INFORMATION HANDOUT

For Contract No. 04-4H9004
At 04-SF-280-R0.1 , R1.5

Identified by
Project ID 0413000300

MATERIALS INFORMATION

Geotechnical Design Report for Maintenance Vehicle Pull Out Retaining Wall

Preliminary Site Investigation Report: I-280 shoulder Widening and Improvement Project, San Francisco, Cali

PRELIMINARY SITE INVESTIGATION REPORT

I-280 SHOULDER WIDENING AND IMPROVEMENTS PROJECT SAN FRANCISCO, CALIFORNIA

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

Caltrans

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

GEOCON

GEOCON PROJECT NO. E8721-02-26
CALTRANS EA 04-4H9001
CALTRANS PROJECT # 04-1300-0300-1

APRIL 2015

TABLE OF CONTENTS

PRELIMINARY SITE INVESTIGATION REPORT Page

TABLE OF CONTENTS
(Continued)

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.

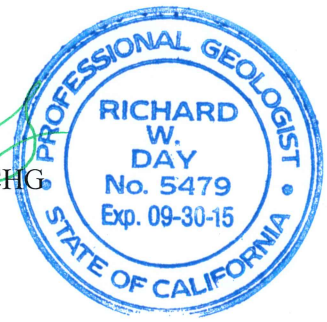
This report is not a comprehensive site characterization and should not be construed as such. The findings as presented in this report are predicated on the results of the limited sampling and laboratory testing performed. In addition, the information obtained is not intended to address potential impacts 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:

Max Raafati, PE
Task Order Manager

Misael Cordis
Task Order Manager

Recommended By:

Ray Boyer, PE
District Branch Chief

Approved By:

Allen Baradar, PE
District Office Chief

Contact	Affiliation	Responsibility
Romy Fuentes, PE 510.622.8803 510.622.0198 fax romy_f_fuentes@dot.ca.gov	Caltrans – District 4 Consultant Services 111 Grand Avenue, MS7B Oakland, CA 94612	Contract Manager
Max Raafati, PE Misael Cordis 510.286.5657 510.286.5639 fax max.raafati@dot.ca.gov misael.cordis@dot.ca.gov	Caltrans – District 4 Environmental Engineering 111 Grand Avenue, MS8C Oakland, CA 94612	Task Order Managers
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
Diane Galvan 562.989.4045 562.989.4040 fax diane@atlglobal.com	Advanced Technology Laboratories 1510 E. 33rd Street Signal Hill, CA 90807 *(Geocon Subcontractor)*	Soil Sample Analysis
Justin Keen 800.953.2636 408.436.1675 justindmtraffic@yahoo.com	D & M Traffic Services 845 Reed Street Santa Clara, CA 95050 *(Geocon Subcontractor)*	Traffic Control
Baojia Ke 510.895.3675 510.895.3680 fax sanleandrolab@emsl.com	EMSL Analytical, Inc. 2235 Polvorosa Ave., Suite 230 San Leandro, CA 94577 (*Geocon Subcontractor*)	Soil Sample Analysis

PRELIMINARY SITE INVESTIGATION REPORT

1.0 INTRODUCTION

This Preliminary Site Investigation Report for the shoulder widening and improvements along Interstate 280 (I-280) in San Francisco, California was prepared by Geocon Consultants, Inc. under California Department of Transportation (Caltrans) Contract No. 04A4336 and Task Order No. 26 (TO-26), EA 04-4H9001.

1.1 Project Description and Proposed Improvements

The project proposes to restore, stabilize, and widen the shoulders, and install concrete barriers and retaining walls at two locations along I-280 from Post Mile (PM) 0.14 to PM 1.45 in the City and County of San Francisco, California. Improvements at one location will also include the installation of a sidewalk. Work will take place within Caltrans right-of-way. The project area is depicted on the attached Key Map, Figure 1.

The site investigation was performed in the following areas:

- Location 1 - Southbound (SB) I-280 Offramp to Junipero Serra and John Daly Boulevards (borings B1 to B9) - Figure 2a
- Location 2 - Northbound (NB) I-280 Shoulder South of San Jose Avenue Overcrossing (OC) (borings B10 to B12) – Figure 2b

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), total petroleum hydrocarbons as diesel (TPHd), as motor oil (TPHmo), and as gasoline (TPHg), and naturally-occurring asbestos (NOA) in soil within the project limits.

The information obtained from this investigation will be used by Caltrans to evaluate soil handling practices, worker health and safety, and soil 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 10 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 10 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 *User's Guide: Derivation and Application of Environmental Screening Levels, Interim Final 2013* (updated December 2013), which presents Environmental Screening Levels (ESLs) for over 100 commonly found contaminants in soil, groundwater, soil gas, and surface water, to assist in evaluating sites impacted by releases of hazardous chemicals. "The ESLs are considered to be protective for typical bay area sites. Under most circumstances, …the presence of a chemical in soil, soil gas, or groundwater at concentrations below the corresponding ESL can be assumed to not pose a significant threat to human health, water resources, or the environment." (SFRWQCB, December 2013). ESLs are risk assessment tools and are "not intended to serve as a rule to determine if a waste is hazardous under the state or federal regulations."

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 K-3. Direct Exposure Soil Screening Levels, Construction/Trench Worker Exposure Scenario

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

2.4 Naturally Occurring Asbestos

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

The CARB specifies mitigation practices for construction, grading, quarrying, and surface mining operations that contain natural occurrences of asbestos outlined in Title 17, Section 93105, Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations (ATCM 93105).

Based on Part (e) Subpart (2) of ATCM 93105 an asbestos dust mitigation plan is required and must be implemented for a project if NOA is disturbed after the start of construction. Additionally, ATCM 93105 specifies that the air pollution control district (APCD) must be notified and an asbestos dust mitigation plan submitted to the APCD. The ATCM states that air monitoring may be required on the property. NOA potentially poses a health hazard when it becomes an airborne particulate.

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

3.0 SCOPE OF SERVICES

The scope of services performed under TO-26, EA 04-4H9001 included the following:

3.1 Pre-field Activities

- Prepared the Preliminary Site Investigation Workplan and Health and Safety Plan, dated March 2015.
- Retained the services of D & M Traffic Services to provide traffic control services during field operations.
- Retained the services of Advanced Technology Laboratories, Signal Hill, California (ATL), a Caltrans-approved and California-certified analytical laboratory, to perform the chemical analyses of soil samples.
- Retained the services of EMSL, Inc. (EMSL), a Caltrans-approved and California-certified analytical laboratory, to perform the asbestos analysis of soil samples.

3.2 Field Activities

The field investigation was performed on March 24, 2015, by Geocon staff. The following field activities were performed during the sampling efforts:

- Advanced 12 soil borings at the project location using hand-auger drilling techniques. The borings were advanced to a maximum depth of 6 feet.

The following samples were collected:

- 32 for CAM 17 metals analysis
- 16 for TPHd and TPHmo analyses
- 12 samples for TPHg analysis
- 18 samples for pH analysis
- 19 soil samples for NOA analysis

One equipment rinse blank sample was also collected for total lead analysis.

All samples were transported to ATL and EMSL for analysis under standard chain-of-custody (COC) documentation.

4.0 INVESTIGATIVE METHODS

4.1 Sampling Procedures

Soil samples were collected from the 12 boring locations identified by the Caltrans TO Managers using hand-auger drilling techniques. Boring coordinates are presented on Table 1. A Key Map, Figure 1, shows the project location, and boring locations are shown on Figures 2a and 2b.

Soil samples were placed in new resealable plastic bags or stainless steel tubes. Sample tubes were sealed with Teflon tape and plastic lids prior to being stored in a chest cooled with ice.

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

Geocon provided QA/QC procedures during the field activities. These procedures included washing the sampling equipment with a Liqui-Nox® solution followed by a double rinse with deionized water. 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 and EMSL under expedited turnaround-times (TAT) per the Task Order Manager. The laboratory reports and COC documentation are included in Appendix B.

The samples were analyzed as follows:

- 32 samples for CAM 17 metals using EPA Test Methods 6010 ICAP and 7471.
- 7 samples with a total chromium concentration equal to or exceeding 50 mg/kg (i.e. equal to or exceeding 10 times the STLC of 5.0 mg/l) were further analyzed for WET chromium.
- 18 samples with total lead concentrations equal to or exceeding 50 mg/kg (i.e. equal to or exceeding 10 times the STLC of 5.0 mg/l) were further analyzed for WET lead.
- 13 samples with WET lead concentrations equal to or exceeding 5 mg/l (i.e. equal to or exceeding the STLC of 5.0 mg/l) were further analyzed for DI-WET lead.
- 12 samples with WET lead concentrations equal to or exceeding 5 mg/l (i.e. equal to or exceeding the STLC of 5.0 mg/l) and total lead concentrations equal to or exceeding 100 mg/kg were further analyzed for TCLP lead.
- 16 samples for TPHd using EPA Test Method 8015B.
- 16 samples for TPHmo using EPA Test Method 8015B.
- 12 samples for TPHg using EPA Test Method 8015B.
- 18 samples for pH using EPA Test Method 9045C.
- 19 samples for NOA using CARB 435.

The 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 10 samples, batch of samples or type of matrix, whichever was more frequent.
- One sample analyzed in duplicate for every 10 samples, batch of samples or type of matrix, whichever was more frequent.
- One spiked sample for every 10 samples, batch of samples or type of matrix; whichever was more frequent, with spike made at 10 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

Borings were completed using hand-auger drilling techniques. Soil consisted of dry, silty sand and aggregate base to a depth of 1.5 feet and dry silty sand and sandstone to 6 feet. Groundwater was not encountered in the borings.

5.2 Laboratory Analytical Results

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

- The following metals were not detected above their respective laboratory reporting limits: beryllium, molybdenum, selenium, and thallium.
- Chromium, copper, and lead were reported at concentrations equal to or exceeding 10 times their respective STLCs.
- Total chromium was reported at concentrations ranging from 19 mg/kg to 140 mg/kg.
- WET chromium was reported at concentrations ranging from <1.0 mg/l to 4.5 mg/l.
- Total copper was reported at concentrations ranging from 4.1 mg/kg to 340 mg/kg.
- WET copper was reported at a concentration of 1.6 mg/l.
- Total lead was reported at concentrations ranging from 1.4 mg/kg to 480 mg/kg.
- WET lead was reported at concentrations ranging from 2.9 mg/l to 24 mg/l.
- DI-WET lead was reported at concentrations ranging from <1.0 mg/l to 2.0 mg/l.
- TCLP lead was reported at concentrations ranging from <0.050 mg/l to 0.34 mg/l.
- Remaining CAM 17 metals were reported in the samples at total concentrations below 10 times their respective STLCs.
- TPHd was reported at concentrations ranging from 1.6 mg/kg to 52 mg/kg.
- TPHmo was reported at concentrations ranging from 2.5 mg/kg to 230 mg/kg.
- TPHg was not detected at or above the laboratory reporting limit of 1.0 mg/kg.
- pH ranged from 4.9 to 8.4.
- NOA was not detected at a target analytical sensitivity of 0.25%.
- Total lead was reported in the rinse blank sample at a concentration of 0.0066 mg/l.

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 surrogate was diluted out for two samples. The Relative Percent Difference (RPD) value was outside of acceptance criteria for

multiple samples; therefore, the calculations were based on raw values. The Matrix Spike (MS) recovery was outside of acceptance limits for four samples; however, the analytical batches were validated by the laboratory control samples.

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.

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. The bootstrap test results are included in Appendix C. The following table presents the calculated UCLs and statistics for the site:

Location 1 - SB I-280 Offramp to Junipero Serra and John Daly Boulevards (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	183	193	150	26	290
1 to 1.5	69.8	74.5	53.6	2.4	110
3 to 3.5	NC	NC	50.1	1.4	93
5.5 to 6	NC	NC	13.3	2.3	28

NC - Not calculated due to insufficient data set

Location 2 - NB I-280 Shoulder South of San Jose Ave OC (borings B10 to B12)

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	NC	NC	340	160	480
1.5 to 2	NC	NC	40	23	61

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 95% UCL total lead concentrations presented in the table above.

To estimate the degree of interrelation between total and corresponding WET lead values (*x* and *y*, respectively), the *correlation coefficient [r]* is used. The correlation coefficient is a ratio that ranges from +1 to –1. A *correlation coefficient* of +1 indicates a perfect direct relationship between two variables; a *correlation coefficient* of –1 indicates that one variable changes inversely with relation to the other. Between the two extremes is a spectrum of less-than-perfect relationships, including zero, which indicates the lack of any sort of linear relationship at all. The *correlation coefficient* was calculated for the 18 (*x, y*) data points (i.e., soil samples analyzed for both total lead [*x*] and WET lead [*y*]) from the site. The resulting *coefficient of determination* (r^2) equaled 0.933, which yields a corresponding *correlation coefficient* (*r*) of 0.966.

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 $y = 0.0603(x)$, 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 Tables 6a and 6b.

6.0 CONCLUSIONS

6.1 Lead in Soil

6.1.1 Location 1 - SB I-280 Offramp to Junipero Serra and John Daly Boulevards (borings B1 to B9)

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

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	183	**11**	193	**Hazardous**
Underlying soil (1 to 6 ft)	*75*	*4.5*	*77*	*Non-hazardous*
0 to 3.5 ft	102	**6.2**	108	**Hazardous**
Underlying soil (3.5 to 6 ft)	80	4.8	80	*Non-hazardous*
0 to 5.5 ft	99	**6.0**	103	**Hazardous**
Underlying soil (5.5 to 6 ft)	28	1.7	28	*Non-hazardous*
0 to 6 ft	93	**5.6**	97	**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 California hazardous waste. Based on the TCLP lead results, excavated soil would not be classified as a RCRA hazardous waste. Based on the reported DI-WET and pH results, excavated soil may be reused (as Caltrans Type Y-1) within Caltrans right-of-way in accordance with the DTSC Variance. Underlying soil (i.e., deeper than 1 foot) would be classified as non-hazardous based on lead results.

6.1.2 Location 2 - NB I-280 Shoulder South of San Jose Ave OC (borings B10 to B12)

The following table summarizes the predicted waste classification for excavated soil based on the calculated weighted averages of the maximum total lead concentrations and predicted WET lead concentrations for data collected from the site. Weighted averages are calculated by using the total lead concentration for each 0.5-foot-depth interval as the value for the underlying 0.5-foot-depth interval

(unless a sample was collected from the underlying depth interval). The total and WET lead calculations are summarized below and in Table 6b.

Excavation Depth	Maximum Total Lead (mg/kg)	Predicted WET Lead (mg/l)	Waste Classification
0 to 1.5 ft	480	**28.9**	**Hazardous**
Underlying soil (1.5 to 2 ft)	*61*	*3.7*	*Non-hazardous*
0 to 2 ft	375	**22.6**	**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 1.5 feet would be classified as California hazardous waste. Based on the TCLP lead results, excavated soil would not be classified as a RCRA hazardous waste. Based on the reported DI-WET and pH results, excavated soil may be reused (as Caltrans Type Y-1) within Caltrans right-of-way in accordance with the DTSC Variance. Underlying soil (i.e., deeper than 1.5 foot) would be classified as non-hazardous based on lead results.

6.2 Remaining CAM 17 Metals in Soil

With the exceptions of chromium and copper, remaining CAM 17 metals were reported in the samples at total concentrations below 10 times their respective STLCs.

WET chromium was reported at a concentrations ranging from <1.0 mg/l to 4.5 mg/l, below the STLC. WET copper was reported at a concentration of 1.6 mg/l, below the STLC. Therefore, soil would not be classified as hazardous based on soluble chromium or copper concentrations. Remaining metals were reported at concentrations below 10 times their respective STLCs.

The CAM 17 metals concentrations in site soil were compared to ESLs. Arsenic, copper, and lead were reported at concentrations greater than one or more ESL values. Because concentrations of arsenic, copper, and lead exceeded one or more ESL, non-parametric bootstrap techniques were used to calculate the UCLs. The bootstrap test result is included in Appendix E. ESLs, UCLs, and published background concentrations for arsenic, copper, 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	10	3.17	0.39	1.6	10	3.5	0.6 to 11.0
Copper	340	58.2	230	230	12,000	28.7	9.1 to 96.4
Lead	480	133	80	320	320	23.9	12.4 to 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.

The 95% UCL copper concentration is below the residential and commercial land use ESLs, the construction exposure ESL, and within the published background range.

The 95% UCL lead concentration is above the residential land use ESL and the published background range, but below the commercial land use ESL, and the construction exposure ESL.

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

Metals results for soil samples are summarized in Table 3.

6.3 Organic Compounds in Soil

TPHg was not detected in the samples at or above the reporting limit of 1.0 mg/kg.

TPHd was reported at concentrations ranging from 1.6 mg/kg to 52 mg/kg, below the ESLs.

TPHmo was reported at concentrations ranging from 2.5 mg/kg to 230 mg/kg. Four sample results exceeded the residential land use ESL of 100 mg/kg. All results were below the commercial/industrial land use ESL of 500 mg/kg and the construction/direct exposure ESL of 28,000 mg/kg. TPHmo has a 95% UCL concentration of 94.5 mg/kg.

Based on the reported TPHmo concentrations exceeding the residential land use ESLs, reuse or disposal of excavated soil may be restricted based on TPHmo content, depending on proposed use.

A summary of petroleum hydrocarbon concentrations in site soil is presented in Table 4.

