INFORMATION HANDOUT

For Contract No. 04-1SS044
At I-580 Eastbound

Identified by
Project ID 0400020870

MATERIALS INFORMATION

1. Foundation Report - Revised: 164th Avenue Solider Pile Wall, July 23, 2013
2. Preliminary Site Investigation Report, Eastbound I-580 Shoulder Repair, San Leandro, California
3. Underground Classification and Request for Pre-Job (Tunnel) Form

State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MR. GORDON DANKE
District Branch Chief, Branch 9
Office of Bridge Design-West
Structure Design
Division of Engineering Services, MS9-4/4I

Date: July 23, 2013

Attention: Isaias Yalan

File: 04-ALA-580, PM 31.8
04-1SS040
164th Ave. Soldier Pile Wall

From: BETTY LEE, P.E. BL.
Associate Materials and Research Engineer
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

MAHMOOD MOMENZADEH, P.E.
Chief, Branch C
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

Subject: Final Foundation Design Report--Revised

Per your request, we are submitting the Revised Final Foundation Design Report for the above project. This report supersedes the report dated May 24, 2013. The recommendations contained in the current report are based on our investigation and data collected so far. Ground movement data continue to be collected until construction begins.

Environmental soil exploration is the responsibility of the Environmental Engineering Branch, and is not within the scope of this report.

1. Project Description

This Geotechnical Design Report covers the proposed remediation of the shoulder failure that occurred along the eastbound shoulder of Route 580, PM 31.8, near and to the east of the 164th Street Off-ramp, in the city of San Leandro, Alameda County. (See Figure 1 for Vicinity Map.)

The proposed repair is the construction of a soldier pile wall along the roadway shoulder between approximate Sta. 18+75 to 19+75 (the location of the existing RSP). The remaining distressed shoulder areas will be excavated to a depth of 5 feet, backfilled and recompacted to 95% density. A new shoulder structural section will also be constructed.

The purpose of this report is to document subsurface geotechnical conditions, provide analyses of the anticipated site conditions as they pertain to the proposed work, and to recommend design and construction criteria. This report also establishes a geotechnical baseline to be used in assessing the existing and scope of changed site conditions.

2. Scope of Work

To accomplish the above purpose, we have performed the following:

- Review of in-house and published data pertaining to the project site. This includes review of as-built plans and reports, and review of published geologic literature.

- Site reconnaissance to visually observe and document the existing site conditions.

- Subsurface investigation consisting of five rotary wash borings, installation of two inclinometers and one piezometer to determine the subsurface and groundwater conditions at the site. Laboratory testing of selected soil samples for engineering classification of the soils and to determine in-situ moisture content, density, Atterberg limits, and corrosivity characteristics of the prevailing soils encountered. Pocket penetrometer was used to determine the unconfined compressive strength of cohesive soil.

- Engineering analyses of findings, preparation of geotechnical recommendations, and preparation of this report.

- This report is intended for use by the project design engineers, construction personnel and contractors.

3. Site Conditions and Existing Facilities

Within the project limits, the existing Highway 580 is an eight-lane freeway with 8-feet wide inside and 10-feet wide outside shoulders. The existing eastbound outside shoulder has extensive longitudinal cracking extending for approximately 1000 feet. Within the limits of the pavement cracking, there is approximately 103 feet where the pavement has settled approximately 3 to 5 inches. The shoulder area has been patched with asphalt concrete (AC) several times since 2010.

The most severely damaged shoulder area is between F Line, Sta. 19+00 to Sta. 19+50, where a shallow slipout was repaired by placement of RSP on the full length of the slope.

The current slope is 2H:1V. A visual inspection of the slope face shows no signs of distress (except the RSP area). The vegetation and trees are upright and undisturbed.

From September 24, 1968 to November 25, 1968, eleven horizontal drains were installed into the slope between F Line, Sta. 19+00 and Sta. 24+00. On our site visit of February 28, 2012, significant amount of water was flowing through these drains.

4. Physical Setting

4.1 Climate

Climate is moderate in the project area. Rain falls mainly in winter with little or no rain in summer. The mean annual temperature ranges from 10.7 °C (51.3 F) to 18.2 °C (64.7 F) (www.wrcc@dri.edu). Most precipitation falls between October and April. Localized showers are infrequent. Storms are moderate in duration and intensity, but, at times, precipitation is heavy enough to cause flooding. Snow and hail are rare. The strongest winds are usually associated with winter storms.

4.2 Topography and Drainage

The project area is located between the bay plain to the east and adjacent to the narrow northwest trending band of low hills to the west. Much of the natural topography within the project area has been greatly altered by excavation, grading, and re-sloping operations of prior freeway and commercial development (Material file, June 4, 1984)[1].

The relief is low, rising eastward from an elevation of approximately 90 feet at Liberty Street (where the bottom of the slope is located) to approximately 120 feet on Route 580 at the project site.

4.3 Utilities

No overhead utility lines are situated over the project site; however, utility lines are present underground.

Furthermore, eleven horizontal drains (in the transverse and diagonal directions to the highway) are present within the embankment between approximately F Line, Sta. 19+00 to 24+00. (Figures 2a & 2b, As-builts)

4.4 Regional Geology and Seismicity

The project area is located in the California Coast Ranges geomorphic province, in which the Tertiary strata rest with angular unconformity on highly deformed Great Valley complex.

The project is covered by fill material, which is underlain by alluvial terrace deposits (Figure 3, Geologic Map). These alluvial terrace deposits consist of brown, dense, gravely and clayey sand of clayey gravel that fines upward to sandy clay. The maximum thickness is unknown, but is at least 165 feet (Graymer, 2000). The Great Valley complex—as a bed rock, is made up of the Coast Range Ophiolite, which consists mostly of serpentinite, gabbro, diabase, basalt, and keratophyre.

The project site is located just east of the Hayward Fault (see Figure 4, Fault Map.) and within the fault zone. The Hayward Fault is an active fault and the major branch of the San Andreas Fault system. It is a right lateral strike-slip fault. The Hayward Fault is considered the most probable source of a major earthquake (magnitude 7.5) in the San Francisco Bay Region.

4.5 Seismicity

The project area is within the seismically active San Francisco region with numerous faults capable of generating moderate to strong earthquakes. Regional seismic sources that are potentially significant to the project include Hayward Fault, San Andreas Fault, Calaveras Fault, and Concord Fault. These faults have a trend northwesterly direction and are designated as special studies zones by the California Division of Mines & Geology (Alquist-Priolo Special Studies Zones Act, 1973).

According to the 2008 California Seismic Hazard Map (CSHM), which is based on the United States Geological Survey (USGS) maps, the nearest faults are the Hayward Fault (strike-slip) with Maximum Moment Magnitude (M_{max}) of 7.3, which literally passes under the site, and Calaveras Fault (strike-slip) with M_{max} of 6.9, located over 8.7 miles northeast of the site. Fault creep due to the Hayward Fault in this area is approximately 0.36 inches/year.

Based on the site and seismicity, the Peak Bedrock Acceleration is 0.87g; whereas the Peak Ground Acceleration is 0.95g. Based on the LOTBs, an average V_{s30} of 400 meters per second was used for the analysis.

The Acceleration Response Spectrum (ARS) curves based on the Caltrans On-Line Deterministic Seismic Hazard Analysis (DSHA) and Probabilistic Seismic Hazard Analysis (PSHA) using a 975-year return period (5% probability of exceedance in 50 years) were generated for the site, incorporating the latest Attenuation Relationship models. In addition, the PSHA with a 975-year return period using the USGS Interactive Deaggregation procedure was generated, and all five curves were compared. Due to the high seismicity of the site, the PSHA response spectra were both higher than the deterministic spectra. (See Figure 5, Acceleration Response Spectra)

Furthermore, the spectrum generated using the USGS Interactive Deaggregation procedure yielded higher amplitudes, and is recommended as the design ARS curve (see Figure 6).

Note that the preliminary ARS curves have been modified to account for the proximity of the site to faults. The modifications are such that there is no increase in spectral acceleration in periods less than 0.5 seconds and a 20% increase for periods greater than 1 second. A linear interpolation was used between 0.5 and 1 second.

4.6 Liquefaction

Liquefaction is a phenomenon that occurs in loose saturated sand during strong earthquake shaking. The project site consists of mainly clay to a depth of approximately 50 to 70 feet, underlain subsequently by dense to very dense sand. Therefore, liquefaction potential is low.

5. Field Investigation and Laboratory Testing

Soil samples were taken from 5 rotary wash borings drilled to a maximum depth of 80 ft by Fugro West Consultants from July 26, 2012 to August 4, 2012. Borings RW-12-001, RW-12-002, and RW-12-003 were drilled in the distressed shoulder and Borings RW-12-004 and RW-12-005 were drilled in the median. The boring locations will be shown on the Log of Test Borings (LOTB) layout. Soil samples were taken for lab tests for R-value, moisture, density, corrosivity, Atterberg limits and sieve analyses. Standard penetration tests (SPT) were performed at every 5 feet depth. (See LOTBs.)

Slope inclinometers were installed in Borehole RW-12-001 and RW-12-002, within the distressed area. A piezometer was installed in RW-12-003. Groundwater was not measured in the other boreholes due to the rotary boring method.

Laboratory testing and piezometer readings were originally performed by Fugro West Consultants. Slope inclinometer data collections were done by Fugro, while the data interpretations were done by Caltrans District 4 Instrumentation Group. Subsequently, the Caltrans Instrumentation Group determined that these inclinometers were faultily installed. At this report's writing, Caltrans Instrumentation Group plans to install and monitor additional inclinometers for verification.

6. Subsurface Soil Condition

Subsurface soil conditions as shown by the rotary-drilled boreholes drilled to a depth of 80 feet showed fill consisting of heterogeneous material. The top 45 to 70 feet depth is mostly alternating layers of medium stiff to very stiff lean and fat clays (CL/CH) with sand and gravel. Pockets of organics are also present. Below that, to a depth of 80 feet, are clayey sands with gravel (SC), poorly-graded sand with clay (SP-SC), poorly-graded sand with silt (SP-SW), and gravelly lean/fat clay (CL/CH). These range from medium dense to very dense (25<SPT<100).

A piezometer was installed in Borehole RW-12-003. Subsequent readings show groundwater levels to be between 28 feet to 31 feet in depth. This is consistent with as-built records.

7. Scour

Scour is not an issue.

8. Corrosion

Corrosion tests were performed and interpreted by Cerco Laboratory. Lab results were also sent to Caltrans TransLab for interpretation confirmation. The soil is considered non-corrosive. (See Appendix)

9. Geotechnical Analysis and Foundation Recommendation

Slope Inclinometer Data

At the writing of this report, four slope inclinometer readings have been done: on 10/11/2012, 11/26/2012, 12/5/2012, and 1/22/2013. (Baseline reading was on 9/17/2012.) As of 1/22/2013, evidence of any landslide is not yet conclusive. We can only conclude that the problem is pavement distress due to inadequate subsoil compaction and possible fault activity

Based on the Log of Test Borings, slope stability was analyzed (assuming no slide plane) and it shows a static safety factor of 3.8 and a seismic safety factor of 1.2 (using a seismic coefficient of 0.95g).

Slope inclinometers readings are continuing. In order to meet project schedule and to make a conservative recommendation, we recommend the following based on an assumption of a 10 ft depth slide plane.

Foundation Recommendation

At the existing RSP area (approximately F Line, Sta. 18+75 to 19+75), install a soldier pile lagging wall approximately 12 feet in height. The soldier pile wall should be designed using the lateral earth pressure diagram, Figure 5.5.5.6-4 of Section 5 of Bridge Design Specifications (August 2004) and the following soil parameters. (See Figure 7.)

Excavate slope only to the bottom of the wall, create a bench at the wall bottom, and leave the remaining slope (and RSP) below in place.

For the remainder of the distressed pavement areas (approximate F Line Sta. 15+00 to Sta. 25+00), remove 5 feet in depth of the existing shoulder material and replace with structural backfill and new shoulder pavement structural section (design provided by Materials Branch). This backfill should be compacted to 95% compaction.

Place Subgrade Enhancement Fabric (Class B2) at depth 5 feet (bottom of excavation).

Parameters for Soldier Pile Design

Zone A (active zone):

Unit weight (γ)= 130 pcf
Cohesion (c) = 1000 psf
Friction angle (ϕ) = 0 degree
Friction angle between soil and material (δ) = 20 degree

Zone B (active zone):

Unit weight (γ) = 122 pcf
Cohesion (c) = 2000 psf
Friction angle (ϕ) = 0 degree
Friction angle between soil and material (δ) = 20 degree

Zone C (passive zone):

Unit weight (γ) = 130 pcf
Cohesion (c) = 2000 psf
Friction angle (ϕ) = 0 degree
Friction angle between soil and material (δ) = 20 degree

Lateral (seismic) pressure:

Use a triangular stress distribution with 38H psf as maximum.

Pile Embedment Depth:

We recommend a pile embedment depth of no less than 25 ft below the wall base.

Drainage and Slope Erosion Control

If no structural wall facing is used, no backfill drainage is needed since the wood lagging of the soldier pile wall will allow the water drainage from the retained material.

Since this slope has significant groundwater flow, we suggest constructing a wall with no wall facing. As discussed in the type selection meeting, install a gutter at the base of the wall along

the bench and drain it using a downdrain pipe extending to the bottom of the slope. Please consult District 4 Hydraulics for the required drainage collection and outlet system.

If structural facing is used, 25-feet long horizontal drains, sloped at 5%, and spaced at approximately 15 feet, shall be installed near the bottom of the wall. Discharges from these horizontal drains shall be collected at the gutter at the wall base and discharged through a downdrain pipe extending to the bottom of the slope. This collections system should be designed by District 4 Hydraulics Branch.

For a wall with structural facing, geocomposite drains shall be placed behind the wall lagging and drained through weep holes.

The finished side slopes shall be no steeper than 2H:1V and be protected by standard erosion control fiber rolls and mats.

10. Construction Considerations

Excavation of the 5 feet deep existing shoulder should be done in a ¾ H: 1V slope and backfilled and compacted immediately during the same work shift.

Due to heavy traffic volume, only night lane closures are allowed in this section of Highway 580. We recommend working on 200 feet roadway lengths at a time: Excavate, backfill, and compact.

Difficult drilling and pile installation is expected due to the possibility of soil caving and high groundwater conditions. Temporary casing and dewatering may be needed.

Due to potential groundwater in the embankment, temporary dewatering may be required and shall be the responsibility of the contractor.

Temporary excavation shall conform to Cal-Osha requirements.

Log of test borings (LOTBs) will be submitted separately.

****

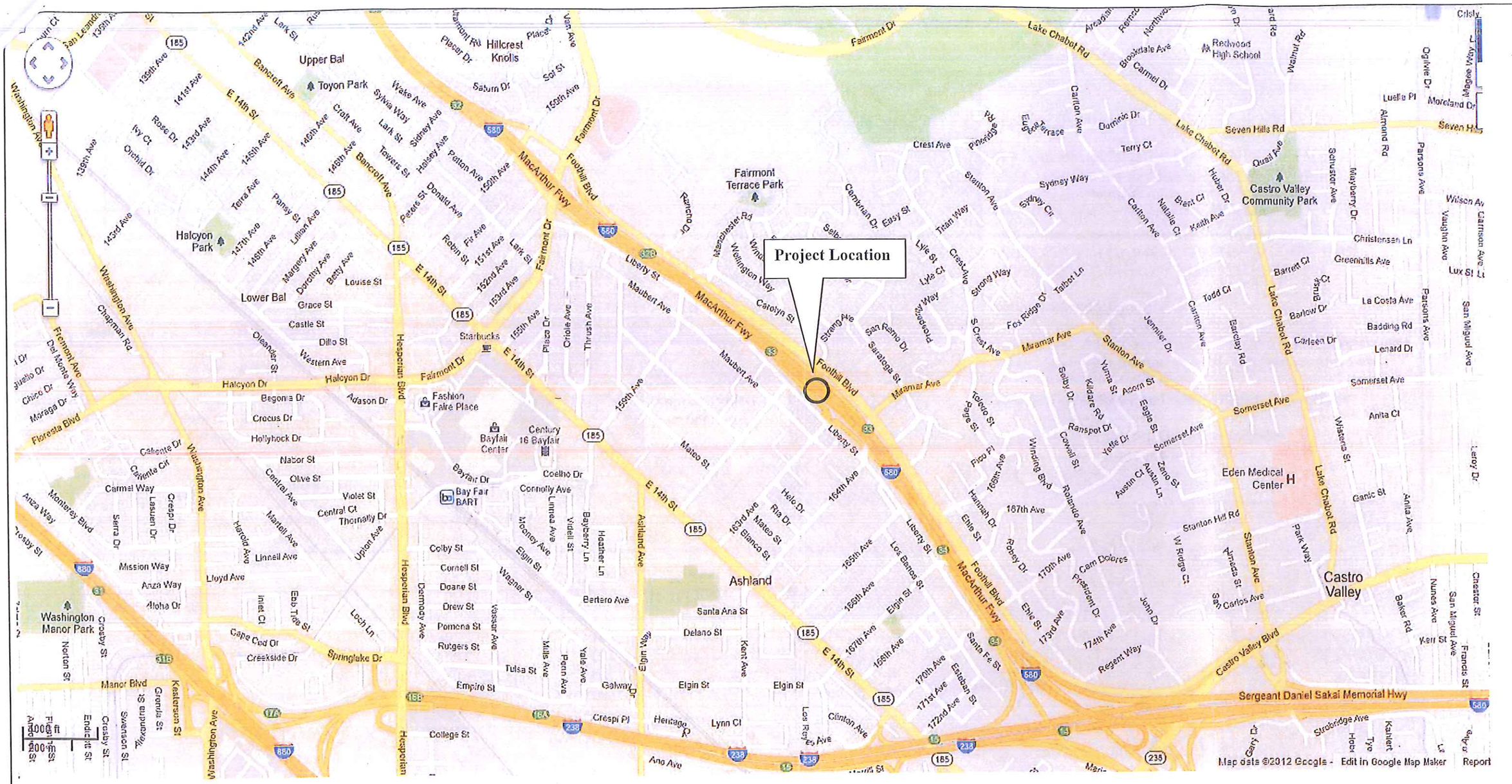
If you have any questions, please call Betty Lee at (510) 286-4825 or Mahmood Momenzadeh at (510) 286-5732.

c: TPokrywka, MMomenzadeh, SRajendra, JHaghparast, BLee, CRisden, RWoo, TransLab, Daily File, Archive

c: To be copied to Structure RE

BLee/mm

Appendix



SCALE Not to Scale	Caltrans	**Engineering Service Center** DIVISION OF ENGINEERING SERVICES OFFICE OF GEOTECHNICAL SERVICES GEOTECHNICAL DESIGN BRANCH (WEST) – BRANCH B	LOCATION MAP 04-ALA-580 EFIS 0400020870 PM 31.8 MAY 2012 Storm Damage – 164th St. Slipout

Figure 1

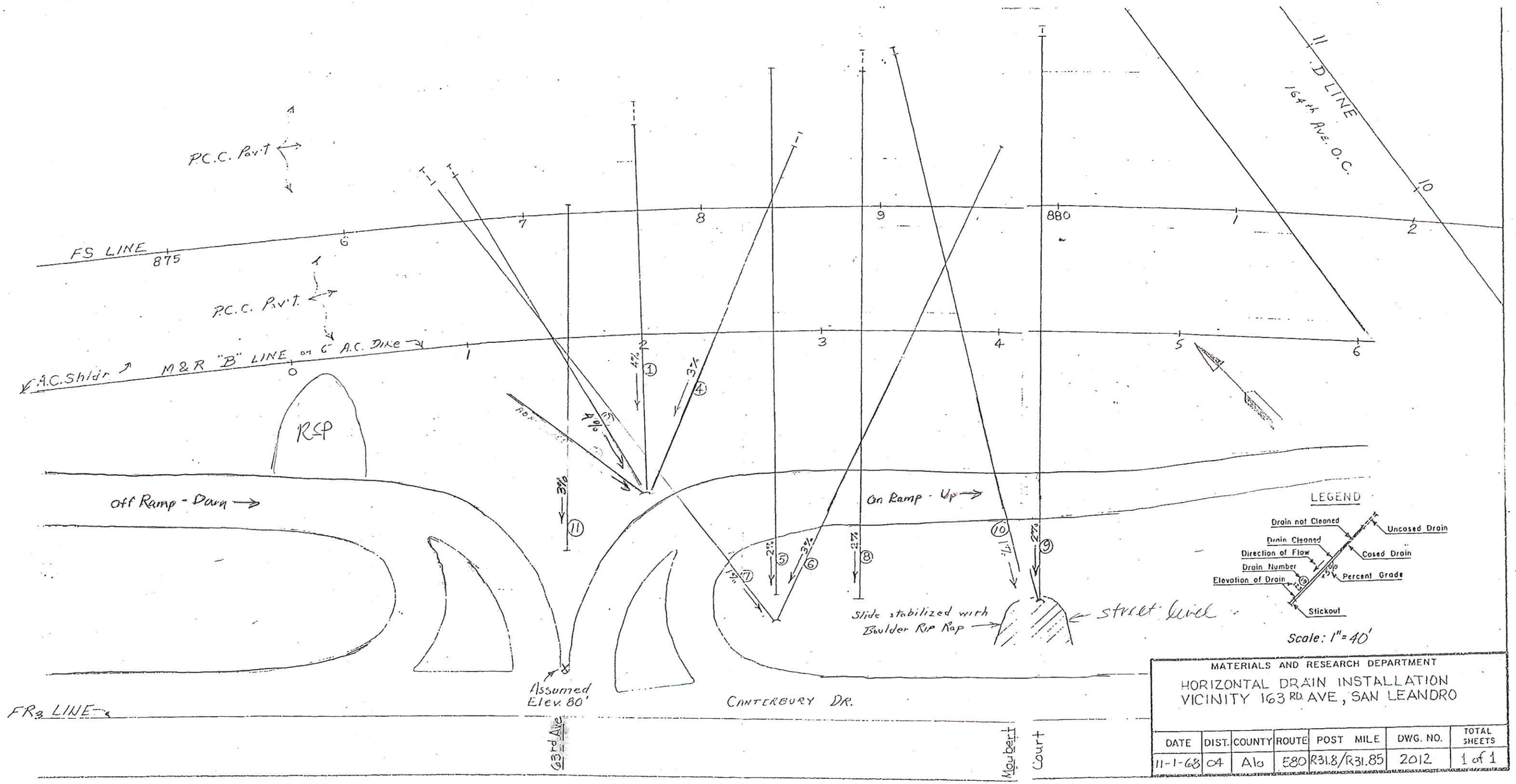

P.C.C. Pav't
FS LINE
875
6
7
8
9
880
1
2
10
11
D LINE
164th Ave. O.C.
P.C.C. Pav't
A.C. Shldr
M & R "B" LINE on 6" A.C. Dike
0
1
3
4
5
6
RSP
4%
3%
4%
3%
2%
3%
2%
1%
2%
1%
Off Ramp - Down
On Ramp - Up
Slide stabilized with Boulder Rip Rap
street level
Assumed Elev. 80'
CANTERBURY DR.
FR3 LINE
63rd Ave
Maubert Court
LEGEND
Drain not Cleaned
Uncased Drain
Drain Cleaned
Cased Drain
Direction of Flow
Drain Number
Percent Grade
Elevation of Drain
Stickout
Scale: 1" = 40'
MATERIALS AND RESEARCH DEPARTMENT
HORIZONTAL DRAIN INSTALLATION
VICINITY 163 RD AVE, SAN LEANDRO
DATE
DIST.
COUNTY
ROUTE
POST MILE
DWG. NO.
TOTAL SHEETS
11-1-68
04
Ala
E80
R31.8/R31.85
2012
1 of 1

Figure 2a

STATE OF CALIFORNIA

MATERIALS & RESEARCH DEPARTMENT

DIVISION OF HIGHWAYS

SUMMARY OF HORIZONTAL BORINGS

Job No. 32012 W.O. No. 04632 913179 Dist. 04 Co. Ala Rte. 580 Location Near 163 Ave. in San Leandro PM R31.8/R31.85

HOLE NUMBER	START OF HOLE FT. RT. LT. ℄ STATION	AIMED AT FT. RT. LT. ℄ STATION	SURFACE ELEVATION	GRADE %	LENGTH DRILLED HOLE	LENGTH CASING	STICKOUT	DATE CASED
1	89.5' Rt. "B" 2+00	"B" Sta. 2+00		4	218	210	0	9-25-68
2	90' " " 2+00	" " 1+50		4	215	210	0	9-26-68
3	Abandonded							
4	91' Rt. "B" 2+00	"B" Sta. 2+41		3	217	210	0	10-1-68
5	147' " " 2+73	" " 2+73		2	300	294	0	10-3-68
6	162' " " 2+73	" " 3+48		3	294	294	4	10-7-68
7	197' " " 2+73	" " 1+50		1	324	315	0	10-10-68
8	150' " " 3+22	" " 3+22		2	305	294	0	10-22-68
9	150' " " 4+21	" " 4+21		2	320	315	0	10-24-68
10	150' " " 4+19	" " 3+78		3	320	315	0	10-29-68
11	181' " " 1+58	" " 1+58		3	192	189	0	11-25-68

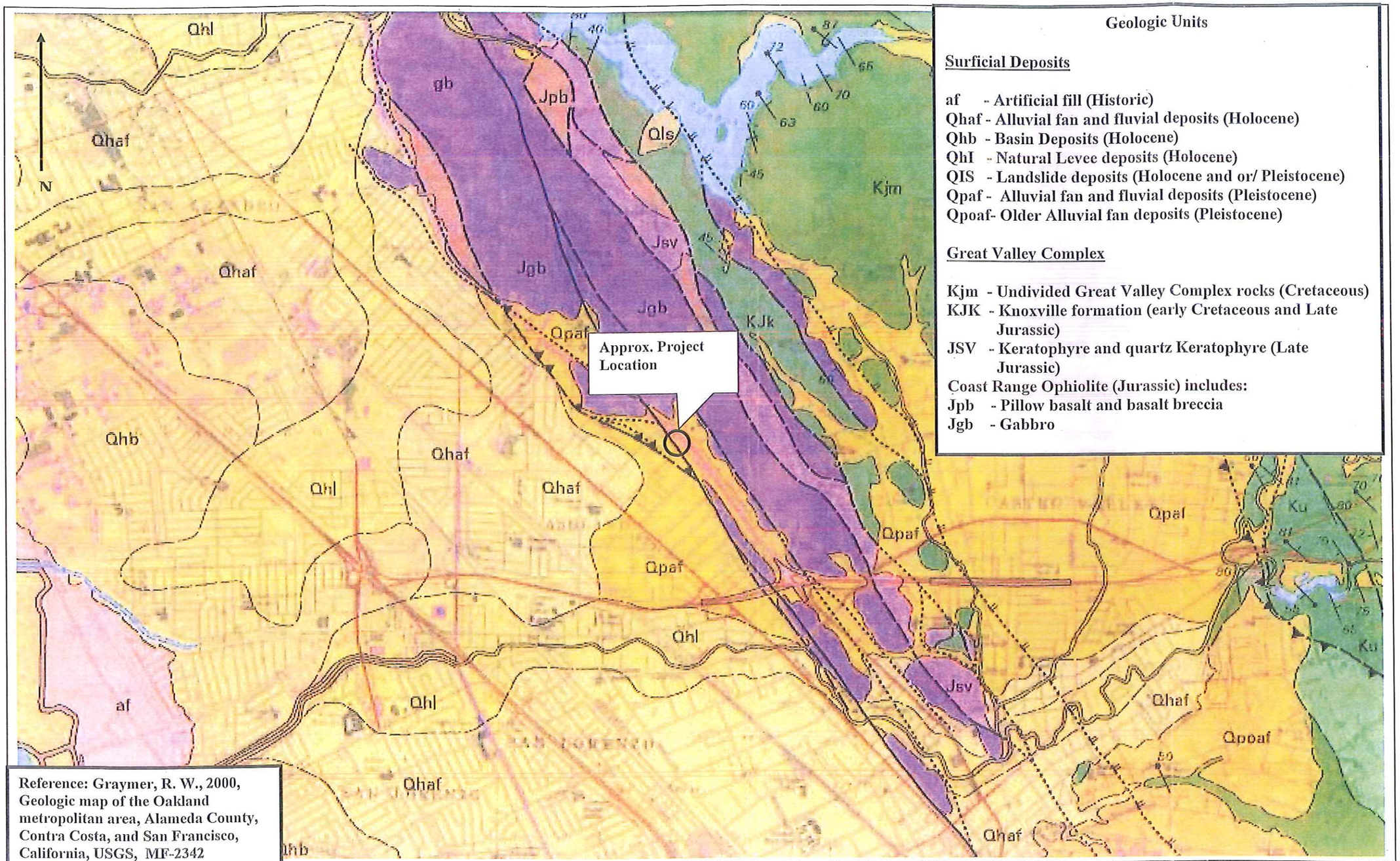
REMARKS

SHEET NO. 1 OF 1 SHEETS

Form T-241

46-144-1

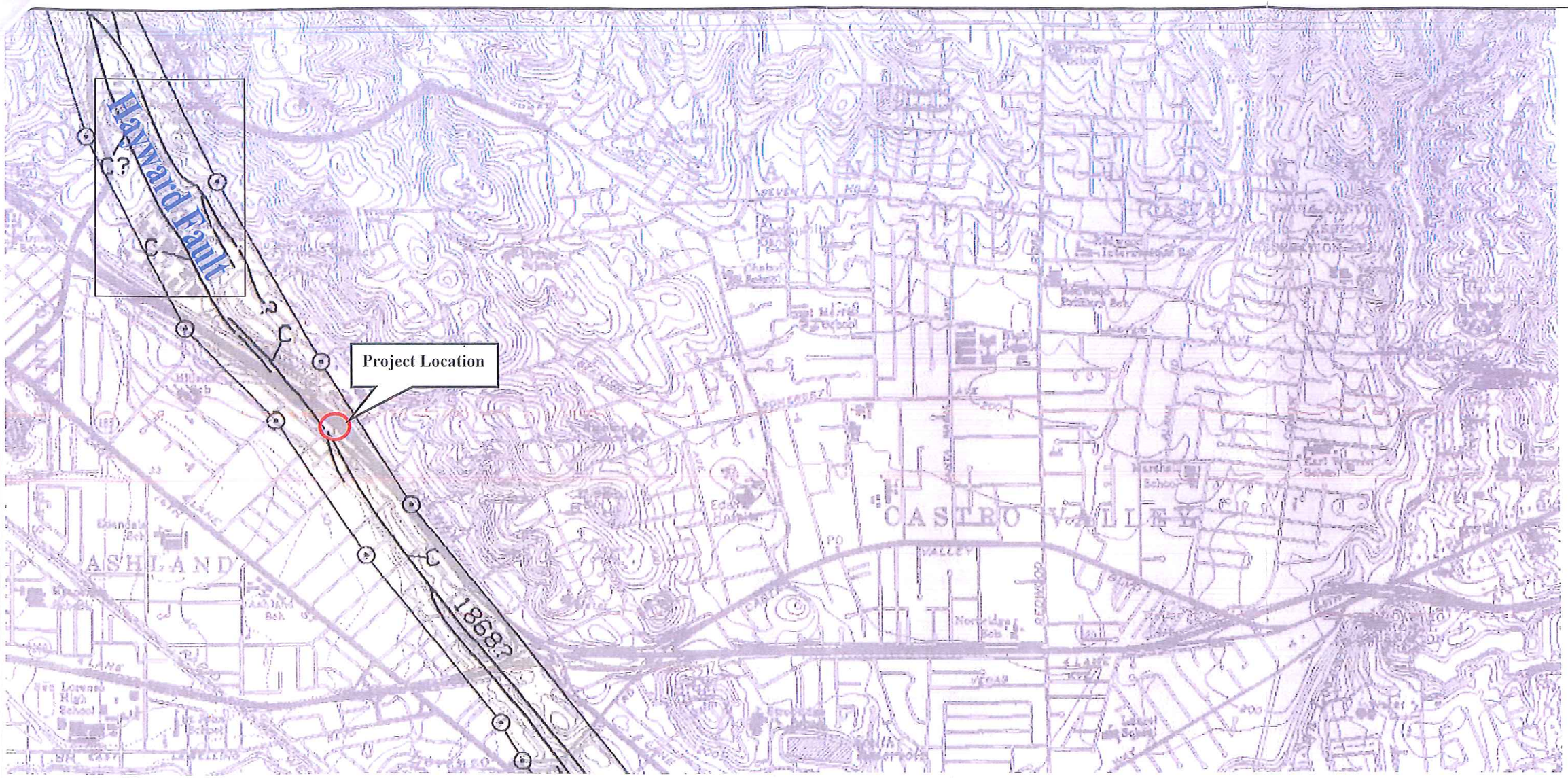
Figure 2b



Reference: Graymer, R. W., 2000, Geologic map of the Oakland metropolitan area, Alameda County, Contra Costa, and San Francisco, California, USGS, MF-2342

Scale 1: 50,000

Figure 3



TAKEN FROM U.S.G.S – ALQUIST- PRILIO MAP

SCALE

Not to Scale

Caltrans

Engineering Service Center
DIVISION OF ENGINEERING SERVICES
OFFICE OF GEOTECHNICAL SERVICES
GEOTECHNICAL DESIGN BRANCH (WEST) – BRANCH B

