sent for tests indicated?	✓		
Was there headspace in VOA vials?		✓	
Were the containers labeled with correct preservatives?			✓
Was total residual chlorine measured (Fish Bioassay samples only)? *			✓

*: If the answer is no, please inform Fish Bioassay Dept. immediately.

Section 4
 Explanations/Comments

Section 5
 Was Project Manager notified of discrepancies: Y / N N/A

Completed By: [Signature] Date: 5-5-10



Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755-5225

www.atlglobal.com

TEL: (562) 989-4045

FAX: (562) 989-4040

CHAIN-OF-CUSTODY RECORD

254257

QC Level: CT

Subcontractor:

Associated Laboratories
806 N. Batavia
Orange, CA 92868

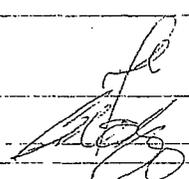
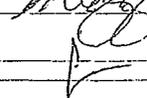
TEL: (714) 771-6900
FAX: (714) 538-1209
Acct #:

Field Sampler: MIKE CONKLE

04-May-10

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				EPA 504		
111587-001P / R-09-002	Groundwater	5/4/2010 12:00:00 PM	VOA	43		
111587-002P / R-09-102	Groundwater	5/4/2010 3:00:00 PM	VOA	43		

General Comments: Please email sample receipt acknowledgement to the PM.
 Please use PO#: SC05520 Please fax results by: NORMAL TAT
 ANALYZE THA SAMPLES FOR EDB/DBCO/TCP BY EPA 504
 PLEASE SEND REPORT TO DIANE GALVAN

	Date/Time		Date/Time
Relinquished by: 	5/4/10	Received by: 	5/5/10 9:50
Relinquished by: 	5/5/10 10:57	Received by:  James Montoya	5-5-10 10:54



AMERICAN SCIENTIFIC LABORATORIES, LLC
Environmental Testing Services

2520 N. San Fernando Rd., Los Angeles, CA 90065 Tel: (323) 223-9700 Fax: (323) 223-9500

Ordered By

Advanced Technology Laboratories
3275 Walnut Ave.
Signal Hill, CA 90755-

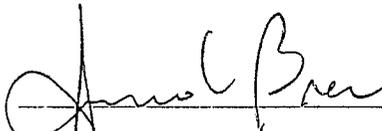
Number of Pages 2
Date Received 05/05/2010
Date Reported 05/12/2010

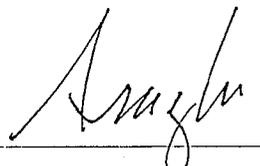
Telephone (562) 989-4045
Attn Diane Galvan

Job Number	Ordered	Client
45706	05/05/2010	ATL

Project ID: 111587
Project Name:

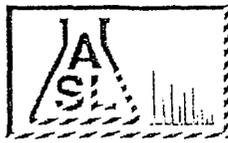
Enclosed are the results of analyses on 2 samples analyzed as specified on attached chain of custody.


Amolk MOLKY Brar
Laboratory Manager


Rojert G. Araghi
Laboratory Director

American Scientific Laboratories, LLC (ASL) accepts sample materials from clients for analysis with the assumption that all of the information provided to ASL verbally or in writing by our clients (and/or their agents), regarding samples being submitted to ASL, is complete and accurate. ASL accepts all samples subject to the following conditions:

- 1) ASL is not responsible for verifying any client-provided information regarding any samples submitted to the laboratory.
- 2) ASL is not responsible for any consequences resulting from any inaccuracies, omissions, or misrepresentations contained in client-provided information regarding samples submitted to the laboratory.



AMERICAN SCIENTIFIC LABORATORIES, LLC
Environmental Testing Services

2520 N. San Fernando Rd., Los Angeles, CA 90065 Tel: (323) 223-9700 Fax: (323) 223-9500

ANALYTICAL RESULTS

Ordered By

Advanced Technology Laboratories 3275 Walnut Ave. Signal Hill, CA 90755-
--

Telephone: (562)989-4045

Attn: Diane Galvan

Page: 2

Project ID: 111587

ASL Job Number	Submitted	Client
45706	05/05/2010	ATL

Method: SM5210B, Biochemical Oxygen Demand (BOD)

QC Batch No: 051010-1

Our Lab I.D.		252405	252406			
Client Sample I.D.		111587-001M	111587-002M			
Date Sampled		05/04/2010	05/04/2010			
Date Prepared		05/05/2010	05/05/2010			
Preparation Method						
Date Analyzed		05/10/2010	05/10/2010			
Matrix		Groundwater	Groundwater			
Units		mg/L	mg/L			
Dilution Factor		1	1			
Analytes	PQL	Results	Results			
Conventionals						
BOD @ 20C	5.00	ND	ND			

QUALITY CONTROL REPORT

QC Batch No: 051010-1

Analytes	LCS % REC	LCS DUP % REC	LCS RPD % REC	LCS/LCSD % Limit	LCS RPD % Limit					
Conventionals										
BOD @ 20C	109	104	4.7	80-120	20					



Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755-5225

www.atlglobal.com

TEL: (562) 989-4045

FAX: (562) 989-4040

ASL JOB # 45705

CHAIN-OF-CUSTODY RECORD

QC Level: CT

Subcontractor:

American Scientific Laboratory
2520 N. San Fernando Rd.
Los Angeles, CA 90065

TEL: (323) 254-7700
FAX: (323) 223-9500
Acct #:

Field Sampler: MIKE CONKLE

04-May-10

Sample ID	Lab. I.D.	Matrix	Date Collected	Bottle Type	Requested Tests			
					SM5210B			
111587-001M	/ R-09-002	252405	Groundwater	5/4/2010 12:00:00 PM	16OZP	1		
111587-002M	/ R-09-102	252406	Groundwater	5/4/2010 3:00:00 PM	16OZP	1		

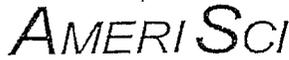
General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: SC05517

Please fax results by: NORMAL TAT

PLEASE SEND REPORT TO DIANE GALVAN

Relinquished by: 	Date/Time: 5/4/10	Received by: 	Date/Time: 5/5/10 - 14:35
Relinquished by: _____	Date/Time: _____	Received by: _____	Date/Time: _____

The logo for AmeriSci, featuring the company name in a serif font with a stylized swoosh above and below the letters.

AmeriSci Los Angeles

24416 SOUTH MAIN STREET • SUITE 308

CARSON, CA 90745

TEL: (310) 834-4868 • FAX: (310) 834-4772

May 12, 2010

Advanced Technology Laboratories
Attn: Diane Galvan
3275 Walnut Street
Signal Hill , CA 90755

RE: Advanced Technology Laboratories
Job Number 910051107
P.O. #SC05519

Dear Diane Galvan:

Enclosed are the results for TEM asbestos analysis of the following Advanced Technology Laboratories samples received at AmeriSci on Wednesday, May 05, 2010, for a 5 day turnaround:

111587-001O/R-09-002, 111587-002O/R-09-102

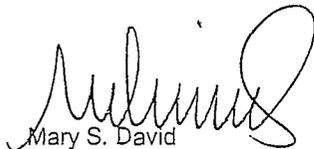
The 2 samples were filtered and prepared according to Water analysis under the EPA-600/4-83-043 "Analytical Method for Determination of Asbestos Fibers in Water" (1983). AmeriSci, Inc. uses the "Grid Square" method of counting and the concentration is calculated in millions of fibers per liter (MFL).

Table I represents a summary of all pertinent information used for the calculations. Included are the size of each structure counted, concentration, structure concentration greater than 10 microns in length, type of asbestiform material detected and the analytical sensitivity, which represents the concentration by the detection of one fiber in the TEM fiber count. Appendix "A" contains copies of the Fiber Count Sheets, showing the raw data for examination. These data sheets contain information for fiber length/width, fiber type, structure morphology and pertinent information on EDS, SAED and photography.

This report relates ONLY to the sample analysis expressed as millions of fibers per liter (MFL). AmeriSci assumes no responsibility for customer supplied data such as "sample location" or "the condition of the water sample before arriving at AmeriSci". This report must not be used to claim product endorsement by AmeriSci, NVLAP, ELAP or any agency of the U. S. Government. The National Institute of Standards and Technology Accreditation requirements, mandates that this report must not be reproduced, except in full without the approval of the laboratory.

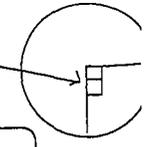
AmeriSci appreciates this opportunity to serve your organization. Please contact us for any further assistance or with any questions.

Sincerely,

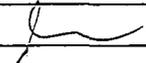
A handwritten signature in black ink, appearing to read "Mary S. David".

Mary S. David
Client Services Manager

TEM Asbestos (Water) Count Sheet

sample area analyzed 

<u>Client Name:</u> Advanced Technology Laboratories		<u>Volume (liters):</u> 0.002
<u>Job #:</u> 910051107	<u>Filter Type / Filter Area:</u> MCE 214 mm ²	
<u>Lab Sample #:</u> 01	<u>Grid Opening Size:</u> 0.01003	
<u>Client Sample #:</u> 111587-001O/R-09-002	<u>Area Examined:</u> 0.12036 mm ²	
<u>Received:</u> 05/05/10 12:15:00	<u>Magnification:</u> 20,000	
<u>Date Analyzed:</u> 05/12/10	<u>Accelerating Voltage:</u> 100 KeV	
<u>Scope #:</u> H7	<u>Temp:</u> 5	

Analysis Performed by: 
Javier Cortes

Location	Grid Opening	Fiber	Length μ m	Width μ m	Fiber Type	Morphology	EDS	Orient.	SAED	Photo
C1-4/4B	1	NSD							┌ ├ ├ ├ ├ ├ ├ ├ ├ ├ ├ ├	
C1-4/4C	2	NSD								
C1-4/4E	3	NSD								
C1-4/4F	4	NSD								
C1-4/4G	5	NSD								
C2-4/4B	6	NSD								
C2-4/4C	7	NSD								
C2-4/4E	8	NSD								
C2-4/4F	9	NSD								
C2-4/4G	10	NSD								
C3-B4/4B	11	NSD								
C3-B4/4C	12	NSD								

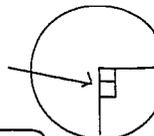
NSD: No Asbestos Structures Detected

Comments:

	Concentration (million fibers/liter)	Grid Evaluation
Total Grid Openings: 12		<input checked="" type="checkbox"/> Grid Openings Covered > 50%
Chrysotile Asbestos Structures: 0	<0.889	<input checked="" type="checkbox"/> Intact Grid Opening > 50%
Amphibole Asbestos Structures: 0	<0.889	<input checked="" type="checkbox"/> Undissolved Filter < 10%
Asbestos Structures >10 microns: 0	<0.889	<input checked="" type="checkbox"/> Folded Replica < 50%
Total Asbestos Structures: 0	<0.889	<input checked="" type="checkbox"/> Filter Loading < 25%
Analytical Sensitivity: 0.889		<input checked="" type="checkbox"/> Particulate Even

TEM Asbestos (Water) Count Sheet

sample area analyzed



<u>Client Name:</u> Advanced Technology Laboratories		<u>Volume (liters):</u> 0.002
<u>Job #:</u> 910051107	<u>Filter Type / Filter Area:</u> MCE 214 mm ²	
<u>Lab Sample #:</u> 02	<u>Grid Opening Size:</u> 0.01003	
<u>Client Sample #:</u> 111587-002O/R-09-102	<u>Area Examined:</u> 0.12036 mm ²	
<u>Received:</u> 05/05/10 12:15:00	<u>Magnification:</u> 20,000	
<u>Date Analyzed:</u> 05/12/10	<u>Accelerating Voltage:</u> 100 KeV	
<u>Scope #:</u> H7	<u>Temp:</u> 0	

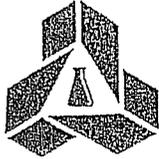
Analysis Performed by: Javier Cortes

Location	Grid Opening	Fiber	Length μM	Width μM	Fiber Type	Morphology	EDS	Orient.	SAED	Photo
C5-4/4B	1	NSD								
C5-4/4C	2	NSD								
C5-4/4E	3	NSD								
C5-4/4F	4	NSD								
D1-4/4B	5	NSD								
D1-4/4C	6	NSD								
D1-4/4E	7	NSD								
D1-4/4F	8	NSD								
D2-4/4B	9	NSD								
D2-4/4C	10	NSD								
D2-4/4E	11	NSD								
D2-4/4F	12	NSD								

NSD: No Asbestos Structures Detected

Comments:

	Concentration (million fibers/liter)	Grid Evaluation
Total Grid Openings: 12		<input checked="" type="checkbox"/> Grid Openings Covered > 50%
Chrysotile Asbestos Structures: 0	<0.889	<input checked="" type="checkbox"/> Intact Grid Opening > 50%
Amphibole Asbestos Structures: 0	<0.889	<input checked="" type="checkbox"/> Undissolved Filter < 10%
Asbestos Structures >10 microns: 0	<0.889	<input checked="" type="checkbox"/> Folded Replica < 50%
Total Asbestos Structures: 0	<0.889	<input checked="" type="checkbox"/> Filter Loading < 25%
Analytical Sensitivity: 0.889		<input checked="" type="checkbox"/> Particulate Even



Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755-5225
www.atlglobal.com
TEL: (562) 989-4045 FAX: (562) 989-4040

CHAIN-OF-CUSTODY RECORD

910051107

Page 1 of 1

QC Level: CT

Subcontractor:

AmeriSci Los Angeles
24416 South Main Street, Suite 308
Carson, CA 90745

TEL: (310) 834-4868
FAX: (310) 834-4772
Acct #:

Field Sampler: MIKE CONKLE

04-May-10

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				Asb_TEM		
111587-0010 / R-09-002	Groundwater	5/4/2010 12:00:00 PM	32OZA	1		
111587-0020 / R-09-102	Groundwater	5/4/2010 3:00:00 PM	32OZA	1		

General Comments: Please email sample receipt acknowledgement to the PM.
Please use PO#: SC05519 Please fax results by: NORMAL TAT
PLEASE SEND REPORT TO DIANE GALVAN

	Date/Time		Date/Time
Relinquished by: <i>[Signature]</i>	5/4/10	Received by: <i>[Signature]</i>	5/5/10 9:50
Relinquished by: <i>[Signature]</i>	5/5/10 12:10	Received by: <i>[Signature]</i>	5/5/10 @ 12:15 ^{5E}

CHAIN OF CUSTODY RECORD



**Advanced Technology
Laboratories**

3275 Walnut Avenue
Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

FOR LABORATORY USE ONLY

P.O. #: _____

Logged By: [Signature] Date: 5/4/10

Method of Transport

Client ATL CA OverN FedEx Other: _____

Sample Condition Upon Receipt

1. CHILLED N 4. SEALED

2. HEADSPACE (VOA) N 5. # OF SPLS MATCH COC N

3. CONTAINER INTACT N 6. PRESERVED N

Client: GEOCON
Attention: MIKE CONKLE

Address: 3303 N. SAN FERNANDO BLVD., SUITE 100
City: BURBANK State: CA Zip Code: 91504

Tel: 818-841-8388
Fax: 818-841-1704

Project Name: Caltrans TO #1

Project #: S9475-06-01

Sampler: MIKE CONKLE

(Signature)

Relinquished by: [Signature] Date: 5/4/10 Time: 4:16 p

Relinquished by: [Signature] Date: 5/4/10 Time: 1749

Relinquished by: [Signature] Date: _____ Time: _____

Received by: [Signature] Date: 5/4/10 Time: 1610

Received by: [Signature] Date: 5/4/10 Time: 1749

Received by: [Signature] Date: _____ Time: _____

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter:
Mike Conkle 5/4/10
Print Name Date

[Signature]
Signature

Send Report To:
Attn: _____
Co: _____
Addr: _____
City: _____ State: _____ Zip: _____

Bill To:
Attn: _____
Co: _____
Addr: _____
City: _____ State: _____ Zip: _____

Special Instructions/Comments:
CALTRANS CONTRACT 07A2729
FILTER AND PRESERVE METALS SAMPLES AT LAB

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 /ATL workorder /mo (after 1 year)

Circle or Add Analysis(es) Requested	SPECIFY APPROPRIATE MATRIX										PRESERVATION	Q A / Q C									
	VOCS (826B)	SVOCs (827C)	DISSOLVED METALS (200.8)	CYANIDE (835.2)	HEX CHROME (218.6)	TRPH (1664)	GROUNDRO (8015B)	OIL AND GREASE (8015B)	PERCHLORATE (1664)	PCBS (8082)			NDMA	EDB/DIBO/TCP (504)	SOIL	WATER	GROUND WATER	WASTEWATER	Container(s)	REMARKS	
																	TAT	#	Type		
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	E	24		
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	E	24		

LAB USE ONLY:
Batch #: _____
Lab No. _____

Sample Description		Date	Time
<u>111567 - W1</u>	<u>R-09-002</u>	<u>5/4/10</u>	<u>4:30/2010</u>
<u>↓ - W2</u>	<u>R-09-102</u>	<u>5/4/10</u>	<u>4:30/2010</u>

■ TAT starts 8AM the following day if samples received after 3 PM

TAT: A = Overnight ≤ 24 hrs B = Emergency Next Workday C = Critical 2 Workdays D = Urgent 3 Workdays E = Routine 7 Workdays

Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Tedlar G=Glass P=Plastic M=Metal

Preservatives:
H=HCl N=HNO₃ S=H₂SO₄ C=4°C
Z=Zn(AC)₂ O=NaOH T=Na₂S₂O₃

CHAIN OF CUSTODY RECORD



**Advanced Technology
Laboratories**

3275 Walnut Avenue
Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

FOR LABORATORY USE ONLY

P.O. #: _____	Method of Transport Client <input type="checkbox"/> ATL <input checked="" type="checkbox"/> CA OverN <input type="checkbox"/> FedEx <input type="checkbox"/> Other: _____	Sample Condition Upon Receipt 1. CHILLED Y <input checked="" type="checkbox"/> N <input type="checkbox"/> 4. SEALED Y <input type="checkbox"/> N <input checked="" type="checkbox"/> 2. HEADSPACE (VOA) Y <input type="checkbox"/> N <input type="checkbox"/> 5. # OF SPLS MATCH COC Y <input checked="" type="checkbox"/> N <input type="checkbox"/> 3. CONTAINER INTACT Y <input type="checkbox"/> N <input type="checkbox"/> 6. PRESERVED Y <input type="checkbox"/> N <input type="checkbox"/>
Logged By: _____	Date: _____	

Client: GEOCON Attention: MIKE CONKLE	Address: 3303 N. SAN FERNANDO BLVD., SUITE 100 City: BURBANK State: CA Zip Code: 91504	Tel: 818-841-8388 Fax: 818-841-1704
--	---	--

Project Name: Caltrans TO #1	Project #: S9475-06-01	Sampler: MIKE CONKLE	(Signature)
------------------------------	------------------------	----------------------	-------------

Relinquished by: (Signature and Printed Name) <i>[Signature]</i>	Date: 5/4/10	Time: 4:10 P	Received by: (Signature and Printed Name) <i>[Signature]</i>	Date: 5/4/10	Time: 10:10
Relinquished by: (Signature and Printed Name) <i>[Signature]</i>	Date: 5/4/10	Time: 1:49	Received by: (Signature and Printed Name) <i>[Signature]</i>	Date: 5/4/10	Time: 1:49
Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter:
Mike Conkle
Print Name Date 5/4/10
[Signature]
Signature

Send Report To:
Attn: _____
Co: _____
Addr: _____
City: _____ State: _____ Zip: _____

Bill To:
Attn: _____
Co: _____
Addr: _____
City: _____ State: _____ Zip: _____

Special Instructions/Comments:
CALTRANS CONTRACT 07A2729
FILTER AND PRESERVE METALS SAMPLES AT LAB

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 /ATL workorder /mo (after 1 year)

I T E M	LAB USE ONLY:		Sample Description				Circle or Add Analysis(es) Requested														SPECIFY APPROPRIATE MATRIX				PRESERVATION	REMARKS
	Batch #:	Sample ID / Location	Date	Time	TDS	SS	BOD	SM	CHLORIDES	SULFATES	NITRITES/NITRATES	SULFIDES	BORON	HARDNESS	ASBESTOS	1,4 DIOXANE	SOIL	WATER	GROUND WATER	WASTEWATER	TAT	#	Type			
	Lab No.																									
	R-09-002	<i>conc</i> 5/4/10	4730/2010	1200	X	X	X	X	X	X	X	X	X	X	X	X		X				E	24			
	R-09-102	<i>conc</i> 5/4/10	4730/2010	1500	X	X	X	X	X	X	X	X	X	X	X	X		X				E	24			

■ TAT starts 8AM the following day if sample received after 3 PM	TAT: <input type="checkbox"/> A = Overnight ≤ 24 hrs <input type="checkbox"/> B = Emergency Next Workday <input type="checkbox"/> C = Critical 2 Workdays <input type="checkbox"/> D = Urgent 3 Workdays <input type="checkbox"/> E = Routine 7 Workdays	Preservatives: H=HCl N=HNO ₃ S=H ₂ SO ₄ C=4°C Z=Zn(AC) ₂ T=Na ₂ S ₂ O ₃
Container Types: T=Tube V=VOA L=Liter P=Plastic M=Metal Jar Teclar Glass Plastic Metal		

Diane Galvan

From: conkle [conkle@geoconinc.com]
Sent: Tuesday, April 20, 2010 12:13 PM
o: Diane Galvan
Subject: bottle request

Hi Diane,
I need two sets of containers to perform the following water tests:

Volatile Organic Compounds	EPA Method 8260B
Semi-volatile Organic Compounds	EPA Method 8270C (3510C)
California Code of Regulations Title 22 Metals	EPA Method 200.8
Cyanide	EPA Method 335.2
Hexavalent Chromium	EPA Method 218.6
Total Recoverable Petroleum Hydrocarbons	EPA Method 1664
Gasoline and Diesel Range Organics	EPA Method 8015B
Ethanol and Methanol	EPA Method 8015B
Oil and Grease	EPA Method 1664
Perchlorate	EPA Method 314.0
Organochlorine Pesticides	EPA Method 3510C
PCBs	EPA Method 8082
N-Nirosodimethylamine	EPA 1625C (Modified)
EDB, DBCO, and TCP	EPA Method 504
Total Dissolved Solids	EPA Method 160.1
Suspended Solids	EPA Method 160.2
Biological Oxygen Demand	EPA Method 405.1
Settleable Solids	EPA Method 160.5
Chlorides, Sulfates, Nitrites and Nitrates (as Nitrogen)	EPA Method 300
Sulfides	EPA Method 376.2
Boron	EPA Method 6010B
Hardness	SM2340C
Asbestos	TEM
1,4 dioxane	8270 dioxane

Please send unpreserved containers for the metals – I'll have you filter and preserve them on receipt.

I need these by tomorrow afternoon.

Michael Conkle, PG
Senior Geologist

GEOCON
3303 N. San Fernando Blvd., Suite 100
Burbank, California 91504
Tel (818) 841-8388 Fax (818) 841-1704 Mobile (213) 503-7841

Please visit our new website: <http://www.geoconinc.com>



GEOTECHNICAL - ENVIRONMENTAL - MATERIALS

Bakersfield Burbank Carson City Livermore Murrieta Portland Sacramento San Diego

APPENDIX

C

APPENDIX C

GEOCON CONSULTANTS, INC. MODIFIED STANDARD OPERATING PROCEDURE (SOP) NO. 11 HAND-AUGERING AND SOIL SAMPLE COLLECTION/HANDLING

Purpose

The purpose of this SOP is to outline procedures and methods to be used to advance hand-augers and collect soil samples for chemical analyses.

Hand-Augering and Soil Sample Collection/Handling Procedures

1. Initiate boring using a hand-held 2.5-inch centimeter diameter stainless steel auger.
2. Advance boring to initial sample depth of approximately 0 to 0.5 feet below the ground surface.
3. Transfer the soil sample from the hand auger into a plastic bag to homogenize the sample, transfer the sample from the plastic bag to a glass jar supplied by the laboratory. Label glass jar with the boring number, EA number, and sample depth.
4. Record the sample identification, time and date of sample collection, sample matrix type, turn-around time, and container type on the laboratory chain of custody.
5. Each prepared sample jar will be placed into a cooler for transport to Advanced Technology Laboratories.
6. Repeat the procedure and collect soil samples at subsequent depths as specified in the Task Order, if possible.
7. Backfill the borings to surface grade with soil cuttings generated.
8. Clean and rinse sampling equipment prior to the collection of each soil sample by washing the equipment with a trisodium phosphate solution followed by subsequent tap water and deionized water rinses.
9. Transport all samples to Advance Technology Laboratories under chain of custody control.

APPENDIX

D

BORING LOG

Project No.: 139356, CalTrans
Client: GeoCon
Location: I5 P45.8 to 49.6
Started: 4/30/2010
Ended: 4/30/2010

Drilling Co.: Gregg Drilling
Drill Rig Model: CME-95
Driller: Juan SiFuentes
Drilling Method: Hollow-Stem Auger
Hole Diameter: 8 (inches)

Logged By: Matthew Curtis
Edited By: Matthew Curtis
Checked By: Matthew C. Curtis
Number: PG6988

TIME	SAMPLE NUMBER	PID/FID/CH4 (ppm/%)	BLOWS (per 6 inch) INTERVAL RECOVERY	DEPTH (feet)	ELEVATION (feet msl)	GRAPHIC LOG	SOIL/ROCK SYMBOL	∇ First Water: 8 ft bgs on 30-Apr-10 at 0922 hrs ▼ Static Water: 9.2 ft bgs on 30-Apr-10 at 1030 hrs	WELL DETAIL	COMMENTS OR NOTES
SOIL / ROCK DESCRIPTION										
0900							ML	SILT WITH GRAVEL; yellowish brown (10YR 5/4); dry; firm; 35% fine to medium subrounded gravel; 15% fine grained sand; 50% silty fines with low plasticity; odorless. ARTIFICIAL FILL (af).		Hand Auger 0-2' refusal. Soil backfill 0-3'
0920	301@ 5-6.5	0.1	7 11 14				ML	Rough contact. SILT; dark brown (10YR 3/3); moist; firm; 10% fine subrounded gravel; 5% fine grained sand; 85% silty fines with low plasticity; massive; odorless. ALLUVIUM (Qal). @8'; first water encountered.		
0925	301@ 10-11.5	0.1	5 7 10					@10'; interbedded sand and gravel deposits; grades to 20% subrounded gravel, 30% fine to medium sand, 50% silty fines. Interbedded SILT and GRAVELLY SAND; dark yellowish brown (10YR 4/4); wet; dense; odorless.		Hydrated bentonite chips backfill 3-21'.
0930	301@ 15-16.5	0.0	2 4 16				SP	SAND; dark yellowish brown (10YR 4/4); wet; dense; 5% fine to medium subrounded gravel; 95% fine to medium grained sand; odorless. @16.2'; 3" thick coarse Gravel with Sand interbed.		
0935	301@ 20-21.5	0.5	8 14 17				ML	SAND; light olive brown (2.5Y 5/4); wet; firm; mostly silty fines; laminated; micaceous; odorless. Boring was terminated at approximately 21.5 feet bgs.		

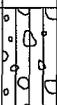
SHAW CALTRANS SANTA CLARITA.GPJ SHAWELGDT 5/25/10

BORING LOG

Project No.: 139356, CalTrans
Client: GeoCon
Location: I5 P45.8 to 49.6
Started: 4/30/2010
Ended: 4/30/2010

Drilling Co.: Gregg Drilling
Drill Rig Model: CME-95
Driller: Juan SiFuentes
Drilling Method: Hollow-Stem Auger
Hole Diameter: 8 (inches)

Logged By: Matthew Curtis
Edited By: Matthew Curtis
Checked By: Matthew C. Curtis
Number: PG6988

TIME	SAMPLE NUMBER	PID/FID/CH4 (ppm/%)	BLOWS (per 6 inch) INTERVAL RECOVERY	DEPTH (feet)	ELEVATION (feet msl)	GRAPHIC LOG	SOIL/ROCK SYMBOL	 First Water: 11.5 ft bgs on 30-Apr-10 at 1105 hrs  Static Water: ft bgs on at hrs	WELL DETAIL	COMMENTS OR NOTES
								SOIL / ROCK DESCRIPTION		
1100							ML	SILT WITH GRAVEL; yellowish brown (10YR 5/4); dry; firm; 35% fine to medium subrounded gravel; 15% fine grained sand; 50% silty fines with low plasticity; odorless. ARTIFICIAL FILL (af).		Hand Auger 0-2' refusal. Soil backfill 0-3'
1102@	302@	5-6.5	0.2	5			ML	SILT; olive brown (2.5Y 4/3); moist; firm; 10% fine to medium grained sand; 90% silty fines with low plasticity; massive; faint earthy odor; trace rootlets.		
1105@	302@	10-11.5	0.3	10				@11.5'; becomes wet; faint mottling; grades to 85% silty fines, 10% clayey fines, 5% fine sand; bioturbation.		Hydrated bentonite chips backfill 3-21'.
1110@	302@	15-16.5	0.0	15				@15'; grades to 10% fine sand, 90% silty fines; completely saturated.		
1118@	302@	20-21	0.2	20				@20'; locally interbedded with granitic gravels and cobbles to 4".		
								Boring was terminated at approximately 21 feet bgs.		

SHAW CALTRANS SANTACLARITA.GPJ SHAWEL.GDT 5/25/10

BORING LOG

Project No.: 139356, CalTrans
Client: GeoCon
Location: I5 P45.8 to 49.6
Started: 4/30/2010
Ended: 4/30/2010

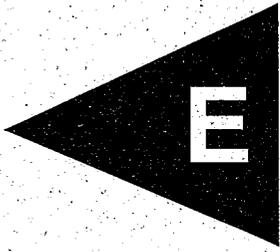
Drilling Co.: Gregg Drilling
Drill Rig Model: CME-95
Driller: Juan SiFuentes
Drilling Method: Hollow-Stem Auger
Hole Diameter: 8 (inches)

Logged By: Matthew Curtis
Edited By: Matthew Curtis
Checked By: Matthew C. Curtis
Number: PG6988

TIME	SAMPLE NUMBER	PID/FID/CH4 (ppm%)	BLOWS (per 6 inch) INTERVAL RECOVERY	DEPTH (feet)	ELEVATION (feet msl)	GRAPHIC LOG	SOIL/ROCK SYMBOL	<input checked="" type="checkbox"/> First Water: ft bgs on at hrs <input checked="" type="checkbox"/> Static Water: ft bgs on at hrs	WELL DETAIL	COMMENTS OR NOTES
								SOIL / ROCK DESCRIPTION		
1215										Bedrock at surface, no hand auger. Soil backfill 0-5'
1225	303@ 6-7	0.8	28 30				SM			Attempted to sample at 5 & 5.5' but refusal.
1235	303@ 10-11	0.2	28 30				SP			Hydrated Bentonite chip backfill 5-20'
1242	303@ 15-16.5	0.2	26 35 30							
1555	303@ 20-20.7	0.2	50 50/3				ML			Bentonite grout backfill 20-40.5'
1305	303@ 25-25.7	0.2	50 50/3				SM			
1318	303@ 30-30.7	0.3	50 50/3				SP			
1330	303@ 35-35.7	0.2	50 50/3							
1335	303@ 40-40.5	0.1	50							
								Boring was terminated at approximately 40.5 feet bgs.		

SHAW CALTRANS SANTA CLARITA.GPJ SHAWEL.GDT 5/25/10

APPENDIX



E

Manifest

TPST Soil Recyclers of CA

Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment: 1/1 Responsible for Payment: _____ Transporter Truck #: 3941732 Facility #: A07 Given by TPST: 3534710011 Load # _____

Generator's Name and Billing Address: CALTRANS - DISTRICT 7
ATTN: JACK LIU
100 MAIN ST., MS 12-267
LOS ANGELES, CA 90012 Generator's Phone #: 213-897-1350 Generator's US EPA ID No. _____
Person to Contact: _____
FAX#: _____ Customer Account Number with TPST: _____

Consultant's Name and Billing Address: _____ Consultant's Phone #: _____
Person to Contact: _____
FAX#: _____ Customer Account Number with TPST: _____

Generation Site (Transport from): (name & address) CALTRANS - I-5 @ GAVIN CANYON
OVERCROSSING
I-5 @ GAVIN CANYON OVERCROSSING
SANTA CLARITA, CA 91321 Site Phone #: _____ BTEX Levels _____
Person to Contact: _____ TPH Levels _____
FAX#: _____ AVG. Levels _____

Designated Facility (Transport to): (name & address) TPST SOIL RECYCLERS OF CALIFORNIA
12328 HIBISCUS AVENUE
ADELANTO, CA 92301 Facility Phone #: (800) 862-8001 Facility Permit Numbers _____
Person to Contact: DELLENA JEFFREY
FAX#: (760) 246-8004

Transporter Name and Mailing Address: BELSHIRE
25971 TOWNE CENTRE DRIVE
FOOTHILL RANCH, CA 92810 Transporter's Phone #: 649-480-5200 Transporter's US EPA ID No.: CAR000193913
Person to Contact: LARRY MOOTHART Transporter's DOT No.: 450847
FAX#: 649-480-5210 Customer Account Number with TPST: _____
BESI: 179710

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand <input type="checkbox"/> Organic <input type="checkbox"/> Clay <input type="checkbox"/> Other <input type="checkbox"/>	0 - 10% <input type="checkbox"/> 10 - 20% <input type="checkbox"/> 20% - over <input type="checkbox"/>	Gas <input type="checkbox"/> Diesel <input type="checkbox"/> Other <input type="checkbox"/>	<u>42</u>	<u>SOTL DRUMS</u>	<u>38160</u>	<u>37140</u>	<u>1020</u>
Sand <input type="checkbox"/> Organic <input type="checkbox"/> Clay <input type="checkbox"/> Other <input type="checkbox"/>	0 - 10% <input type="checkbox"/> 10 - 20% <input type="checkbox"/> 20% - over <input type="checkbox"/>	Gas <input type="checkbox"/> Diesel <input type="checkbox"/> Other <input type="checkbox"/>					<u>51</u>

List any exception to items listed above: _____ Scale Ticket# 86557

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: MIKE CONNOR CALTRANS Generator Consultant Signature and date: [Signature] Month 1 Day 30 Year 10

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: CHAD KENNEDY Signature and date: [Signature] Month 1 Day 30 Year 10

Discrepancies: _____

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: D. JEFFREY/J. PROVANSAL Signature and date: [Signature] 5-25-10

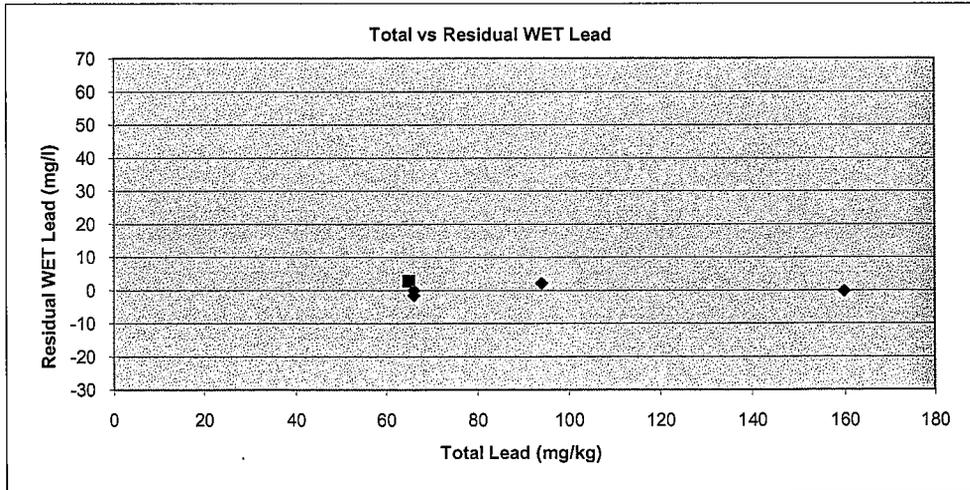
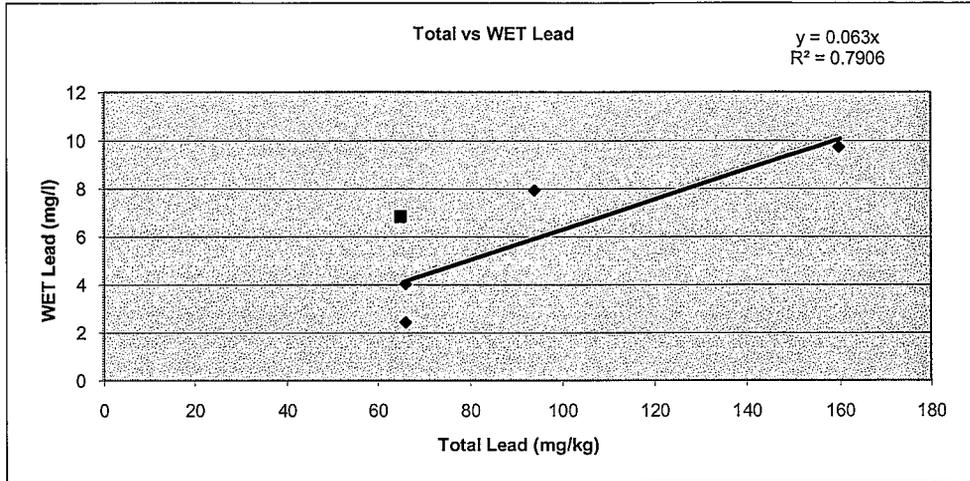
Please print or type.