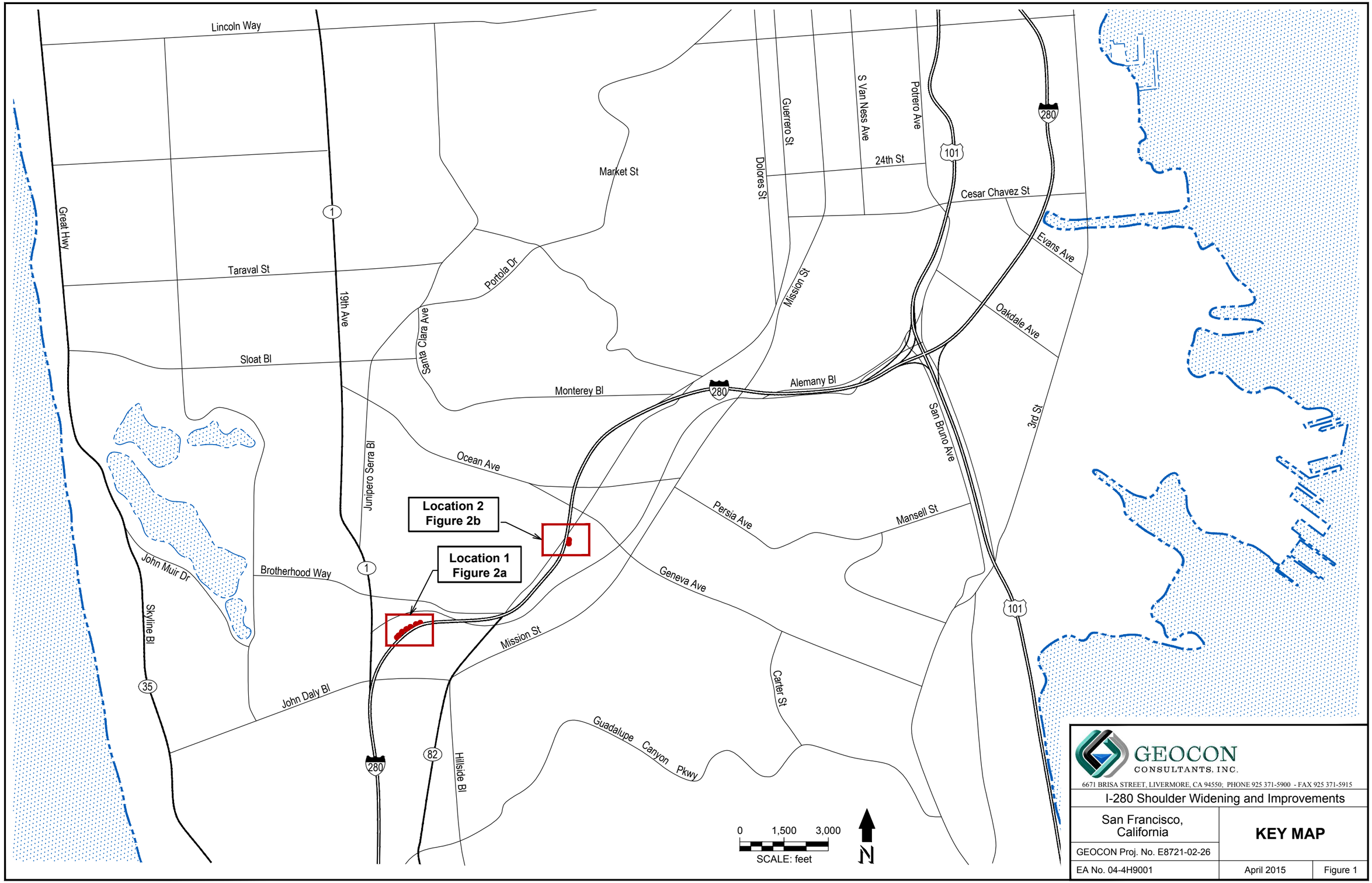
6.4 Naturally Occurring Asbestos

Nineteen soil samples were collected from the site and analyzed for asbestos by CARB Test Method 435 using polarized light microscopy (PLM) and at a target sensitivity of 0.25% asbestos. Asbestos was not observed in any of the samples.

A summary of NOA results is included in Table 5.

6.5 Worker Protection

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



GEOCON CONSULTANTS, INC.

6671 BRISA STREET, LIVERMORE, CA 94550; PHONE 925 371-5900 - FAX 925 371-5915

I-280 Shoulder Widening and Improvements

San Francisco, California

KEY MAP

GEOCON Proj. No. E8721-02-26

EA No. 04-4H9001 | April 2015 | Figure 1

SITE0315

GEOCON CONSULTANTS, INC.

6671 BRISA STREET, LIVERMORE, CA 94550; PHONE 925 371-5900 - FAX 925 371-5915

I-280 Shoulder Widening and Improvements

San Francisco, California

SITE MAP

GEOCON Proj. No. E8721-02-26

EA No. 04-4H9001 | April 2015 | Figure 2a

SITE0315

GEOCON CONSULTANTS, INC.

6671 BRISA STREET, LIVERMORE, CA 94550; PHONE 925 371-5900 - FAX 925 371-5915

I-280 Shoulder Widening and Improvements

San Francisco, California

SITE MAP

GEOCON Proj. No. E8721-02-26

EA No. 04-4H9001 | April 2015 | Figure 2b

SITE0315

TABLE 1
Boring Coordinates
I-280 Shoulder Widening
San Francisco County, CA

Boring	Latitude	Longitude
B1	37.709111	-122.468287
B2	37.709233	-122.468149
B3	37.709504	-122.467866
B4	37.709551	-122.467806
B5	37.709596	-122.467745
B6	37.709840	-122.467272
B7	37.710059	-122.466826
B8	37.710294	-122.466160
B9	37.710401	-122.465670
B10	37.717749	-122.448282
B11	37.717980	-122.448239
B12	37.718120	-122.448226

TABLE 2
Summary of Lead and pH Results
I-280 Shoulder Widening
San Francisco, CA

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	71	4.4	---	---	6.9
B1-1	1 to 1.5	2.4	---	---	---	---
B2-0	0 to 0.5	26	---	---	---	---
B2-1	1 to 1.5	7.8	---	---	---	---
B2-2.5	2 to 2.5	1.4	---	---	---	---
B3-0	0 to 0.5	120	7.1	<1.0	<0.050	6.5
B3-1.5	1 to 1.5	110	5.9	<1.0	0.057	8.1
B3-3.5	3.5 to 4	81	4.6	---	---	7.8
B3-5.5	5.5 to 6	28	---	---	---	---
B4-0	0 to 0.5	130	9.7	<1.0	0.094	---
B4-1.5	1 to 1.5	91	4.1	---	---	7.3
B4-3.5	3.5 to 4	25	---	---	---	---
B4-5.5	5.5 to 6	2.3	---	---	---	6.8
B5-0	0 to 0.5	160	9.0	<1.0	0.11	7.7
B5-1.5	1 to 1.5	110	8.1	<1.0	0.12	---
B5-3.5	3.5 to 4	93	5.8	<1.0	---	7.5
B5-5.5	5.5 to 6	9.5	---	---	---	7.0
B6-0	0 to 0.5	110	8.1	<1.0	0.11	6.6
B6-1	1 to 1.5	50	2.9	---	---	7.4
B7-0	0 to 0.5	250	17	1.6	0.20	6.6
B7-1	1 to 1.5	36	---	---	---	7.2
B8-0	0 to 0.5	190	14	1.3	0.22	7.5
B8-1	1 to 1.5	28	---	---	---	7.2
B9-0	0 to 0.5	290	20	2.0	0.34	7.2
B9-1	1 to 1.5	47	---	---	---	8.4
B10-0	0 to 0.5	480	24	1.2	0.23	6.8
B10-1.5	1.5 to 2	23	---	---	---	---
B11-0	0 to 0.5	380	24	<1.0	0.13	5.4
B11-1.5	1.5 to 2	36	---	---	---	---

TABLE 2
Summary of Lead and pH Results
I-280 Shoulder Widening
San Francisco, CA

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	DI-WET Lead (mg/l)	TCLP Lead (mg/l)	pH
B12-0	0 to 0.5	160	10	<1.0	0.073	4.9
B12-1.5	1.5 to 2	61	3.0	---	---	---
B12-3.5	3.5 to 4	27	---	---	---	7.2
Rinse Blank		0.0066 mg/l				
Hazardous Waste Criteria						
TTLC (mg/kg)		1,000	---	---	---	---
STLC (mg/l)		---	5.0	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
TCLP = Toxicity Characteristic Leaching Procedure
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration

TABLE 3
Summary of CAM 17 Metals Results
I-280 Shoulder Widening
San Francisco County, CA

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	1.2	43	<1.0	<1.0	55 *1.5*	3.3	24	71	0.13	<1.0	17	<1.0	<1.0	<1.0	20	74
B1-1	1 to 1.5	<2.0	<1.0	32	<1.0	<1.0	23	2.6	6.4	2.4	<0.10	<1.0	14	<1.0	<1.0	<1.0	24	12
B2-0	0 to 0.5	<2.0	2.2	30	<1.0	<1.0	24	2.6	11	26	<0.10	<1.0	15	<1.0	<1.0	<1.0	20	23
B2-1	1 to 1.5	<2.0	<1.0	24	<1.0	<1.0	21	2.6	5.9	7.8	<0.10	<1.0	15	<1.0	<1.0	<1.0	21	18
B2-2.5	2.5 to 3	<2.0	<1.0	20	<1.0	<1.0	19	2.3	4.1	1.4	<0.10	<1.0	13	<1.0	<1.0	<1.0	20	11
B3-0	0 to 0.5	<2.0	1.7	55	<1.0	<1.0	42	5.4	39	120	0.17	<1.0	22	<1.0	<1.0	<1.0	23	150
B3-1.5	1.5 to 2	<2.0	2.9	53	<1.0	<1.0	38	4.2	200	110	0.17	<1.0	21	<1.0	<1.0	<1.0	20	94
B3-3.5	3.5 to 4	<2.0	1.2	43	<1.0	<1.0	46	4.8	24	81	0.17	<1.0	21	<1.0	<1.0	<1.0	21	110
B3-5.5	5.5 to 6	<2.0	1.3	46	<1.0	<1.0	28	3.4	11	28	<0.10	<1.0	17	<1.0	<1.0	<1.0	21	94
B4-0	0 to 0.5	<2.0	1.4	57	<1.0	<1.0	42	6.0	29	130	0.19	<1.0	25	<1.0	<1.0	<1.0	24	100
B4-1.5	1.5 to 2	<2.0	<1.0	37	<1.0	<1.0	47	5.8	26	91	0.12	<1.0	19	<1.0	<1.0	<1.0	25	85
B4-3.5	3.5 to 4	<2.0	10	39	<1.0	<1.0	28	3.5	14	25	0.14	<1.0	18	<1.0	<1.0	<1.0	20	59
B4-5.5	5.5 to 6	<2.0	<1.0	33	<1.0	<1.0	26	3.9	5.2	2.3	<0.10	<1.0	20	<1.0	<1.0	<1.0	19	13
B5-0	0 to 0.5	<2.0	<1.0	66	<1.0	<1.0	43	6.0	29	160	0.20	<1.0	25	<1.0	<1.0	<1.0	25	100
B5-1.5	1.5 to 2	<2.0	1.6	48	<1.0	<1.0	39	5.0	24	110	0.19	<1.0	22	<1.0	<1.0	<1.0	22	87
B5-3.5	3.5 to 4	<2.0	1.6	43	<1.0	<1.0	41	4.7	23	93	0.21	<1.0	20	<1.0	<1.0	<1.0	21	95
B5-5.5	5.5 to 6	<2.0	<1.0	22	<1.0	<1.0	32	3.0	6.5	9.5	<0.10	<1.0	12	<1.0	<1.0	<1.0	24	27
B6-0	0 to 0.5	<2.0	6.8	67	<1.0	<1.0	36	5.9	30	110	0.11	<1.0	21	<1.0	<1.0	<1.0	26	75
B6-1	1 to 1.5	<2.0	4.1	47	<1.0	<1.0	24	4.8	14	50	<0.10	<1.0	19	<1.0	<1.0	<1.0	22	42
B7-0	0 to 0.5	<2.0	5.4	65	<1.0	<1.0	34	5.5	53	250	0.11	<1.0	22	<1.0	<1.0	<1.0	24	140
B7-1	1 to 1.5	<2.0	8.1	43	<1.0	<1.0	22	5.0	14	36	<0.10	<1.0	22	<1.0	<1.0	<1.0	20	40
B8-0	0 to 0.5	<2.0	<1.0	53	<1.0	<1.0	51 *1.7*	4.6	48	190	0.18	<1.0	21	<1.0	<1.0	<1.0	19	110
B8-1	1 to 1.5	<2.0	<1.0	33	<1.0	<1.0	22	3.9	14	28	<0.10	<1.0	22	<1.0	<1.0	<1.0	16	35
B9-0	0 to 0.5	<2.0	<1.0	71	<1.0	<1.0	61 *2.1*	4.6	62	290	0.30	<1.0	24	<1.0	<1.0	<1.0	20	130
B9-1	1 to 1.5	<2.0	<1.0	45	<1.0	<1.0	22	4.4	14	47	<0.10	<1.0	19	<1.0	<1.0	<1.0	20	43
B10-0	0 to 0.5	<2.0	2.9	60	<1.0	1.2	80 *1.7*	9.2	66	480	0.28	<1.0	27	<1.0	<1.0	<1.0	25	180
B10-1.5	1.5 to 2	2.4	5.0	45	<1.0	<1.0	25	11	22	23	0.46	<1.0	26	<1.0	<1.0	<1.0	27	66

TABLE 3
Summary of CAM 17 Metals Results
I-280 Shoulder Widening
San Francisco County, CA

Sample ID	Sample Depth (ft)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
B11-0	0 to 0.5	<2.0	5.8	89	<1.0	1.4	140	5.9	76	380	0.55	<1.0	27	<1.0	1.1	<1.0	26	290
							4.5											
B11-1.5	1.5 to 2	<2.0	<1.0	41	<1.0	<1.0	45	5.1	12	36	<0.10	<1.0	26	<1.0	<1.0	<1.0	31	30
B12-0	0 to 0.5	<2.0	6.2	68	<1.0	<1.0	71	5.4	340	160	0.30	<1.0	25	<1.0	<1.0	<1.0	26	340
							2.0		*1.6*									
B12-1.5	1.5 to 2	<2.0	1.3	38	<1.0	<1.0	58	5.0	18	61	<0.10	<1.0	26	<1.0	<1.0	<1.0	25	56
							<1.0											
B12-3.5	3.5 to 4	<2.0	<1.0	54	<1.0	<1.0	44	6.6	19	27	<0.10	<1.0	28	<1.0	<1.0	<1.0	32	41
ESLs																		
Residential Land Use		20	0.39	750	4.0	12	1,000	23	230	80	6.7	40	150	10	20	0.78	200	600
Commercial/Industrial Land Use		40	1.6	1,500	8.0	12	2,500	80	230	320	10	40	150	10	40	10	200	600
Construction Worker Exposure		120	10	61,000	180	110	460,000[1]	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).
[1]Value listed is for Chromium III, as there is no construction exposure 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 and K-3, SFRWQCB, December 2013.
TTLC = total threshold limit concentration
STLC = soluble threshold limit concentration
TCLP = toxicity characteristic leaching procedure

TABLE 4
Summary of Petroleum Hydrocarbons Results
I-280 Shoulder Widening
San Francisco County, CA

Sample ID	Sample Depth (ft)	TPHd (mg/kg)	TPHmo (mg/kg)	TPHg (mg/kg)
B1-0	0 to 0.5	41	110	---
B1-1	1 to 1.5	---	---	<1.0
B2-2.5	2.5 to 3	1.6	2.5	<1.0
B3-1.5	1.5 to 2	45	210	<1.0
B3-5.5	5.5 to 6	5.0	14	---
B4-1.5	1.5 to 2	52	230	---
B4-3.5	3.5 to 4	7.6	18	---
B4-5.5	5.5 to 6		---	<1.0
B5-1.5	1.5 to 2	23	81	---
B5-3.5	3.5 to 4	---	---	<1.0
B5-5.5	5.5 to 6	3.0	6.6	---
B6-1	1 to 1.5	11	32	<1.0
B7-1	1 to 1.5	18	61	<1.0
B8-1	1 to 1.5	26	84	<1.0
B9-1	1 to 1.5	12	37	<1.0
B10-1.5	1.5 to 2	11	26	<1.0
B11-1.5	1.5 to 2	5.0	12	<1.0
B12-1.5	1.5 to 2	47	110	<1.0
B12-3.5	3.5 to 4	15	31	---
	ESLs			
	Residential	100	100	100
	Commercial/Industrial	110	500	500
	Construction Exposure	900	28,000	2,700

Notes:
mg/kg = milligrams per kilogram
TPHd = Total petroleum hydrocarbons as diesel
TPHmo = Total petroleum hydrocarbons as motor oil
ESLs = Environmental Screening Levels, Tables A and K-3, SFRWQCB, December 2013.

TABLE 5
Summary of NOA Results
I-280 Shoulder Widening
San Francisco County, CA

Sample ID	Sample Depth (feet)	Asbestos Content
B1-0	0 to 0.5	ND
B2-1	1 to 1.5	ND
B2-1.5	1.5 to 2	ND
B3-0	0 to 0.5	ND
B3-3.5	3.5 to 4	ND
B3-5.5	5.5 to 6	ND
B4-1.5	1.5 to 2	ND
B4-5.5	5.5 to 6	ND
B5-1.5	1.5 to 2	ND
B5-3.5	3.5 to 4	ND
B5-5.5	5.5 to 6	ND
B6-1	1 to 1.5	ND
B7-1	1 to 1.5	ND
B8-1	1 to 1.5	ND
B9-1	1 to 1.5	ND
B10-1.5	1.5 to 2	ND
B11-1.5	1.5 to 2	ND
B12-0	0 to 0.5	ND
B12-3.5	3.5 to 4	ND

ND = None detected at 0.25% target analytical sensitivity.

TABLE 6a
Summary of Lead Statistical Analysis
I-280 Shoulder Widening
San Francisco County, CA

Location 1 (borings B1 to B9)

TOTAL LEAD

	90% UCL	95% UCL	Maximum
0 ft	183	193.0	---
1.0 ft	69.8	74.5	---
3.5 ft	---	---	93
5.5 ft	---	---	28

EXCAVATION SCENARIOS

	Weighted Averages		
Excavation Depth	**90% UCL Total Lead (mg/kg)**	**WET Lead* (mg/l)**	**95% UCL Total Lead (mg/kg)**
0 to 1 ft	183	11	193
Underlying Soil (1 to 6 ft)	*75*	*4.5*	*77*
0 to 3.5 ft	102	6.2	108
Underlying Soil (3.5 to 6 ft)	*80*	*4.8*	*80*
0 to 5.5 ft	99	6.0	103
Underlying Soil (5.5 to 6 ft)	*28*	*1.7*	*28*
0 to 6 ft	93	5.6	97

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 = 0.0603 x

TABLE 6b
Summary of Lead Statistical Analysis
I-280 Shoulder Widening
San Francisco County, CA

Location 2 (Borings B10 to B12)

TOTAL LEAD

	Maximum
0 ft	480
1.5 ft	61

EXCAVATION SCENARIOS

	Weighted Averages	
Excavation Depth	**Maximum Total Lead (mg/kg)**	**WET Lead* (mg/l)**
0 to 1.5 ft	480	28.9
Underlying Soil (1.5 to 2 ft)	*61*	*3.7*
0 to 2 ft	375	22.6

Notes:
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: $y =$ 0.0603 x

APPENDIX A

Department of Toxic Substances Control

Matthew Rodriquez
Secretary for
Environmental Protection

Barbara A. Lee, Director
1001 "I" Street
P.O. Box 806
Sacramento, California 95812-0806

Edmund G. Brown Jr.
Governor

December 16, 2014

Ms. Katrina C. Pierce, Chief
Division of Environmental Analysis
California Department of Transportation
P.O. Box 942873, MS-27
Sacramento, CA 94273-0001

SUBJECT: SECOND EXTENSION OF STATEWIDE VARIANCE NO. V09HQSCD006 FOR CALTRANS' HANDLING OF AERIALLY DEPOSITED LEAD SOIL

Dear Ms. Pierce:

This letter is in response to the December 2, 2014, request from the California Department of Transportation (Caltrans), for an extension for Variance No. V09HQSCD006 (Variance).