FAULT MAP

04-ALA-580	EFIS 0400020870
PM 31.8	May 2012

Storm Damage - 164th St. Slipout

Figure 4

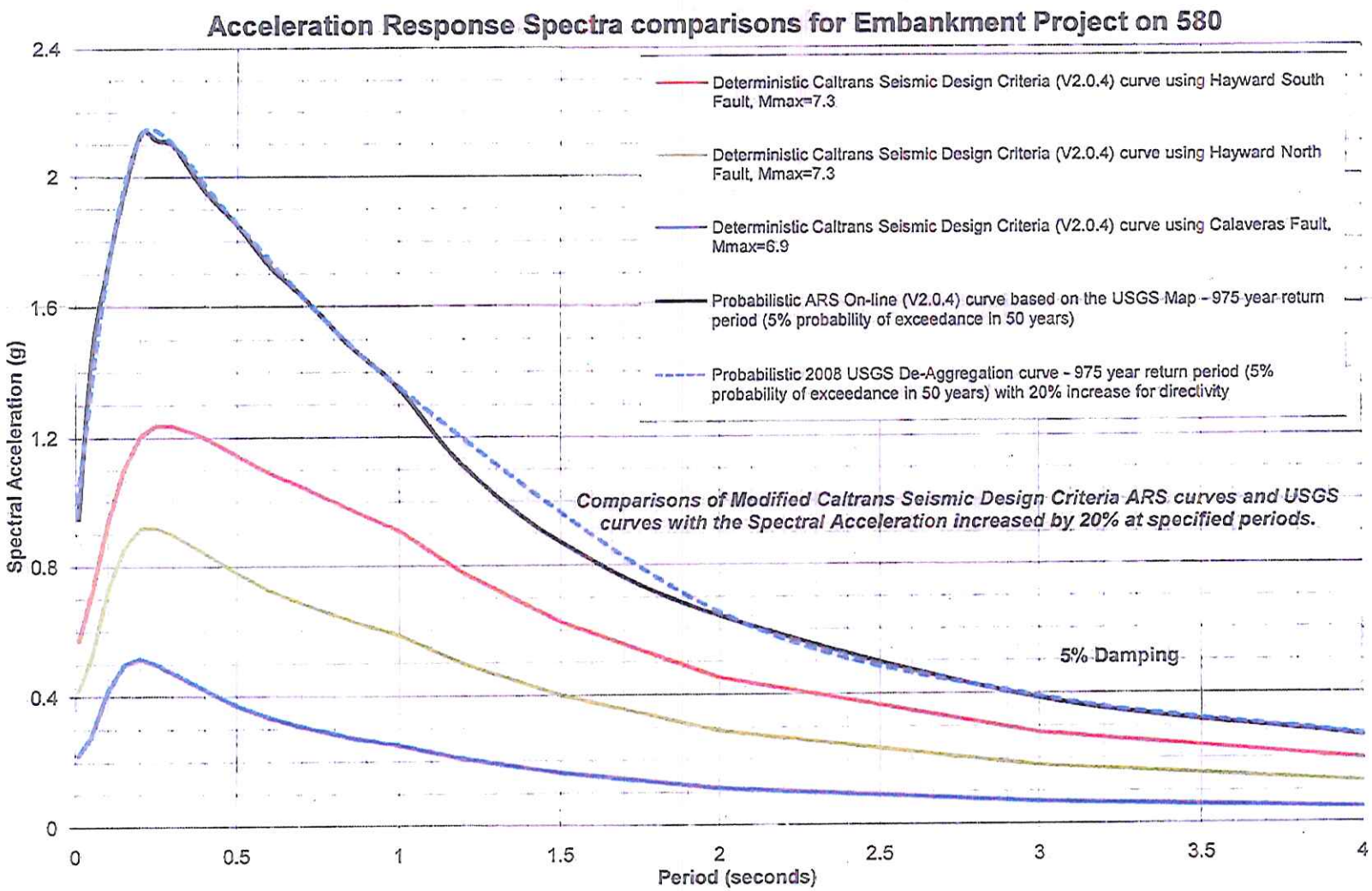

Acceleration Response Spectra comparisons for Embankment Project on 580
Deterministic Caltrans Seismic Design Criteria (V2.0.4) curve using Hayward South Fault, Mmax=7.3
Deterministic Caltrans Seismic Design Criteria (V2.0.4) curve using Hayward North Fault, Mmax=7.3
Deterministic Caltrans Seismic Design Criteria (V2.0.4) curve using Calaveras Fault, Mmax=6.9
Probabilistic ARS On-line (V2.0.4) curve based on the USGS Map - 975 year return period (5% probability of exceedance in 50 years)
Probabilistic 2008 USGS De-Aggregation curve - 975 year return period (5% probability of exceedance in 50 years) with 20% increase for directivity
Comparisons of Modified Caltrans Seismic Design Criteria ARS curves and USGS curves with the Spectral Acceleration increased by 20% at specified periods.
5% Damping
Spectral Acceleration (g)
Period (seconds)
0
0.4
0.8
1.2
1.6
2
2.4
0.5
1
1.5
2.5
3
3.5
4

Figure 5

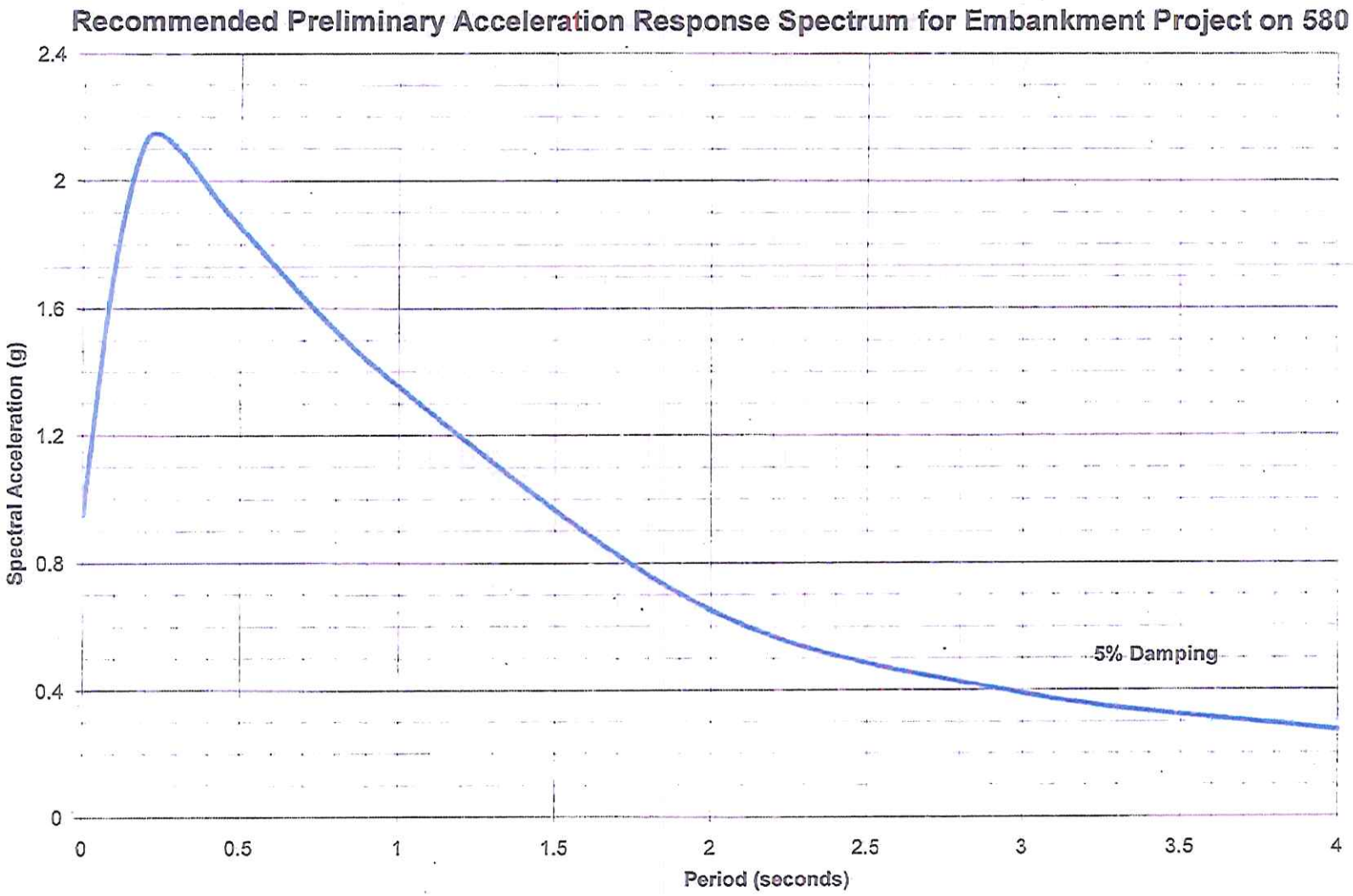

Recommended Preliminary Acceleration Response Spectrum for Embankment Project on 580
Spectral Acceleration (g)
2.4
2
1.6
1.2
0.8
0.4
0
0
0.5
1
1.5
2
2.5
3
3.5
4
Period (seconds)
5% Damping

Figure 6

STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION

QUANTITY CALCULATIONS

DO-OEM-4801 (OLD HC-52 REV. 11/92) (REV. 6)

SHEET ____ OF ____

JOB STAMP

ITEM 155040

FILE NO

LOCATION Alt 580 PM. 31.8

SEGREGATION ☐ YES ☐ NO

CALC. BY

DATE

CHK. BY B. Lee

DATE 1/2013

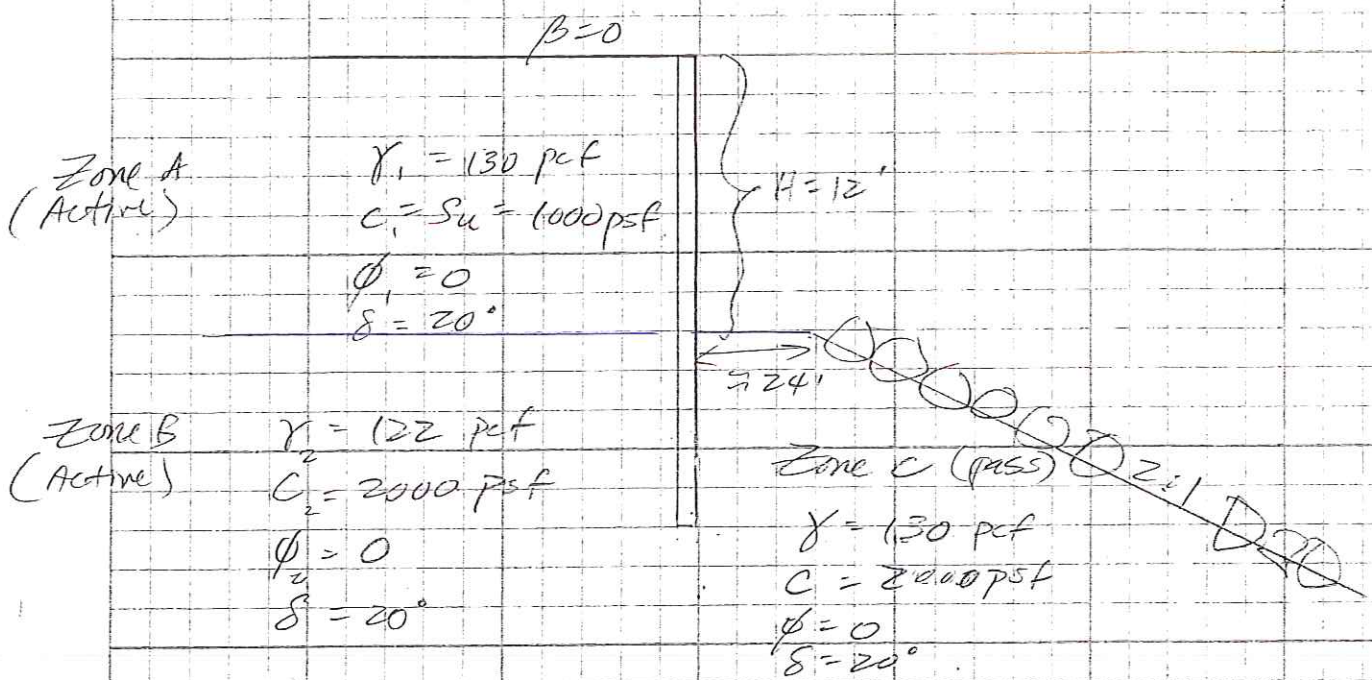


Fig 5.5.5.6-4. p. 5-32. CT Bridge Design Spec. (8/04)

Active Zone

K_a = N/A.

δ = 20° (Friction angle bet' soil + wall mat'l)

β = 0° (angle of slope surface to horiz.)

Passive Zone

K_p = N/A

δ = 20°

POSTED BY DATE POSTED TO

Figure 7

California State Certified Laboratory No. 2153

155040
Ala-580. 31.8

CERCO analytical
1100 Willow Pass Court, Suite A
Concord, CA 94520-1006
925 462 2771 Fax. 925 462 2775
www.cercoanalytical.com

21 September 2012

Job No.1209108
Cust. No.11608

Call translab re: steel pile protection

Mr. Matthew Bajuniemi
Fugro Consultants
1000 Broadway, Suite 440
Oakland, CA 94607

See email from Michael Midkovich (10/18/1

Subject: Project No.: 04.72120051
Project Name: Castro Valley, CA
Corrosivity Analysis – ASTM Test Methods with Brief Evaluation

Dear Mr. Bajuniemi:

Pursuant to your request, CERCO Analytical has analyzed the soil sample submitted on September 17, 2012. Based on the analytical results, this brief corrosivity evaluation is enclosed for your consideration.

Based upon the resistivity measurements, sample 001 is classified as "corrosive" samples 002 and 003 are classified as "moderately corrosive". All buried iron, steel, cast iron, ductile iron, galvanized steel and dielectric coated steel or iron should be properly protected against corrosion depending upon the critical nature of the structure. All buried metallic pressure piping such as ductile iron firewater pipelines should be protected against corrosion.

The chloride ion concentrations ranged from none detected to 18 mg/kg. Because the chloride ion concentrations are less than 300 mg/kg, they are determined to be insufficient to attack steel embedded in a concrete mortar coating.

The sulfate ion concentration ranges from none detected to 24 mg/kg and are determined to be insufficient to damage reinforced concrete structures and cement mortar-coated steel at these locations.

The pH of the soils ranged from 7.4 to 8.2, which does not present corrosion problems for buried iron, steel, mortar-coated steel and reinforced concrete structures.

The redox potentials ranged from 460 to 480-mV which is indicative of aerobic soil conditions.

This corrosivity evaluation is based on general corrosion engineering standards and is non-specific in nature. For specific long-term corrosion control design recommendations or consultation, please call *JDH Corrosion Consultants, Inc. at (925) 927-6630.*

We appreciate the opportunity of working with you on this project. If you have any questions, or if you require further information, please do not hesitate to contact us.

Very truly yours,
CERCO ANALYTICAL, INC.

for

J. Darby Howard, Jr., P.E.
President

JDH/jdl
Enclosure

California State Certified Laboratory No. 2153

CERCO analytical
1100 Willow Pass Court, Suite A
Concord, CA 94520-1006
925 462 2771 Fax. 925 462 2775
www.cercoanalytical.com

Client: Fugro West, Inc.
Client's Project No.: 04.72120051
Client's Project Name: Castro Valley, CA
Date Sampled: 14-Sep-12
Date Received: 17-Sep-12
Matrix: Soil
Authorization: Signed Chain of Custody

Date of Report: 21-Sep-2012

Job/Sample No.	Sample I.D.	Redox (mV)	pH	Conductivity (umhos/cm)*	Resistivity (100% Saturation) (ohms-cm)	Sulfide (mg/kg)*	Chloride (mg/kg)*	Sulfate (mg/kg)*
1209108-001	B-1/5 @ 15.5'	480	8.2	-	1,800	-	18	N.D.
1209108-002	B-3/10- @ 30'	460	7.4	-	2,900	-	N.D.	N.D.
1209108-003	B-3/17 @55.5'	470	8.2	-	3,200	-	N.D.	24

Method:	ASTM D1498	ASTM D4972	ASTM D1125M	ASTM G57	ASTM D4658M	ASTM D4327	ASTM D4327
Detection Limit:	-	-	10	-	50	15	15
Date Analyzed:	19-Sep-2012	20-Sep-2012	-	19-Sep-2012	-	20-Sep-2012	20-Sep-2012

Cheryl McMillen
Laboratory Director

* Results Reported on "As Received" Basis
N.D. - None Detected
(1) Detection limit is elevated to 75 mg/kg due to dilution

Quality Control Summary - All laboratory quality control parameters were found to be within established limits

Michael Mifkovic/HQ/Caltrans/CAGov

Michael Mifkovic/HQ/Caltrans/CAGov
10/18/2012 08:10 AM

To Betty Lee/D04/Caltrans/CAGov@DOT
cc Leo Martinez/HQ/Caltrans/CAGov@DOT
Subject Re: Fw: Corrosion question

Betty:

I have reviewed the soil results from the outside lab and concur that the soils are not corrosive per our 2003 Corrosion Guidelines. Cerco Analytical listed sample 001 as corrosive, which is incorrect for piles. A resistivity value less than 2000 ohm-cm is considered corrosive for MSE walls, but not for piles. The only other comment I might have would be to ask if there is a potential for stray current from a nearby external source (such as BART) which could have an adverse affect on the piles. Otherwise, per our Corrosion Guidelines, this site is noncorrosive. Should you have any additional questions, please contact me.

Michael Mifkovic
Corrosion and Field Investigations Branch
Materials Engineering and Testing Services
916-227-6939 office

Leo Martinez/HQ/Caltrans/CAGov

Leo Martinez/HQ/Caltrans/CAGov
10/17/2012 01:36 PM

To Michael Mifkovic/HQ/Caltrans/CAGov@DOT
cc
Subject Fw: Corrosion question

Please respond to Ms. Lee's e-mail. Thank you.

----- Forwarded by Leo Martinez/HQ/Caltrans/CAGov on 10/17/2012 01:35 PM -----

Vijay Jain/HQ/Caltrans/CAGov
10/17/2012 06:08 AM

To Leo Martinez/HQ/Caltrans/CAGov@DOT
cc
Subject Fw: Corrosion question

----- Forwarded by Vijay Jain/HQ/Caltrans/CAGov on 10/17/2012 07:08 AM -----

Betty

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	ALA	580	31.8	----	----

GEOTECHNICAL PROFESSIONAL X DATE

PLANS APPROVAL DATE

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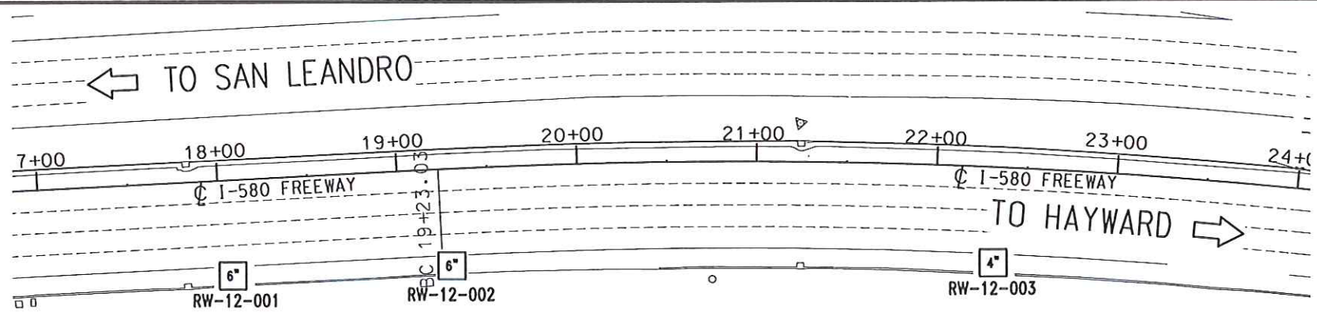
REGISTERED PROFESSIONAL ENGINEER — Ward Andrew Harlache No. GE002149 Exp. 3/31/13 GEOTECHNICAL — STATE OF CALIFORNIA

Fugro Consultants, Inc.
1000 Broadway, Suite 440
Oakland, CA 94607

Caltrans, Geotechnical Design - West
111 Grand Avenue
Oakland, CA 94623

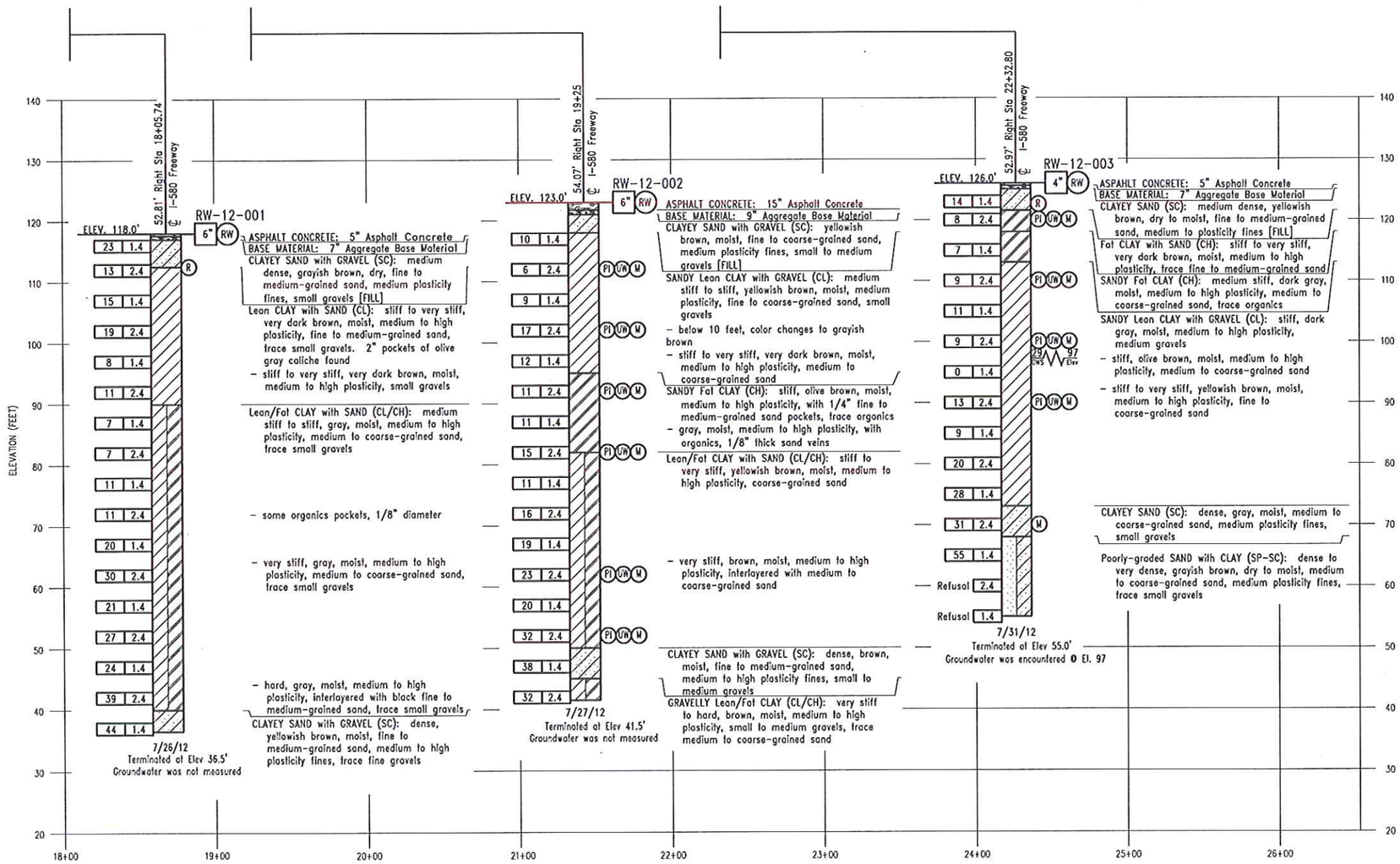
BENCHMARK DATA
WP-3041
PM at pullbox rim, E/B 164th offramp shoulder
Northing: 2,082,063
Easting: 6,095,358
Elevation: 108.329 ft

DRAFT



PLAN

Plan Scale: 1"=40'



NOTES:

1. Borings excavated using a rotary wash drill rig equipped with an automatic trip hammer weighing 140 pounds falling 30 inches.
2. Standard Penetration Test Samples I.D.=1-3/8 in., O.D.=2 in., without liners.
3. "2.4" sampler has a 2-3/8 in. inside diameter and a 3 in. outside diameter (Modified Calif. Sampler) with brass liners.
4. This LOTB was prepared in accordance with the Caltrans Soil & Rock Logging, Classification and Presentation Manual (2010).

PROFILE

Profile Scale: Horizontal 1"=40'
Vertical 1"=10'

ENGINEERING SERVICES		GEOTECHNICAL SERVICES	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	Betty Lee PROJECT ENGINEER	BRIDGE NO. / POST MILES	HIGHWAY 580 TO CASTRO VALLEY
FUNCTIONAL SUPERVISOR NAME: A. Herlache	DRAWN BY: B. Egan / CHECKED BY: M. Bajuniemi	FIELD INVESTIGATION BY: M. Bajuniemi				LOG OF TEST BORINGS — 1 of 4

OGS CIVIL LOG OF TEST BORINGS SHEET

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU ----- EA ------

FILE -> 04.72120051 LOTB.dgn

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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	ALA	580	31.8	----	----

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REGISTERED PROFESSIONAL ENGINEER Ford Andrew Herlache No. GE002149 Exp. 3/31/13 GEOTECHNICAL STATE OF CALIFORNIA

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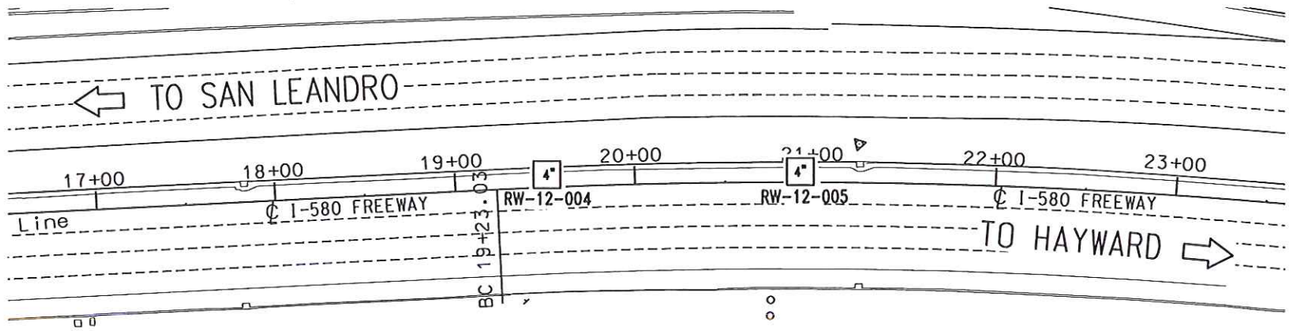
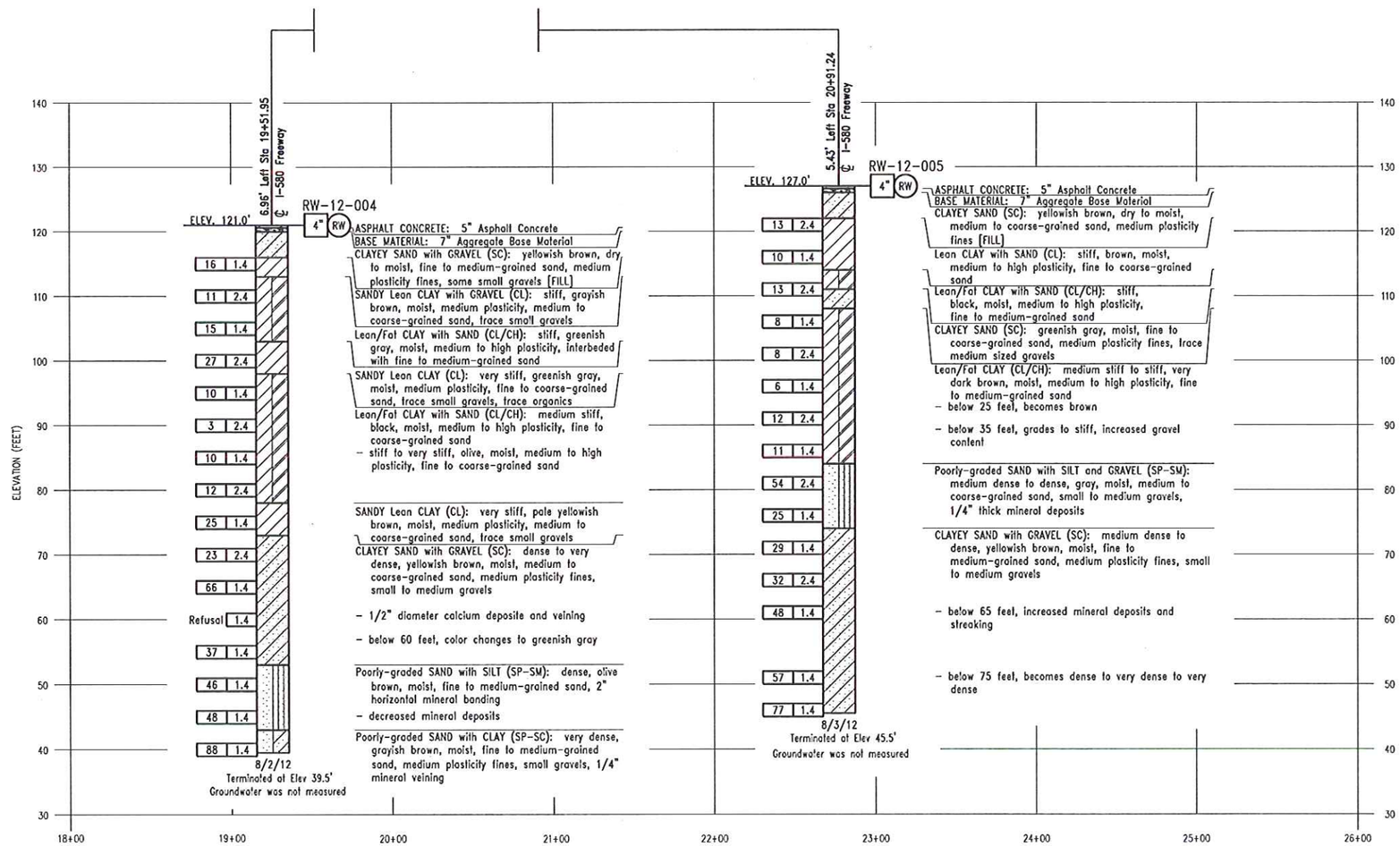


BENCHMARK DATA
WP-3041
PM at pullbox rim, E/B 164th offramp shoulder
Northing: 2,082,063
Easting: 6,095,358
Elevation: 108.329 ft

DRAFT

PLAN
Plan Scale: 1"=40'



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Vertical 1"=10'

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FUNCTIONAL SUPERVISOR NAME: A. Herlache	DRAWN BY: B. Egan / CHECKED BY: M. Bajuniemi	FIELD INVESTIGATION BY: M. Bajuniemi				LOG OF TEST BORINGS 2 of 4

OGS CIVIL LOG OF TEST BORINGS SHEET

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU ----- EA -----

FILE -) 04.72120051 LOTB.dgn

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GEOTECHNICAL PROFESSIONAL X DATE

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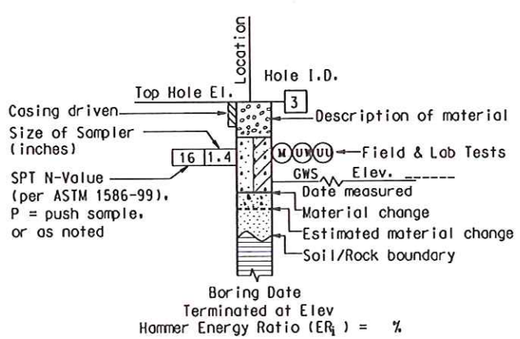
1000 Broadway, Suite 440
Oakland, CA 94607

Caltrans, Geotechnical Design - West
111 Grand Avenue
Oakland, CA 94623

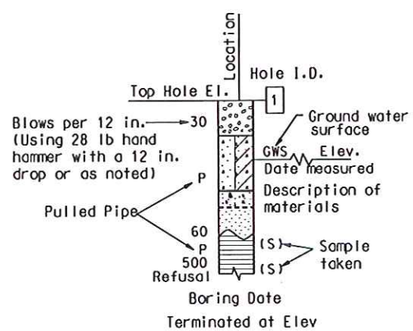
CEMENTATION	
Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

BOREHOLE IDENTIFICATION		
Symbol	Hole Type	Description
Size	A	Auger Boring (hollow or solid stem bucket)
Size	R RW RC P	Rotary drilled boring (conventional) Rotary drilled with self-casing wire-line Rotary core with continuously-sampled, self-casing wire-line Rotary percussion boring (air)
Size	R	Rotary drilled diamond core
Size	HD HA	Hand driven (1-inch soil tube) Hand Auger
●	D	Dynamic Cone Penetration Boring
▲	CPT	Cone Penetration Test (ASTM D 5778)
⬚	O	Other (note on LOTB)
Note: Size in inches.		

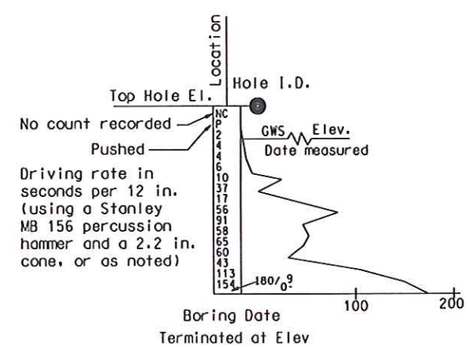
CONSISTENCY OF COHESIVE SOILS				
Description	Shear Strength (tsf)	Pocket Penetrometer Measurement, PP, (tsf)	Torvane Measurement, TV, (tsf)	Vane Shear Measurement, VS, (tsf)
Very Soft	Less than 0.12	Less than 0.25	Less than 0.12	Less than 0.12
Soft	0.12 - 0.25	0.25 - 0.5	0.12 - 0.25	0.12 - 0.25
Medium Stiff	0.25 - 0.5	0.5 - 1	0.25 - 0.5	0.25 - 0.5
Stiff	0.5 - 1	1 - 2	0.5 - 1	0.5 - 1
Very Stiff	1 - 2	2 - 4	1 - 2	1 - 2
Hard	Greater than 2	Greater than 4	Greater than 2	Greater than 2



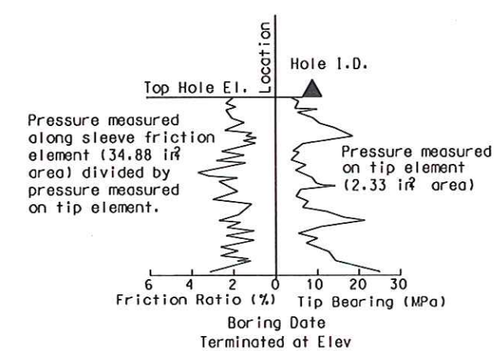
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) BORING

ENGINEERING SERVICES		GEOTECHNICAL SERVICES	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	Betty Lee PROJECT ENGINEER	BRIDGE NO. / POST MILE	HIGHWAY 580 TO CASTRO VALLEY
FUNCTIONAL SUPERVISOR: NAME: A. Herlache	DRAWN BY: B. Egan CHECKED BY: M. Bajuniemi	FIELD INVESTIGATION BY: M. Bajuniemi				LOG OF TEST BORINGS — 3 of 4

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU
EA

FILE -) 04.72120051 LOTB.dgn

DISREGARD PRINTS BEARING EARLIER REVISION DATES → 12/13/12

REVISION DATES | SHEET | OF

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REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

GROUP SYMBOLS AND NAMES

Graphic/Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND
GP	Poorly-graded GRAVEL Poorly-graded GRAVEL with SAND
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)
GP-GM	Poorly-graded GRAVEL with SILT Poorly-graded GRAVEL with SILT and SAND
GP-GC	Poorly-graded GRAVEL with CLAY (or SILTY CLAY) Poorly-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)
GM	SILTY GRAVEL SILTY GRAVEL with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL
SP	Poorly-graded SAND Poorly-graded SAND with GRAVEL
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)
SP-SM	Poorly-graded SAND with SILT Poorly-graded SAND with SILT and GRAVEL
SP-SC	Poorly-graded SAND with CLAY (or SILTY CLAY) Poorly-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)
SM	SILTY SAND SILTY SAND with GRAVEL
SC	CLAYEY SAND CLAYEY SAND with GRAVEL
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL
PT	PEAT
	COBBLES COBBLES and BOULDERS BOULDERS

Graphic/Symbol	Group Names
CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY ORGANIC elastic SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND

FIELD AND LABORATORY TESTING

- (C) Consolidation (ASTM D 2435)
- (CL) Collapse Potential (ASTM D 5333)
- (CP) Compaction Curve (CTM 216)
- (CR) Corrosivity Testing (CTM 643, CTM 422, CTM 417)
- (CU) Consolidated Undrained Triaxial (ASTM D 4767)
- (DS) Direct Shear (ASTM D 3080)
- (EI) Expansion Index (ASTM D 4829)
- (M) Moisture Content (ASTM D 2216)
- (OC) Organic Content-% (ASTM D 2974)
- (P) Permeability (CTM 220)
- (PA) Particle Size Analysis (ASTM D 422)
- (PI) Plasticity Index (AASHTO T 90) Liquid Limit (AASHTO T 89)
- (PL) Point Load Index (ASTM D 5731)
- (PM) Pressure Meter
- (R) R-Value (CTM 301)
- (SE) Sand Equivalent (CTM 217)
- (SG) Specific Gravity (AASHTO T 100)
- (SL) Shrinkage Limit (ASTM D 427)
- (SW) Swell Potential (ASTM D 4546)
- (UC) Unconfined Compression-Soil (ASTM D 2166) Unconfined Compression-Rock (ASTM D 2938)
- (UU) Unconsolidated Undrained Triaxial (ASTM D 2850)
- (UW) Unit Weight (ASTM D 4767)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	ALA	580	31.8	----	----

GEOTECHNICAL PROFESSIONAL X DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Ward Andrew Herlache No. GE002149 Exp. 3/31/13 GEOTECHNICAL STATE OF CALIFORNIA

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Oakland, CA 94607

Caltrans, Geotechnical Design - West
111 Grand Avenue
Oakland, CA 94623

APPARENT DENSITY OF COHESIONLESS SOILS

Description	SPT N_{60} (Blows / 12 in.)
Very Loose	0 - 5
Loose	5 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Greater than 50

MOISTURE

Description	Criteria
Dry	No discernable moisture
Moist	Moisture present, but no free water
Wet	Visible free water

PERCENT OR PROPORTION OF SOILS

Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5% - 10%
Little	15% - 25%
Some	30% - 45%
Mostly	50% - 100%

PARTICLE SIZE

Description		Size (in.)
Boulder		Greater than 12
Cobble		3 - 12
Gravel	Coarse	3/4 - 3
	Fine	1/5 - 3/4
Sand	Coarse	1/16 - 1/5
	Medium	1/64 - 1/16
	Fine	1/300 - 1/64
Silt and Clay		Less than 1/300

ENGINEERING SERVICES

FUNCTIONAL SUPERVISOR: NAME: A. Herlache

DRAWN BY: B. Egan

CHECKED BY: M. Bajuniemi

GEOTECHNICAL SERVICES

FIELD INVESTIGATION BY: M. Bajuniemi

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

Betty Lee
PROJECT ENGINEER

BRIDGE NO.