APPENDIX

F

APPENDIX F - Lead Regression Analysis

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	Residual WET Lead (mg/l)	Squared Residual WET Lead (mg/l)
102-1.5-2.5	1.5-2.0	160	9.7	-0.38	0.14
107-0-0.5	0-0.5	66	4.0	-0.16	0.02
112-0-0.5	0-0.5	94	7.9	1.98	3.92
112-1.5-2.0	1.5-2.0	66	2.4	-1.76	3.1
<u>Not Used</u>					
110-0-0.5	0-0.5	65	6.8	2.71	7.33



Notes:

The Total vs. WET Lead graph is a linear regression scatter plot with a best-fit line using the least squares method and forcing the y-intercept through zero. The least squares method minimizes the sum of squared distances between the observed points in the dataset and the points predicted by the linear approximation. A test for data correlation is used to verify the quality of the equation used to predict soluble lead concentrations. There should be a correlation coefficient ("r") of 0.8 or greater between total and soluble lead (WET) analytical results. The correlation coefficient for these results is 0.8892.

The Total vs. Residual WET lead graph depicts the error, or residual variation, after fitting the regression line. The residual value is the difference (or left over) between the observed value of the variable and the value suggested by the regression line. The squared residual is the standardized error value. This plot is used to assist in identifying anomalous outliers in the data set.

APPENDIX F
UCL Output

SW-0-2

Number of Valid Observations	8
Number of Distinct Observations	6
Minimum	2.5
Maximum	160
Mean	33.2
Median	15.5
SD	52.59
Variance	2766
Coefficient of Variation	1.584
Skewness	2.552
Mean of log data	2.629
SD of log data	1.42
90% Standard Bootstrap UCL	55.64
95% Standard Bootstrap UCL	61.3

Med-0

Number of Valid Observations	8
Number of Distinct Observations	7
Minimum	6.2
Maximum	94
Mean	41.53
Median	30
SD	30.27
Variance	916.3
Coefficient of Variation	0.729
Skewness	0.682
Mean of log data	3.429
SD of log data	0.903
90% Standard Bootstrap UCL	54.14
95% Standard Bootstrap UCL	57.77

Med-0-2

Number of Valid Observations	15
Number of Distinct Observations	9
Minimum	2.5
Maximum	94
Mean	28.18
Median	13
SD	30.27
Variance	916.3
Coefficient of Variation	1.074
Skewness	1.011
Mean of log data	2.579
SD of log data	1.412
90% Standard Bootstrap UCL	37.89
95% Standard Bootstrap UCL	40.58

SUMMARY OF LEAD STATISTICAL ANALYSIS

LA-5 PM 45.8/49.6

LOS ANGELES COUNTY, CALIFORNIA

Retainin Wall (Station 2440 to 2446)

Borings 101-104

TOTAL LEAD UCLs

	Total Lead (mg/kg)	
	90% UCL	95% UCL
0 to 2.0 ft.	55.6	61.3

EXCAVATION SCENARIOS

Excavation Depth	90% UCL		95% UCL	
	Total Lead (mg/kg)	WET Lead (mg/l)	Total Lead (mg/kg)	WET Lead (mg/l)
0 to 2.0 ft	56	3.5	61	3.9

Notes:

Weighted average values are based upon maximum concentrations for each depth interval.

mg/kg = milligrams per kilogram

mg/l = milligrams per liter

* = Soluble (WET) lead concentrations are predicted using slope of regression line,
where y = predicted soluble (WET) lead and x = total lead.

Regression Line Slope: $y = 0.0630 x$

SUMMARY OF LEAD STATISTICAL ANALYSIS

LA-5 PM 45.8/49.6

LOS ANGELES COUNTY, CALIFORNIA

Median (Station 2577 to 2613)

Borings 105 to 112

TOTAL LEAD UCLs AND MAXIMUMS

	Total Lead (mg/kg)	
	90% UCL	95% UCL
0 to 0.5 ft.	54.1	57.8
	Maximum	Maximum
1.5 to 2.0 ft.	66.0	66.0

EXCAVATION SCENARIOS

Excavation Depth	Weighted Averages		95% UCL/Maximum	
	90% UCL/Maximum		Total Lead (mg/kg)	WET Lead (mg/l)
	Total Lead (mg/kg)	WET Lead (mg/l)		
0 to 0.5 ft	54	3.4	58	3.6
<i>Underlying Soil (0.5 to 2.0 ft.)</i>	58	3.7	61	3.8
0 to 1.5 ft	54	3.4	58	3.6
<i>Underlying Soil (1.5 to 2.0 ft.)</i>	66	4.2	66	4.2
0 to 2.0 ft.	57	3.6	60	3.8

Weighted average values are based upon calculated UCLs for each depth interval.

Weighted average values are based upon maximum concentrations for each depth interval.

mg/kg = milligrams per kilogram

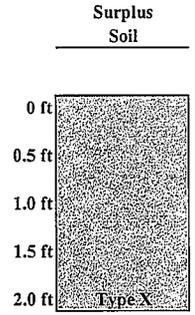
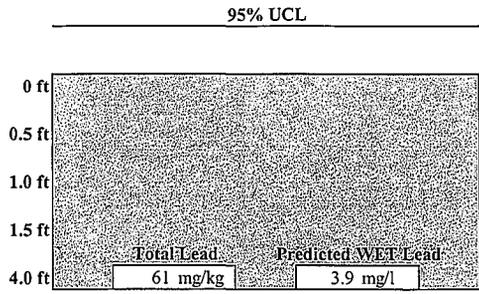
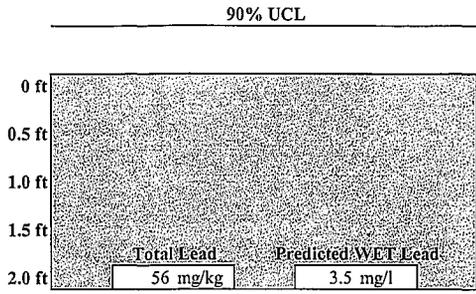
mg/l = milligrams per liter

* = Soluble (WET) lead concentrations are predicted using slope of regression line,
where y = predicted soluble (WET) lead and x = total lead.

Regression Line Slope: $y = 0.0630 x$

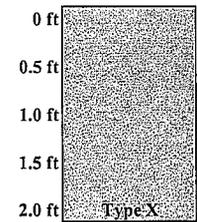
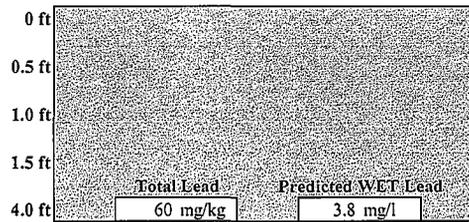
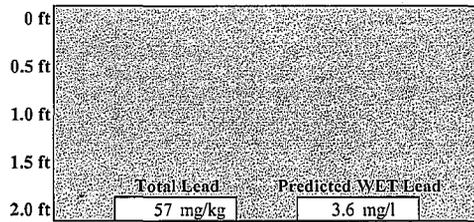
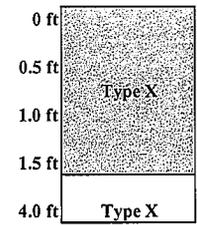
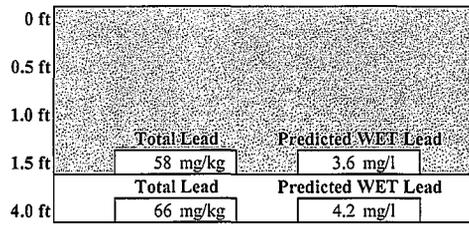
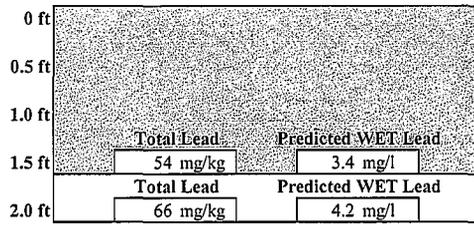
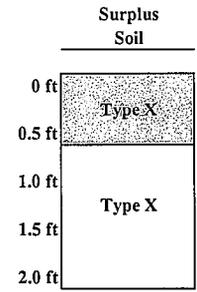
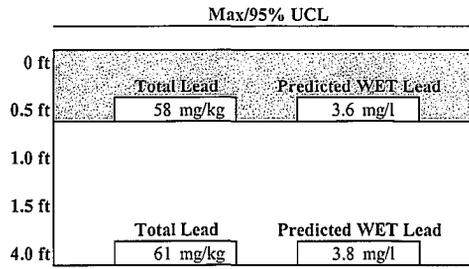
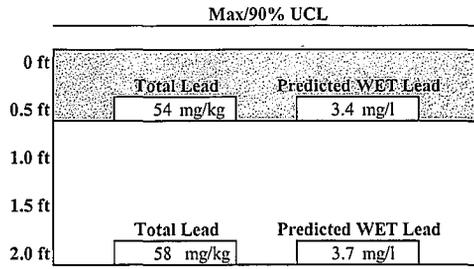
Task Order Number: 1
EA: 07-2332A1
Project Name: Route 5 PM 45.8/49.6
Project No.: S92475-06-01

Retaining Wall - Station 2440 to 2446
Borings 1092-101 to 1092-104



Task Order Number: 1
 EA: 07-2332A1
 Project Name: State Route 5 PM 45.8/49.6
 Project No.: S92475-06-01

Median - Station 2577 to 2613
 Borings 1092-105 to 1092-112



Memorandum

To : MS. CELINA AVILES
Senior Engineer
District 07

Date: August 26, 2010

Attn. MR. AMIR ELSHARIEF
Project Engineer

File No. 07-LA-05
PM R45.72/R50.72
EA 07-2332A1
Retaining Walls

From : DEPARTMENT OF TRANSPORTATION
Division of Engineering Services
Geotechnical Services
Office of Geotechnical Design South-1

Subject : Geotechnical Design Report for Retaining Wall Nos. 2451, 2452, 2521, and 2578

1. INTRODUCTION

The Office of Geotechnical Design South 1 has prepared this Memorandum to provide geotechnical recommendations for four proposed retaining walls along the median and southbound of I-5 from State Route SR-14 to Pico Canyon Road/Lyons Avenue (Segment One of the proposed project) in the City of Santa Clarita. Recommendations for Segment Two and Three will be provided later upon your request.

2. PROJECT DESCRIPTION

Within the limits of the proposed project, I-5 consists of four mixed-flow lanes in each direction, with the exception of three mixed-flow lanes in each direction at the I-5/SR-14 Interchange. In addition, two truck lanes in each direction are separated from the mainline freeway south of the Weldon Canyon Overcrossing.

The proposed project will extend the High Occupancy Vehicle (HOV) lanes from SR-14 to Parker Road and add truck climbing lanes from SR-14 to Calgrove Boulevard (northbound) and Pico Canyon Road/Lyons Avenue (southbound). The total length of the project is about 14 miles and the climbing truck lanes cover about three miles.

The project is divided into three segments.

Segment One: Extends from the I-5/SR-14 Interchange to north of the Pico Canyon/Lyons Avenue/I-5 Interchange.

Segment Two: Extends from north of Pico Canyon/Lyons Avenue/I-5 Interchange to north of the SR-126 Interchange.

Segment Three: Extends from north of SR-126 to south of Parker Road.

In the early implementation phase of Segment One, the proposed project will include widening Gavin Canyon Undercrossing (UC) (Bridge No. 53-2790 R/L), Calgrove Blvd UC (Bridge No. 53-1792 R/L), and constructing four retaining walls near median and southbound (wall numbers 2451, 2452, 2521, and 2578) and one soil nail wall (Wall Number 2433). Other retaining walls located outside of each direction are also proposed. Geotechnical recommendations and reports for these structures will be provided upon request.

The construction of four retaining walls (wall numbers 2451, 2452, 2521, and 2578) is part of the proposed project. The walls will total approximately 16,135 feet in length and have a maximum height of approximately 24 feet (see table below).

Retaining Wall Summary

Retaining wall No.	Begin Station	End Station	Length (ft)	Proposed Maximum Height (ft)	Borehole Nos.	Location
2451	2451+60.00	2460+75.38	915	12	R-10-102 R-10-103	West of Weldon Canyon Road
2452	2452+43.60	2511+80.00	5,936	24	R-09-104 thru R-09-106 R-09-123 thru R-09-128	West of Weldon Canyon Road to east of Gavin Canyon UC
2521	2525+74.21	2575+82.56	5,008	18	R-09-115 thru R-09-122	West of Gavin Canyon UC to south of Calgrove Blvd UC
2578	2578+24.09	2621+00	4,276	18	R-09-107 thru R-09-112	North of Calgrove Blvd UC

Scope of work included:

- Review of existing plans and drawings pertinent to the project site;
- Review of published historical groundwater levels;
- A subsurface exploration program consisting of drilling 30 boreholes to a maximum depth of approximately 50 feet and development of LOTBs;
- Appropriate laboratory tests;

- Evaluation of data outline above and engineering analyses to provide geotechnical recommendations; and
- Preparation of this report describing subsurface exploration, summarizing the results of field test, laboratory test and engineering analyses, and providing appropriate conclusions and recommendations.

3. SUBSURFACE EXPLORATION PROGRAM

Prior to starting the field exploration program, a field reconnaissance was conducted to observe site conditions and to mark the locations of our planned explorations. Subsurface exploration was performed between November 03, 2009 and March 02, 2010, and consisted of advancing 30 boreholes to a maximum depth of approximately 50 feet below existing grade. The boreholes were advanced using truck-mounted Acker MP-8 and CME 85 drill rigs fitted with a four and half inch diameter mud rotary drill bit.

The locations of the boreholes are shown on LOTBs, attached. The logs of the boreholes together with the explanation of terms and symbols used are also presented on LOTBs.

Field testing consisted of Standard Penetration Test (SPT). A SPT split spoon sampler, two inches outside diameter and 1 3/8 inches inside diameter, was driven 18 inches into in-situ soils. The number of blows required to drive the sampler the last 12 inches was recorded as the "N" value or SPT blow count. The driving energy was provided by a 140 pound hammer dropping 30 inches.

Sampling consisted of:

- Collection of samples retrieved from the SPT split spoon; and
- Collection of soil samples at selected locations using a Standard California Sampler.

4. SITE GEOLOGY

The project site is located along Gavin Canyon, a narrow northwest southeast trending canyon located on the north side of Oat Mountain. The canyon opens to the northwest approximately a half mile north of the Calgrove Undercrossing in Newhall, CA. Gavin Canyon trends southeasterly uphill to a saddle, which reaches an elevation of approximately 1775 feet above mean sea level (amsl). The saddle is situated at the base of the eastern ridge of Oat Mountain. From that point, the canyon continues down hill and is known as Weldon Canyon.

Oat Mountain is a series of folds (Oat Mountain Syncline and Pico Anticline) overlying the northern strand of the Santa Susana Fault. The Pico Anticline is a dominant structure which trends approximately east west through the project area. The northern limb of the anticline is composed of Towsley, Pico, and Saugus Formation. These formations are characterized as soft, partially unlithified, sedimentary rock dipping to the north from as shallow as 15° to near vertical (90°). Bedding through out the project area is typically striking northwest to southeast and dipping to the north approximately 65°.

For this report we reviewed the Geologic Map of the Oat Mountain and Canoga Park (North ½) Quadrangles, Los Angeles County, California by Thomas W. Dibblee, Jr. (1992). The project site is underlain by Pico Formation pebbly sandstone. The sandstone consists of light gray to yellowish brown semi-friable, poorly to moderately cemented, medium grained sand, and locally contains cobbles to 6 inches or more.

5. LABORATORY TESTING PROGRAM

The samples obtained during the subsurface exploration were delivered to the laboratory for visual examination and testing. The soils were classified in accordance with Soil and Rock Logging, Classification, and Presentation Manual, Caltrans June 2007.

The laboratory testing program consisted of particle-size analysis, Atterberg Limits, triaxial consolidated undrained tests, direct shears, and consolidation tests. In addition, results obtained from composite samples obtained during investigation for other structures were included in the project and tested for corrosivity (minimum resistivity and pH) were reviewed.

5.1 Corrosion Evaluation

Minimum resistivity and pH tests were conducted on composite samples at various depths for the pertinent soil nail wall number 2433, and Calgrove Blvd and Gavin Canyon UC bridge projects. The test results are summarized in the table below. Based on Caltrans Corrosion Guidelines, version 1.0, September 2003, the test results indicate that the subsoils in the project area should be considered corrosive.

Soil Corrosion Test Summary

Location	SIC Number	Minimum Resistivity (Ohm-Cm)	pH	Chloride Content (ppm)	Sulfate Content (ppm)
Gavin Canyon UC					
R-09-001	C702301	360	7.68	11	2189
R-09-001	C702302	361	8.06	5	2083
R-09-002	C702303	2674	8.06	N/A	N/A
R-09-002	C702304	333	8.14	10	2364
R-09-002	C702305	502	8.07	6	1553
R-09-002	C702306	382	8.12	8	2449
Calgrove Blvd UC					
R-09-001	C702307	1063	7.46	N/A	N/A
R-09-001	C702308	1947	7.63	N/A	N/A
R-09-001	C702309	953	4.01	10	1047
R-09-001	C702310	805	5.09	6	1848
R-09-002	C702311	840	6.12	12	1433
R-09-002	C702312	821	6.22	25	977
R-09-002	C702313	1566	6.94	N/A	N/A
Soil Nail Wall # 2433					
R-10-101	C702319	1210	6.43	N/A	N/A
R-10-102	C702320	2645	6.92	N/A	N/A
R-10-105	C702321	618	6.22	8	5600

Note: 1. Caltrans currently considers a site to be corrosive to foundation elements if one or more of the following conditions exist: Chloride concentration is greater than or equal to 500 ppm, sulfate concentration is greater than or equal to 2000 ppm, or the pH is 5.5 or less.

5.2 Gradation

Gradation analysis has performed on selected soil samples obtained from field testing. Testing results are summarized in the table below.

Borehole Number	Sample Depth (ft)	Station	Passing Rate (%)				Note
			Sieve Size				
			3"	No 4	No 30	No 200	
R-09-101	5 – 6.5	2404+39.70	100	100	89	52	
R-09-102	0 – 3.5	2425+05.32	100	100	95	67	
R-09-103	5 – 6.5	2444+44.89	100	100	99	83	
R-09-104	5 – 6.5	2462+99.61	100	97	86	56	
R-09-106	0 – 3.5	2484+23.43	100	82	49	20	
R-09-107	5 – 6.5	2583+78.55	100	89	65	31	
R-09-109	5 – 6.5	2598+97.31	100	94	70	22	
R-09-112	5 – 6.5	2627+25.18	100	98	86	64	
R-09-115	5 – 6.5	2571+38.17	100	99	92	53	
R-09-117	5 – 6.5	2559+85.36	100	85	62	37	
R-09-118	5 – 6.5	2555+03.32	100	100	98	87	
R-09-119	5 – 6.5	2548+67.42	100	86	64	29	
R-09-120	5 – 6.5	2542+41.33	100	74	61	42	
R-09-121	5 – 6.5	2537+33.88	100	74	53	28	
R-09-122	5 – 6.5	2531+93.23	100	88	76	56	
R-09-123	5 – 6.5	2509+27.94	100	97	88	61	
R-09-126	5 – 6.5	2468+58.57	100	99	92	63	
R-09-127	5 – 6.5	2479+28.73	100	100	98	47	
R-10-104	10 – 10.5	2445+97.82	100	96	79	30	
R-10-105	10 – 11.5	2439+11.27	100	87	63	30	

Note: Boreholes R-10-104 and 105 are located near proposed soil nail wall # 2433

6. SITE GEOLOGY AND SUBSURFACE CONDITIONS

6.1 Subsurface Conditions

Retaining Wall # 2451

The generalized stratigraphic profile is silty sand overlying gravel at Borehole R-10-102 and silty sand overlying siltstone/claystone at Borehole R-10-103. SPT N values indicate that the silty sand and gravel layers are generally very dense.

Retaining Wall # 2452

The generalized stratigraphic profile is sandy silt overlying silty/clayey sand which in turn overlies siltstone/claystone. Sandy lean clay was encountered near the ground surface to the top of claystone layer in borehole R-09-125. Claystone was encountered near the ground surface to the maximum depths of exploration in borehole R-09-124. SPT N values indicate that the sandy silt layers are generally medium dense, and the underlying layers of silty sand are generally medium dense to very dense. The unconfined compressive strengths indicate that the clayey layers are generally medium to very stiff in borehole R-09-125.

Retaining Wall # 2521

The generalized stratigraphic profile is silty sand overlying sandy silt. Siltstone was encountered in boreholes R-09-116 thru R-09-120 at a depth of approximately 20 feet below ground surface. SPT N values indicate that the silty sandy layers are generally medium dense to dense, and the underlying layers of sandy silt are generally medium dense.

Retaining Wall # 2572

The generalized stratigraphic profile is silty/clayey sand. Siltstone was only encountered in boreholes R-09-107 at a depth of approximately 30 feet below ground surface. SPT N values indicate that the silty/clayey sandy layers are generally loose to dense.

6.2 Groundwater

Based on the Seismic Hazard Zone Report for the Oat Mountain 7.5-Minute Quadrangle, Los Angeles County California from Department of Conservation Division of Mines and Geology (1998), no record of the historical highest groundwater level was found at the time of preparing this report. However, two piezometer wells (R-09-116 and R-09-128)

were installed to monitor groundwater level after drilling completion. No ground water was measured between January and May 2010.

7. GEOTECHNICAL RECOMMENDATIONS

7.1 Soil Engineering Properties

Soil engineering properties based on generalized soil stratigraphy were used in the proposed foundation design and are summarized and presented in the tables below. The soil friction angles were based on either laboratory test results or estimated from corrected SPT N values (Bowles, 1977).

Retaining Wall No. 2451 Stations 2451+60.00 to 2460+75.38

Layer No.	Depth (ft)	Effective Unit Weight (pcf)	Soil Type	Shear Strength Parameters	SPT Blow Counts
1	0-25	130	Silty Sand	$\phi = 38^\circ$	>50
2	25-35	132	Gravel with sand	$\phi = 40^\circ$	>50

Retaining Wall No. 2452 Stations 2452+43.60 to 2453+50

Layer No.	Depth (ft)	Effective Unit Weight (pcf)	Soil Type	Shear Strength Parameters	SPT Blow Counts
1	0-5	133	Claystone	$\phi = 43^\circ$	>50
2	5-10	133	Claystone	$\phi = 43^\circ$	>50
3	10-15	133	Claystone	$\phi = 43^\circ$	>50

Retaining Wall No. 2452 Stations 2453+50 to 2459+10

Layer No.	Depth (ft)	Effective Unit Weight (pcf)	Soil Type	Shear Strength Parameters	SPT Blow Counts
1	0-15	121	Sandy Lean Clay	$\phi = 31^\circ$	10
2	15-25	118	Sandy Lean Clay	$\phi = 29^\circ$ $c_u = 0.75$ ksf	7
3	25-30	133	Claystone	$\phi = 37^\circ$	49

Retaining Wall No. 2452 Stations 2459+10 to 2476+50

Layer No.	Depth (ft)	Effective Unit Weight (pcf)	Soil Type	Shear Strength Parameters	SPT Blow Counts
1	0-5	123	Sandy Silt	$\phi = 35^\circ$	24
2	5-20	120	Silty Sand	$\phi = 35^\circ$	30
3	20-30	123	Clayey Sand	$\phi = 35^\circ$	37

Retaining Wall No. 2452 Stations 2476+50 to 2488+00

Layer No.	Depth (ft)	Effective Unit Weight (pcf)	Soil Type	Shear Strength Parameters	SPT Blow Counts
1	0-10	134	Silty Sand	$\phi = 39^\circ$	39
2	10-30	132	Siltstone	$\phi = 38^\circ$	40

Retaining Wall No. 2452 Stations 2488+00 to 2511+80

Layer No.	Depth (ft)	Effective Unit Weight (pcf)	Soil Type	Shear Strength Parameters	SPT Blow Counts
1	0-5	128	Sandy Silt	$\phi = 34^\circ$	20
2	5-30	129	Silty Sand	$\phi = 38^\circ$	50

Retaining Wall No. 2521 Stations 2525+74.21 to 2535+95

Layer No.	Depth (ft)	Effective Unit Weight (pcf)	Soil Type	Shear Strength Parameters	SPT Blow Counts
1	0-10	131	Silty Sand	$\phi = 36^\circ$	32
2	10-30	125	Sandy Silt	$\phi = 31^\circ$	14

Retaining Wall No. 2521 Stations 2535+95 to 2567+65

Layer No.	Depth (ft)	Effective Unit Weight (pcf)	Soil Type	Shear Strength Parameters	SPT Blow Counts
1	0-10	124	Sandy Silt	$\phi = 32^\circ$	13
2	10-20	126	Silty Sand	$\phi = 38^\circ$	35
3	20-30	133	Siltstone	$\phi = 43^\circ$	>50

Retaining Wall No. 2521 Stations 2567+65 to 2575+82.56

Layer No.	Depth (ft)	Effective Unit Weight (pcf)	Soil Type	Shear Strength Parameters	SPT Blow Counts
1	0-15	126	Silty Sand	$\phi = 36^\circ$	26
2	15-25	110	Sandy Silt	$\phi = 32^\circ$	11
3	25-30	109	Silty Sand	$\phi = 32^\circ$	11

Retaining Wall No. 2578 Stations 2578+24.09 to 2586+50

Layer No.	Depth (ft)	Effective Unit Weight (pcf)	Soil Type	Shear Strength Parameters	SPT Blow Counts
1	0-10	127	Silty Sand	$\phi = 38^\circ$	31
2	10-15	121	Sandy Lean Clay	$\phi = 32^\circ$ $c_u = 1.1$ ksf	17
3	15-25	127	Silty Sand	$\phi = 37^\circ$	36
4	25-30	133	Siltstone	$\phi = 40^\circ$	>50

Retaining Wall No. 2578 Stations 2586+50 to 2613+50

Layer No.	Depth (ft)	Effective Unit Weight (pcf)	Soil Type	Shear Strength Parameters	SPT Blow Counts
1	0-5	113	Silty Sand	$\phi = 31^\circ$	11
2	5-10	121	Sand	$\phi = 35^\circ$	27
3	10-20	100	Silty Sand	$\phi = 30^\circ$	7
4	20-30	114	Silty Sand	$\phi = 31^\circ$	20

Retaining Wall No. 2578 Stations 2613+50 to 2621+00

Layer No.	Depth (ft)	Effective Unit Weight (pcf)	Soil Type	Shear Strength Parameters	SPT Blow Counts
1	0-10	95	Sandy Lean Clay	$\phi = 28^\circ$ $c_u = 0.3$ ksf	4
2	10-15	125	Sandy Silt	$\phi = 31^\circ$	14
3	15-30	103	Clayey Sand	$\phi = 30^\circ$	11

7.2 Retaining Wall Type

Caltrans standard Type 1 and 5 retaining walls on spread footing will be used to accommodate an additional HOV lane in each direction. Based on the foundation dimensions provided in the standard sheets, maximum wall heights, and soil parameters summarized in the above tables, allowable bearing pressures meet or exceed the soil pressures imposed by the proposed walls.

7.3 Wall backfill materials

On-site soils maybe reused as wall backfill materials if they meet Caltrans standard specifications (Caltrans May 2006). Gradation test results performed on selected soil samples obtained from field testing are shown in the table in subsection 5.2.

8. CONSTRUCTION CONSIDERATIONS

- Groundwater was not encountered during subsurface exploration or during post-exploration monitoring. However, seasonal rainfall and fluctuating groundwater elevations may result in perched groundwater to be encountered in wall footing excavations.
- Temporary vertical shoring systems should be used for retaining wall construction. Horizontal forces including active soil pressure and surcharge loads act on temporary shoring system may be calculated based on the soil parameters provided in subsection 7.1 Soil Engineering Properties. Earthwork should be performed in accordance with Section 19 of the Caltrans Standard Specifications (May 2006).
- Gradation and sand equivalent tests of backfill materials should also be performed under field engineer's direction during wall backfilling.

Mr. Amir Elsharief
August 26, 2010
Page 12

If you have any questions or comments, please contact Hung Po Yang (916) 227-4534.

Hung Po Yang, P.E.
Transportation Engineer–Civil
Branch A

Attachment: LOTBs
Laboratory Test Results
Analysis and Calculation

Cc: OGDS-1 – (Sacramento)
OGDS-1 (Los Angeles)
Ashraf A. Habbak, PM

Attachment

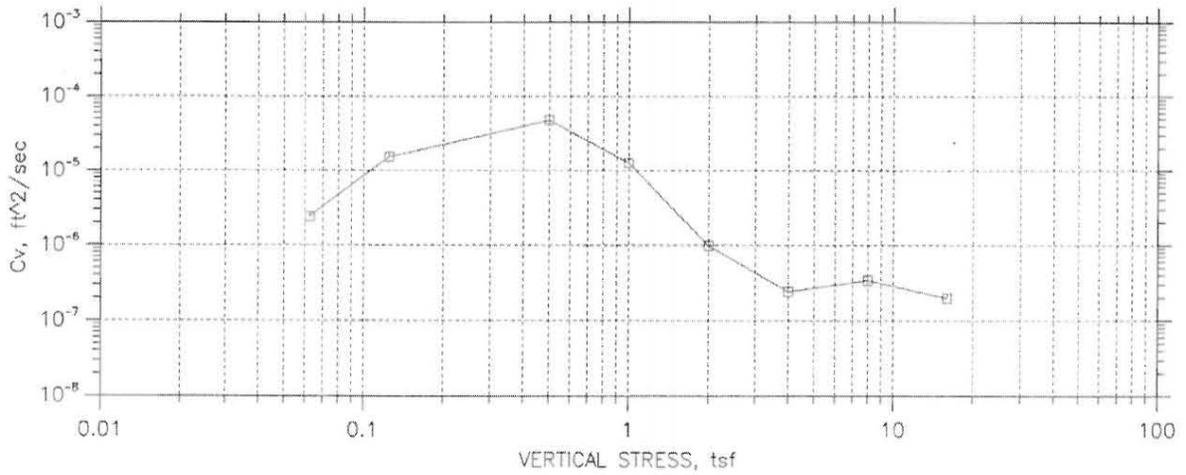
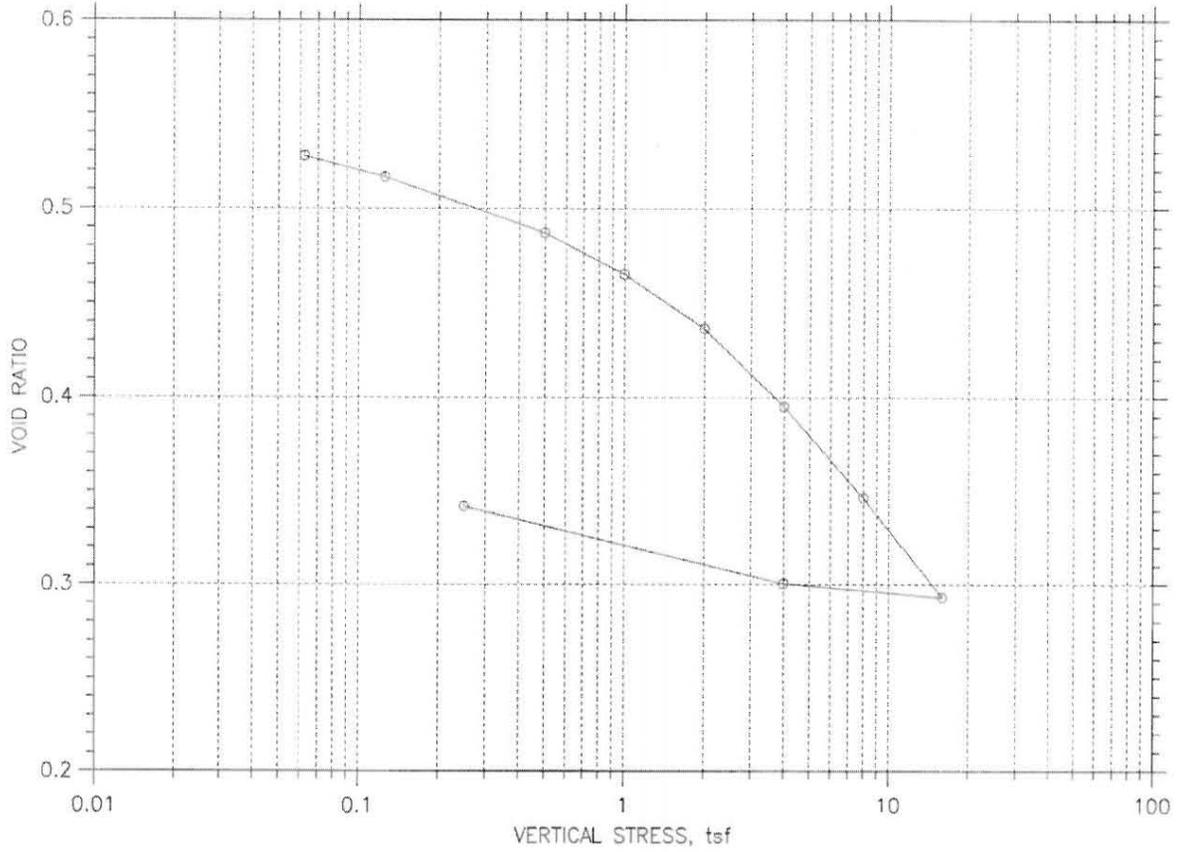
**LOTBs
Laboratory Test Result
Analysis and Calculation**