The original Variance was issued on June 30, 2009, with an effective period of five years, such that it was set to expire on June 30, 2014. Caltrans requested an extension in May 2014 and received a six-month extension of the Variance to December 31, 2014. The Department of Toxic Substances Control (DTSC) will be unable to issue Caltrans a new five-year Variance before the current Variance extension expires on December 31, 2014. This letter hereby extends the effective date of Variance from December 31, 2014 to June 30, 2015. This extension enables Caltrans to proceed with already-scheduled highway improvement projects without interruption.

The Variance applies to Caltrans' management of soil contaminated by aerial deposition of lead from motor vehicle exhaust. Such soil, historically referred to as "aerially deposited lead (ADL) soil," occurs along many roadsides statewide, and must be appropriately handled by Caltrans in the course of highway improvement projects. For such soil that contains lead in concentrations exceeding state, but not federal, regulatory thresholds for hazardous waste, the

Variance waives specific hazardous waste management standards. In lieu of the standards waived, the Variance imposes alternate management standards (conditions) on Caltrans' soil handling activities, to ensure that the handling and relocation of the soil is conducted in a manner protective of human health and safety and the environment. The Variance applies to Caltrans' highway improvement projects in all Caltrans Districts.

If you have further questions regarding this Variance extension, please contact Mr. Bob Gipson, DTSC Project Manager, at (916) 327-4061.

Sincerely,

Pauline Batarseh

Pauline Batarseh, Chief
Policy Implementation and Support Branch
Policy and Program Support Division
Hazardous Waste Management Program

Cc:
Shaila Chowdhury
Chief, Office of Hazardous Waste, Air, Noise and Paleontology
Division of Environmental Analysis
California Department of Transportation
Sacramento, CA 94273-0001

Richard Bailey
Senior Engineering Geologist
Division of Environmental Analysis
California Department of Transportation
Sacramento, CA 94273-0001

Kim Christmann
Senior Engineering Geologist
Division of Environmental Analysis
California Department of Transportation
Sacramento, CA 94273-0001

Donn Diebert, P.E.
Chief, Policy Implementation Unit
Policy Implementation and Support Branch
Policy and Program Support Division
Hazardous Waste Management Program
Department of Toxic Substances Control
1001 I Street, Sacramento, CA 95812-0806

Bob Gipson
Environmental Scientist
Policy Implementation Unit
Policy Implementation and Support Branch
Policy and Program Support Division
Hazardous Waste Management Program
Department of Toxic Substances Control
1001 I Street, Sacramento, CA 95812-0806

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

March 26, 2015

Rick Day
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
Tel: (925) 961-5270
Fax:(925) 371-5915

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

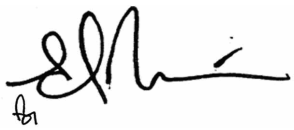
Re: ATL Work Order Number : 1501067

Client Reference : CALTRANS, SF 280 SHOULDER WIDENING, E8721-02-26

Enclosed are the results for sample(s) received on March 25, 2015 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

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

Sincerely,



Eddie Rodriguez
Laboratory Director

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B1-0	1501067-01	Soil	3/24/15 8:30	3/25/15 8:00
B1-1	1501067-02	Soil	3/24/15 8:35	3/25/15 8:00
B2-0	1501067-03	Soil	3/24/15 8:40	3/25/15 8:00
B2-1	1501067-04	Soil	3/24/15 8:45	3/25/15 8:00
B2-2.5	1501067-05	Soil	3/24/15 8:50	3/25/15 8:00
B3-0	1501067-06	Soil	3/24/15 8:31	3/25/15 8:00
B3-1.5	1501067-07	Soil	3/24/15 8:34	3/25/15 8:00
B3-3.5	1501067-08	Soil	3/24/15 8:41	3/25/15 8:00
B3-5.5	1501067-09	Soil	3/24/15 8:47	3/25/15 8:00
RB	1501067-10	Water	3/24/15 9:01	3/25/15 8:00
B4-0	1501067-11	Soil	3/24/15 9:00	3/25/15 8:00
B4-1.5	1501067-12	Soil	3/24/15 9:05	3/25/15 8:00
B4-3.5	1501067-13	Soil	3/24/15 9:10	3/25/15 8:00
B4-5.5	1501067-14	Soil	3/24/15 9:15	3/25/15 8:00
B5-0	1501067-15	Soil	3/24/15 9:07	3/25/15 8:00
B5-1.5	1501067-16	Soil	3/24/15 9:11	3/25/15 8:00
B5-3.5	1501067-17	Soil	3/24/15 9:17	3/25/15 8:00
B5-5.5	1501067-18	Soil	3/24/15 9:24	3/25/15 8:00
B6-0	1501067-19	Soil	3/24/15 10:07	3/25/15 8:00
B6-1	1501067-20	Soil	3/24/15 10:14	3/25/15 8:00
B7-0	1501067-21	Soil	3/24/15 9:59	3/25/15 8:00
B7-1	1501067-22	Soil	3/24/15 10:04	3/25/15 8:00
B8-0	1501067-23	Soil	3/24/15 9:41	3/25/15 8:00
B8-1	1501067-24	Soil	3/24/15 9:44	3/25/15 8:00
B9-0	1501067-25	Soil	3/24/15 9:40	3/25/15 8:00
B9-1	1501067-26	Soil	3/24/15 9:45	3/25/15 8:00
B10-0	1501067-27	Soil	3/24/15 11:10	3/25/15 8:00
B10-1.5	1501067-28	Soil	3/24/15 11:15	3/25/15 8:00
B11-0	1501067-29	Soil	3/24/15 11:25	3/25/15 8:00
B11-1.5	1501067-30	Soil	3/24/15 11:30	3/25/15 8:00
B12-0	1501067-31	Soil	3/24/15 11:17	3/25/15 8:00
B12-1.5	1501067-32	Soil	3/24/15 11:21	3/25/15 8:00
B12-3.5	1501067-33	Soil	3/24/15 11:31	3/25/15 8:00

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B1-0

Lab ID: 1501067-01

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0635	03/25/2015	03/26/15 11:19	
Arsenic	**1.2**	1.0	1	B5C0635	03/25/2015	03/26/15 11:19	
Barium	**43**	1.0	1	B5C0635	03/25/2015	03/26/15 11:19	
Beryllium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:19	
Cadmium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:19	
Chromium	**55**	1.0	1	B5C0635	03/25/2015	03/26/15 11:19	
Cobalt	**3.3**	1.0	1	B5C0635	03/25/2015	03/26/15 11:19	
Copper	**24**	2.0	1	B5C0635	03/25/2015	03/26/15 11:19	
Lead	**71**	1.0	1	B5C0635	03/25/2015	03/26/15 11:19	
Molybdenum	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:19	
Nickel	**17**	1.0	1	B5C0635	03/25/2015	03/26/15 11:19	
Selenium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:19	
Silver	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:19	
Thallium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:19	
Vanadium	**20**	1.0	1	B5C0635	03/25/2015	03/26/15 11:19	
Zinc	**74**	1.0	1	B5C0635	03/25/2015	03/26/15 11:19	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.13**	0.10	1	B5C0636	03/25/2015	03/26/15 12:02	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**41**	2.0	2	B5C0654	03/25/2015	03/26/15 02:48	
ORO	**110**	2.0	2	B5C0654	03/25/2015	03/26/15 02:48	
Surrogate: p-Terphenyl	*51.5 %*	*26 - 123*		B5C0654	03/25/2015	*03/26/15 02:48*	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDI
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B1-0

Lab ID: 1501067-01

pH by EPA 9045C **Analyst: LA**

Analyte	Result (pH Units)	PQL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**6.9**	0.10	1	B5C0680	03/26/2015	03/26/15 13:25	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B1-1

Lab ID: 1501067-02

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0635	03/25/2015	03/26/15 11:27	
Arsenic	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:27	
Barium	**32**	1.0	1	B5C0635	03/25/2015	03/26/15 11:27	
Beryllium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:27	
Cadmium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:27	
Chromium	**23**	1.0	1	B5C0635	03/25/2015	03/26/15 11:27	
Cobalt	**2.6**	1.0	1	B5C0635	03/25/2015	03/26/15 11:27	
Copper	**6.4**	2.0	1	B5C0635	03/25/2015	03/26/15 11:27	
Lead	**2.4**	1.0	1	B5C0635	03/25/2015	03/26/15 11:27	
Molybdenum	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:27	
Nickel	**14**	1.0	1	B5C0635	03/25/2015	03/26/15 11:27	
Selenium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:27	
Silver	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:27	
Thallium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:27	
Vanadium	**24**	1.0	1	B5C0635	03/25/2015	03/26/15 11:27	
Zinc	**12**	1.0	1	B5C0635	03/25/2015	03/26/15 11:27	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5C0636	03/25/2015	03/26/15 12:14	

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: BT/

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B5C0634	03/24/2015	03/25/15 21:04	
Surrogate: 4-Bromofluorobenzene	*92.9 %*	*37 - 153*		B5C0634	03/24/2015	*03/25/15 21:04*	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B2-0

Lab ID: 1501067-03

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: RR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0635	03/25/2015	03/26/15 11:29	
Arsenic	**2.2**	1.0	1	B5C0635	03/25/2015	03/26/15 11:29	
Barium	**30**	1.0	1	B5C0635	03/25/2015	03/26/15 11:29	
Beryllium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:29	
Cadmium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:29	
Chromium	**24**	1.0	1	B5C0635	03/25/2015	03/26/15 11:29	
Cobalt	**2.6**	1.0	1	B5C0635	03/25/2015	03/26/15 11:29	
Copper	**11**	2.0	1	B5C0635	03/25/2015	03/26/15 11:29	
Lead	**26**	1.0	1	B5C0635	03/25/2015	03/26/15 11:29	
Molybdenum	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:29	
Nickel	**15**	1.0	1	B5C0635	03/25/2015	03/26/15 11:29	
Selenium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:29	
Silver	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:29	
Thallium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:29	
Vanadium	**20**	1.0	1	B5C0635	03/25/2015	03/26/15 11:29	
Zinc	**23**	1.0	1	B5C0635	03/25/2015	03/26/15 11:29	

Mercury by AA (Cold Vapor) EPA 7471A — **Analyst: SB**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5C0636	03/25/2015	03/26/15 12:16	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B2-1

Lab ID: 1501067-04

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: RR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0635	03/25/2015	03/26/15 11:31	
Arsenic	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:31	
Barium	**24**	1.0	1	B5C0635	03/25/2015	03/26/15 11:31	
Beryllium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:31	
Cadmium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:31	
Chromium	**21**	1.0	1	B5C0635	03/25/2015	03/26/15 11:31	
Cobalt	**2.6**	1.0	1	B5C0635	03/25/2015	03/26/15 11:31	
Copper	**5.9**	2.0	1	B5C0635	03/25/2015	03/26/15 11:31	
Lead	**7.8**	1.0	1	B5C0635	03/25/2015	03/26/15 11:31	
Molybdenum	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:31	
Nickel	**15**	1.0	1	B5C0635	03/25/2015	03/26/15 11:31	
Selenium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:31	
Silver	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:31	
Thallium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:31	
Vanadium	**21**	1.0	1	B5C0635	03/25/2015	03/26/15 11:31	
Zinc	**18**	1.0	1	B5C0635	03/25/2015	03/26/15 11:31	

Mercury by AA (Cold Vapor) EPA 7471A — **Analyst: SB**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5C0636	03/25/2015	03/26/15 12:18	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDI
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B2-2.5

Lab ID: 1501067-05

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0635	03/25/2015	03/26/15 11:33	
Arsenic	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:33	
Barium	**20**	1.0	1	B5C0635	03/25/2015	03/26/15 11:33	
Beryllium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:33	
Cadmium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:33	
Chromium	**19**	1.0	1	B5C0635	03/25/2015	03/26/15 11:33	
Cobalt	**2.3**	1.0	1	B5C0635	03/25/2015	03/26/15 11:33	
Copper	**4.1**	2.0	1	B5C0635	03/25/2015	03/26/15 11:33	
Lead	**1.4**	1.0	1	B5C0635	03/25/2015	03/26/15 11:33	
Molybdenum	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:33	
Nickel	**13**	1.0	1	B5C0635	03/25/2015	03/26/15 11:33	
Selenium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:33	
Silver	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:33	
Thallium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:33	
Vanadium	**20**	1.0	1	B5C0635	03/25/2015	03/26/15 11:33	
Zinc	**11**	1.0	1	B5C0635	03/25/2015	03/26/15 11:33	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5C0636	03/25/2015	03/26/15 12:24	

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: BT/

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B5C0633	03/24/2015	03/25/15 13:12	
Surrogate: 4-Bromofluorobenzene	*104 %*	*37 - 153*		B5C0633	03/24/2015	*03/25/15 13:12*	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**1.6**	1.0	1	B5C0654	03/25/2015	03/26/15 01:23	
ORO	**2.5**	1.0	1	B5C0654	03/25/2015	03/26/15 01:23	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDI
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B2-2.5

Lab ID: 1501067-05

Diesel Range Organics by EPA 8015B **Analyst: CR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: p-Terphenyl	*63.5 %*	*26 - 123*		B5C0654	03/25/2015	*03/26/15 01:23*	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B3-0

Lab ID: 1501067-06

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0635	03/25/2015	03/26/15 11:39	
Arsenic	**1.7**	1.0	1	B5C0635	03/25/2015	03/26/15 11:39	
Barium	**55**	1.0	1	B5C0635	03/25/2015	03/26/15 11:39	
Beryllium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:39	
Cadmium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:39	
Chromium	**42**	1.0	1	B5C0635	03/25/2015	03/26/15 11:39	
Cobalt	**5.4**	1.0	1	B5C0635	03/25/2015	03/26/15 11:39	
Copper	**39**	2.0	1	B5C0635	03/25/2015	03/26/15 11:39	
Lead	**120**	1.0	1	B5C0635	03/25/2015	03/26/15 11:39	
Molybdenum	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:39	
Nickel	**22**	1.0	1	B5C0635	03/25/2015	03/26/15 11:39	
Selenium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:39	
Silver	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:39	
Thallium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:39	
Vanadium	**23**	1.0	1	B5C0635	03/25/2015	03/26/15 11:39	
Zinc	**150**	1.0	1	B5C0635	03/25/2015	03/26/15 11:39	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.17**	0.10	1	B5C0636	03/25/2015	03/26/15 12:27	

pH by EPA 9045C

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**6.5**	0.10	1	B5C0680	03/26/2015	03/26/15 13:25	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B3-1.5

Lab ID: 1501067-07

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0635	03/25/2015	03/26/15 11:41	
Arsenic	**2.9**	1.0	1	B5C0635	03/25/2015	03/26/15 11:41	
Barium	**53**	1.0	1	B5C0635	03/25/2015	03/26/15 11:41	
Beryllium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:41	
Cadmium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:41	
Chromium	**38**	1.0	1	B5C0635	03/25/2015	03/26/15 11:41	
Cobalt	**4.2**	1.0	1	B5C0635	03/25/2015	03/26/15 11:41	
Copper	**200**	2.0	1	B5C0635	03/25/2015	03/26/15 11:41	
Lead	**110**	1.0	1	B5C0635	03/25/2015	03/26/15 11:41	
Molybdenum	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:41	
Nickel	**21**	1.0	1	B5C0635	03/25/2015	03/26/15 11:41	
Selenium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:41	
Silver	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:41	
Thallium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:41	
Vanadium	**20**	1.0	1	B5C0635	03/25/2015	03/26/15 11:41	
Zinc	**94**	1.0	1	B5C0635	03/25/2015	03/26/15 11:41	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.17**	0.10	1	B5C0636	03/25/2015	03/26/15 12:29	

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: BT/

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B5C0633	03/24/2015	03/25/15 13:28	
Surrogate: 4-Bromofluorobenzene	*91.9 %*	*37 - 153*		B5C0633	03/24/2015	*03/25/15 13:28*	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**45**	10	5	B5C0654	03/25/2015	03/26/15 03:56	
ORO	**210**	10	5	B5C0654	03/25/2015	03/26/15 03:56	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B3-1.5

Lab ID: 1501067-07

Diesel Range Organics by EPA 8015B **Analyst: CR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: p-Terphenyl	*0%*	*26 - 123*		B5C0654	03/25/2015	*03/26/15 03:56*	S4

pH by EPA 9045C **Analyst: LA**

Analyte	Result (pH Units)	PQL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**8.1**	0.10	1	B5C0680	03/26/2015	03/26/15 13:25	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B3-3.5

Lab ID: 1501067-08

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0635	03/25/2015	03/26/15 11:42	
Arsenic	**1.2**	1.0	1	B5C0635	03/25/2015	03/26/15 11:42	
Barium	**43**	1.0	1	B5C0635	03/25/2015	03/26/15 11:42	
Beryllium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:42	
Cadmium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:42	
Chromium	**46**	1.0	1	B5C0635	03/25/2015	03/26/15 11:42	
Cobalt	**4.8**	1.0	1	B5C0635	03/25/2015	03/26/15 11:42	
Copper	**24**	2.0	1	B5C0635	03/25/2015	03/26/15 11:42	
Lead	**81**	1.0	1	B5C0635	03/25/2015	03/26/15 11:42	
Molybdenum	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:42	
Nickel	**21**	1.0	1	B5C0635	03/25/2015	03/26/15 11:42	
Selenium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:42	
Silver	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:42	
Thallium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:42	
Vanadium	**21**	1.0	1	B5C0635	03/25/2015	03/26/15 11:42	
Zinc	**110**	1.0	1	B5C0635	03/25/2015	03/26/15 11:42	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.17**	0.10	1	B5C0636	03/25/2015	03/26/15 12:31	

pH by EPA 9045C

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**7.8**	0.10	1	B5C0680	03/26/2015	03/26/15 13:25	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B3-5.5

Lab ID: 1501067-09

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0635	03/25/2015	03/26/15 11:44	
Arsenic	**1.3**	1.0	1	B5C0635	03/25/2015	03/26/15 11:44	
Barium	**46**	1.0	1	B5C0635	03/25/2015	03/26/15 11:44	
Beryllium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:44	
Cadmium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:44	
Chromium	**28**	1.0	1	B5C0635	03/25/2015	03/26/15 11:44	
Cobalt	**3.4**	1.0	1	B5C0635	03/25/2015	03/26/15 11:44	
Copper	**11**	2.0	1	B5C0635	03/25/2015	03/26/15 11:44	
Lead	**28**	1.0	1	B5C0635	03/25/2015	03/26/15 11:44	
Molybdenum	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:44	
Nickel	**17**	1.0	1	B5C0635	03/25/2015	03/26/15 11:44	
Selenium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:44	
Silver	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:44	
Thallium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:44	
Vanadium	**21**	1.0	1	B5C0635	03/25/2015	03/26/15 11:44	
Zinc	**94**	1.0	1	B5C0635	03/25/2015	03/26/15 11:44	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5C0636	03/25/2015	03/26/15 12:33	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**5.0**	1.0	1	B5C0654	03/25/2015	03/26/15 02:14	
ORO	**14**	1.0	1	B5C0654	03/25/2015	03/26/15 02:14	
Surrogate: p-Terphenyl	*49.5 %*	*26 - 123*		B5C0654	03/25/2015	*03/26/15 02:14*	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDI
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID RB