POST MILE

HIGHWAY 580 TO CASTRO VALLEY

LOG OF TEST BORINGS

4 of 4

08 LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU
EA

DISREGARD PRINTS BEARING EARLIER REVISION DATES 12/13/12

REVISION DATES

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FILE -> 04.72120051 LOTB.dgn

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PRELIMINARY SITE INVESTIGATION REPORT

EASTBOUND I-580 SHOULDER REPAIR
SAN LEANDRO, CALIFORNIA

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

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

GEOCON PROJECT NO. E8560-02-52
CALTRANS EA 04-1SS041
CALTRANS PROJECT # 04-0002-0870-1

OCTOBER 2013

TABLE OF CONTENTS

PRELIMINARY SITE INVESTIGATION REPORT Page

REPORT LIMITATIONS i

PROJECT TEAM ii

1.0 INTRODUCTION 1
- 1.1 Project Description and Proposed Improvements 1
- 1.2 General Objectives 1

2.0 BACKGROUND 1
- 2.1 Hazardous Waste Determination Criteria 1
- 2.2 DTSC Variance 2
- 2.3 Environmental Screening Levels 3

3.0 SCOPE OF SERVICES 4
- 3.1 Pre-field Activities 4
- 3.2 Field Activities 4

4.0 INVESTIGATIVE METHODS 5
- 4.1 Sampling Procedures 5
- 4.2 Laboratory Analyses 6
- 4.3 Laboratory QA/QC 6

5.0 INVESTIGATIVE RESULTS 7
- 5.1 Subsurface Conditions 7
- 5.2 Laboratory Analytical Results 7
- 5.3 Laboratory Quality Assurance/Quality Control 8
- 5.4 Statistical Evaluation for Lead Detected in Soil Samples 8
  - 5.4.1 Calculating the UCLs for the Arithmetic Mean 9
  - 5.4.2 Correlation of Total and WET Lead 9

6.0 CONCLUSIONS 11
- 6.1 Lead in Soil 11
- 6.2 Remaining CAM 17 Metals in Soil 12
- 6.3 Organics in Soil 13
- 6.4 Organics in Groundwater 13
- 6.5 Worker Protection 13

FIGURES

1. Vicinity Map
2. Site Plan

TABLES

1. Boring Coordinates
2. Summary of Lead and pH Results - Soil
3. Summary of CAM 17 Metals Results - Soil
4. Summary of Organics Results - Soil
5. Summary of Organics Results - Groundwater
6. Summary of Lead Statistical Analysis

APPENDICES

A. DTSC Variance
B. Laboratory Reports and Chain-of-custody Documentation
C. Lead Regression and Metal Statistical Analysis

REPORT LIMITATIONS

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

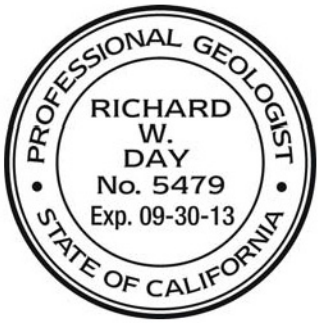
This report is not a comprehensive site characterization and should not be construed as such. The findings as presented in this report are predicated on the results of the limited sampling and laboratory testing performed. In addition, the information obtained is not intended to address potential impacts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

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

GEOCON CONSULTANTS, INC.

Luann Beadle
Senior Staff Scientist

Richard Day, CEG, CHG
Senior Geologist



CALIFORNIA DEPARTMENT OF TRANSPORTATION – DISTRICT 4
OFFICE OF ENVIRONMENTAL ENGINEERING

Reviewed By:	Recommended By:	Approved By:
Keith Fang Task Order Manager	Chris Wilson, PE District Branch Chief	Allen Baradar, PE District Office Chief

PROJECT TEAM

Contact	Affiliation	Responsibility
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Keith Fang 510.622.8795 510.286.5639 fax keith.fang@dot.ca.gov	Caltrans – District 4 Environmental Engineering 111 Grand Avenue, MS8C Oakland, California 94612	Task Order Manager
Richard Day, CEG, CHG Luann Beadle 925.371.5900 925.371.5915 fax livermore@geoconinc.com	Geocon Consultants, Inc. 6671 Brisa Street Livermore, CA 94550 *(Caltrans Consultant)*	Project Management Sample Collection Field QA/QC Investigation Report
Doug Krause, CIH 530.758.6397 530.758.6506 fax dskrause@pacbell.net	Krause & Associates 216 F. Street Suite 162 Davis, CA 95616 (*Geocon Subconsultant*)	Health and Safety
Penhall Company 714.772.6450	Penhall Company 1801 Penhall Way Anaheim, CA 92801 (*Geocon Subcontractor*)	Concrete Coring Services
Jose Tenorio, Jr. 702.307.2659 702.307.2691 fax jojo@atl-labs.com	Advanced Technology Laboratories 3151 Post Road Las Vegas, NV 89118 *(Geocon Subcontractor)*	Soil and Groundwater Sample Analysis

PRELIMINARY SITE INVESTIGATION REPORT

1.0 INTRODUCTION

This Preliminary Site Investigation Report for a roadway shoulder repair project along eastbound (EB) Interstate 580 (I-580) in San Leandro, California was prepared by Geocon Consultants, Inc. under California Department of Transportation (Caltrans) Contract No. 04A3578 and Task Order No. 52 (TO-52), EA 04-1SS041.

1.1 Project Description and Proposed Improvements

The project proposes to repair the roadway cracking and settlement of the outside shoulder of EB I-580 near the 164th Avenue off-ramp in the city of San Leandro in Alameda County. Project activities include the installation of a 122-foot-long soldier pile wall with timber lagging along the edge of shoulder to stabilize the embankment. Work will take place within Caltrans right-of-way. The project location is depicted on the attached Vicinity Map, Figure 1.

1.2 General Objectives

The purpose of the site investigation was to evaluate concentrations of California Assessment Manual 17 (CAM 17) metals, particularly aerially-deposited lead (ADL), and petroleum hydrocarbons in soil, as well as petroleum hydrocarbons in groundwater.

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

2.0 BACKGROUND

2.1 Hazardous Waste Determination Criteria

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

For waste containing metals, the waste is classified as California hazardous when: 1) the representative total metal content equals or exceeds the respective Total Threshold Limit Concentration (TTLC); or 2) the representative soluble metal content equals or exceeds the respective Soluble Threshold Limit Concentration (STLC) based on the standard Waste Extraction Test (WET). A waste has the potential of exceeding the STLC when the waste's total metal content is greater than or equal to ten times the respective STLC value since the WET uses a 1:10 dilution ratio. Hence, when a total metal is detected at

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

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

2.2 DTSC Variance

The DTSC issued a statewide Variance effective July 1, 2009, regarding the management of ADL-impacted soils within Caltrans right-of-way. Under the Variance, soil that is classified as a non-RCRA hazardous waste, based primarily on ADL content, may be suitable for reuse within Caltrans right-of-way. ADL soil that is classified as a RCRA hazardous waste is not eligible for reuse under the Variance and must be disposed of as a RCRA hazardous waste (Caltrans Type Z-3).

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

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

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

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

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

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

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

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

2.3 Environmental Screening Levels

The San Francisco Bay Regional Water Quality Control Board (SFRWQCB) has prepared a technical report entitled *Screening For Environmental Concerns At Sites With Contaminated Soil and Groundwater, Interim Final* (updated May 2013), which presents Environmental Screening Levels (ESLs) for soil, groundwater, soil gas, and surface water, to assist in evaluating sites impacted by releases of hazardous chemicals. The ESLs are conservative values for more than 100 commonly detected contaminants which may be used to compare with environmental data collected at a site. "The ESLs are intended to help expedite the identification and evaluation of potential environmental concerns at sites where contamination has been identified. Data collected at a site can be directly compared to the ESLs, and the need for additional actions quickly determined" (RWQCB May 2013). ESLs are strictly risk assessment tools and "not intended to serve as a rule to determine if a waste is hazardous under the state or federal regulations (RWQCB May 2013)."

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

- Table A. Shallow Soil (≤3m bgs), Groundwater is a Current or Potential Source of Drinking Water
- Table B. Shallow Soil (≤3m bgs), Groundwater is not a Current or Potential Source of Drinking Water
- Table K-3. Direct Exposure Soil Screening Levels, Construction/Trench Worker Exposure Scenario

The respective ESLs are listed at the end of Tables 3 to 5 for comparative purposes.

3.0 SCOPE OF SERVICES

The scope of services performed under TO-52, EA 04-1SS041 included the following:

3.1 Pre-field Activities

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

3.2 Field Activities

The field investigation was performed on August 14 and 22, 2013, by Geocon staff. The following field activities were performed during the sampling efforts:

- Advanced 9 soil borings at the project location using hand auger and direct-push drilling techniques. The borings were advanced to a maximum depth of 47 feet.
- Collected 1 groundwater sample from an existing on-site monitoring well.

The following soil samples were collected:

- 8 soil samples for CAM 17 metals analysis.
- 29 samples for total lead analysis.
- 16 samples for TPHd/mo
- 2 samples for TPHg analysis.
- 2 samples for BTEX/MTBE analyses.

- 5 sample for pH.

The following groundwater samples were collected:

- One sample was collected for TPHd/mo analysis.
- One sample for TPHg analysis.
- One sample for BTEX/MTBE analyses.

The following QA/QC sample was collected:

- One equipment blank sample for total lead analysis.

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

4.0 INVESTIGATIVE METHODS

4.1 Sampling Procedures

Soil samples were collected from 9 boring locations identified by the Caltrans TO Managers using hand-auger and direct-push sampling techniques. The groundwater sample was collected from an existing on-site monitoring well using a disposable bailer. Boring and monitoring well coordinates are presented on Table 1 and locations are shown on the Site Plan, Figure 2.

Soil samples collected using a hand-auger were placed in stainless steel tubes and sealed with Teflon tape and plastic lids prior to being stored in a chest cooled with ice.

Soil samples collected using a direct-push sample rig were obtained by hydraulically advancing a 2-inch-diameter, 4-foot-long stainless steel core-barrel sampler lined with an acetate sample tube into undisturbed soil. Soil samples were collected for laboratory analysis by cutting an approximately 6-inch-long section of the acetate tube from the target sample depth, capping the ends with Teflon tape and plastic end caps, and then placing the sample tube in a chest cooled with ice for storage and delivery to the analytical laboratory.

Grab-groundwater samples were collected from the monitoring well by retrieving groundwater through a disposable Teflon bailer. Samples were then transferred to the appropriate sample containers and placed in a chest cooled with ice.

Sample containers were labeled and transported to a Caltrans-approved, certified environmental laboratory using standard COC documentation. Hand auger soil borings were back-filled to surface with soil cuttings; direct-push borings were backfilled to surface with neat cement.

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

4.2 Laboratory Analyses

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

The soil samples were analyzed as follows:

- 8 samples for CAM 17 metals according to EPA Test Methods 6010 ICAP and 7471.
- 29 samples were analyzed for total lead according to EPA Test Method 6010 ICAP.
- 7 samples with total chromium concentrations equal to or exceeding 50 mg/kg (i.e., equal to or exceeding ten times the chromium STLC of 5 mg/l) were further analyzed for WET chromium.
- 8 samples with total lead concentrations equal to or exceeding 50 mg/kg (i.e., equal to or exceeding ten times the lead STLC of 5.0 mg/l) were further analyzed for WET lead.
- 5 samples with WET lead concentrations exceeding 5.0 mg/l were further analyzed for DI-WET lead.
- 3 samples with total lead exceeding 100 mg/kg and WET lead exceeding 5.0 mg/l were further analyzed for TCLP lead.
- 16 samples were analyzed for TPHd/mo according to EPA Test Method 8015.
- 2 samples were analyzed for TPHg according to EPA Test Method 8015.
- 2 samples were analyzed for BTEX/MTBE according to EPA Test Method 8260.

The groundwater sample was analyzed for TPHg/d/mo using EPA Test Method 8015, and BTEX using EPA Test Method 8260.

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

4.3 Laboratory QA/QC

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

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

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

5.0 INVESTIGATIVE RESULTS

5.1 Subsurface Conditions

In order to facilitate direct-push rig soil sampling, asphalt coring was performed at two locations (B2 and B3) along the EB shoulder of I-580. Asphalt was present at thicknesses of up to 2 feet. Observations during field activities indicated that aggregate base and mixed asphalt/concrete grindings were present to a depth of approximately 1-1/2 feet. Light to dark brown, very stiff and damp clay with shrinkage cracks was present to 4 feet. Very stiff, light olive to olive gray damp clay with silt was present to 8 feet; very stiff, moist black clay with roots and green mottling was present to 12 feet. Stiff, moist black clay was present to a depth of 20 feet and contained an approximately 6 inch layer of gravelly brown sand at 13-1/2 feet. Stiff, moist black clay, grading to dark brown clay with gravel and coarse sand was present to 30 feet.

Borings B2 and B3 were extended to depths of 30 and 47 feet, respectively in an attempt to collect groundwater samples. Groundwater was not encountered in any of the borings. A groundwater sample was collected from an existing monitoring well, MW, located on-site (Figure 2). The depth to water in the well was measured to be 16.5 feet, and the total well depth was measured to be approximately 82 feet.

5.2 Laboratory Analytical Results

The analytical results are summarized in Tables 2 through 5 and are summarized below:

Soil Sample Results:

- The following metals were not detected above their respective laboratory reporting limits: antimony, beryllium, cadmium, molybdenum, silver, and thallium.
- Total lead was reported at concentrations ranging from <1.0 to 210 mg/kg.
- WET lead was reported at concentrations of 2.8 to 11 mg/l.
- DI-WET lead was reported at concentrations of <0.25 and 0.27 mg/l.

- TCLP lead was not detected at ar above the reporting limit of <0.25 mg/l.
- Total chromium was reported at concentrations ranging from 47 to 180 mg/kg.
- WET chromium was present at concentrations ranging from <0.10 to 0.26 mg/l.
- Remaining CAM 17 metals were reported in the samples at total concentrations below ten times their respective STLCs.
- TPHd was reported at concentrations ranging from 1.1 to 37 mg/kg.
- TPHmo was reported at concentrations ranging from 1.3 to 73 mg/kg.
- TPHg was not detected at or above the reporting limits of 1.0 mg/kg.
- BTEX was not detected at or above the reporting limits.

Groundwater Sample Results:

- TPHd was reported at a concentration of 0.098 mg/l.
- TPHmo was reported at a concentration of 0.087 mg/l.
- TPHg was not detected at or above the reporting limits of 0.050 mg/l.
- BTEX was not reported at or above the reporting limits.

QA/QC Sample Results:

- Total lead was not detected at or above the laboratory reporting limit of 0.050 mg/l in the equipment rinse blank sample.

5.3 Laboratory Quality Assurance/Quality Control

We reviewed the QA/QC results provided with the laboratory analytical reports. The data indicate non-detect results for the method blanks at or above reporting limits. The Matrix Spike (MS) and/or Matrix Spike Duplicate (MSD) were outside recovery criteria for several samples, possibly due to matrix interference, however the associated laboratory control sample (LCS) recoveries were acceptable. The relative percent differences (RPD) for MS/MSD were outside of recovery limits for several analytes, however, the analytical batch was validated by the LCS. The relative percent difference (RDP) for one sample and duplicate sample were outside of recovery criteria for nickel, however, the analytical batch was validated by the LCS. The RPD was outside criteria for 2 duplicate samples, possibly due to non-homogeneity of samples. Remaining samples and internal laboratory QA/QC samples showed acceptable recoveries and relative percent differences (RPDs). Based on this limited data review, no additional qualifications of the soil data are necessary, and the data are of sufficient quality for the purposes of this report.

5.4 Statistical Evaluation for Lead Detected in Soil Samples

Statistical methods were applied to the total lead data to evaluate: 1) the upper confidence limits (UCLs) of the arithmetic means of the total lead concentrations for each sampling depth; and 2) if an acceptable correlation between total and WET lead concentrations exists that would allow the

prediction of WET lead concentrations based on calculated UCLs. The lead data for the site were treated as a single sample population for statistical evaluation.

5.4.1 Calculating the UCLs for the Arithmetic Mean

The upper one-sided 90% and 95% UCLs of the arithmetic mean are defined as the values that, when calculated repeatedly for randomly drawn subsets of site data, equal or exceed the true mean 90% and 95% of the time, respectively. Statistical confidence limits are the classical tool for addressing uncertainties of a distribution mean. The UCLs of the arithmetic mean concentration are used as the mean concentrations because it is not possible to know the true mean due to the essentially infinite number of soil samples that could be collected from a site. The UCLs 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 were used to calculate the UCLs. For those samples in which total lead was not detected, a value equal to one-half of the detection limit was used in the UCL calculation. The bootstrap test results are included in Appendix C. The following tables present the calculated UCLs and statistics for the Site.

Borings B1 to B9

SAMPLE INTERVAL (feet)	TOTAL LEAD 90% UCL (mg/kg)	TOTAL LEAD 95% UCL (mg/kg)	TOTAL LEAD MEAN (mg/kg)	TOTAL LEAD MINIMUM (mg/kg)	TOTAL LEAD MAXIMUM (mg/kg)
0 to 0.5	120	128	89.8	2.5	210
1.0 to 1.5	26.7	29.1	18.6	2.5	52
2.0 to 2.5	NC	NC	2.16	0.5	2.5
5.0 to 5.5	6.49	6.92	5.03	1.9	8.5

NC – Not calculated due to insufficient data set

5.4.2 Correlation of Total and WET Lead

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

To estimate the degree of interrelation between total and corresponding WET lead values (x and y, respectively), the *correlation coefficient [r]* is used. The correlation coefficient is a ratio that ranges from +1 to –1. A *correlation coefficient* of +1 indicates a perfect direct relationship between two variables; a *correlation coefficient* of –1 indicates that one variable changes inversely with relation to

the other. Between the two extremes is a spectrum of less-than-perfect relationships, including zero, which indicates the lack of any sort of linear relationship at all. The *correlation coefficient* was calculated for 7 (x, y) data points (i.e., soil samples analyzed for both total lead [x] and WET lead [y]) from the site. To achieve an acceptable correlation, the total WET soluble lead data from sample B7-0 (210, 5.20) was excluded from the regression analysis. The excluded total and WET soluble lead data has the highest squared residual WET soluble lead value (presented in Appendix C). Excluding this data point from the regression analysis yields an acceptable *coefficient of determination* (r^2) equaled 0.6485, which yields a corresponding *correlation coefficient* (r) of 0.8053.

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 $y = 0.0572(x)$, where x represents total lead concentrations and y represents predicted WET lead concentrations.

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

6.0 CONCLUSIONS

6.1 Lead in Soil

The following table summarizes the predicted waste classification for excavated soil based on the calculated weighted averages of the total lead UCLs and predicted WET lead concentrations for data collected from the Site. For sample depths with insufficient data sets to allow complete statistical analyses, the maximum lead value was used in calculating averages. Weighted averages are calculated by using the total lead concentration for each 0.5-foot depth interval as the value for the underlying 0.5-foot depth interval (unless a sample was collected from the underlying depth interval). The total and WET lead calculations are summarized below and in Table 6.

Excavation Depth	90% UCL Total Lead (mg/kg)	90% UCL Predicted WET Lead (mg/l)	95% UCL Total Lead (mg/kg)	Waste Classification
0 to 1 ft	120	**6.9**	128	**Hazardous**
Underlying soil (1 to 5.5 ft)	*8.3*	*0.5*	*8.9*	*Non-hazardous*
0 to 2 ft	73.4	4.2	78.6	Non-Hazardous
Underlying soil (2 to 5.5 ft)	*3.1*	*0.2*	*3.1*	*Non-hazardous*
0 to 5 ft	*30.8*	*1.8*	*32.9*	Non-Hazardous
Underlying soil (5 to 5.5 ft)	*6.5*	*0.4*	*6.9*	*Non-hazardous*
0 to 5.5 ft	*28.6*	*1.6*	*30.6*	Non-Hazardous

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

Based on the data presented in the above table, soil excavated to a depth of 1.0 foot would be classified as a California hazardous waste since the 90% UCL-predicted WET lead concentration is greater than the lead STLC of 5.0 mg/l. Based on the reported DI-WET and pH results, soil excavated to a depth of 1.0 foot may be reused onsite (as Caltrans Type Y-1) in accordance with the DTSC Variance by placing the excavated soil under clean fill or pavement. Based on the TCLP lead results, excavated soil would not be classified as a RCRA hazardous waste. Underlying soil would be classified as non-hazardous based on lead content. If excavations extend to 2.0 feet or deeper and the soil is managed as a whole, then excavated soil would be classified as non-hazardous.

6.2 Remaining CAM 17 Metals in Soil

Seven samples contained total chromium at concentrations of greater than 50 mg/kg (i.e., greater than ten times the STLC of 5 mg/l). The samples were further analyzed for WET chromium, and the reported concentrations were below the STLC. Total chromium concentrations in remaining samples were below ten times the STLC. Accordingly, excavated soil would be classified as non-hazardous based on chromium content.

With the exceptions of chromium and lead, CAM 17 metals were reported in the samples at total concentrations below ten times their respective STLCs. The CAM 17 metals concentrations in site soil were compared to ESLs. Arsenic, cobalt, and lead were reported at concentrations greater than one or more ESL values.

Non-parametric bootstrap techniques were used to calculate the UCLs for arsenic, cobalt, and lead.

The bootstrap test results are included in Appendix C. ESLs, UCLs, and published background concentrations for arsenic, cobalt, and lead are summarized in the table below:

Metal	Maximum	95% UCL	Shallow Soil Residential ESL	Shallow Soil Commercial/ Industrial ESL	Worker Direct Exposure ESL	PUBLISHED BACKGROUND MEAN[1]	PUBLISHED BACKGROUND RANGE [1]
Arsenic	3.5	2.58	0.39	0.96	10	3.5	0.6 to 11.0
Cobalt	28	26.2	23	80	49	14.9	2.7-46.9
Lead	180	69.8	80	320	320	23.9	12.4-97.1

Concentrations reported in mg/kg

[1] Kearney Foundation of Soil Science, March 1996

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

Based on the reported results for arsenic, offsite reuse or disposal of excavated soil may be restricted based on arsenic content, depending on proposed use.

The 95% UCL cobalt concentration is greater than the residential land use ESL; however, it is below the commercial land use ESL, the construction exposure ESL, and is within the published background range.

The 95% UCL lead concentration is less than the residential land use, commercial/industrial land use and construction exposure ESLs, and also within the published background range.

Metals results for soil samples are summarized in Tables 2 and 3.

6.3 Organics in Soil

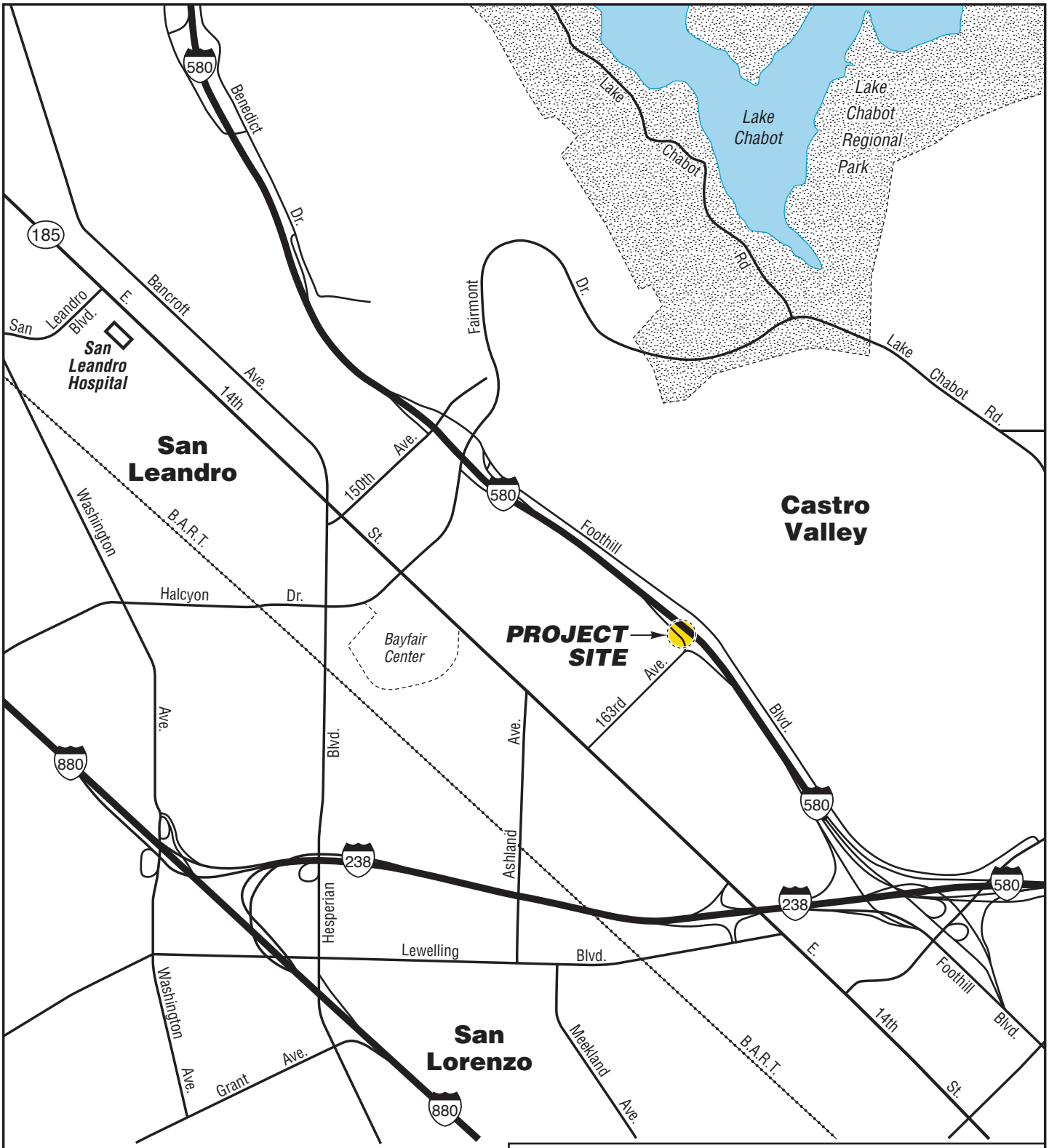
TPHg, BTEX, or MTBE were not detected at or above the laboratory reporting limits. TPHd/mo were reported in soil samples at concentrations below residential and commercial/industrial land use ESLs, and the construction exposure ESL (SFRWQCB, May 2013, Tables A and K-3). A summary of organic compound concentrations in site soil is presented in Table 4.

6.4 Organics in Groundwater

Groundwater samples were collected from the existing on-site monitoring well. TPHg or BTEX were not detected at or above the laboratory reporting limits. TPHd/mo were reported in soil samples at concentrations below ESLs for groundwater as a current/potential source of drinking water, groundwater not as a current/potential source of drinking water, and surface water for freshwater, marine, or estuarine environments. (SFRWQCB, May 2013, Tables F-1a, F-1b, and F2a through F2c). A summary of organic compound concentrations for the monitoring well is presented in Table 5.

6.5 Worker Protection

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



N

0 1/2

Scale in Miles

GEOCON CONSULTANTS, INC.

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EB 580 164th Avenue Shoulder

Alameda County, California

GEOCON Proj. No. E8560-02-52

VICINITY MAP

Task Order No. 52 | October 2013 | Figure 1

LEGEND:
Boring Location

N

0 25 50
SCALE: feet

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EB 580 164th Avenue Shoulder		
Alameda County, California	**SITE PLAN**	
GEOCON Proj. No. E8560-02-52		
Task Order No. 52	October 2013	Figure 2

SITE0813

TABLE 1
Boring Coordinates
EB I-580 Shoulder Repair
San Leandro, California

Boring	Northing	Easting
B1	2,081,714.908	6,095,844.859
B2	2,081,689.237	6,095,876.400
B3	2,081,663.466	6,095,907.858
B4	2,081,717.726	6,095,820.957
B5	2,081,692.905	6,095,853.179
B6	2,081,640.928	6,095,916.130
B7	2,081,696.561	6,095,829.948
B8	2,081,670.912	6,095,861.506
B9	2,081,644.892	6,095,892.763
MW	2,081,639.930	6,095,946.398

MW = Existing onsite monitoring well
Coordinates shown in feet, NAD 83, Zone 3

TABLE 2
Summary of Lead and pH Results - Soil
EB I-580 Shoulder Repair
San Leandro, California

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	DI-WET Lead (mg/l)	TCLP Lead (mg/l)	pH
B1-0	0 to 0.5	180	11	<0.25	<0.25	8.7
B1-1	1 to 1.5	6.2	---	---	---	---
B1-2	2 to 2.5	<5.0	---	---	---	---
B1-5	5 to 5.5	<5.0	---	---	---	---
B1-10	10 to 10.5	8.0	---	---	---	---
B2-0	0 to 0.5	<5.0	---	---	---	---
B2-1	1 to 1.5	9.3	---	---	---	---
B2-2	2 to 2.5	<5.0	---	---	---	---
B2-5	5 to 5.5	<5.0	---	---	---	---
B2-10	10 to 10.5	<5.0	---	---	---	---
B2-30	30 to 30.5	<5.0	---	---	---	---
B3-0	0 to 0.5	<5.0	---	---	---	---
B3-1	1 to 1.5	<5.0	---	---	---	---
B3-2	2 to 2.5	<1.0	---	---	---	---
B3-5	5 to 5.5	8.3	---	---	---	---
B3-10	10 to 10.5	9.6	---	---	---	---
B4-0	0 to 0.5	150	5.8	<0.25	<0.25	7.8
B4-1	1 to 1.5	52	2.8	---	---	---
B4-2	2 to 2.5	<5.0	---	---	---	---
B4-5	5 to 5.5	6.5	---	---	---	---
B5-0	0 to 0.5	59	5.2	0.27	---	6.8
B5-1	1 to 1.5	<5.0	---	---	---	---
B5-2	2 to 2.5	<5.0	---	---	---	---
B5-5	5 to 5.5	8.5	---	---	---	---
B6-0	0 to 0.5	64	4.6	---	---	---
B6-1	1 to 1.5	50	4.0	---	---	---
B6-2	2 to 2.5	<5.0	---	---	---	---
B6-5	5 to 5.5	1.9	---	---	---	---
B7-0	0 to 0.5	210	5.2	<0.25	<0.25	7.2
B7-1	1 to 1.5	29	---	---	---	---
B7-2	2 to 2.5	<5.0	---	---	---	---
B8-0	0 to 0.5	46	---	---	---	---
B8-1	1 to 1.5	6.6	---	---	---	---
B8-2	2 to 2.5	<5.0	---	---	---	---
B9-0	0 to 0.5	94	6.2	<0.25	---	7.5

TABLE 2
Summary of Lead and pH Results - Soil
EB I-580 Shoulder Repair
San Leandro, California

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	DI-WET Lead (mg/l)	TCLP Lead (mg/l)	pH
B9-1	1 to 1.5	9.7	---	---	---	---
B9-2	2 to 2.5	1.4	---	---	---	---
Equipment Blank		<0.050 mg/l				
Hazardous Waste Criteria						
	TTLC (mg/kg)	1,000	---	---	---	---
	STLC (mg/l)	---	5.0	---	---	---
	TCLP (mg/l)	---	---	---	5.0	---

Notes:

mg/kg = Milligrams per kilogram
mg/l = Milligrams per liter
WET = Waste Extraction Test using citric acid as the extraction fluid
DI-WET = Waste Extraction Test using deionized water as the extraction fluid
TCLP = Toxicity Characteristic Leaching Procedure
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration

TABLE 3
Summary of CAM 17 Metals Results - Soil
EB I-580 Shoulder Repair
San Leandro, California

Sample ID	Sample Depth (ft)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
B1-0	0 to 0.5	<2.0	<1.0	34	<1.0	<1.0	53 *<0.10*	24	120	180	<0.10	<1.0	38	<1.0	<1.0	<1.0	130	55
B2-1	1 to 1.5	<2.0	2.5	73	<1.0	<1.0	130 *<0.10*	27	74	9.3	0.12	<1.0	78	<1.0	<1.0	<1.0	69	37
B3-2	2 to 2.5	<2.0	2.1	62	<1.0	<1.0	110 *<0.10*	25	57	<1.0	<0.10	<1.0	80	<1.0	<1.0	<1.0	63	28
B4-5	5 to 5.5	<2.0	1.7	41	<1.0	<1.0	180 *0.18*	20	40	6.5	<0.10	<1.0	81	<1.0	<1.0	<1.0	96	22
B5-0	0 to 0.5	<2.0	2.4	28	<1.0	<1.0	47	25	120	59	<0.10	<1.0	31	1.3	<1.0	<1.0	170	44
B6-5	5 to 5.5	<2.0	2.4	71	<1.0	<1.0	150 *0.11*	27	69	1.9	<0.099	<1.0	140	1.1	<1.0	<1.0	76	33
B7-1	1 to 1.5	<2.0	1.8	52	<1.0	<1.0	65 *0.26*	21	92	29	0.14	<1.0	44	<1.0	<1.0	<1.0	120	51
B9-2	2 to 2.5	<2.0	3.5	74	<1.0	<1.0	130 *<0.10*	28	75	1.4	0.22	<1.0	90	<1.0	<1.0	<1.0	74	30
ESLs																		
Residential Land Use		20	0.39	750	4.0	12	750	23	230	80	6.7	40	150	10	20	0.78	200	600
Commercial/Industrial Land Use		40	0.96	1,500	8.0	12	750	80	230	320	10	40	150	10	40	10	200	600
Construction Worker Exposure		120	10	61,000	180	110	460,000	49	12,000	320	27	1,500	6,100	1,500	1,500	3.1	1,500	93,000
Hazardous Waste Criteria																		
TTLC (mg/kg)		500	500	10,000	75	100	2,500	8,000	2,500	1,000	20	3,500	2,000	100	500	700	2,400	5,000
STLC (mg/l)		15	5.0	100	0.75	1.0	5.0	80	25	5.0	0.2	350	20	1.0	5.0	7.0	24	250
TCLP (mg/l)		---	5.0	100	---	1.0	6.0	---	---	5.0	0.2	---	---	1.0	5.0	---	---	---

Notes:
Results are shown in milligrams per kilogram (mg/kg).
Values listed for chromium are for Chromium III, as there is no standard for total chromium.
Values listed in italics are results of WET analysis
< = Analyte was not detected above the laboratory reporting limit.
ESLs = Environmental Screening Levels, Tables A, B, and K-3, SFRWQCB, May 2013.
TTLC = total threshold limit concentration
STLC = soluble threshold limit concentration
TCLP = toxicity characteristic leaching procedure

TABLE 4
Summary of Organics Results - Soil
EB I-580 Shoulder Repair
San Leandro, California

Sample ID	Sample Depth (ft)	TPHd (mg/kg)	TPHmo (mg/kg)	TPHg (mg/kg)	BTEX/MTBE (µg/l)
B1-0	0 to 0.5	6.6	21	---	---
B1-2	2 to 2.5	4.2	11	---	---
B2-0	0 to 0.5	4.0	9.7	---	---
B2-2	2 to 2.5	3.8	8.4	---	---
B2-5	5 to 5.5	3.1	6.5	---	---
B2-30	30 to 30.5	1.1	1.3	<1.0	ND
B3-1	1 to 1.5	1.5	2.4	---	---
B3-2	2 to 2.5	2.5	4.6	---	---
B5-2	2 to 2.5	9.8	27		
B5-5	5 to 5.5	22	61	<1.0	ND
B6-1	1 to 1.5	20	50	---	---
B6-2	2 to 2.5	2.2	3.9	---	---
B6-5	5 to 5.5	2.2	3.7	---	---
B9-0	0 to 0.5	37	73	---	---
B9-1	1 to 1.5	18	31	---	---
B9-2	2 to 2.5	11	30	---	---
	ESLs				
	Residential	100	500	100	---
	Commercial/Industrial	500	2,500	500	---
	Construction Exposure	900	28,000	1,800	---

Notes:
mg/kg = milligrams per kilogram
TPHd = Total petroleum hydrocarbons as diesel
TPHmo = Total petroleum hydrocarbons as motor oil
TPHg = Total petroleum hydrocarbons as gasoline
BTEX = Benzene, toluene, ethylbenzene, total xylenes
MTBE Methyl tert-butyl ether
ND = Not Detected
--- = Not analyzed or no standard for this compound
< = Not detected above the stated laboratory reporting limit
ESLs = Environmental Screening Levels, Tables A, B, and K-3, SFRWQCB, May 2013.