CLASSIFICATION TEST SUMMARY

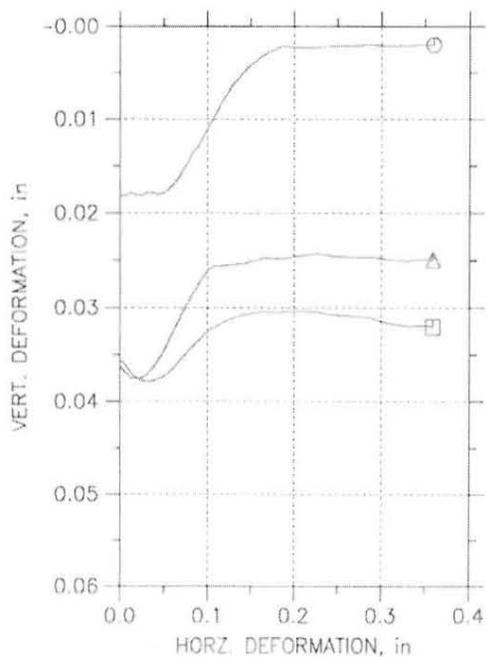
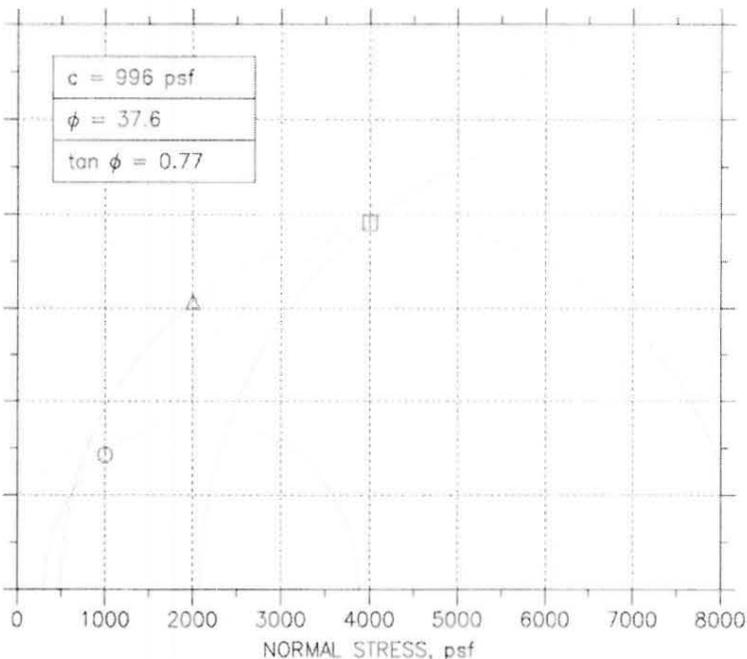
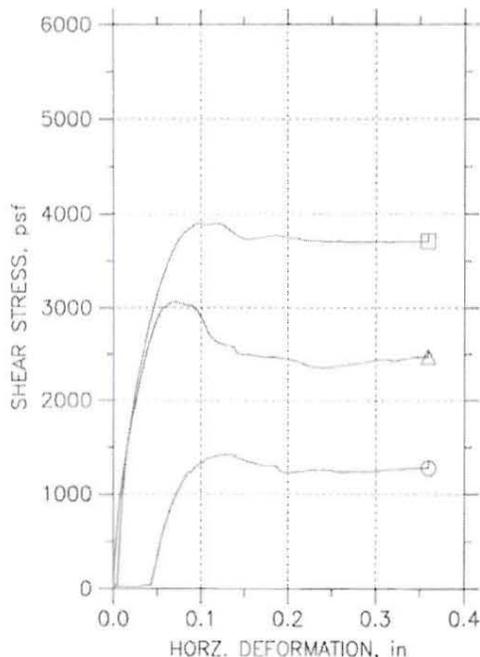
SAMPLE ID	% FINER THAN																	ATTERBERG LIMITS		AS RECEIVED		Gs		
	3"	2 1/2"	2"	1 1/2"	1"	3/4"	1/2"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200	5μ	1μ	LL	PI	Yd (pcf)	%m			
R-09-105_S01_II																						16.2		
R-09-105_S01_III						100	98	97	95	93	92	90	86	79	64	21	11					15.2		
R-09-108_S01_II																							6.9	
R-09-109_S01_II																							14.8	
R-09-111_S01_I																							15.4	
R-09-111_S01_II							100	98	94	88	80	67	55	43	30	9	4					12.6		
R-09-112_S01_I																							20.1	
R-09-112_S01_II																							18.0	2.71
R-09-116_S01_I																							18.9	
R-09-116_S02								100	98	97	96	95	93	90	82	30	15					16.2		
R-09-118_S01_I																							20.4	
R-09-119_S01_I																							10.4	
R-09-121_S01_I																							8.9	
R-09-125_S01_I																							23.1	
R-09-125_S01_II																							24.8	
R-09-125_S01_III																							17.3	
R-09-125_S02																			32	12			17.7	

CONSOLIDATION TEST DATA SUMMARY REPORT



Project: I-5 HOV WIDENING	Location: 07-LA-5-45.7-50	Project No.: 07-2332A1
Boring No.: R09-112	Tested By: AZM	Checked By: GL# 10-003
Sample No.: S01-II	Test Date: 2/2/2010	Depth: 4.5
Test No.: 10-005-G4	Sample Type: TUBE	Elevation:
Description: Moist, olive, stiff, silty clay		
Remarks:		

DIRECT SHEAR TEST REPORT

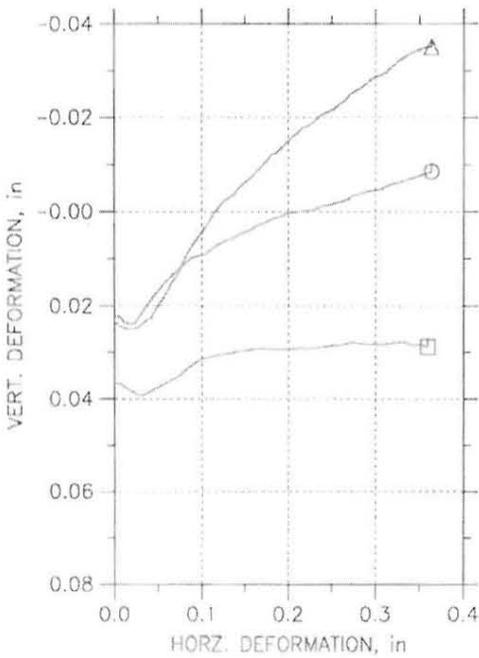
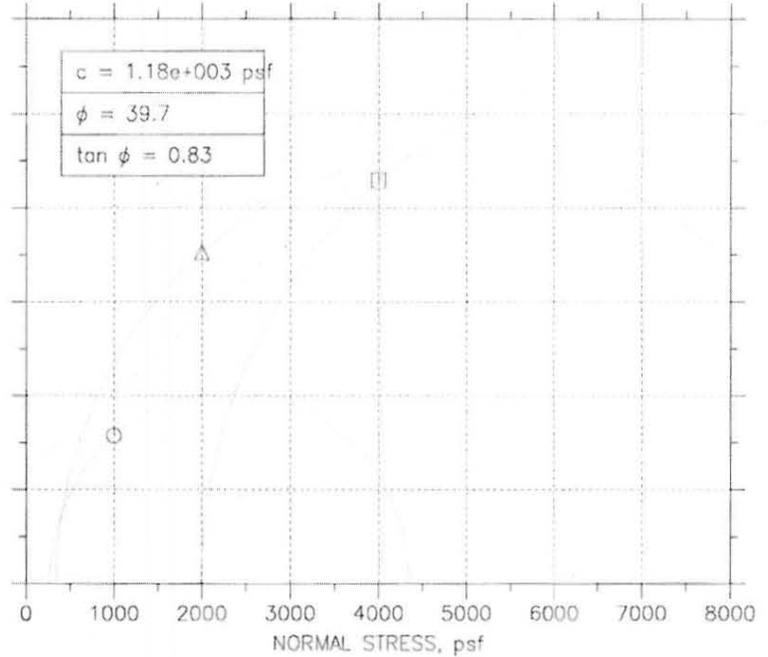
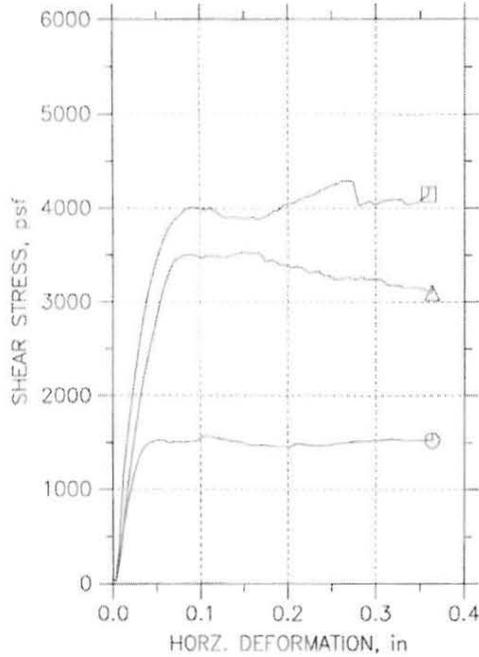


Symbol	⊙	△	□	
Test No.	DS10009A	DS10009B	DS10009C	
Sample No.	S01_II	S01_II	S01_II	
Shape	Circular	Circular	Circular	
Initial	Dimension, in	2.37	2.37	2.375
	Area, in ²	4.4115	4.4115	4.4301
	Height, in	1	1	1
	Water Content, %	17.29	16.41	17.78
	Dry Density, pcf	114.85	116.17	112.18
	Saturation, %	99.86	98.27	95.50
Void Ratio	0.46757	0.45099	0.50258	
Consol. Height, in	0.98498	0.96593	0.96487	
Consol. Void Ratio	0.44554	0.40156	0.4498	
Final	Water Content, %	17.14	15.30	16.83
	Dry Density, pcf	115.08	119.13	115.89
	Saturation, %	99.61	99.57	99.97
	Void Ratio	0.46465	0.41484	0.45446
Normal Stress, psf	1002.8	2000.6	4001.9	
Max. Shear Stress, psf	1417.5	3063	3903.1	
Ult. Shear Stress, psf	1271.2	2468.9	3707.3	
Time to Failure, min	23.001	13	17.003	
Disp. Rate, in/min	0.006	0.006	0.006	
Implied Specific Gravity	2.70	2.70	2.70	
Liquid Limit	---	---	---	
Plastic Limit	---	---	---	
Plasticity Index	---	---	---	

Project: I-5 HOV Widening
Location: 07-LA-5-45.7-50
Project No.: 07-2332A1
Boring No.: R-09-105
Sample Type: 2" Brass
Description: Moist, Stiff, Brown w/Orange, Clayey Silt with Gravel.
Remarks: ASTM D 3080

[Handwritten Signature]

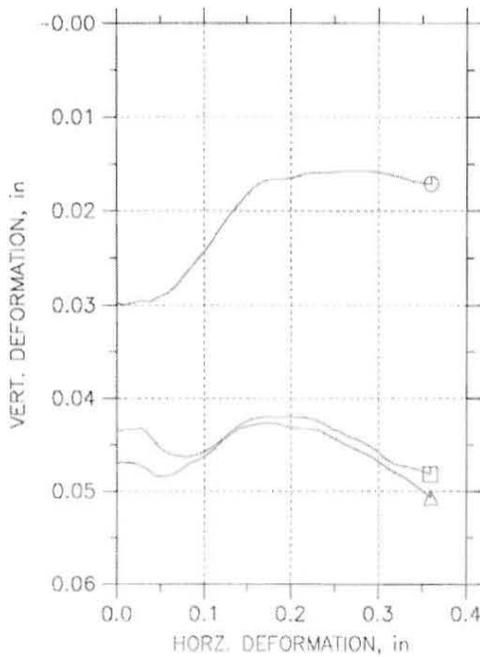
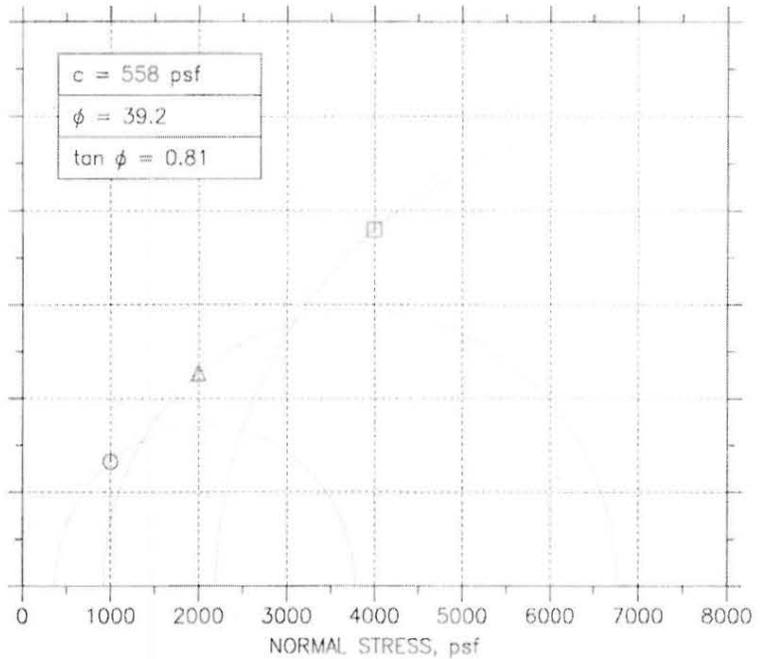
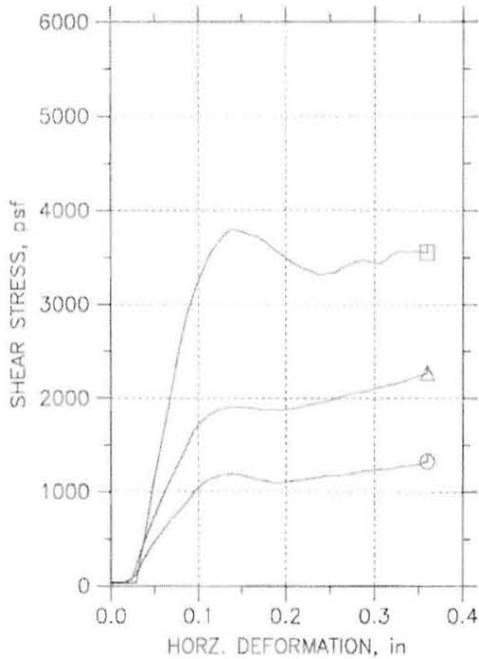
DIRECT SHEAR TEST REPORT



Symbol	○	△	□	
Test No.	DS10010A	DS10010B	DS10010C	
Sample No.	S01_II	S01_II	S01_II	
Shape	Circular	Circular	Circular	
Initial	Dimension, in	2.37	2.37	2.37
	Area, in ²	4.4115	4.4115	4.4115
	Height, in	1	1	1
	Water Content, %	12.43	12.73	14.46
	Dry Density, pcf	121.05	121.73	118.15
	Saturation, %	81.72	85.29	87.76
	Void Ratio	0.41819	0.41034	0.45302
Consol. Height, in	0.98154	0.97732	0.96425	
Consol. Void Ratio	0.39201	0.37836	0.40106	
Final	Water Content, %	15.49	16.20	14.46
	Dry Density, pcf	120.04	117.61	121.65
	Saturation, %	99.04	96.93	96.68
	Void Ratio	0.43022	0.45972	0.41123
Normal Stress, psf	1002.9	2002.3	4000.2	
Max. Shear Stress, psf	1568.4	3524.6	4285.9	
Ult. Shear Stress, psf	1520.1	3093.8	4140.9	
Time to Failure, min	19.003	26.001	45.003	
Disp. Rate, in/min	0.006	0.006	0.006	
Implied Specific Gravity	2.75	2.75	2.75	
Liquid Limit	---	---	---	
Plastic Limit	---	---	---	
Plasticity Index	---	---	---	

Project: I-5 HOV Widening	
Location: 07-LA-5-45.7-50	
Project No.: 07-2332A1	
Boring No.: R-09-108	
Sample Type: 2" Brass	
Description: Moist, Stiff, Brown, Silty Clay w/Gravel up to 1". Patched heavily for gravel removed.	
Remarks: ASTM D 3080.	<i>[Signature]</i>

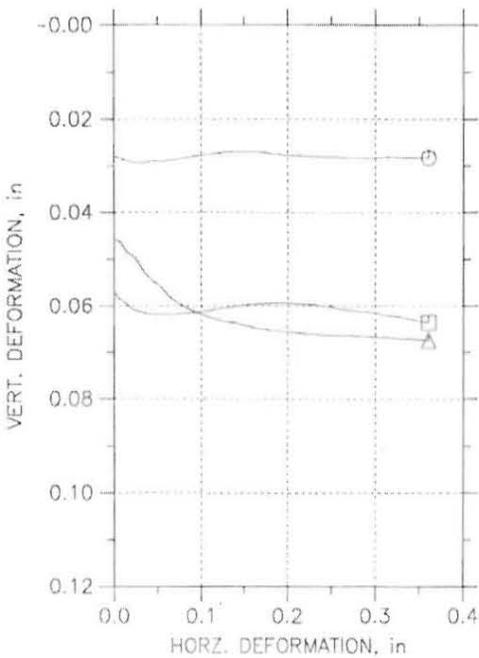
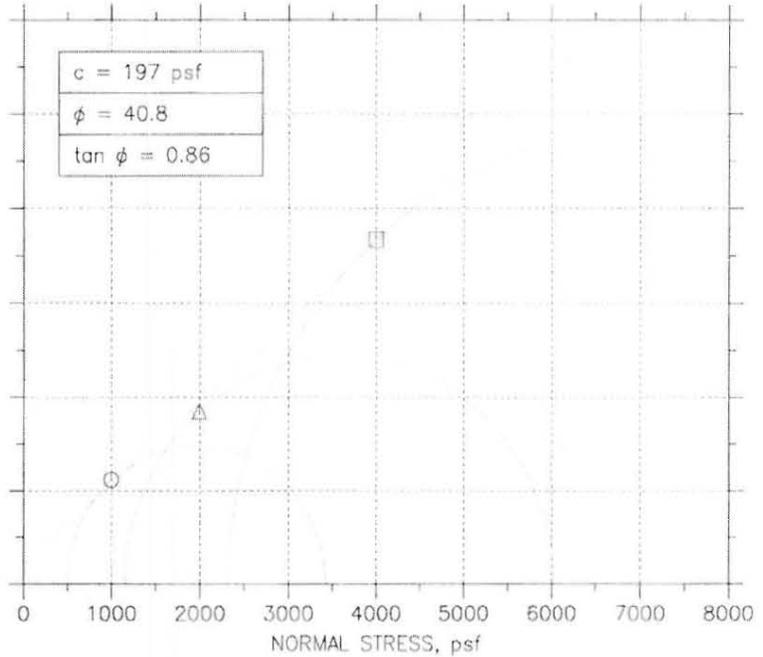
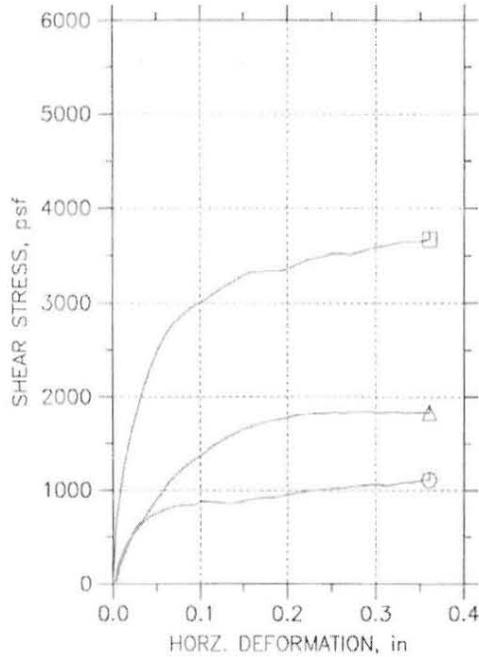
DIRECT SHEAR TEST REPORT



Symbol	⊙	△	□	
Test No.	DS10011A	DS10011B	DS10011C	
Sample No.	S01_II	S01_II	S01_II	
Shape	Circular	Circular	Circular	
Initial	Dimension, in	2.37	2.37	2.37
	Area, in ²	4.4115	4.4115	4.4115
	Height, in	1	1	1
	Water Content, %	15.03	15.30	14.34
	Dry Density, pcf	114.86	113.7	113.36
	Saturation, %	86.81	85.60	79.54
Void Ratio	0.46746	0.48251	0.48691	
Consol. Height, in	0.97092	0.95406	0.95749	
Consol. Void Ratio	0.42479	0.4144	0.42371	
Final	Water Content, %	15.25	15.07	15.33
	Dry Density, pcf	116.86	119.77	119.1
	Saturation, %	93.11	99.88	99.71
	Void Ratio	0.44234	0.40736	0.41526
Normal Stress, psf	999.04	1997.5	4003.7	
Max. Shear Stress, psf	1319.2	2265.7	3794.6	
Ult. Shear Stress, psf	1319.2	2265.7	3548.2	
Time to Failure, min	36.11	36.623	14	
Disp. Rate, in/min	0.01	0.01	0.01	
Implied Specific Gravity	2.70	2.70	2.70	
Liquid Limit	---	---	---	
Plastic Limit	---	---	---	
Plasticity Index	---	---	---	

Project: I-5 HOV Widening	
Location: 07-LA-5-45.7-50	
Project No.: 07-2332A1	
Boring No.: R-09-109	
Sample Type: 2" Brass	
Description: Wet, Loose, Greyish Brown, Silty Sand with Gravel. Patched.	<i>[Signature]</i> 4/21/10
Remarks: ASTM D 3080	

DIRECT SHEAR TEST REPORT

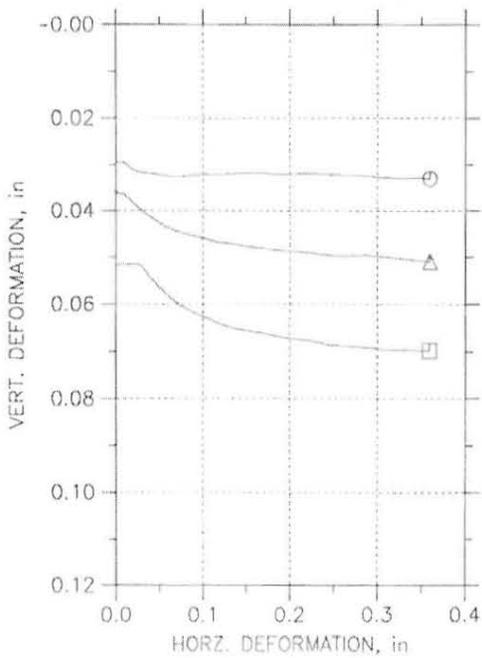
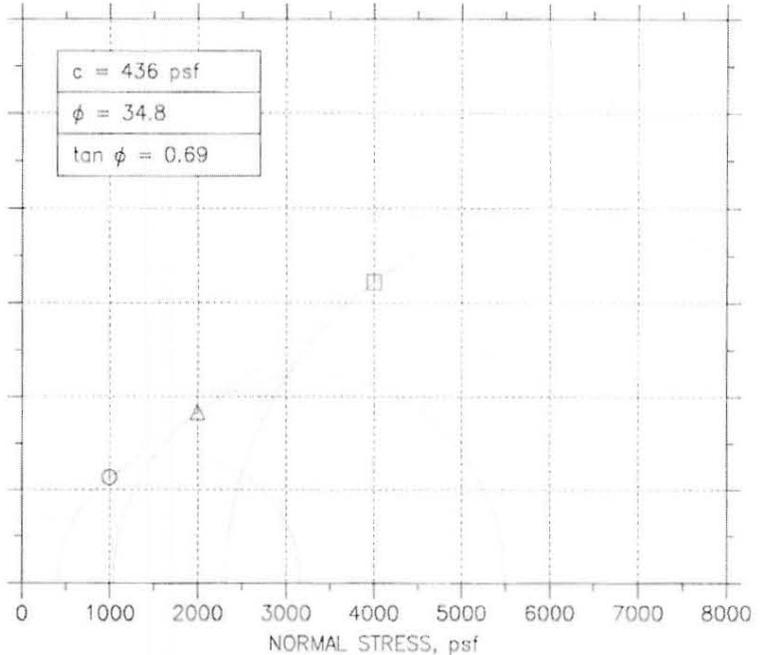
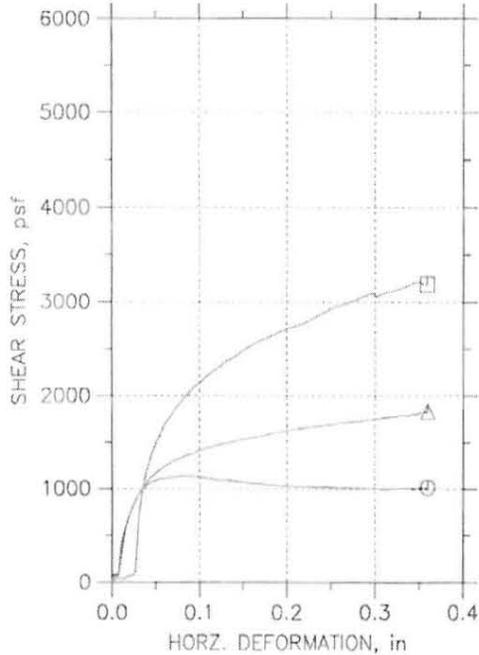


Symbol	⊙	△	□	
Test No.	DS10012A	DS10012B	DS10012C	
Sample No.	S01_I	S01_I	S01_I	
Shape	Circular	Circular	Circular	
Initial	Dimension, in	2.37	2.37	2.37
	Area, in ²	4.4115	4.4115	4.4115
	Height, in	1	1	1
	Water Content, %	15.71	16.32	15.78
	Dry Density, pcf	109.26	104.53	111.95
	Saturation, %	75.63	69.85	81.35
	Void Ratio	0.57131	0.64231	0.53349
Consol. Height, in	0.9762	0.95506	0.94426	
Consol. Void Ratio	0.53392	0.5685	0.44801	
Final	Water Content, %	17.61	18.55	15.78
	Dry Density, pcf	112.44	112.1	119.56
	Saturation, %	91.92	95.96	99.55
	Void Ratio	0.52683	0.53146	0.43595
Normal Stress, psf	1000.3	1998.8	3998.5	
Max. Shear Stress, psf	1109.5	1843.6	3668.8	
Ult. Shear Stress, psf	1109.5	1828.7	3668.8	
Time to Failure, min	36.736	30.003	37.093	
Disp. Rate, in/min	0.01	0.01	0.01	
Implied Specific Gravity	2.75	2.75	2.75	
Liquid Limit	---	---	---	
Plastic Limit	---	---	---	
Plasticity Index	---	---	---	

Project: I-5 HOV Widening	Description: Moist, Medium Dense, Brown, Clayey Sand w/Gravel
Location: 07-LA-5-45.7-50	Remarks: ASTM D 3080.
Project No.: 07-2332A1	
Boring No.: R-09-111	
Sample Type: 2" Brass	

[Signature]
4/2/10

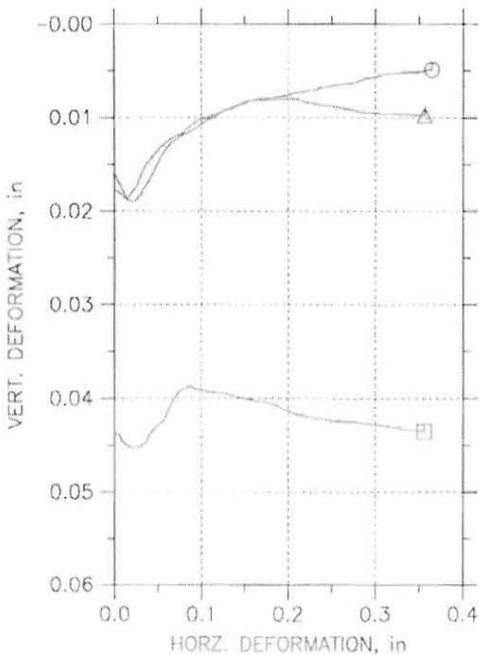
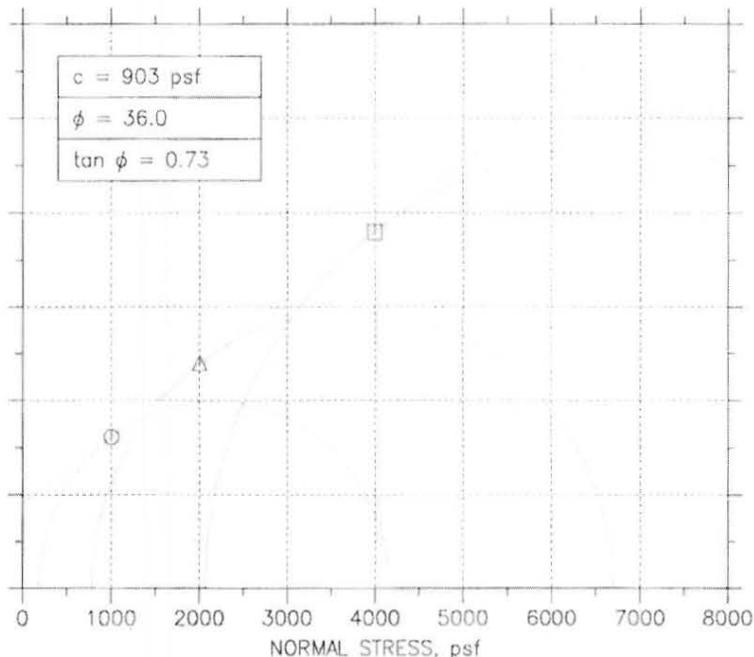
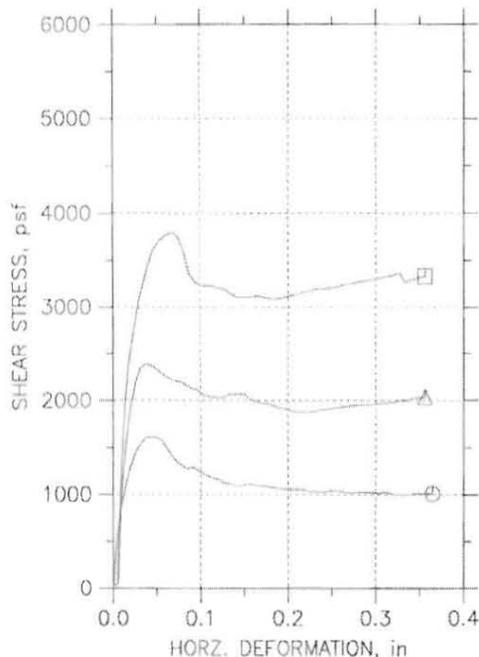
DIRECT SHEAR TEST REPORT



Symbol	⊙	△	⊠	
Test No.	DS10013A	DS10013B	DS10013C	
Sample No.	S01_I	S01_I	S01_I	
Shape	Circular	Circular	Circular	
Initial	Dimension, in	2.37	2.37	2.37
	Area, in ²	4.4115	4.4115	4.4115
	Height, in	1	1	1
	Water Content, %	18.71	17.95	19.37
	Dry Density, pcf	104.46	104.99	104.9
	Saturation, %	82.33	80.04	86.18
	Void Ratio	0.61352	0.60542	0.60688
Consol. Height, in	0.97229	0.96535	0.95177	
Consol. Void Ratio	0.5688	0.54979	0.52938	
Final	Water Content, %	20.69	19.35	18.30
	Dry Density, pcf	108.03	110.62	112.76
	Saturation, %	99.72	99.74	99.87
	Void Ratio	0.56023	0.52369	0.49477
Normal Stress, psf	1000.9	2000	4001.8	
Max. Shear Stress, psf	1129	1828.6	3214.7	
Ult. Shear Stress, psf	1011.7	1828.6	3186.8	
Time to Failure, min	22.003	90.283	89.001	
Disp. Rate, in/min	0.004	0.004	0.004	
Implied Specific Gravity	2.70	2.70	2.70	
Liquid Limit	---	---	---	
Plastic Limit	---	---	---	
Plasticity Index	---	---	---	

Project: I-5 HOV Widening	Description: Moist, Stiff, Greyish Dark Brown, Clay with Small Gravel
Location: 07-LA-5-45.7-50	Remarks: ASTM D 3080
Project No.: 07-2332A1	
Boring No.: R-09-111	
Sample Type: 2" Brass	

DIRECT SHEAR TEST REPORT

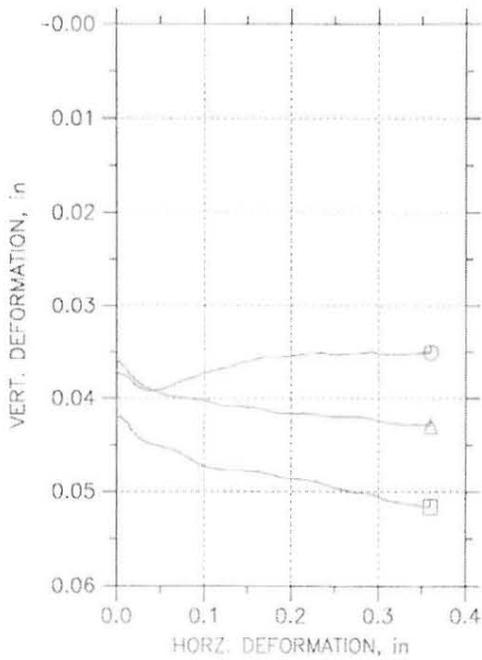
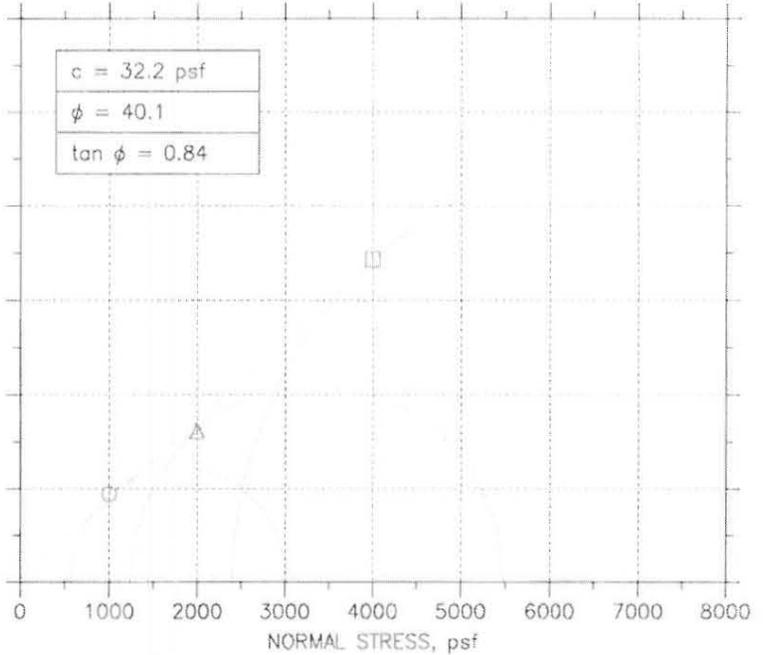
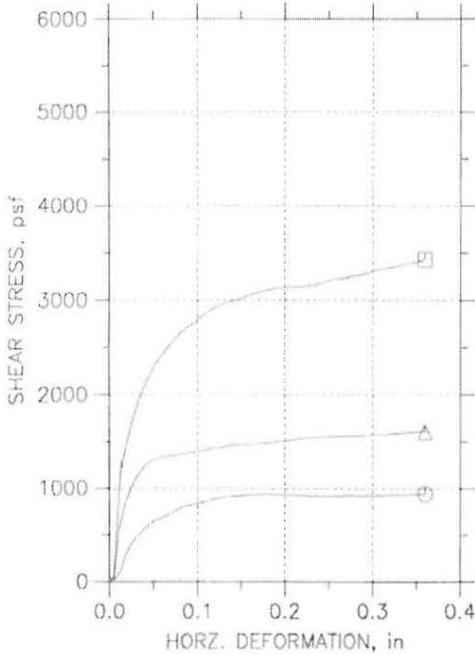


Symbol	⊙	△	□	
Test No.	DS10014A	DS10014B	DS10014C	
Sample No.	S01_I	S01_I	S01_I	
Shape	Circular	Circular	Circular	
Initial	Dimension, in	2.37	2.37	2.37
	Area, in ²	4.4115	4.4115	4.4115
	Height, in	1	1	1
	Water Content, %	18.88	18.57	18.49
	Dry Density, pcf	109.54	111.29	112.16
	Saturation, %	91.54	94.10	95.84
	Void Ratio	0.56722	0.54265	0.53066
Consol. Height, in	0.98576	0.98336	0.95704	
Consol. Void Ratio	0.54491	0.51699	0.46491	
Final	Water Content, %	20.30	19.11	16.80
	Dry Density, pcf	110.08	112.38	117.26
	Saturation, %	99.77	99.62	99.55
	Void Ratio	0.5595	0.52759	0.46408
Normal Stress, psf	1004.7	2004.1	4001.1	
Max. Shear Stress, psf	1608	2393.1	3793.6	
Ult. Shear Stress, psf	1004	2030.9	3324.1	
Time to Failure, min	8.0005	9.0019	14	
Disp. Rate, in/min	0.006	0.006	0.006	
Implied Specific Gravity	2.75	2.75	2.75	
Liquid Limit	---	---	---	
Plastic Limit	---	---	---	
Plasticity Index	---	---	---	

Project: I-5 HOV Widening
 Location: 07-LA-5-45.7-50
 Project No.: 07-2332A1
 Boring No.: R-09-116
 Sample Type: 2" Brass
 Description: Moist, Stiff, Tan Brown, Clay with Gravel.
 Remarks: ASTM D 3080.