Lab ID: 1501067-10

Lead by ICP-AES EPA 6010B **Analyst: RR**

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**0.0066**	0.0050	1	B5C0653	03/25/2015	03/26/15 10:14	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B4-0

Lab ID: 1501067-11

Title 22 Metals by ICP-AES EPA 6010B **Analyst: RR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0635	03/25/2015	03/26/15 11:46	
Arsenic	**1.4**	1.0	1	B5C0635	03/25/2015	03/26/15 11:46	
Barium	**57**	1.0	1	B5C0635	03/25/2015	03/26/15 11:46	
Beryllium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:46	
Cadmium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:46	
Chromium	**42**	1.0	1	B5C0635	03/25/2015	03/26/15 11:46	
Cobalt	**6.0**	1.0	1	B5C0635	03/25/2015	03/26/15 11:46	
Copper	**29**	2.0	1	B5C0635	03/25/2015	03/26/15 11:46	
Lead	**130**	1.0	1	B5C0635	03/25/2015	03/26/15 11:46	
Molybdenum	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:46	
Nickel	**25**	1.0	1	B5C0635	03/25/2015	03/26/15 11:46	
Selenium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:46	
Silver	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:46	
Thallium	ND	1.0	1	B5C0635	03/25/2015	03/26/15 11:46	
Vanadium	**24**	1.0	1	B5C0635	03/25/2015	03/26/15 11:46	
Zinc	**100**	1.0	1	B5C0635	03/25/2015	03/26/15 11:46	

Mercury by AA (Cold Vapor) EPA 7471A **Analyst: SB**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.19**	0.10	1	B5C0636	03/25/2015	03/26/15 12:35	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B4-1.5

Lab ID: 1501067-12

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0637	03/25/2015	03/26/15 11:51	
Arsenic	ND	1.0	1	B5C0637	03/25/2015	03/26/15 11:51	
Barium	**37**	1.0	1	B5C0637	03/25/2015	03/26/15 11:51	
Beryllium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 11:51	
Cadmium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 11:51	
Chromium	**47**	1.0	1	B5C0637	03/25/2015	03/26/15 11:51	
Cobalt	**5.8**	1.0	1	B5C0637	03/25/2015	03/26/15 11:51	
Copper	**26**	2.0	1	B5C0637	03/25/2015	03/26/15 11:51	
Lead	**91**	1.0	1	B5C0637	03/25/2015	03/26/15 11:51	
Molybdenum	ND	1.0	1	B5C0637	03/25/2015	03/26/15 11:51	
Nickel	**19**	1.0	1	B5C0637	03/25/2015	03/26/15 11:51	
Selenium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 11:51	
Silver	ND	1.0	1	B5C0637	03/25/2015	03/26/15 11:51	
Thallium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 11:51	
Vanadium	**25**	1.0	1	B5C0637	03/25/2015	03/26/15 11:51	
Zinc	**85**	1.0	1	B5C0637	03/25/2015	03/26/15 11:51	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.12**	0.10	1	B5C0641	03/25/2015	03/26/15 12:41	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**52**	10	5	B5C0654	03/25/2015	03/26/15 03:39	
ORO	**230**	10	5	B5C0654	03/25/2015	03/26/15 03:39	
Surrogate: p-Terphenyl	*0%*	*26 - 123*		B5C0654	03/25/2015	*03/26/15 03:39*	S4

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B4-1.5

Lab ID: 1501067-12

pH by EPA 9045C **Analyst: LA**

Analyte	Result (pH Units)	PQL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**7.3**	0.10	1	B5C0680	03/26/2015	03/26/15 13:25	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B4-3.5

Lab ID: 1501067-13

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0637	03/25/2015	03/26/15 12:02	
Arsenic	**10**	1.0	1	B5C0637	03/25/2015	03/26/15 12:02	
Barium	**39**	1.0	1	B5C0637	03/25/2015	03/26/15 12:02	
Beryllium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:02	
Cadmium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:02	
Chromium	**28**	1.0	1	B5C0637	03/25/2015	03/26/15 12:02	
Cobalt	**3.5**	1.0	1	B5C0637	03/25/2015	03/26/15 12:02	
Copper	**14**	2.0	1	B5C0637	03/25/2015	03/26/15 12:02	
Lead	**25**	1.0	1	B5C0637	03/25/2015	03/26/15 12:02	
Molybdenum	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:02	
Nickel	**18**	1.0	1	B5C0637	03/25/2015	03/26/15 12:02	
Selenium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:02	
Silver	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:02	
Thallium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:02	
Vanadium	**20**	1.0	1	B5C0637	03/25/2015	03/26/15 12:02	
Zinc	**59**	1.0	1	B5C0637	03/25/2015	03/26/15 12:02	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.14**	0.10	1	B5C0641	03/25/2015	03/26/15 12:55	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**7.6**	1.0	1	B5C0654	03/25/2015	03/26/15 01:57	
ORO	**18**	1.0	1	B5C0654	03/25/2015	03/26/15 01:57	
Surrogate: p-Terphenyl	*54.1 %*	*26 - 123*		B5C0654	03/25/2015	*03/26/15 01:57*	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B4-5.5

Lab ID: 1501067-14

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0637	03/25/2015	03/26/15 12:05	
Arsenic	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:05	
Barium	**33**	1.0	1	B5C0637	03/25/2015	03/26/15 12:05	
Beryllium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:05	
Cadmium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:05	
Chromium	**26**	1.0	1	B5C0637	03/25/2015	03/26/15 12:05	
Cobalt	**3.9**	1.0	1	B5C0637	03/25/2015	03/26/15 12:05	
Copper	**5.2**	2.0	1	B5C0637	03/25/2015	03/26/15 12:05	
Lead	**2.3**	1.0	1	B5C0637	03/25/2015	03/26/15 12:05	
Molybdenum	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:05	
Nickel	**20**	1.0	1	B5C0637	03/25/2015	03/26/15 12:05	
Selenium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:05	
Silver	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:05	
Thallium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:05	
Vanadium	**19**	1.0	1	B5C0637	03/25/2015	03/26/15 12:05	
Zinc	**13**	1.0	1	B5C0637	03/25/2015	03/26/15 12:05	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5C0641	03/25/2015	03/26/15 12:57	

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: BT/

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B5C0633	03/24/2015	03/25/15 13:43	
Surrogate: 4-Bromofluorobenzene	*93.3 %*	*37 - 153*		B5C0633	03/24/2015	*03/25/15 13:43*	

pH by EPA 9045C

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**6.8**	0.10	1	B5C0680	03/26/2015	03/26/15 13:25	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B5-0

Lab ID: 1501067-15

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0637	03/25/2015	03/26/15 12:07	
Arsenic	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:07	
Barium	**66**	1.0	1	B5C0637	03/25/2015	03/26/15 12:07	
Beryllium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:07	
Cadmium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:07	
Chromium	**43**	1.0	1	B5C0637	03/25/2015	03/26/15 12:07	
Cobalt	**6.0**	1.0	1	B5C0637	03/25/2015	03/26/15 12:07	
Copper	**29**	2.0	1	B5C0637	03/25/2015	03/26/15 12:07	
Lead	**160**	1.0	1	B5C0637	03/25/2015	03/26/15 12:07	
Molybdenum	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:07	
Nickel	**25**	1.0	1	B5C0637	03/25/2015	03/26/15 12:07	
Selenium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:07	
Silver	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:07	
Thallium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:07	
Vanadium	**25**	1.0	1	B5C0637	03/25/2015	03/26/15 12:07	
Zinc	**100**	1.0	1	B5C0637	03/25/2015	03/26/15 12:07	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.20**	0.10	1	B5C0641	03/25/2015	03/26/15 12:59	

pH by EPA 9045C

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**7.7**	0.10	1	B5C0680	03/26/2015	03/26/15 13:25	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B5-1.5

Lab ID: 1501067-16

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0637	03/25/2015	03/26/15 12:08	
Arsenic	**1.6**	1.0	1	B5C0637	03/25/2015	03/26/15 12:08	
Barium	**48**	1.0	1	B5C0637	03/25/2015	03/26/15 12:08	
Beryllium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:08	
Cadmium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:08	
Chromium	**39**	1.0	1	B5C0637	03/25/2015	03/26/15 12:08	
Cobalt	**5.0**	1.0	1	B5C0637	03/25/2015	03/26/15 12:08	
Copper	**24**	2.0	1	B5C0637	03/25/2015	03/26/15 12:08	
Lead	**110**	1.0	1	B5C0637	03/25/2015	03/26/15 12:08	
Molybdenum	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:08	
Nickel	**22**	1.0	1	B5C0637	03/25/2015	03/26/15 12:08	
Selenium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:08	
Silver	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:08	
Thallium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:08	
Vanadium	**22**	1.0	1	B5C0637	03/25/2015	03/26/15 12:08	
Zinc	**87**	1.0	1	B5C0637	03/25/2015	03/26/15 12:08	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.19**	0.10	1	B5C0641	03/25/2015	03/26/15 13:01	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**23**	4.0	2	B5C0654	03/25/2015	03/26/15 08:10	
ORO	**81**	4.0	2	B5C0654	03/25/2015	03/26/15 08:10	
Surrogate: p-Terphenyl	*63.0 %*	*26 - 123*		B5C0654	03/25/2015	*03/26/15 08:10*	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B5-3.5

Lab ID: 1501067-17

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0637	03/25/2015	03/26/15 12:10	
Arsenic	**1.6**	1.0	1	B5C0637	03/25/2015	03/26/15 12:10	
Barium	**43**	1.0	1	B5C0637	03/25/2015	03/26/15 12:10	
Beryllium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:10	
Cadmium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:10	
Chromium	**41**	1.0	1	B5C0637	03/25/2015	03/26/15 12:10	
Cobalt	**4.7**	1.0	1	B5C0637	03/25/2015	03/26/15 12:10	
Copper	**23**	2.0	1	B5C0637	03/25/2015	03/26/15 12:10	
Lead	**93**	1.0	1	B5C0637	03/25/2015	03/26/15 12:10	
Molybdenum	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:10	
Nickel	**20**	1.0	1	B5C0637	03/25/2015	03/26/15 12:10	
Selenium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:10	
Silver	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:10	
Thallium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:10	
Vanadium	**21**	1.0	1	B5C0637	03/25/2015	03/26/15 12:10	
Zinc	**95**	1.0	1	B5C0637	03/25/2015	03/26/15 12:10	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.21**	0.10	1	B5C0641	03/25/2015	03/26/15 13:03	

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: BT/

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B5C0633	03/24/2015	03/25/15 13:59	
Surrogate: 4-Bromofluorobenzene	*90.5 %*	*37 - 153*		B5C0633	03/24/2015	*03/25/15 13:59*	

pH by EPA 9045C

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**7.5**	0.10	1	B5C0680	03/26/2015	03/26/15 13:25	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDI
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B5-5.5

Lab ID: 1501067-18

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0637	03/25/2015	03/26/15 12:11	
Arsenic	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:11	
Barium	**22**	1.0	1	B5C0637	03/25/2015	03/26/15 12:11	
Beryllium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:11	
Cadmium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:11	
Chromium	**32**	1.0	1	B5C0637	03/25/2015	03/26/15 12:11	
Cobalt	**3.0**	1.0	1	B5C0637	03/25/2015	03/26/15 12:11	
Copper	**6.5**	2.0	1	B5C0637	03/25/2015	03/26/15 12:11	
Lead	**9.5**	1.0	1	B5C0637	03/25/2015	03/26/15 12:11	
Molybdenum	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:11	
Nickel	**12**	1.0	1	B5C0637	03/25/2015	03/26/15 12:11	
Selenium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:11	
Silver	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:11	
Thallium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:11	
Vanadium	**24**	1.0	1	B5C0637	03/25/2015	03/26/15 12:11	
Zinc	**27**	1.0	1	B5C0637	03/25/2015	03/26/15 12:11	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5C0641	03/25/2015	03/26/15 13:05	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**3.0**	1.0	1	B5C0654	03/25/2015	03/26/15 01:40	
ORO	**6.6**	1.0	1	B5C0654	03/25/2015	03/26/15 01:40	
Surrogate: p-Terphenyl	*56.8 %*	*26 - 123*		B5C0654	03/25/2015	*03/26/15 01:40*	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDI
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B5-5.5

Lab ID: 1501067-18

pH by EPA 9045C **Analyst: LA**

Analyte	Result (pH Units)	PQL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**7.0**	0.10	1	B5C0680	03/26/2015	03/26/15 13:25	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B6-0

Lab ID: 1501067-19

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: RR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0637	03/25/2015	03/26/15 12:14	
Arsenic	**6.8**	1.0	1	B5C0637	03/25/2015	03/26/15 12:14	
Barium	**67**	1.0	1	B5C0637	03/25/2015	03/26/15 12:14	
Beryllium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:14	
Cadmium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:14	
Chromium	**36**	1.0	1	B5C0637	03/25/2015	03/26/15 12:14	
Cobalt	**5.9**	1.0	1	B5C0637	03/25/2015	03/26/15 12:14	
Copper	**30**	2.0	1	B5C0637	03/25/2015	03/26/15 12:14	
Lead	**110**	1.0	1	B5C0637	03/25/2015	03/26/15 12:14	
Molybdenum	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:14	
Nickel	**21**	1.0	1	B5C0637	03/25/2015	03/26/15 12:14	
Selenium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:14	
Silver	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:14	
Thallium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:14	
Vanadium	**26**	1.0	1	B5C0637	03/25/2015	03/26/15 12:14	
Zinc	**75**	1.0	1	B5C0637	03/25/2015	03/26/15 12:14	

Mercury by AA (Cold Vapor) EPA 7471A — **Analyst: SB**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.11**	0.10	1	B5C0641	03/25/2015	03/26/15 13:07	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B6-1

Lab ID: 1501067-20

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0637	03/25/2015	03/26/15 12:15	
Arsenic	**4.1**	1.0	1	B5C0637	03/25/2015	03/26/15 12:15	
Barium	**47**	1.0	1	B5C0637	03/25/2015	03/26/15 12:15	
Beryllium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:15	
Cadmium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:15	
Chromium	**24**	1.0	1	B5C0637	03/25/2015	03/26/15 12:15	
Cobalt	**4.8**	1.0	1	B5C0637	03/25/2015	03/26/15 12:15	
Copper	**14**	2.0	1	B5C0637	03/25/2015	03/26/15 12:15	
Lead	**50**	1.0	1	B5C0637	03/25/2015	03/26/15 12:15	
Molybdenum	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:15	
Nickel	**19**	1.0	1	B5C0637	03/25/2015	03/26/15 12:15	
Selenium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:15	
Silver	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:15	
Thallium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:15	
Vanadium	**22**	1.0	1	B5C0637	03/25/2015	03/26/15 12:15	
Zinc	**42**	1.0	1	B5C0637	03/25/2015	03/26/15 12:15	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5C0641	03/25/2015	03/26/15 13:35	

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: BT/

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B5C0633	03/24/2015	03/25/15 14:14	
Surrogate: 4-Bromofluorobenzene	*93.0 %*	*37 - 153*		B5C0633	03/24/2015	*03/25/15 14:14*	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**11**	1.0	1	B5C0654	03/25/2015	03/26/15 02:31	
ORO	**32**	1.0	1	B5C0654	03/25/2015	03/26/15 02:31	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B6-1

Lab ID: 1501067-20

Diesel Range Organics by EPA 8015B **Analyst: CR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: p-Terphenyl	*55.0 %*	*26 - 123*		B5C0654	03/25/2015	*03/26/15 02:31*	

pH by EPA 9045C **Analyst: LA**

Analyte	Result (pH Units)	PQL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**7.4**	0.10	1	B5C0680	03/26/2015	03/26/15 13:25	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B7-0

Lab ID: 1501067-21

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: RR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0637	03/25/2015	03/26/15 12:17	
Arsenic	**5.4**	1.0	1	B5C0637	03/25/2015	03/26/15 12:17	
Barium	**65**	1.0	1	B5C0637	03/25/2015	03/26/15 12:17	
Beryllium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:17	
Cadmium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:17	
Chromium	**34**	1.0	1	B5C0637	03/25/2015	03/26/15 12:17	
Cobalt	**5.5**	1.0	1	B5C0637	03/25/2015	03/26/15 12:17	
Copper	**53**	2.0	1	B5C0637	03/25/2015	03/26/15 12:17	
Lead	**250**	1.0	1	B5C0637	03/25/2015	03/26/15 12:17	
Molybdenum	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:17	
Nickel	**22**	1.0	1	B5C0637	03/25/2015	03/26/15 12:17	
Selenium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:17	
Silver	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:17	
Thallium	ND	1.0	1	B5C0637	03/25/2015	03/26/15 12:17	
Vanadium	**24**	1.0	1	B5C0637	03/25/2015	03/26/15 12:17	
Zinc	**140**	1.0	1	B5C0637	03/25/2015	03/26/15 12:17	

Mercury by AA (Cold Vapor) EPA 7471A — **Analyst: SB**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.11**	0.10	1	B5C0641	03/25/2015	03/26/15 13:37	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B7-1

Lab ID: 1501067-22

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0638	03/25/2015	03/26/15 12:26	
Arsenic	**8.1**	1.0	1	B5C0638	03/25/2015	03/26/15 12:26	
Barium	**43**	1.0	1	B5C0638	03/25/2015	03/26/15 12:26	
Beryllium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:26	
Cadmium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:26	
Chromium	**22**	1.0	1	B5C0638	03/25/2015	03/26/15 12:26	
Cobalt	**5.0**	1.0	1	B5C0638	03/25/2015	03/26/15 12:26	
Copper	**14**	2.0	1	B5C0638	03/25/2015	03/26/15 12:26	
Lead	**36**	1.0	1	B5C0638	03/25/2015	03/26/15 12:26	
Molybdenum	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:26	
Nickel	**22**	1.0	1	B5C0638	03/25/2015	03/26/15 12:26	
Selenium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:26	
Silver	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:26	
Thallium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:26	
Vanadium	**20**	1.0	1	B5C0638	03/25/2015	03/26/15 12:26	
Zinc	**40**	1.0	1	B5C0638	03/25/2015	03/26/15 12:26	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5C0642	03/25/2015	03/26/15 12:40	