TABLE 5
Summary of Organics Results - Groundwater
EB I-580 Shoulder Repair
San Leandro, California

Sample ID	TPHd (mg/l)	TPHmo (mg/l)	TPHg (mg/l)	BTEX (µg/l)
W.WELL	0.098	0.087	<0.050	ND
Trip Blank	---	---	<0.050	---
ESLs				
GW is current/potential source	0.10	0.10	0.10	---
GW not current/potential source	0.64	0.64	0.50	---
Surface Water - Freshwater	0.10	0.10	0.10	---
Surface Water - Marine	0.64	0.64	3.7	---
Surface Water - Estuarine	0.64	0.64	0.5	---

Notes:
mg/l = milligrams per kilogram
µg/l = micrograms per kilogram
TPHd = Total petroleum hydrocarbons as diesel
TPHmo = Total petroleum hydrocarbons as motor oil
TPHg = Total petroleum hydrocarbons as gasoline
BTEX = Benzene, toluene, ethylbenzene, and xylenes
--- = Not Analyzed or no standard exists
< = Not detected above the stated laboratory reporting limit
ND = None detected
ESLs = Environmental Screening Levels (Tables F-1a, F-1b, and F-2a through F-2c) Revised May 2013.

TABLE 6
Summary of Lead Statistical Analysis
EB I-580 Shoulder Repair
San Leandro, California

Borings B1 to B9

TOTAL LEAD

	90% UCL	95% UCL	Maximum Total Lead
0 to 0.5 ft	120	128	---
1 to 1.5 ft	26.7	29.1	---
2 to 2.5 ft	---	---	2.5
5 to 5.5 ft	6.5	6.9	---

EXCAVATION SCENARIOS

	Weighted Averages		
	90% UCL		95% UCL
Excavation Depth	Total Lead (mg/kg)	WET Lead* (mg/l)	Total Lead (mg/kg)
0 to 1 ft	120	6.9	128
Underlying Soil (1 to 5.5 ft)	*8.3*	*0.5*	*8.9*
0 to 2 ft	73.4	4.2	78.6
Underlying Soil (2 to 5.5 ft)	*3.1*	*0.2*	*3.1*
0 to 5 ft	30.8	1.8	32.9
Underlying Soil (5 to 5.5 ft)	*6.5*	*0.4*	*6.9*
0 to 5.5 ft	28.6	1.6	30.6

Notes:
UCL = Upper Confidence Limit (90% UCL is applicable for waste classification; 95% UCL applicable for risk assessment)
mg/kg = milligrams per kilogram
mg/l = milligrams per liter
* = WET lead concentrations are predicted using slope of regression line,
where y = predicted WET lead and x = total lead.

Regression Line Slope: $y = 0.0572\ x$

APPENDIX A

California Environmental Protection Agency
Department of Toxic Substances Control

VARIANCE

Applicant Names:

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

Variance No. V09HQSCD006

Effective Date: July 1, 2009

Expiration Date: July 1, 2014

Modification History:

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

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

Date: 6/30/09

1. INTRODUCTION.

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

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

2. IDENTIFYING INFORMATION.

APPLICANT/OWNER/OPERATOR

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

3. TYPE OF VARIANCE.

Generation, Manifest, Transportation, Storage and Disposal.

4. ISSUANCE AND EXPIRATION DATES.

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

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

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

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

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

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

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

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

8. PROVISIONS WAIVED.

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

9. SPECIFIC CONDITIONS, LIMITATIONS AND OTHER REQUIREMENTS.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

water run-on or run-off.

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

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

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

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

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

1. plan drawing designating the boundaries of the corridor where lead-contaminated soils will be excavated, stockpiled, buried and covered;

2. a list of the Caltrans projects that the corridor encompasses;

3. a list of Caltrans contractors that will be conducting any phase of work on any project affected by this variance;

4. duration of corridor construction;

5. location where sampling and analytical data used to make lead concentration level determinations are kept (e.g. a particular Caltrans project file);

6. name and phone number (including area code) of project resident engineer and project manager;

7. location where Caltrans and contractor health and safety plan and records are kept;

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

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

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

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

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

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

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

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

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

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

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

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

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

1. maintain current fact sheets at all Caltrans resident engineer offices and the Caltrans District office. Caltrans shall make the fact sheets available to anyone expressing an interest in variance-related work.

2. maintain a binder(s) containing copies of all reports submitted to DTSC at the District office. Caltrans shall ensure that the binders are readily accessible to the public.

3. carry out the following actions when it identifies additional projects:

(A) notify the public via a display advertisement in a newspaper of general circulation in that area.

(B) update and distribute the fact sheet to the mailing list and repository locations.

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

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

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

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

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

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

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

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

Attn: Caltrans Lead Variance Notification Unit

10. DISCLAIMER.

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

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

11. VARIANCE MODIFICATION OR REVOCATION. This variance is subject to review at the discretion of DTSC and may be modified or revoked by DTSC upon change of ownership and at any other time pursuant to Health and Safety Code, section 25143.

12. CEQA DETERMINATION. DTSC adopted a Negative Declaration on June 30, 2009.

Approved:

6/30/09
Date

Beverly Rikala
Operating Facilities Team
Department of Toxic Substances Control

APPENDIX B

August 23, 2013

Luann Beadle
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

TEL: 925-371-5900 Ext 403
FAX: (925) 371-5915

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

Workorder No.: N010811

RE: EB-580 164th Ave, E8560-02-52

Attention: Luann Beadle

Enclosed are the results for sample(s) received on August 16, 2013 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Jose Tenorio Jr.
Laboratory Director

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

CLIENT: Geocon Consultants, Inc.
Project: EB-580 164th Ave, E8560-02-52
Lab Order: N010811

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 6010B:

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

RPD for Matrix Spike(MS) and Matrix Spike Duplicate(MSD) is outside criteria for some analytes ; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

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

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *23-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B1-0
Lab Order:	N010811	**Collection Date:**	8/14/2013 2:40:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-001		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B				**EPA 8015B**		
RunID: GC3_130819A	QC Batch: 43707			PrepDate:	8/19/2013	Analyst: **MDM**
DRO	6.6	1.0		mg/Kg	1	8/19/2013 03:19 PM
ORO	21	1.0		mg/Kg	1	8/19/2013 03:19 PM
Surr: p-Terphenyl	89.6	59-127		%REC	1	8/19/2013 03:19 PM
MERCURY BY COLD VAPOR TECHNIQUE						
EPA 7471				**EPA 7471A**		
RunID: AA1_130821A	QC Batch: 43711			PrepDate:	8/19/2013	Analyst: **LCC**
Mercury	ND	0.10		mg/Kg	1	8/21/2013
ICP METALS						
EPA 3050B				**EPA 6010B**		
RunID: ICP2_130820A	QC Batch: 43708			PrepDate:	8/19/2013	Analyst: **CEI**
Antimony	ND	2.0		mg/Kg	1	8/20/2013 11:03 AM
Arsenic	ND	1.0		mg/Kg	1	8/20/2013 11:03 AM
Barium	34	1.0		mg/Kg	1	8/20/2013 11:03 AM
Beryllium	ND	1.0		mg/Kg	1	8/20/2013 11:03 AM
Cadmium	ND	1.0		mg/Kg	1	8/20/2013 11:03 AM
Chromium	53	1.0		mg/Kg	1	8/20/2013 11:03 AM
Cobalt	24	1.0		mg/Kg	1	8/20/2013 11:03 AM
Copper	120	2.0		mg/Kg	1	8/20/2013 11:03 AM
Lead	180	1.0		mg/Kg	1	8/20/2013 11:03 AM
Molybdenum	ND	1.0		mg/Kg	1	8/20/2013 11:03 AM
Nickel	38	1.0		mg/Kg	1	8/20/2013 11:03 AM
Selenium	ND	1.0		mg/Kg	1	8/20/2013 11:03 AM
Silver	ND	1.0		mg/Kg	1	8/20/2013 11:03 AM
Thallium	ND	1.0		mg/Kg	1	8/20/2013 11:03 AM
Vanadium	130	1.0		mg/Kg	1	8/20/2013 11:03 AM
Zinc	55	1.0		mg/Kg	1	8/20/2013 11:03 AM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *23-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B1-1
Lab Order:	N010811	**Collection Date:**	8/14/2013 2:40:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-002		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130820B	QC Batch: 43702			PrepDate:	8/16/2013	Analyst: **CEI**
Lead	6.2	5.0		mg/Kg	1	8/20/2013 03:47 PM

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

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ANALYTICAL RESULTS

Print Date: *23-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B1-2
Lab Order:	N010811	**Collection Date:**	8/14/2013 2:42:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-003		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
	EPA 3550B			**EPA 8015B**		
RunID: GC3_130819A	QC Batch: 43707			PrepDate:	8/19/2013	Analyst: **MDM**
DRO	4.2	1.0		mg/Kg	1	8/19/2013 04:11 PM
ORO	11	1.0		mg/Kg	1	8/19/2013 04:11 PM
Surr: p-Terphenyl	97.9	59-127		%REC	1	8/19/2013 04:11 PM
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130820B	QC Batch: 43702			PrepDate:	8/16/2013	Analyst: **CEI**
Lead	ND	5.0		mg/Kg	1	8/20/2013 04:09 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		

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ANALYTICAL RESULTS

Print Date: *23-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B1-5
Lab Order:	N010811	**Collection Date:**	8/14/2013 2:45:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-004		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130820B	QC Batch: 43702			PrepDate:	8/19/2013	Analyst: **CEI**
Lead	ND	5.0		mg/Kg	1	8/20/2013 04:27 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		

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ANALYTICAL RESULTS

Print Date: *23-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B1-10
Lab Order:	N010811	**Collection Date:**	8/14/2013 2:45:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-005		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130820B	QC Batch: 43702			PrepDate:	8/19/2013	Analyst: **CEI**
Lead	8.0	5.0		mg/Kg	1	8/20/2013 04:31 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		

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ANALYTICAL RESULTS

Print Date: *23-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B4-0
Lab Order:	N010811	**Collection Date:**	8/14/2013 2:25:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-006		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130820B	QC Batch: 43702			PrepDate:	8/19/2013	Analyst: **CEI**
Lead	150	5.0		mg/Kg	1	8/20/2013 04:35 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		

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ANALYTICAL RESULTS

Print Date: *23-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B4-1
Lab Order:	N010811	**Collection Date:**	8/14/2013 2:30:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-007		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130820B	QC Batch: 43702			PrepDate:	8/19/2013	Analyst: **CEI**
Lead	52	5.0		mg/Kg	1	8/20/2013 04:41 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		

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ANALYTICAL RESULTS

Print Date: *23-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B4-2
Lab Order:	N010811	**Collection Date:**	8/14/2013 2:35:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-008		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130820B	QC Batch: 43702			PrepDate:	8/19/2013	Analyst: **CEI**
Lead	ND	5.0		mg/Kg	1	8/20/2013 04:46 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		

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ANALYTICAL RESULTS

Print Date: *23-Aug-13*

CLIENT: Geocon Consultants, Inc.
Lab Order: N010811
Project: EB-580 164th Ave, E8560-02-52
Lab ID: N010811-009

Client Sample ID: B4-5
Collection Date: 8/14/2013 2:55:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY BY COLD VAPOR TECHNIQUE						
EPA 7471				**EPA 7471A**		
RunID: AA1_130821A	QC Batch: 43711			PrepDate:	8/19/2013	Analyst: **LCC**
Mercury	ND	0.10		mg/Kg	1	8/21/2013
ICP METALS						
EPA 3050B				**EPA 6010B**		
RunID: ICP2_130820A	QC Batch: 43708			PrepDate:	8/19/2013	Analyst: **CEI**
Antimony	ND	2.0		mg/Kg	1	8/20/2013 11:10 AM
Arsenic	1.7	1.0		mg/Kg	1	8/20/2013 11:10 AM
Barium	41	1.0		mg/Kg	1	8/20/2013 11:10 AM
Beryllium	ND	1.0		mg/Kg	1	8/20/2013 11:10 AM
Cadmium	ND	1.0		mg/Kg	1	8/20/2013 11:10 AM
Chromium	180	1.0		mg/Kg	1	8/20/2013 11:10 AM
Cobalt	20	1.0		mg/Kg	1	8/20/2013 11:10 AM
Copper	40	2.0		mg/Kg	1	8/20/2013 11:10 AM
Lead	6.5	1.0		mg/Kg	1	8/20/2013 11:10 AM
Molybdenum	ND	1.0		mg/Kg	1	8/20/2013 11:10 AM
Nickel	81	1.0		mg/Kg	1	8/20/2013 11:10 AM
Selenium	ND	1.0		mg/Kg	1	8/20/2013 11:10 AM
Silver	ND	1.0		mg/Kg	1	8/20/2013 11:10 AM
Thallium	ND	1.0		mg/Kg	1	8/20/2013 11:10 AM
Vanadium	96	1.0		mg/Kg	1	8/20/2013 11:10 AM
Zinc	22	1.0		mg/Kg	1	8/20/2013 11:10 AM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *23-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B5-0
Lab Order:	N010811	**Collection Date:**	8/14/2013 3:25:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-010		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY BY COLD VAPOR TECHNIQUE						
EPA 7471				**EPA 7471A**		
RunID: AA1_130821A	QC Batch: 43711			PrepDate:	8/19/2013	Analyst: **LCC**
Mercury	ND	0.10		mg/Kg	1	8/21/2013
ICP METALS						
EPA 3050B				**EPA 6010B**		
RunID: ICP2_130821C	QC Batch: 43708			PrepDate:	8/19/2013	Analyst: **CEI**
Antimony	ND	2.0		mg/Kg	1	8/21/2013 05:18 PM
Arsenic	2.4	1.0		mg/Kg	1	8/21/2013 05:18 PM
Barium	28	1.0		mg/Kg	1	8/21/2013 05:18 PM
Beryllium	ND	1.0		mg/Kg	1	8/21/2013 05:18 PM
Cadmium	ND	1.0		mg/Kg	1	8/21/2013 05:18 PM
Chromium	47	1.0		mg/Kg	1	8/21/2013 05:18 PM
Cobalt	25	1.0		mg/Kg	1	8/21/2013 05:18 PM
Copper	120	2.0		mg/Kg	1	8/21/2013 05:18 PM
Lead	59	1.0		mg/Kg	1	8/21/2013 05:18 PM
Molybdenum	ND	1.0		mg/Kg	1	8/21/2013 05:18 PM
Nickel	31	1.0		mg/Kg	1	8/21/2013 05:18 PM
Selenium	1.3	1.0		mg/Kg	1	8/21/2013 05:18 PM
Silver	ND	1.0		mg/Kg	1	8/21/2013 05:18 PM
Thallium	ND	1.0		mg/Kg	1	8/21/2013 05:18 PM
Vanadium	170	1.0		mg/Kg	1	8/21/2013 05:18 PM
Zinc	44	1.0		mg/Kg	1	8/21/2013 05:18 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		

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ANALYTICAL RESULTS

Print Date: *23-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B5-1
Lab Order:	N010811	**Collection Date:**	8/14/2013 3:32:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-011		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130820B	QC Batch: 43702			PrepDate:	8/19/2013	Analyst: **CEI**
Lead	ND	5.0		mg/Kg	1	8/20/2013 04:50 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		

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ANALYTICAL RESULTS

Print Date: *23-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B5-2
Lab Order:	N010811	**Collection Date:**	8/14/2013 3:37:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-012		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
	EPA 3550B			**EPA 8015B**		
RunID: GC3_130819A	QC Batch: 43707			PrepDate:	8/19/2013	Analyst: **MDM**
DRO	9.8	1.0		mg/Kg	1	8/19/2013 04:38 PM
ORO	27	1.0		mg/Kg	1	8/19/2013 04:38 PM
Surr: p-Terphenyl	96.7	59-127		%REC	1	8/19/2013 04:38 PM
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130820B	QC Batch: 43702			PrepDate:	8/19/2013	Analyst: **CEI**
Lead	ND	5.0		mg/Kg	1	8/20/2013 04:55 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		

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ANALYTICAL RESULTS

Print Date: *23-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B5-5
Lab Order:	N010811	**Collection Date:**	8/14/2013 3:50:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-013		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
				EPA 8260B		
RunID: MS5_130816A	QC Batch:	P13VS034		PrepDate:		Analyst: **QBM**
Benzene	ND	5.0		µg/Kg	1	8/16/2013 02:17 PM
Ethylbenzene	ND	5.0		µg/Kg	1	8/16/2013 02:17 PM
m,p-Xylene	ND	10		µg/Kg	1	8/16/2013 02:17 PM
MTBE	ND	5.0		µg/Kg	1	8/16/2013 02:17 PM
o-Xylene	ND	5.0		µg/Kg	1	8/16/2013 02:17 PM
Toluene	ND	5.0		µg/Kg	1	8/16/2013 02:17 PM
Surr: 1,2-Dichloroethane-d4	113	63-139		%REC	1	8/16/2013 02:17 PM
Surr: 4-Bromofluorobenzene	99.5	75-124		%REC	1	8/16/2013 02:17 PM
Surr: Dibromofluoromethane	117	70-133		%REC	1	8/16/2013 02:17 PM
Surr: Toluene-d8	104	80-123		%REC	1	8/16/2013 02:17 PM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
	EPA 3550B			**EPA 8015B**		
RunID: GC3_130819A	QC Batch:	43707		PrepDate:	8/19/2013	Analyst: **MDM**
DRO	22	1.0		mg/Kg	1	8/19/2013 05:04 PM
ORO	61	1.0		mg/Kg	1	8/19/2013 05:04 PM
Surr: p-Terphenyl	93.9	59-127		%REC	1	8/19/2013 05:04 PM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B		
RunID: GC4_130820A	QC Batch:	E13VS088		PrepDate:		Analyst: **PN**
GRO	ND	1.0		mg/Kg	1	8/20/2013 11:53 AM
Surr: Chlorobenzene - d5	109	51-136		%REC	1	8/20/2013 11:53 AM
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130820B	QC Batch:	43702		PrepDate:	8/19/2013	Analyst: **CEI**
Lead	8.5	5.0		mg/Kg	1	8/20/2013 04:59 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		

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ANALYTICAL RESULTS

Print Date: *23-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B7-0
Lab Order:	N010811	**Collection Date:**	8/14/2013 2:10:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-014		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130820B	QC Batch: 43702			PrepDate:	8/19/2013	Analyst: **CEI**
Lead	210	5.0		mg/Kg	1	8/20/2013 05:03 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		

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ANALYTICAL RESULTS

Print Date: *23-Aug-13*

CLIENT: Geocon Consultants, Inc.
Lab Order: N010811
Project: EB-580 164th Ave, E8560-02-52
Lab ID: N010811-015

Client Sample ID: B7-1
Collection Date: 8/14/2013 2:15:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY BY COLD VAPOR TECHNIQUE						
	EPA 7471			**EPA 7471A**		
RunID: AA1_130821A	QC Batch: 43711			PrepDate:	8/19/2013	Analyst: **LCC**
Mercury	0.14	0.10		mg/Kg	1	8/21/2013
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130820A	QC Batch: 43708			PrepDate:	8/19/2013	Analyst: **CEI**
Antimony	ND	2.0		mg/Kg	1	8/20/2013 01:05 PM
Arsenic	1.8	1.0		mg/Kg	1	8/20/2013 01:05 PM
Barium	52	1.0		mg/Kg	1	8/20/2013 01:05 PM
Beryllium	ND	1.0		mg/Kg	1	8/20/2013 01:05 PM
Cadmium	ND	1.0		mg/Kg	1	8/20/2013 01:05 PM
Chromium	65	1.0		mg/Kg	1	8/20/2013 01:05 PM
Cobalt	21	1.0		mg/Kg	1	8/20/2013 01:05 PM
Copper	92	2.0		mg/Kg	1	8/20/2013 01:05 PM
Lead	29	1.0		mg/Kg	1	8/20/2013 01:05 PM
Molybdenum	ND	1.0		mg/Kg	1	8/20/2013 01:05 PM
Nickel	44	1.0		mg/Kg	1	8/20/2013 01:05 PM
Selenium	ND	1.0		mg/Kg	1	8/20/2013 01:05 PM
Silver	ND	1.0		mg/Kg	1	8/20/2013 01:05 PM
Thallium	ND	1.0		mg/Kg	1	8/20/2013 01:05 PM
Vanadium	120	1.0		mg/Kg	1	8/20/2013 01:05 PM
Zinc	51	1.0		mg/Kg	1	8/20/2013 01:05 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		

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ANALYTICAL RESULTS

Print Date: *23-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B7-2
Lab Order:	N010811	**Collection Date:**	8/14/2013 2:20:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-016		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130820B	QC Batch: 43702			PrepDate:	8/19/2013	Analyst: **CEI**
Lead	ND	5.0		mg/Kg	1	8/20/2013 05:33 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		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *23-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B8-0
Lab Order:	N010811	**Collection Date:**	8/14/2013 3:10:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-017		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130820B	QC Batch: 43702			PrepDate:	8/19/2013	Analyst: **CEI**
Lead	46	5.0		mg/Kg	1	8/20/2013 05:42 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		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *23-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B8-1
Lab Order:	N010811	**Collection Date:**	8/14/2013 3:15:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-018		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130820B	QC Batch: 43702			PrepDate:	8/19/2013	Analyst: **CEI**
Lead	6.6	5.0		mg/Kg	1	8/20/2013 05:47 PM

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

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ANALYTICAL RESULTS

Print Date: *23-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B8-2
Lab Order:	N010811	**Collection Date:**	8/14/2013 3:20:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-019		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130820B	QC Batch: 43702			PrepDate:	8/19/2013	Analyst: **CEI**
Lead	ND	5.0		mg/Kg	1	8/20/2013 05:51 PM

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *23-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	EB
Lab Order:	N010811	**Collection Date:**	8/14/2013
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	WATER
Lab ID:	N010811-020		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3010A			**EPA 6010B**		
RunID: ICP2_130821A	QC Batch: 43723				PrepDate: 8/20/2013	Analyst: **CEI**
Lead	ND	0.0050		mg/L	1	8/21/2013 11:20 AM

Qualifiers:

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

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CLIENT: Geocon Consultants, Inc.
Work Order: N010811
Project: EB-580 164th Ave, E8560-02-52

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **MB-43708** SampType: **MBLK** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/19/2013** RunNo: **90055**
Client ID: **PBS** Batch ID: **43708** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/20/2013** SeqNo: **1635818**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.309	2.0									
Arsenic	ND	1.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Chromium	ND	1.0									
Cobalt	ND	1.0									
Copper	ND	2.0									
Lead	ND	1.0									
Molybdenum	0.163	1.0									
Nickel	ND	1.0									
Selenium	ND	1.0									
Silver	ND	1.0									
Thallium	ND	1.0									
Vanadium	ND	1.0									
Zinc	ND	1.0									

Sample ID: **LCS-43708** SampType: **LCS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/19/2013** RunNo: **90055**
Client ID: **LCSS** Batch ID: **43708** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/20/2013** SeqNo: **1635819**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	49.447	2.0	50.00	0	98.9	80	120				
Arsenic	47.368	1.0	50.00	0	94.7	80	120				
Barium	49.346	1.0	50.00	0	98.7	80	120				
Beryllium	47.001	1.0	50.00	0	94.0	80	120				
Cadmium	47.446	1.0	50.00	0	94.9	80	120				
Chromium	48.796	1.0	50.00	0	97.6	80	120				
Cobalt	47.486	1.0	50.00	0	95.0	80	120				

Qualifiers:

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

CLIENT: Geocon Consultants, Inc.
Work Order: N010811
Project: EB-580 164th Ave, E8560-02-52

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **LCS-43708** SampType: **LCS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/19/2013** RunNo: **90055**
Client ID: **LCSS** Batch ID: **43708** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/20/2013** SeqNo: **1635819**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	50.307	2.0	50.00	0	101	80	120				
Lead	49.706	1.0	50.00	0	99.4	80	120				
Molybdenum	51.020	1.0	50.00	0	102	80	120				
Nickel	46.918	1.0	50.00	0	93.8	80	120				
Selenium	41.289	1.0	50.00	0	82.6	80	120				
Silver	47.872	1.0	50.00	0	95.7	80	120				
Thallium	48.528	1.0	50.00	0	97.1	80	120				
Vanadium	50.116	1.0	50.00	0	100	80	120				
Zinc	46.427	1.0	50.00	0	92.9	80	120				

Sample ID: **N010811-009A-MS** SampType: **MS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/19/2013** RunNo: **90055**
Client ID: **ZZZZZZ** Batch ID: **43708** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/20/2013** SeqNo: **1635824**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	36.486	2.0	49.83	0	73.2	75	125				S
Arsenic	49.180	1.0	49.83	1.741	95.2	75	125				
Barium	71.527	1.0	49.83	40.95	61.4	75	125				S
Beryllium	47.987	1.0	49.83	0	96.3	75	125				
Cadmium	44.723	1.0	49.83	0	89.8	75	125				
Chromium	138.045	1.0	49.83	175.5	-75.2	75	125				S
Cobalt	55.993	1.0	49.83	20.03	72.2	75	125				S
Copper	78.878	2.0	49.83	40.31	77.4	75	125				
Lead	50.352	1.0	49.83	6.505	88.0	75	125				
Molybdenum	47.580	1.0	49.83	0	95.5	75	125				
Nickel	88.278	1.0	49.83	81.25	14.1	75	125				S
Selenium	41.586	1.0	49.83	0.5470	82.4	75	125				
Silver	47.701	1.0	49.83	0	95.7	75	125				
Thallium	45.097	1.0	49.83	0	90.5	75	125				
Vanadium	123.804	1.0	49.83	95.96	55.9	75	125				S
Zinc	55.772	1.0	49.83	22.27	67.2	75	125				S

Qualifiers:

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

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CLIENT: Geocon Consultants, Inc.
Work Order: N010811
Project: EB-580 164th Ave, E8560-02-52

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **N010811-009A-MSD** SampType: **MSD** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/19/2013** RunNo: **90055**
Client ID: **ZZZZZZ** Batch ID: **43708** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/20/2013** SeqNo: **1635825**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	23.220	2.0	50.13	0	46.3	75	125	36.49	44.4	20	SR
Arsenic	45.221	1.0	50.13	1.741	86.7	75	125	49.18	8.39	20	
Barium	78.646	1.0	50.13	40.95	75.2	75	125	71.53	9.48	20	
Beryllium	43.972	1.0	50.13	0	87.7	75	125	47.99	8.73	20	
Cadmium	40.175	1.0	50.13	0	80.1	75	125	44.72	10.7	20	
Chromium	211.790	1.0	50.13	175.5	72.3	75	125	138.0	42.2	20	SR
Cobalt	59.449	1.0	50.13	20.03	78.6	75	125	55.99	5.99	20	
Copper	86.859	2.0	50.13	40.31	92.9	75	125	78.88	9.63	20	
Lead	48.448	1.0	50.13	6.505	83.7	75	125	50.35	3.85	20	
Molybdenum	40.785	1.0	50.13	0	81.4	75	125	47.58	15.4	20	
Nickel	118.610	1.0	50.13	81.25	74.5	75	125	88.28	29.3	20	SR
Selenium	38.434	1.0	50.13	0.5470	75.6	75	125	41.59	7.88	20	
Silver	43.529	1.0	50.13	0	86.8	75	125	47.70	9.15	20	
Thallium	39.618	1.0	50.13	0	79.0	75	125	45.10	12.9	20	
Vanadium	154.535	1.0	50.13	95.96	117	75	125	123.8	22.1	20	R
Zinc	60.868	1.0	50.13	22.27	77.0	75	125	55.77	8.74	20	

Sample ID: **N010811-010A-DUP** SampType: **DUP** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/19/2013** RunNo: **90055**
Client ID: **ZZZZZZ** Batch ID: **43708** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/20/2013** SeqNo: **1635827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0						0	0	20	
Arsenic	2.681	1.0						2.375	12.1	20	
Barium	32.227	1.0						27.67	15.2	20	
Beryllium	ND	1.0						0	0	20	
Cadmium	ND	1.0						0	0	20	
Chromium	52.115	1.0						46.29	11.8	20	
Cobalt	22.441	1.0						23.66	5.28	20	
Copper	98.439	2.0						109.5	10.6	20	
Lead	54.398	1.0						57.14	4.91	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

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CLIENT: Geocon Consultants, Inc.
Work Order: N010811
Project: EB-580 164th Ave, E8560-02-52

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **N010811-010A-DUP** SampType: **DUP** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/19/2013** RunNo: **90055**
Client ID: **ZZZZZZ** Batch ID: **43708** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/20/2013** SeqNo: **1635827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	ND	1.0						0	0	20	
Nickel	35.660	1.0						28.66	21.8	20	R
Silver	ND	1.0						0	0	20	
Thallium	ND	1.0						0	0	20	
Vanadium	139.319	1.0						165.8	17.4	20	
Zinc	46.995	1.0						41.59	12.2	20	

Qualifiers:

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

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CLIENT: Geocon Consultants, Inc.
Work Order: N010811
Project: EB-580 164th Ave, E8560-02-52

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPB

Sample ID: **MB-43702** SampType: **MBLK** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **8/16/2013** RunNo: **90056**
Client ID: **PBS** Batch ID: **43702** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/20/2013** SeqNo: **1635852**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	5.0									

Sample ID: **MB2-43702** SampType: **MBLK** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **8/19/2013** RunNo: **90056**
Client ID: **PBS** Batch ID: **43702** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/20/2013** SeqNo: **1635853**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	5.0									

Sample ID: **LCS-43702** SampType: **LCS** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **8/16/2013** RunNo: **90056**
Client ID: **LCSS** Batch ID: **43702** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/20/2013** SeqNo: **1635854**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	50.131	5.0	50.00	0	100	80	120				

Sample ID: **N010811-002A-MS** SampType: **MS** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **8/16/2013** RunNo: **90056**
Client ID: **ZZZZZZ** Batch ID: **43702** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/20/2013** SeqNo: **1635858**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	49.697	5.0	50.23	6.167	86.7	75	125				

Sample ID: **N010811-002A-MSD** SampType: **MSD** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **8/16/2013** RunNo: **90056**
Client ID: **ZZZZZZ** Batch ID: **43702** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/20/2013** SeqNo: **1635859**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	61.361	5.0	49.98	6.167	110	75	125	49.70	21.0	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		

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CLIENT: Geocon Consultants, Inc.
Work Order: N010811
Project: EB-580 164th Ave, E8560-02-52

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPB

Sample ID: **N010811-003A-DUP** SampType: **DUP** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **8/19/2013** RunNo: **90056**
Client ID: **ZZZZZZ** Batch ID: **43702** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/20/2013** SeqNo: **1635861**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	3.102	5.0						2.458	0	20	

Sample ID: **N010811-014A-MS** SampType: **MS** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **8/19/2013** RunNo: **90056**
Client ID: **ZZZZZZ** Batch ID: **43702** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/20/2013** SeqNo: **1635873**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	231.212	5.0	50.18	207.8	46.7	75	125				S

Sample ID: **N010811-016A-DUP** SampType: **DUP** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **8/19/2013** RunNo: **90056**
Client ID: **ZZZZZZ** Batch ID: **43702** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/20/2013** SeqNo: **1635878**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	4.778	5.0						3.668	0	20	

Qualifiers:

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

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CLIENT: Geocon Consultants, Inc.
Work Order: N010811
Project: EB-580 164th Ave, E8560-02-52

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_W

Sample ID: **MB-43723** SampType: **MBLK** TestCode: **6010_W** Units: **mg/L** Prep Date: **8/20/2013** RunNo: **90064**
Client ID: **PBW** Batch ID: **43723** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **8/21/2013** SeqNo: **1636868**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.0050									

Sample ID: **LCS-43723** SampType: **LCS** TestCode: **6010_W** Units: **mg/L** Prep Date: **8/20/2013** RunNo: **90064**
Client ID: **LCSW** Batch ID: **43723** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **8/21/2013** SeqNo: **1636871**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.538	0.0050	0.5000	0	108	85	115				

Sample ID: **N010810-003B-MS** SampType: **MS** TestCode: **6010_W** Units: **mg/L** Prep Date: **8/20/2013** RunNo: **90064**
Client ID: **ZZZZZZ** Batch ID: **43723** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **8/21/2013** SeqNo: **1636881**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.572	0.0050	0.5000	0	114	75	125				

Sample ID: **N010810-003B-MSD** SampType: **MSD** TestCode: **6010_W** Units: **mg/L** Prep Date: **8/20/2013** RunNo: **90064**
Client ID: **ZZZZZZ** Batch ID: **43723** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **8/21/2013** SeqNo: **1636882**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.562	0.0050	0.5000	0	112	75	125	0.5716	1.75	20	

Qualifiers:

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

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ANALYTICAL QC SUMMARY REPORT

TestCode: 7471_S

Sample ID: **LCS-43711** SampType: **LCS** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **8/19/2013** RunNo: **90058**
Client ID: **LCSS** Batch ID: **43711** TestNo: **EPA 7471A** **EPA 7471** Analysis Date: **8/21/2013** SeqNo: **1636166**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.446	0.10	0.4195	0	106	80	120				

Sample ID: **MB-43711** SampType: **MBLK** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **8/19/2013** RunNo: **90058**
Client ID: **PBS** Batch ID: **43711** TestNo: **EPA 7471A** **EPA 7471** Analysis Date: **8/21/2013** SeqNo: **1636167**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.099									