[Handwritten signature]
4/21/10

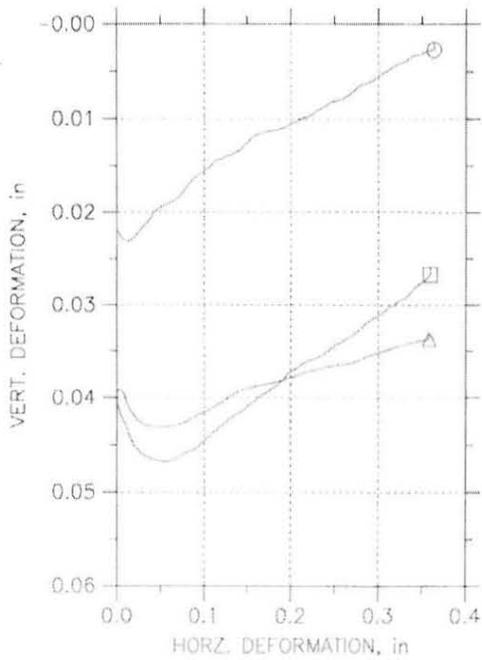
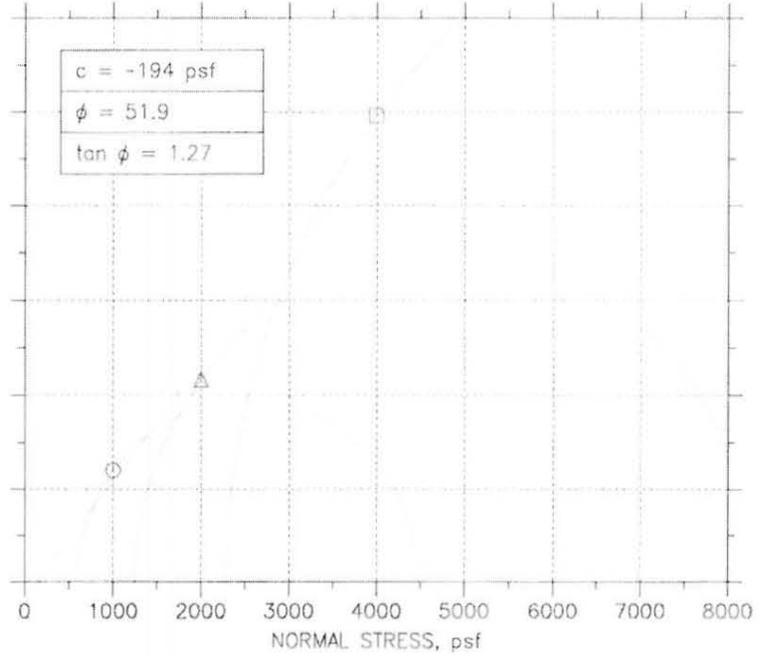
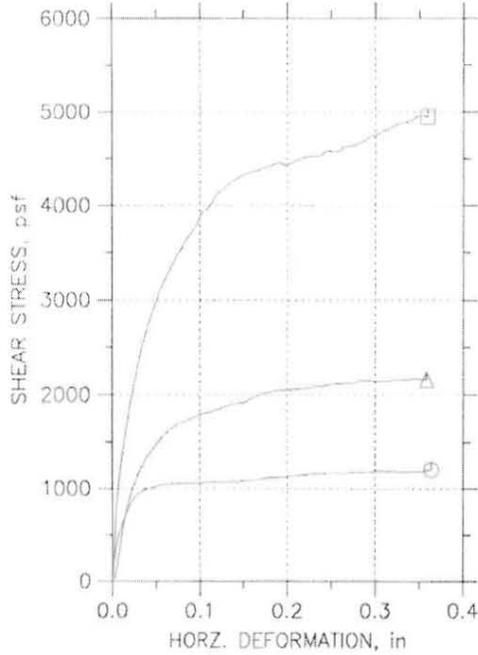
DIRECT SHEAR TEST REPORT



Symbol	○	△	□	
Test No.	DS10015A	DS10015B	DS10015C	
Sample No.	S01_I	S01_I	S01_I	
Shape	Circular	Circular	Circular	
Initial	Dimension, in	2.37	2.37	2.37
	Area, in ²	4.4115	4.4115	4.4115
	Height, in	1	1	1
	Water Content, %	21.26	20.92	20.00
	Dry Density, pcf	103.97	106.55	108.66
	Saturation, %	92.42	97.06	97.98
	Void Ratio	0.62116	0.58187	0.5512
Consol. Height, in		0.96409	0.96516	0.95934
Consol. Void Ratio		0.56293	0.52677	0.48812
Final	Water Content, %	20.85	18.97	17.38
	Dry Density, pcf	107.75	111.34	114.58
	Saturation, %	99.75	99.68	99.61
	Void Ratio	0.56427	0.51391	0.47112
Normal Stress, psf		1000.3	1998.1	3998.7
Max. Shear Stress, psf		939.47	1616.5	3430.9
Ult. Shear Stress, psf		937.69	1603.5	3430.9
Time to Failure, min		31.002	60.002	58.111
Disp. Rate, in/min		0.006	0.006	0.006
Implied Specific Gravity		2.70	2.70	2.70
Liquid Limit		---	---	---
Plastic Limit		---	---	---
Plasticity Index		---	---	---

Project: I-5 HOV Widening	
Location: 07-LA-5-45.7-50	
Project No.: 07-2332A1	
Boring No.: R-09-118	
Sample Type: 2" Brass	
Description: Moist, Very Firm, Tan, Clayey Silt	
Remarks: ASTM D 3080	<i>[Signature]</i>

DIRECT SHEAR TEST REPORT

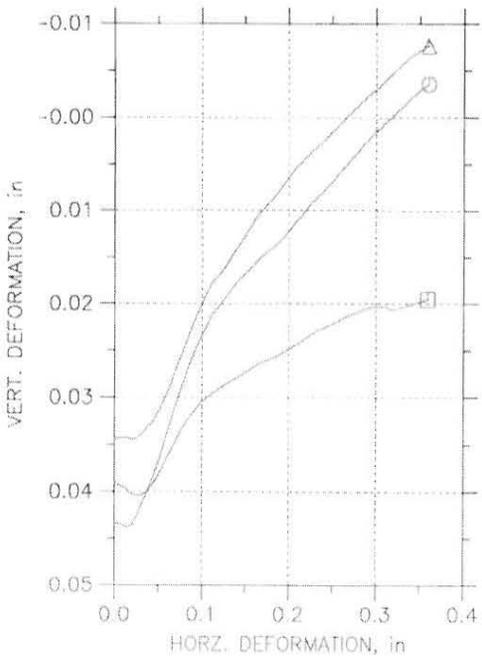
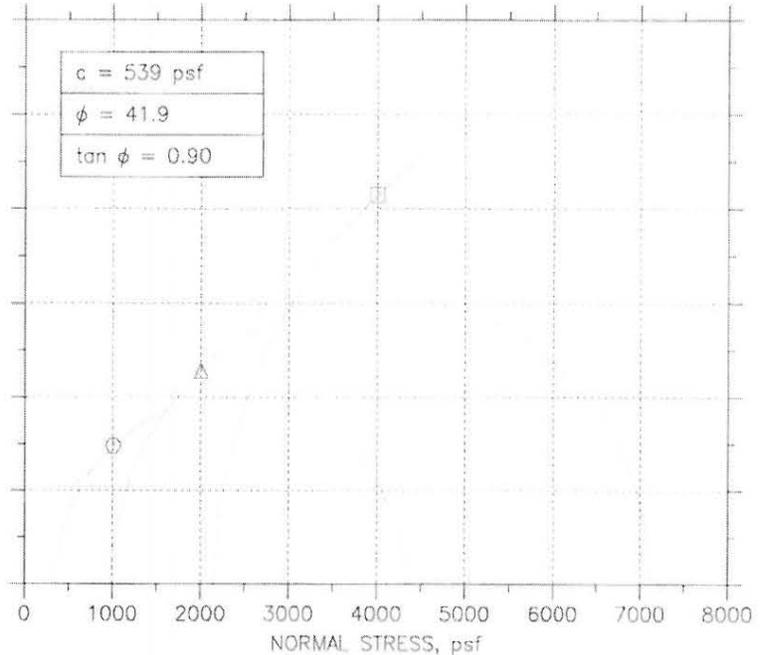
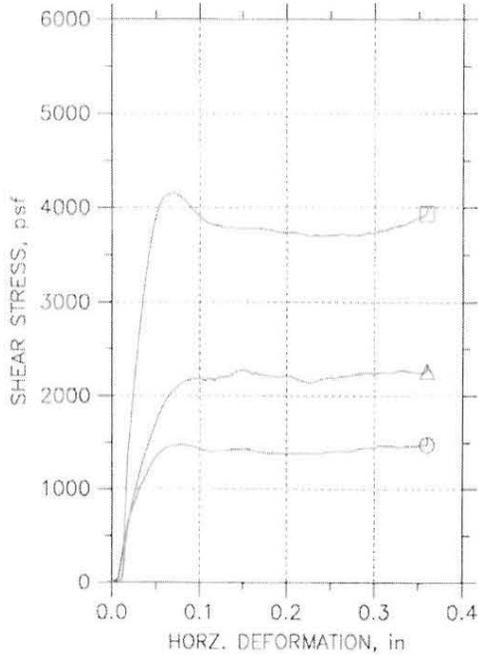


Symbol	⊙	△	⊠	
Test No.	DS10016A	DS10016B	DS10016C	
Sample No.	S01_I	S01_I	S01_I	
Shape	Circular	Circular	Circular	
Initial	Dimension, in	2.37	2.37	2.37
	Area, in ²	4.4115	4.4115	4.4115
	Height, in	1	1	1
	Water Content, %	12.41	12.50	10.42
	Dry Density, pcf	112.55	111.3	114.49
	Saturation, %	64.94	63.37	57.39
	Void Ratio	0.52537	0.54241	0.49949
Consol. Height, in	0.97848	0.96201	0.96069	
Consol. Void Ratio	0.49255	0.48382	0.44054	
Final	Water Content, %	18.47	17.70	16.68
	Dry Density, pcf	112.86	115.18	117.64
	Saturation, %	97.44	99.23	99.87
	Void Ratio	0.52121	0.49046	0.4594
Normal Stress, psf	1000.3	2000.6	4000.2	
Max. Shear Stress, psf	1201.8	2170.7	4960.3	
Ult. Shear Stress, psf	1201.8	2163.6	4947.1	
Time to Failure, min	61.489	59.003	61.002	
Disp. Rate, in/min	0.006	0.006	0.006	
Implied Specific Gravity	2.75	2.75	2.75	
Liquid Limit	---	---	---	
Plastic Limit	---	---	---	
Plasticity Index	---	---	---	

Project: I-5 HOV Widening	Description: Moist, Very Firm, Tan, Fine sandy silt with Gravel and Clay. Patched.
Location: 07-LA-5-45.7-50	Remarks: ASTM D 3080.
Project No.: 07-2332A1	
Boring No.: R-09-119	
Sample Type: 2" Brass	

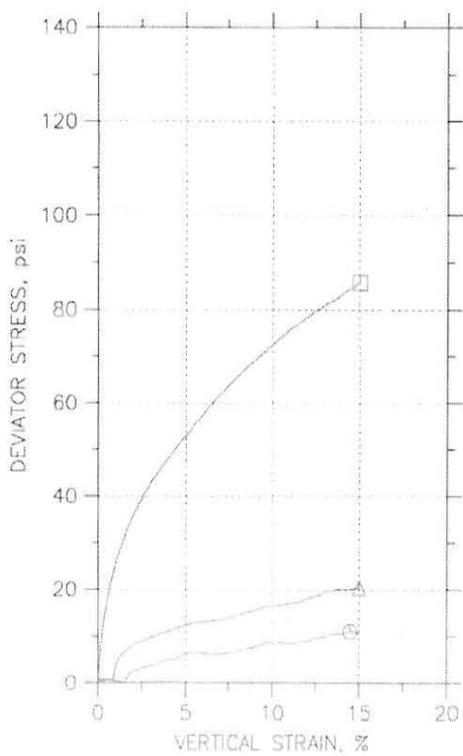
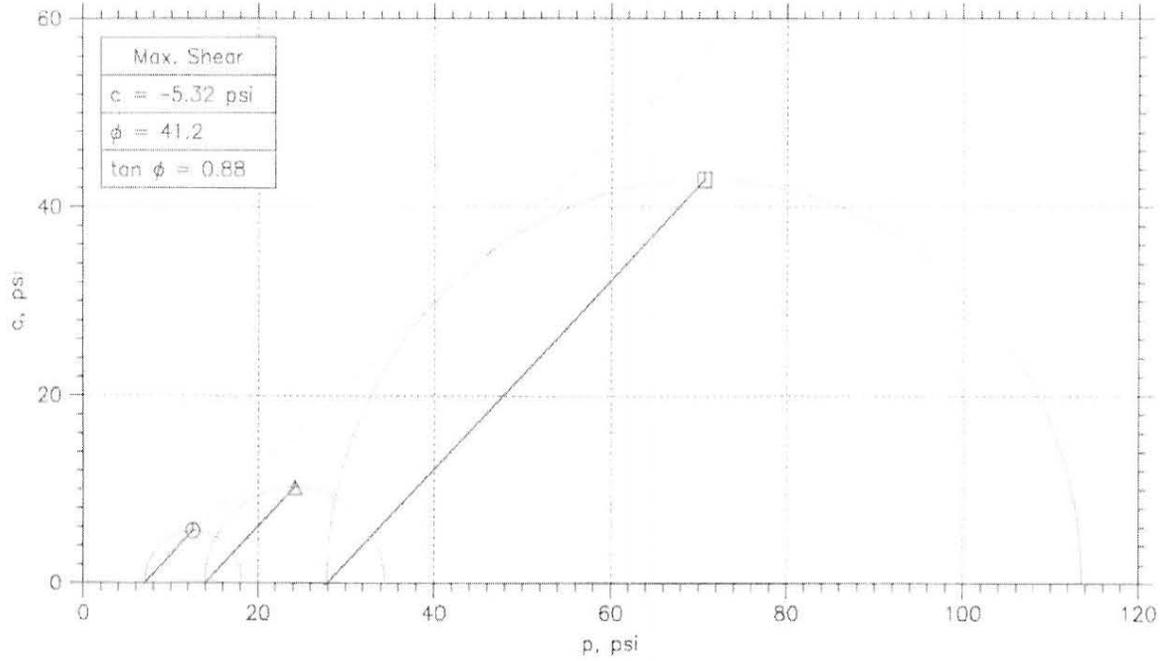
[Handwritten Signature]
4/21/10

DIRECT SHEAR TEST REPORT



Symbol	⊙	△	⊠	
Test No.	DS10017A	DS10017B	DS10017C	
Sample No.	S01_I	S01_I	S01_I	
Shape	Circular	Circular	Circular	
Initial	Dimension, in	2.37	2.37	2.37
	Area, in ²	4.4115	4.4115	4.4115
	Height, in	1	1	1
	Water Content, %	11.74	10.75	11.26
	Dry Density, pcf	119.95	122.42	119.15
	Saturation, %	78.19	77.02	73.28
	Void Ratio	0.40524	0.37689	0.41471
Consol. Height, in	0.95923	0.96719	0.96257	
Consol. Void Ratio	0.34794	0.33171	0.36175	
Final	Water Content, %	15.19	14.35	13.91
	Dry Density, pcf	119.53	121.49	121.52
	Saturation, %	99.99	99.99	97.02
	Void Ratio	0.41019	0.38742	0.38706
Normal Stress, psf	1007.8	2003.7	4005.6	
Max. Shear Stress, psf	1477.9	2283.5	4148.2	
Ult. Shear Stress, psf	1476.1	2265.1	3937.4	
Time to Failure, min	14.002	26.001	13.004	
Disp. Rate, in/min	0.006	0.006	0.006	
Implied Specific Gravity	2.70	2.70	2.70	
Liquid Limit	---	---	---	
Plastic Limit	---	---	---	
Plasticity Index	---	---	---	
Description: Moist, Stiff, Tan, Clayey Silt with Gravel up to 1". Patched extensively.				
Remarks: ASTM D 3080				

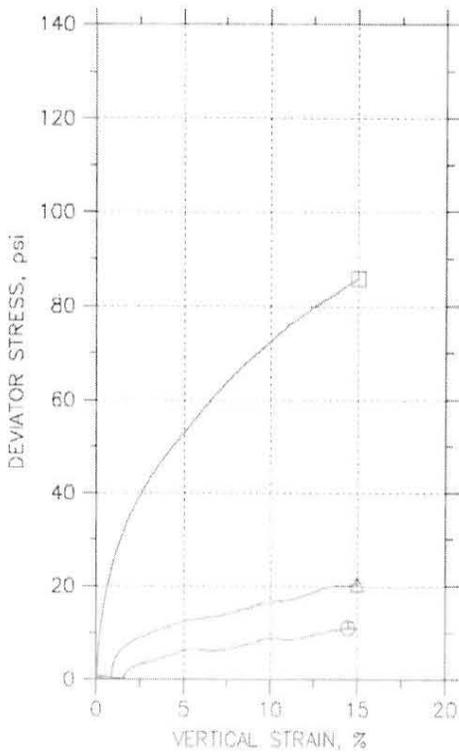
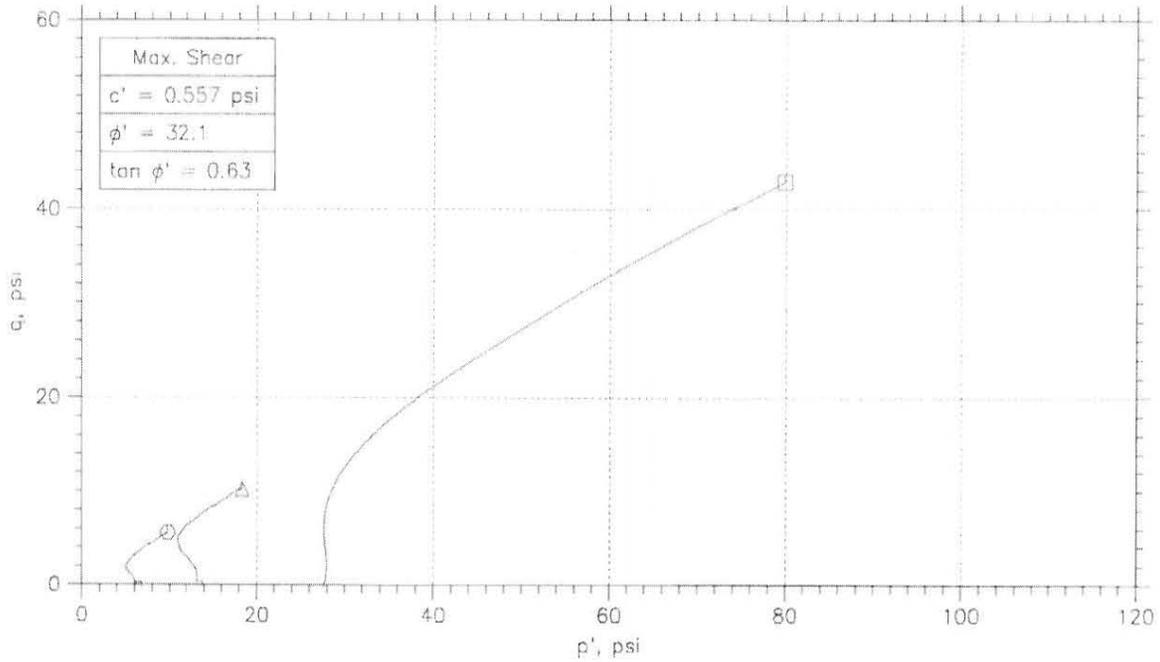
CONSOLIDATED UNDRAINED TRIAXIAL TEST



Symbol	○	△	□	
Sample No.	S01_I	S01_II	S01_III	
Test No.	U10-010A	U10-010B	U10-010C	
Depth	3.5-4.0	4.0-4.5	4.5-5.0	
Initial	Diameter, in	2.37	2.37	2.37
	Height, in	5.5	5.55	6
	Water Content, %	23.1	24.8	17.3
	Dry Density, pcf	104.7	99.95	112.6
	Saturation, %	99.5	94.9	90.8
Before Shear	Void Ratio	0.64	0.718	0.524
	Water Content, %	22.2	24.3	18.3
	Dry Density, pcf	106.6	102.8	114.1
	Saturation*, %	100.0	100.0	100.0
	Void Ratio	0.61	0.669	0.505
	Back Press., psi	64.01	64.	100.
	Ver. Eff. Cons. Stress, psi	6.933	13.89	27.77
	Shear Strength, psi	5.582	10.23	42.86
	Strain at Failure, %	14.4	15	15
	Strain Rate, %/min	0.025	0.025	0.025
	B-Value	0.95	0.95	0.95
	Implied Specific Gravity	2.75	2.75	2.75
	Liquid Limit	---	---	---
	Plastic Limit	---	---	---

	Project: I-5 HOV Widening	
	Location: 07-LA-5-45.7-50	
	Project No.: 07-2332A1	
	Boring No.: R-09-125	
	Sample Type: 2.5" BRASS	
	Description: Moist, Soft, Light to Dark Brown Silty Clay with Sand and voids.	
Remarks: GL NO. 10-003		

CONSOLIDATED UNDRAINED TRIAXIAL TEST



Symbol	⊙	△	□	
Sample No.	S01_I	S01_II	S01_III	
Test No.	U10-010A	U10-010B	U10-010C	
Depth	3.5-4.0	4.0-4.5	4.5-5.0	
Initial	Diameter, in	2.37	2.37	2.37
	Height, in	5.5	5.55	6
	Water Content, %	23.1	24.8	17.3
	Dry Density, pcf	104.7	99.95	112.6
	Saturation, %	99.5	94.9	90.8
Before Shear	Void Ratio	0.64	0.718	0.524
	Water Content, %	22.2	24.3	18.3
	Dry Density, pcf	106.6	102.8	114.1
	Saturation*, %	100.0	100.0	100.0
	Void Ratio	0.61	0.669	0.505
	Back Press., psi	64.01	64.	100.
	Ver. Eff. Cons. Stress, psi	6.933	13.89	27.77
	Shear Strength, psi	5.582	10.23	42.86
	Strain at Failure, %	14.4	15	15
	Strain Rate, %/min	0.025	0.025	0.025
	B-Value	0.95	0.95	0.95
	Implied Specific Gravity	2.75	2.75	2.75
	Liquid Limit	---	---	---
	Plastic Limit	---	---	---

	Project: I-5 HOV Widening	
	Location: 07-LA-5-45.7-50	
	Project No.: 07-2332A1	
	Boring No.: R-09-125	
	Sample Type: 2.5" BRASS	
	Description: Moist, Soft, Light to Dark Brown Silty Clay with Sand and voids.	
Remarks: GL NO. 10-003		

7/27/2010

Sample ID No.	Sampled	Received	Approved	Sample of	E.A.	District	TL-101
AG100269	11/1/2009	7/16/2010	EP	SOIL	07-2332A1	07	C702323
Sample From		SMARA#		Location		Depth	
SPT TEST				R-09-101 5-6.5'			

Grading Analysis Test Method CT 202				Los Angeles Rattler Test Method CT 211		Sodium Sulfate Soundness Test Method CT 214	
Aggregate			Rubber		Grade		Type
Size	% Passing	Combined	Size	% Passing	100 Revs	500 Revs	Individual % Loss
75mm	100		2.36mm		Relative Mortar Strength		Sieve Size
63mm	100		2.00mm		Test Method CT 515		63mm x 50mm
50mm	100		1.18mm		Ratio		50mm x 37.5mm
37.5mm	100		600um		Organic Impurities		37.5mm x 25mm
25mm	100		300um		Test Method CT 213		25mm x 19mm
19mm	100		150um		Quality		
12.5mm	100		75um		Debris?		
9.5mm	100				Cleanness Value		19mm x 12.5mm
4.75mm	100				Test Method CT 227		12.5mm x 9.5mm
2.36mm	95	95	Plasticity Index		63 x 37.5		9.5mm x 4.75mm
1.18mm	91	91	Test Method CT 204		37.5 x 19		Weighted Average
600um	89	89	LL		25 x 4.75		Loss of Sample
300um	82	82	PL		12.5 max		
150um	72	72	PI		Pit Run		
75um	52	52	Sand Equivalent		Combined		
5um			Test Method CT 217				
1um			SE				
Specific Gravity				Durability Index		Percent Crushed Particles	
Test Method CT 206, 207, 208				Test Method CT 229		Test Method CT 229	
Retained 4.75mm		Passing 4.75mm		Coarse Durability		Fine Aggregate Loss	
SSD Sp Gr		SSD Sp Gr		Fine Durability		Weighted Average	
Apparent Bulk OD		Apparent					
% Absorption		% Absorption					

7/27/2010

Sample ID No.	Sampled	Received	Approved	Sample of	E.A.	District	TL-101
AG100270	11/1/2009	7/16/2010	EP	SOIL	07-2332A1	07	C702324
Sample From		SMARA#	Location		Depth		
SOIL CUTTINGS			R-09-102		0-3.5'		

Grading Analysis Test Method CT 202					Los Angeles Rattler Test Method CT 211	Sodium Sulfate Soundness Test Method CT 214	
Aggregate			Rubber		Grade	Type	
Size	% Passing	Combined	Size	% Passing	100 Revs	Sieve Size	Individual % Loss
75mm	100		2.36mm		500 Revs	63mm x 50mm	
63mm	100		2.00mm		Relative Mortar Strength Test Method CT 515 Ratio	50mm x 37.5mm	
50mm	100		1.18mm			Organic Impurities Test Method CT 213 Quality Debris?	37.5mm x 25mm
37.5mm	100		600um		Cleanness Value Test Method CT 227		25mm x 19mm
25mm	100		300um			63 x 37.5 37.5 x 19 25 x 4.75 12.5 max Pit Run Combined	19mm x 12.5mm
19mm	100		150um		Durability Index Test Method CT 229		12.5mm x 9.5mm
12.5mm	100		75um			Coarse Durability Fine Durability	9.5mm x 4.75mm
9.5mm	100		Plasticity Index Test Method CT 204		Weighted Average Loss of Sample		Weighted Average Loss of Sample
4.75mm	100		LL			Fine Aggregate Loss	Percent Crushed Particles Test Method CT 229
2.36mm	99	99	PL				
1.18mm	97	97	PI				
600um	95	95	Sand Equivalent Test Method CT 217				
300um	92	92	SE				
150um	84	84					
75um	67	67					
5um							
1um							
Specific Gravity Test Method CT 206, 207, 208							
Retained 4.75mm		Passing 4.75mm					
SSD Sp Gr		SSD Sp Gr					
Apparent		Apparent					
Bulk OD							
% Absorption		% Absorption					

1
50
200

7/27/2010

Sample ID No.	Sampled	Received	Approved	Sample of	E.A.	District	TL-101
AG100271	11/1/2009	7/16/2010	EP	SOIL	07-2332A1	07	C702325
Sample From		SMARA#		Location		Depth	
SPT TEST				R-09-103		5-6.5'	

Grading Analysis Test Method CT 202				Los Angeles Rattler Test Method CT 211		Sodium Sulfate Soundness Test Method CT 214	
Aggregate			Rubber		Grade		Type
Size	% Passing	Combined	Size	% Passing	100 Revs	Individual % Loss	
75mm	100		2.36mm		500 Revs	Sieve Size	
63mm	100		2.00mm		Relative Mortar Strength Test Method CT 515 Ratio	63mm x 50mm	
50mm	100		1.18mm			50mm x 37.5mm	
37.5mm	100		600um		Organic Impurities Test Method CT 213 Quality Debris?	37.5mm x 25mm	
25mm	100		300um			25mm x 19mm	
19mm	100		150um		Cleanness Value Test Method CT 227	19mm x 12.5mm	
12.5mm	100		75um			63 x 37.5	12.5mm x 9.5mm
9.5mm	100		Plasticity Index Test Method CT 204 LL PL PI		37.5 x 19	9.5mm x 4.75mm	
4.75mm	100				Sand Equivalent Test Method CT 217 SE		25 x 4.75
2.36mm	100	100					12.5 max
1.18mm	100	100			Pit Run	Loss of Sample	
600um	99	99			Combined	Fine Aggregate	
300um	99	99			Durability Index Test Method CT 229	Loss	
150um	97	97				Coarse Durability	Percent Crushed Particles Test Method CT 229
75um	83	83			Fine Durability	Weighted Average	
5um							
1um							
Specific Gravity Test Method CT 206, 207, 208							
Retained 4.75mm		Passing 4.75mm					
SSD Sp Gr		SSD Sp Gr					
Apparent		Apparent					
Bulk OD							
% Absorption		% Absorption					

7/27/2010

Sample ID No.	Sampled	Received	Approved	Sample of	E.A.	District	TL-101
AG100272	11/1/2009	7/16/2010	EP	SOIL	07-2332A1	07	C702326
Sample From	SMARA#		Location		Depth		
SPT TEST			R-09-104		5-6.5'		

Grading Analysis Test Method CT 202				Los Angeles Rattler Test Method CT 211		Sodium Sulfate Soundness Test Method CT 214	
Aggregate			Rubber		Grade		Type
Size	% Passing	Combined	Size	% Passing	100 Revs	500 Revs	Individual % Loss
75mm	100		2.36mm		Relative Mortar Strength		Sieve Size
63mm	100		2.00mm		Test Method CT 515		63mm x 50mm
50mm	100		1.18mm		Ratio		50mm x 37.5mm
37.5mm	100		600um		Organic Impurities		37.5mm x 25mm
25mm	100		300um		Test Method CT 213		25mm x 19mm
19mm	100		150um		Quality		
12.5mm	99		75um		Debris?		
9.5mm	99				Cleanness Value		19mm x 12.5mm
4.75mm	97				Test Method CT 227		12.5mm x 9.5mm
2.36mm	96	93	Plasticity Index		63 x 37.5		9.5mm x 4.75mm
1.18mm	93	90	Test Method CT 204		37.5 x 19		Weighted Average
600um	89	86	LL		25 x 4.75		Loss of Sample
300um	83	81	PL		12.5 max		
150um	74	72	PI		Pit Run		
75um	58	56	Sand Equivalent		Combined		
5um			Test Method CT 217				
1um			SE				
Specific Gravity				Durability Index		Fine Aggregate	
Test Method CT 206, 207, 208				Test Method CT 229		Loss	
Retained 4.75mm		Passing 4.75mm		Coarse Durability		Percent Crushed Particles	
SSD Sp Gr		SSD Sp Gr		Fine Durability		Test Method CT 229	
Apparent		Apparent				Weighted Average	
Bulk OD							
% Absorption		% Absorption					

7/27/2010

Sample ID No.	Sampled	Received	Approved	Sample of	E.A.	District	TL-101
AG100273	11/1/2009	7/16/2010	EP	SOIL	07-2332A1	07	C702327
Sample From		SMARA#		Location		Depth	
SOIL CUTTINGS				R-09-106 0-3.5'			

Grading Analysis Test Method CT 202				Los Angeles Rattler Test Method CT 211		Sodium Sulfate Soundness Test Method CT 214		
Aggregate		Combined	Rubber		Grade	Type		
Size	% Passing		Size	% Passing	100 Revs 500 Revs	Sieve Size	Individual % Loss	
75mm	100	71	2.36mm		Relative Mortar Strength Test Method CT 515 Ratio	63mm x 50mm		
63mm	100		2.00mm		Organic Impurities Test Method CT 213 Quality Debris?	50mm x 37.5mm		
50mm	100		1.18mm			Cleanness Value Test Method CT 227	37.5mm x 25mm	
37.5mm	100		600um		63 x 37.5		25mm x 19mm	
25mm	100		300um		37.5 x 19		19mm x 12.5mm	
19mm	98		150um		25 x 4.75	12.5mm x 9.5mm		
12.5mm	92		75um		12.5 max	9.5mm x 4.75mm		
9.5mm	90				Pit Run	Weighted Average Loss of Sample		
4.75mm	82				Combined	Fine Aggregate Loss		
2.36mm	86					Percent Crushed Particles Test Method CT 229		
1.18mm	72						Weighted Average	
600um	60							
300um	47							
150um	34							
75um	25							
5um								
1um								
Specific Gravity Test Method CT 206, 207, 208				Durability Index Test Method CT 229				
Retained 4.75mm		Passing 4.75mm		Coarse Durability				
SSD Sp Gr		SSD Sp Gr		Fine Durability				
Apparent		Apparent						
Bulk OD								
% Absorption		% Absorption						

7/27/2010

Sample ID No.	Sampled	Received	Approved	Sample of	E.A.	District	TL-101
AG100274	11/1/2009	7/16/2010	EP	SOIL	07-2332A1	07	C702328
Sample From	SMARA#		Location		Depth		
SPT TEST			R-09-107		5-6.5'		

Grading Analysis Test Method CT 202				Los Angeles Rattler Test Method CT 211		Sodium Sulfate Soundness Test Method CT 214	
Aggregate		Combined	Rubber		Grade		Type
Size	% Passing		Size	% Passing	100 Revs	500 Revs	Individual % Loss
75mm	100	81	2.36mm		Relative Mortar Strength Test Method CT 515 Ratio		Sieve Size 63mm x 50mm
63mm	100		2.00mm		Organic Impurities Test Method CT 213 Quality Debris?		50mm x 37.5mm
50mm	100		1.18mm		Cleanness Value Test Method CT 227		37.5mm x 25mm
37.5mm	100		600um		63 x 37.5		25mm x 19mm
25mm	100		300um		37.5 x 19		19mm x 12.5mm
19mm	100		150um		25 x 4.75		12.5mm x 9.5mm
12.5mm	98		75um		12.5 max		9.5mm x 4.75mm
9.5mm	95				Pit Run		Weighted Average Loss of Sample
4.75mm	89				Combined		Fine Aggregate Loss
2.36mm	91						Percent Crushed Particles Test Method CT 229 Weighted Average
1.18mm	85		76	Plasticity Index Test Method CT 204		Durability Index Test Method CT 229	
600um	73		65	LL		Coarse Durability	
300um	58		52	PL		Fine Durability	
150um	47		42	PI			
75um	35		31	Sand Equivalent Test Method CT 217 SE			
5um							
1um							
Specific Gravity Test Method CT 206, 207, 208							
Retained 4.75mm		Passing 4.75mm					
SSD Sp Gr		SSD Sp Gr					
Apparent		Apparent					
Bulk OD							
% Absorption		% Absorption					

7/27/2010

Sample ID No.	Sampled	Received	Approved	Sample of	E.A.	District	TL-101
AG100275	11/1/2009	7/16/2010	EP	SOIL	07-2332A1	07	C702329
Sample From		SMARA#		Location		Depth	
R-09-109				R-09-109 5-6.5'			

Grading Analysis Test Method CT 202				Los Angeles Rattler Test Method CT 211		Sodium Sulfate Soundness Test Method CT 214		
Aggregate		Rubber		Grade		Type		
Size	% Passing	Combined	Size	% Passing	100 Revs	Sieve Size	Individual % Loss	
75mm	100		2.36mm		500 Revs	63mm x 50mm		
63mm	100		2.00mm		Relative Mortar Strength Test Method CT 515 Ratio	50mm x 37.5mm		
50mm	100		1.18mm			37.5mm x 25mm		
37.5mm	100		600um		Organic Impurities Test Method CT 213 Quality Debris?	25mm x 19mm		
25mm	100		300um			19mm x 12.5mm		
19mm	98		150um		Cleanness Value Test Method CT 227	12.5mm x 9.5mm		
12.5mm	98		75um			9.5mm x 4.75mm		
9.5mm	97		Plasticity Index Test Method CT 204		63 x 37.5	Weighted Average Loss of Sample		
4.75mm	94				LL		37.5 x 19	
2.36mm	94	88	Sand Equivalent Test Method CT 217 SE		25 x 4.75	Fine Aggregate Loss		
1.18mm	85	80			12.5 max			
600um	75	70			Pit Run			
300um	58	55	Specific Gravity Test Method CT 206, 207, 208		Combined	Percent Crushed Particles Test Method CT 229		
150um	39	37			Retained 4.75mm		Weighted Average	
75um	23	22			Passing 4.75mm			
5um			SSD Sp Gr					
1um			Apparent					
			% Absorption					
			% Absorption					
			Apparent					
			Bulk OD					
			% Absorption					
			% Absorption					
			Apparent					
			Bulk OD					
			% Absorption					
			% Absorption					

7/27/2010

Sample ID No.	Sampled	Received	Approved	Sample of	E.A.	District	TL-101
AG100276	11/1/2009	7/16/2010	EP	SOIL	07-2332A1	07	C702330
Sample From		SMARA#		Location		Depth	
SPT TEST				R-09-112 5-6.5'			