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: BT/

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B5C0633	03/24/2015	03/25/15 14:30	
Surrogate: 4-Bromofluorobenzene	*95.0 %*	*37 - 153*		B5C0633	03/24/2015	*03/25/15 14:30*	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**18**	2.0	2	B5C0654	03/25/2015	03/26/15 03:05	
ORO	**61**	2.0	2	B5C0654	03/25/2015	03/26/15 03:05	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B7-1

Lab ID: 1501067-22

Diesel Range Organics by EPA 8015B — **Analyst: CR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: p-Terphenyl	*60.9 %*	*26 - 123*		B5C0654	03/25/2015	*03/26/15 03:05*	

pH by EPA 9045C — **Analyst: LA**

Analyte	Result (pH Units)	PQL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**7.2**	0.10	1	B5C0681	03/26/2015	03/26/15 13:28	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B8-0

Lab ID: 1501067-23

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0638	03/25/2015	03/26/15 12:32	
Arsenic	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:32	
Barium	**53**	1.0	1	B5C0638	03/25/2015	03/26/15 12:32	
Beryllium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:32	
Cadmium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:32	
Chromium	**51**	1.0	1	B5C0638	03/25/2015	03/26/15 12:32	
Cobalt	**4.6**	1.0	1	B5C0638	03/25/2015	03/26/15 12:32	
Copper	**48**	2.0	1	B5C0638	03/25/2015	03/26/15 12:32	
Lead	**190**	1.0	1	B5C0638	03/25/2015	03/26/15 12:32	
Molybdenum	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:32	
Nickel	**21**	1.0	1	B5C0638	03/25/2015	03/26/15 12:32	
Selenium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:32	
Silver	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:32	
Thallium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:32	
Vanadium	**19**	1.0	1	B5C0638	03/25/2015	03/26/15 12:32	
Zinc	**110**	1.0	1	B5C0638	03/25/2015	03/26/15 12:32	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.18**	0.10	1	B5C0642	03/25/2015	03/26/15 12:50	

pH by EPA 9045C

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**7.5**	0.10	1	B5C0681	03/26/2015	03/26/15 13:28	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B8-1

Lab ID: 1501067-24

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0638	03/25/2015	03/26/15 12:34	
Arsenic	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:34	
Barium	**33**	1.0	1	B5C0638	03/25/2015	03/26/15 12:34	
Beryllium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:34	
Cadmium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:34	
Chromium	**22**	1.0	1	B5C0638	03/25/2015	03/26/15 12:34	
Cobalt	**3.9**	1.0	1	B5C0638	03/25/2015	03/26/15 12:34	
Copper	**14**	2.0	1	B5C0638	03/25/2015	03/26/15 12:34	
Lead	**28**	1.0	1	B5C0638	03/25/2015	03/26/15 12:34	
Molybdenum	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:34	
Nickel	**22**	1.0	1	B5C0638	03/25/2015	03/26/15 12:34	
Selenium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:34	
Silver	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:34	
Thallium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:34	
Vanadium	**16**	1.0	1	B5C0638	03/25/2015	03/26/15 12:34	
Zinc	**35**	1.0	1	B5C0638	03/25/2015	03/26/15 12:34	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5C0642	03/25/2015	03/26/15 12:52	

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: BT/

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B5C0633	03/24/2015	03/25/15 14:46	
Surrogate: 4-Bromofluorobenzene	*94.9 %*	*37 - 153*		B5C0633	03/24/2015	*03/25/15 14:46*	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**26**	2.0	2	B5C0652	03/25/2015	03/25/15 16:05	
ORO	**84**	2.0	2	B5C0652	03/25/2015	03/25/15 16:05	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B8-1

Lab ID: 1501067-24

Diesel Range Organics by EPA 8015B **Analyst: CR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: p-Terphenyl	*60.0 %*	*26 - 123*		B5C0652	03/25/2015	*03/25/15 16:05*	

pH by EPA 9045C **Analyst: LA**

Analyte	Result (pH Units)	PQL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**7.2**	0.10	1	B5C0681	03/26/2015	03/26/15 13:28	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B9-0

Lab ID: 1501067-25

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: RR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0638	03/25/2015	03/26/15 12:36	
Arsenic	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:36	
Barium	**71**	1.0	1	B5C0638	03/25/2015	03/26/15 12:36	
Beryllium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:36	
Cadmium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:36	
Chromium	**61**	1.0	1	B5C0638	03/25/2015	03/26/15 12:36	
Cobalt	**4.6**	1.0	1	B5C0638	03/25/2015	03/26/15 12:36	
Copper	**62**	2.0	1	B5C0638	03/25/2015	03/26/15 12:36	
Lead	**290**	1.0	1	B5C0638	03/25/2015	03/26/15 12:36	
Molybdenum	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:36	
Nickel	**24**	1.0	1	B5C0638	03/25/2015	03/26/15 12:36	
Selenium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:36	
Silver	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:36	
Thallium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:36	
Vanadium	**20**	1.0	1	B5C0638	03/25/2015	03/26/15 12:36	
Zinc	**130**	1.0	1	B5C0638	03/25/2015	03/26/15 12:36	

Mercury by AA (Cold Vapor) EPA 7471A — **Analyst: SB**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.30**	0.10	1	B5C0642	03/25/2015	03/26/15 12:54	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B9-1

Lab ID: 1501067-26

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0638	03/25/2015	03/26/15 12:38	
Arsenic	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:38	
Barium	**45**	1.0	1	B5C0638	03/25/2015	03/26/15 12:38	
Beryllium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:38	
Cadmium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:38	
Chromium	**22**	1.0	1	B5C0638	03/25/2015	03/26/15 12:38	
Cobalt	**4.4**	1.0	1	B5C0638	03/25/2015	03/26/15 12:38	
Copper	**14**	2.0	1	B5C0638	03/25/2015	03/26/15 12:38	
Lead	**47**	1.0	1	B5C0638	03/25/2015	03/26/15 12:38	
Molybdenum	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:38	
Nickel	**19**	1.0	1	B5C0638	03/25/2015	03/26/15 12:38	
Selenium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:38	
Silver	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:38	
Thallium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:38	
Vanadium	**20**	1.0	1	B5C0638	03/25/2015	03/26/15 12:38	
Zinc	**43**	1.0	1	B5C0638	03/25/2015	03/26/15 12:38	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5C0642	03/25/2015	03/26/15 13:00	

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: BT/

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B5C0633	03/24/2015	03/25/15 15:02	
Surrogate: 4-Bromofluorobenzene	*94.8 %*	*37 - 153*		B5C0633	03/24/2015	*03/25/15 15:02*	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**12**	1.0	1	B5C0652	03/25/2015	03/25/15 15:31	
ORO	**37**	1.0	1	B5C0652	03/25/2015	03/25/15 15:31	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B9-1

Lab ID: 1501067-26

Diesel Range Organics by EPA 8015B **Analyst: CR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: p-Terphenyl	*71.3 %*	*26 - 123*		B5C0652	03/25/2015	*03/25/15 15:31*	

pH by EPA 9045C **Analyst: LA**

Analyte	Result (pH Units)	PQL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**8.4**	0.10	1	B5C0681	03/26/2015	03/26/15 13:28	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B10-0

Lab ID: 1501067-27

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0638	03/25/2015	03/26/15 12:43	
Arsenic	**2.9**	1.0	1	B5C0638	03/25/2015	03/26/15 12:43	
Barium	**60**	1.0	1	B5C0638	03/25/2015	03/26/15 12:43	
Beryllium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:43	
Cadmium	**1.2**	1.0	1	B5C0638	03/25/2015	03/26/15 12:43	
Chromium	**80**	1.0	1	B5C0638	03/25/2015	03/26/15 12:43	
Cobalt	**9.2**	1.0	1	B5C0638	03/25/2015	03/26/15 12:43	
Copper	**66**	2.0	1	B5C0638	03/25/2015	03/26/15 12:43	
Lead	**480**	1.0	1	B5C0638	03/25/2015	03/26/15 12:43	
Molybdenum	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:43	
Nickel	**27**	1.0	1	B5C0638	03/25/2015	03/26/15 12:43	
Selenium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:43	
Silver	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:43	
Thallium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:43	
Vanadium	**25**	1.0	1	B5C0638	03/25/2015	03/26/15 12:43	
Zinc	**180**	1.0	1	B5C0638	03/25/2015	03/26/15 12:43	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.28**	0.10	1	B5C0642	03/25/2015	03/26/15 13:02	

pH by EPA 9045C

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**6.8**	0.10	1	B5C0681	03/26/2015	03/26/15 13:28	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B10-1.5

Lab ID: 1501067-28

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**2.4**	2.0	1	B5C0638	03/25/2015	03/26/15 12:45	
Arsenic	**5.0**	1.0	1	B5C0638	03/25/2015	03/26/15 12:45	
Barium	**45**	1.0	1	B5C0638	03/25/2015	03/26/15 12:45	
Beryllium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:45	
Cadmium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:45	
Chromium	**25**	1.0	1	B5C0638	03/25/2015	03/26/15 12:45	
Cobalt	**11**	1.0	1	B5C0638	03/25/2015	03/26/15 12:45	
Copper	**22**	2.0	1	B5C0638	03/25/2015	03/26/15 12:45	
Lead	**23**	1.0	1	B5C0638	03/25/2015	03/26/15 12:45	
Molybdenum	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:45	
Nickel	**26**	1.0	1	B5C0638	03/25/2015	03/26/15 12:45	
Selenium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:45	
Silver	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:45	
Thallium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:45	
Vanadium	**27**	1.0	1	B5C0638	03/25/2015	03/26/15 12:45	
Zinc	**66**	1.0	1	B5C0638	03/25/2015	03/26/15 12:45	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.46**	0.10	1	B5C0642	03/25/2015	03/26/15 13:04	

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: BT/

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B5C0633	03/24/2015	03/25/15 15:17	
Surrogate: 4-Bromofluorobenzene	*95.1 %*	*37 - 153*		B5C0633	03/24/2015	*03/25/15 15:17*	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**11**	1.0	1	B5C0652	03/25/2015	03/25/15 14:23	
ORO	**26**	1.0	1	B5C0652	03/25/2015	03/25/15 14:23	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDI
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B10-1.5

Lab ID: 1501067-28

Diesel Range Organics by EPA 8015B **Analyst: CR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: p-Terphenyl	*61.1 %*	*26 - 123*		B5C0652	03/25/2015	*03/25/15 14:23*	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B11-0

Lab ID: 1501067-29

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0638	03/25/2015	03/26/15 12:46	
Arsenic	**5.8**	1.0	1	B5C0638	03/25/2015	03/26/15 12:46	
Barium	**89**	1.0	1	B5C0638	03/25/2015	03/26/15 12:46	
Beryllium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:46	
Cadmium	**1.4**	1.0	1	B5C0638	03/25/2015	03/26/15 12:46	
Chromium	**140**	1.0	1	B5C0638	03/25/2015	03/26/15 12:46	
Cobalt	**5.9**	1.0	1	B5C0638	03/25/2015	03/26/15 12:46	
Copper	**76**	2.0	1	B5C0638	03/25/2015	03/26/15 12:46	
Lead	**380**	1.0	1	B5C0638	03/25/2015	03/26/15 12:46	
Molybdenum	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:46	
Nickel	**27**	1.0	1	B5C0638	03/25/2015	03/26/15 12:46	
Selenium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:46	
Silver	**1.1**	1.0	1	B5C0638	03/25/2015	03/26/15 12:46	
Thallium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:46	
Vanadium	**26**	1.0	1	B5C0638	03/25/2015	03/26/15 12:46	
Zinc	**290**	1.0	1	B5C0638	03/25/2015	03/26/15 12:46	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.55**	0.10	1	B5C0642	03/25/2015	03/26/15 13:06	

pH by EPA 9045C

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**5.4**	0.10	1	B5C0681	03/26/2015	03/26/15 13:28	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B11-1.5

Lab ID: 1501067-30

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0638	03/25/2015	03/26/15 12:48	
Arsenic	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:48	
Barium	**41**	1.0	1	B5C0638	03/25/2015	03/26/15 12:48	
Beryllium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:48	
Cadmium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:48	
Chromium	**45**	1.0	1	B5C0638	03/25/2015	03/26/15 12:48	
Cobalt	**5.1**	1.0	1	B5C0638	03/25/2015	03/26/15 12:48	
Copper	**12**	2.0	1	B5C0638	03/25/2015	03/26/15 12:48	
Lead	**36**	1.0	1	B5C0638	03/25/2015	03/26/15 12:48	
Molybdenum	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:48	
Nickel	**26**	1.0	1	B5C0638	03/25/2015	03/26/15 12:48	
Selenium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:48	
Silver	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:48	
Thallium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:48	
Vanadium	**31**	1.0	1	B5C0638	03/25/2015	03/26/15 12:48	
Zinc	**30**	1.0	1	B5C0638	03/25/2015	03/26/15 12:48	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5C0642	03/25/2015	03/26/15 13:08	

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: BT/

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B5C0633	03/24/2015	03/25/15 12:22	
Surrogate: 4-Bromofluorobenzene	*94.9 %*	*37 - 153*		B5C0633	03/24/2015	*03/25/15 12:22*	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**5.0**	1.0	1	B5C0652	03/25/2015	03/25/15 14:06	
ORO	**12**	1.0	1	B5C0652	03/25/2015	03/25/15 14:06	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDI
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B11-1.5

Lab ID: 1501067-30

Diesel Range Organics by EPA 8015B **Analyst: CR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: p-Terphenyl	*55.9 %*	*26 - 123*		B5C0652	03/25/2015	*03/25/15 14:06*	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B12-0

Lab ID: 1501067-31

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0638	03/25/2015	03/26/15 12:49	
Arsenic	**6.2**	1.0	1	B5C0638	03/25/2015	03/26/15 12:49	
Barium	**68**	1.0	1	B5C0638	03/25/2015	03/26/15 12:49	
Beryllium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:49	
Cadmium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:49	
Chromium	**71**	1.0	1	B5C0638	03/25/2015	03/26/15 12:49	
Cobalt	**5.4**	1.0	1	B5C0638	03/25/2015	03/26/15 12:49	
Copper	**340**	2.0	1	B5C0638	03/25/2015	03/26/15 12:49	
Lead	**160**	1.0	1	B5C0638	03/25/2015	03/26/15 12:49	
Molybdenum	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:49	
Nickel	**25**	1.0	1	B5C0638	03/25/2015	03/26/15 12:49	
Selenium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:49	
Silver	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:49	
Thallium	ND	1.0	1	B5C0638	03/25/2015	03/26/15 12:49	
Vanadium	**26**	1.0	1	B5C0638	03/25/2015	03/26/15 12:49	
Zinc	**340**	1.0	1	B5C0638	03/25/2015	03/26/15 12:49	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	**0.30**	0.10	1	B5C0642	03/25/2015	03/26/15 13:10	

pH by EPA 9045C

Analyst: LA

Analyte	Result (pH Units)	PQL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**4.9**	0.10	1	B5C0681	03/26/2015	03/26/15 13:28	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B12-1.5

Lab ID: 1501067-32

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0639	03/25/2015	03/26/15 13:14	
Arsenic	**1.3**	1.0	1	B5C0639	03/25/2015	03/26/15 13:14	
Barium	**38**	1.0	1	B5C0639	03/25/2015	03/26/15 13:14	
Beryllium	ND	1.0	1	B5C0639	03/25/2015	03/26/15 13:14	
Cadmium	ND	1.0	1	B5C0639	03/25/2015	03/26/15 13:14	
Chromium	**58**	1.0	1	B5C0639	03/25/2015	03/26/15 13:14	
Cobalt	**5.0**	1.0	1	B5C0639	03/25/2015	03/26/15 13:14	
Copper	**18**	2.0	1	B5C0639	03/25/2015	03/26/15 13:14	
Lead	**61**	1.0	1	B5C0639	03/25/2015	03/26/15 13:14	
Molybdenum	ND	1.0	1	B5C0639	03/25/2015	03/26/15 13:14	
Nickel	**26**	1.0	1	B5C0639	03/25/2015	03/26/15 13:14	
Selenium	ND	1.0	1	B5C0639	03/25/2015	03/26/15 13:14	
Silver	ND	1.0	1	B5C0639	03/25/2015	03/26/15 13:14	
Thallium	ND	1.0	1	B5C0639	03/25/2015	03/26/15 13:14	
Vanadium	**25**	1.0	1	B5C0639	03/25/2015	03/26/15 13:14	
Zinc	**56**	1.0	1	B5C0639	03/25/2015	03/26/15 13:14	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5C0643	03/25/2015	03/26/15 13:16	

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: BT/

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B5C0634	03/24/2015	03/25/15 20:48	
Surrogate: 4-Bromofluorobenzene	*92.4 %*	*37 - 153*		B5C0634	03/24/2015	*03/25/15 20:48*	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**47**	1.0	1	B5C0652	03/25/2015	03/25/15 15:48	
ORO	**110**	1.0	1	B5C0652	03/25/2015	03/25/15 15:48	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B12-1.5

Lab ID: 1501067-32

Diesel Range Organics by EPA 8015B **Analyst: CR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: p-Terphenyl	*59.4 %*	*26 - 123*		B5C0652	03/25/2015	*03/25/15 15:48*	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B12-3.5

Lab ID: 1501067-33

Title 22 Metals by ICP-AES EPA 6010B

Analyst: RR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B5C0639	03/25/2015	03/26/15 13:21	
Arsenic	ND	1.0	1	B5C0639	03/25/2015	03/26/15 13:21	
Barium	**54**	1.0	1	B5C0639	03/25/2015	03/26/15 13:21	
Beryllium	ND	1.0	1	B5C0639	03/25/2015	03/26/15 13:21	
Cadmium	ND	1.0	1	B5C0639	03/25/2015	03/26/15 13:21	
Chromium	**44**	1.0	1	B5C0639	03/25/2015	03/26/15 13:21	
Cobalt	**6.6**	1.0	1	B5C0639	03/25/2015	03/26/15 13:21	
Copper	**19**	2.0	1	B5C0639	03/25/2015	03/26/15 13:21	
Lead	**27**	1.0	1	B5C0639	03/25/2015	03/26/15 13:21	
Molybdenum	ND	1.0	1	B5C0639	03/25/2015	03/26/15 13:21	
Nickel	**28**	1.0	1	B5C0639	03/25/2015	03/26/15 13:21	
Selenium	ND	1.0	1	B5C0639	03/25/2015	03/26/15 13:21	
Silver	ND	1.0	1	B5C0639	03/25/2015	03/26/15 13:21	
Thallium	ND	1.0	1	B5C0639	03/25/2015	03/26/15 13:21	
Vanadium	**32**	1.0	1	B5C0639	03/25/2015	03/26/15 13:21	
Zinc	**41**	1.0	1	B5C0639	03/25/2015	03/26/15 13:21	