Sample ID: **N010811-001A-DUP** SampType: **DUP** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **8/19/2013** RunNo: **90058**
Client ID: **ZZZZZZ** Batch ID: **43711** TestNo: **EPA 7471A** **EPA 7471** Analysis Date: **8/21/2013** SeqNo: **1636169**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.060	0.10						0.05990	0	20	

Sample ID: **N010811-001A-MS** SampType: **MS** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **8/19/2013** RunNo: **90058**
Client ID: **ZZZZZZ** Batch ID: **43711** TestNo: **EPA 7471A** **EPA 7471** Analysis Date: **8/21/2013** SeqNo: **1636170**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.521	0.099	0.4119	0.05990	112	75	125				

Sample ID: **N010811-001A-MSD** SampType: **MSD** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **8/19/2013** RunNo: **90058**
Client ID: **ZZZZZZ** Batch ID: **43711** TestNo: **EPA 7471A** **EPA 7471** Analysis Date: **8/21/2013** SeqNo: **1636171**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.530	0.10	0.4146	0.05990	113	75	125	0.5211	1.72	20	

Qualifiers:

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

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ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_DM LL

Sample ID: **LCS-43707** SampType: **LCS** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **8/19/2013** RunNo: **90034**
Client ID: **LCSS** Batch ID: **43707** TestNo: **EPA 8015B EPA 3550B** Analysis Date: **8/19/2013** SeqNo: **1635246**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	64.335	1.0	83.30	0	77.2	52	126				
Surr: p-Terphenyl	6.747		6.670		101	59	127				

Sample ID: **MB1-43707** SampType: **MBLK** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **8/19/2013** RunNo: **90034**
Client ID: **PBS** Batch ID: **43707** TestNo: **EPA 8015B EPA 3550B** Analysis Date: **8/19/2013** SeqNo: **1635247**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	ND	1.0									
ORO	ND	1.0									
Surr: p-Terphenyl	5.984		6.670		89.7	59	127				

Sample ID: **N010811-001A-DUP** SampType: **DUP** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **8/19/2013** RunNo: **90034**
Client ID: **ZZZZZZ** Batch ID: **43707** TestNo: **EPA 8015B EPA 3550B** Analysis Date: **8/19/2013** SeqNo: **1635249**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	6.046	1.0						6.610	8.93	20	
ORO	19.473	1.0						20.79	6.54	20	
Surr: p-Terphenyl	6.387		6.666		95.8	59	127		0		

Sample ID: **N010811-001A-MS** SampType: **MS** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **8/19/2013** RunNo: **90034**
Client ID: **ZZZZZZ** Batch ID: **43707** TestNo: **EPA 8015B EPA 3550B** Analysis Date: **8/19/2013** SeqNo: **1635259**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	58.283	1.0	83.11	6.610	62.2	13	129				
Surr: p-Terphenyl	6.556		6.654		98.5	59	127				

Qualifiers:

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

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ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_DM LL

Sample ID: **N010811-001A-MSD** SampType: **MSD** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **8/19/2013** RunNo: **90034**
Client ID: **ZZZZZZ** Batch ID: **43707** TestNo: **EPA 8015B EPA 3550B** Analysis Date: **8/19/2013** SeqNo: **1635260**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	58.340	1.0	83.47	6.610	62.0	13	129	58.28	0.0979	20	
Surr: p-Terphenyl	6.699		6.683		100	59	127		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		

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ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GAS_S

Sample ID: **E130820LCS** SampType: **LCS** TestCode: **8015GAS_S** Units: **mg/Kg** Prep Date: RunNo: **90042**
Client ID: **LCSS** Batch ID: **E13VS088** TestNo: **EPA 8015B** Analysis Date: **8/20/2013** SeqNo: **1635501**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	5.586	1.0	5.000	0	112	77	122				
Surr: Chlorobenzene - d5	103.766		100.0		104	51	136				

Sample ID: **E130820MB1** SampType: **MBLK** TestCode: **8015GAS_S** Units: **mg/Kg** Prep Date: RunNo: **90042**
Client ID: **PBS** Batch ID: **E13VS088** TestNo: **EPA 8015B** Analysis Date: **8/20/2013** SeqNo: **1635502**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.066	1.0									
Surr: Chlorobenzene - d5	101.825		100.0		102	51	136				

Sample ID: **N010812-008AMS** SampType: **MS** TestCode: **8015GAS_S** Units: **mg/Kg** Prep Date: RunNo: **90042**
Client ID: **ZZZZZZ** Batch ID: **E13VS088** TestNo: **EPA 8015B** Analysis Date: **8/20/2013** SeqNo: **1635508**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	5.361	1.0	5.000	0.06000	106	41	132				
Surr: Chlorobenzene - d5	99.661		100.0		99.7	51	136				

Sample ID: **N010812-008AMSD** SampType: **MSD** TestCode: **8015GAS_S** Units: **mg/Kg** Prep Date: RunNo: **90042**
Client ID: **ZZZZZZ** Batch ID: **E13VS088** TestNo: **EPA 8015B** Analysis Date: **8/20/2013** SeqNo: **1635509**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	5.015	1.0	5.000	0.06000	99.1	41	132	5.361	6.67	20	
Surr: Chlorobenzene - d5	95.211		100.0		95.2	51	136		0		

Sample ID: **N010812-009ADUP** SampType: **DUP** TestCode: **8015GAS_S** Units: **mg/Kg** Prep Date: RunNo: **90042**
Client ID: **ZZZZZZ** Batch ID: **E13VS088** TestNo: **EPA 8015B** Analysis Date: **8/20/2013** SeqNo: **1635511**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.068	1.0						0.05700	0	20	

Qualifiers:

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

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ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GAS_S

Sample ID: **N010812-009ADUP** SampType: **DUP** TestCode: **8015GAS_S** Units: **mg/Kg** Prep Date: RunNo: **90042**
Client ID: **ZZZZZZ** Batch ID: **E13VS088** TestNo: **EPA 8015B** Analysis Date: **8/20/2013** SeqNo: **1635511**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Chlorobenzene - d5	86.664		100.0		86.7	51	136		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		

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ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL

Sample ID: **P130816LCS** SampType: **LCS** TestCode: **8260SOIL** Units: **µg/Kg** Prep Date: RunNo: **90021**
Client ID: **LCSS** Batch ID: **P13VS034** TestNo: **EPA 8260B** Analysis Date: **8/16/2013** SeqNo: **1634535**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	40.530	5.0	40.00	0	101	80	120				
Ethylbenzene	39.300	5.0	40.00	0	98.2	80	120				
m,p-Xylene	78.790	10	80.00	0	98.5	80	121				
MTBE	38.930	5.0	40.00	0	97.3	56	140				
o-Xylene	38.990	5.0	40.00	0	97.5	80	120				
Toluene	40.740	5.0	40.00	0	102	80	120				
Surr: 1,2-Dichloroethane-d4	54.200		50.00		108	63	139				
Surr: 4-Bromofluorobenzene	51.070		50.00		102	75	124				
Surr: Dibromofluoromethane	58.360		50.00		117	70	133				
Surr: Toluene-d8	53.040		50.00		106	80	123				

Sample ID: **P130816LCSD** SampType: **LCSD** TestCode: **8260SOIL** Units: **µg/Kg** Prep Date: RunNo: **90021**
Client ID: **LCSS02** Batch ID: **P13VS034** TestNo: **EPA 8260B** Analysis Date: **8/16/2013** SeqNo: **1634536**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	39.810	5.0	40.00	0	99.5	80	120	40.53	1.79	20	
Ethylbenzene	38.530	5.0	40.00	0	96.3	80	120	39.30	1.98	20	
m,p-Xylene	76.790	10	80.00	0	96.0	80	121	78.79	2.57	20	
MTBE	37.840	5.0	40.00	0	94.6	56	140	38.93	2.84	20	
o-Xylene	38.660	5.0	40.00	0	96.7	80	120	38.99	0.850	20	
Toluene	39.500	5.0	40.00	0	98.8	80	120	40.74	3.09	20	
Surr: 1,2-Dichloroethane-d4	52.800		50.00		106	63	139		0		
Surr: 4-Bromofluorobenzene	51.040		50.00		102	75	124		0		
Surr: Dibromofluoromethane	56.640		50.00		113	70	133		0		
Surr: Toluene-d8	52.170		50.00		104	80	123		0		

Sample ID: **P130816MB2** SampType: **MBLK** TestCode: **8260SOIL** Units: **µg/Kg** Prep Date: RunNo: **90021**
Client ID: **PBS** Batch ID: **P13VS034** TestNo: **EPA 8260B** Analysis Date: **8/16/2013** SeqNo: **1634537**

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
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ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL

Sample ID: **P130816MB2** SampType: **MBLK** TestCode: **8260SOIL** Units: **µg/Kg** Prep Date: RunNo: **90021**
Client ID: **PBS** Batch ID: **P13VS034** TestNo: **EPA 8260B** Analysis Date: **8/16/2013** SeqNo: **1634537**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	5.0									
Ethylbenzene	ND	5.0									
m,p-Xylene	ND	10									
MTBE	ND	5.0									
o-Xylene	ND	5.0									
Toluene	ND	5.0									
Surr: 1,2-Dichloroethane-d4	53.740		50.00		107	63	139				
Surr: 4-Bromofluorobenzene	50.290		50.00		101	75	124				
Surr: Dibromofluoromethane	57.650		50.00		115	70	133				
Surr: Toluene-d8	51.680		50.00		103	80	123				

Sample ID: **N010802-002ADUP** SampType: **DUP** TestCode: **8260SOIL** Units: **µg/Kg** Prep Date: RunNo: **90021**
Client ID: **ZZZZZZ** Batch ID: **P13VS034** TestNo: **EPA 8260B** Analysis Date: **8/16/2013** SeqNo: **1634553**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	5.0						0	0	20	
Ethylbenzene	ND	5.0						0	0	20	
m,p-Xylene	ND	10						0	0	20	
MTBE	ND	5.0						0	0	20	
o-Xylene	ND	5.0						0	0	20	
Toluene	ND	5.0						0	0	20	
Surr: 1,2-Dichloroethane-d4	59.350		50.00		119	63	139		0		
Surr: 4-Bromofluorobenzene	48.470		50.00		96.9	75	124		0		
Surr: Dibromofluoromethane	59.880		50.00		120	70	133		0		
Surr: Toluene-d8	51.780		50.00		104	80	123		0		

Sample ID: **N010812-010ADUP** SampType: **DUP** TestCode: **8260SOIL** Units: **µg/Kg** Prep Date: RunNo: **90021**
Client ID: **ZZZZZZ** Batch ID: **P13VS034** TestNo: **EPA 8260B** Analysis Date: **8/16/2013** SeqNo: **1634554**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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

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ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL

Sample ID: **N010812-010ADUP** SampType: **DUP** TestCode: **8260SOIL** Units: **µg/Kg** Prep Date: RunNo: **90021**
Client ID: **ZZZZZZ** Batch ID: **P13VS034** TestNo: **EPA 8260B** Analysis Date: **8/16/2013** SeqNo: **1634554**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	5.0						0	0	20	
Ethylbenzene	ND	5.0						0	0	20	
m,p-Xylene	ND	10						0	0	20	
MTBE	ND	5.0						0	0	20	
o-Xylene	ND	5.0						0	0	20	
Toluene	ND	5.0						0	0	20	
Surr: 1,2-Dichloroethane-d4	57.080		50.00		114	63	139		0		
Surr: 4-Bromofluorobenzene	48.810		50.00		97.6	75	124		0		
Surr: Dibromofluoromethane	59.290		50.00		119	70	133		0		
Surr: Toluene-d8	51.760		50.00		104	80	123		0		

Sample ID: **N010813-001AMS** SampType: **MS** TestCode: **8260SOIL** Units: **µg/Kg** Prep Date: RunNo: **90021**
Client ID: **ZZZZZZ** Batch ID: **P13VS034** TestNo: **EPA 8260B** Analysis Date: **8/16/2013** SeqNo: **1634555**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	36.920	5.0	40.00	0	92.3	72	122				
Ethylbenzene	35.890	5.0	40.00	0	89.7	65	120				
m,p-Xylene	71.790	10	80.00	1.050	88.4	65	120				
MTBE	36.600	5.0	40.00	0	91.5	64	149				
o-Xylene	35.700	5.0	40.00	0	89.2	67	118				
Toluene	37.560	5.0	40.00	0.8400	91.8	68	120				
Surr: 1,2-Dichloroethane-d4	55.710		50.00		111	63	139				
Surr: 4-Bromofluorobenzene	50.720		50.00		101	75	124				
Surr: Dibromofluoromethane	58.320		50.00		117	70	133				
Surr: Toluene-d8	52.980		50.00		106	80	123				

Sample ID: **N010813-001AMSD** SampType: **MSD** TestCode: **8260SOIL** Units: **µg/Kg** Prep Date: RunNo: **90021**
Client ID: **ZZZZZZ** Batch ID: **P13VS034** TestNo: **EPA 8260B** Analysis Date: **8/16/2013** SeqNo: **1634556**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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

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ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL

Sample ID: **N010813-001AMSD** SampType: **MSD** TestCode: **8260SOIL** Units: **µg/Kg** Prep Date: RunNo: **90021**
Client ID: **ZZZZZZ** Batch ID: **P13VS034** TestNo: **EPA 8260B** Analysis Date: **8/16/2013** SeqNo: **1634556**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	35.820	5.0	40.00	0	89.6	72	122	36.92	3.02	20	
Ethylbenzene	34.560	5.0	40.00	0	86.4	65	120	35.89	3.78	20	
m,p-Xylene	69.450	10	80.00	1.050	85.5	65	120	71.79	3.31	20	
MTBE	36.700	5.0	40.00	0	91.8	64	149	36.60	0.273	20	
o-Xylene	34.530	5.0	40.00	0	86.3	67	118	35.70	3.33	20	
Toluene	36.300	5.0	40.00	0.8400	88.7	68	120	37.56	3.41	20	
Surr: 1,2-Dichloroethane-d4	54.420		50.00		109	63	139		0		
Surr: 4-Bromofluorobenzene	50.660		50.00		101	75	124		0		
Surr: Dibromofluoromethane	58.100		50.00		116	70	133		0		
Surr: Toluene-d8	51.540		50.00		103	80	123		0		

Sample ID: **N010811-013AMS** SampType: **MS** TestCode: **8260SOIL** Units: **µg/Kg** Prep Date: RunNo: **90021**
Client ID: **ZZZZZZ** Batch ID: **P13VS034** TestNo: **EPA 8260B** Analysis Date: **8/16/2013** SeqNo: **1634557**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	36.170	5.0	40.00	0	90.4	72	122				
Ethylbenzene	34.830	5.0	40.00	0	87.1	65	120				
m,p-Xylene	68.480	10	80.00	0	85.6	65	120				
MTBE	35.790	5.0	40.00	0	89.5	64	149				
o-Xylene	34.130	5.0	40.00	0	85.3	67	118				
Toluene	35.830	5.0	40.00	0	89.6	68	120				
Surr: 1,2-Dichloroethane-d4	54.760		50.00		110	63	139				
Surr: 4-Bromofluorobenzene	50.730		50.00		101	75	124				
Surr: Dibromofluoromethane	58.300		50.00		117	70	133				
Surr: Toluene-d8	52.390		50.00		105	80	123				

Qualifiers:

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

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

CHAIN OF CUSTODY RECORD

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

P.O.#: _____ Quote #: _____

As the authorized agent of the below named company, I hereby purchase testing services from ATL as dictated below and guarantee payment in full.

Submitter (Print): _____

Signature: _____

Submitter - Please complete all SHADED areas and include QUOTE # above to ensure proper invoicing.

FOR LABORATORY USE ONLY:

Method of Transport: ☐ Client ☐ ATL ☐ FedEx ☐ OnTrac ☑ GSO ☐ Other: _____

3.6°C ICE Sample Condition Upon Receipt

1. CHILLED IR#2 Y☐ N☐ 4. SEALED Y☐ N☐
2. HEADSPACE (VOA) Y☐ N☐ 5. # OF SPLS MATCH COC Y☐ N☐
3. CONTAINER INTACT Y☐ N☐ 6. PRESERVED Y☐ N☐

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

Project Name: EB-580 164th Ave Project #: E8560-02-52 Sampler: (Printed Name) Chris Merritt (Signature)

Relinquished by: (Signature and Printed Name) CHRIS MERRITT Date: 8-15-13 Time: 1800 Received by: (Signature and Printed Name) MEGHAN [signature] Date: 8/16/13 Time: 0825

Relinquished by: (Signature and Printed Name) Date: Time: Received by: (Signature and Printed Name) Date: Time:

Relinquished by: (Signature and Printed Name) Date: Time: Received by: (Signature and Printed Name) Date: Time:

Bill To: Attn: Luann Beadle E-mail: lbeadle@geoconinc.com
Company: SAME AS ABOVE and Rick Day
Address:
City: State: Zip:

Send Report To: Attn: same E-mail:
Company: SAME AS ABOVE
Address:
City: State: Zip:

Special Instructions/Comments:

Sample/Records - Archival & Disposal
Unless otherwise requested by client, all Samples and Hardcopy will be disposed Forty-five(45) days after generation of report - electronic copies retained for five(5) years
Storage Fees (applies when storage is requested):
■ Sample : Forty-five(45) Days Complimentary - $2.00 / sample / mo thereafter.
Hardcopy Reports $17.50 per report.

CIRCLE or Write IN Analyses Needed — CIRCLE APPROPRIATE MATRIX

ITEM	BUSINESS HOURS 8:30 am to 5:30 pm: Lab No.	Sample Description: Sample I.D. / Location	Date	Time	8260-624 (Volatiles)	8015B (GRO) / 8021 (BTEX)	TO-15 / TO-14 / TO-3 / RSK-175	8270B-625(BNA) / 8310(PAHs)	8015B(DRO)/8015B(HCID)	8081 OrgCl / 8141 OrgPO4 Pest	8082 PCBs	6010B / 7471-CAM Metals	6010B-200.7 Metals - Pb	6020B-200.8-1640 Metals	7199-218.6 (Hex. Chromium)	300(Anions) / 314 (Perchlorate)	TPHdrno (8015)	SOIL/SEDIMENT/SLUDGE	SOLIDS/WIPES/FILTERS	WATER-DRINKING/GROUND	WATER-STORM/WASTE	AQUEOUS/LAYERED-OIL	TAT	Container(s) #	Container(s) Type	PRESERVATION	REMARKS
1	N010811-1	B1-0	8/14/13	1440								X					X			X			5	1		4	
2	-2	B1-1		1440									X														
3	-3	B1-2		1442													X										
4	-4	B1-5		1445																							
5	-5	B1-10		1445																							
6	-6	B4-0		1425									X														
7	-7	B4-1		1430																							
8	-8	B4-2		1435																							
9	-9	B4-5		1455																							
10	-10	B5-0		1525								X															

QA/QC: RTNE ☐ CT ☑ Legal ☐ SWRCB ☐ Logcode ____ OTHER ____

■ Samples Submitted AFTER 3:30 PM, are considered received the following business day at 8:30 AM.

Weekend, Holiday, Off Hours Work ASK for QUOTE

Container Types: 1=Tube 2=VOA 3=Liter 4=Pint 5=Jar 6=Tedlar 7= Canister

Material: 1=Glass 2=Plastic 3=Metal

Preservatives: 1=HCl, 2=HNO_3 3=H_2SO_4 4=4°C 5=$Zn(Ac)_2$ 6=NaOH 7=$NA_2S_2O_4$

TAT 0	TAT 1	TAT 2	TAT 3	TAT 4	TAT 5	TAT 10
☐ 300% SURCHARGE SAME BUSINESS DAY IF RCV'D BY 9:00 AM	☐ 100% SURCHARGE NEXT BUSINESS DAY 5:30 PM	☐ 50% SURCHARGE 2ND BUSINESS DAY 5:30 PM	☐ 30% SURCHARGE 3RD BUSINESS DAY 5:30 PM	☐ 20% SURCHARGE 4TH BUSINESS DAY 5:30 PM	☒ NO SURCHARGE 5 -7 BUSINESS DAYS 5:30 PM	☐ 10% DISCOUNT 10th BUSINESS DAY 5:30 PM

For RUSH TCLP/STLC, add 2 days to respective TAT.
Subcon. TAT is 10-15 business days, Dioxin and Furans 21 business days.

Rev. 2012-0416

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

CHAIN OF CUSTODY RECORD

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

P.O.#: _____ Quote #: _____

As the authorized agent of the below named company, I hereby purchase testing services from ATL as dictated below and guarantee payment in full.

Submitter (Print):

Signature:

Submitter - Please complete all SHADED areas and include QUOTE # above to ensure proper invoicing.

FOR LABORATORY USE ONLY:

Method of Transport: ☐ Client ☐ ATL ☐ FedEx ☐ OnTrac ☐ GSO ☐ Other:

3.6°C ICE IR#2 Sample Condition Upon Receipt

1. CHILLED Y☐ N☐ 4. SEALED Y☐ N☐
2. HEADSPACE (VOA) Y☐ N☐ 5. # OF SPLS MATCH COC Y☐ N☐
3. CONTAINER INTACT Y☐ N☐ 6. PRESERVED Y☐ N☐

Client: **Geocon Consultant, Inc.**

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

Project Name: EB-580 164th Ave Project #: E8560-02-52 Sampler: (Printed Name) Chris Merritt (Signature)

Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
Chris Merritt	8-15-13	1800	[illegible]	8/16/13	0825

Bill To:
Attn: Luann Beadle E-mail: beadle@geoconinc.com
Company: SAME AS ABOVE and Rick Day
Address:
City: State: Zip:

Send Report To:
Attn: E-mail:
Company: SAME AS ABOVE
Address:
City: State: Zip:

Special Instructions/Comments:

Sample/Records - Archival & Disposal
Unless otherwise requested by client, all Samples and Hardcopy will be disposed Forty-five(45) days after generation of report - electronic copies retained for five(5) years.
Storage Fees (applies when storage is requested):
■ Sample : Forty-five(45) Days Complimentary - $2.00 / sample / mo thereafter.
Hardcopy Reports $17.50 per report.

CIRCLE or Write IN Analyses Needed

CIRCLE APPROPRIATE MATRIX

Q A / Q C: RTNE ☐ CT ☑ Legal ☐ SWRCB ☐ Logcode____ OTHER ____

ITEM	BUSINESS HOURS 8:30 am to 5:30 pm Lab No.	Sample Description: Sample I.D. / Location	Date	Time	8260-624 (Volatiles)	8015B (GRO) / 8021 (BTEX)	TO-15 / TO-14 / TO-3 / RSK-175	8270B-625(BNA) / 8310(PAHs)	8015B(DRO)/8015B(HCID)	8081 OrgCl / 8141 OrgPO4 Pest	8082 PCBs	6010B / 7471-CAM Metals	6010B-200.7 Metals Pb	6020B-200.8-1640 Metals	7199-218.6 (Hex. Chromium)	300(Anions) / 314 (Perchlorate)	TPH d + mo	THs, BTEX, MTBE, purge	SOIL/SEDIMENT/SLUDGE	SOLIDS/WIPES/FILTERS	WATER-DRINKING/GROUND	WATER-STORM/WASTE	AQUEOUS/LAYERED-OIL	TAT	Container(s) #	Container(s) Type	PRESERVATION	REMARKS
1	N0108IL-11	B5-1	8/14/13	1532								X							X					5	1		Cool	
2	-12	B5-2		1537											X												(4)	
3	-13	B5-5		1550											X	X												
4	-14	B7-0		1410								X																
5	-15	B7-1		1415						X																		
6	-16	B7-2		1420								X																
7	-17	B8-0		1510																								
8	-18	B8-1		1515																								
9	-19	B8-2		1520																								
10	-20	EB	8-14-13									X								X						J	G	

■ Samples Submitted AFTER 3:30 PM, are considered received the following business day at 8:30 AM.

Weekend, Holiday, Off Hours Work ASK for QUOTE

Container Types: 1=Tube 2=VOA 3=Liter 4=Pint 5=Jar 6=Tedlar 7=Canister

Material: 1=Glass 2=Plastic 3=Metal

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TAT 0	TAT 1	TAT 2	TAT 3	TAT 4	TAT 5	TAT 10
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Subcon. TAT is 10-15 business days, Dioxin and Furans 21 business days.

Rev. 2012-0416

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

Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	8/16/2013	Workorder:	N010811
Rep sample Temp (Deg C):	3.6	IR Gun ID:	2
Temp Blank:	☐ Yes ☑ No		
Carrier name:	GSO		
Last 4 digits of Tracking No.:	3873	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

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

Comments: EB samples were in 4ozg but for Pb analysis only. EB samples for Pb analysis were lab preserved.

Checklist Completed By: MBC MBC 8/16/2013

Reviewed By: ergpunzalan

GSO GOLDEN STATE OVERNIGHT

WebShip

800-322-5555 www.gso.com

Ship From:
GEOCON - LIVERMORE OFFICE
GEOCON, INC.
6671 BRISA STREET
LIVERMORE, CA 94550

Ship To:
SAMPLE RECEIVING
ADVANCED TECHNOLOGY LABS - LAS VEGAS
3151 W. POST ROAD
LAS VEGAS, NV 89118

COD:
$0.00

Reference:
E8560-02-52

Delivery Instructions:

Signature Type:
SIGNATURE REQUIRED

Tracking #: 522523873

PDS

LVS

LAS VEGAS

D89103A

15079769

Print Date : 08/15/13 17:16 PM

Package 1 of 1

Send Label To Printer | ☑ Print All | Edit Shipment | Finish

LABEL INSTRUCTIONS:

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

STEP 1 - Use the "Send Label to Printer" button on this page to print the shipping label on a laser or inkjet printer.
STEP 2 - Fold this page in half.
STEP 3 - Securely attach this label to your package, do not cover the barcode.
STEP 4 - Request an on-call pickup for your package, if you do not have scheduled daily pickup service or Drop-off your package at the nearest GSO drop box. Locate nearest GSO dropbox locations using this link.

ADDITIONAL OPTIONS:

Send Label Via Email | Create Return Label

TERMS AND CONDITIONS:

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

September 09, 2013

Luann Beadle
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
TEL: 925-371-5900 Ext 403
FAX: (925) 371-5915

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

Workorder No.: N010811

RE: EB-580 164th Ave, E8560-02-52

Attention: Luann Beadle

Enclosed are the results for sample(s) received on August 16, 2013 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Jose Tenorio Jr.
Laboratory Director

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *09-Sep-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B1-0
Lab Order:	N010811	**Collection Date:**	8/14/2013 2:40:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-001A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC						
			WET/ EPA 6010B			
RunID: ICP2_130906C	QC Batch: R90229			PrepDate:		Analyst: **JT**
Chromium	ND	0.10		mg/L	10	9/6/2013 07:58 PM
Lead	11	0.10		mg/L	10	9/6/2013 07:58 PM

Qualifiers:

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *09-Sep-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B4-0
Lab Order:	N010811	**Collection Date:**	8/14/2013 2:25:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-006A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC						
			WET/ EPA 6010B			
RunID: ICP2_130906C	QC Batch: R90229			PrepDate:		Analyst: **JT**
Lead	5.8	0.10		mg/L	10	9/6/2013 08:03 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, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *09-Sep-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B4-1
Lab Order:	N010811	**Collection Date:**	8/14/2013 2:30:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-007A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC						
			WET/ EPA 6010B			
RunID: ICP2_130906C	QC Batch: R90229			PrepDate:		Analyst: **JT**
Lead	2.8	0.10		mg/L	10	9/6/2013 08:11 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		

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *09-Sep-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B4-5
Lab Order:	N010811	**Collection Date:**	8/14/2013 2:55:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-009A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC						
			WET/ EPA 6010B			
RunID: ICP2_130906C	QC Batch: R90229			PrepDate:		Analyst: **JT**
Chromium	0.18	0.050		mg/L	5	9/6/2013 07:12 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, Inc.

ANALYTICAL RESULTS

Print Date: *09-Sep-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B5-0
Lab Order:	N010811	**Collection Date:**	8/14/2013 3:25:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-010A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC						
			WET/ EPA 6010B			
RunID: ICP2_130906C	QC Batch: R90229			PrepDate:		Analyst: **JT**
Lead	5.2	0.10		mg/L	10	9/6/2013 08:14 PM

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *09-Sep-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B7-0
Lab Order:	N010811	**Collection Date:**	8/14/2013 2:10:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-014A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC						
			WET/ EPA 6010B			
RunID: ICP2_130906C	QC Batch: R90229			PrepDate:		Analyst: **JT**
Lead	5.2	0.10		mg/L	10	9/6/2013 08:18 PM

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *09-Sep-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B7-1
Lab Order:	N010811	**Collection Date:**	8/14/2013 2:15:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-015A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC						
			WET/ EPA 6010B			
RunID: ICP2_130906C	QC Batch: R90229			PrepDate:		Analyst: **JT**
Chromium	0.26	0.10		mg/L	10	9/6/2013 08:45 PM

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

CLIENT: Geocon Consultants, Inc.
Work Order: N010811
Project: EB-580 164th Ave, E8560-02-52

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_ST

Sample ID: **MB-R90229** SampType: **MBLK** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90229**
Client ID: **PBS** Batch ID: **R90229** TestNo: **WET/ EPA 60** Analysis Date: **9/6/2013** SeqNo: **1643328**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	0.010									
Lead	ND	0.010									

Sample ID: **LCS-R90229** SampType: **LCS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90229**
Client ID: **LCSS** Batch ID: **R90229** TestNo: **WET/ EPA 60** Analysis Date: **9/6/2013** SeqNo: **1643329**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.509	0.010	0.5000	0	102	85	115				
Lead	0.507	0.010	0.5000	0	101	85	115				

Sample ID: **MB-43813** SampType: **MBLK** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90229**
Client ID: **PBS** Batch ID: **R90229** TestNo: **WET/ EPA 60** Analysis Date: **9/6/2013** SeqNo: **1643330**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.000435	0.010									
Lead	ND	0.010									

Sample ID: **MB2-43813** SampType: **MBLK** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90229**
Client ID: **PBS** Batch ID: **R90229** TestNo: **WET/ EPA 60** Analysis Date: **9/6/2013** SeqNo: **1643331**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	0.010									
Lead	ND	0.010									

Sample ID: **N010812-011A-MS** SampType: **MS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90229**
Client ID: **ZZZZZZ** Batch ID: **R90229** TestNo: **WET/ EPA 60** Analysis Date: **9/6/2013** SeqNo: **1643335**

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: N010811
Project: EB-580 164th Ave, E8560-02-52

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_ST

Sample ID: **N010812-011A-MS** SampType: **MS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90229**
Client ID: **ZZZZZZ** Batch ID: **R90229** TestNo: **WET/ EPA 60** Analysis Date: **9/6/2013** SeqNo: **1643335**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	2.548	0.050	2.500	0.04840	100	75	125				
Lead	2.441	0.050	2.500	0	97.6	75	125				

Sample ID: **N010812-011A-MSD** SampType: **MSD** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90229**
Client ID: **ZZZZZZ** Batch ID: **R90229** TestNo: **WET/ EPA 60** Analysis Date: **9/6/2013** SeqNo: **1643336**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	2.549	0.050	2.500	0.04840	100	75	125	2.548	0.0542	20	
Lead	2.440	0.050	2.500	0	97.6	75	125	2.441	0.0513	20	

Sample ID: **N010811-006A-DUP** SampType: **DUP** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90229**
Client ID: **ZZZZZZ** Batch ID: **R90229** TestNo: **WET/ EPA 60** Analysis Date: **9/6/2013** SeqNo: **1643346**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.100	0.10						0.08404	17.5	20	
Lead	6.123	0.10						5.759	6.13	20	

Sample ID: **N010812-006A-DUP** SampType: **DUP** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90229**
Client ID: **ZZZZZZ** Batch ID: **R90229** TestNo: **WET/ EPA 60** Analysis Date: **9/6/2013** SeqNo: **1643355**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.155	0.10						0.1317	16.3	20	
Lead	1.762	0.10						3.126	55.8	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		

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

Nancy Sibucao

From: Luann Beadle [beadle@geoconinc.com]
Sent: Friday, August 30, 2013 2:37 PM
To: Advanced Technology Labs, Inc.
Subject: TO-52 Lab Order N010811

Hi ATL,

Please run WETs on the following, as indicated:

N010811-001A	B1-0	Lead
N010811-006A	B4-0	Lead
N010811-007A	B4-1	Lead
N010811-010A	B5-0	Lead
N010811-014A	B7-0	Lead
N010811-001A	B1-0	Chromium
N010811-009A	B4-5	Chromium
N010811-015A	B7-1	Chromium

On a regular TAT.
Thanks,
Luann

Luann Beadle | Senior Staff Scientist
Geocon Consultants, Inc.
6671 Brisa Street, Livermore, CA 94550
Office: 925.371.5900, ext. 403 Direct: 925.961.5272 Mobile: 925.395.1669
beadle@geoconinc.com

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September 17, 2013

Luann Beadle
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
TEL: 925-371-5900 Ext 403
FAX: (925) 371-5915

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

Workorder No.: N010811

RE: EB-580 164th Ave, E8560-02-52

Attention: Luann Beadle

Enclosed are the results for sample(s) received on August 16, 2013 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Jose Tenorio Jr.
Laboratory Director

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *17-Sep-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B1-0
Lab Order:	N010811	**Collection Date:**	8/14/2013 2:40:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-001A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
PH						
			EPA 9045C			
RunID: WETCHEM_130911C QC Batch: R90263				PrepDate:		Analyst: **LCC**
pH	8.7	0.10		pH Units	1	9/11/2013
Temp. at time of pH Analysis	25	0		pH Units	1	9/11/2013
ICP METALS BY WET DI EXTRACTION						
			WET DI/ EPA 6010B			
RunID: ICP2_130916A QC Batch: R90308				PrepDate:		Analyst: **JT**
Lead	ND	0.25		mg/L	1	9/16/2013 06:39 PM
LEAD BY TCLP EXTRACTION						
	EPA 3010A		**EPA 1311/ 6010B**			
RunID: ICP2_130912C QC Batch: 43871				PrepDate:	9/12/2013	Analyst: **JT**
Lead	ND	0.25		mg/L	1	9/12/2013 07:38 PM

Qualifiers:

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *17-Sep-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B4-0
Lab Order:	N010811	**Collection Date:**	8/14/2013 2:25:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-006A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
PH						
			EPA 9045C			
RunID: WETCHEM_130911C QC Batch: R90263				PrepDate:		Analyst: **LCC**
pH	7.8	0.10		pH Units	1	9/11/2013
Temp. at time of pH Analysis	25	0		pH Units	1	9/11/2013
ICP METALS BY WET DI EXTRACTION						
			WET DI/ EPA 6010B			
RunID: ICP2_130916A QC Batch: R90308				PrepDate:		Analyst: **JT**
Lead	ND	0.25		mg/L	1	9/16/2013 06:54 PM
LEAD BY TCLP EXTRACTION						
	EPA 3010A		**EPA 1311/ 6010B**			
RunID: ICP2_130912C QC Batch: 43871				PrepDate:	9/12/2013	Analyst: **JT**
Lead	ND	0.25		mg/L	1	9/12/2013 08:00 PM

Qualifiers:

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *17-Sep-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B5-0
Lab Order:	N010811	**Collection Date:**	8/14/2013 3:25:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-010A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
PH						
			EPA 9045C			
RunID: WETCHEM_130911C	QC Batch: R90263			PrepDate:		Analyst: **LCC**
pH	6.8	0.10		pH Units	1	9/11/2013
Temp. at time of pH Analysis	25	0		pH Units	1	9/11/2013
ICP METALS BY WET DI EXTRACTION						
			WET DI/ EPA 6010B			
RunID: ICP2_130916A	QC Batch: R90308			PrepDate:		Analyst: **JT**
Lead	0.27	0.25		mg/L	1	9/16/2013 07:02 PM