Grading Analysis Test Method CT 202				Los Angeles Rattler Test Method CT 211		Sodium Sulfate Soundness Test Method CT 214	
Aggregate			Rubber		Grade		Type
Size	% Passing	Combined	Size	% Passing	100 Revs	500 Revs	Individual % Loss
75mm	100		2.36mm		Relative Mortar Strength		Sieve Size
63mm	100		2.00mm		Test Method CT 515		63mm x 50mm
50mm	100		1.18mm		Ratio		50mm x 37.5mm
37.5mm	100		600um		Organic Impurities		37.5mm x 25mm
25mm	100		300um		Test Method CT 213		25mm x 19mm
19mm	100		150um		Quality		
12.5mm	99		75um		Debris?		
9.5mm	99		Plasticity Index		Cleanness Value		19mm x 12.5mm
4.75mm	98		Test Method CT 204		Test Method CT 227		12.5mm x 9.5mm
2.36mm	98	96	LL		63 x 37.5		9.5mm x 4.75mm
1.18mm	94	92	PL		37.5 x 19		Weighted Average
600um	88	86	PI		25 x 4.75		Loss of Sample
300um	81	79	Sand Equivalent		12.5 max		
150um	73	72	Test Method CT 217		Pit Run		
75um	65	64	SE		Combined		
5um			Specific Gravity		Durability Index		Fine Aggregate
1um			Test Method CT 206, 207, 208		Test Method CT 229		Loss
Retained 4.75mm		Passing 4.75mm		Coarse Durability		Percent Crushed Particles	
SSD Sp Gr		SSD Sp Gr		Fine Durability		Test Method CT 229	
Apparent		Apparent				Weighted Average	
Bulk OD							
% Absorption		% Absorption					

7/27/2010

Sample ID No.	Sampled	Received	Approved	Sample of	E.A.	District	TL-101
AG100277	11/1/2009	7/16/2010	EP	SOIL	07-2332A1	07	C702331
Sample From		SMARA#		Location		Depth	
SPT TEST				R-09-115 5-6.5'			

Grading Analysis Test Method CT 202				Los Angeles Rattler Test Method CT 211		Sodium Sulfate Soundness Test Method CT 214	
Aggregate			Rubber		Grade		Type
Size	% Passing	Combined	Size	% Passing	100 Revs	500 Revs	Individual % Loss
75mm	100		2.36mm		Relative Mortar Strength		Sieve Size
63mm	100		2.00mm		Test Method CT 515		63mm x 50mm
50mm	100		1.18mm		Ratio		50mm x 37.5mm
37.5mm	100		600um		Organic Impurities		37.5mm x 25mm
25mm	100		300um		Test Method CT 213		25mm x 19mm
19mm	100		150um		Quality		
12.5mm	100		75um		Debris?		19mm x 12.5mm
4.75mm	99		Plasticity Index		Cleanness Value		12.5mm x 9.5mm
2.36mm	99	98	Test Method CT 204		Test Method CT 227		9.5mm x 4.75mm
1.18mm	96	95	LL		63 x 37.5		Weighted Average
600um	93	92	PL		37.5 x 19		Loss of Sample
300um	87	86	PI		25 x 4.75		
150um	74	73	Sand Equivalent		12.5 max		
75um	54	53	Test Method CT 217		Pit Run		
5um			SE		Combined		
1um							
Specific Gravity				Durability Index		Percent Crushed Particles	
Test Method CT 206, 207, 208				Test Method CT 229		Test Method CT 229	
Retained 4.75mm		Passing 4.75mm		Coarse Durability		Fine Aggregate Loss	
SSD Sp Gr		SSD Sp Gr		Fine Durability		Weighted Average	
Apparent		Apparent					
Bulk OD							
% Absorption		% Absorption					

7/27/2010

Sample ID No.	Sampled	Received	Approved	Sample of	E.A.	District	TL-101
AG100278	11/1/2009	7/16/2010	EP	SOIL	07-2332A1	07	C702332
Sample From		SMARA#		Location		Depth	
SPT TEST				R-09-117 5-6.5'			

Grading Analysis Test Method CT 202				Los Angeles Rattler Test Method CT 211		Sodium Sulfate Soundness Test Method CT 214	
Aggregate			Rubber		Grade		Type
Size	% Passing	Combined	Size	% Passing	100 Revs	500 Revs	Individual % Loss
75mm	100		2.36mm		Relative Mortar Strength		Sieve Size
63mm	100		2.00mm		Test Method CT 515		63mm x 50mm
50mm	100		1.18mm		Ratio		50mm x 37.5mm
37.5mm	100		600um		Organic Impurities		37.5mm x 25mm
25mm	100		300um		Test Method CT 213		25mm x 19mm
19mm	100		150um		Quality		19mm x 12.5mm
12.5mm	95		75um		Debris?		12.5mm x 9.5mm
9.5mm	93				Cleanness Value		9.5mm x 4.75mm
4.75mm	85				Test Method CT 227		Weighted Average Loss of Sample
2.36mm	90	76	Plasticity Index		63 x 37.5		Fine Aggregate Loss
1.18mm	81	69	Test Method CT 204		37.5 x 19		Percent Crushed Particles Test Method CT 229
600um	73	62	LL		25 x 4.75		
300um	65	55	PL		12.5 max		Weighted Average
150um	54	46	PI		Pit Run		
75um	43	37	Sand Equivalent		Combined		
5um			Test Method CT 217		Durability Index		
1um			SE		Test Method CT 229		
Specific Gravity							
Test Method CT 206, 207, 208							
Retained 4.75mm		Passing 4.75mm					
SSD Sp Gr		SSD Sp Gr					
Apparent		Apparent					
Bulk OD							
% Absorption		% Absorption					

7/27/2010

Sample ID No.	Sampled	Received	Approved	Sample of	E.A.	District	TL-101
AG100279	11/1/2009	7/16/2010	EP	SOIL	07-2332A1	07	C702333
Sample From		SMARA#		Location		Depth	
R-09-118				R-09-118 5-6.5'			

Grading Analysis Test Method CT 202				Los Angeles Rattler Test Method CT 211		Sodium Sulfate Soundness Test Method CT 214	
Aggregate		Rubber		Grade		Type	
Size	% Passing	Combined	Size	% Passing	100 Revs	Sieve Size	Individual % Loss
75mm	100		2.36mm		500 Revs	63mm x 50mm	
63mm	100		2.00mm		Relative Mortar Strength Test Method CT 515	50mm x 37.5mm	
50mm	100		1.18mm				
37.5mm	100		600um		Organic Impurities Test Method CT 213	37.5mm x 25mm	
25mm	100		300um				
19mm	100		150um		Quality	25mm x 19mm	
12.5mm	100		75um		Debris?		
9.5mm	100		Plasticity Index Test Method CT 204		Cleanness Value Test Method CT 227	19mm x 12.5mm	
4.75mm	100						
2.36mm	99	99	LL		63 x 37.5	12.5mm x 9.5mm	
1.18mm	98	98	PL		37.5 x 19	9.5mm x 4.75mm	
600um	98	98	PI		25 x 4.75	Weighted Average Loss of Sample	
300um	97	97	Sand Equivalent Test Method CT 217		12.5 max		
150um	95	95			SE	Pit Run	Fine Aggregate Loss
75um	87	87	Specific Gravity Test Method CT 206, 207, 208		Combined	Percent Crushed Particles Test Method CT 229	
5um							Durability Index Test Method CT 229
1um					Coarse Durability	Weighted Average	
					Fine Durability		
Retained 4.75mm		Passing 4.75mm					
SSD Sp Gr		SSD Sp Gr					
Apparent Bulk OD		Apparent					
% Absorption		% Absorption					

7/27/2010

Sample ID No.	Sampled	Received	Approved	Sample of	E.A.	District	TL-101
AG100280	11/1/2009	7/16/2010	EP	SOIL	07-2332A1	07	C702334
Sample From		SMARA#		Location		Depth	
SPT TEST				R-09-119 5-6.5'			

Grading Analysis Test Method CT 202					Los Angeles Rattler Test Method CT 211	Sodium Sulfate Soundness Test Method CT 214	
Aggregate			Rubber		Grade	Type	
Size	% Passing	Combined	Size	% Passing	100 Revs	Sieve Size	Individual % Loss
75mm	100		2.36mm		500 Revs	63mm x 50mm	
63mm	100		2.00mm		Relative Mortar Strength Test Method CT 515 Ratio	50mm x 37.5mm	
50mm	100		1.18mm			37.5mm x 25mm	
37.5mm	100		600um		Organic Impurities Test Method CT 213 Quality Debris?	25mm x 19mm	
25mm	95		300um			19mm x 12.5mm	
19mm	95		150um		Cleanness Value Test Method CT 227	12.5mm x 9.5mm	
12.5mm	94		75um			9.5mm x 4.75mm	
9.5mm	92		Plasticity Index Test Method CT 204 LL PL PI		63 x 37.5	Weighted Average Loss of Sample	
4.75mm	86				25 x 4.75		
2.36mm	94	81	Sand Equivalent Test Method CT 217 SE		12.5 max	Fine Aggregate Loss	
1.18mm	86	74			Pit Run		
600um	74	64			Combined	Percent Crushed Particles Test Method CT 229	
300um	58	50					Weighted Average
150um	44	38					
75um	34	29					
5um							
1um							
Specific Gravity Test Method CT 206, 207, 208					Durability Index Test Method CT 229		
Retained 4.75mm		Passing 4.75mm					
SSD Sp Gr		SSD Sp Gr			Coarse Durability		
Apparent		Apparent			Fine Durability		
Bulk OD							
% Absorption		% Absorption					

7/27/2010

Sample ID No.	Sampled	Received	Approved	Sample of	E.A.	District	TL-101
AG100281	11/1/2009	7/16/2010	EP	SOIL	07-2332A1	07	C702335
Sample From		SMARA#		Location		Depth	
R-09-120				R-09-120 5-6.5'			

Grading Analysis Test Method CT 202				Los Angeles Rattler Test Method CT 211		Sodium Sulfate Soundness Test Method CT 214		
Aggregate			Rubber		Grade		Type	
Size	% Passing	Combined	Size	% Passing	100 Revs	500 Revs	Individual % Loss	
75mm	100		2.36mm		Relative Mortar Strength Test Method CT 515 Ratio		Sieve Size 63mm x 50mm	
63mm	100		2.00mm		Organic Impurities Test Method CT 213 Quality Debris?		50mm x 37.5mm	
50mm	100		1.18mm		Cleanness Value Test Method CT 227		37.5mm x 25mm	
37.5mm	100		600um		63 x 37.5		25mm x 19mm	
25mm	100		300um		37.5 x 19		19mm x 12.5mm	
19mm	87		150um		25 x 4.75		12.5mm x 9.5mm	
12.5mm	82		75um		12.5 max		9.5mm x 4.75mm	
9.5mm	80		Plasticity Index Test Method CT 204		Pit Run		Weighted Average Loss of Sample	
4.75mm	74		LL		Combined		Fine Aggregate Loss	
2.36mm	93	69	PL		Durability Index Test Method CT 229		Percent Crushed Particles Test Method CT 229 Weighted Average	
1.18mm	87	64	PI		Coarse Durability			
600um	83	61	Sand Equivalent Test Method CT 217 SE		Fine Durability			
300um	78	58	Specific Gravity Test Method CT 206, 207, 208					
150um	70	52	Retained 4.75mm		Passing 4.75mm			
75um	57	42	SSD Sp Gr		SSD Sp Gr			
5um			Apparent		Apparent			
1um			Bulk OD					
% Absorption		% Absorption						

7/27/2010

Sample ID No.	Sampled	Received	Approved	Sample of	E.A.	District	TL-101
AG100282	11/1/2009	7/16/2010	EP	SOIL	07-2332A1	07	C702336
Sample From		SMARA#		Location		Depth	
SPT TEST				R-09-121		5-6.5'	

Grading Analysis Test Method CT 202				Los Angeles Rattler Test Method CT 211		Sodium Sulfate Soundness Test Method CT 214	
Aggregate		Rubber		Grade		Type	
Size	% Passing	Combined	Size	% Passing	100 Revs	Sieve Size	Individual % Loss
75mm	100		2.36mm		500 Revs	63mm x 50mm	
63mm	100		2.00mm		Relative Mortar Strength Test Method CT 515 Ratio	50mm x 37.5mm	
50mm	100		1.18mm			37.5mm x 25mm	
37.5mm	100		600um		Organic Impurities Test Method CT 213 Quality Debris?	25mm x 19mm	
25mm	100		300um			19mm x 12.5mm	
19mm	91		150um		Cleanness Value Test Method CT 227	12.5mm x 9.5mm	
12.5mm	85		75um			9.5mm x 4.75mm	
9.5mm	81		Plasticity Index Test Method CT 204		63 x 37.5 37.5 x 19 25 x 4.75 12.5 max Pit Run Combined	Weighted Average Loss of Sample	
4.75mm	74		LL			Fine Aggregate Loss	
2.36mm	89	66	PL		Durability Index Test Method CT 229	Percent Crushed Particles Test Method CT 229	
1.18mm	80	59	PI				Coarse Durability
600um	72	53	Sand Equivalent Test Method CT 217 SE		Fine Durability	Weighted Average	
300um	63	47					
150um	50	37					
75um	38	28					
5um							
1um							
Specific Gravity Test Method CT 206, 207, 208							
Retained 4.75mm		Passing 4.75mm					
SSD Sp Gr		SSD Sp Gr					
Apparent		Apparent					
Bulk OD							
% Absorption		% Absorption					

7/27/2010

Sample ID No.	Sampled	Received	Approved	Sample of	E.A.	District	TL-101
AG100283	11/1/2009	7/16/2010	EP	SOIL	07-2332A1	07	C702337
Sample From		SMARA#		Location		Depth	
SPT TEST				R-09-122		5-6.5'	

Grading Analysis Test Method CT 202				Los Angeles Rattler Test Method CT 211		Sodium Sulfate Soundness Test Method CT 214	
Aggregate			Rubber		Grade		Type
Size	% Passing	Combined	Size	% Passing	100 Revs	Individual % Loss	
75mm	100		2.36mm		500 Revs	Sieve Size	
63mm	100		2.00mm		Relative Mortar Strength Test Method CT 515 Ratio	63mm x 50mm	
50mm	100		1.18mm			50mm x 37.5mm	
37.5mm	100		600um		Organic Impurities Test Method CT 213 Quality Debris?	37.5mm x 25mm	
25mm	100		300um			25mm x 19mm	
19mm	93		150um		Cleanness Value Test Method CT 227	19mm x 12.5mm	
12.5mm	92		75um			63 x 37.5	12.5mm x 9.5mm
9.5mm	89		Plasticity Index Test Method CT 204 LL PL PI		37.5 x 19	9.5mm x 4.75mm	
4.75mm	88				Sand Equivalent Test Method CT 217 SE		25 x 4.75
2.36mm	96	84					12.5 max
1.18mm	91	80			Pit Run	Fine Aggregate Loss	
600um	86	76			Combined	Percent Crushed Particles Test Method CT 229	
300um	81	71					Weighted Average
150um	74	65					
75um	64	56					
5um							
1um							
Specific Gravity Test Method CT 206, 207, 208				Durability Index Test Method CT 229			
Retained 4.75mm		Passing 4.75mm		Coarse Durability			
SSD Sp Gr		SSD Sp Gr		Fine Durability			
Apparent		Apparent					
Bulk OD							
% Absorption		% Absorption					

7/27/2010

Sample ID No.	Sampled	Received	Approved	Sample of	E.A.	District	TL-101
AG100284	11/1/2009	7/16/2010	EP	SOIL	07-2332A1	07	C702338
Sample From		SMARA#		Location		Depth	
R-09-123				R-09-123 5-65'			

Grading Analysis Test Method CT 202				Los Angeles Rattler Test Method CT 211		Sodium Sulfate Soundness Test Method CT 214	
Aggregate		Rubber		Grade		Type	
Size	% Passing	Combined	Size	% Passing	100 Revs	Individual % Loss	
75mm	100		2.36mm		500 Revs	Sieve Size	
63mm	100		2.00mm		Relative Mortar Strength Test Method CT 515 Ratio	63mm x 50mm	
50mm	100		1.18mm			50mm x 37.5mm	
37.5mm	100		600um		Organic Impurities Test Method CT 213 Quality Debris?	37.5mm x 25mm	
25mm	100		300um			25mm x 19mm	
19mm	100		150um		Cleanness Value Test Method CT 227	19mm x 12.5mm	
12.5mm	100		75um			63 x 37.5	12.5mm x 9.5mm
9.5mm	99		Plasticity Index Test Method CT 204		37.5 x 19	9.5mm x 4.75mm	
4.75mm	97			LL		25 x 4.75	
2.36mm	97	94	PL		12.5 max	Weighted Average Loss of Sample	
1.18mm	94	91	PI		Pit Run		
600um	91	88	Sand Equivalent Test Method CT 217 SE		Combined	Fine Aggregate Loss	
300um	87	84					Durability Index Test Method CT 229
150um	78	76			Coarse Durability	Percent Crushed Particles Test Method CT 229	
75um	63	61					Fine Durability
5um							
1um							
Specific Gravity Test Method CT 206, 207, 208							
Retained 4.75mm		Passing 4.75mm					
SSD Sp Gr		SSD Sp Gr					
Apparent		Apparent					
Bulk OD							
% Absorption		% Absorption					

7/27/2010

Sample ID No.	Sampled	Received	Approved	Sample of	E.A.	District	TL-101
AG100285	11/1/2009	7/16/2010	EP	SOIL	07-2332A1	07	C702339
Sample From		SMARA#		Location		Depth	
SPT TEST				R-09-126 5-6.5'			

Grading Analysis Test Method CT 202				Los Angeles Rattler Test Method CT 211		Sodium Sulfate Soundness Test Method CT 214	
Aggregate			Rubber		Grade		Type
Size	% Passing	Combined	Size	% Passing	100 Revs	500 Revs	Individual % Loss
75mm	100		2.36mm		Relative Mortar Strength Test Method CT 515 Ratio		Sieve Size 63mm x 50mm
63mm	100		2.00mm		Organic Impurities Test Method CT 213 Quality Debris?		50mm x 37.5mm
50mm	100		1.18mm		Cleanness Value Test Method CT 227		37.5mm x 25mm
37.5mm	100		600um		63 x 37.5		25mm x 19mm
25mm	100		300um		37.5 x 19		19mm x 12.5mm
19mm	100		150um		25 x 4.75		12.5mm x 9.5mm
12.5mm	100		75um		12.5 max		9.5mm x 4.75mm
9.5mm	100		Plasticity Index Test Method CT 204		Pit Run		Weighted Average Loss of Sample
4.75mm	99		LL		Combined		Fine Aggregate Loss
2.36mm	98	97	PL		Durability Index Test Method CT 229		Percent Crushed Particles Test Method CT 229 Weighted Average
1.18mm	96	95	PI		Coarse Durability		
600um	93	92	Sand Equivalent Test Method CT 217 SE		Fine Durability		
300um	89	88					
150um	81	80					
75um	64	63					
5um							
1um							
Specific Gravity Test Method CT 206, 207, 208							
Retained 4.75mm		Passing 4.75mm					
SSD Sp Gr		SSD Sp Gr					
Apparent		Apparent					
Bulk OD							
% Absorption		% Absorption					

7/27/2010

Sample ID No.	Sampled	Received	Approved	Sample of	E.A.	District	TL-101
AG100286	11/1/2009	7/16/2010	EP	SOIL	07-2332A1	07	C702340
Sample From		SMARA#		Location		Depth	
SPT TEST				R-09-127 5-65'			

Grading Analysis Test Method CT 202				Los Angeles Rattler Test Method CT 211		Sodium Sulfate Soundness Test Method CT 214	
Aggregate			Rubber		Grade		Type
Size	% Passing	Combined	Size	% Passing	100 Revs		Individual % Loss
75mm	100		2.36mm		500 Revs		
63mm	100		2.00mm		Relative Mortar Strength	63mm x 50mm	
50mm	100		1.18mm		Test Method CT 515		
37.5mm	100		600um		Ratio	50mm x 37.5mm	
25mm	100		300um		Organic Impurities		
19mm	100		150um		Test Method CT 213	37.5mm x 25mm	
12.5mm	100		75um		Quality		
9.5mm	100				Debris?	25mm x 19mm	
4.75mm	100				Cleanness Value		
2.36mm	99	99	Plasticity Index		Test Method CT 227	19mm x 12.5mm	
1.18mm	99	99	Test Method CT 204				
600um	98	98	LL		63 x 37.5	12.5mm x 9.5mm	
300um	98	98	PL		37.5 x 19		
150um	83	83	PI		25 x 4.75	9.5mm x 4.75mm	
75um	47	47	Sand Equivalent		12.5 max		
5um			Test Method CT 217		Pit Run	Weighted Average	
1um			SE		Combined	Loss of Sample	
Specific Gravity				Durability Index		Fine Aggregate	
Test Method CT 206, 207, 208				Test Method CT 229		Loss	
Retained 4.75mm		Passing 4.75mm		Coarse Durability		Percent Crushed Particles	
SSD Sp Gr		SSD Sp Gr		Fine Durability		Test Method CT 229	
Apparent		Apparent				Weighted Average	
Bulk OD							
% Absorption		% Absorption					

7/27/2010

Sample ID No.	Sampled	Received	Approved	Sample of	E.A.	District	TL-101
AG100287	3/1/2010	7/22/2010	EP	SOIL	07-2332A1	07	C702341
Sample From		SMARA#	Location		Depth		
SPT TEST			R-10-104		10-10.5'		

Grading Analysis Test Method CT 202					Los Angeles Rattler Test Method CT 211	Sodium Sulfate Soundness Test Method CT 214	
Aggregate			Rubber		Grade	Type	
Size	% Passing	Combined	Size	% Passing	100 Revs	Sieve Size	Individual % Loss
75mm	100		2.36mm		500 Revs	63mm x 50mm	
63mm	100		2.00mm		Relative Mortar Strength Test Method CT 515 Ratio	50mm x 37.5mm	
50mm	100		1.18mm			Organic Impurities Test Method CT 213 Quality Debris?	37.5mm x 25mm
37.5mm	100		600um		Cleanness Value Test Method CT 227		25mm x 19mm
25mm	100		300um			63 x 37.5	19mm x 12.5mm
19mm	100		150um		37.5 x 19		12.5mm x 9.5mm
12.5mm	100		75um			25 x 4.75	9.5mm x 4.75mm
9.5mm	100		Plasticity Index Test Method CT 204		12.5 max		Weighted Average Loss of Sample
4.75mm	96					Pit Run	
2.36mm	94	90			Combined		Percent Crushed Particles Test Method CT 229
1.18mm	92	88	Sand Equivalent Test Method CT 217 SE			Coarse Durability	
600um	82	79			Fine Durability		
300um	57	55					
150um	41	39	Specific Gravity Test Method CT 206, 207, 208				
75um	31	30	Retained 4.75mm		Passing 4.75mm		
5um			SSD Sp Gr		SSD Sp Gr		
1um			Apparent		Apparent		
			Bulk OD				
			% Absorption		% Absorption		

7/27/2010

Sample ID No.	Sampled	Received	Approved	Sample of	E.A.	District	TL-101
AG100288	3/1/2010	7/22/2010	EP	SOIL	07-2332A1	07	C702342
Sample From		SMARA#		Location		Depth	
SPT TEST				R-10-105		10-11.5'	

Grading Analysis Test Method CT 202				Los Angeles Rattler Test Method CT 211		Sodium Sulfate Soundness Test Method CT 214	
Aggregate			Rubber		Grade		Type
Size	% Passing	Combined	Size	% Passing	100 Revs	500 Revs	Individual % Loss
75mm	100		2.36mm		Relative Mortar Strength		Sieve Size
63mm	100		2.00mm		Test Method CT 515		63mm x 50mm
50mm	100		1.18mm		Ratio		50mm x 37.5mm
37.5mm	100		600um		Organic Impurities		37.5mm x 25mm
25mm	100		300um		Test Method CT 213		25mm x 19mm
19mm	98		150um		Quality		
12.5mm	96		75um		Debris?		
9.5mm	93				Cleanness Value		19mm x 12.5mm
4.75mm	87				Test Method CT 227		12.5mm x 9.5mm
2.36mm	92	80	Plasticity Index		63 x 37.5		9.5mm x 4.75mm
1.18mm	82	71	Test Method CT 204		37.5 x 19		Weighted Average
600um	72	63	LL		25 x 4.75		Loss of Sample
300um	61	53	PL		12.5 max		
150um	48	42	PI		Pit Run		
75um	35	30	Sand Equivalent		Combined		
5um			Test Method CT 217				
1um			SE				
Specific Gravity				Durability Index		Fine Aggregate	
Test Method CT 206, 207, 208				Test Method CT 229		Loss	
Retained 4.75mm		Passing 4.75mm		Coarse Durability		Percent Crushed Particles	
SSD Sp Gr		SSD Sp Gr		Fine Durability		Test Method CT 229	
Apparent		Apparent				Weighted Average	
Bulk OD							
% Absorption		% Absorption					

Retaining Wall Bearing Capacity

BoreHole Number	Station	Retaining Wall Height (H)	Retaining Type	Footing Width B (ft) (.5-.7H)	Qu (psf)	Qa (psf)	Length (ft)	Min. Qa (psf)	Toe Pressure Standard Plan	Note
R-09-101	2402+40	4.00	Type 1	3.25	10593	3531	6905	3531	1.70	OK
R-09-102	2425+20	4.00	Type 1	3.25	13984	4661			1.70	OK
R-09-103	2444+45	4.00	Type 1	3.25	24206	8069			1.70	OK
R-09-124	2450+95	6.00	Type 1	4.25	83930	27977			1.90	OK
R-09-125	2456+16	8.00	Type 1	5.25	14718	4906			2.20	OK
R-09-104	2463+00	14.00	Type 1	8.00	46140	15380			3.30	OK
R-09-126	2468+59	16.00	Type 1	9.00	39794	13265			3.50	OK
R-09-105	2474+30	18.00	Type 1	10.00	31985	10662	6073	10662	4.00	OK
R-09-127	2479+29	22.00	Type 1	12.08	36879	12293			4.60	OK
R-09-106	2484+23	24.00	Type 1	13.25	142512	47504			4.90	OK
R-09-128	2491+47	24.00	Type 1	13.25	79725	26575			4.90	OK
R-09-123	2509+28	16.00	Type 5	9.50	47477	15826			3.60	OK
R-09-122	2531+93	16.00	Type 1	9.00	113455	37818			3.50	OK
R-09-121	2537+34	16.00	Type 1	9.00	15762	5254	5254	5254	3.50	OK
R-09-120	2542+41	14.00	Type 1	8.00	45163	15054			3.30	OK
R-09-119	2548+67	14.00	Type 1	8.00	27565	9188			3.30	OK
R-09-118	2555+03	16.00	Type 1	9.00	19332	6444			3.50	OK
R-09-117	2559+85	18.00	Type 1	10.00	21693	7231			4.00	OK
R-09-116	2565+24	18.00	Type 1	10.00	17246	5749			4.00	OK
R-09-115	2571+38	14.00	Type 5	9.50	35013	11671			3.60	OK
R-09-107	2583+79	16.00	Type 5	9.50	90817	17623			3.60	OK
R-09-108	2590+57	18.00	Type 1	10.00	78143	11097	5103	3542	4.00	OK
R-09-109	2598+98	16.00	Type 1	9.00	14633	4878			3.50	OK
R-09-110	2605+63	12.00	Type 1	7.25	99758	33253			2.80	OK
R-09-111	2619+95	12.00	Type 1	7.25	10627	3542			2.80	OK
R-09-112	2627+25	8.00	Type 1	5.25	10851	3617			2.20	OK
R-09-114	2632+52	8.00	Type 1	5.25	16078	5359			2.20	OK
R-09-113	2638+21	8.00	Type 1	5.25	23518	7839			2.20	OK

Memorandum

To: MR. MICHAEL POPE
Branch Chief
Design Branch 18

Date: September 16, 2010

File No. 07-LA-005, PM 46.3/46.5
EA 2332A1
Soil Nail Wall No. 2433

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design South-1

Subject: Foundation Report - Retaining Wall 2433

Introduction

The Office of Geotechnical Design South-1 has prepared this Memorandum to provide the following recommendations for the proposed soil nail wall on the south bound of I-5 near Weldon Canyon Road to accommodate an additional truck climbing lane (Segment One) in the City of Santa Clarita. The project site is shown on the Vicinity Map (Figure 1).

This report is based on the results of our subsurface exploration, review of preliminary geotechnical report and geological information, and geotechnical analysis. This report supersedes our previous foundation report dated August, 2010.

Geotechnical Project Scope

The project consists of constructing one soil nail wall, which starts approximately 50 feet south of Weldon Canyon OC Bridge (Bridge No. 53-1796). This wall is approximately 1,244 feet long, between Stations 2433+00 and 2445+64. The wall heights vary approximately from 7 to 33 feet.

The soil nail wall will be constructed by excavating existing slopes. A large quantity of excavation should be anticipated. Based on As-Built foundation plan (Caltrans, 1967), the western portion of the project site is in cuts made during Weldon Canyon bridge construction. The maximum depth of excavation adjacent to project site was approximately 210 feet. The eastern portion of the site consists of fill embankment which was backfilled during temporary maintenance road construction. Therefore, the proposed wall footing will be built on both native soil or rock and existing roadway embankment.

The scope of this report includes:

- Review of proposed and existing plans and drawings pertinent to the project site;
- Review of published historical groundwater levels;
- Subsurface exploration program consisting of drilling four (three vertical and one horizontal) boreholes and development of LOTBs;
- Selection of appropriate laboratory tests;
- Evaluation of data outline above and engineering analyses to provide geotechnical recommendations; and
- Preparation of this report describing subsurface exploration, summarizing the results of field test, laboratory test and engineering analyses, and providing appropriate conclusions and recommendations.

Regional Geology and Geologic Mapping

The project site is located in the Transverse Ranges geomorphic province. The Transverse Ranges are a set of east west trending mountain ranges and valleys that extends approximately 320 miles from Point Arguello on the west to Desert Center on the east where the province merges with the Mojave and Colorado deserts. The province is bounded on the north by the Coast Ranges, California's central valley, and the Mojave Desert. The province is bounded on the south by the Pacific Ocean, the Los Angeles basin and the eastern segments of the San Andreas Fault zone.

According to the USGS Oat Mountain 7.5 minute Quadrangle, the project site is located along the southwestern side of Weldon Canyon which trends northwest to southeast. The project site is situated along the southwest side of the canyon, through the saddle of the canyon which reaches an elevation of approximately 1775 feet above mean sea level.

For this report we reviewed the Geologic Map of the Oat Mountain and Canoga Park (North ½) Quadrangles, Los Angeles County, California by Thomas W. Dibblee, Jr. (1992). The project site is underlain by Pico Formation pebbly sandstone. The sandstone consists of light gray to yellowish brown semi-friable, poorly to moderately cemented, medium grained sand, and locally contains cobbles to 6 inches or more. The project site is situated along the northern limb of the Oat Mountain Anticline. Bedding through out the project site is typically striking northwest to southeast and dipping to the north approximately 65 degrees. Bedding orientation is considered unfavorable with respect to the proposed location of the retaining wall.

Subsurface Exploration

Subsurface exploration was performed between March 01 and 09, 2010. A total of four (three vertical and one horizontal) boreholes were drilled to a maximum depth of approximately 55 feet (vertical) below the existing grade. The boreholes were advanced using a truck-mounted Acker MP-8 and track-mounted CS2000 drill rigs fitted with a four and half inch diameter mud rotary drill bit.

The horizontal borehole (R-10-302) was drilled to a length of approximately 74 feet to identify potential caving during soil nail installation. A lower recovery rate was observed between length of 9 to 34 and 59 to 74 feet. Caving may occur within these areas during soil nail construction.

The locations of the boreholes are shown on the table below and LOTBs, attached. The logs of the boreholes together with the explanation of terms and symbols used are also presented on LOTBs.

Summary of Boreholes

Borehole No	Borehole Location (Sta.)	Borehole Offset (ft)	Borehole Depth/Length (ft)	Note
R-10-101	2434+05.32	113.15 (Rt)	51.5	Vertical borehole
R-10-104	2445+97.82	147.32 (Rt)	40.5	Vertical borehole
R-10-105	2439+11.27	170.8 (Rt)	55.75	Vertical borehole
R-10-302	2440+51.61	98.77 (Rt)	74.0	Horizontal borehole

Field testing consisted of the Standard Penetration Test (SPT). Sampling consisted of collection of samples from the SPT split spoon sampler. The SPT split spoon sampler, two inches outside diameter and 1-3/8 inches inside diameter, was driven 18 inches into in-situ soils. The number of blows required to drive the sampler the last 12 inches was recorded as the "N" value or SPT blow count. The driving energy was provided by a 140 pound hammer dropping 30 inches.

Sampling consisted of:

- Collection of samples retrieved from the SPT split spoon; and
- Collection of soil samples at selected locations using a California Modified Sampler.

Laboratory Testing

The samples obtained during the subsurface exploration were assigned to the laboratory for visual examination and testing. The soils were classified in accordance with Soil and Rock Logging, Classification, and Presentation Manual, Caltrans June 2007.

The laboratory testing program consisted of corrosivity series tests (minimum resistivity and pH) on composite soil samples pertinent to project site and direct shear tests. Test results are summarized in the following subsections.

Corrosion Evaluation

Minimum resistivity and pH tests were conducted on composite samples at various depths performed. The test results are summarized in the table below. Based on Caltrans Corrosion Guidelines, version 1.0, September 2003, the test results indicate that the subsoils at this site should be considered corrosive.

Soil Corrosion Test Summary

Location	SIC Number	Minimum Resistivity (Ohm-Cm)	pH	Chloride Content (ppm)	Sulfate Content (ppm)
R-10-101	C702319	1210	6.43	N/A	N/A
R-10-105	C702321	618	6.22	8	5600

Note: Caltrans currently considers a site to be corrosive to foundation elements if one or more of the following conditions exist: Chloride concentration is greater than or equal to 500 ppm, sulfate concentration is greater than or equal to 2000 ppm, or the pH is 5.5 or less.

Direct Shear

Direct shear test results are summarized in the table below.

Direct Shear Test Summary

Borehole No.	Sample Depth (ft)	Soil Type	Cohesion (psf)	Friction Angle (degree)
R-10-101	5.5	Sandy Silt	917	40.6
R-10-104	6.0	Silty Sand	3,720	12.6
R-10-105	5.5	Silty Sand	-810	61.2
R-10-105	15.0	Sandy Silt	2,030	38.6

Subsurface Conditions

The generalized stratigraphic profile is silty sand and gravel overlying siltstone in boreholes R-10-104 and 105. In borehole R-10-101, loose to medium dense sandy silt and silty sand layers were observed overlying sandstone. SPT N values indicate that the sand and gravel layers are generally dense to very dense in boreholes R-10-104 and 105.

Groundwater

Based on the Seismic Hazard Zone Report for the Oat Mountain 7.5-Minute Quadrangle, Los Angeles County California from Department of Conservation Division of Mines and Geology (1998), the historical highest groundwater level was not recorded at the time of preparing this report. However, based on the groundwater measurements between January and May 2010 from nearby borehole R-09-128 (one mile west of site), no groundwater was encountered.

Seismicity

The proposed retaining wall is located within a seismically active region of southern California, and close to a number of faults that are considered active or potentially active. According to the stratigraphy of the project site, a Soil Profile Type "D" with a shear wave velocity (v_{s30}) of 1,027 ft/s (313 m/s) is considered appropriate. Based on the Caltrans ARS online tool (2009), the proposed improvements are located 4.4 miles north of the Sierra Madre fault zone (Santa Susana Section). This fault is a reverse fault, for which the magnitude of the maximum credible earthquake (MCE) is 6.70. The design median peak ground acceleration (PGA) at all retaining wall locations is approximately 0.68g. Other nearby faults, including the Northridge Hill fault, Northridge Blind Thrust, and San Gabriel fault zone would be expected to exert a lesser impact on the proposed improvement than the Sierra Madre fault zone.

Summary of Faults near the Site

Fault	Fault Style	Magnitude (M_w)	Distance (miles)	PGA (g)
Sierra Madre fault zone (Santa Susana section)	Reverse	6.7	2.0	0.68
Sierra Madre fault zone (San Fernando section)	Reverse	6.7	3.9	0.67
San Gabriel fault zone	RLSS	7.2	3.4	0.37

Liquefaction

Liquefaction is a phenomenon in which loose, saturated, fine grained granular soils behave like a fluid when subjected to high intensity ground shaking. Liquefaction occurs when three general conditions exist: (1) shallow ground water; (2) low-density, fine, sandy soils; and, (3) high-intensity ground motion. Saturated, loose and medium dense, cohesionless soils exhibit liquefaction potential, while dense cohesionless soil and cohesive soil have negligible liquefaction potential. Effects of liquefaction on ground surface include sand boils, settlement and lateral spreading.