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: SB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.10	1	B5C0643	03/25/2015	03/26/15 13:31	

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**15**	1.0	1	B5C0652	03/25/2015	03/25/15 13:49	
ORO	**31**	1.0	1	B5C0652	03/25/2015	03/25/15 13:49	
Surrogate: p-Terphenyl	*49.0 %*	*26 - 123*		B5C0652	03/25/2015	*03/25/15 13:49*	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDI
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Client Sample ID B12-3.5

Lab ID: 1501067-33

pH by EPA 9045C **Analyst: LA**

Analyte	Result (pH Units)	PQL (pH Units)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
pH	**7.2**	0.10	1	B5C0681	03/26/2015	03/26/15 13:28	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

QUALITY CONTROL SECTION

Title 22 Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0635 - EPA 3050B_S									
Blank (B5C0635-BLK1)					Prepared: 3/25/2015 Analyzed: 3/26/2015				
Antimony	ND	2.0			NR				
Arsenic	ND	1.0			NR				
Barium	ND	1.0			NR				
Beryllium	ND	1.0			NR				
Cadmium	ND	1.0			NR				
Chromium	ND	1.0			NR				
Cobalt	ND	1.0			NR				
Copper	ND	2.0			NR				
Lead	ND	1.0			NR				
Molybdenum	ND	1.0			NR				
Nickel	ND	1.0			NR				
Selenium	ND	1.0			NR				
Silver	ND	1.0			NR				
Thallium	ND	1.0			NR				
Vanadium	ND	1.0			NR				
Zinc	ND	1.0			NR				
LCS (B5C0635-BS1)					Prepared: 3/25/2015 Analyzed: 3/26/2015				
Antimony	46.5719	2.0	50.0000		93.1	80 - 120			
Arsenic	44.9061	1.0	50.0000		89.8	80 - 120			
Barium	49.3937	1.0	50.0000		98.8	80 - 120			
Beryllium	47.6194	1.0	50.0000		95.2	80 - 120			
Cadmium	47.2647	1.0	50.0000		94.5	80 - 120			
Chromium	50.2498	1.0	50.0000		100	80 - 120			
Cobalt	50.1814	1.0	50.0000		100	80 - 120			
Copper	49.0684	2.0	50.0000		98.1	80 - 120			
Lead	47.2423	1.0	50.0000		94.5	80 - 120			
Molybdenum	49.1594	1.0	50.0000		98.3	80 - 120			
Nickel	47.9727	1.0	50.0000		95.9	80 - 120			
Selenium	43.1052	1.0	50.0000		86.2	80 - 120			
Silver	46.9889	1.0	50.0000		94.0	80 - 120			
Thallium	46.9597	1.0	50.0000		93.9	80 - 120			
Vanadium	48.8263	1.0	50.0000		97.7	80 - 120			
Zinc	46.2742	1.0	50.0000		92.5	80 - 120			
Duplicate (B5C0635-DUP1)		**Source: 1501067-01**			Prepared: 3/25/2015 Analyzed: 3/26/2015				
Antimony	ND	2.0		0.364897	NR			20	
Arsenic	1.01570	1.0		1.18200	NR		15.1	20	
Barium	40.3602	1.0		43.3693	NR		7.19	20	
Beryllium	ND	1.0		0.057124	NR			20	

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

Project Number : CALTRANS, SF 280 SHOULDER WIDE
Report To : Rick Day
Reported : 03/26/2015

Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0635 - EPA 3050B_S (continued)									
Duplicate (B5C0635-DUP1) - Continued		**Source: 1501067-01**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Cadmium	0.273418	1.0		0.357711	NR		26.7	20	R
Chromium	53.1168	1.0		54.6522	NR		2.85	20	
Cobalt	3.03099	1.0		3.28041	NR		7.90	20	
Copper	21.0938	2.0		24.2280	NR		13.8	20	
Lead	67.0051	1.0		71.4457	NR		6.41	20	
Molybdenum	0.094010	1.0		0.251355	NR		91.1	20	R
Nickel	15.9021	1.0		16.5494	NR		3.99	20	
Selenium	ND	1.0		ND	NR			20	
Silver	ND	1.0		0.067602	NR			20	
Thallium	ND	1.0		ND	NR			20	
Vanadium	19.4449	1.0		19.6114	NR		0.853	20	
Zinc	67.7278	1.0		73.6636	NR		8.40	20	
Matrix Spike (B5C0635-MS1)		**Source: 1501067-01**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Antimony	106.550	2.0	125.000	0.364897	84.9	28 - 106			
Arsenic	112.780	1.0	125.000	1.18200	89.3	57 - 109			
Barium	159.026	1.0	125.000	43.3693	92.5	18 - 159			
Beryllium	118.710	1.0	125.000	0.057124	94.9	61 - 107			
Cadmium	108.939	1.0	125.000	0.357711	86.9	53 - 104			
Chromium	169.807	1.0	125.000	54.6522	92.1	53 - 121			
Cobalt	117.081	1.0	125.000	3.28041	91.0	55 - 109			
Copper	146.387	2.0	125.000	24.2280	97.7	58 - 124			
Lead	179.151	1.0	125.000	71.4457	86.2	35 - 129			
Molybdenum	116.472	1.0	125.000	0.251355	93.0	57 - 108			
Nickel	127.233	1.0	125.000	16.5494	88.5	44 - 122			
Selenium	108.372	1.0	125.000	ND	86.7	54 - 104			
Silver	110.443	1.0	125.000	0.067602	88.3	60 - 112			
Thallium	107.286	1.0	125.000	ND	85.8	50 - 103			
Vanadium	133.890	1.0	125.000	19.6114	91.4	54 - 123			
Zinc	179.844	1.0	125.000	73.6636	84.9	29 - 132			
Matrix Spike Dup (B5C0635-MSD1)		**Source: 1501067-01**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Antimony	104.745	2.0	125.000	0.364897	83.5	28 - 106	1.71	20	
Arsenic	112.212	1.0	125.000	1.18200	88.8	57 - 109	0.505	20	
Barium	158.761	1.0	125.000	43.3693	92.3	18 - 159	0.167	20	
Beryllium	117.405	1.0	125.000	0.057124	93.9	61 - 107	1.11	20	
Cadmium	108.531	1.0	125.000	0.357711	86.5	53 - 104	0.375	20	
Chromium	168.371	1.0	125.000	54.6522	91.0	53 - 121	0.849	20	
Cobalt	116.224	1.0	125.000	3.28041	90.4	55 - 109	0.734	20	
Copper	145.824	2.0	125.000	24.2280	97.3	58 - 124	0.386	20	
Lead	182.586	1.0	125.000	71.4457	88.9	35 - 129	1.90	20	
Molybdenum	115.436	1.0	125.000	0.251355	92.1	57 - 108	0.893	20	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0635 - EPA 3050B_S (continued)									
Matrix Spike Dup (B5C0635-MSD1) - Continued		**Source: 1501067-01**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Nickel	127.192	1.0	125.000	16.5494	88.5	44 - 122	0.0321	20	
Selenium	108.632	1.0	125.000	ND	86.9	54 - 104	0.240	20	
Silver	108.484	1.0	125.000	0.067602	86.7	60 - 112	1.79	20	
Thallium	106.043	1.0	125.000	ND	84.8	50 - 103	1.17	20	
Vanadium	132.682	1.0	125.000	19.6114	90.5	54 - 123	0.906	20	
Zinc	182.608	1.0	125.000	73.6636	87.2	29 - 132	1.53	20	
Batch B5C0637 - EPA 3050B_S									
Blank (B5C0637-BLK1)				Prepared: 3/25/2015 Analyzed: 3/26/2015					
Antimony	ND	2.0			NR				
Arsenic	ND	1.0			NR				
Barium	ND	1.0			NR				
Beryllium	ND	1.0			NR				
Cadmium	ND	1.0			NR				
Chromium	ND	1.0			NR				
Cobalt	ND	1.0			NR				
Copper	ND	2.0			NR				
Lead	ND	1.0			NR				
Molybdenum	ND	1.0			NR				
Nickel	ND	1.0			NR				
Selenium	ND	1.0			NR				
Silver	ND	1.0			NR				
Thallium	ND	1.0			NR				
Vanadium	ND	1.0			NR				
Zinc	ND	1.0			NR				
LCS (B5C0637-BS1)				Prepared: 3/25/2015 Analyzed: 3/26/2015					
Antimony	46.6876	2.0	50.0000		93.4	80 - 120			
Arsenic	45.0598	1.0	50.0000		90.1	80 - 120			
Barium	49.9676	1.0	50.0000		99.9	80 - 120			
Beryllium	47.1891	1.0	50.0000		94.4	80 - 120			
Cadmium	47.5922	1.0	50.0000		95.2	80 - 120			
Chromium	50.4490	1.0	50.0000		101	80 - 120			
Cobalt	50.4988	1.0	50.0000		101	80 - 120			
Copper	49.1361	2.0	50.0000		98.3	80 - 120			
Lead	47.5363	1.0	50.0000		95.1	80 - 120			
Molybdenum	49.5599	1.0	50.0000		99.1	80 - 120			
Nickel	47.7326	1.0	50.0000		95.5	80 - 120			
Selenium	43.2253	1.0	50.0000		86.5	80 - 120			
Silver	47.2374	1.0	50.0000		94.5	80 - 120			

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDI
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0637 - EPA 3050B_S (continued)									
LCS (B5C0637-BS1) - Continued				Prepared: 3/25/2015 Analyzed: 3/26/2015					
Thallium	46.9937	1.0	50.0000		94.0	80 - 120			
Vanadium	48.9205	1.0	50.0000		97.8	80 - 120			
Zinc	46.6136	1.0	50.0000		93.2	80 - 120			
Duplicate (B5C0637-DUP1)		**Source: 1501067-12**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Antimony	0.315276	2.0		ND	NR			20	
Arsenic	2.68842	1.0		0.719076	NR		116	20	R
Barium	40.4557	1.0		36.7170	NR		9.69	20	
Beryllium	0.104577	1.0		ND	NR			20	
Cadmium	0.372701	1.0		0.541634	NR		37.0	20	R
Chromium	43.2180	1.0		47.2344	NR		8.88	20	
Cobalt	6.10021	1.0		5.83221	NR		4.49	20	
Copper	22.8724	2.0		26.0446	NR		13.0	20	
Lead	75.2552	1.0		90.7438	NR		18.7	20	
Molybdenum	0.193567	1.0		ND	NR			20	
Nickel	19.5453	1.0		18.5830	NR		5.05	20	
Selenium	ND	1.0		ND	NR			20	
Silver	ND	1.0		ND	NR			20	
Thallium	ND	1.0		ND	NR			20	
Vanadium	23.5927	1.0		25.1200	NR		6.27	20	
Zinc	87.6689	1.0		84.5396	NR		3.63	20	
Matrix Spike (B5C0637-MS1)		**Source: 1501067-12**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Antimony	99.6778	2.0	125.000	ND	79.7	28 - 106			
Arsenic	105.800	1.0	125.000	0.719076	84.1	57 - 109			
Barium	144.229	1.0	125.000	36.7170	86.0	18 - 159			
Beryllium	110.757	1.0	125.000	ND	88.6	61 - 107			
Cadmium	103.174	1.0	125.000	0.541634	82.1	53 - 104			
Chromium	153.228	1.0	125.000	47.2344	84.8	53 - 121			
Cobalt	111.627	1.0	125.000	5.83221	84.6	55 - 109			
Copper	137.641	2.0	125.000	26.0446	89.3	58 - 124			
Lead	184.042	1.0	125.000	90.7438	74.6	35 - 129			
Molybdenum	109.671	1.0	125.000	ND	87.7	57 - 108			
Nickel	122.852	1.0	125.000	18.5830	83.4	44 - 122			
Selenium	100.914	1.0	125.000	ND	80.7	54 - 104			
Silver	103.937	1.0	125.000	ND	83.1	60 - 112			
Thallium	100.036	1.0	125.000	ND	80.0	50 - 103			
Vanadium	128.210	1.0	125.000	25.1200	82.5	54 - 123			
Zinc	177.333	1.0	125.000	84.5396	74.2	29 - 132			
Matrix Spike Dup (B5C0637-MSD1)		**Source: 1501067-12**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Antimony	98.9212	2.0	124.378	ND	79.5	28 - 106	0.762	20	

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0637 - EPA 3050B_S (continued)									
Matrix Spike Dup (B5C0637-MSD1) - Continued		**Source: 1501067-12**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Arsenic	106.795	1.0	124.378	0.719076	85.3	57 - 109	0.936	20	
Barium	145.428	1.0	124.378	36.7170	87.4	18 - 159	0.828	20	
Beryllium	113.467	1.0	124.378	ND	91.2	61 - 107	2.42	20	
Cadmium	104.361	1.0	124.378	0.541634	83.5	53 - 104	1.14	20	
Chromium	152.076	1.0	124.378	47.2344	84.3	53 - 121	0.754	20	
Cobalt	112.267	1.0	124.378	5.83221	85.6	55 - 109	0.571	20	
Copper	144.866	2.0	124.378	26.0446	95.5	58 - 124	5.12	20	
Lead	179.608	1.0	124.378	90.7438	71.4	35 - 129	2.44	20	
Molybdenum	110.368	1.0	124.378	ND	88.7	57 - 108	0.633	20	
Nickel	123.101	1.0	124.378	18.5830	84.0	44 - 122	0.202	20	
Selenium	102.640	1.0	124.378	ND	82.5	54 - 104	1.70	20	
Silver	104.108	1.0	124.378	ND	83.7	60 - 112	0.164	20	
Thallium	101.675	1.0	124.378	ND	81.7	50 - 103	1.62	20	
Vanadium	128.800	1.0	124.378	25.1200	83.4	54 - 123	0.459	20	
Zinc	177.409	1.0	124.378	84.5396	74.7	29 - 132	0.0428	20	
Batch B5C0638 - EPA 3050B_S									
Blank (B5C0638-BLK1)				Prepared: 3/25/2015 Analyzed: 3/26/2015					
Antimony	ND	2.0			NR				
Arsenic	ND	1.0			NR				
Barium	ND	1.0			NR				
Beryllium	ND	1.0			NR				
Cadmium	ND	1.0			NR				
Chromium	ND	1.0			NR				
Cobalt	ND	1.0			NR				
Copper	ND	2.0			NR				
Lead	ND	1.0			NR				
Molybdenum	ND	1.0			NR				
Nickel	ND	1.0			NR				
Selenium	ND	1.0			NR				
Silver	ND	1.0			NR				
Thallium	ND	1.0			NR				
Vanadium	ND	1.0			NR				
Zinc	ND	1.0			NR				
LCS (B5C0638-BS1)				Prepared: 3/25/2015 Analyzed: 3/26/2015					
Antimony	45.8570	2.0	50.0000		91.7	80 - 120			
Arsenic	44.2991	1.0	50.0000		88.6	80 - 120			
Barium	48.9702	1.0	50.0000		97.9	80 - 120			
Beryllium	47.0098	1.0	50.0000		94.0	80 - 120			

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0638 - EPA 3050B_S (continued)									
LCS (B5C0638-BS1) - Continued				Prepared: 3/25/2015 Analyzed: 3/26/2015					
Cadmium	46.9128	1.0	50.0000		93.8	80 - 120			
Chromium	49.5216	1.0	50.0000		99.0	80 - 120			
Cobalt	49.3973	1.0	50.0000		98.8	80 - 120			
Copper	48.6117	2.0	50.0000		97.2	80 - 120			
Lead	47.0688	1.0	50.0000		94.1	80 - 120			
Molybdenum	48.5841	1.0	50.0000		97.2	80 - 120			
Nickel	47.4883	1.0	50.0000		95.0	80 - 120			
Selenium	42.5184	1.0	50.0000		85.0	80 - 120			
Silver	46.2032	1.0	50.0000		92.4	80 - 120			
Thallium	46.4272	1.0	50.0000		92.9	80 - 120			
Vanadium	48.4732	1.0	50.0000		96.9	80 - 120			
Zinc	46.4457	1.0	50.0000		92.9	80 - 120			
Duplicate (B5C0638-DUP1)		**Source: 1501067-22**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Antimony	ND	2.0		ND	NR			20	
Arsenic	7.79406	1.0		8.08735	NR		3.69	20	
Barium	48.4039	1.0		43.3837	NR		10.9	20	
Beryllium	0.046911	1.0		0.061496	NR		26.9	20	R
Cadmium	0.300300	1.0		0.277921	NR		7.74	20	
Chromium	22.2526	1.0		21.6856	NR		2.58	20	
Cobalt	4.89378	1.0		4.96343	NR		1.41	20	
Copper	13.8364	2.0		13.5011	NR		2.45	20	
Lead	75.0973	1.0		36.0922	NR		70.2	20	R
Molybdenum	ND	1.0		ND	NR			20	
Nickel	21.0643	1.0		22.3940	NR		6.12	20	
Selenium	ND	1.0		ND	NR			20	
Silver	ND	1.0		ND	NR			20	
Thallium	ND	1.0		ND	NR			20	
Vanadium	20.2609	1.0		20.1803	NR		0.399	20	
Zinc	41.4776	1.0		39.6851	NR		4.42	20	
Matrix Spike (B5C0638-MS1)		**Source: 1501067-22**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Antimony	96.4550	2.0	125.000	ND	77.2	28 - 106			
Arsenic	114.285	1.0	125.000	8.08735	85.0	57 - 109			
Barium	158.375	1.0	125.000	43.3837	92.0	18 - 159			
Beryllium	111.701	1.0	125.000	0.061496	89.3	61 - 107			
Cadmium	104.330	1.0	125.000	0.277921	83.2	53 - 104			
Chromium	137.087	1.0	125.000	21.6856	92.3	53 - 121			
Cobalt	112.373	1.0	125.000	4.96343	85.9	55 - 109			
Copper	133.584	2.0	125.000	13.5011	96.1	58 - 124			
Lead	155.105	1.0	125.000	36.0922	95.2	35 - 129			
Molybdenum	110.386	1.0	125.000	ND	88.3	57 - 108			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDI
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0638 - EPA 3050B_S (continued)									
Matrix Spike (B5C0638-MS1) - Continued		**Source: 1501067-22**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Nickel	125.823	1.0	125.000	22.3940	82.7	44 - 122			
Selenium	102.309	1.0	125.000	ND	81.8	54 - 104			
Silver	105.814	1.0	125.000	ND	84.7	60 - 112			
Thallium	100.083	1.0	125.000	ND	80.1	50 - 103			
Vanadium	131.672	1.0	125.000	20.1803	89.2	54 - 123			
Zinc	148.278	1.0	125.000	39.6851	86.9	29 - 132			
Matrix Spike Dup (B5C0638-MSD1)		**Source: 1501067-22**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Antimony	96.2326	2.0	125.000	ND	77.0	28 - 106	0.231	20	
Arsenic	111.556	1.0	125.000	8.08735	82.8	57 - 109	2.42	20	
Barium	149.833	1.0	125.000	43.3837	85.2	18 - 159	5.54	20	
Beryllium	112.649	1.0	125.000	0.061496	90.1	61 - 107	0.845	20	
Cadmium	102.734	1.0	125.000	0.277921	82.0	53 - 104	1.54	20	
Chromium	130.732	1.0	125.000	21.6856	87.2	53 - 121	4.75	20	
Cobalt	110.418	1.0	125.000	4.96343	84.4	55 - 109	1.75	20	
Copper	126.649	2.0	125.000	13.5011	90.5	58 - 124	5.33	20	
Lead	142.500	1.0	125.000	36.0922	85.1	35 - 129	8.47	20	
Molybdenum	109.602	1.0	125.000	ND	87.7	57 - 108	0.713	20	
Nickel	122.926	1.0	125.000	22.3940	80.4	44 - 122	2.33	20	
Selenium	101.491	1.0	125.000	ND	81.2	54 - 104	0.803	20	
Silver	104.328	1.0	125.000	ND	83.5	60 - 112	1.41	20	
Thallium	100.251	1.0	125.000	ND	80.2	50 - 103	0.168	20	
Vanadium	126.271	1.0	125.000	20.1803	84.9	54 - 123	4.19	20	
Zinc	137.777	1.0	125.000	39.6851	78.5	29 - 132	7.34	20	
Batch B5C0639 - EPA 3050B_S									
Blank (B5C0639-BLK1)				Prepared: 3/25/2015 Analyzed: 3/26/2015					
Antimony	ND	2.0			NR				
Arsenic	ND	1.0			NR				
Barium	ND	1.0			NR				
Beryllium	ND	1.0			NR				
Cadmium	ND	1.0			NR				
Chromium	ND	1.0			NR				
Cobalt	ND	1.0			NR				
Copper	ND	2.0			NR				
Lead	ND	1.0			NR				
Molybdenum	ND	1.0			NR				
Nickel	ND	1.0			NR				
Selenium	ND	1.0			NR				
Silver	ND	1.0			NR				