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *17-Sep-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B7-0
Lab Order:	N010811	**Collection Date:**	8/14/2013 2:10:00 PM
Project:	EB-580 164th Ave, E8560-02-52	**Matrix:**	SOIL
Lab ID:	N010811-014A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
PH						
			EPA 9045C			
RunID: WETCHEM_130911C QC Batch: R90263				PrepDate:		Analyst: **LCC**
pH	7.2	0.10		pH Units	1	9/11/2013
Temp. at time of pH Analysis	25	0		pH Units	1	9/11/2013
ICP METALS BY WET DI EXTRACTION						
			WET DI/ EPA 6010B			
RunID: ICP2_130916A QC Batch: R90308				PrepDate:		Analyst: **JT**
Lead	ND	0.25		mg/L	1	9/16/2013 07:13 PM
LEAD BY TCLP EXTRACTION						
	EPA 3010A		**EPA 1311/ 6010B**			
RunID: ICP2_130912C QC Batch: 43871				PrepDate:	9/12/2013	Analyst: **JT**
Lead	ND	0.25		mg/L	1	9/12/2013 08:04 PM

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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

CLIENT: Geocon Consultants, Inc.
Work Order: N010811
Project: EB-580 164th Ave, E8560-02-52

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_STDIPB

Sample ID: **MB-R90308** SampType: **MBLK** TestCode: **6010_STDIPB** Units: **mg/L** Prep Date: RunNo: **90308**
Client ID: **PBW** Batch ID: **R90308** TestNo: **WET DI/ EPA** Analysis Date: **9/16/2013** SeqNo: **1646203**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: **LCS-R90308** SampType: **LCS** TestCode: **6010_STDIPB** Units: **mg/L** Prep Date: RunNo: **90308**
Client ID: **LCSW** Batch ID: **R90308** TestNo: **WET DI/ EPA** Analysis Date: **9/16/2013** SeqNo: **1646204**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.507	0.25	0.5000	0	101	85	115				

Sample ID: **MB-43861** SampType: **MBLK** TestCode: **6010_STDIPB** Units: **mg/L** Prep Date: RunNo: **90308**
Client ID: **PBW** Batch ID: **R90308** TestNo: **WET DI/ EPA** Analysis Date: **9/16/2013** SeqNo: **1646205**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: **N010811-001A-MS** SampType: **MS** TestCode: **6010_STDIPB** Units: **mg/L** Prep Date: RunNo: **90308**
Client ID: **ZZZZZZ** Batch ID: **R90308** TestNo: **WET DI/ EPA** Analysis Date: **9/16/2013** SeqNo: **1646208**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	1.043	0.50	1.000	0.1304	91.3	75	125				

Sample ID: **N010811-001A-MSD** SampType: **MSD** TestCode: **6010_STDIPB** Units: **mg/L** Prep Date: RunNo: **90308**
Client ID: **ZZZZZZ** Batch ID: **R90308** TestNo: **WET DI/ EPA** Analysis Date: **9/16/2013** SeqNo: **1646209**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	1.040	0.50	1.000	0.1304	90.9	75	125	1.043	0.317	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: N010811
Project: EB-580 164th Ave, E8560-02-52

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_STDIPB

Sample ID: **N010811-006A-DUP** SampType: **DUP** TestCode: **6010_STDIPB** Units: **mg/L** Prep Date: RunNo: **90308**
Client ID: **ZZZZZZ** Batch ID: **R90308** TestNo: **WET DI/ EPA** Analysis Date: **9/16/2013** SeqNo: **1646211**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.028	0.25						0.01954	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: N010811
Project: EB-580 164th Ave, E8560-02-52

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_TCPB

Sample ID: **MB-43723** SampType: **MBLK** TestCode: **6010_TCPB** Units: **mg/L** Prep Date: **8/20/2013** RunNo: **90064**
Client ID: **PBS** Batch ID: **43723** TestNo: **EPA 1311/ 60 EPA 3010A** Analysis Date: **8/21/2013** SeqNo: **1636826**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: **MB-43714_TC1** SampType: **MBLK** TestCode: **6010_TCPB** Units: **mg/L** Prep Date: **8/20/2013** RunNo: **90064**
Client ID: **PBS** Batch ID: **43723** TestNo: **EPA 1311/ 60 EPA 3010A** Analysis Date: **8/21/2013** SeqNo: **1636827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: **MB-43714_TC2** SampType: **MBLK** TestCode: **6010_TCPB** Units: **mg/L** Prep Date: **8/20/2013** RunNo: **90064**
Client ID: **PBS** Batch ID: **43723** TestNo: **EPA 1311/ 60 EPA 3010A** Analysis Date: **8/21/2013** SeqNo: **1636828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: **LCS-43723** SampType: **LCS** TestCode: **6010_TCPB** Units: **mg/L** Prep Date: **8/20/2013** RunNo: **90064**
Client ID: **LCSS** Batch ID: **43723** TestNo: **EPA 1311/ 60 EPA 3010A** Analysis Date: **8/21/2013** SeqNo: **1636829**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.538	0.25	0.5000	0	108	85	115				

Sample ID: **N010777-003A-DUP** SampType: **DUP** TestCode: **6010_TCPB** Units: **mg/L** Prep Date: **8/20/2013** RunNo: **90064**
Client ID: **ZZZZZZ** Batch ID: **43723** TestNo: **EPA 1311/ 60 EPA 3010A** Analysis Date: **8/21/2013** SeqNo: **1636831**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	1.069	0.25						0.9652	10.2	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: N010811
Project: EB-580 164th Ave, E8560-02-52

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_TCPB

Sample ID: **N010810-003B-MS** SampType: **MS** TestCode: **6010_TCPB** Units: **mg/L** Prep Date: **8/20/2013** RunNo: **90064**
Client ID: **ZZZZZZ** Batch ID: **43723** TestNo: **EPA 1311/ 60 EPA 3010A** Analysis Date: **8/21/2013** SeqNo: **1636839**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.572	0.25	0.5000	0	114	75	125				

Sample ID: **N010810-003B-MSD** SampType: **MSD** TestCode: **6010_TCPB** Units: **mg/L** Prep Date: **8/20/2013** RunNo: **90064**
Client ID: **ZZZZZZ** Batch ID: **43723** TestNo: **EPA 1311/ 60 EPA 3010A** Analysis Date: **8/21/2013** SeqNo: **1636840**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.562	0.25	0.5000	0	112	75	125	0.5716	1.75	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: N010811
Project: EB-580 164th Ave, E8560-02-52

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_TCPB

Sample ID: **MB-43871** SampType: **MBLK** TestCode: **6010_TCPB** Units: **mg/L** Prep Date: **9/12/2013** RunNo: **90288**
Client ID: **PBS** Batch ID: **43871** TestNo: **EPA 1311/ 60 EPA 3010A** Analysis Date: **9/12/2013** SeqNo: **1645551**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: **MB-43862_TC** SampType: **MBLK** TestCode: **6010_TCPB** Units: **mg/L** Prep Date: **9/12/2013** RunNo: **90288**
Client ID: **PBS** Batch ID: **43871** TestNo: **EPA 1311/ 60 EPA 3010A** Analysis Date: **9/12/2013** SeqNo: **1645552**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: **LCS-43871** SampType: **LCS** TestCode: **6010_TCPB** Units: **mg/L** Prep Date: **9/12/2013** RunNo: **90288**
Client ID: **LCSS** Batch ID: **43871** TestNo: **EPA 1311/ 60 EPA 3010A** Analysis Date: **9/12/2013** SeqNo: **1645553**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.428	0.25	0.5000	0	85.6	85	115				

Sample ID: **N010811-001A-MS** SampType: **MS** TestCode: **6010_TCPB** Units: **mg/L** Prep Date: **9/12/2013** RunNo: **90288**
Client ID: **ZZZZZZ** Batch ID: **43871** TestNo: **EPA 1311/ 60 EPA 3010A** Analysis Date: **9/12/2013** SeqNo: **1645557**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.519	0.25	0.5000	0.1084	82.0	75	125				

Sample ID: **N010811-001A-MSD** SampType: **MSD** TestCode: **6010_TCPB** Units: **mg/L** Prep Date: **9/12/2013** RunNo: **90288**
Client ID: **ZZZZZZ** Batch ID: **43871** TestNo: **EPA 1311/ 60 EPA 3010A** Analysis Date: **9/12/2013** SeqNo: **1645558**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.520	0.25	0.5000	0.1084	82.2	75	125	0.5186	0.203	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: N010811
Project: EB-580 164th Ave, E8560-02-52

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_TCPB

Sample ID: **N010811-014A-DUP** SampType: **DUP** TestCode: **6010_TCPB** Units: **mg/L** Prep Date: **9/12/2013** RunNo: **90288**
Client ID: **ZZZZZZ** Batch ID: **43871** TestNo: **EPA 1311/ 60 EPA 3010A** Analysis Date: **9/12/2013** SeqNo: **1645563**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.018	0.25						0.01418	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: N010811
Project: EB-580 164th Ave, E8560-02-52

ANALYTICAL QC SUMMARY REPORT

TestCode: 9045_S

Sample ID: **N010811-001A-DUP** SampType: **DUP** TestCode: **9045_S** Units: **pH Units** Prep Date: RunNo: **90263**
Client ID: **ZZZZZZ** Batch ID: **R90263** TestNo: **EPA 9045C** Analysis Date: **9/11/2013** SeqNo: **1644415**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.840	0.10						8.700	1.60	20	
Temp. at time of pH Analysis	25.000	0						25.00	0	0	

Qualifiers:

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

Glen S. Gesmundo

From: Luann Beadle [beadle@geoconinc.com]
Sent: Tuesday, September 10, 2013 12:17 PM
To: Advanced Technology Labs, Inc.
Subject: Lab Order N010811 TO-52

Hi ATL,

Please run the following analyses marked with an "X" on a standard TAT:

Sample ID	DI-WET Lead (mg/l)	TCLP Lead (mg/l)	pH
B5-0	X	---	X
B7-0	X	X	X
B4-0	X	X	X
B1-0	X	X	X

Thanks,
Luann

Luann Beadle | Senior Staff Scientist
Geocon Consultants, Inc.
6671 Brisa Street, Livermore, CA 94550
Office: 925.371.5900, ext. 403 Direct: 925.961.5272 Mobile: 925.395.1669
beadle@geoconinc.com

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August 30, 2013

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

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

Workorder No.: N010861

RE: CALTRANS I580 @ 164TH SHOULDER REP

Attention: Rick Day

Enclosed are the results for sample(s) received on August 23, 2013 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

for

Jose Tenorio Jr.
Laboratory Director

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

CLIENT: Geocon Consultants, Inc.
Project: CALTRANS I580 @ 164TH SHOULDER REP
Lab Order: N010861

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time .

Analytical Comments for EPA 6010B:

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

RPD for Sample Duplicate (DUP) N010845-001A-DUP and N010861-002A-DUP are outside criteria possibly due to non-homogeneity of sample.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *30-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B6-0
Lab Order:	N010861	**Collection Date:**	8/22/2013 10:25:00 AM
Project:	CALTRANS I580 @ 164TH SHOULDER REP	**Matrix:**	SOIL
Lab ID:	N010861-001		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130827B	QC Batch: 43761			PrepDate:	8/26/2013	Analyst: **JT**
Lead	64	5.0		mg/Kg	1	8/27/2013 08:47 PM

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

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ANALYTICAL RESULTS

Print Date: *30-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B6-1
Lab Order:	N010861	**Collection Date:**	8/22/2013 10:30:00 AM
Project:	CALTRANS I580 @ 164TH SHOULDER REP	**Matrix:**	SOIL
Lab ID:	N010861-002		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B				**EPA 8015B**		
RunID: GC1_130826A	QC Batch: 43742			PrepDate:	8/23/2013	Analyst: **MDM**
DRO	20	1.0		mg/Kg	1	8/26/2013 03:51 PM
ORO	50	1.0		mg/Kg	1	8/26/2013 03:51 PM
Surr: p-Terphenyl	87.7	59-127		%REC	1	8/26/2013 03:51 PM
LEAD BY ICP						
EPA 3050B				**EPA 6010B**		
RunID: ICP2_130828A	QC Batch: 43761			PrepDate:	8/26/2013	Analyst: **JT**
Lead	50	5.0		mg/Kg	1	8/28/2013 10:14 AM

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *30-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B6-2
Lab Order:	N010861	**Collection Date:**	8/22/2013 10:35:00 AM
Project:	CALTRANS I580 @ 164TH SHOULDER REP	**Matrix:**	SOIL
Lab ID:	N010861-003		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
	EPA 3550B			**EPA 8015B**		
RunID: GC1_130826A	QC Batch: 43742			PrepDate:	8/23/2013	Analyst: **MDM**
DRO	2.2	1.0		mg/Kg	1	8/26/2013 04:17 PM
ORO	3.9	1.0		mg/Kg	1	8/26/2013 04:17 PM
Surr: p-Terphenyl	88.0	59-127		%REC	1	8/26/2013 04:17 PM
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130828A	QC Batch: 43761			PrepDate:	8/26/2013	Analyst: **JT**
Lead	ND	5.0		mg/Kg	1	8/28/2013 10:23 AM

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *30-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B6-5
Lab Order:	N010861	**Collection Date:**	8/22/2013 12:25:00 PM
Project:	CALTRANS I580 @ 164TH SHOULDER REP	**Matrix:**	SOIL
Lab ID:	N010861-004		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B				**EPA 8015B**		
RunID: GC3_130826A	QC Batch: 43742			PrepDate:	8/23/2013	Analyst: **MDM**
DRO	2.2	1.0		mg/Kg	1	8/26/2013 04:59 PM
ORO	3.7	1.0		mg/Kg	1	8/26/2013 04:59 PM
Surr: p-Terphenyl	82.3	59-127		%REC	1	8/26/2013 04:59 PM
MERCURY BY COLD VAPOR TECHNIQUE						
EPA 7471				**EPA 7471A**		
RunID: AA1_130826A	QC Batch: 43762			PrepDate:	8/26/2013	Analyst: **JT**
Mercury	ND	0.099		mg/Kg	1	8/26/2013
ICP METALS						
EPA 3050B				**EPA 6010B**		
RunID: ICP2_130827C	QC Batch: 43754			PrepDate:	8/23/2013	Analyst: **JT**
Antimony	ND	2.0		mg/Kg	1	8/27/2013 12:29 PM
Arsenic	2.4	1.0		mg/Kg	1	8/26/2013 02:22 PM
Barium	71	1.0		mg/Kg	1	8/26/2013 02:22 PM
Beryllium	ND	1.0		mg/Kg	1	8/26/2013 02:22 PM
Cadmium	ND	1.0		mg/Kg	1	8/26/2013 02:22 PM
Chromium	150	1.0		mg/Kg	1	8/26/2013 02:22 PM
Cobalt	27	1.0		mg/Kg	1	8/26/2013 02:22 PM
Copper	69	2.0		mg/Kg	1	8/26/2013 02:22 PM
Lead	1.9	1.0		mg/Kg	1	8/26/2013 02:22 PM
Molybdenum	ND	1.0		mg/Kg	1	8/26/2013 02:22 PM
Nickel	140	1.0		mg/Kg	1	8/26/2013 02:22 PM
Selenium	1.1	1.0		mg/Kg	1	8/26/2013 02:22 PM
Silver	ND	1.0		mg/Kg	1	8/26/2013 02:22 PM
Thallium	ND	1.0		mg/Kg	1	8/26/2013 02:22 PM
Vanadium	76	1.0		mg/Kg	1	8/26/2013 02:22 PM
Zinc	33	1.0		mg/Kg	1	8/26/2013 02:22 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		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *30-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B9-0
Lab Order:	N010861	**Collection Date:**	8/22/2013 11:10:00 AM
Project:	CALTRANS I580 @ 164TH SHOULDER REP	**Matrix:**	SOIL
Lab ID:	N010861-005		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
	EPA 3550B			**EPA 8015B**		
RunID: GC3_130826A	QC Batch: 43742			PrepDate:	8/23/2013	Analyst: **MDM**
DRO	37	1.0		mg/Kg	1	8/26/2013 11:41 AM
ORO	73	1.0		mg/Kg	1	8/26/2013 11:41 AM
Surr: p-Terphenyl	88.5	59-127		%REC	1	8/26/2013 11:41 AM
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130828A	QC Batch: 43761			PrepDate:	8/26/2013	Analyst: **JT**
Lead	94	5.0		mg/Kg	1	8/28/2013 10:28 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		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *30-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B9-1
Lab Order:	N010861	**Collection Date:**	8/22/2013 11:15:00 AM
Project:	CALTRANS I580 @ 164TH SHOULDER REP	**Matrix:**	SOIL
Lab ID:	N010861-006		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
	EPA 3550B			**EPA 8015B**		
RunID: GC3_130826A	QC Batch: 43742			PrepDate:	8/23/2013	Analyst: **MDM**
DRO	18	1.0		mg/Kg	1	8/26/2013 12:33 PM
ORO	31	1.0		mg/Kg	1	8/26/2013 12:33 PM
Surr: p-Terphenyl	97.1	59-127		%REC	1	8/26/2013 12:33 PM
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130828A	QC Batch: 43761			PrepDate:	8/26/2013	Analyst: **JT**
Lead	9.7	5.0		mg/Kg	1	8/28/2013 10:33 AM

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *30-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B9-2
Lab Order:	N010861	**Collection Date:**	8/22/2013 11:20:00 AM
Project:	CALTRANS I580 @ 164TH SHOULDER REP	**Matrix:**	SOIL
Lab ID:	N010861-007		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B				**EPA 8015B**		
RunID: GC3_130826A	QC Batch: 43742			PrepDate:	8/23/2013	Analyst: **MDM**
DRO	11	1.0		mg/Kg	1	8/26/2013 01:00 PM
ORO	30	1.0		mg/Kg	1	8/26/2013 01:00 PM
Surr: p-Terphenyl	87.0	59-127		%REC	1	8/26/2013 01:00 PM
MERCURY BY COLD VAPOR TECHNIQUE						
EPA 7471				**EPA 7471A**		
RunID: AA1_130826A	QC Batch: 43762			PrepDate:	8/26/2013	Analyst: **JT**
Mercury	0.22	0.10		mg/Kg	1	8/26/2013
ICP METALS						
EPA 3050B				**EPA 6010B**		
RunID: ICP2_130827C	QC Batch: 43754			PrepDate:	8/23/2013	Analyst: **JT**
Antimony	ND	2.0		mg/Kg	1	8/27/2013 12:56 PM
Arsenic	3.5	1.0		mg/Kg	1	8/26/2013 02:35 PM
Barium	74	1.0		mg/Kg	1	8/26/2013 02:35 PM
Beryllium	ND	1.0		mg/Kg	1	8/26/2013 02:35 PM
Cadmium	ND	1.0		mg/Kg	1	8/26/2013 02:35 PM
Chromium	130	1.0		mg/Kg	1	8/26/2013 02:35 PM
Cobalt	28	1.0		mg/Kg	1	8/26/2013 02:35 PM
Copper	75	2.0		mg/Kg	1	8/26/2013 02:35 PM
Lead	1.4	1.0		mg/Kg	1	8/26/2013 02:35 PM
Molybdenum	ND	1.0		mg/Kg	1	8/26/2013 02:35 PM
Nickel	90	1.0		mg/Kg	1	8/26/2013 02:35 PM
Selenium	ND	1.0		mg/Kg	1	8/26/2013 02:35 PM
Silver	ND	1.0		mg/Kg	1	8/26/2013 02:35 PM
Thallium	ND	1.0		mg/Kg	1	8/26/2013 02:35 PM
Vanadium	74	1.0		mg/Kg	1	8/26/2013 02:35 PM
Zinc	30	1.0		mg/Kg	1	8/26/2013 02:35 PM

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *30-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B2-0
Lab Order:	N010861	**Collection Date:**	8/22/2013 10:00:00 AM
Project:	CALTRANS I580 @ 164TH SHOULDER REP	**Matrix:**	SOIL
Lab ID:	N010861-008		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
	EPA 3550B			**EPA 8015B**		
RunID: GC3_130826A	QC Batch: 43742			PrepDate:	8/23/2013	Analyst: **MDM**
DRO	4.0	1.0		mg/Kg	1	8/26/2013 01:27 PM
ORO	9.7	1.0		mg/Kg	1	8/26/2013 01:27 PM
Surr: p-Terphenyl	90.0	59-127		%REC	1	8/26/2013 01:27 PM
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130828A	QC Batch: 43761			PrepDate:	8/26/2013	Analyst: **JT**
Lead	ND	5.0		mg/Kg	1	8/28/2013 10:37 AM

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *30-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B2-1
Lab Order:	N010861	**Collection Date:**	8/22/2013 10:05:00 AM
Project:	CALTRANS I580 @ 164TH SHOULDER REP	**Matrix:**	SOIL
Lab ID:	N010861-009		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY BY COLD VAPOR TECHNIQUE						
	EPA 7471			**EPA 7471A**		
RunID: AA1_130826A	QC Batch: 43762			PrepDate:	8/26/2013	Analyst: **JT**
Mercury	0.12	0.10		mg/Kg	1	8/26/2013
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130827C	QC Batch: 43754			PrepDate:	8/23/2013	Analyst: **JT**
Antimony	ND	2.0		mg/Kg	1	8/27/2013 01:01 PM
Arsenic	2.5	1.0		mg/Kg	1	8/26/2013 02:42 PM
Barium	73	1.0		mg/Kg	1	8/26/2013 02:42 PM
Beryllium	ND	1.0		mg/Kg	1	8/26/2013 02:42 PM
Cadmium	ND	1.0		mg/Kg	1	8/26/2013 02:42 PM
Chromium	130	1.0		mg/Kg	1	8/26/2013 02:42 PM
Cobalt	27	1.0		mg/Kg	1	8/26/2013 02:42 PM
Copper	74	2.0		mg/Kg	1	8/26/2013 02:42 PM
Lead	9.3	1.0		mg/Kg	1	8/26/2013 02:42 PM
Molybdenum	ND	1.0		mg/Kg	1	8/26/2013 02:42 PM
Nickel	78	1.0		mg/Kg	1	8/26/2013 02:42 PM
Selenium	ND	1.0		mg/Kg	1	8/26/2013 02:42 PM
Silver	ND	1.0		mg/Kg	1	8/26/2013 02:42 PM
Thallium	ND	1.0		mg/Kg	1	8/26/2013 02:42 PM
Vanadium	69	1.0		mg/Kg	1	8/26/2013 02:42 PM
Zinc	37	1.0		mg/Kg	1	8/26/2013 02:42 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		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *30-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B2-2
Lab Order:	N010861	**Collection Date:**	8/22/2013 10:05:00 AM
Project:	CALTRANS I580 @ 164TH SHOULDER REP	**Matrix:**	SOIL
Lab ID:	N010861-010		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B				**EPA 8015B**		
RunID: GC3_130826A	QC Batch: 43742			PrepDate:	8/23/2013	Analyst: **MDM**
DRO	3.8	1.0		mg/Kg	1	8/26/2013 01:53 PM
ORO	8.4	1.0		mg/Kg	1	8/26/2013 01:53 PM
Surr: p-Terphenyl	93.7	59-127		%REC	1	8/26/2013 01:53 PM
LEAD BY ICP						
EPA 3050B				**EPA 6010B**		
RunID: ICP2_130828A	QC Batch: 43761			PrepDate:	8/26/2013	Analyst: **JT**
Lead	ND	5.0		mg/Kg	1	8/28/2013 10:50 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		

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ANALYTICAL RESULTS

Print Date: *30-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B2-5
Lab Order:	N010861	**Collection Date:**	8/22/2013 10:10:00 AM
Project:	CALTRANS I580 @ 164TH SHOULDER REP	**Matrix:**	SOIL
Lab ID:	N010861-011		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
	EPA 3550B			**EPA 8015B**		
RunID: GC3_130826A	QC Batch: 43742			PrepDate:	8/23/2013	Analyst: **MDM**
DRO	3.1	1.0		mg/Kg	1	8/26/2013 02:19 PM
ORO	6.5	1.0		mg/Kg	1	8/26/2013 02:19 PM
Surr: p-Terphenyl	89.0	59-127		%REC	1	8/26/2013 02:19 PM
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130828A	QC Batch: 43761			PrepDate:	8/26/2013	Analyst: **JT**
Lead	ND	5.0		mg/Kg	1	8/28/2013 10:55 AM

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

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ANALYTICAL RESULTS

Print Date: *30-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B2-10
Lab Order:	N010861	**Collection Date:**	8/22/2013 10:15:00 AM
Project:	CALTRANS I580 @ 164TH SHOULDER REP	**Matrix:**	SOIL
Lab ID:	N010861-012		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130828A	QC Batch: 43761			PrepDate:	8/26/2013	Analyst: **JT**
Lead	ND	5.0		mg/Kg	1	8/28/2013 10:59 AM

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

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ANALYTICAL RESULTS

Print Date: *30-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B2-30
Lab Order:	N010861	**Collection Date:**	8/22/2013 11:30:00 AM
Project:	CALTRANS I580 @ 164TH SHOULDER REP	**Matrix:**	SOIL
Lab ID:	N010861-013		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
				EPA 8260B		
RunID: MS5_130826A	QC Batch:	P13VS037		PrepDate:		Analyst: **PN**
Benzene	ND	5.0		µg/Kg	1	8/26/2013 02:19 PM
Ethylbenzene	ND	5.0		µg/Kg	1	8/26/2013 02:19 PM
m,p-Xylene	ND	10		µg/Kg	1	8/26/2013 02:19 PM
o-Xylene	ND	5.0		µg/Kg	1	8/26/2013 02:19 PM
Toluene	ND	5.0		µg/Kg	1	8/26/2013 02:19 PM
Surr: 1,2-Dichloroethane-d4	117	63-139		%REC	1	8/26/2013 02:19 PM
Surr: 4-Bromofluorobenzene	104	75-124		%REC	1	8/26/2013 02:19 PM
Surr: Dibromofluoromethane	114	70-133		%REC	1	8/26/2013 02:19 PM
Surr: Toluene-d8	106	80-123		%REC	1	8/26/2013 02:19 PM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
	EPA 3550B			**EPA 8015B**		
RunID: GC3_130826A	QC Batch:	43742		PrepDate:	8/23/2013	Analyst: **MDM**
DRO	1.1	1.0		mg/Kg	1	8/26/2013 02:46 PM
ORO	1.3	1.0		mg/Kg	1	8/26/2013 02:46 PM
Surr: p-Terphenyl	93.0	59-127		%REC	1	8/26/2013 02:46 PM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B		
RunID: GC4_130828A	QC Batch:	E13VS090		PrepDate:		Analyst: **PN**
GRO	ND	1.0		mg/Kg	1	8/28/2013 01:06 PM
Surr: Chlorobenzene - d5	89.9	51-136		%REC	1	8/28/2013 01:06 PM
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130828A	QC Batch:	43761		PrepDate:	8/26/2013	Analyst: **JT**
Lead	ND	5.0		mg/Kg	1	8/28/2013 11:03 AM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *30-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B3-0
Lab Order:	N010861	**Collection Date:**	8/22/2013 11:50:00 AM
Project:	CALTRANS I580 @ 164TH SHOULDER REP	**Matrix:**	SOIL
Lab ID:	N010861-014		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130828A	QC Batch: 43761			PrepDate:	8/26/2013	Analyst: **JT**
Lead	ND	5.0		mg/Kg	1	8/28/2013 11:08 AM

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

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ANALYTICAL RESULTS

Print Date: *30-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B3-1
Lab Order:	N010861	**Collection Date:**	8/22/2013 11:55:00 AM
Project:	CALTRANS I580 @ 164TH SHOULDER REP	**Matrix:**	SOIL
Lab ID:	N010861-015		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B				**EPA 8015B**		
RunID: GC3_130826A	QC Batch: 43742			PrepDate:	8/23/2013	Analyst: **MDM**
DRO	1.5	1.0		mg/Kg	1	8/26/2013 03:39 PM
ORO	2.4	1.0		mg/Kg	1	8/26/2013 03:39 PM
Surr: p-Terphenyl	88.6	59-127		%REC	1	8/26/2013 03:39 PM
LEAD BY ICP						
EPA 3050B				**EPA 6010B**		
RunID: ICP2_130828A	QC Batch: 43761			PrepDate:	8/26/2013	Analyst: **JT**
Lead	ND	5.0		mg/Kg	1	8/28/2013 11:16 AM

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

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ANALYTICAL RESULTS

Print Date: *30-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B3-2
Lab Order:	N010861	**Collection Date:**	8/22/2013 12:00:00 PM
Project:	CALTRANS I580 @ 164TH SHOULDER REP	**Matrix:**	SOIL
Lab ID:	N010861-016		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B				**EPA 8015B**		
RunID: GC3_130826A	QC Batch: 43742			PrepDate:	8/23/2013	Analyst: **MDM**
DRO	2.5	1.0		mg/Kg	1	8/26/2013 03:12 PM
ORO	4.6	1.0		mg/Kg	1	8/26/2013 03:12 PM
Surr: p-Terphenyl	94.1	59-127		%REC	1	8/26/2013 03:12 PM
MERCURY BY COLD VAPOR TECHNIQUE						
EPA 7471				**EPA 7471A**		
RunID: AA1_130826A	QC Batch: 43762			PrepDate:	8/26/2013	Analyst: **JT**
Mercury	ND	0.10		mg/Kg	1	8/26/2013
ICP METALS						
EPA 3050B				**EPA 6010B**		
RunID: ICP2_130827C	QC Batch: 43754			PrepDate:	8/23/2013	Analyst: **JT**
Antimony	ND	2.0		mg/Kg	1	8/27/2013 01:05 PM
Arsenic	2.1	1.0		mg/Kg	1	8/26/2013 02:49 PM
Barium	62	1.0		mg/Kg	1	8/26/2013 02:49 PM
Beryllium	ND	1.0		mg/Kg	1	8/26/2013 02:49 PM
Cadmium	ND	1.0		mg/Kg	1	8/26/2013 02:49 PM
Chromium	110	1.0		mg/Kg	1	8/26/2013 02:49 PM
Cobalt	25	1.0		mg/Kg	1	8/26/2013 02:49 PM
Copper	57	2.0		mg/Kg	1	8/26/2013 02:49 PM
Lead	ND	1.0		mg/Kg	1	8/26/2013 02:49 PM
Molybdenum	ND	1.0		mg/Kg	1	8/26/2013 02:49 PM
Nickel	80	1.0		mg/Kg	1	8/26/2013 02:49 PM
Selenium	ND	1.0		mg/Kg	1	8/26/2013 02:49 PM
Silver	ND	1.0		mg/Kg	1	8/26/2013 02:49 PM
Thallium	ND	1.0		mg/Kg	1	8/26/2013 02:49 PM
Vanadium	63	1.0		mg/Kg	1	8/26/2013 02:49 PM
Zinc	28	1.0		mg/Kg	1	8/26/2013 02:49 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		

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ANALYTICAL RESULTS

Print Date: *30-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B3-5
Lab Order:	N010861	**Collection Date:**	8/22/2013 12:05:00 PM
Project:	CALTRANS I580 @ 164TH SHOULDER REP	**Matrix:**	SOIL
Lab ID:	N010861-017		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130828A	QC Batch: 43761			PrepDate:	8/26/2013	Analyst: **JT**
Lead	8.3	5.0		mg/Kg	1	8/28/2013 11:25 AM

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

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ANALYTICAL RESULTS

Print Date: *30-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B3-10
Lab Order:	N010861	**Collection Date:**	8/22/2013 12:10:00 PM
Project:	CALTRANS I580 @ 164TH SHOULDER REP	**Matrix:**	SOIL
Lab ID:	N010861-018		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ICP						
	EPA 3050B			**EPA 6010B**		
RunID: ICP2_130828A	QC Batch: 43761			PrepDate:	8/26/2013	Analyst: **JT**
Lead	9.6	5.0		mg/Kg	1	8/28/2013 11:29 AM

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

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ANALYTICAL RESULTS

Print Date: *30-Aug-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	W.WELL
Lab Order:	N010861	**Collection Date:**	8/22/2013 1:00:00 PM
Project:	CALTRANS I580 @ 164TH SHOULDER REP	**Matrix:**	WATER
Lab ID:	N010861-019		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS						
				EPA 8260B		
RunID: MS5_130828A	QC Batch:	P13VW130		PrepDate:		Analyst: **QBM**
Benzene	ND	0.50		µg/L	1	8/28/2013 02:13 PM
Ethylbenzene	ND	0.50		µg/L	1	8/28/2013 02:13 PM
m,p-Xylene	ND	1.0		µg/L	1	8/28/2013 02:13 PM
o-Xylene	ND	0.50		µg/L	1	8/28/2013 02:13 PM
Toluene	ND	0.50		µg/L	1	8/28/2013 02:13 PM
Surr: 1,2-Dichloroethane-d4	101	70-127		%REC	1	8/28/2013 02:13 PM
Surr: 4-Bromofluorobenzene	101	80-120		%REC	1	8/28/2013 02:13 PM
Surr: Dibromofluoromethane	105	73-128		%REC	1	8/28/2013 02:13 PM
Surr: Toluene-d8	103	80-120		%REC	1	8/28/2013 02:13 PM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
	EPA 3510C			**EPA 8015B**		
RunID: GC1_130827A	QC Batch:	43768		PrepDate:	8/27/2013	Analyst: **MDM**
DRO	0.098	0.050		mg/L	1	8/27/2013 04:27 PM
ORO	0.087	0.050		mg/L	1	8/27/2013 04:27 PM
Surr: p-Terphenyl	76.0	52-135		%REC	1	8/27/2013 04:27 PM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B		
RunID: GC4_130823A	QC Batch:	E13VW046		PrepDate:		Analyst: **PN**
GRO	ND	0.050		mg/L	1	8/23/2013 12:46 PM
Surr: Chlorobenzene - d5	93.1	74-126		%REC	1	8/23/2013 12:46 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		

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CLIENT: Geocon Consultants, Inc.
Work Order: N010861
Project: CALTRANS I580 @ 164TH SHOULDER REP

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **MB-43754** SampType: **MBLK** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90134**
Client ID: **PBS** Batch ID: **43754** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/26/2013** SeqNo: **1638563**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	1.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Chromium	ND	1.0									
Cobalt	ND	1.0									
Copper	ND	2.0									
Lead	ND	1.0									
Molybdenum	0.533	1.0									
Nickel	ND	1.0									
Selenium	ND	1.0									
Silver	ND	1.0									
Thallium	ND	1.0									
Vanadium	ND	1.0									
Zinc	ND	1.0									

Sample ID: **MB2-43754** SampType: **MBLK** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90134**
Client ID: **PBS** Batch ID: **43754** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/26/2013** SeqNo: **1638564**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	1.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Chromium	ND	1.0									
Cobalt	ND	1.0									
Copper	ND	2.0									
Lead	ND	1.0									

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: N010861
Project: CALTRANS I580 @ 164TH SHOULDER REP

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **MB2-43754** SampType: **MBLK** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90134**
Client ID: **PBS** Batch ID: **43754** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/26/2013** SeqNo: **1638564**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	0.165	1.0									
Nickel	ND	1.0									
Selenium	ND	1.0									
Silver	ND	1.0									
Thallium	ND	1.0									
Vanadium	ND	1.0									
Zinc	ND	1.0									