According to the map of the Seismic Hazard Zones of Oat Mountain Quadrangle released on February 1, 1998, the project site is not situated within areas delineated as liquefaction zone. Based on the Seismic Hazard Zone Report for the Oat Mountain 7.5-Minute Quadrangle, Los Angeles County California from Department of Conservation Division of Mines and Geology (1998), no groundwater condition was shown in the project site. Therefore, deep groundwater condition was assumed for liquefaction analysis and seismic induced settlement estimation.

Due to: 1) the site is located outside areas delineated as liquefaction zone; and 2) groundwater level is deep; therefore, liquefaction potential due to seismic event is considered very low.

Soil Engineering Properties

Soil engineering properties based on a generalized soil stratigraphy was used in the proposed soil nail wall design and are summarized and presented in the tables below. The soil friction angles were based on either laboratory test results or estimated from corrected SPT N values (Bowles, 1977).

Soil Nail Wall Sta. 2433+00 to 2435+50

Layer No.	Depth (ft)	Soil Type	Unit Weight (pcf)	Shear Strength Parameters
1	0 - 19	Engineered Fill	125	$\phi = 35^\circ$ Cu = 50 psf
2	19 - 39	Sandy Silt	125	$\phi = 30^\circ$ Cu = 500 psf
3	39 - 49	Sandy Silt	118	$\phi = 32^\circ$ Cu = 50 psf
4	49 - 64	Silty Sand	112	$\phi = 31^\circ$ Cu = 50 psf
5	64 - 100	Sandstone	133	$\phi = 37^\circ$ Cu = 200 psf

Note: depths are measured from top of wall

Soil Nail Wall Sta. 2435+50 to 2442+00

Layer No.	Depth (ft)	Soil Type	Unit Weight (pcf)	Shear Strength Parameters
1	0 - 10	Silty Sand	132	$\phi = 36^\circ$ Cu = 50 psf
2	10 - 20	Sandy Silt	134	$\phi = 35^\circ$ Cu = 500 psf
3	20 - 45	Silty Sand	125	$\phi = 34^\circ$ Cu = 50 psf
4	45 - 100	Sandstone	133	$\phi = 37^\circ$ Cu = 200 psf

Note: depths are measured from top of wall

Soil Nail Wall Sta. 2442+00 to 2445+64

Layer No.	Depth (ft)	Soil Type	Unit Weight (pcf)	Shear Strength Parameters
1	0 - 15	Silty Sand	133	$\phi = 37^\circ$ Cu = 50 psf
2	15 - 30	Gravel	128	$\phi = 38^\circ$ Cu = 50 psf
3	30 - 100	Sandstone	133	$\phi = 40^\circ$ Cu = 50 psf

Note: depths are measured from top of wall

Soil Nail Wall Design

For the design of the recommended soil nail wall, the computer program SNAILZWIN was used. Following are the geotechnical design criteria for the soil nail wall:

- **Static Case**
 Minimum Factor of Safety: 1.5
- **Seismic Case**
 Minimum Factor of Safety: 1.1
 Non-dimensional horizontal seismic coefficient $k_h = 0.2$
 Expected deformation: less than 4 inches

The results of design calculation are summarized in the following tables.

Soil Nail Information

Zone Number	Station	Approximately Wall Height (ft)	Minimum Nail Length (ft)	Maximum Nail Spacing Vertical (ft)	Maximum Nail Spacing Horizontal (ft)
1	2433+00 to 2435+50	7 to 19	25	5	5
2	2435+50 to 2439+00	19 to 32	20	5	5
3	2439+00 to 2442+00	28 to 33	20	5	5
4	2442+00 to 2445+64	11 to 28	20	5	5

Note:

1. Wall Height is a vertical distance from the top of the wall to the finished grade.
2. Inclination angle of nails is 15 degree measured from horizontal.
3. First row of the nails is placed 5 feet below the top of wall, and nail spacing need to be adjusted in areas with geometric constraints.

For the seismic stability analysis, pseudo-static method was used. In the pseudo-static method, the earthquake-induced forces of inertial varying in time are replaced by equivalent pseudo-static force acting on the center of gravity of the analyzed block.

Soil Nail layout

We recommend a uniform soil nail length and a square layout pattern for the wall, since the wall is relatively short and small.

The vertical distance of bottom of the wall should be at least 24 inches below the finished grade. When the vertical distance from the bottom row to the finished grade is more than three feet but less than four feet, additional row of nails need to be added at three feet below the nail above.

Soil Nail Interference Mitigation

The location of all underground and aboveground utilities should be verified and clearly identified by the District in the plans, and removal or in-place protection may be required depending on the locations and depth of underground utilities. When the underground utilities remain in-place, soil nail inclination should be adjusted to avoid the conflict in such a manner that the minimum clearance of 6 inches is maintained between adjacent nails and rotated nail. The nail should be oriented at the maximum horizontal angle of 10 degree and the maximum vertical angle of 20 degree.

Limit of Design

The design of the soil nail wall was limited to maintain the local stability of the slope only after the cut for the widening. Potential local failure surfaces were searched based on following criteria:

- Upper search limit is at 60 feet horizontally beyond the top of the wall
- Lower search limit is at finished grade

Recommendations for Corrosion Protection and Drainage

Soil nails should be designed for *corrosive* conditions.

The prefabricated vertical geocomposite drain should be placed against cut face prior to application of shotcrete to facilitate in-plane drainage. The drain should be placed midway between the columns of the nail with a width of 12 inches in the interval equal to the nail horizontal spacing (every 5 feet). The drains should be placed vertically from the top of the cut and ended at the location of the weep holes.

Testing

The pullout resistance should be applied in accordance with the Special Provisions and Plans.

Two verification tests should be performed before excavation for the wall construction on testing nails installed within the limits of each wall test zone or within the limits of the 20-foot excavated stability test face at least 10 feet apart. These tests are used to verify Contractor's proposed means and methods.

Proof tests should be performed during soil nail wall construction. The soil nails subjected to the test are sacrificial, and the number of nails equal to 10 percent of the total number of production nails should be subjected to a proof test. The locations for the

eighty percent of the test nails should be shown on the plan, and remaining twenty percent of the test nails should be determined by the Engineer at the locations in his/her discretion during construction.

Construction Consideration

- Special equipment may be needed for the soil nail wall construction because boulder size rock debris was observed during subsurface exploration.
- Cave-in potential of the slope materials should be anticipated in areas with granular materials, cobble, and boulder during the soil nail wall construction.
- Hard excavating into bedrock should be anticipated during soil nail wall construction.

Appendices

Appendix I: Site Map

Appendix II: Log of Test Borings

Mr. Michael Pope
September 16, 2010
Page 11

Appendix III: Laboratory Test Results

If you have any questions or comments, please contact Hung Po Yang at (916) 227-4534.

Wendy Hou, P E.
Transportation Engineer–Civil
Branch A

Michael Salisbury, P.G., C.E.G.
Certified Engineering Geologist
Branch A

Hung Po (Paul) Yang, P E.
Transportation Engineer–Civil
Branch A

Cc: OGDS-1 – (Sacramento)
OGDS-1 (Los Angeles)
Ashraf A. Habbak, PM

Memorandum

To : MR. MIKE POPE
Branch Chief
Design Brach 18 – MS9 – DES. 18

Date: September 23, 2010

Attn: Mr. Richard Schendel
Senior Engineer

File No. 07-LA-005 – PM 49.03
EA 07-2332A1
Br. #53-1792R/L

From : DEPARTMENT OF TRANSPORTATION
Division of Engineering Services
Geotechnical Services
Office of Geotechnical Design South-1

Subject: Foundation Report – Calgrove Blvd UC

This report supersedes our previous foundation report dated August 13, 2010.

PROJECT DESCRIPTION

Within the limits of the proposed project, I-5 consists of four mixed-flow lanes in each direction, with the exception of three mixed-flow lanes in each direction at the I-5/SR-14 Interchange. In addition, two truck lanes in each direction are separated from the mainline freeway south of the Weldon Canyon Overcrossing.

The ultimate project will extend the High Occupancy Vehicle (HOV) lanes from SR-14 to Parker Road and add truck-climbing lanes from SR-14 to Calgrove Boulevard (northbound) and Pico Canyon Road/Lyons Avenue (southbound). The total length of the project is about 14 miles and the truck climbing lanes cover about three miles.

The project is divided into three segments.

Segment One: Extends from the I-5/SR-14 Interchange to north of the Pico Canyon/Lyons Avenue/I-5 Interchange.

Segment Two: Extends from north of Pico Canyon/Lyons Avenue/I-5 Interchange to north of the SR-126 Interchange.

Segment Three: Extends from north of SR-126 to south of Parker Road.

In this early implementation phase of Segment One, the proposed project will include widening Gavin Canyon Undercrossing (UC) (Bridge No. 53-2790 R/L), Calgrove Blvd UC (Bridge No. 53-1792 R/L), and constructing three retaining walls (near median) and

one soil nail wall (Wall Number 2433). Other retaining walls located outside of each direction are also proposed. Geotechnical recommendations and reports for these structures will be provided upon request.

The widening of existing Calgrove Blvd UC Bridge is part of the proposed project (Appendix I). This existing single span, prestressed concrete box girder bridge was built in 1967. The proposed work is to add one lane in each direction. Based on the information provided by project structural engineer, the proposed widening bridge will be cast-in-place, prestressed box girder structure.

SCOPE OF WORK

Scope of work included:

- Review of existing As-Built plans, drawings, and preliminary geotechnical reports pertinent to the subject site;
- Review of published historical groundwater levels;
- A subsurface exploration program consisting of drilling two boreholes to a maximum depth of approximately 100 feet and development of LOTBs;
- Appropriate laboratory tests;
- Evaluation of data outline above and engineering analyses to provide geotechnical recommendations; and
- Preparation of this report describing subsurface exploration, summarizing the results of field test, laboratory test and engineering analyses, and providing appropriate conclusions and recommendations.

This foundation report supercedes the preliminary foundation report for I-5 Ultimate Improvements, Los Angeles County, California, prepared by CH2MHILL, dated May 2008.

FIELD INVESTIGATION AND TESTING PROGRAM

Previous Site Investigation

The Log Of Test Borings (LOTBs) from the previous subsurface exploration are provided as a part of the "As-Built" plans, dated April 28, 1967, for the Market Street Undercrossing project (Appendix II). Based on the "As-Built" LOTB, eight boreholes including six penetration and two rotary were advanced below existing ground surface to depths of approximately 20 to 70 feet.

Current Field Program

Subsurface exploration was performed from November 30 thru December 02, 2009 and consisted of advancing two boreholes to a maximum depth of approximately 100 feet below the existing grade. The boreholes were advanced using a truck-mounted CS 2000 drill rig fitted with four and half inch mud rotary drill bit.

The locations of the boreholes are shown on LOTBs in appendix II. The logs of the boreholes together with the explanation of terms and symbols used are also presented on LOTBs.

Field testing consisted of the Standard Penetration Test (SPT). Sampling consisted of collection of samples from the SPT split spoon sampler. The SPT split spoon sampler, two inches outside diameter and 1-3/8 inches inside diameter, was driven 18 inches into soils and the number of blows required to drive the sampler the last 12 inches was recorded as the "N" value or SPT blow count. The driving energy was provided by a 140-pound hammer dropping 30 inches.

LABORATORY TESTING PROGRAM

The samples obtained during the subsurface exploration were delivered to the laboratory for visual examination and testing. The soils were classified in accordance with Soil and Rock Logging, Classification, and Presentation Manual, Caltrans June 2007.

The laboratory testing program consisted of corrosivity series tests (minimum resistivity and pH), particle-size analysis, unconfined compression, and Atterberg Limits. The laboratory test results are presented in the section of Corrosion Evaluation and Appendix III of this report.

SITE GEOLOGY AND SUBSURFACE CONDITIONS

Site Geology

According to the USGS Oat Mountain 7.5 minute Quadrangle, the project site is located along the north side of Oat Mountain. Oat Mountain is bounded on the north by Weldon Canyon and Gavin Canyon. The southwestern side of Weldon Canyon, which trends northwest to southeast. The project site is situated along the southwest side of the canyon, through the saddle of the canyon, which reaches an elevation of approximately, 1775 feet above mean sea level.

For this report we reviewed the Geologic Map of the Oat Mountain and Canoga Park (North ½) Quadrangles, Los Angeles County, California by Thomas W. Dibblee, Jr. (1992). The project site is underlain by Pico Formation pebbly sandstone. The sandstone consists of light gray to yellowish brown semi-friable, poorly to moderately cemented, medium grained sand, and locally contains cobbles to 6 inches or more. The project site is situated along the northern limb of the Oat Mountain Anticline. Bedding through out the project site is typically striking northwest to southeast and dipping to the north approximately 65 degrees. Bedding orientation is considered unfavorable with respect to the proposed location of the retaining wall.

Subsurface Conditions

The soils encountered at the project site during recent subsurface exploration generally confirmed the soil conditions described on the "As-Built" LOTB dated April 28, 1967. The generalized stratigraphic profile is silty sand overlying sandy silt and underlain by sandstone/siltstone. SPT N values indicate that the sand and silt layers are generally medium dense to dense. The unconfined compressive strengths indicate that the sandstone/siltstone bedrock is very soft to soft.

One piezometer well was installed to monitor groundwater level after drilling completion in borehole R-09-002. Based on the groundwater measurement readings between January and May 2010, groundwater levels were measured varying from 46.6 (elevation 1,314.4) to 42.8 (elevation 1,318.2) below ground surface. Therefore, a groundwater depth of 42 feet (elevation 1,319) will be used for engineering analysis.

CORROSION EVALUATION

Minimum resistivity and pH tests were conducted on samples at depths from near ground surface to 100 feet. The test results are summarized in the table below. Based on Caltrans Corrosion Guidelines, version 1.0, September 2003, the test results indicate that the subsoils at this site should be considered corrosive.

Soil Corrosion Test Summary

Location	SIC Number	Minimum Resistivity (Ohm-Cm)	pH	Chloride Content (ppm)	Sulfate Content (ppm)
R-09-001	C702307	1063	7.46	N/A	N/A
R-09-001	C702308	1947	7.63	N/A	N/A
R-09-001	C702309	953	4.01	10	1047
R-09-001	C702310	805	5.09	6	1848
R-09-002	C702311	840	6.12	12	1433
R-09-002	C702312	821	6.22	25	977
R-09-002	C702313	1566	6.94	N/A	N/A

Note: Caltrans currently considers a site to be corrosive to foundation elements if one or more of the following conditions exist: Chloride concentration is greater than or equal to 500 ppm, sulfate concentration is greater than or equal to 2000 ppm, or the pH is 5.5 or less.

SEISMIC RECOMMENDATIONS

Seismicity

The proposed bridge widening is located within a seismically active region of southern California, and close to a number of faults that are considered to be active or potentially active. According to the stratigraphy of the project site, a shear wave velocity (v_{s30}) of 1,210 ft/s (369 m/s) is considered appropriate. Based on the Caltrans ARS online tool (2009), the proposed improvements are located 3.3 miles from north of the Sierra Madre fault zone (Santa Susana Section). This fault is a reverse fault, for which the magnitude of the maximum credible earthquake (MCE) is 6.70. The design median peak ground acceleration (PGA) at all bridge locations is approximately 0.85g. Other nearby faults, including the Northridge Hill fault, Northridge Blind Thrust, and San Gabriel fault zone would be expected to exert a lesser impact on the proposed improvement than the Sierra Madre fault zone. The Acceleration Response Spectra (ARS) Curve is presented in Appendix IV.

Liquefaction

Liquefaction is a phenomenon in which loose, saturated, fine-grained granular soils behave like a fluid when subjected to high intensity ground shaking. Liquefaction occurs when three general conditions exist: (1) shallow ground water; (2) low-density, fine, sandy soils; and, (3) high-intensity ground motion. Saturated, loose and medium dense, cohesionless soils exhibit the liquefaction potential, while dense cohesionless soil and cohesive soil exhibit the lowest, negligible liquefaction potential. Effects of liquefaction on ground surface include sand boils, settlement and lateral spreading.

According to the map of the Seismic Hazard Zones of Oat Mountain Quadrangle released on February 01, 1998, the project site is situated within areas delineated as liquefaction zone. Based on the Seismic Hazard Zone Report for the Oat Mountain 7.5-Minute Quadrangle, Los Angeles County California from Department of Conservation Division of Mines and Geology (1998), the historical highest groundwater is not available at the time of preparing this report. However, groundwater level was measured varying from 46.6 to 42.8 feet below existing grade between January and June 2010 in borehole R-09-002. Therefore, historical highest groundwater at a depth of 42 feet below existing grade (elevation 1319) will be used for liquefaction analysis.

However, due to: 1) foundation soils are generally medium dense to very dense as interpreted from relatively high SPT “N” values; and 2) groundwater level is deep; liquefaction potential due to seismic event is considered very low.

Seismically Induced Settlement

Dynamic settlement often occurs when loose to medium dense granular soils are densified during ground shaking. Dynamic settlement due to earthquake shaking can occur in both unsaturated and saturated sands. Due to: 1) on site subsoils are medium dense to very dense; and 2) historical highest groundwater level is deep, the seismically induced settlement is considered to be very minor.

AS-BUILT FOUNDATION DATA

Based on the As-Built foundation plans (1967), the existing foundation type of the abutments is pile cap supported by steel H piles at abutments. The pile type, bottom of footing elevation, pile design bearing capacity, and average pile tip elevations are summarized in the following table (CH2MHILL, May, 2008).

Foundation Plan for Market Street Undercrossing (1967)

Location	Pile Type	Bottom of Footing Elevation (ft)		Design Pile bearing Capacity (Tons)	Average Tip Elevation		
		L	R		Minimum	Average	Maximum
Abutment 1L	10 BP42	1,347.7	1,348.0	45	1,340.4	1,317.3	1,301.2
Abutment 1R	10 BP42	1,348.3	1,346.7	45	1,342.0	1,335.1	1,328.0
Abutment 2L	10 BP42	1,346.0	1,346.3	45	1,308.2	1,304.5	1,299.3
Abutment 2R	10 BP42	1,344.7	1,343.0	45	1,301.8	1,300.1	1,300.0

GEOTECHNICAL RECOMMENDATIONS

Footing Type

Based on the information provided by the project structural engineer, steel HP12x84 piles with a pile cap will be constructed at the proposed abutments locations. Pile axial load capacities along with tip elevations are provided in the following sections. The following table summarizes the general foundation information for the proposed foundations at abutments.

General Foundation Information

Support No.	Design Method	Pile Type (Driven)	Finished Grade Elevation (ft)	Cut-off Elevation (ft)	Pile Cap Size (ft)		Permissible settlement under Service Load (in)	Number of Piles Per Support
					B	L		
Abut 1 L	WSD	HP12x84	1,356.0	varies	5.0	29.0	1	9
Abut 1 R	WSD	HP12x84	1,355.9	varies	5.0	29.0	1	9
Abut 2 L	WSD	HP12x84	1,354.0	varies	5.0	29.0	1	9
Abut 2 R	WSD	HP12x84	1,352.3	varies	5.0	29.0	1	9

Pile Design Parameters

Axial pile capacity calculations for the proposed abutments provided in the table below are estimated based on friction resistance only. The pile capacity calculations are also attached in Appendix IV.

Foundation Recommendations for Abutments

Support	Pile	Cut-off Elevation (ft)	Service-I Limit State Load (kips) per Support		Service-I Limit State Load (kips) per Pile (Compression)	Nominal Resistance (kips)	Design Tip Elevations (ft)*	Specified Tip Elevation (ft)	Nominal Driving Resistance (kips)
			Total	Permanent					
Abut 1 L	Steel HP12x84 Pile	varies	1,100	875	140	280	1,326.6	1,326.6	280
Abut 1 R	Steel HP12x84 Pile	varies	1,100	875	140	280	1,326.9	1,326.9	280
Abut 2 L	Steel HP12x84 Pile	varies	1,100	875	140	280	1,304.9	1,304.9	280
Abut 2 R	Steel HP12x84 Pile	varies	1,100	875	140	280	1,303.3	1,303.3	280

Note: * Design tip elevations are controlled by compression

File Data Table

Location	Pile Type	Nominal Resistance (kips) per pile		Design Tip Elevation (ft)*	Specified Tip Elevation (ft)	Nominal Driving Resistance (kips)
		Compression	Tension			
Abut 1 L	Steel HP12x84 Pile	280	0	1,326.6	1,326.6	280
Abut 1 R	Steel HP12x84 Pile	280	0	1,326.9	1,326.9	280
Abut 2 L	Steel HP12x84 Pile	280	0	1,304.9	1,304.9	280
Abut 2 R	Steel HP12x84 Pile	280	0	1,303.3	1,303.3	280

Note: * Design tip elevations are controlled by compression

Group Effect

For driven pile groups in cohesionless soil, the nominal axial resistance of the pile group shall be taken as the sum of the nominal resistance of all of the piles in the group. The efficiency factor shall be 1.0 where the pile cap is or is not in contact with ground for a center-to-center pile spacing of 2.5 diameters or greater.

Corrosion Mitigation

Based on the corrosion test results, the job site is considered corrosive. Special corrosion protection considerations for the steel pile may be needed. In addition, groundwater was measured at depths varied from elevation 1,318.2 to 1,314.4 feet. The proposed pile tip elevations varied from elevation 1,326.9 to 1,303.3 feet. Therefore, a corrosion rate of 0.001 inch per year of bridge design life and two exposure faces should be used to estimate corrosion allowance for steel piles exposed to corrosive soil and water.

CONSTRUCTION CONSIDERATIONS

Pile Construction

The following recommendations are presented and should be followed where applicable.

- Hard driving resistance should be expected within the very dense sandy layers and bedrock.
- Steel pile installation should be performed in accordance with Section 49, Piling, of the Caltrans Standard Specifications (May 2006).
- Before installing driven pile, the Contractor shall provide a driving system submittal, including driveability analysis.
- Pre-drilling, if needed, should be approved by the Engineer before pile construction.
- Pre-drilling, if used, should be considered in the driveability analysis.
- Control location: Abutment 1.

APPENDICES

Appendix I: Site Map
Appendix II: Log of Test Borings
Appendix III: Laboratory Test Results
Appendix IV: Analysis and Calculations

If you have any questions or comments, please contact Hung Po Yang (916) 227-4534.

Hung Po Yang, P.E.
Transportation Engineer–Civil
Branch A

Cc: OGDS-1 – (Sacramento)
OGDS-1 (Los Angeles)
Ashraf A. Habbak, PM

Memorandum

To: MR. MIKE POPE
Branch Chief
Design Branch 18 – MS9 – DES. 18

Date: August 13, 2010

Attn: MR. RICHARD SCHENDEL
Senior Engineer

File No. 07-LA-005 - PM R47.8
EA 07-2332A1
Br. #53-2790R/L

From: DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design South-1

Subject: Foundation Report – Gavin Canyon UC

PROJECT DESCRIPTION

Within the limits of the proposed project, I-5 consists of four mixed-flow lanes in each direction, with the exception of three mixed-flow lanes in each direction at the I-5/SR-14 Interchange. In addition, two truck lanes in each direction are separated from the mainline freeway south of the Weldon Canyon Overcrossing.

The ultimate proposed project will extend the High Occupancy Vehicle (HOV) lanes from SR-14 to Parker Road and add truck-climbing lanes from SR-14 to Calgrove Boulevard (northbound) and Pico Canyon Road/Lyons Avenue (southbound). The total length of the project is about 14 miles and the climbing truck lanes cover about three miles.

The project is divided into three segments.

Segment One: Extends from the I-5/SR-14 Interchange to north of the Pico Canyon/Lyons Avenue/I-5 Interchange.

Segment Two: Extends from north of Pico Canyon/Lyons Avenue/I-5 Interchange to north of the SR-126 Interchange.

Segment Three: Extends from north of SR-126 to south of Parker Road.

In this early implementation phase of Segment One, the proposed project will include widening Gavin Canyon Undercrossing (UC) (Bridge No. 53-2790 R/L), Calgrove Blvd UC (Bridge No. 53-1792 R/L), and constructing three retaining walls (near median) and one soil nail wall (Wall Number 2433). Other retaining walls (MSE) are also proposed in

each direction to accommodate future widening. Geotechnical recommendations and reports for these structures will be provided upon request.

Widening of existing Gavin Canyon UC Bridge is part of the proposed project (Appendix I). The existing structures are three span continuous cast-in-place prestressed concrete box girders with seat-type abutments. The bridge was originally built in 1965 and was designed and constructed in 1994 to replace the structure that collapsed during the 1994 Northridge earthquake. The proposed work is to widen both left and right bridges toward the median. The new proposed structure types are cast-in-place prestressed box girders.

SCOPE OF WORK

Scope of work included:

- Review of existing As-Built plans, drawings, and preliminary geotechnical reports pertinent to the subject site;
- Review of published historical groundwater levels;
- A subsurface exploration program consisting of drilling two boreholes to a maximum depth of approximately 100 feet and development of LOTBs;
- Appropriate laboratory tests;
- Evaluation of data outline above and engineering analyses to provide geotechnical recommendations; and
- Preparation of this report describing subsurface exploration, summarizing the results of field test, laboratory test and engineering analyses, and providing appropriate conclusions and recommendations.

This foundation report supercedes the preliminary foundation report for I-5 Ultimate Improvements, Los Angeles County, California, prepared by CH2MHILL, dated May, 2008.

FIELD INVESTIGATION AND TESTING PROGRAM

Previous Site Investigation

The Log Of Test Borings (LOTBs) from the previous subsurface exploration are provided as a part of the "As-Built" plans, dated September, 1994 and 1964, for the Gavin Canyon Undercrossing project (Appendix II). Based on the "As-Built" LOTB, 12 penetration and three rotary were advanced below existing ground surface to depths of approximately 15 to 60 feet in 1964. Seven rotary boreholes were advanced below existing round surface to depths of approximately 35 to 105 feet in 1994.

Current Field Program

Subsurface exploration was performed between December 07 and 09, 2009, and consisted of advancing two boreholes to a maximum depth of approximately 100 feet below existing grade. The boreholes were advanced using a truck-mounted CS 2000 drill rig fitted with four-inch mud rotary drill bit.

The locations of the boreholes are shown on LOTBs in Appendix II. The logs of the boreholes together with the explanation of terms and symbols used are also presented on LOTBs.

Field testing consisted of Standard Penetration Test (SPT). Sampling consisted of collection of samples from the SPT split spoon sampler. SPT split spoon sampler, two inches outside diameter and 1 3/8 inches inside diameter, was driven 18 inches into soils and the number of blows required to drive the sampler the last 12 inches is recorded as the "N" value or SPT blow count. The driving energy was provided by a 140 pound hammer dropping 30 inches.

LABORATORY TESTING PROGRAM

The samples obtained during the subsurface exploration were delivered to the laboratory for visual examination and testing. The soils were classified in accordance with Soil and Rock Logging, Classification, and Presentation Manual, Caltrans June 2007.

The laboratory testing program consisted of corrosivity series tests (minimum resistivity and pH), particle-size analysis, unconfined compression, and Atterberg Limits.

SITE GEOLOGY AND SUBSURFACE CONDITIONS

Site Geology

The project site is located along Gavin Canyon, a narrow northwest southeast trending canyon located on the north side of Oat Mountain. The canyon opens to the northwest approximately a half mile north of the Calgrove Undercrossing in Newhall, CA. Gavin Canyon trends southeasterly uphill to a saddle, which reaches an elevation of approximately 1775 feet above mean sea level (amsl). The saddle is situated at the base of the eastern ridge of Oat Mountain. From that point, the canyon continues down hill and is known as Weldon Canyon.

Oat Mountain is a series of folds (Oat Mountain Syncline and Pico Anticline) overlying the northern strand of the Santa Susana Fault. The Pico Anticline is a dominant structure

which trends approximately east west through the project area. The northern limb of the anticline is composed of Towsley, Pico, and Saugus Formation. These formations are characterized as soft, partially unlithified, sedimentary rock dipping to the north from as shallow as 15° to near vertical (90°). Bedding through out the project area is typically striking northwest to southeast and dipping to the north approximately 65°.

For this report we reviewed the Geologic Map of the Oat Mountain and Canoga Park (North ½) Quadrangles, Los Angeles County, California by Thomas W. Dibblee, Jr. (1992). The project site is underlain by Pico Formation pebbly sandstone. The sandstone consists of light gray to yellowish brown semi-friable, poorly to moderately cemented, medium grained sand, and locally contains cobbles to 6 inches or more.

Subsurface Conditions

The soils encountered at the project site during recent subsurface exploration generally confirmed the soil conditions described on the “As-Built” LOTB dated 1964 and 1994. The generalized stratigraphic profile is clayey sand with gravel and clayey gravel overlying siltstone/claystone. SPT N values indicate that the sand and gravel layers are generally medium dense to dense. The uniaxial unconfined compressive strengths indicate that the sandstone/siltstone bedrock is very soft to soft.

On-site air monitoring was conducted all time during field exploration to detect potential methane and hydrogen sulfide gas by URS Corporation. None to very minor readings were detected.

Groundwater

One piezometer well was installed to monitor groundwater table after drilling completion in borehole R-09-002. Based on the groundwater measurements between January and May 2010, groundwater levels varied from 13.3 (elevation 1,444.4) to 11.2 (elevation 1,446.5) below ground surface.

Groundwater was also encountered at some borehole locations during previous site investigation. Groundwater levels and elevations encountered/measured from previous and current field program are summarized in the table below.

Summary of Groundwater Levels

Year	Borehole Location	Depth (ft)	Elevation (ft)
1964	B-11	15.9	1,436.2
1964	B-14	17.1	1,430.1
1994	B-1	26.5	1,527.9
1994	B-2	8.7	1,447.6
1994	B-4	7.6	1,449.4
2010	R-09-002	11.2	1,446.5

CORROSION EVALUATION

Minimum resistivity and pH tests were conducted on samples at depths from near ground surface to 100 feet. The test results are summarized in the table below. Based on Caltrans Corrosion Guidelines, version 1.0, September 2003, the test results indicate that the subsoils at this site should be considered corrosive.

Soil Corrosion Test Summary

Location	SIC Number	Minimum Resistivity (Ohm-Cm)	pH	Chloride Content (ppm)	Sulfate Content (ppm)
R-09-001	C702301	360	7.68	11	2189
R-09-001	C702302	361	8.06	5	2083
R-09-002	C702303	2674	8.06	N/A	N/A
R-09-002	C702304	333	8.14	10	2364
R-09-002	C702305	502	8.07	6	1553
R-09-002	C702306	382	8.12	8	2449

Note: Caltrans currently considers a site to be corrosive to foundation elements if one or more of the following conditions exist: Chloride concentration is greater than or equal to 500 ppm, sulfate concentration is greater than or equal to 2000 ppm, or the pH is 5.5 or less.

SEISMIC RECOMMENDATIONS

Seismicity

The proposed bridge widening is located within a seismically active region of southern California, and close to a number of faults that are considered to be active or potentially active. According to the stratigraphy of the project site, a shear wave velocity (v_{s30}) of 1,020 ft/s (311 m/s) to 1,290 ft/s (393 m/s) is considered appropriate. Based on the Caltrans ARS online tool (2009), the proposed improvements are located 3.0 miles from north of the Sierra Madre fault zone (Santa Susana Section). This fault is a reverse fault, for which the magnitude of the maximum credible earthquake (MCE) is 6.70. The design median peak ground acceleration (PGA) at all bridge locations is approximately 0.83g. Other nearby faults, including the Northridge Hill fault, Northridge Blind Thrust, and San Gabriel fault zone would be expected to have a lesser impact on the proposed improvement than the Sierra Madre fault zone. The Acceleration Response Spectra (ARS) Curve is presented in Appendix IV.

Liquefaction

Liquefaction is a phenomenon in which loose, saturated, fine grained granular soils behave like a fluid when subjected to high intensity ground shaking. Liquefaction occurs when three general conditions exist: (1) shallow ground water; (2) low-density, fine, sandy soils; and, (3) high-intensity ground motion. Saturated, loose and medium dense, cohesionless soils exhibit liquefaction potential, while dense cohesionless soil and cohesive soil have negligible liquefaction potential. Effects of liquefaction on ground surface include sand boils, settlement and lateral spreading.

According to the map of the Seismic Hazard Zones of Oat Mountain Quadrangle released on February 01, 1998, the project site is situated within areas delineated as liquefaction zone. Based on the Seismic Hazard Zone Report for the Oat Mountain 7.5-Minute Quadrangle, Los Angeles County California from Department of Conservation Division of Mines and Geology (1998), the historical highest groundwater is not available at the time of preparing this report. Groundwater level was able to measure in borehole R-09-002 for current field investigation and encountered in some boreholes for previous site investigation as mentioned in Groundwater subsection.

Foundation soils are generally medium dense to dense as indicated by relatively high SPT "N" values and depths to bedrock are shallow (10 to 19 feet below existing grade). Therefore, liquefaction potential is considered very low at current subsurface exploration borehole locations (R-09-001 and R-09-002).

Liquefaction analysis was also performed at previous borehole locations B-1 and B-5 (1994) near the proposed abutment 1 and 4 retaining walls, respectively. Based on the liquefaction analysis, liquefiable layers were found from groundwater level (26.5 feet) to the top of bedrock in borehole B-1.

Seismically Induced Settlement

Dynamic settlement often occurs when loose to medium dense granular soils are densified during ground shaking. Seismic settlement is estimated to be greater than tolerated design settlement near the proposed abutment 1 retaining wall. Pile foundations, therefore, will be used for this structure.

The seismically induced settlement is considered to be very minor in current borehole locations R-09-001 and R-09-002, and previous field investigation borehole B-5 (near proposed abutment 4 retaining wall) due to foundation soils are generally medium dense to very dense as indicated by relatively high SPT “N” values.

AS-BUILT FOUNDATION DATA

Based on the As-Built plans, the existing structure is supported on cast-in-place drilled hole (CIDH) concrete piles. The 16-inch-diameter CIDH piles were used at the abutments and retaining wall areas, and the 96-inch-diameter CIDH piles were used at the bent locations. The existing bridge foundation information is summarized in the following table (CH2MHILL, May, 2008).

Foundation for Abutments and Bents

Location	Diameter (inch)	Pile Type	Design Loading (Tons)	Cut-Off Elevation (ft)	Specified Pile Tip Elevation (ft)
Abutment 1L	16	CIDH	45	1,521.25 to 1,525.25	1,486
Abutment 1R	16	CIDH	45	1,525.25 to 1,531.25	1,490
Abutment 4L	16	CIDH	45	1,485.25	1,450
Abutment 4R	16	CIDH	45	1,497.25 to 1,502.25	1,462
Bent 2L	96	CIDH	2,500	1,456	1,381
Bent 2R	96	CIDH	2,500	1,462 to 1,466	1,387 to 1,391
Bent 2L	96	CIDH	2,500	1,477 to 1,456	1,372 to 1,381
Bent 2R	96	CIDH	2,500	1,455	1,380

Foundation for Retaining Walls

Location	Diameter (inch)	Pile Type	Design Loading (Tons)	Cut-Off Elevation (ft)	Specified Pile Tip Elevation (ft)
Abutment 1L					
H=26	16	CIDH	45	1,521.75	1,486.5
H=22	16	CIDH	45	1,527.25	1,492
H=18	16	CIDH	45	1,531.25	1,496
H=14	16	CIDH	45	1,536.25	1,501
H=10	16	CIDH	45	1,541.25	1,506
Abutment 1R					
H=26	16	CIDH	45	1,529.25	1,494
H=22	16	CIDH	45	1,533.25	1,498
H=18	16	CIDH	45	1,537.25	1,502
H=14	16	CIDH	45	1,542.25	1,507
H=10	16	CIDH	45	1,546.25	1,511
Abutment 4L					
H=18	16	CIDH	45	1,489.25	1,454
H=14	16	CIDH	45	1,493.25	1,458
H=8	16	CIDH	45	1,497.25	1,462
Abutment 4R					
H=22	16	CIDH	45	1,498.25	1,463
H=20	16	CIDH	45	1,501.25	1,466
H=14	16	CIDH	45	1,505.25	1,470
H=10	16	CIDH	45	1,509.25	1,474

GEOTECHNICAL RECOMMENDATIONS

Footings Type

Localized seismically induced settlement was estimated to be greater than tolerated design settlement in Borehole B-1 (1994) near the proposed Abutment 1 retaining wall. Due to the potential seismic settlements, spread footings are not recommended for the proposed retaining walls or abutment 1. Pile foundation system may be used to support footings.

Based on the information provided by the project structural engineer, 96-inch-diameter CIDH piles and 24-inch-diameter CIDH piles with a pile cap will be constructed at the proposed bent and abutment/retaining wall locations, respectively. Pile axial and lateral load capacities along with tip elevations are provided in the following sections. The following table summarizes general foundation information for the proposed foundations at bents, abutments, and retaining walls.