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0639 - EPA 3050B_S (continued)									
Blank (B5C0639-BLK1) - Continued					Prepared: 3/25/2015 Analyzed: 3/26/2015				
Thallium	ND	1.0			NR				
Vanadium	ND	1.0			NR				
Zinc	ND	1.0			NR				
LCS (B5C0639-BS1)					Prepared: 3/25/2015 Analyzed: 3/26/2015				
Antimony	45.3078	2.0	50.0000		90.6	80 - 120			
Arsenic	43.1481	1.0	50.0000		86.3	80 - 120			
Barium	47.7370	1.0	50.0000		95.5	80 - 120			
Beryllium	46.2255	1.0	50.0000		92.5	80 - 120			
Cadmium	45.6154	1.0	50.0000		91.2	80 - 120			
Chromium	48.6056	1.0	50.0000		97.2	80 - 120			
Cobalt	48.3001	1.0	50.0000		96.6	80 - 120			
Copper	47.0761	2.0	50.0000		94.2	80 - 120			
Lead	46.2442	1.0	50.0000		92.5	80 - 120			
Molybdenum	47.9875	1.0	50.0000		96.0	80 - 120			
Nickel	46.1161	1.0	50.0000		92.2	80 - 120			
Selenium	42.1984	1.0	50.0000		84.4	80 - 120			
Silver	45.1910	1.0	50.0000		90.4	80 - 120			
Thallium	45.9760	1.0	50.0000		92.0	80 - 120			
Vanadium	47.1305	1.0	50.0000		94.3	80 - 120			
Zinc	45.1203	1.0	50.0000		90.2	80 - 120			
Duplicate (B5C0639-DUP1)		**Source: 1501067-32**			Prepared: 3/25/2015 Analyzed: 3/26/2015				
Antimony	ND	2.0		ND	NR			20	
Arsenic	1.42838	1.0		1.25850	NR		12.6	20	
Barium	35.9979	1.0		37.5785	NR		4.30	20	
Beryllium	0.050922	1.0		0.058539	NR		13.9	20	
Cadmium	0.352927	1.0		0.350456	NR		0.703	20	
Chromium	50.3876	1.0		57.8639	NR		13.8	20	
Cobalt	4.45434	1.0		4.96915	NR		10.9	20	
Copper	16.5369	2.0		18.0111	NR		8.53	20	
Lead	52.1742	1.0		60.6002	NR		14.9	20	
Molybdenum	ND	1.0		ND	NR			20	
Nickel	23.4172	1.0		25.6219	NR		8.99	20	
Selenium	ND	1.0		ND	NR			20	
Silver	ND	1.0		ND	NR			20	
Thallium	ND	1.0		ND	NR			20	
Vanadium	26.1161	1.0		25.3652	NR		2.92	20	
Zinc	52.9618	1.0		56.0770	NR		5.71	20	
Matrix Spike (B5C0639-MS1)		**Source: 1501067-32**			Prepared: 3/25/2015 Analyzed: 3/26/2015				
Antimony	92.5325	2.0	125.000	ND	74.0	28 - 106			

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

Project Number : CALTRANS, SF 280 SHOULDER WIDE
Report To : Rick Day
Reported : 03/26/2015

Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0639 - EPA 3050B_S (continued)									
Matrix Spike (B5C0639-MS1) - Continued		**Source: 1501067-32**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Arsenic	101.005	1.0	125.000	1.25850	79.8	57 - 109			
Barium	139.923	1.0	125.000	37.5785	81.9	18 - 159			
Beryllium	107.638	1.0	125.000	0.058539	86.1	61 - 107			
Cadmium	99.8812	1.0	125.000	0.350456	79.6	53 - 104			
Chromium	154.522	1.0	125.000	57.8639	77.3	53 - 121			
Cobalt	107.597	1.0	125.000	4.96915	82.1	55 - 109			
Copper	129.874	2.0	125.000	18.0111	89.5	58 - 124			
Lead	157.172	1.0	125.000	60.6002	77.3	35 - 129			
Molybdenum	106.244	1.0	125.000	ND	85.0	57 - 108			
Nickel	125.350	1.0	125.000	25.6219	79.8	44 - 122			
Selenium	97.6777	1.0	125.000	ND	78.1	54 - 104			
Silver	100.376	1.0	125.000	ND	80.3	60 - 112			
Thallium	97.2047	1.0	125.000	ND	77.8	50 - 103			
Vanadium	130.404	1.0	125.000	25.3652	84.0	54 - 123			
Zinc	155.897	1.0	125.000	56.0770	79.9	29 - 132			
Matrix Spike Dup (B5C0639-MSD1)		**Source: 1501067-32**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Antimony	95.1616	2.0	125.000	ND	76.1	28 - 106	2.80	20	
Arsenic	102.702	1.0	125.000	1.25850	81.2	57 - 109	1.67	20	
Barium	139.476	1.0	125.000	37.5785	81.5	18 - 159	0.320	20	
Beryllium	107.612	1.0	125.000	0.058539	86.0	61 - 107	0.0237	20	
Cadmium	101.228	1.0	125.000	0.350456	80.7	53 - 104	1.34	20	
Chromium	158.407	1.0	125.000	57.8639	80.4	53 - 121	2.48	20	
Cobalt	109.006	1.0	125.000	4.96915	83.2	55 - 109	1.30	20	
Copper	131.703	2.0	125.000	18.0111	91.0	58 - 124	1.40	20	
Lead	162.910	1.0	125.000	60.6002	81.8	35 - 129	3.59	20	
Molybdenum	107.759	1.0	125.000	ND	86.2	57 - 108	1.42	20	
Nickel	125.782	1.0	125.000	25.6219	80.1	44 - 122	0.344	20	
Selenium	99.5254	1.0	125.000	ND	79.6	54 - 104	1.87	20	
Silver	101.982	1.0	125.000	ND	81.6	60 - 112	1.59	20	
Thallium	98.5410	1.0	125.000	ND	78.8	50 - 103	1.37	20	
Vanadium	130.172	1.0	125.000	25.3652	83.8	54 - 123	0.178	20	
Zinc	156.095	1.0	125.000	56.0770	80.0	29 - 132	0.127	20	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Lead by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0653 - EPA 3010A_W									
Blank (B5C0653-BLK1)				Prepared: 3/25/2015 Analyzed: 3/26/2015					
Lead	ND	0.0050			NR				
LCS (B5C0653-BS1)				Prepared: 3/25/2015 Analyzed: 3/26/2015					
Lead	1.00719	0.0050	1.00000		101	80 - 120			
Duplicate (B5C0653-DUP1)		**Source: 1501067-10**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Lead	0.005778	0.0050		0.006596	NR		13.2	20	
Matrix Spike (B5C0653-MS1)		**Source: 1501067-10**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Lead	2.39165	0.0050	2.50000	0.006596	95.4	85 - 114			
Matrix Spike Dup (B5C0653-MSD1)		**Source: 1501067-10**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Lead	2.32474	0.0050	2.50000	0.006596	92.7	85 - 114	2.84	20	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

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

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0636 - EPA 7471_S									
Blank (B5C0636-BLK1)					Prepared: 3/25/2015 Analyzed: 3/26/2015				
Mercury	ND	0.10			NR				

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0636 - EPA 7471_S (continued)									
LCS (B5C0636-BS1)				Prepared: 3/25/2015 Analyzed: 3/26/2015					
Mercury	0.861715	0.10	0.833333		103	80 - 120			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0636 - EPA 7471_S (continued)									
Duplicate (B5C0636-DUP1)		**Source: 1501067-01**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Mercury	0.166272	0.10		0.129412	NR		24.9	20	R

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0636 - EPA 7471_S (continued)									
Matrix Spike (B5C0636-MS1)		**Source: 1501067-01**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Mercury	1.29467	0.10	0.833333	0.129412	140	70 - 130			M1

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0636 - EPA 7471_S (continued)									
Matrix Spike Dup (B5C0636-MSD1)		**Source: 1501067-01**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Mercury	1.15471	0.10	0.833333	0.129412	123	70 - 130	11.4	20	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0636 - EPA 7471_S (continued)									
Post Spike (B5C0636-PS1)		**Source: 1501067-01**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Mercury	0.008331		5.00000E-3	0.001553	136	85 - 115			M1

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0641 - EPA 7471_S									
Blank (B5C0641-BLK1)					Prepared: 3/25/2015 Analyzed: 3/26/2015				
Mercury	ND	0.10			NR				

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0641 - EPA 7471_S (continued)									
LCS (B5C0641-BS1)					Prepared: 3/25/2015 Analyzed: 3/26/2015				
Mercury	0.851999	0.10	0.833333		102	80 - 120			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0641 - EPA 7471_S (continued)									
Duplicate (B5C0641-DUP1)		**Source: 1501067-12**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Mercury	0.207393	0.10		0.118456	NR		54.6	20	R

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0641 - EPA 7471_S (continued)									
Matrix Spike (B5C0641-MS1)		**Source: 1501067-12**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Mercury	1.11350	0.10	0.833333	0.118456	119	70 - 130			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0641 - EPA 7471_S (continued)									
Matrix Spike Dup (B5C0641-MSD1)		**Source: 1501067-12**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Mercury	1.14411	0.10	0.833333	0.118456	123	70 - 130	2.71	20	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0641 - EPA 7471_S (continued)									
Post Spike (B5C0641-PS1)		**Source: 1501067-12**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Mercury	0.007703		5.00000E-3	0.001421	126	85 - 115			M1

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0642 - EPA 7471_S									
Blank (B5C0642-BLK1)					Prepared: 3/25/2015 Analyzed: 3/26/2015				
Mercury	ND	0.10			NR				

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0642 - EPA 7471_S (continued)									
LCS (B5C0642-BS1)				Prepared: 3/25/2015 Analyzed: 3/26/2015					
Mercury	0.819988	0.10	0.833333		98.4	80 - 120			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0642 - EPA 7471_S (continued)									
Duplicate (B5C0642-DUP1)		**Source: 1501067-22**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Mercury	0.057247	0.10		0.096584	NR		51.1	20	R

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0642 - EPA 7471_S (continued)									
Matrix Spike (B5C0642-MS1)		**Source: 1501067-22**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Mercury	0.919096	0.10	0.833333	0.096584	98.7	70 - 130			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0642 - EPA 7471_S (continued)									
Matrix Spike Dup (B5C0642-MSD1)		**Source: 1501067-22**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Mercury	0.934964	0.10	0.833333	0.096584	101	70 - 130	1.71	20	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0642 - EPA 7471_S (continued)									
Post Spike (B5C0642-PS1)		**Source: 1501067-22**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Mercury	0.006947		5.00000E-3	0.001159	116	85 - 115			M1

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0643 - EPA 7471_S									
Blank (B5C0643-BLK1)					Prepared: 3/25/2015 Analyzed: 3/26/2015				
Mercury	ND	0.10			NR				

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0643 - EPA 7471_S (continued)									
LCS (B5C0643-BS1)					Prepared: 3/25/2015 Analyzed: 3/26/2015				
Mercury	0.813541	0.10	0.833333		97.6	80 - 120			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0643 - EPA 7471_S (continued)									
Duplicate (B5C0643-DUP1)		**Source: 1501067-32**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Mercury	0.054884	0.10		0.080422	NR		37.7	20	R

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0643 - EPA 7471_S (continued)									
Matrix Spike (B5C0643-MS1)		**Source: 1501067-32**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Mercury	0.979752	0.10	0.833333	0.080422	108	70 - 130			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0643 - EPA 7471_S (continued)									
Matrix Spike Dup (B5C0643-MSD1)		**Source: 1501067-32**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Mercury	0.949720	0.10	0.833333	0.080422	104	70 - 130	3.11	20	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0643 - EPA 7471_S (continued)									
Post Spike (B5C0643-PS1)		**Source: 1501067-32**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
Mercury	0.006750		5.00000E-3	0.000965	116	85 - 115			M1

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Gasoline Range Organics by EPA 8015B (Modified) - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0633 - GCVOA_S									
Blank (B5C0633-BLK1)				Prepared: 3/25/2015 Analyzed: 3/25/2015					
Gasoline Range Organics	ND	1.0			NR				
Surrogate: 4-Bromofluorobenzene	*0.1854*		*0.200000*		*92.7*	*37 - 153*			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Gasoline Range Organics by EPA 8015B (Modified) - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0633 - GCVOA_S (continued)									
LCS (B5C0633-BS1)				Prepared: 3/25/2015 Analyzed: 3/25/2015					
Gasoline Range Organics	5.86900	1.0	5.00000		117	70 - 130			
Surrogate: 4-Bromofluorobenzene	*0.2016*		*0.200000*		*101*	*37 - 153*			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Gasoline Range Organics by EPA 8015B (Modified) - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0633 - GCVOA_S (continued)									
Duplicate (B5C0633-DUP1)		**Source: 1501067-30**		Prepared: 3/25/2015 Analyzed: 3/25/2015					
Gasoline Range Organics	ND	1.0		ND	NR			20	
Surrogate: 4-Bromofluorobenzene	*0.1864*		*0.200000*		*93.2*	*37 - 153*			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Gasoline Range Organics by EPA 8015B (Modified) - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0633 - GCVOA_S (continued)									
Matrix Spike (B5C0633-MS1)		**Source: 1501067-30**		Prepared: 3/25/2015 Analyzed: 3/25/2015					
Gasoline Range Organics	5.06900	1.0	5.00000	ND	101	20 - 130			
Surrogate: 4-Bromofluorobenzene	*0.1943*		*0.200000*		*97.2*	*37 - 153*			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Gasoline Range Organics by EPA 8015B (Modified) - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0633 - GCVOA_S (continued)									
Matrix Spike Dup (B5C0633-MSD1)		**Source: 1501067-30**		Prepared: 3/25/2015 Analyzed: 3/25/2015					
Gasoline Range Organics	4.90300	1.0	5.00000	ND	98.1	20 - 130	3.33	20	
Surrogate: 4-Bromofluorobenzene	*0.1964*		*0.200000*		*98.2*	*37 - 153*			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Gasoline Range Organics by EPA 8015B (Modified) - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0634 - GCVOA_S									
Blank (B5C0634-BLK1)				Prepared: 3/25/2015 Analyzed: 3/25/2015					
Gasoline Range Organics	ND	1.0			NR				
Surrogate: 4-Bromofluorobenzene	*0.1874*		*0.200000*		*93.7*	*37 - 153*			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDI
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Gasoline Range Organics by EPA 8015B (Modified) - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0634 - GCVOA_S (continued)									
LCS (B5C0634-BS1)				Prepared: 3/25/2015 Analyzed: 3/25/2015					
Gasoline Range Organics	5.26900	1.0	5.00000		105	70 - 130			
Surrogate: 4-Bromofluorobenzene	*0.1913*		*0.200000*		*95.6*	*37 - 153*			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Gasoline Range Organics by EPA 8015B (Modified) - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0634 - GCVOA_S (continued)									
Duplicate (B5C0634-DUP1)		**Source: 1501067-02**		Prepared: 3/25/2015 Analyzed: 3/25/2015					
Gasoline Range Organics	ND	1.0		ND	NR			20	
Surrogate: 4-Bromofluorobenzene	*0.1872*		*0.200000*		*93.6*	*37 - 153*			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Gasoline Range Organics by EPA 8015B (Modified) - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0634 - GCVOA_S (continued)									
Matrix Spike (B5C0634-MS1)		**Source: 1501067-02**		Prepared: 3/25/2015 Analyzed: 3/25/2015					
Gasoline Range Organics	4.61800	1.0	5.00000	ND	92.4	20 - 130			
Surrogate: 4-Bromofluorobenzene	*0.1934*		*0.200000*		*96.7*	*37 - 153*			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Gasoline Range Organics by EPA 8015B (Modified) - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0634 - GCVOA_S (continued)									
Matrix Spike Dup (B5C0634-MSD1)		**Source: 1501067-02**		Prepared: 3/25/2015 Analyzed: 3/25/2015					
Gasoline Range Organics	4.67200	1.0	5.00000	ND	93.4	20 - 130	1.16	20	
Surrogate: 4-Bromofluorobenzene	*0.1997*		*0.200000*		*99.8*	*37 - 153*			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Diesel Range Organics by EPA 8015B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0652 - GCSEMI_DRO_LL_S									
Blank (B5C0652-BLK1)					Prepared: 3/25/2015 Analyzed: 3/25/2015				
DRO	ND	1.0			NR				
ORO	ND	1.0			NR				
Surrogate: p-Terphenyl	*1.841*		*2.66667*		*69.0*	*26 - 123*			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDI
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Diesel Range Organics by EPA 8015B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0652 - GCSEMI_DRO_LL_S (continued)									
LCS (B5C0652-BS1)				Prepared: 3/25/2015 Analyzed: 3/25/2015					
DRO	15.9980	1.0	33.3333		48.0	47 - 127			
Surrogate: p-Terphenyl	*1.762*		*2.66667*		*66.1*	*26 - 123*			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Diesel Range Organics by EPA 8015B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0652 - GCSEMI_DRO_LL_S (continued)									
Duplicate (B5C0652-DUP1)		**Source: 1501067-30**		Prepared: 3/25/2015 Analyzed: 3/25/2015					
DRO	3.27333	1.0		5.03533	NR		42.4	20	R
Surrogate: p-Terphenyl	*1.760*		*2.66667*		*66.0*	*26 - 123*			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Diesel Range Organics by EPA 8015B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0652 - GCSEMI_DRO_LL_S (continued)									
Matrix Spike (B5C0652-MS1)		**Source: 1501067-30**		Prepared: 3/25/2015 Analyzed: 3/25/2015					
DRO	21.0353	1.0	33.3333	5.03533	48.0	16 - 123			
Surrogate: p-Terphenyl	*1.575*		*2.66667*		*59.0*	*26 - 123*			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Diesel Range Organics by EPA 8015B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0652 - GCSEMI_DRO_LL_S (continued)									
Matrix Spike Dup (B5C0652-MSD1)		**Source: 1501067-30**		Prepared: 3/25/2015 Analyzed: 3/25/2015					
DRO	19.6800	1.0	33.3333	5.03533	43.9	16 - 123	6.66	20	
Surrogate: p-Terphenyl	*1.869*		*2.66667*		*70.1*	*26 - 123*			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Diesel Range Organics by EPA 8015B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0654 - GCSEMI_DRO_LL_S									
Blank (B5C0654-BLK1)					Prepared: 3/25/2015 Analyzed: 3/26/2015				
DRO	ND	1.0			NR				
ORO	ND	1.0			NR				
Surrogate: p-Terphenyl	*1.708*		*2.66667*		*64.0*	*26 - 123*			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Diesel Range Organics by EPA 8015B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0654 - GCSEMI_DRO_LL_S (continued)									
LCS (B5C0654-BS1)				Prepared: 3/25/2015 Analyzed: 3/25/2015					
DRO	18.0537	1.0	33.3333		54.2	47 - 127			
Surrogate: p-Terphenyl	*1.924*		*2.66667*		*72.2*	*26 - 123*			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDI
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Diesel Range Organics by EPA 8015B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0654 - GCSEMI_DRO_LL_S (continued)									
Duplicate (B5C0654-DUP1)		**Source: 1501067-05**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
DRO	1.53233	1.0		1.56467	NR		2.09	20	
Surrogate: p-Terphenyl	*1.834*		*2.66667*		*68.8*	*26 - 123*			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Diesel Range Organics by EPA 8015B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0654 - GCSEMI_DRO_LL_S (continued)									
Matrix Spike (B5C0654-MS1)		**Source: 1501067-05**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
DRO	16.7907	1.0	33.3333	1.56467	45.7	16 - 123			
Surrogate: p-Terphenyl	*1.665*		*2.66667*		*62.4*	*26 - 123*			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDI
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Diesel Range Organics by EPA 8015B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0654 - GCSEMI_DRO_LL_S (continued)									
Matrix Spike Dup (B5C0654-MSD1)		**Source: 1501067-05**		Prepared: 3/25/2015 Analyzed: 3/26/2015					
DRO	14.1313	1.0	33.3333	1.56467	37.7	16 - 123	17.2	20	
Surrogate: p-Terphenyl	*1.669*		*2.66667*		*62.6*	*26 - 123*			