Sample ID: **LCS-43754** SampType: **LCS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90134**
Client ID: **LCSS** Batch ID: **43754** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/26/2013** SeqNo: **1638565**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	50.094	1.0	50.00	0	100	80	120				
Barium	52.620	1.0	50.00	0	105	80	120				
Beryllium	51.120	1.0	50.00	0	102	80	120				
Cadmium	50.752	1.0	50.00	0	102	80	120				
Chromium	52.699	1.0	50.00	0	105	80	120				
Cobalt	50.190	1.0	50.00	0	100	80	120				
Copper	54.941	2.0	50.00	0	110	80	120				
Lead	51.810	1.0	50.00	0	104	80	120				
Molybdenum	52.954	1.0	50.00	0	106	80	120				
Nickel	49.240	1.0	50.00	0	98.5	80	120				
Selenium	44.428	1.0	50.00	0	88.9	80	120				
Silver	51.673	1.0	50.00	0	103	80	120				
Thallium	50.717	1.0	50.00	0	101	80	120				
Vanadium	54.167	1.0	50.00	0	108	80	120				
Zinc	49.258	1.0	50.00	0	98.5	80	120				

Qualifiers:

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

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CLIENT: Geocon Consultants, Inc.
Work Order: N010861
Project: CALTRANS I580 @ 164TH SHOULDER REP

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **N010844-001A-MS** SampType: **MS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90134**
Client ID: **ZZZZZZ** Batch ID: **43754** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/26/2013** SeqNo: **1638570**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	50.969	1.0	49.83	1.659	99.0	75	125				
Barium	112.155	1.0	49.83	60.81	103	75	125				
Beryllium	47.963	1.0	49.83	0	96.3	75	125				
Cadmium	48.518	1.0	49.83	0	97.4	75	125				
Chromium	62.360	1.0	49.83	13.19	98.7	75	125				
Cobalt	53.580	1.0	49.83	4.929	97.6	75	125				
Copper	61.216	2.0	49.83	6.574	110	75	125				
Lead	54.115	1.0	49.83	4.551	99.5	75	125				
Molybdenum	48.217	1.0	49.83	0	96.8	75	125				
Nickel	56.791	1.0	49.83	9.150	95.6	75	125				
Selenium	44.465	1.0	49.83	0.3057	88.6	75	125				
Silver	46.125	1.0	49.83	0	92.6	75	125				
Thallium	46.576	1.0	49.83	0	93.5	75	125				
Vanadium	80.238	1.0	49.83	28.42	104	75	125				
Zinc	69.539	1.0	49.83	20.68	98.1	75	125				

Sample ID: **N010844-001A-MSD** SampType: **MSD** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90134**
Client ID: **ZZZZZZ** Batch ID: **43754** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/26/2013** SeqNo: **1638571**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	51.231	1.0	49.80	1.659	99.5	75	125	50.97	0.513	20	
Barium	112.991	1.0	49.80	60.81	105	75	125	112.2	0.742	20	
Beryllium	47.734	1.0	49.80	0	95.8	75	125	47.96	0.479	20	
Cadmium	48.633	1.0	49.80	0	97.7	75	125	48.52	0.237	20	
Chromium	62.535	1.0	49.80	13.19	99.1	75	125	62.36	0.281	20	
Cobalt	53.618	1.0	49.80	4.929	97.8	75	125	53.58	0.0715	20	
Copper	61.044	2.0	49.80	6.574	109	75	125	61.22	0.281	20	
Lead	53.962	1.0	49.80	4.551	99.2	75	125	54.12	0.283	20	
Molybdenum	48.248	1.0	49.80	0	96.9	75	125	48.22	0.0639	20	
Nickel	56.526	1.0	49.80	9.150	95.1	75	125	56.79	0.468	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

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CLIENT: Geocon Consultants, Inc.
Work Order: N010861
Project: CALTRANS I580 @ 164TH SHOULDER REP

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **N010844-001A-MSD** SampType: **MSD** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90134**
Client ID: **ZZZZZZ** Batch ID: **43754** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/26/2013** SeqNo: **1638571**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	44.570	1.0	49.80	0.3057	88.9	75	125	44.47	0.236	20	
Silver	46.086	1.0	49.80	0	92.5	75	125	46.13	0.0843	20	
Thallium	46.971	1.0	49.80	0	94.3	75	125	46.58	0.844	20	
Vanadium	79.707	1.0	49.80	28.42	103	75	125	80.24	0.664	20	
Zinc	68.995	1.0	49.80	20.68	97.0	75	125	69.54	0.786	20	

Sample ID: **N010845-001A-DUP** SampType: **DUP** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90134**
Client ID: **ZZZZZZ** Batch ID: **43754** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/26/2013** SeqNo: **1638579**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.500	1.0						1.480	1.33	20	
Barium	78.430	1.0						61.09	24.9	20	R
Beryllium	0.170	1.0						0.1459	0	20	
Cadmium	ND	1.0						0	0	20	
Chromium	9.803	1.0						14.35	37.7	20	R
Cobalt	5.854	1.0						6.423	9.26	20	
Copper	5.905	2.0						6.497	9.54	20	
Lead	3.119	1.0						3.229	3.47	20	
Molybdenum	ND	1.0						0	0	20	
Nickel	9.879	1.0						11.38	14.2	20	
Selenium	ND	1.0						0	0	20	
Silver	ND	1.0						0	0	20	
Thallium	ND	1.0						0	0	20	
Vanadium	16.498	1.0						30.08	58.3	20	R
Zinc	18.193	1.0						19.27	5.74	20	

Sample ID: **N010860-008A-DUP** SampType: **DUP** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90134**
Client ID: **ZZZZZZ** Batch ID: **43754** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/26/2013** SeqNo: **1638584**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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

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Work Order: N010861
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ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **N010860-008A-DUP** SampType: **DUP** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90134**
Client ID: **ZZZZZZ** Batch ID: **43754** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/26/2013** SeqNo: **1638584**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.455	1.0						0.6136	0	20	
Barium	16.325	1.0						17.83	8.81	20	
Beryllium	ND	1.0						0	0	20	
Cadmium	ND	1.0						0	0	20	
Chromium	373.538	1.0						346.5	7.51	20	
Cobalt	23.025	1.0						22.64	1.70	20	
Copper	67.045	2.0						71.39	6.27	20	
Lead	ND	1.0						0	0	20	
Molybdenum	ND	1.0						0	0	20	
Nickel	148.112	1.0						121.7	19.6	20	
Selenium	0.963	1.0						0.3648	0	20	
Silver	ND	1.0						0	0	20	
Thallium	ND	1.0						0	0	20	
Vanadium	159.671	1.0						179.2	11.5	20	
Zinc	17.338	1.0						17.93	3.37	20	

Sample ID: **N010861-004A-MS** SampType: **MS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90134**
Client ID: **ZZZZZZ** Batch ID: **43754** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/26/2013** SeqNo: **1638590**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	51.891	1.0	49.78	2.429	99.4	75	125				
Barium	119.483	1.0	49.78	71.00	97.4	75	125				
Beryllium	48.154	1.0	49.78	0	96.7	75	125				
Cadmium	44.816	1.0	49.78	0	90.0	75	125				
Chromium	197.918	1.0	49.78	154.2	87.8	75	125				
Cobalt	72.685	1.0	49.78	27.35	91.1	75	125				
Copper	118.149	2.0	49.78	68.60	99.6	75	125				
Lead	48.624	1.0	49.78	1.894	93.9	75	125				
Molybdenum	44.631	1.0	49.78	0	89.7	75	125				
Nickel	156.715	1.0	49.78	136.9	39.8	75	125				S

Qualifiers:

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

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CLIENT: Geocon Consultants, Inc.
Work Order: N010861
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ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **N010861-004A-MS** SampType: **MS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90134**
Client ID: **ZZZZZZ** Batch ID: **43754** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/26/2013** SeqNo: **1638590**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	44.947	1.0	49.78	1.058	88.2	75	125				
Silver	46.597	1.0	49.78	0	93.6	75	125				
Thallium	42.226	1.0	49.78	0	84.8	75	125				
Vanadium	118.094	1.0	49.78	76.33	83.9	75	125				
Zinc	75.482	1.0	49.78	32.57	86.2	75	125				

Sample ID: **MB-43754** SampType: **MBLK** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90151**
Client ID: **PBS** Batch ID: **43754** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/27/2013** SeqNo: **1639110**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.185	2.0									

Sample ID: **MB2-43754** SampType: **MBLK** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90151**
Client ID: **PBS** Batch ID: **43754** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/27/2013** SeqNo: **1639111**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.217	2.0									

Sample ID: **LCS-43754** SampType: **LCS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90151**
Client ID: **LCSS** Batch ID: **43754** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/27/2013** SeqNo: **1639112**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	52.300	2.0	50.00	0	105	80	120				

Sample ID: **N010844-001A-MS** SampType: **MS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90151**
Client ID: **ZZZZZZ** Batch ID: **43754** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/27/2013** SeqNo: **1639116**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	41.413	2.0	49.83	0	83.1	75	125				

Qualifiers:

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

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ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **N010844-001A-MSD** SampType: **MSD** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90151**
Client ID: **ZZZZZZ** Batch ID: **43754** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/27/2013** SeqNo: **1639117**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	41.100	2.0	49.80	0	82.5	75	125	41.41	0.758	20	

Sample ID: **N010845-001A-DUP** SampType: **DUP** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90151**
Client ID: **ZZZZZZ** Batch ID: **43754** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/27/2013** SeqNo: **1639125**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0						0	0	20	

Sample ID: **N010860-008A-DUP** SampType: **DUP** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90151**
Client ID: **ZZZZZZ** Batch ID: **43754** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/27/2013** SeqNo: **1639130**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0						0	0	20	

Sample ID: **N010861-004A-MS** SampType: **MS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90151**
Client ID: **ZZZZZZ** Batch ID: **43754** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/27/2013** SeqNo: **1639136**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	30.662	2.0	24.89	0	123	75	125				

Qualifiers:

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

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ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPB

Sample ID: **N010861-001A-MS** SampType: **MS** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **8/26/2013** RunNo: **90145**
Client ID: **ZZZZZZ** Batch ID: **43761** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/28/2013** SeqNo: **1638728**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	118.293	5.0	50.05	64.34	108	75	125				

Sample ID: **N010861-001A-MSD** SampType: **MSD** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **8/26/2013** RunNo: **90145**
Client ID: **ZZZZZZ** Batch ID: **43761** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/28/2013** SeqNo: **1638729**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	125.596	5.0	50.10	64.34	122	75	125	118.3	5.99	20	

Sample ID: **N010861-002A-DUP** SampType: **DUP** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **8/26/2013** RunNo: **90145**
Client ID: **ZZZZZZ** Batch ID: **43761** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/28/2013** SeqNo: **1638731**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	683.287	5.0						49.51	173	20	R

Sample ID: **N010861-014A-MS** SampType: **MS** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **8/26/2013** RunNo: **90145**
Client ID: **ZZZZZZ** Batch ID: **43761** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/28/2013** SeqNo: **1638743**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	47.528	5.0	49.93	1.557	92.1	75	125				

Sample ID: **N010861-015A-DUP** SampType: **DUP** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **8/26/2013** RunNo: **90145**
Client ID: **ZZZZZZ** Batch ID: **43761** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/28/2013** SeqNo: **1638745**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	1.179	5.0						0.8617	0	20	

Qualifiers:

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

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ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPB

Sample ID: **MB-43761** SampType: **MBLK** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **8/26/2013** RunNo: **90144**
Client ID: **PBS** Batch ID: **43761** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/27/2013** SeqNo: **1638774**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	5.0									

Sample ID: **MB2-43761** SampType: **MBLK** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **8/26/2013** RunNo: **90144**
Client ID: **PBS** Batch ID: **43761** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/27/2013** SeqNo: **1638775**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	5.0									

Sample ID: **LCS-43761** SampType: **LCS** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **8/26/2013** RunNo: **90144**
Client ID: **LCSS** Batch ID: **43761** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **8/27/2013** SeqNo: **1638776**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	49.717	5.0	50.00	0	99.4	80	120				

Qualifiers:

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

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CLIENT: Geocon Consultants, Inc.
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ANALYTICAL QC SUMMARY REPORT

TestCode: 7471_S

Sample ID: **LCS-43762** SampType: **LCS** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **8/26/2013** RunNo: **90119**
Client ID: **LCSS** Batch ID: **43762** TestNo: **EPA 7471A** **EPA 7471** Analysis Date: **8/26/2013** SeqNo: **1638138**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.451	0.10	0.4202	0	107	80	120				

Sample ID: **MB-43762** SampType: **MBLK** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **8/26/2013** RunNo: **90119**
Client ID: **PBS** Batch ID: **43762** TestNo: **EPA 7471A** **EPA 7471** Analysis Date: **8/26/2013** SeqNo: **1638140**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.040	0.10									

Sample ID: **N010860-004A-DUP** SampType: **DUP** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **8/26/2013** RunNo: **90119**
Client ID: **ZZZZZZ** Batch ID: **43762** TestNo: **EPA 7471A** **EPA 7471** Analysis Date: **8/26/2013** SeqNo: **1638153**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.058	0.099						0.04746	0	20	

Sample ID: **N010860-004A-MS** SampType: **MS** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **8/26/2013** RunNo: **90119**
Client ID: **ZZZZZZ** Batch ID: **43762** TestNo: **EPA 7471A** **EPA 7471** Analysis Date: **8/26/2013** SeqNo: **1638154**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.488	0.10	0.4181	0.04746	105	75	125				

Sample ID: **N010860-004A-MSD** SampType: **MSD** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **8/26/2013** RunNo: **90119**
Client ID: **ZZZZZZ** Batch ID: **43762** TestNo: **EPA 7471A** **EPA 7471** Analysis Date: **8/26/2013** SeqNo: **1638155**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.472	0.10	0.4195	0.04746	101	75	125	0.4882	3.39	20	

Qualifiers:

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

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ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_DM LL

Sample ID: **LCS-43742** SampType: **LCS** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90121**
Client ID: **LCSS** Batch ID: **43742** TestNo: **EPA 8015B EPA 3550B** Analysis Date: **8/26/2013** SeqNo: **1638166**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	71.092	1.0	83.30	0	85.3	52	126				
Surr: p-Terphenyl	6.956		6.670		104	59	127				

Sample ID: **MB1-43742** SampType: **MBLK** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90121**
Client ID: **PBS** Batch ID: **43742** TestNo: **EPA 8015B EPA 3550B** Analysis Date: **8/26/2013** SeqNo: **1638167**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	ND	1.0									
ORO	ND	1.0									
Surr: p-Terphenyl	5.830		6.670		87.4	59	127				

Sample ID: **N010845-008A-DUP** SampType: **DUP** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90121**
Client ID: **ZZZZZZ** Batch ID: **43742** TestNo: **EPA 8015B EPA 3550B** Analysis Date: **8/26/2013** SeqNo: **1638175**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	ND	1.0						0	0	20	
ORO	ND	1.0						0	0	20	
Surr: p-Terphenyl	5.928		6.681		88.7	59	127		0		

Sample ID: **N010845-008A-MS** SampType: **MS** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90121**
Client ID: **ZZZZZZ** Batch ID: **43742** TestNo: **EPA 8015B EPA 3550B** Analysis Date: **8/26/2013** SeqNo: **1638179**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	59.455	1.0	83.30	0	71.4	13	129				
Surr: p-Terphenyl	5.988		6.670		89.8	59	127				

Qualifiers:

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

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ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_DM LL

Sample ID: **N010845-008A-MSD** SampType: **MSD** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90121**
Client ID: **ZZZZZZ** Batch ID: **43742** TestNo: **EPA 8015B EPA 3550B** Analysis Date: **8/26/2013** SeqNo: **1638180**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	62.470	1.0	83.16	0	75.1	13	129	59.45	4.95	20	
Surr: p-Terphenyl	6.454		6.659		96.9	59	127		0		

Sample ID: **MB2-43742** SampType: **MBLK** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90129**
Client ID: **PBS** Batch ID: **43742** TestNo: **EPA 8015B EPA 3550B** Analysis Date: **8/26/2013** SeqNo: **1638302**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	ND	1.0									
ORO	ND	1.0									
Surr: p-Terphenyl	5.453		6.670		81.8	59	127				

Sample ID: **N010861-005A-DUP** SampType: **DUP** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90129**
Client ID: **ZZZZZZ** Batch ID: **43742** TestNo: **EPA 8015B EPA 3550B** Analysis Date: **8/26/2013** SeqNo: **1638304**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	50.333	1.0						37.02	30.5	20	R
ORO	95.406	1.0						72.65	27.1	20	R
Surr: p-Terphenyl	6.050		6.652		90.9	59	127		0		

Sample ID: **N010861-005A-MS** SampType: **MS** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **8/23/2013** RunNo: **90129**
Client ID: **ZZZZZZ** Batch ID: **43742** TestNo: **EPA 8015B EPA 3550B** Analysis Date: **8/26/2013** SeqNo: **1638313**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	105.102	1.0	83.27	37.02	81.8	13	129				
Surr: p-Terphenyl	6.067		6.668		91.0	59	127				

Qualifiers:

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

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ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_DM_LL

Sample ID: **LCS-43768** SampType: **LCS** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **8/27/2013** RunNo: **90123**
Client ID: **LCSW** Batch ID: **43768** TestNo: **EPA 8015B EPA 3510C** Analysis Date: **8/27/2013** SeqNo: **1638261**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	0.718	0.050	1.000	0	71.8	32	133				
Surr: p-Terphenyl	0.075		0.08000		94.1	52	135				

Sample ID: **LCSD-43768** SampType: **LCSD** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **8/27/2013** RunNo: **90123**
Client ID: **LCSS02** Batch ID: **43768** TestNo: **EPA 8015B EPA 3510C** Analysis Date: **8/27/2013** SeqNo: **1638262**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	0.592	0.050	1.000	0	59.2	32	133	0.7178	19.2	20	
Surr: p-Terphenyl	0.073		0.08000		91.4	52	135		0		

Sample ID: **MB-43768** SampType: **MBLK** TestCode: **8015_W_DM_** Units: **mg/L** Prep Date: **8/27/2013** RunNo: **90123**
Client ID: **PBW** Batch ID: **43768** TestNo: **EPA 8015B EPA 3510C** Analysis Date: **8/27/2013** SeqNo: **1638263**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	ND	0.050									
ORO	ND	0.050									
Surr: p-Terphenyl	0.066		0.08000		82.7	52	135				

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
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ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GAS_S

Sample ID: **E130828CLCS** SampType: **LCS** TestCode: **8015GAS_S** Units: **mg/Kg** Prep Date: RunNo: **90147**
Client ID: **LCSS** Batch ID: **E13VS090** TestNo: **EPA 8015B** Analysis Date: **8/28/2013** SeqNo: **1638805**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.698	1.0	5.000	0	94.0	77	122				
Surr: Chlorobenzene - d5	89.718		100.0		89.7	51	136				

Sample ID: **E130828CMB1** SampType: **MBLK** TestCode: **8015GAS_S** Units: **mg/Kg** Prep Date: RunNo: **90147**
Client ID: **PBS** Batch ID: **E13VS090** TestNo: **EPA 8015B** Analysis Date: **8/28/2013** SeqNo: **1638806**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.061	1.0									
Surr: Chlorobenzene - d5	83.554		100.0		83.6	51	136				

Sample ID: **N010861-013ADUP** SampType: **DUP** TestCode: **8015GAS_S** Units: **mg/Kg** Prep Date: RunNo: **90147**
Client ID: **ZZZZZZ** Batch ID: **E13VS090** TestNo: **EPA 8015B** Analysis Date: **8/28/2013** SeqNo: **1638808**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.052	1.0						0.05600	0	20	
Surr: Chlorobenzene - d5	91.594		100.0		91.6	51	136		0		

Sample ID: **N010861-013AMSD** SampType: **MSD** TestCode: **8015GAS_S** Units: **mg/Kg** Prep Date: RunNo: **90147**
Client ID: **ZZZZZZ** Batch ID: **E13VS090** TestNo: **EPA 8015B** Analysis Date: **8/28/2013** SeqNo: **1638810**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.748	1.0	5.000	0.05600	93.8	41	132	4.477	5.88	20	
Surr: Chlorobenzene - d5	87.461		100.0		87.5	51	136		0		

Sample ID: **N010861-013AMS** SampType: **MS** TestCode: **8015GAS_S** Units: **mg/Kg** Prep Date: RunNo: **90147**
Client ID: **ZZZZZZ** Batch ID: **E13VS090** TestNo: **EPA 8015B** Analysis Date: **8/28/2013** SeqNo: **1638811**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.477	1.0	5.000	0.05600	88.4	41	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		

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ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GAS_S

Sample ID: **N010861-013AMS** SampType: **MS** TestCode: **8015GAS_S** Units: **mg/Kg** Prep Date: RunNo: **90147**
Client ID: **ZZZZZZ** Batch ID: **E13VS090** TestNo: **EPA 8015B** Analysis Date: **8/28/2013** SeqNo: **1638811**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Chlorobenzene - d5	83.345		100.0		83.3	51	136				

Qualifiers:

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

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ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GAS_WP

Sample ID: **E130823LCS** SampType: **LCS** TestCode: **8015GAS_WP** Units: **mg/L** Prep Date: RunNo: **90100**
Client ID: **LCSW** Batch ID: **E13VW046** TestNo: **EPA 8015B** Analysis Date: **8/23/2013** SeqNo: **1637531**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	1.048	0.050	1.000	0	105	70	130				
Surr: Chlorobenzene - d5	48.035		50.00		96.1	74	126				

Sample ID: **E130823MB1** SampType: **MBLK** TestCode: **8015GAS_WP** Units: **mg/L** Prep Date: RunNo: **90100**
Client ID: **PBW** Batch ID: **E13VW046** TestNo: **EPA 8015B** Analysis Date: **8/23/2013** SeqNo: **1637532**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	0.050									
Surr: Chlorobenzene - d5	48.095		50.00		96.2	74	126				

Sample ID: **N010860-011ADUP** SampType: **DUP** TestCode: **8015GAS_WP** Units: **mg/L** Prep Date: RunNo: **90100**
Client ID: **ZZZZZZ** Batch ID: **E13VW046** TestNo: **EPA 8015B** Analysis Date: **8/23/2013** SeqNo: **1637534**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	0.050						0	0	20	
Surr: Chlorobenzene - d5	53.584		50.00		107	74	126		0		

Sample ID: **N010861-019AMS** SampType: **MS** TestCode: **8015GAS_WP** Units: **mg/L** Prep Date: RunNo: **90100**
Client ID: **ZZZZZZ** Batch ID: **E13VW046** TestNo: **EPA 8015B** Analysis Date: **8/23/2013** SeqNo: **1637536**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.986	0.050	1.000	0	98.6	39	153				
Surr: Chlorobenzene - d5	48.157		50.00		96.3	74	126				

Sample ID: **N010861-019AMSD** SampType: **MSD** TestCode: **8015GAS_WP** Units: **mg/L** Prep Date: RunNo: **90100**
Client ID: **ZZZZZZ** Batch ID: **E13VW046** TestNo: **EPA 8015B** Analysis Date: **8/23/2013** SeqNo: **1637537**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	0.939	0.050	1.000	0	93.9	39	153	0.9860	4.88	30	

Qualifiers:

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

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ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GAS_WP

Sample ID: **N010861-019AMSD** SampType: **MSD** TestCode: **8015GAS_WP** Units: **mg/L** Prep Date: RunNo: **90100**
Client ID: **ZZZZZZ** Batch ID: **E13VW046** TestNo: **EPA 8015B** Analysis Date: **8/23/2013** SeqNo: **1637537**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Chlorobenzene - d5	48.396		50.00		96.8	74	126		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		

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ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL

Sample ID: **P130826LCS** SampType: **LCS** TestCode: **8260SOIL** Units: **µg/Kg** Prep Date: RunNo: **90108**
Client ID: **LCSS** Batch ID: **P13VS037** TestNo: **EPA 8260B** Analysis Date: **8/26/2013** SeqNo: **1638056**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	37.010	5.0	40.00	0	92.5	80	120				
Ethylbenzene	36.670	5.0	40.00	0	91.7	80	120				
m,p-Xylene	75.170	10	80.00	0	94.0	80	121				
o-Xylene	36.060	5.0	40.00	0	90.2	80	120				
Toluene	37.440	5.0	40.00	0	93.6	80	120				
Surr: 1,2-Dichloroethane-d4	54.320		50.00		109	63	139				
Surr: 4-Bromofluorobenzene	52.550		50.00		105	75	124				
Surr: Dibromofluoromethane	53.660		50.00		107	70	133				
Surr: Toluene-d8	52.850		50.00		106	80	123				

Sample ID: **P130826MB2** SampType: **MBLK** TestCode: **8260SOIL** Units: **µg/Kg** Prep Date: RunNo: **90108**
Client ID: **PBS** Batch ID: **P13VS037** TestNo: **EPA 8260B** Analysis Date: **8/26/2013** SeqNo: **1638057**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	5.0									
Ethylbenzene	ND	5.0									
m,p-Xylene	ND	10									
o-Xylene	ND	5.0									
Toluene	ND	5.0									
Surr: 1,2-Dichloroethane-d4	56.470		50.00		113	63	139				
Surr: 4-Bromofluorobenzene	51.070		50.00		102	75	124				
Surr: Dibromofluoromethane	55.530		50.00		111	70	133				
Surr: Toluene-d8	52.590		50.00		105	80	123				

Sample ID: **N010874-001ADUP** SampType: **DUP** TestCode: **8260SOIL** Units: **µg/Kg** Prep Date: RunNo: **90108**
Client ID: **ZZZZZZ** Batch ID: **P13VS037** TestNo: **EPA 8260B** Analysis Date: **8/26/2013** SeqNo: **1638060**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	5.0						0	0	20	
Ethylbenzene	1.110	5.0						0.9800	0	20	

Qualifiers:

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

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ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL

Sample ID: **N010874-001ADUP** SampType: **DUP** TestCode: **8260SOIL** Units: **µg/Kg** Prep Date: RunNo: **90108**
Client ID: **ZZZZZZ** Batch ID: **P13VS037** TestNo: **EPA 8260B** Analysis Date: **8/26/2013** SeqNo: **1638060**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
m,p-Xylene	5.190	10						4.700	0	20	
o-Xylene	1.890	5.0						1.660	0	20	
Toluene	3.780	5.0						3.370	0	20	
Surr: 1,2-Dichloroethane-d4	52.400		50.00		105	63	139		0		
Surr: 4-Bromofluorobenzene	51.150		50.00		102	75	124		0		
Surr: Dibromofluoromethane	53.930		50.00		108	70	133		0		
Surr: Toluene-d8	53.030		50.00		106	80	123		0		

Sample ID: **N010861-013AMS** SampType: **MS** TestCode: **8260SOIL** Units: **µg/Kg** Prep Date: RunNo: **90108**
Client ID: **ZZZZZZ** Batch ID: **P13VS037** TestNo: **EPA 8260B** Analysis Date: **8/26/2013** SeqNo: **1638061**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	36.810	5.0	40.00	0	92.0	72	122				
Ethylbenzene	35.800	5.0	40.00	0	89.5	65	120				
m,p-Xylene	72.510	10	80.00	0	90.6	65	120				
o-Xylene	35.080	5.0	40.00	0	87.7	67	118				
Toluene	36.880	5.0	40.00	0	92.2	68	120				
Surr: 1,2-Dichloroethane-d4	59.620		50.00		119	63	139				
Surr: 4-Bromofluorobenzene	53.450		50.00		107	75	124				
Surr: Dibromofluoromethane	57.540		50.00		115	70	133				
Surr: Toluene-d8	53.250		50.00		106	80	123				

Sample ID: **N010861-013AMSD** SampType: **MSD** TestCode: **8260SOIL** Units: **µg/Kg** Prep Date: RunNo: **90108**
Client ID: **ZZZZZZ** Batch ID: **P13VS037** TestNo: **EPA 8260B** Analysis Date: **8/26/2013** SeqNo: **1638062**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	35.340	5.0	40.00	0	88.4	72	122	36.81	4.07	20	
Ethylbenzene	33.950	5.0	40.00	0	84.9	65	120	35.80	5.30	20	
m,p-Xylene	68.920	10	80.00	0	86.2	65	120	72.51	5.08	20	
o-Xylene	32.800	5.0	40.00	0	82.0	67	118	35.08	6.72	20	

Qualifiers:

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

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ANALYTICAL QC SUMMARY REPORT

TestCode: 8260SOIL

Sample ID: **N010861-013AMSD** SampType: **MSD** TestCode: **8260SOIL** Units: **µg/Kg** Prep Date: RunNo: **90108**
Client ID: **ZZZZZZ** Batch ID: **P13VS037** TestNo: **EPA 8260B** Analysis Date: **8/26/2013** SeqNo: **1638062**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	35.490	5.0	40.00	0	88.7	68	120	36.88	3.84	20	
Surr: 1,2-Dichloroethane-d4	60.880		50.00		122	63	139		0		
Surr: 4-Bromofluorobenzene	53.710		50.00		107	75	124		0		
Surr: Dibromofluoromethane	58.720		50.00		117	70	133		0		
Surr: Toluene-d8	54.370		50.00		109	80	123		0		

Qualifiers:

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

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

CLIENT: Geocon Consultants, Inc.
Work Order: N010861
Project: CALTRANS I580 @ 164TH SHOULDER REP

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260WATERP

Sample ID: **P130828LCS** SampType: **LCS** TestCode: **8260WATERP** Units: **µg/L** Prep Date: RunNo: **90149**
Client ID: **LCSW** Batch ID: **P13VW130** TestNo: **EPA 8260B** Analysis Date: **8/28/2013** SeqNo: **1638983**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.350	0.50	20.00	0	107	80	120				
Ethylbenzene	21.610	0.50	20.00	0	108	80	120				
m,p-Xylene	44.490	1.0	40.00	0	111	80	120				
o-Xylene	22.510	0.50	20.00	0	113	80	120				
Toluene	21.590	0.50	20.00	0	108	80	120				
Surr: 1,2-Dichloroethane-d4	26.080		25.00		104	70	127				
Surr: 4-Bromofluorobenzene	26.710		25.00		107	80	120				
Surr: Dibromofluoromethane	26.180		25.00		105	73	128				
Surr: Toluene-d8	26.350		25.00		105	80	120				

Sample ID: **P130828MB2** SampType: **MBLK** TestCode: **8260WATERP** Units: **µg/L** Prep Date: RunNo: **90149**
Client ID: **PBW** Batch ID: **P13VW130** TestNo: **EPA 8260B** Analysis Date: **8/28/2013** SeqNo: **1638984**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50									
Ethylbenzene	ND	0.50									
m,p-Xylene	ND	1.0									
o-Xylene	ND	0.50									
Toluene	ND	0.50									
Surr: 1,2-Dichloroethane-d4	25.980		25.00		104	70	127				
Surr: 4-Bromofluorobenzene	25.710		25.00		103	80	120				
Surr: Dibromofluoromethane	26.560		25.00		106	73	128				
Surr: Toluene-d8	26.190		25.00		105	80	120				

Sample ID: **N010857-001FMS** SampType: **MS** TestCode: **8260WATERP** Units: **µg/L** Prep Date: RunNo: **90149**
Client ID: **ZZZZZZ** Batch ID: **P13VW130** TestNo: **EPA 8260B** Analysis Date: **8/28/2013** SeqNo: **1638988**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.150	0.50	20.00	0	106	72	122				
Ethylbenzene	21.330	0.50	20.00	0	107	80	120				

Qualifiers:

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

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

CLIENT: Geocon Consultants, Inc.
Work Order: N010861
Project: CALTRANS I580 @ 164TH SHOULDER REP

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260WATERP

Sample ID: **N010857-001FMS** SampType: **MS** TestCode: **8260WATERP** Units: **µg/L** Prep Date: RunNo: **90149**
Client ID: **ZZZZZZ** Batch ID: **P13VW130** TestNo: **EPA 8260B** Analysis Date: **8/28/2013** SeqNo: **1638988**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
m,p-Xylene	44.120	1.0	40.00	0	110	80	120				
o-Xylene	22.060	0.50	20.00	0	110	80	120				
Toluene	21.280	0.50	20.00	0	106	78	120				
Surr: 1,2-Dichloroethane-d4	25.980		25.00		104	70	127				
Surr: 4-Bromofluorobenzene	26.780		25.00		107	80	120				
Surr: Dibromofluoromethane	25.810		25.00		103	73	128				
Surr: Toluene-d8	26.310		25.00		105	80	120				

Sample ID: **N010857-001FMSD** SampType: **MSD** TestCode: **8260WATERP** Units: **µg/L** Prep Date: RunNo: **90149**
Client ID: **ZZZZZZ** Batch ID: **P13VW130** TestNo: **EPA 8260B** Analysis Date: **8/28/2013** SeqNo: **1638989**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.140	0.50	20.00	0	106	72	122	21.15	0.0473	20	
Ethylbenzene	21.530	0.50	20.00	0	108	80	120	21.33	0.933	20	
m,p-Xylene	44.070	1.0	40.00	0	110	80	120	44.12	0.113	20	
o-Xylene	22.320	0.50	20.00	0	112	80	120	22.06	1.17	20	
Toluene	21.280	0.50	20.00	0	106	78	120	21.28	0	20	
Surr: 1,2-Dichloroethane-d4	25.960		25.00		104	70	127		0		
Surr: 4-Bromofluorobenzene	26.770		25.00		107	80	120		0		
Surr: Dibromofluoromethane	26.070		25.00		104	73	128		0		
Surr: Toluene-d8	26.300		25.00		105	80	120		0		

Sample ID: **N010861-019ADUP** SampType: **DUP** TestCode: **8260WATERP** Units: **µg/L** Prep Date: RunNo: **90149**
Client ID: **ZZZZZZ** Batch ID: **P13VW130** TestNo: **EPA 8260B** Analysis Date: **8/28/2013** SeqNo: **1638991**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50						0	0	20	
Ethylbenzene	ND	0.50						0	0	20	
m,p-Xylene	ND	1.0						0	0	20	
o-Xylene	ND	0.50						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		

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CLIENT: Geocon Consultants, Inc.
Work Order: N010861
Project: CALTRANS I580 @ 164TH SHOULDER REP

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260WATERP

Sample ID: **N010861-019ADUP** SampType: **DUP** TestCode: **8260WATERP** Units: **µg/L** Prep Date: RunNo: **90149**
Client ID: **ZZZZZZ** Batch ID: **P13VW130** TestNo: **EPA 8260B** Analysis Date: **8/28/2013** SeqNo: **1638991**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	ND	0.50						0	0	20	
Surr: 1,2-Dichloroethane-d4	26.290		25.00		105	70	127		0		
Surr: 4-Bromofluorobenzene	25.750		25.00		103	80	120		0		
Surr: Dibromofluoromethane	26.440		25.00		106	73	128		0		
Surr: Toluene-d8	26.000		25.00		104	80	120		0		

Sample ID: **N010861-019AMS** SampType: **MS** TestCode: **8260WATERP** Units: **µg/L** Prep Date: RunNo: **90149**
Client ID: **ZZZZZZ** Batch ID: **P13VW130** TestNo: **EPA 8260B** Analysis Date: **8/28/2013** SeqNo: **1638992**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.080	0.50	20.00	0	105	72	122				
Ethylbenzene	21.580	0.50	20.00	0	108	80	120				
m,p-Xylene	43.990	1.0	40.00	0	110	80	120				
o-Xylene	22.430	0.50	20.00	0	112	80	120				
Toluene	21.390	0.50	20.00	0	107	78	120				
Surr: 1,2-Dichloroethane-d4	25.350		25.00		101	70	127				
Surr: 4-Bromofluorobenzene	26.300		25.00		105	80	120				
Surr: Dibromofluoromethane	25.410		25.00		102	73	128				
Surr: Toluene-d8	26.110		25.00		104	80	120				

Qualifiers:

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

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

CHAIN OF CUSTODY RECORD

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

P.O.#: E8560-02-52 Quote #:

As the authorized agent of the below named company, I hereby purchase testing services from ATL as dictated below and guarantee payment in full.

Submitter (Print): CM

Signature: CM

Submitter - Please complete all SHADED areas and include QUOTE # above to ensure proper invoicing.