General Foundation Information

Support No.	Design Method	Pile Type (Drilled Shaft)	Finished Grade Elevation (ft)	Cut-off Elevation (ft)	Pile Cap Size (ft)		Permissible settlement under Service Load (in)	Number of Piles Per Support
					B	L		
Abut 1 L	WSD	24" CIDH	1532.0	1,521.25	irregular	irregular	1	16
Abut 1R	WSD	24" CIDH	1540.0	1,534.35	irregular	irregular	1	13
Abut 1 R.W.	WSD	24" CIDH	1532.0 – 1540.0	1,524.25 to 1,535.25	--	--	1	varies
Bent 2L	LRFD	96" CIDH	1463.0	1,460.0	N/A	N/A	1	1
Bent 2R	LRFD	96" CIDH	1496.0	1,478.0	N/A	N/A	1	1
Bent 3L	LRFD	96" CIDH	1474.0	1,460.0	N/A	N/A	1	1
Bent 3R	LRFD	96" CIDH	1460.0	1,457.0	N/A	N/A	1	1
Abut 4 L	WSD	24" CIDH	1502.0	1,493.75	irregular	irregular	1	13
Abut 4R	WSD	24" CIDH	1502.0	1,493.25	irregular	irregular	1	16
Abut 4 R.W.	WSD	24" CIDH	1503.0 – 1508.0	1495.25 to 1,500.25	--	--	1	varies

File Design Parameters

Axial Pile Capacity

Axial pile capacity calculations for the proposed bents, abutments, and retaining walls provided in the table below are estimated based on friction resistance only. The pile capacity calculations are also attached in Appendix IV.

Foundation Recommendations for Abutments

Support	Pile	Cut-off Elevation (ft)	Service-I Limit State Load (kips) per Support		Service-I Limit State Load (kips) per Pile (Compression)	Nominal Resistance (kips)	Design Tip Elevations (ft)*	Specified Tip Elevation (ft)
			Total	Permanent				
Abut 1 L	24" CIDH	1,521.25	2,800	2,600	200	400	1,467 (a) 1,481.25 (b)	1,467
Abut 1R	24" CIDH	1,534.35	2,000	1,800	200	400	1,467 (a) 1,494.35 (b)	1,467
Abut 4 L	24" CIDH	1,493.75	2,100	1,900	200	400	1,465.75 (a) 1,463.75 (b)	1,463
Abut 4R	24" CIDH	1,493.25	2,700	2,500	200	400	1,465.25 (a) 1,463.25 (b)	1,463

Note: 1. * Design tip elevations are controlled by (a) compression, (b) lateral load
 2. Piles at Abut 1 should be drilled at least 13 feet into bedrock

Foundation Recommendations for Bents

Support Location	Pile Type	Cut-Off Elevation (ft)	Service-I Limit State Load (kips) per Support	Total Permissible Support Settlement (inches)	Required Factored Nominal Resistance (kips)				Design Tip Elevation (ft)*	Specified Tip Elevation (ft)
					Strength Limit		Extreme Limit			
					Comp. ($\phi = 0.7$)	Tension ($\phi = 0.7$)	Comp. ($\phi = 1.0$)	Tension ($\phi = 1.0$)		
Bent 2L	96" Drilled Shaft	1,460.0	4,000	1	5,600 /support or /pile	0	3,350 /support /pile	0	1,399.0	1,394.0
Bent 2R	96" Drilled Shaft	1,478.0	4,000	1	5,600 /support or /pile	0	3,350 /support /pile	0	1,417.0	1,412.0
Bent 3L	96" Drilled Shaft	1,460.0	4,000	1	5,600 /support or /pile	0	3,350 /support /pile	0	1,399.0	1,394.0
Bent 3R	96" Drilled Shaft	1,457.0	4,000	1	5,600 /support or /pile	0	3,350 /support /pile	0	1,396.0	1,391.0

Note: * Design tip elevations are controlled by compression

Foundation Recommendations for Retaining Walls

Support	Pile	Cut-off Elevation (ft)	Service-I Limit State Load (kips) per Support		Service-I Limit State Load (kips) Max per Pile (Compression)	Nominal Resistance (kips)	Design Tip Elevations (ft)*	Specified Tip Elevation (ft)
			Total	Permanent				
Abut 1 R.W.	24" CIDH	1,524.25 to 1,535.25	varies	varies	140	280	1,471 (a) 1,484.25 to 1,495.25 (b)	1,471
Abut 4 R.W.	24" CIDH	1,495.25 to 1,500.25	varies	varies	140	280	1,472.25 to 1,477.25 (a) 1,465.25 to 1,470.25 (b)	1,465

Note: 1. * Design tip elevations are controlled by (a) compression, (b) lateral load
 2. Piles tip elevations at Abut 1 R.W. should be at least 9 feet embedded into bedrock

Pile Data Table

Location	Pile Type	Nominal Resistance (kips) per pile		Design Tip Elevation (ft)*	Specified Tip Elevation (ft)
		Compression	Tension		
Abut 1 L	24" CIDH	400	0	1,467 (a) 1,481.25 (b)	1,467.0
Abut 1R	24" CIDH	400	0	1,467 (a) 1,494.35 (b)	1,467.0
Abut 1 R.W.	24" CIDH	280	0	1,471 (a) 1,484.25 to 1,495.25 (b)	1,471.0
Bent 2L	96" CIDH	8,000	0	1,399.0 (a)	1,394.0
Bent 2R	96" CIDH	8,000	0	1,417.0 (a)	1,412.0
Bent 3L	96" CIDH	8,000	0	1,399.0 (a)	1,394.0
Bent 3R	96" CIDH	8,000	0	1,396.0 (a)	1,391.0
Abut 4 L	24" CIDH	400	0	1,465.75 (a) 1,463.75 (b)	1,463.0
Abut 4R	24" CIDH	400	0	1,465.25 (a) 1,463.25 (b)	1,463.0
Abut 4 R.W.	24" CIDH	280	0	1,472.25 to 1,477.25 (a) 1,465.25 to 1,470.25 (b)	1,465.0

Note: 1. * Design tip elevations are controlled by (a) compression, (b) lateral load
 2. Piles at Abut 1 should be embedded at least 13 feet into bedrock
 3. Piles at Abut 1 R.W. should be embedded at least 9 feet into bedrock

Group Effect

For drilled shaft concrete pile groups in cohesionless soil, the nominal axial resistance of the pile group shall be taken as the sum of the nominal resistance of all of the piles in the group multiplied by the group efficiency factor as follows:

Center to Center Pile Spacing	Group Efficiency Factor
2.5 D	0.65
3.0 D	0.77
3.5 D	0.88
4.0 D	1.0

Note: D: pile diameter

CONSTRUCTION CONSIDERATIONS

Pile Construction

The following recommendations are presented and should be followed where applicable.

- Drilled shaft excavations should not be left open overnight.
- In the event of caving of soil or water seepage into the pile excavation, casing should be used. Casing may be pulled as the pile excavation is filled with concrete.
- Pile construction sequence is important for pile groups with center-to-center (CTC) spacing equal to or less than three times of pile diameter. Construction of adjacent piles should be performed only after the Portland cement concrete of the previously installed piles properly set and developed adequate strength.

APPENDICES

- Appendix I: Site Map
- Appendix II: Log of Test Borings
- Appendix III: Laboratory Test Results
- Appendix IV: Analysis and Calculations

If you have any questions or comments, please contact Hung Po Yang (916) 227-4534.

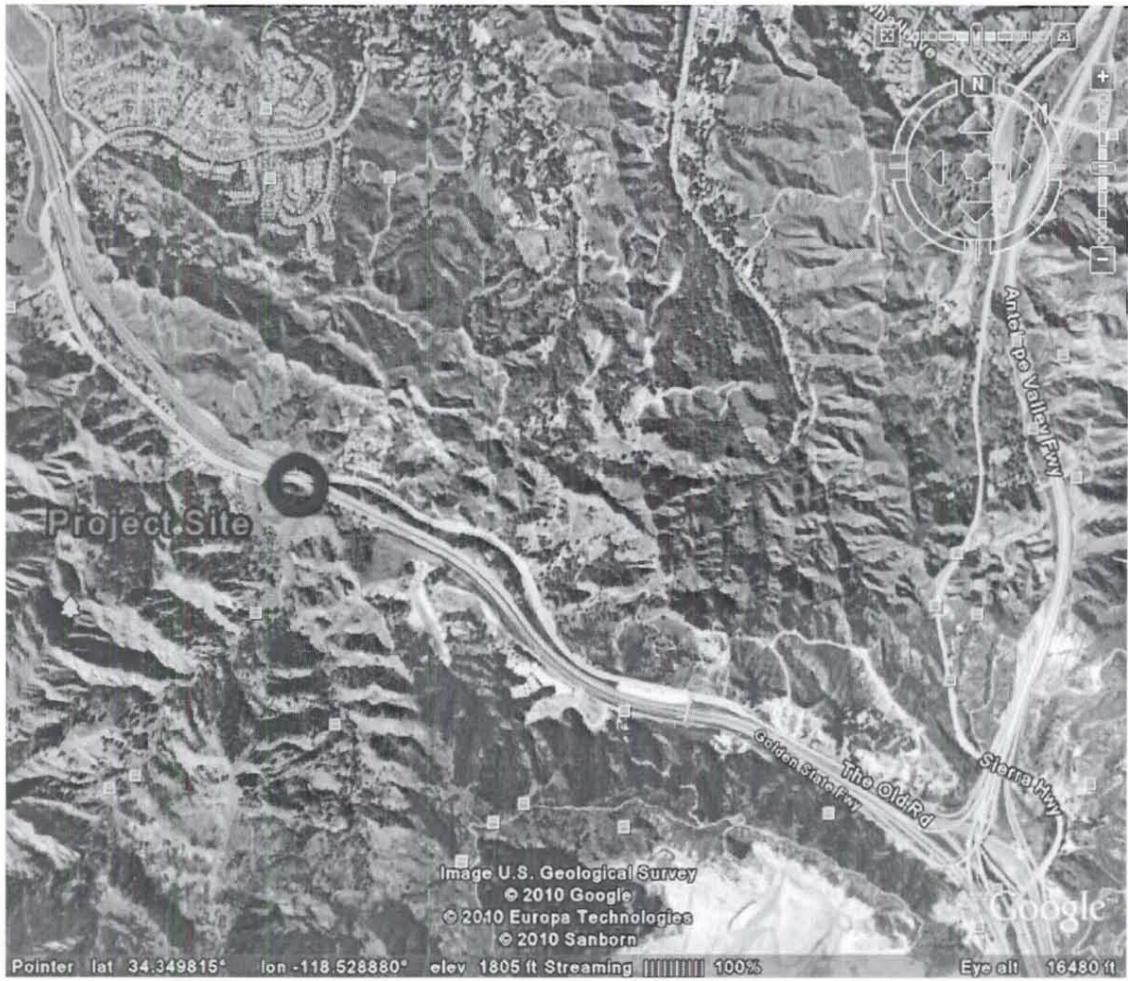


Hung Po Yang, P.E.
Transportation Engineer–Civil
Branch A

Cc: OGDS-1 – (Sacramento)
OGDS-1 (Los Angeles)
Ashraf A. Habbak, PM
Amir Elsharief, PE

Appendix I

Site Map



Site Map

Appendix II

Log Of Test Borings

Appendix III

Laboratory Test Results



**DIVISION OF
ENGINEERING SERVICES
OFFICE OF GEOTECHNICAL SUPPORT
GEOTECHNICAL LABORATORY**

5900 Folsom Boulevard
Sacramento, CA 95819

Date: 4/7/2010

To: Hung Po Yang / GDS-1

From: Lilibeth C. Purta / (916) 227-5239

RE: Laboratory Test Report -- EA: 07-2332A1
GL 10-005

Final test results.

Note: All remaining test specimens will be disposed of in 30 calendar days from the release date of the final test results.

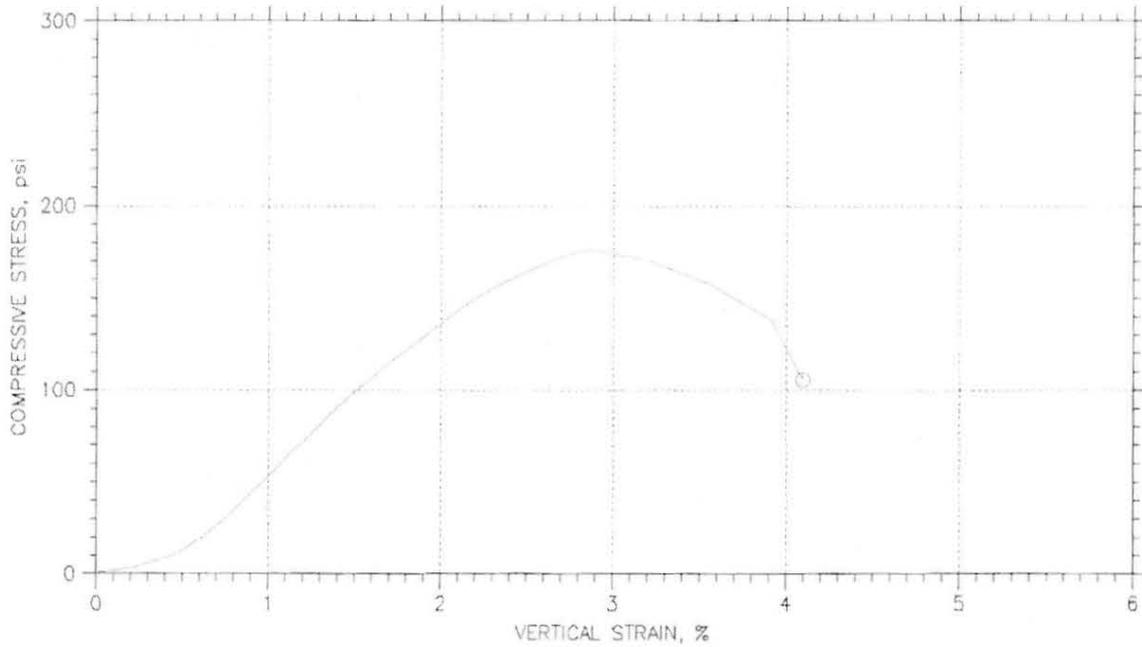




CLASSIFICATION TEST SUMMARY

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	γd (pcf)	%m	
R-09-001_C11																						12.0
R-09-001_C13																						13.2
R-09-001_C18																						11.2
R-09-001_C27																						12.4
R-09-001_C33																						12.2
R-09-001_S02					100	89	76	72	61	54	48	41	34	27	21	7	4	20	4			8.8
R-09-001_S04														100	96	73	18	9	26	5		20.6
R-09-001_S06														100	91	45	7	3				20.8
R-09-001_S07																						11.8
R-09-001_S08															100	95	29	14	40	9		15.4
R-09-001_S10									100	99	99	99	99	98	93	23	9	38	18			16.6
R-09-001_S14											100	99	99	99	93	24	9	47	15			19.6
R-09-001_S19														100	97	78	22	9	34	5		19.4
R-09-002_C04				100	97	90	82	78	69	61	52	41	29	20	15	6	3					13.4
R-09-002_C14																						11.1
R-09-002_C18																						10.9
R-09-002_C21																						11.5
R-09-002_C29																						12.2
R-09-002_S07								100	75	75	75	74	74	74	67	23	11	30	10			18.5
R-09-002_S09									100	99	99	99	99	99	92	34	16	34	15			16.2

UNCONFINED COMPRESSION TEST REPORT



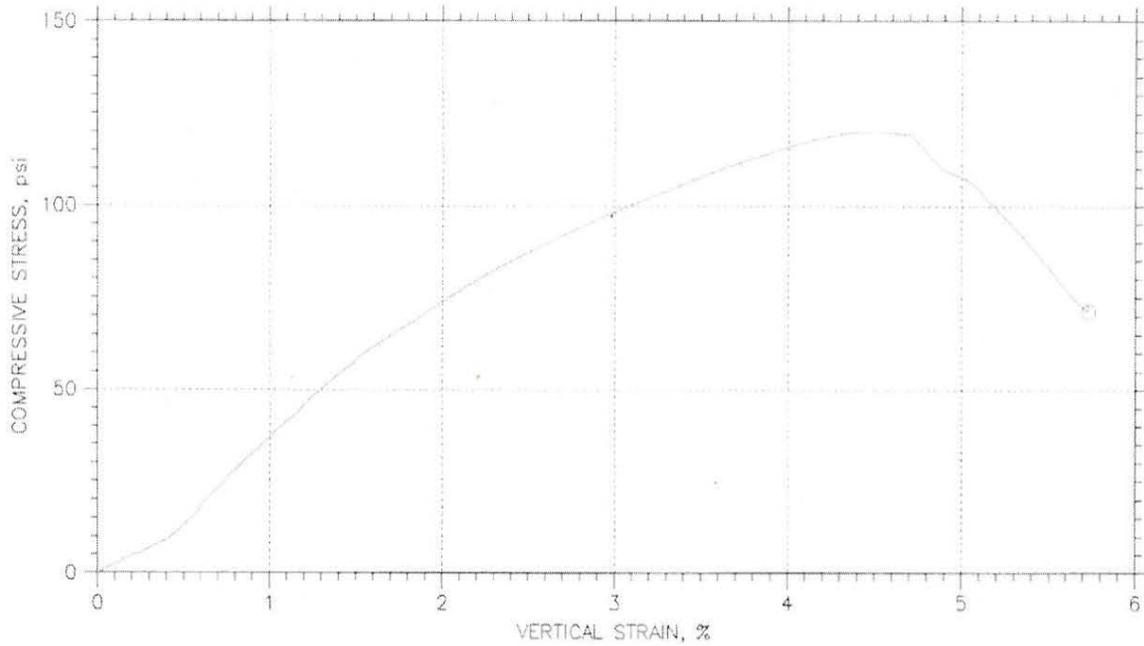
Symbol	⊕	
Test No.	Q10-020	
Initial	Diameter, in	2.37
	Height, in	4.67
	Water Content, %	12.03
	Dry Density, pcf	121.
	Saturation, %	
	Void Ratio	
Unconfined Compressive Strength, psi		176.3
Undrained Shear Strength, psi		
Time to Failure, min		
Strain Rate, %/min		1
Implied Specific Gravity		
Liquid Limit		---
Plastic Limit		---
Plasticity Index		---
Failure Sketch		



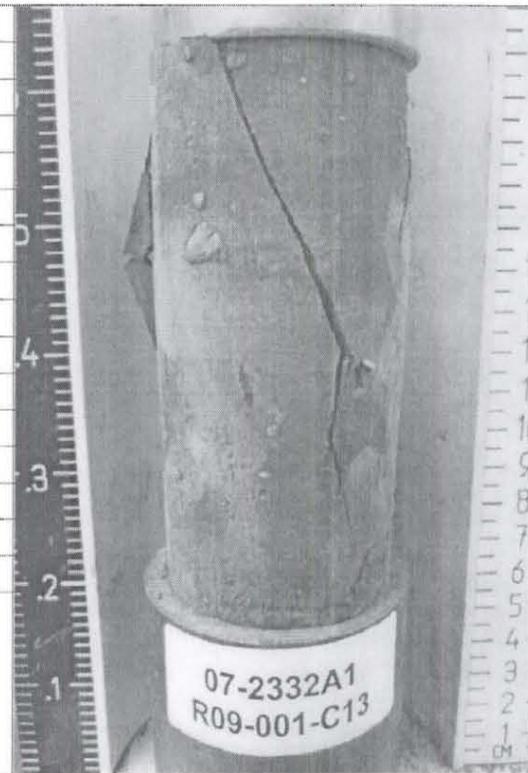
	Project: Gavin Canyon UC Widening
	Location: 07-LA-5-47.83
	Project No.: 07-2332A1
	Boring No.: R-09-001
	Sample No.: C11
	Description: MOIST DARK BROWN SILTY CLAY
	Remarks: ASTM D 2166, Bdg # 53-2790

hp 5/9

UNCONFINED COMPRESSION TEST REPORT

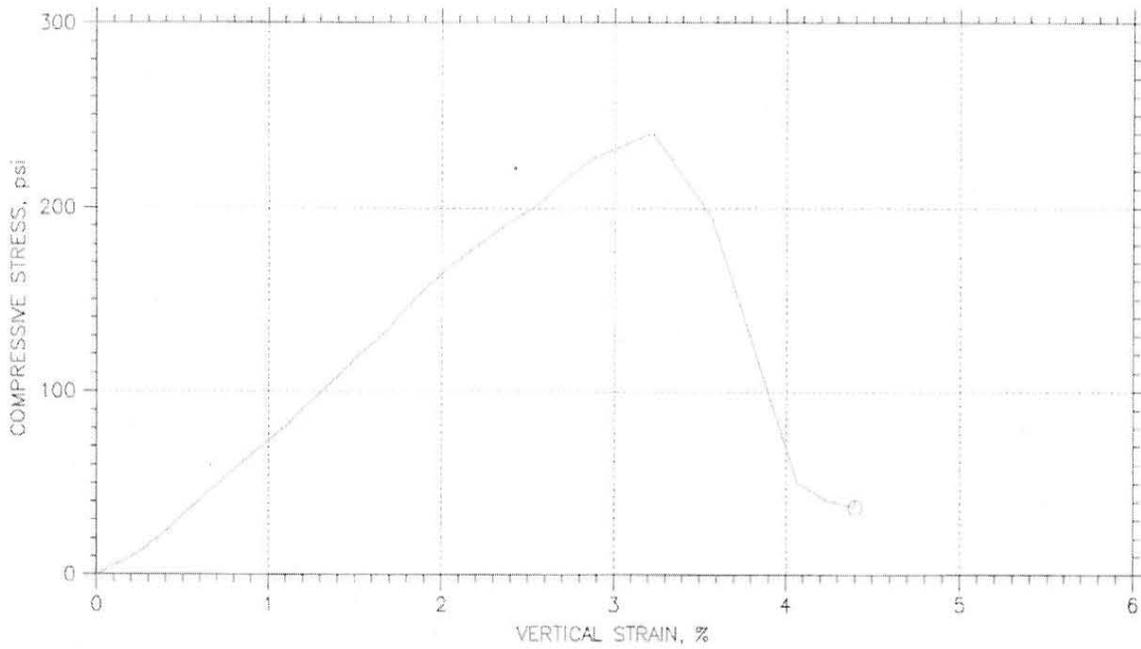


Symbol		Ø
Test No.		Q10-021
Initial	Diameter, in	2.35
	Height, in	4.83
	Water Content, %	13.21
	Dry Density, pcf	119.2
	Saturation, %	
	Void Ratio	
Unconfined Compressive Strength, psi		120.2
Undrained Shear Strength, psi		
Time to Failure, min		
Strain Rate, %/min		1
Implied Specific Gravity		
Liquid Limit		---
Plastic Limit		---
Plasticity Index		---
Failure Sketch		



	Project: Gavin Canyon UC Widening
	Location: 07-LA-5-47.83
	Project No.: 07-2332A1
	Boring No.: R-09-001
	Sample No.: C13
	Description: MOIST DARK BROWN SILTY CLAY
	Remarks: ASTM D 2166, Bdg# 53-2790

UNCONFINED COMPRESSION TEST REPORT

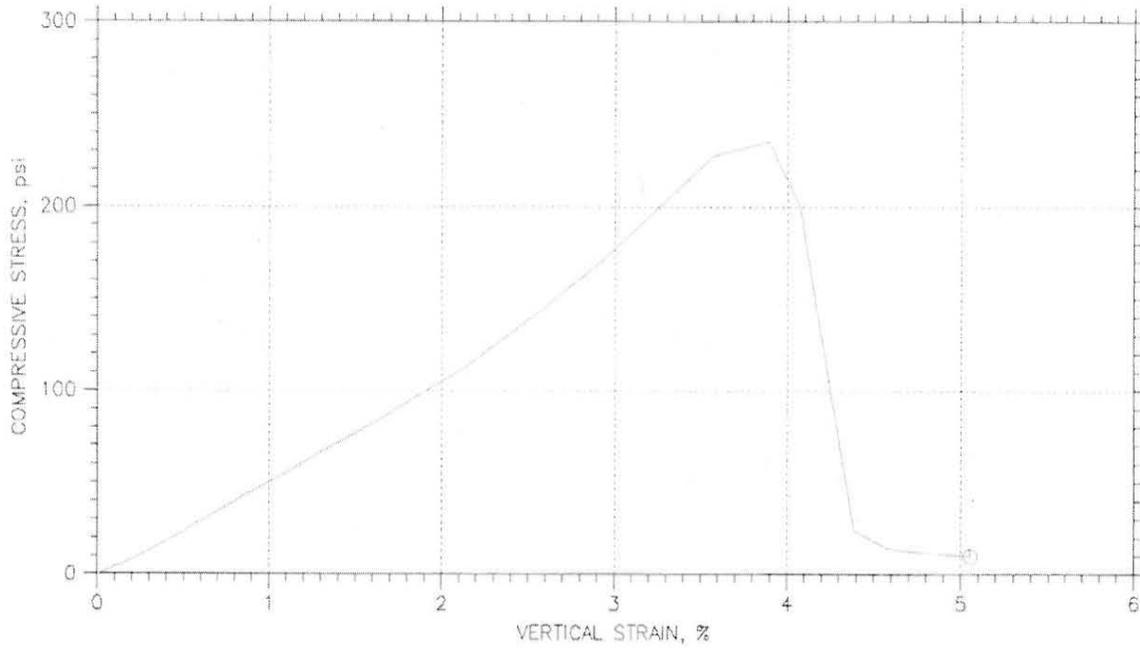


Symbol		⊙
Test No.		Q10-022
Initial	Diameter, in	2.38
	Height, in	5.4
	Water Content, %	11.22
	Dry Density, pcf	125.5
	Saturation, %	
	Void Ratio	
Unconfined Compressive Strength, psi		240.4
Undrained Shear Strength, psi		
Time to Failure, min		
Strain Rate, %/min		1
Implied Specific Gravity		
Liquid Limit		---
Plastic Limit		---
Plasticity Index		---
Failure Sketch		



	Project: Gavin Canyon UC Widening
	Location: 07-LA-5-47.83
	Project No.: 07-2332A1
	Boring No.: R-09-001
	Sample No.: C18
	Description: MOIST DARK BROWN SILTY CLAY
	Remarks: ASTM D 2166. Bdg# 53-2790

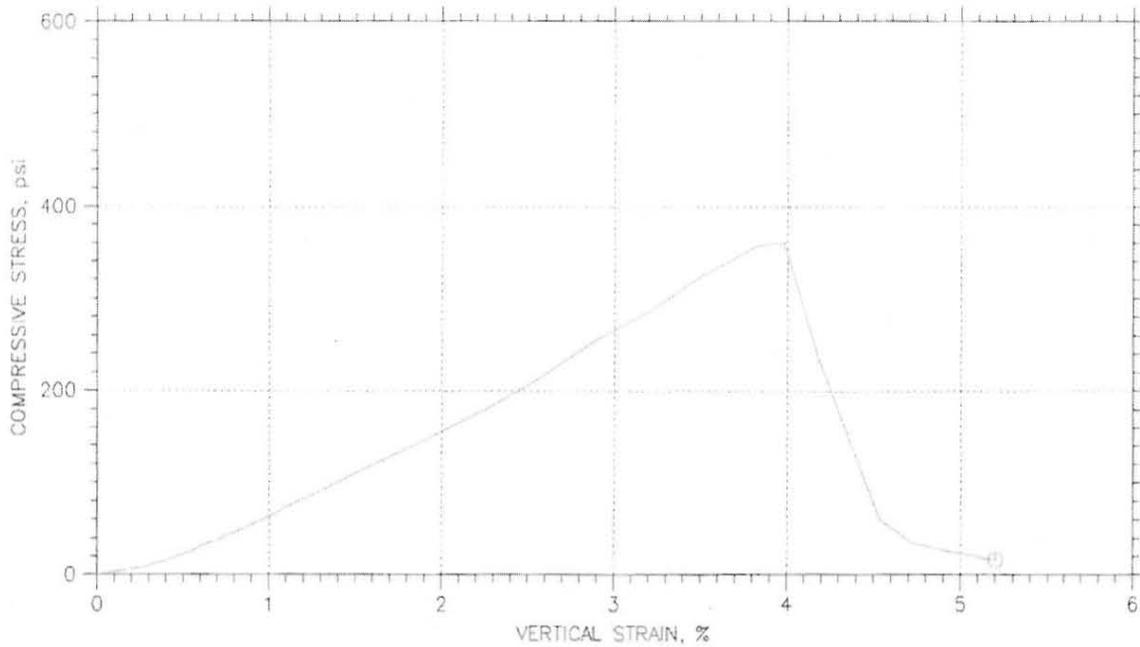
UNCONFINED COMPRESSION TEST REPORT



Symbol	Ø		
Test No.	Q10-023		
Initial	Diameter, in		2.38
	Height, in		5.25
	Water Content, %		12.42
	Dry Density, pcf		124.1
	Saturation, %		
	Void Ratio		
Unconfined Compressive Strength, psi			235.3
Undrained Shear Strength, psi			
Time to Failure, min			
Strain Rate, %/min			1
Implied Specific Gravity			
Liquid Limit			---
Plastic Limit			---
Plasticity Index			---
Failure Sketch			

	Project: Gavin Canyon UC Widening
	Location: 07-LA-5-47.83
	Project No.: 07-2332A1
	Boring No.: R-09-001
	Sample No. : C27
	Description: MOIST DARK BROWN SILTY CLAY
Remarks: ASTM D 2166. Bdg# 53-2790	

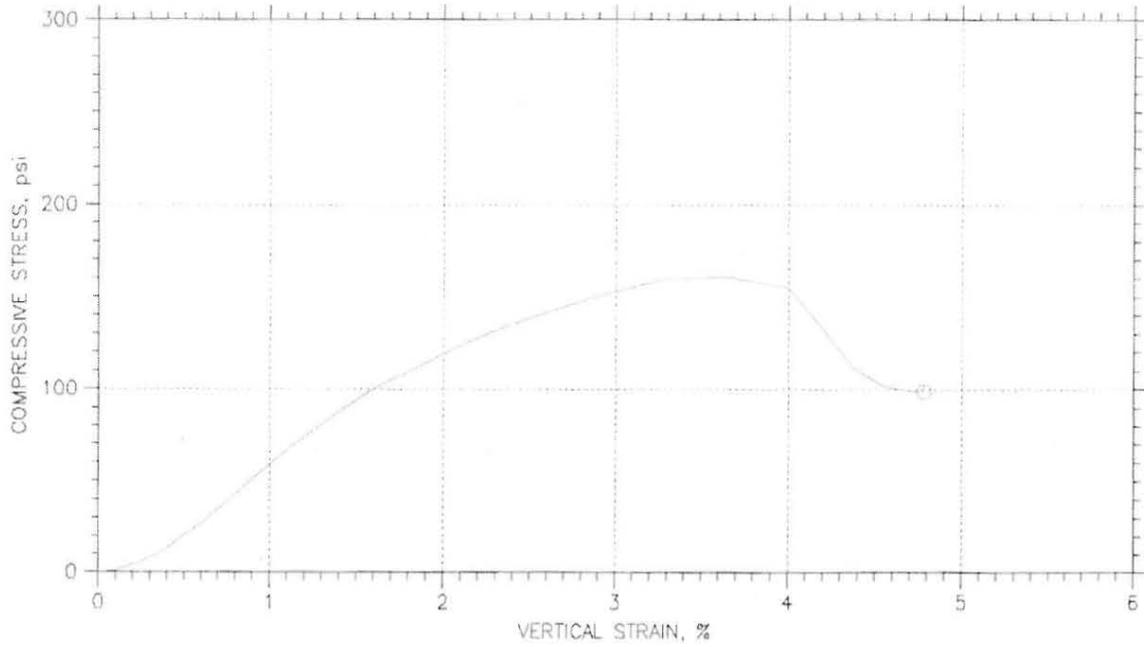
UNCONFINED COMPRESSION TEST REPORT



Symbol	⊙		
Test No.	Q10-024		
Initial	Diameter, in		2.35
	Height, in		5.51
	Water Content, %		12.22
	Dry Density, pcf		125.8
	Saturation, %		
	Void Ratio		
	Unconfined Compressive Strength, psi		360.6
	Undrained Shear Strength, psi		
	Time to Failure, min		
	Strain Rate, %/min		1
	Implied Specific Gravity		
	Liquid Limit		---
	Plastic Limit		---
	Plasticity Index		---
	Failure Sketch		

	Project: Gavin Canyon UC Widening
	Location: 07-LA-5-47.83
	Project No.: 07-2332A1
	Boring No.: R-09-001
	Sample No.: C33
	Description: MOIST DARK BROWN SILTY CLAY
	Remarks: ASTM D 2166, Bdg# 53-2790

UNCONFINED COMPRESSION TEST REPORT

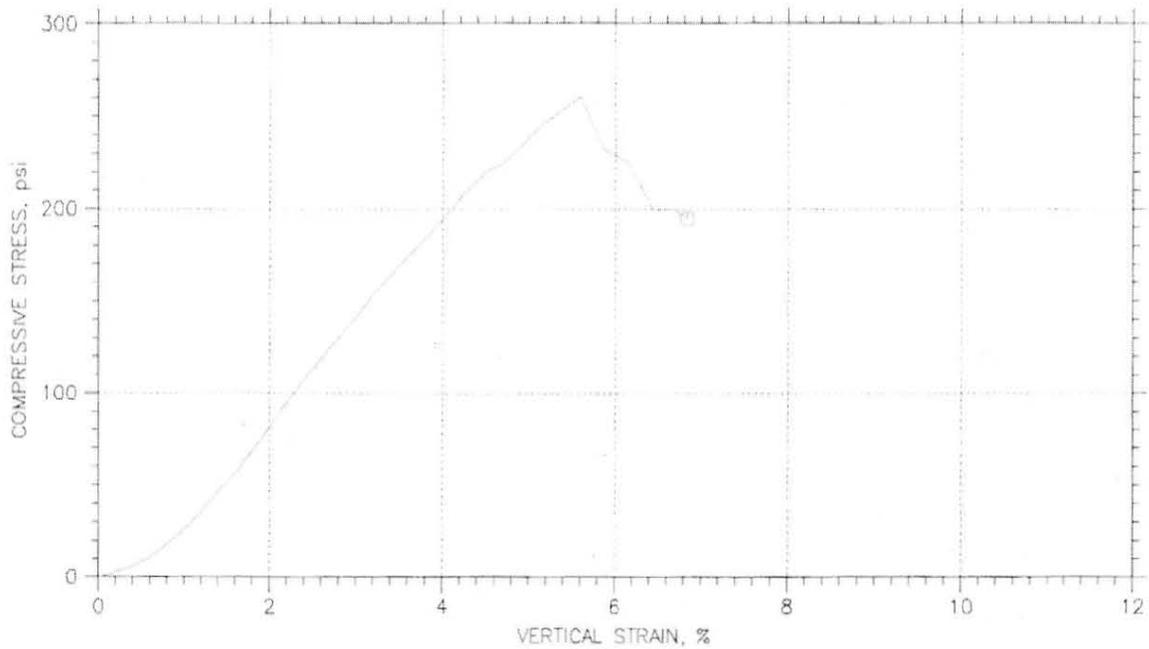


Symbol		⊙
Test No.		Q10-025
Initial	Diameter, in	2.43
	Height, in	5.84
	Water Content, %	11.84
	Dry Density, pcf	123.5
	Saturation, %	
	Void Ratio	
Unconfined Compressive Strength, psi		160.7
Undrained Shear Strength, psi		
Time to Failure, min		
Strain Rate, %/min		1
Implied Specific Gravity		
Liquid Limit		---
Plastic Limit		---
Plasticity Index		---
Failure Sketch		



	Project: Gavin Canyon UC Widening
	Location: 07-LA-5-47.83
	Project No.: 07-2332A1
	Boring No.: R-09-001
	Sample No.: S07
	Description: MOIST DARK BROWN SILTY CLAY
	Remarks: ASTM D 2166. Bdg# 53-2790