FOR LABORATORY USE ONLY:

Method of Transport: ☐ Client ☐ ATL ☐ FedEx ☐ OnTrac ☐ GSO ☐ Other:

3.2°C ice Sample Condition Upon Receipt

1. CHILLED R#2 Y☐ N☐ 4. SEALED Y☐ N☐
2. HEADSPACE (VOA) Y☐ N☐ 5. # OF SPLS MATCH COC Y☐ N☐
3. CONTAINER INTACT Y☐ N☐ 6. PRESERVED Y☐ N☐

Client: **Geocon Consultant, Inc.**
R. DAY, L. BEADLE, LIVERMORE

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

Project Name: CALTRANS I 580 @ 16th STREET SHOULDER REPAIR
Project #: E8560-02-52
Sampler: (Printed Name) CM, MO (Signature) CHRIS MERRITT

Relinquished by: (Signature and Printed Name) CHRIS MERRITT Date: 8-22-13 Time: 1800
Received by: (Signature and Printed Name) M. MARTIN Date: 8/23/13 Time: 0845
Relinquished by: (Signature and Printed Name) Date: Time:
Received by: (Signature and Printed Name) Date: Time:
Relinquished by: (Signature and Printed Name) Date: Time:
Received by: (Signature and Printed Name) Date: Time:

Bill To:
Attn: E-mail:
Company: SAME AS ABOVE
Address:
City: State: Zip:

Send Report To:
Attn: E-mail:
Company: SAME AS ABOVE
Address:
City: State: Zip:

Special Instructions/Comments:

Sample/Records - Archival & Disposal
Unless otherwise requested by client, all Samples and Hardcopy will be disposed Forty-five(45) days after generation of report - electronic copies retained for five(5) years
Storage Fees (applies when storage is requested):
■ Sample : Forty-five(45) Days Complimentary - $2.00 / sample / mo thereafter.
Hardcopy Reports $17.50 per report.

CIRCLE or Write IN Analyses Needed — CIRCLE APPROPRIATE MATRIX

ITEM	BUSINESS HOURS 8:30 am to 5:30 pm: Lab No.	Sample Description: Sample I.D. / Location	Date	Time	8260-624 (Volatiles)	8015B (GRO) / 8021 (BTEX)	TO-15 / TO-14 / TO-3 / RSK-175	8270B-625(BNA) / 8310(PAHs)	8015B(DRO)/8015B(HCID) PMO	8081 OrgCl / 8141 OrgPO4 Pest	8082 PCBs	6010B / 7471-CAM Metals	6010B-200.7 Metals LEAD	6020B-200.8-1640 Metals	7199-218.6 (Hex. Chromium)	300(Anions) / 314 (Perchlorate)	SOIL/SEDIMENT/SLUDGE	SOLIDS/WIPES/FILTERS	WATER-DRINKING/GROUND	WATER-STORM/WASTE	AQUEOUS/LAYERED-OIL	TAT	Container(s) #	Container(s) Type	PRESERVATION	REMARKS
1	N01086 - 1	B6 - 0	8-22-13									X					X					TAT 5	1	T M	4	
2	- 2	- 1						X				X														
3	- 3	- 2						X				X														
4	- 4	- 5						X			X															
5	- 5	B4 - 0						X				X														
6	- 6	- 1						X				X														
7	- 7	- 2						X			X															
8	- 8	B2 - 0		1000				X				X												T P		
9	- 9	- 1		05							X															
10	- 10	- 2		05				X				X														

Q A / Q C: RTNE ☐ CT ☒ Legal ☐ SWRCB ☐ Logcode ____ OTHER ____

■ Samples Submitted AFTER 3:30 PM, are considered received the following business day at 8:30 AM.

Weekend, Holiday, Off Hours Work ASK for QUOTE

Container Types: 1=Tube 2=VOA 3=Liter 4=Pint 5=Jar 6=Tedlar 7= Canister

Material: 1=Glass 2=Plastic 3=Metal

Preservatives: 1=HCl, 2=HNO_3 3=H_2SO_4 4=4°C 5=$Zn(Ac)_2$ 6=NaOH 7=$NA_2S_2O_4$

TAT 0	TAT 1	TAT 2	TAT 3	TAT 4	TAT 5	TAT 10
300% SURCHARGE SAME BUSINESS DAY IF RCV'D BY 9:00 AM	100% SURCHARGE NEXT BUSINESS DAY 5:30 PM	50% SURCHARGE 2ND BUSINESS DAY 5:30 PM	30% SURCHARGE 3RD BUSINESS DAY 5:30 PM	20% SURCHARGE 4TH BUSINESS DAY 5:30 PM	NO SURCHARGE 5 -7 BUSINESS DAYS 5:30 PM	10% DISCOUNT 10th BUSINESS DAY 5:30 PM

For RUSH TCLP/STLC, add 2 days to respective TAT.
Subcon. TAT is 10-15 business days, Dioxin and Furans 21 business days.

Rev. 2012-0416

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

CHAIN OF CUSTODY RECORD

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FOR LABORATORY USE ONLY:

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Sample Condition Upon Receipt: 3.2°C ICE
1. CHILLED IR#2 Y☐ N☐ 4. SEALED Y☐ N☐
2. HEADSPACE (VOA) Y☐ N☐ 5. # OF SPLS MATCH COC Y☐ N☐
3. CONTAINER INTACT Y☐ N☐ 6. PRESERVED Y☐ N☐

Client: Geocon Consultant, Inc.
R. DAY, L. BEADLE, LIVERMORE
Address: 6671 Brisa Street
City: Livermore State: CA Zip Code: 94550
TEL: (925) 371-5900
FAX: (925) 371-5915

Project Name: CALTRANS I 580 @ 164TH SHOULDER REPAIR
Project #: E8560-02-52
Sampler: (Printed Name) (Signature)

Relinquished by: (Signature and Printed Name) CHRIS MERRITT Date: 8-22-13 Time: 1800
Received by: (Signature and Printed Name) MARTIN Date: 8/23/13 Time: 0845
Relinquished by: (Signature and Printed Name) Date: Time:
Received by: (Signature and Printed Name) Date: Time:
Relinquished by: (Signature and Printed Name) Date: Time:
Received by: (Signature and Printed Name) Date: Time:

Bill To:
Attn: E-mail:
Company: SAME AS ABOVE
Address:
City: State: Zip:

Send Report To:
Attn: E-mail:
Company: SAME AS ABOVE
Address:
City: State: Zip:

Special Instructions/Comments:
GAS PACKAGE

Sample/Records - Archival & Disposal
Unless otherwise requested by client, all Samples and Hardcopy will be disposed Forty-five(45) days after generation of report - electronic copies retained for five(5) years
Storage Fees (applies when storage is requested):
■ Sample : Forty-five(45) Days Complimentary - $2.00 / sample / mo thereafter.
Hardcopy Reports $17.50 per report.

Q A / Q C
RTNE ☐
CT ■
Legal ☐
SWRCB ☐ Logcode
OTHER

CIRCLE or Write IN Analyses Needed — CIRCLE APPROPRIATE MATRIX

ITEM	BUSINESS HOURS 8:30 am to 5:30 pm: Lab No.	Sample Description: Sample I.D. / Location	Date	Time	8260-624 (Volatiles)	8015B (GRO) / 8021 (BTEX)	TO-15 / TO-14 / TO-3 / RSK-175	8270B-625(BNA) / 8310(PAHs)	8015B(DRO)/8015B(HCID) +MO	8081 OrgCl / 8141 OrgPO4 Pest	8082 PCBs	6010B / 7471-CAM Metals	6010B-200.7 Metals LEAD	6020B-200.8-1640 Metals	7199-218.6 (Hex. Chromium)	300(Anions) / 314 (Perchlorate)	SOIL/SEDIMENT/SLUDGE	SOLIDS/WIPES/FILTERS	WATER-DRINKING/GROUND	WATER-STORM/WASTE	AQUEOUS/LAYERED-OIL	TAT	Container(s) #	Container(s) Type	PRESERVATION	REMARKS
1	N01086 1 - 11	B2 -5	8-22-13	1010				X				X					X					TAT 5	1	TP	4	
2	- 12	-10		1015								X											1			
3	- 13	-30		1150		X		X				X											1			
4	- 14	B3-0		1150								X											1			
5	- 15	-1		1155				X				X											1			
6	- 16	-2		1200				X			X												1			
7	- 17	-5		1205								X											1			
8	- 18	-10		1210								X											1			
9	- 19	W. WELL		1300		X		X										X					8	2,3	1	4,1
10																										

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Weekend, Holiday, Off Hours Work ASK for QUOTE

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For RUSH TCLP/STLC, add 2 days to respective TAT.
Subcon. TAT is 10-15 business days, Dioxin and Furans 21 business days.

Rev. 2012-0416

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Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	8/23/2013	Workorder:	N010861
Rep sample Temp (Deg C):	3.2	IR Gun ID:	2
Temp Blank:	☐ Yes ☑ No		
Carrier name:	GSO		
Last 4 digits of Tracking No.:	5722	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

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

Comments:

Checklist Completed By: MBC MBC 8/23/2013

Reviewed By: lrgpunzalan

GSO GOLDEN STATE OVERNIGHT

WebShip

800-322-5555 www.gso.com

Ship From:
GEOCON - LIVERMORE OFFICE
GEOCON, INC.
6671 BRISA STREET
LIVERMORE, CA 94550

Ship To:
SAMPLE RECEIVING
ADVANCED TECHNOLOGY LABS - LAS VEGAS
3151 W. POST ROAD
LAS VEGAS, NV 89118

COD:
$0.00

Reference:
E8560-02-52, E8560-02-53

Delivery Instructions:

Signature Type:
SIGNATURE REQUIRED

Tracking #: 522575722

CPS

LVS

LAS VEGAS

D89103B

15297764

Print Date : 08/22/13 15:37 PM

Package 1 of 1

Send Label To Printer | ☑ Print All | Edit Shipment | Finish

LABEL INSTRUCTIONS:

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

STEP 1 - Use the "Send Label to Printer" button on this page to print the shipping label on a laser or inkjet printer.
STEP 2 - Fold this page in half.
STEP 3 - Securely attach this label to your package, do not cover the barcode.
STEP 4 - Request an on-call pickup for your package, if you do not have scheduled daily pickup service or Drop-off your package at the nearest GSO drop box. Locate nearest GSO dropbox locations using this link.

ADDITIONAL OPTIONS:

Send Label Via Email | Create Return Label

TERMS AND CONDITIONS:

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

September 10, 2013

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

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

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

Workorder No.: N010861

RE: CALTRANS I580 @ 164TH SHOULDER REP

Attention: Rick Day

Enclosed are the results for sample(s) received on August 23, 2013 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

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

Sincerely,

Jose Tenorio Jr.
Laboratory Director

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Sep-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B6-0
Lab Order:	N010861	**Collection Date:**	8/22/2013 10:25:00 AM
Project:	CALTRANS I580 @ 164TH SHOULDER R	**Matrix:**	SOIL
Lab ID:	N010861-001A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC						
			WET/ EPA 6010B			
RunID: ICP2_130909A	QC Batch: R90244			PrepDate:		Analyst: **JT**
Lead	4.6	0.10		mg/L	10	9/9/2013 11:13 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, Inc.

ANALYTICAL RESULTS

Print Date: *10-Sep-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B6-1
Lab Order:	N010861	**Collection Date:**	8/22/2013 10:30:00 AM
Project:	CALTRANS I580 @ 164TH SHOULDER R	**Matrix:**	SOIL
Lab ID:	N010861-002A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC						
			WET/ EPA 6010B			
RunID: ICP2_130909A	QC Batch: R90244			PrepDate:		Analyst: **JT**
Lead	4.0	0.10		mg/L	10	9/9/2013 10:46 AM

Qualifiers:

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Sep-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B6-5
Lab Order:	N010861	**Collection Date:**	8/22/2013 12:25:00 PM
Project:	CALTRANS I580 @ 164TH SHOULDER R	**Matrix:**	SOIL
Lab ID:	N010861-004A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC						
			WET/ EPA 6010B			
RunID: ICP2_130909A	QC Batch: R90244			PrepDate:		Analyst: **JT**
Chromium	0.11	0.10		mg/L	10	9/9/2013 10:23 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, Inc.

ANALYTICAL RESULTS

Print Date: *10-Sep-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B9-0
Lab Order:	N010861	**Collection Date:**	8/22/2013 11:10:00 AM
Project:	CALTRANS I580 @ 164TH SHOULDER R	**Matrix:**	SOIL
Lab ID:	N010861-005A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC						
			WET/ EPA 6010B			
RunID: ICP2_130909A	QC Batch: R90244			PrepDate:		Analyst: **JT**
Lead	6.2	0.10		mg/L	10	9/9/2013 11:24 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, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Sep-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B9-2
Lab Order:	N010861	**Collection Date:**	8/22/2013 11:20:00 AM
Project:	CALTRANS I580 @ 164TH SHOULDER R	**Matrix:**	SOIL
Lab ID:	N010861-007A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC						
			WET/ EPA 6010B			
RunID: ICP2_130909A	QC Batch: R90244			PrepDate:		Analyst: **JT**
Chromium	ND	0.10		mg/L	10	9/9/2013 10:07 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, Inc.

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

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Sep-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B2-1
Lab Order:	N010861	**Collection Date:**	8/22/2013 10:05:00 AM
Project:	CALTRANS I580 @ 164TH SHOULDER R	**Matrix:**	SOIL
Lab ID:	N010861-009A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC						
			WET/ EPA 6010B			
RunID: ICP2_130909A	QC Batch: R90244			PrepDate:		Analyst: **JT**
Chromium	ND	0.10		mg/L	10	9/9/2013 10:26 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, Inc.

ANALYTICAL RESULTS

Print Date: *10-Sep-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B3-2
Lab Order:	N010861	**Collection Date:**	8/22/2013 12:00:00 PM
Project:	CALTRANS I580 @ 164TH SHOULDER R	**Matrix:**	SOIL
Lab ID:	N010861-016A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC						
			WET/ EPA 6010B			
RunID: ICP2_130909A	QC Batch: R90244			PrepDate:		Analyst: **JT**
Chromium	ND	0.10		mg/L	10	9/9/2013 10:38 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.
Work Order: N010861
Project: CALTRANS I580 @ 164TH SHOULDER REP

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_ST

Sample ID: **MB-R90244** SampType: **MBLK** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90244**
Client ID: **PBS** Batch ID: **R90244** TestNo: **WET/ EPA 60** Analysis Date: **9/9/2013** SeqNo: **1643954**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	0.010									
Lead	ND	0.010									

Sample ID: **LCS-R90244** SampType: **LCS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90244**
Client ID: **LCSS** Batch ID: **R90244** TestNo: **WET/ EPA 60** Analysis Date: **9/9/2013** SeqNo: **1643955**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.516	0.010	0.5000	0	103	85	115				
Lead	0.518	0.010	0.5000	0	104	85	115				

Sample ID: **MB-43815** SampType: **MBLK** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90244**
Client ID: **PBS** Batch ID: **R90244** TestNo: **WET/ EPA 60** Analysis Date: **9/9/2013** SeqNo: **1643956**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.000517	0.010									
Lead	ND	0.010									

Sample ID: **MB2-43815** SampType: **MBLK** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90244**
Client ID: **PBS** Batch ID: **R90244** TestNo: **WET/ EPA 60** Analysis Date: **9/9/2013** SeqNo: **1643957**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.000741	0.010									
Lead	ND	0.010									

Sample ID: **N010861-007A-MS** SampType: **MS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90244**
Client ID: **ZZZZZZ** Batch ID: **R90244** TestNo: **WET/ EPA 60** Analysis Date: **9/9/2013** SeqNo: **1643960**

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: N010861
Project: CALTRANS I580 @ 164TH SHOULDER REP

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_ST

Sample ID: **N010861-007A-MS** SampType: **MS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90244**
Client ID: **ZZZZZZ** Batch ID: **R90244** TestNo: **WET/ EPA 60** Analysis Date: **9/9/2013** SeqNo: **1643960**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	5.081	0.10	5.000	0.07598	100	75	125				
Lead	4.950	0.10	5.000	0	99.0	75	125				

Sample ID: **N010861-007A-MSD** SampType: **MSD** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90244**
Client ID: **ZZZZZZ** Batch ID: **R90244** TestNo: **WET/ EPA 60** Analysis Date: **9/9/2013** SeqNo: **1643961**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	5.163	0.10	5.000	0.07598	102	75	125	5.081	1.60	20	
Lead	5.015	0.10	5.000	0	100	75	125	4.950	1.30	20	

Sample ID: **N010861-016A-DUP** SampType: **DUP** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90244**
Client ID: **ZZZZZZ** Batch ID: **R90244** TestNo: **WET/ EPA 60** Analysis Date: **9/9/2013** SeqNo: **1643967**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.072	0.10						0.06926	0	20	
Lead	0.032	0.10						0.02535	0	20	

Sample ID: **N010860-002A-DUP** SampType: **DUP** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90244**
Client ID: **ZZZZZZ** Batch ID: **R90244** TestNo: **WET/ EPA 60** Analysis Date: **9/9/2013** SeqNo: **1643973**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.204	0.10						0.2174	6.54	20	
Lead	3.512	0.10						3.699	5.18	20	

Sample ID: **N010861-004A-MS** SampType: **MS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90244**
Client ID: **ZZZZZZ** Batch ID: **R90244** TestNo: **WET/ EPA 60** Analysis Date: **9/9/2013** SeqNo: **1643981**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	5.325	0.10	5.000	0.1082	104	75	125				

Qualifiers:

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

CLIENT: Geocon Consultants, Inc.
Work Order: N010861
Project: CALTRANS I580 @ 164TH SHOULDER REP

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_ST

Sample ID: **N010861-004A-MS** SampType: **MS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90244**
Client ID: **ZZZZZZ** Batch ID: **R90244** TestNo: **WET/ EPA 60** Analysis Date: **9/9/2013** SeqNo: **1643981**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	5.239	0.10	5.000	0.02604	104	75	125				

Sample ID: **N010812-022A-MS** SampType: **MS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90244**
Client ID: **ZZZZZZ** Batch ID: **R90244** TestNo: **WET/ EPA 60** Analysis Date: **9/9/2013** SeqNo: **1643982**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	5.848	0.10	5.000	0.08916	115	75	125				
Lead	7.263	0.10	5.000	6.975	5.77	75	125				S

Sample ID: **MB-R90244** SampType: **MBLK** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90244**
Client ID: **PBS** Batch ID: **R90244** TestNo: **WET/ EPA 60** Analysis Date: **9/9/2013** SeqNo: **1643983**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	0.010									
Lead	ND	0.010									

Sample ID: **LCS-R90244** SampType: **LCS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90244**
Client ID: **LCSS** Batch ID: **R90244** TestNo: **WET/ EPA 60** Analysis Date: **9/9/2013** SeqNo: **1643984**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.528	0.010	0.5000	0.0005173	105	85	115				
Lead	0.535	0.010	0.5000	0	107	85	115				

Sample ID: **MB-43827** SampType: **MBLK** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90244**
Client ID: **PBS** Batch ID: **R90244** TestNo: **WET/ EPA 60** Analysis Date: **9/9/2013** SeqNo: **1643985**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.000569	0.010									
Lead	ND	0.010									

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: N010861
Project: CALTRANS I580 @ 164TH SHOULDER REP

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_ST

Sample ID: **MB2-43827** SampType: **MBLK** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90244**
Client ID: **PBS** Batch ID: **R90244** TestNo: **WET/ EPA 60** Analysis Date: **9/9/2013** SeqNo: **1643986**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.000544	0.010									
Lead	ND	0.010									

Sample ID: **N010844-051A-MS** SampType: **MS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90244**
Client ID: **ZZZZZZ** Batch ID: **R90244** TestNo: **WET/ EPA 60** Analysis Date: **9/9/2013** SeqNo: **1643989**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	5.144	0.10	5.000	0.04714	102	75	125				
Lead	8.470	0.10	5.000	3.375	102	75	125				

Sample ID: **N010844-051A-MSD** SampType: **MSD** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90244**
Client ID: **ZZZZZZ** Batch ID: **R90244** TestNo: **WET/ EPA 60** Analysis Date: **9/9/2013** SeqNo: **1643992**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	5.187	0.10	5.000	0.04714	103	75	125	5.144	0.822	20	
Lead	8.384	0.10	5.000	3.375	100	75	125	8.470	1.02	20	

Sample ID: **N010844-075A-DUP** SampType: **DUP** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90244**
Client ID: **ZZZZZZ** Batch ID: **R90244** TestNo: **WET/ EPA 60** Analysis Date: **9/9/2013** SeqNo: **1643995**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.027	0.10						0.02478	0	20	
Lead	5.544	0.10						5.408	2.49	20	

Sample ID: **N010844-015A-MS** SampType: **MS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90244**
Client ID: **ZZZZZZ** Batch ID: **R90244** TestNo: **WET/ EPA 60** Analysis Date: **9/9/2013** SeqNo: **1643997**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.102	0.10	5.000	3.002	102	75	125				

Qualifiers:

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

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

CLIENT: Geocon Consultants, Inc.
Work Order: N010861
Project: CALTRANS I580 @ 164TH SHOULDER REP

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_ST

Sample ID: **N010844-015A-MS** SampType: **MS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90244**
Client ID: **ZZZZZZ** Batch ID: **R90244** TestNo: **WET/ EPA 60** Analysis Date: **9/9/2013** SeqNo: **1643997**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	19.939	0.10	5.000	15.13	96.2	75	125				

Sample ID: **N010844-018A-DUP** SampType: **DUP** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **90244**
Client ID: **ZZZZZZ** Batch ID: **R90244** TestNo: **WET/ EPA 60** Analysis Date: **9/9/2013** SeqNo: **1644007**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.429	0.10						0.5092	17.2	20	
Lead	5.702	0.10						5.986	4.87	20	

Qualifiers:

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

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

Nancy Sibucao

From: Luann Beadle [beadle@geoconinc.com]
Sent: Friday, August 30, 2013 3:26 PM
To: Advanced Technology Labs, Inc.
Subject: TO-52 Lab Order N010861

Hi ATL,

For this lab order, please run the following WETs, as indicated:

N010861-016A	B3-2	Chromium	110
N010861-007A	B9-2	Chromium	130
N010861-009A	B2-1	Chromium	130
N010861-004A	B6-5	Chromium	150
N010861-002A	B6-1	Lead	50
N010861-001A	B6-0	Lead	64
N010861-005A	B9-0	Lead	94

On a regular TAT.

Thanks, and I hope you all have a terrific holiday weekend!
Luann

Luann Beadle | Senior Staff Scientist
Geocon Consultants, Inc.
6671 Brisa Street, Livermore, CA 94550
Office: 925.371.5900, ext. 403 Direct: 925.961.5272 Mobile: 925.395.1669
beadle@geoconinc.com

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September 17, 2013

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

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

Workorder No.: N010861

RE: CALTRANS I580 @ 164TH SHOULDER REP

Attention: Rick Day

Enclosed are the results for sample(s) received on August 23, 2013 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

for Jose Tenorio

Jose Tenorio Jr.
Laboratory Director

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *17-Sep-13*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B9-0
Lab Order:	N010861	**Collection Date:**	8/22/2013 11:10:00 AM
Project:	CALTRANS I580 @ 164TH SHOULDER R	**Matrix:**	SOIL
Lab ID:	N010861-005A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
PH						
			EPA 9045C			
RunID: WETCHEM_130911C QC Batch: R90263				PrepDate:		Analyst: **LCC**
pH	7.5	0.10		pH Units	1	9/11/2013
Temp. at time of pH Analysis	25	0		pH Units	1	9/11/2013
ICP METALS BY WET DI EXTRACTION						
			WET DI/ EPA 6010B			
RunID: ICP2_130916A QC Batch: R90308				PrepDate:		Analyst: **JT**
Lead	ND	0.25		mg/L	1	9/16/2013 07:40 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, Inc.

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

CLIENT: Geocon Consultants, Inc.
Work Order: N010861
Project: CALTRANS I580 @ 164TH SHOULDER REP

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_STDIPB

Sample ID: **MB-R90308** SampType: **MBLK** TestCode: **6010_STDIPB** Units: **mg/L** Prep Date: RunNo: **90308**
Client ID: **PBW** Batch ID: **R90308** TestNo: **WET DI/ EPA** Analysis Date: **9/16/2013** SeqNo: **1646203**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: **LCS-R90308** SampType: **LCS** TestCode: **6010_STDIPB** Units: **mg/L** Prep Date: RunNo: **90308**
Client ID: **LCSW** Batch ID: **R90308** TestNo: **WET DI/ EPA** Analysis Date: **9/16/2013** SeqNo: **1646204**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.507	0.25	0.5000	0	101	85	115				

Sample ID: **MB-43861** SampType: **MBLK** TestCode: **6010_STDIPB** Units: **mg/L** Prep Date: RunNo: **90308**
Client ID: **PBW** Batch ID: **R90308** TestNo: **WET DI/ EPA** Analysis Date: **9/16/2013** SeqNo: **1646205**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: **N010811-001A-MS** SampType: **MS** TestCode: **6010_STDIPB** Units: **mg/L** Prep Date: RunNo: **90308**
Client ID: **ZZZZZZ** Batch ID: **R90308** TestNo: **WET DI/ EPA** Analysis Date: **9/16/2013** SeqNo: **1646208**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	1.043	0.50	1.000	0.1304	91.3	75	125				

Sample ID: **N010811-001A-MSD** SampType: **MSD** TestCode: **6010_STDIPB** Units: **mg/L** Prep Date: RunNo: **90308**
Client ID: **ZZZZZZ** Batch ID: **R90308** TestNo: **WET DI/ EPA** Analysis Date: **9/16/2013** SeqNo: **1646209**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	1.040	0.50	1.000	0.1304	90.9	75	125	1.043	0.317	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: N010861
Project: CALTRANS I580 @ 164TH SHOULDER REP

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_STDIPB

Sample ID: **N010811-006A-DUP** SampType: **DUP** TestCode: **6010_STDIPB** Units: **mg/L** Prep Date: RunNo: **90308**
Client ID: **ZZZZZZ** Batch ID: **R90308** TestNo: **WET DI/ EPA** Analysis Date: **9/16/2013** SeqNo: **1646211**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.028	0.25						0.01954	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: N010861
Project: CALTRANS I580 @ 164TH SHOULDER REP

ANALYTICAL QC SUMMARY REPORT

TestCode: 9045_S

Sample ID: **N010811-001A-DUP** SampType: **DUP** TestCode: **9045_S** Units: **pH Units** Prep Date: RunNo: **90263**
Client ID: **ZZZZZZ** Batch ID: **R90263** TestNo: **EPA 9045C** Analysis Date: **9/11/2013** SeqNo: **1644415**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.840	0.10						8.700	1.60	20	
Temp. at time of pH Analysis	25.000	0						25.00	0	0	

Qualifiers:

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

Glen S. Gesmundo

From: Luann Beadle [beadle@geoconinc.com]
Sent: Wednesday, September 11, 2013 10:03 AM
To: Advanced Technology Labs, Inc.
Subject: Lab Order N010861 TO-52

Hi ATL,
Please run DI-WET and pH on sample B9-0 from this lab order on a regular TAT.
Thanks,
Luann

I will be on vacation September 23rd through 27th . If you need assistance during that time, please contact Rick Day at (925) 961-5270.

Luann Beadle | Senior Staff Scientist
Geocon Consultants, Inc.
6671 Brisa Street, Livermore, CA 94550
Office: 925.371.5900, ext. 403 Direct: 925.961.5272 Mobile: 925.395.1669
beadle@geoconinc.com

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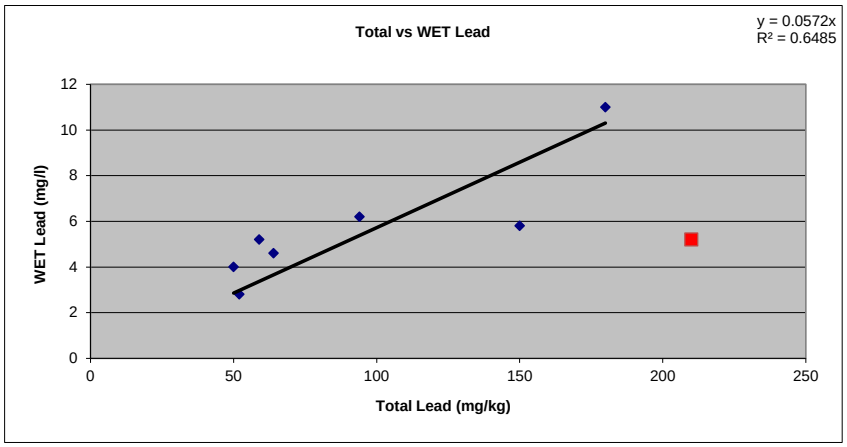
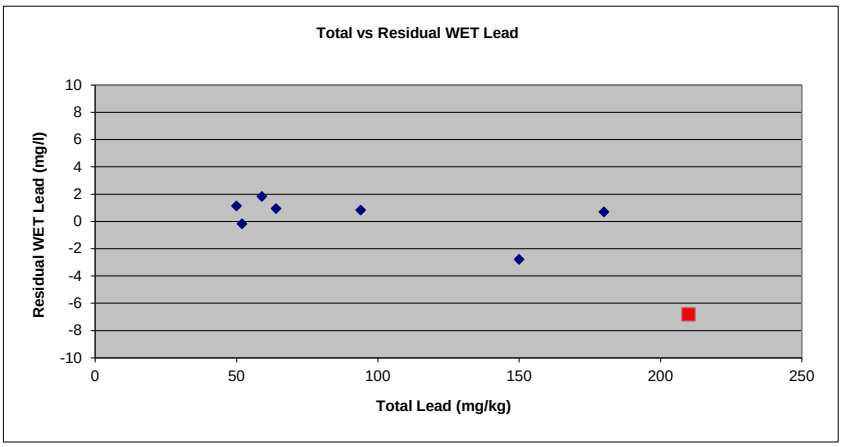
APPENDIX C

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	Residual WET Lead (mg/l)	Squared Residual WET Lead (mg/l)
B1-0	0 to 0.5	180	11	0.70	0.49
B4-1	1 to 1.5	52	2.8	-0.18	0.03
B9-0	0 to 0.5	94	6.2	0.82	0.67
B6-0	0 to 0.5	64	4.6	0.94	0.88
B6-1	1 to 1.5	50	4.0	1.14	1.30
B5-0	0 to 0.5	59	5.2	1.82	3.32
B4-0	0 to 0.5	150	5.8	-2.79	7.76
Not Used					
B7-0	0 to 0.5	210	5.2	-6.82	46.51





Pb - 0

Number of Valid Observations	9
Number of Distinct Observations	8
Minimum	2.5
Maximum	210
Mean	89.8
Median	64
SD	75
Variance	5625
Coefficient of Variation	0.835
Skewness	0.469
Mean of log data	3.777
SD of log data	1.702
90% Standard Bootstrap UCL	**120**
95% Standard Bootstrap UCL	**128**

Pb - 1

Number of Valid Observations	9
Number of Distinct Observations	8
Minimum	2.5
Maximum	52
Mean	18.6
Median	9.3
SD	19.97
Variance	398.9
Coefficient of Variation	1.071
Skewness	1.118
Mean of log data	2.364
SD of log data	1.154
90% Standard Bootstrap UCL	**26.7**
95% Standard Bootstrap UCL	**29.1**

Pb - 2

Number of Valid Observations	9
Number of Distinct Observations	3
Minimum	0.5
Maximum	2.5
Mean	2.16
Median	2.5
SD	0.72
Variance	0.518
Coefficient of Variation	0.334
Skewness	-2.02
Mean of log data	0.673
SD of log data	0.547
90% Standard Bootstrap UCL	**NC**
95% Standard Bootstrap UCL	**NC**

Pb - 5

Number of Valid Observations	6
Number of Distinct Observations	5
Minimum	1.9
Maximum	8.5
Mean	5.03
Median	4.5
SD	3.082
Variance	9.499
Coefficient of Variation	0.612
Skewness	0.168
Mean of log data	1.434
SD of log data	0.681
90% Standard Bootstrap UCL	**6.49**
95% Standard Bootstrap UCL	**6.92**

Pb - 10

Number of Valid Observations	3
Number of Distinct Observations	3
Minimum	2.5
Maximum	9.6
Mean	6.70

Arsenic

Number of Valid Observations	8
Number of Distinct Observations	7
Minimum	0.5
Maximum	3.5
Mean	2.11
Median	2.25
SD	0.854
Variance	0.73
Coefficient of Variation	0.404
Skewness	-0.463
Mean of log data	0.636
SD of log data	0.581
95% Standard Bootstrap UCL	**2.58**

Cobalt

Number of Valid Observations	8
Number of Distinct Observations	6
Minimum	20
Maximum	28
Mean	24.6
Median	25
SD	2.875
Variance	8.268
Coefficient of Variation	0.117
Skewness	-0.653
Mean of log data	3.197
SD of log data	0.121
95% Standard Bootstrap UCL	**26.2**

Lead - Site

Number of Valid Observations	8
Number of Distinct Observations	8
Minimum	0.5
Maximum	180
Mean	36.0
Median	7.9
SD	61.55
Variance	3788
Coefficient of Variation	1.712
Skewness	2.313
Mean of log data	2.128
SD of log data	2.007
95% Standard Bootstrap UCL	**69.8**

STATE OF CALIFORNIA EDMUND G. BROWN, JR., Governor

DEPARTMENT OF INDUSTRIAL RELATIONS
DIVISION OF OCCUPATIONAL SAFETY AND HEALTH
MINING AND TUNNELING UNIT
2424 Arden Way, Suite 125
Sacramento, California 95825
doshM&Tsac@dir.ca.gov

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

February 11, 2014

California Department of Transportation
DESIGN EAST, ALAMEDA COUNTY, 11th Floor
PO Box 23660, MS-9A
Oakland, CA 94623

Attention: Nestor Perez, District Branch Chief

Subject: Underground Classification No. C054-001-14T
Classification: Potentially Gassy With Special Conditions
Project: 164th Avenue Soldier Pile Wall, San Leandro

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

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

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

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

Sincerely,

Douglas Patterson
Senior Engineer

enc: Classification
Pre-Job Request Form

cc: Richard Brockman, Mining & Tunneling Unit

State of California

Department of Industrial Relations

DIVISION OF OCCUPATIONAL SAFETY AND HEALTH
MINING AND TUNNELING UNIT

Underground Classification

C054-001-14T **CALIFORNIA DEPARTMENT OF TRANSPORTATION**

of **PO BOX 23660, MS-9A; OAKLAND, CA 94623**

at **164TH AVENUE SOLDIER PILE WALL**

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

as required by the California Labor Code § 7955.

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

*****SPECIAL CONDITIONS*****

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

The sixteen 30-inch-diameter, 37-foot-deep drilled shafts located alongside eastbound Route 580 between the 164th Avenue off-ramp & 164th Avenue undercrossing in San Leandro, Alameda County

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

Douglas Patterson, Senior Engineer

February 11, 2014

State of California
Department of Industrial Relations
Division of Occupational Safety & Health

REQUEST FOR PRE-JOB (TUNNEL)

ATTACH COPY OF CLASSIFICATION AND DIESEL PERMIT

Company Name: _____

Phone _____ FAX: _____

DATE FAXED: _____

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

PRE-JOB REQUEST DATE & TIME: _____

ON-SITE SUPERVISOR & CELL NO.: _____

CLASSIFICATION #: _____ **DIESEL PERMIT #:** _____

BORE DIAMETER AND LENGTH: _____ (Diameter) _____ (Length)

IS BORE ENTRY ANTICIPATED? YES NO
(Circle One)

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

MANNER OF EXCAVATION: _____

_____

JOB-SITE LOCATION AND DIRECTIONS: _____

_____

_____

GENERAL CONTRACTOR: _____

SUBMITTED BY: _____

REVIEWED BY: _____ **DATE:** _____

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

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

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