UNCONFINED COMPRESSION TEST REPORT

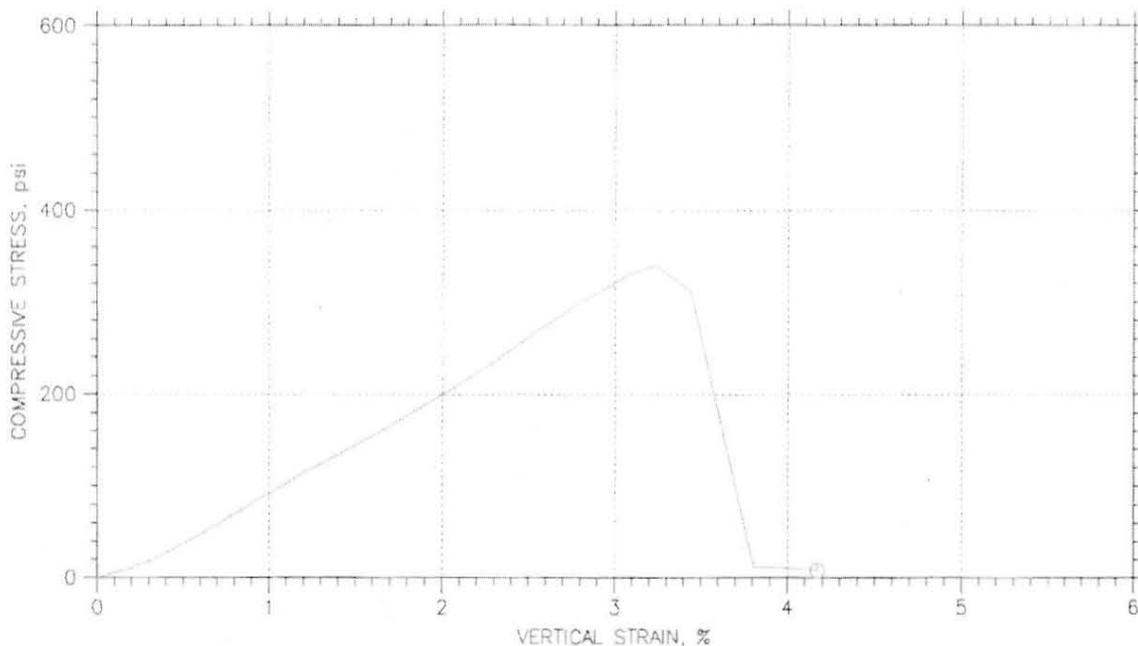


Symbol		Ø
Test No.		Q10-026
Initial	Diameter, in	2.41
	Height, in	3.36
	Water Content, %	11.05
	Dry Density, pcf	127.1
	Saturation, %	---
Void Ratio		---
Unconfined Compressive Strength, psi		260.4
Undrained Shear Strength, psi		---
Time to Failure, min		---
Strain Rate, %/min		1
Implied Specific Gravity		---
Liquid Limit		---
Plastic Limit		---
Plasticity Index		---
Failure Sketch		



	Project: Gavin Canyon UC Widening
	Location: 07-LA-5-47.83
	Project No.: 07-2332A1
	Boring No.: R-09-002
	Sample No.: C14
	Description: MOIST DARK BROWN SILTY CLAY
Remarks: ASTM D 2166. Bdg# 53-2790	<i>W/D < 2.0</i> <i>mp 9/9</i>

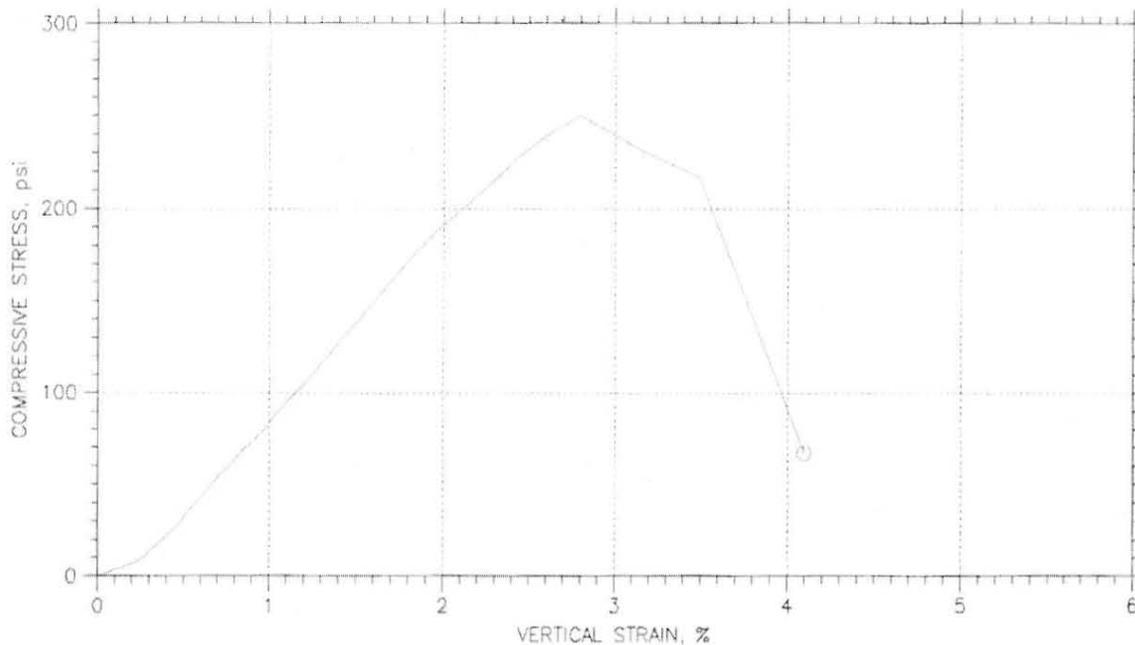
UNCONFINED COMPRESSION TEST REPORT



Symbol		⊕	
Test No.		Q10-027	
Initial	Diameter, in	2.4	
	Height, in	5.71	
	Water Content, %	10.90	
	Dry Density, pcf	126.2	
	Saturation, %		
Void Ratio			
Unconfined Compressive Strength, psi		339.6	
Undrained Shear Strength, psi			
Time to Failure, min			
Strain Rate, %/min		1	
Implied Specific Gravity			
Liquid Limit		---	
Plastic Limit		---	
Plasticity Index		---	
Failure Sketch			

	Project: Gavin Canyon UC Widening
	Location: 07-LA-5-47.83
	Project No.: 07-2332A1
	Boring No.: R-09-002
	Sample No.: C18
	Description: MOIST DARK BROWN SILTY CLAY
	Remarks: ASTM D 2166. Bdg # 53-2790

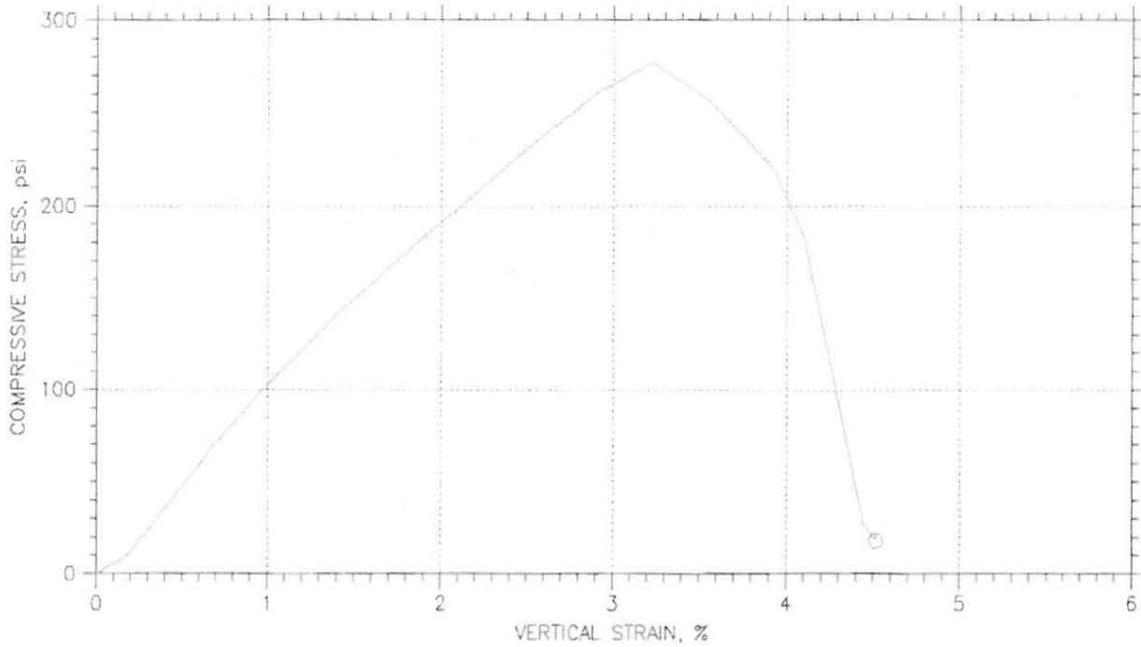
UNCONFINED COMPRESSION TEST REPORT



Symbol	⊙		
Test No.	Q10-028		
Initial	Diameter, in		2.4
	Height, in		5.06
	Water Content, %		11.54
	Dry Density, pcf		123.3
	Saturation, %		
	Void Ratio		
Unconfined Compressive Strength, psi			249.9
Undrained Shear Strength, psi			
Time to Failure, min			
Strain Rate, %/min			1
Implied Specific Gravity			
Liquid Limit			---
Plastic Limit			---
Plasticity Index		---	
Failure Sketch			

	Project: Gavin Canyon UC Widening
	Location: 07-LA-5-47.83
	Project No.: 07-2332A1
	Boring No.: R-09-002
	Sample No.: C21
	Description: MOIST DARK BROWN SILTY CLAY
	Remarks: ASTM D 2166. Bdg# 53-2790

UNCONFINED COMPRESSION TEST REPORT



Symbol	⊙		
Test No.	Q10-029		
Initial	Diameter, in		2.38
	Height, in		5.95
	Water Content, %		12.18
	Dry Density, pcf		124.6
	Saturation, %		
	Void Ratio		
	Unconfined Compressive Strength, psi		277
	Undrained Shear Strength, psi		
	Time to Failure, min		
	Strain Rate, %/min		1
	Implied Specific Gravity		
	Liquid Limit		---
	Plastic Limit		---
	Plasticity Index		---
	Failure Sketch		

	Project: Gavin Canyon UC Widening
	Location: Q7-LA-5-47.83
	Project No.: 07-2332A1
	Boring No.: R-09-002
	Sample No.: C29
	Description: MOIST DARK BROWN SILTY CLAY
	Remarks: ASTM D 2166. Bdg# 53-2790



<Rudy_C_Lopez@dot.ca.gov
>
02/11/2010 07:22 AM

To <hung_po_yang@dot.ca.gov>
cc
bcc

Subject Corrosion Test Summary Report - Soil, EA: 07-2332A1
(Corr. #s CR100176-CR100181)

Division of Engineering Services
Materials Engineering and Testing Services
Corrosion Technology Branch
Report Date: 2/11/2010
Reported By: Lopez, Rudy

CORROSION TEST SUMMARY REPORT - Soil/Water

Bridge Name: GAVIN CANYON UC
Bridge Number: 53-2790
EA No.: 07-2332A1
Dist/Co/Rte/PM or KP: 07 / LA / 5 / 47.83

SIC Number (TL101)	Sample Location	Sample Type	Sample Depth	Minimum Resistivity ¹ (ohm-cm)	pH ²	Chloride Content ³ (ppm)	Sulfate Content ⁴ (ppm)
C702301	ABUTMEN T 1	SOIL	35-70 FT/R-09-00 1	360	7.68	11	2189
C702302	ABUTMEN T 1	SOIL	80-100 FT/R-09-00 1	361	8.06	5	2083
C702303	ABUTMEN T 2	SOIL	14.5-16.0 FT/R-09-00 2	2674	8.06		
C702304	ABUTMEN T 2	SOIL	34.5-60.0 FT/R-09-00 2	333	8.14	10	2364
C702305	ABUTMEN T 2	SOIL	29.5-30.5 FT/R-09-00 2	502	8.07	6	1553
C702306	ABUTMEN T 2	SOIL	69.5-89.9 FT/R-09-00 2	382	8.12	8	2449

This site is corrosive (see note below for MSE wall backfill).

Controlling corrosion parameters are as follows:

- 7.68 pH
- 11 ppm Chloride
- 2449 ppm Sulfate

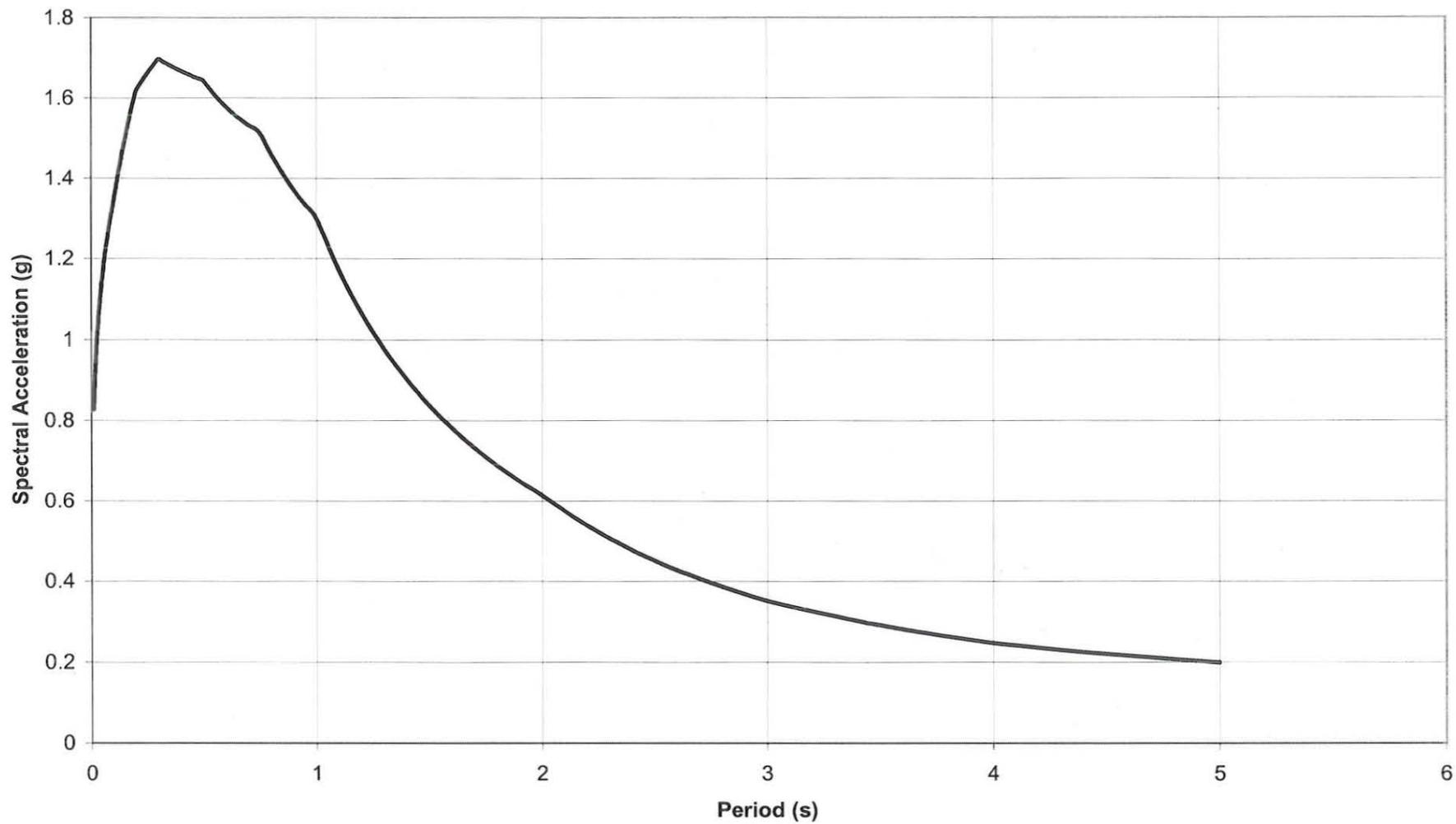
Note: For MSE wall structure backfill material, minimum resistivity must be 2000 ohm-cm or greater, pH must be between 5.5 and 10.0, chloride content must not be greater than 250 ppm, and sulfate content must not be greater than 500 ppm.

^{1,2}CTM 643, ³CTM 422, ⁴CTM 417

Appendix IV

Analysis and Calculations

ARS Curve for Gavin Canyon UC Bridge No. 53-2790R/L



BENT

DESIGN DATA.

96" ϕ

PILE CUT-OFF

BENT 2		BENT 3	
LT	RT	LT	RT
1460	1478	1460	1457

TOTAL LOAD PER SUPPORT	SERVICE - I LIMIT STATE (KIPS)		STRENGTH (KIPS) EXTREME (KIPS)	
	LOAD MAX./PILE	PERMAN. LOAD PER SUPPORT	COMP. PER SUPPORT MAX./PILE	COMP. PER SUPPORT MAX./PILE
4000	4000	3350	5600	6500 3350

MIN. REQD AXIAL RESISTANCE (ASSUME SHAFT RESISTANCE ONLY)

STRENGTH STATE

EXTREME

$$5600 / 0.7 = 8000 \text{ kips}$$

$$\begin{matrix} 3350 \\ \swarrow \\ 2500 \end{matrix} \text{ kips}$$

USE 8000 kips (ULTIMATE) FOR NOMINAL RESISTANCE DESIGN.

$$\therefore L = 66' \quad \text{i.e. ELEV. } 1457 - 68 = 1389'$$

SETTLEMENT CHK.

SHORT TERM

FIG. 10.8.2.2.2-1, SIDE LOAD TRANSFER/ULTIMATE SIDE LOAD TRANSFER (ASHTO LRFD) = 1.

$$\begin{aligned} \text{SETTLEMENT} &= 0.4\% \times \text{DIA. OF SHAFT} \\ &= 0.4\% \times 96" = 0.4" \end{aligned}$$

AXIAL COMP. OF SHAFT

$$\begin{aligned} &= PL/EA = 3350 \text{ kips} \times 66' / (3,500,000 \text{ psi} \times \pi \times 96^2 / 4) \\ &= 3350 \times 1000 \times 66 \times 12 / (3,500,000 \times 7238.2) \\ &= 0.01" \end{aligned}$$

$$\text{TOTAL SETTLEMENT} = 0.1 + 0.4 = 0.5" < 1" \quad \text{OK!}$$

ABUT 1

24" ϕ CIDH PILE

MIN. ϕ TO ϕ PILE SPACING = 5'

	SERVICE - I LIMIT STATE			PERM. SETTLEMENT
	TOTAL LOAD (Kips) PER SUPPORT	MAX/PILE	PERMAN. LOAD (Kips) PER SUPPORT	
ABUT 1 LT	2800	200	2600	1 INCH
ABUT 1 RT	2000	200	1800	1 INCH

GROUP FACTOR $\eta = 0.65$

ϕ TO $\phi = 2.5 \times D = 2.5 \times 2 = 5'$

ABUT 4

24" ϕ CIDH, ϕ TO ϕ SPACING = 5' (MIN.)

	SERVICE - I LIMIT STATE (Kips)			PERM. SETTLEMENT
	TOTAL LOAD PER SUPPORT	MAX/PILE	PERMAN. LOAD PER SUPPORT	
ABUT 4 LT	2100	200	1900	1 INCH
ABUT 4 RT	2700	200	2500	1 INCH

GROUP FACTOR $\eta = 0.65$

CONSIDER SHAFT RESISTANCE ONLY.

F.S. = 2.

MIN. REQ'D NOMINAL RESISTANCE

ABUT 1 LT

$$P = \frac{2800}{16} \times \frac{\text{support}}{0.65} = 269 \text{ KIPS}$$

MAX/PILE
200

USE 200 KIPS FOR DESIGN

REQ'D ULTIMATE NOMINAL RESISTANCE = $200 \times 2 = 400 \text{ KIPS}$

ABUT 1 RT

$$P = \frac{2000}{13} \times \frac{1}{0.65} = 237 \text{ KIPS}$$

MAX/PILE
200

FOR ABUT 1 LT AND RT, USE 400 KIPS (ULTIMATE) FOR DESIGN.

PILE LENGTH = 54' ← Ans.

SETTLEMENT

SHORT TERM

FROM FIG. 10.8.2.2-3 (ASHTO LRFD) FOR SOFTENING RESPONSE

$$\text{SETTLEMENT} = 0.8\% \times 24" = 0.19"$$

LONG TERM

$$\rho = \frac{q \sqrt{I B}}{N_{160}} \quad q = \frac{2600}{24' \times 18'} = 6 \text{ Ksf}$$

$$I = 1 - 0.125 \times \frac{2}{3} \times \frac{54}{18} = 0.75, \quad N_{160} = 47$$

$$\rho = \frac{6 \times 0.75 \times \sqrt{18}}{47} = 0.4" \quad \text{SHAFT} = \frac{1300}{16} \times \frac{50'}{(3500000 \text{ Psf}) \times \left(\frac{\pi \times 24^2}{4} \right)} = 0.03"$$

TOTAL SETTLEMENT = $0.2 + 0.4 + 0.1 = 0.7" < 1" \text{ OK!}$

ABUT 4 LT

$$P = 2100 / 13 / 0.65 = 249 \text{ KIPS} \quad \text{MAX/PILE} = 200 \text{ KIPS}$$

ABUT 4 RT

$$P = 2700 / 16 / 0.65 = 260 \text{ KIPS} \quad \text{MAX/PILE} = 200 \text{ KIPS}$$

USE 400 KIPS (ULTIMATE) FOR DESIGN.

PILE LENGTH = 30' (COMPRESSION) ← Ans.

SETTLEMENT

LOAD CONDITION IS SMALLER THAN ABUT 1, $N_{160} = 80$ @ PILE TIPS.

∴ TOTAL SETTLEMENT < 1" OK!

RETAINING WALL 1, 4

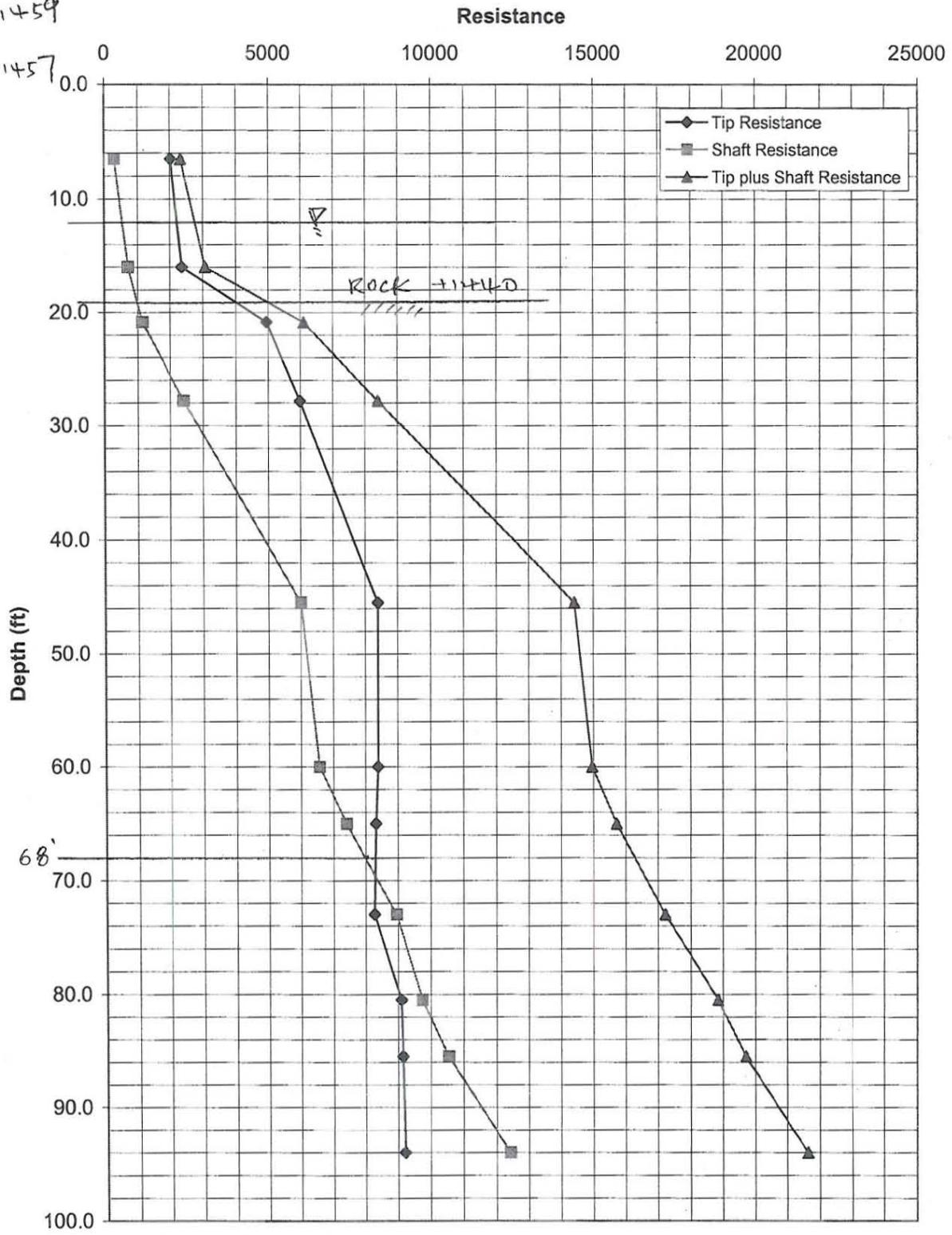
LOADS ARE SMALLER THAN ABUTMENTS 1, 4

∅ TO ∅ SPACING IS THE SAME. SO, USE SAME DESIGN AS

ABUTMENTS 1, 4.

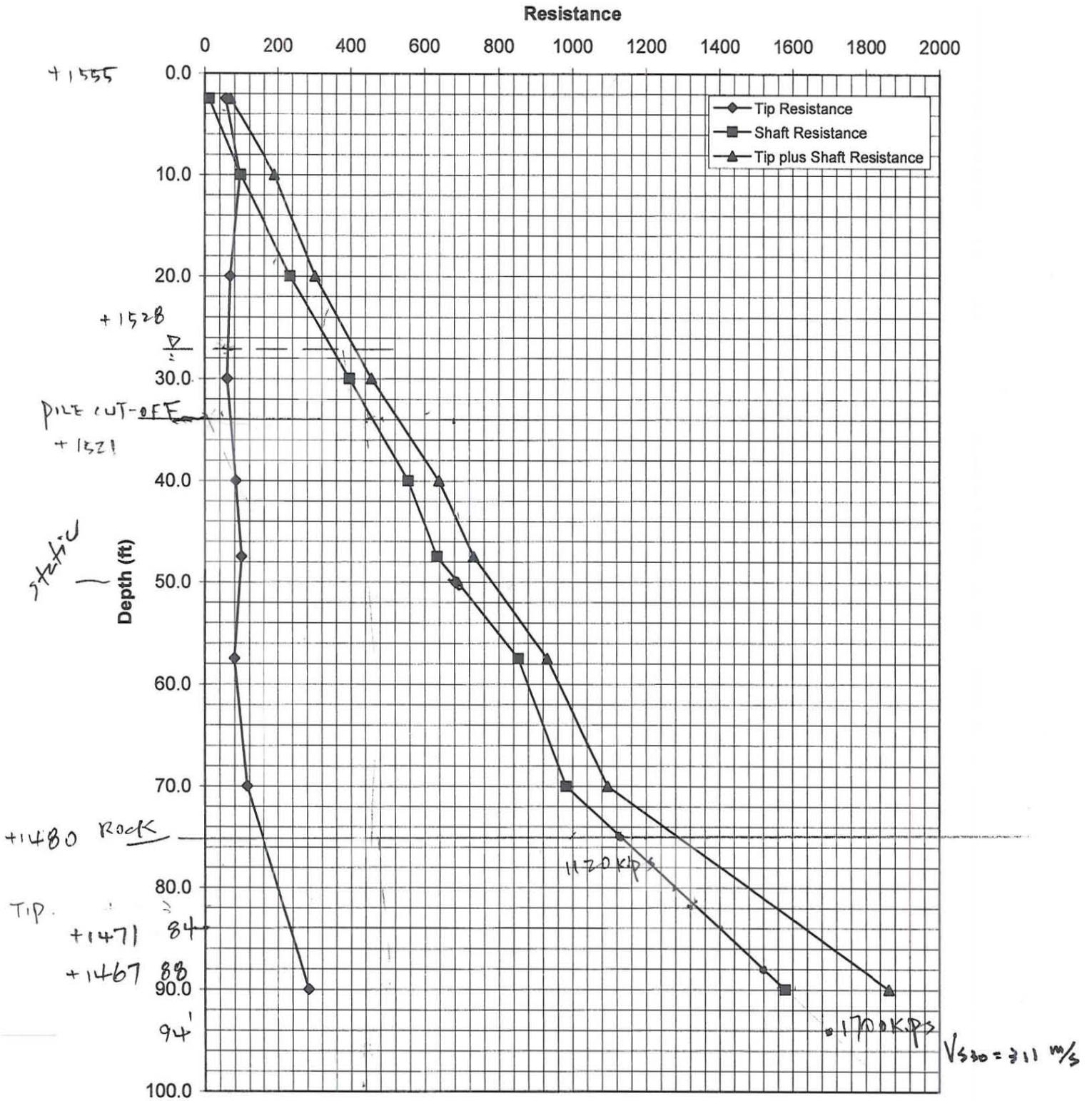
Ultimate 96" CIDH Pile Tip and Shaft Resistance

GRADE +1459
CUT-OFF +1457



$P_{net} = 8000 \text{ kips}$
RQ'D PILE LENGTH = $68' - 2' = 66'$

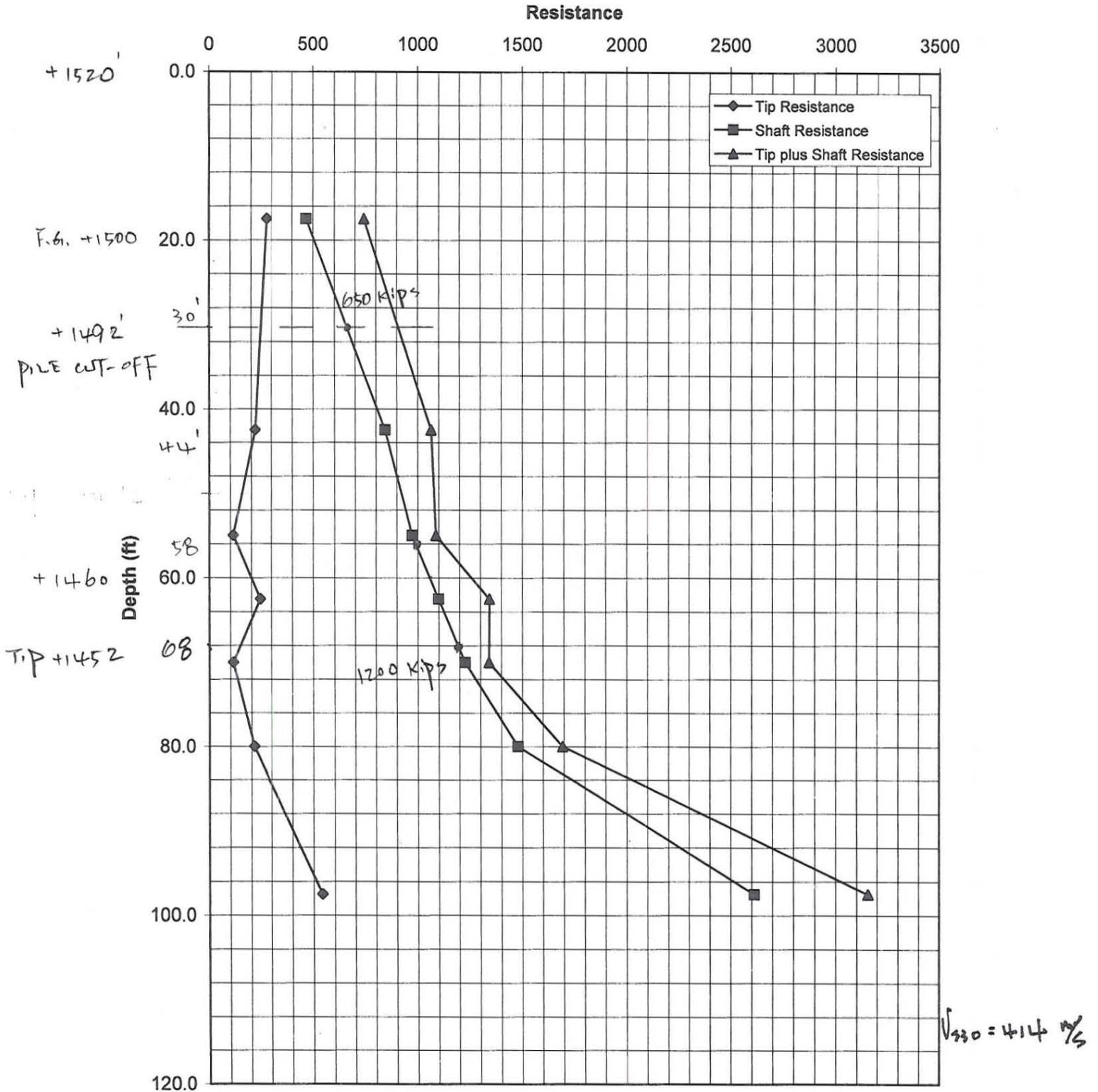
Ultimate 24" CIDH Pile Tip and Shaft Resistance (ABUT 1)



$P_{net} = 400 \text{ kips}$, $L = 88' - 34' = 54'$ i.e. +1467 ABUT 1

$P_{net} = 280 \text{ kips}$, $L = 84' - 34' = 50'$ i.e. +1471 R.W. 1.

Ultimate 24" CIDH Pile Tip and Shaft Resistance (Abut 4)



$P_{ult} = 400 + 650 = 1050 \text{ Kips}$

ABUT 4

$L = 60 - 30 = 30'$

$P_{ult} = 280 + 600 = 880 \text{ Kips}$

R.W.

$L = 48 - 25 = 23'$

DEPARTMENT OF INDUSTRIAL RELATIONS

**DIVISION OF OCCUPATIONAL SAFETY
AND HEALTH ADMINISTRATION**

MINING AND TUNNELING UNIT

6150 VAN NUYS BOULEVARD, SUITE 310

VAN NUYS, CA 91401-3333

(818) 901-5420 FAX (818) 901-5579



November 19, 2010

California Department of Transportation
100 S. Main Street, M.S. 12
Office of Design D
Los Angeles, CA 90012

Attention: Celina Aviles
Senior Transportation Engineer

Subject: Underground Classification Number: C043-037-11T
EA 2332A1 - Gavin Canyon UC – Bridge No: 53-2790L/R

Dear Ms. Aviles:

The information provided to this office regarding the above project has been reviewed. On the basis of this analysis, an Underground Classification of "Potentially Gassy" has been assigned to the CIDH shaft excavations identified in your submittal. Please provide a true and accurate copy of the Classification to the Boring/Excavation/Construction Contractor and insure that a copy of the Classification is posted at the job site.

Kindly insure that the Sub-Contractor notify this office to schedule the mandated Pre-job Safety Conference with the Division prior to commencing any activity associated with the project.

Also, be advised that, whenever an employee enters any bore or shaft being constructed under 30-inches in diameter, the Mining and Tunneling Unit then has immediate jurisdiction over that job. Please contact us prior to entering such spaces.

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

Sincerely,

A handwritten signature in black ink, appearing to read "James Wittry".

James Wittry
District Manager

c: File



State of California

Department of Industrial Relations

DIVISION OF OCCUPATIONAL SAFETY AND HEALTH
MINING AND TUNNELING UNIT

C043-037-11T

Van Nuys Office R5D2

Underground Classification

Gavin Canyon UC (Widening)
California Department of Transportation
(NAME OF TUNNEL OR MINE AND COMPANY NAME)

of California Department of Transportation
100 S. Main Street., MS-12, Los Angeles CA 90012
(MAILING ADDRESS)

at Interstate 5 at Gavin Canyon (between SR 14 and Calgrove at Post Mile R47.8)
Valencia, Los Angeles County, California
(LOCATION)

has been classified as *** POTENTIALLY GASSY ***
(CLASSIFICATION)

as required by the California Labor Code Section 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.

BENT 2 RT: CIDH pile excavation at Gavin Canyon at the Old Road and I-5, Valencia, Los Angeles County

BENT 3 RT: CIDH pile excavation at Gavin Canyon at the Old Road and I-5, Valencia, Los Angeles County

November 18, 2010

Reference: 1) Underground Classification Request & Submittal from Caltrans dated 11/10/10
2) Log of Test Borings prepared by Caltrans (Joseph Pratt) dated 10/26/10