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

pH by EPA 9045C - Quality Control

Analyte	Result (pH Units)	PQL (pH Units)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0680 - Prep_WC1_S									
Duplicate (B5C0680-DUP1)		**Source: 1501067-01**		Prepared: 3/26/2015 Analyzed: 3/26/2015					
pH	7.00000	0.10		6.90000	NR		1.44	20	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

pH by EPA 9045C - Quality Control (cont'd)

Analyte	Result (pH Units)	PQL (pH Units)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0681 - Prep_WC1_S									
Duplicate (B5C0681-DUP1)		**Source: 1501067-22**		Prepared: 3/26/2015 Analyzed: 3/26/2015					
pH	7.23000	0.10		7.15000	NR		1.11	20	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDE
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/26/2015

Notes and Definitions

S4	Surrogate was diluted out.
R	RPD value outside acceptance criteria. Calculation is based on raw values.
M1	Matrix spike recovery outside of acceptance limit. The analytical batch was validated by the laboratory control sample.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

Notes:
(1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
(2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.
(3) Results are wet unless otherwise specified.

CHAIN OF CUSTODY RECORD

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
(562) 989-4045 • Fax (562) 989-4040

FOR LABORATORY USE ONLY:

P.O.#: _____

Logged By: _____ Date: _____

Method of Transport: Client ☐ ATL ☐ CA OverN ☐ FEDEX ☐ Other: _____

Sample Condition Upon Receipt
1. CHILLED 5.9 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 CONSULTANTS, INC
Address: 6671 BRISA STREET
TEL: (925) 371-5900
Attn: R. DAY, L. BEADLE
City LIVERMORE State CA Zip Code 94550
FAX: (925) 371-5915

Project Name: CALTRANS SR 280 SHOULDER WIDENING
Project #: E8721-02-26
Sampler: (Printed Name) C. MERRITT D. WATTS (Signature) CHRIS MERRITT

Relinquished by: (Signature and Printed Name) CHRIS MERRITT Date: 3-24-15 Time: 1700 Received by: (Signature and Printed Name) C. Bynt Date: 3/25/15 Time: 810
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:

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter:
CM
Print Name Date
CM
Signature

Send Report To:
Attn: _____
Co: A/A 1
Address _____
City _____ State _____ Zip _____

Bill To:
Attn: _____
Co: A/A 1
Address _____
City _____ State _____ Zip _____

Special Instructions/Comments:

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

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

Circle or Add Analysis(es) Requested: 8081A (Pesticides); 8082 (PCB); 8260B (Volatiles); 8270C (BNA); 6010B (Total Metal); 8015B (GRO); 8020 (BTEX); 8015B (DRO); 8021 (BTEX); TITLE 22 / CAM 17 (6010 / 7000); PH EPA 9045; LEAD; TPH

SPECIFY APPROPRIATE MATRIX: SOIL; WATER; GROUND WATER; WASTEWATER

ITEM	LAB USE ONLY: Batch #: / Lab No.	Sample Description: Sample I.D. / Location	Date	Time	TAT	Container(s) #	Container(s) Type	PRESERVATION
	150167-1	B1-0	3/24/15	0830	B	1	TM	C
	2	↓ -1		0835				
	3	B2-0		0840				
	4	↓ -1		0845				
	5	↓ -2.5		0850				
	6	B3-0		0831				
	7	-1.5		0834				
	8	-3.5		0842				
	9	↓ -5.5		0847				
	W	RB		0901	↓	1	BP	RINSE BLK

Q A / Q C: RTNE ☐ CT ☑ SWRCB ☐ Logcode ____ OTHER ____ REMARKS

- TAT starts 8 a.m. following day if samples received after 3 p.m.

TAT: A= Overnight ≤ 24 hr B= Emergency Next workday C= Critical 2 Workdays D= Urgent 3 Workdays E= Routine 7 Workdays

Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Tedlar G=Glass P=Plastic M=Metal

Preservatives: H=Hcl N=HNO_3 S=H_2SO_4 C=4°C Z=Zn(AC)$_2$ O=NaOH T=$Na_2S_2O_3$

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

CHAIN OF CUSTODY RECORD

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
(562) 989-4045 • Fax (562) 989-4040

FOR LABORATORY USE ONLY:

P.O.#: _____

Logged By: _____ Date: _____

Method of Transport: Client ☐ ATL ☐ CA OverN ☐ FEDEX ☐ Other: _____

Sample Condition Upon Receipt
1. CHILLED 5.9 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 CONSULTANTS, INC
Address: 6671 BRISA STREET
TEL: (925) 371-5900
Attn: R. OAY, L. BEADLE
City LIVERMORE State CA Zip Code 94550
FAX: (925) 371-5915

Project Name: CALTRANS SF 280 SHOULDER WIDENING
Project #: E8721-02-26
Sampler: (Printed Name) C. MERRITT D. WATTS (Signature) CHRIS MERRITT

Relinquished by: (Signature and Printed Name) CHRIS MERRITT Date: 5-24-15 Time: 1700
Received by: (Signature and Printed Name) C. Byrnes Date: 5/26/15 Time: 8:00

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:

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter:
CM
Print Name Date
CM
Signature

Send Report To:
Attn: _____
Co: A/A
Address _____
City _____ State ____ Zip ____

Bill To:
Attn: _____
Co: A/A
Address _____
City _____ State ____ Zip ____

Special Instructions/Comments:

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

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

Circle or Add Analysis(es) Requested: 8081A (Pesticides); 8082 (PCB); 8260B (Volatiles); 8270C (BNA); 6010B (Total Metal); 8015B (GRO); 8020 (BTEX); 8015B (DRO) +MO; 8021 (BTEX); TITLE 22 / CAM 17 (6010 / 7000); PH ERA 9045

SPECIFY APPROPRIATE MATRIX: SOIL; WATER; GROUND WATER; WASTEWATER

PRESERVATION

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

ITEM	LAB USE ONLY: Batch # / Lab No.	Sample Description: Sample I.D. / Location	Date	Time	TAT	Container(s): #	Type	REMARKS
	156167-11	B4-0	3-24-15	0900	B	1	T m	C
	12	B4-1.5		0905				
	13	B4-3.5		0910				
	14	B4-5.5		0915				
	15	B5-0		0907				
	16	B5-1.5		0911				
	17	B5-3.5		0917				
	18	B5-5.5		0924				
	19	B6-0		1007				
	20	B6-1		1014				

- TAT starts 8 a.m. following day if samples received after 3 p.m.

TAT: A= Overnight ≤ 24 hr; B= Emergency Next workday; C= Critical 2 Workdays; D= Urgent 3 Workdays; E= Routine 7 Workdays

Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Tedlar G=Glass P=Plastic M=Metal

Preservatives: H=HCl N=HNO_3 S=H_2SO_4 C=4°C Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

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

CHAIN OF CUSTODY RECORD

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
(562) 989-4045 • Fax (562) 989-4040

FOR LABORATORY USE ONLY:

P.O.#: _____

Logged By: _____ Date: _____

Method of Transport: Client ☐ ATL ☐ CA OverN ☐ FEDEX ☐ Other: _____

Sample Condition Upon Receipt
1. CHILLED 5.9 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 CONSULTANTS, INC
Address: 6671 BRISA STREET
TEL: (925) 371-5900
Attn: R. OAY, L. BEADLE
City LIVERMORE State CA Zip Code 94550
FAX: (925) 371-5915

Project Name: CALTRANS SF 280 SHOULDER WIDENING
Project #: E8721-02-26
Sampler: (Printed Name) C. MERRITT D. WATTS (Signature) CHRIS MERRITT

Relinquished by: (Signature and Printed Name) CHRIS MERRITT Date: 3-24-15 Time: 1700
Received by: (Signature and Printed Name) C. Smith Date: 3/24/15 Time: 1700

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:

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter:
CM
Print Name Date
CM
Signature

Send Report To:
Attn: _____
Co: A/A1
Address _____
City _____ State ____ Zip ____

Bill To:
Attn: _____
Co: A/A1
Address _____
City _____ State ____ Zip ____

Special Instructions/Comments:

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

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

Circle or Add Analysis(es) Requested: 8081A (Pesticides); 8082 (PCB); 8260B (Volatiles); 8270C (BNA); 6010B (Total Metals); 8015Bx (GRO) & 8020 (BTEX); 8015B (DRO) TPHD; 8021 (BTEX); TITLE 22 / CAM 17 (6010 / 7000); pH EPA 9045

SPECIFY APPROPRIATE MATRIX: SOIL; WATER; GROUND WATER; WASTEWATER

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

ITEM	LAB USE ONLY: Batch #: / Lab No.	Sample Description: Sample I.D. / Location	Date	Time	TAT	Container(s): #	Type	PRESERVATION	REMARKS
	1506167-1	B7-0	3-24-15	0959	B	1	T	C	
	-2	B7-1		1004					
	-3	B8-0		0941					
	-4	B8-1		0944					
	-5	B9-0		0940					
	-6	B9-1		0945					
	-7	B10-0		1110					
	-8	B10-1.5		1115					
	-9	B11-0		1125					
	-10	B11-1.5		1130					

- TAT starts 8 a.m. following day if samples received after 3 p.m.

TAT: A= Overnight ≤ 24 hr; B= Emergency Next workday; C= Critical 2 Workdays; D= Urgent 3 Workdays; E= Routine 7 Workdays

Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Tedlar G=Glass P=Plastic M=Metal

Preservatives: H=HCl N=HNO_3 S=H_2SO_4 C=4°C Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

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

CHAIN OF CUSTODY RECORD

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
(562) 989-4045 • Fax (562) 989-4040

FOR LABORATORY USE ONLY:

P.O.#: _____

Logged By: _____ Date: _____

Method of Transport: Client ☐ ATL ☐ CA OverN ☐ FEDEX ☐ Other: _____

Sample Condition Upon Receipt: 1. CHILLED 5.9 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 CONSULTANTS, INC | Address: 6671 BRISA STREET | TEL: (925) 371-5900
Attn: R. OAY, L. BEADLE | City LIVERMORE State CA Zip Code 94550 | FAX: (925) 371-5915

Project Name: CALTRANS SF 280 SHOULDER WIDENING | Project #: E8721-02-26 | Sampler: (Printed Name) C. MERRITT D. WATTS (Signature) CHRIS MERRITT

Relinquished by: (Signature and Printed Name) CHRIS MERRITT Date: 3-24-15 Time: 1700 | Received by: (Signature and Printed Name) C. Agnew Date: 3/25/15 Time: 800

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:

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter:
CM (Print Name) _____ (Date)
CM (Signature)

Send Report To: Attn: _____ Co: A/A Address _____ City _____ State _____ Zip _____

Bill To: Attn: _____ Co: A/A Address _____ City _____ State _____ Zip _____

Special Instructions/Comments:

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

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

Circle or Add Analysis(es) Requested: 8081A (Pesticides); 8082 (PCB); 8260B (Volatiles); 8270C (BNA); 6010B (Total Metal); 8015B (GRO)/ 8020 (BTEX); 8015B (DRO); 8021 (BTEX); TITLE 22 / CAM 17 (6010 / 7000); Pb EPA 9045

SPECIFY APPROPRIATE MATRIX: SOIL; WATER; GROUND WATER; WASTEWATER

PRESERVATION

Q A / Q C: RTNE ☐ CT ☒ SWRCB ☐ Logcode ____ OTHER ____

ITEM	LAB USE ONLY: Batch #: / Lab No.	Sample Description: Sample I.D. / Location	Date	Time	TAT	Container(s): #	Type	REMARKS
	15J0167 - 31	B12-0	3-24-15	11 17	B	1	T m	C
	32	B12-1.5		11 21				
	33	B12-3.5		11 31				

- TAT starts 8 a.m. following day if samples received after 3 p.m.

TAT: A= Overnight ≤ 24 hr B= Emergency Next workday C= Critical 2 Workdays D= Urgent 3 Workdays E= Routine 7 Workdays

Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Tedlar G=Glass P=Plastic M=Metal

Preservatives: H=HCl N=HNO_3 S=H_2SO_4 C=4°C Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

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

March 31, 2015

Rick Day
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
Tel: (925) 961-5270
Fax:(925) 371-5915

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

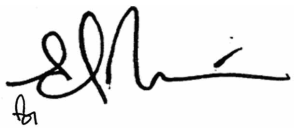
Re: ATL Work Order Number : 1501067

Client Reference : CALTRANS, SF 280 SHOULDER WIDENING, E8721-02-26

Enclosed are the results for sample(s) received on March 25, 2015 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

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

Sincerely,



Eddie Rodriguez
Laboratory Director

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDENING, E8721-02
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/31/2015

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B1-0	1501067-01	Soil	3/24/15 8:30	3/25/15 8:00
B3-0	1501067-06	Soil	3/24/15 8:31	3/25/15 8:00
B3-1.5	1501067-07	Soil	3/24/15 8:34	3/25/15 8:00
B3-3.5	1501067-08	Soil	3/24/15 8:41	3/25/15 8:00
B4-0	1501067-11	Soil	3/24/15 9:00	3/25/15 8:00
B4-1.5	1501067-12	Soil	3/24/15 9:05	3/25/15 8:00
B5-0	1501067-15	Soil	3/24/15 9:07	3/25/15 8:00
B5-1.5	1501067-16	Soil	3/24/15 9:11	3/25/15 8:00
B5-3.5	1501067-17	Soil	3/24/15 9:17	3/25/15 8:00
B6-0	1501067-19	Soil	3/24/15 10:07	3/25/15 8:00
B6-1	1501067-20	Soil	3/24/15 10:14	3/25/15 8:00
B7-0	1501067-21	Soil	3/24/15 9:59	3/25/15 8:00
B8-0	1501067-23	Soil	3/24/15 9:41	3/25/15 8:00
B9-0	1501067-25	Soil	3/24/15 9:40	3/25/15 8:00
B10-0	1501067-27	Soil	3/24/15 11:10	3/25/15 8:00
B11-0	1501067-29	Soil	3/24/15 11:25	3/25/15 8:00
B12-0	1501067-31	Soil	3/24/15 11:17	3/25/15 8:00
B12-1.5	1501067-32	Soil	3/24/15 11:21	3/25/15 8:00

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDENING, E8721-02
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/31/2015

STLC Metals by ICP-AES by EPA 6010B

Analyte: Lead **Analyst: RR**

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1501067-06	B3-0	**7.1**	mg/L	1.0	20	B5C0730	03/30/2015	03/30/15 12:11	
1501067-07	B3-1.5	**5.9**	mg/L	1.0	20	B5C0730	03/30/2015	03/30/15 12:14	
1501067-08	B3-3.5	**4.6**	mg/L	1.0	20	B5C0730	03/30/2015	03/30/15 12:16	
1501067-11	B4-0	**9.7**	mg/L	1.0	20	B5C0730	03/30/2015	03/30/15 12:18	
1501067-12	B4-1.5	**4.1**	mg/L	1.0	20	B5C0730	03/30/2015	03/30/15 12:20	
1501067-15	B5-0	**9.0**	mg/L	1.0	20	B5C0730	03/30/2015	03/30/15 12:27	
1501067-16	B5-1.5	**8.1**	mg/L	1.0	20	B5C0730	03/30/2015	03/30/15 12:33	
1501067-17	B5-3.5	**5.8**	mg/L	1.0	20	B5C0730	03/30/2015	03/30/15 12:35	
1501067-19	B6-0	**8.1**	mg/L	1.0	20	B5C0730	03/30/2015	03/30/15 12:37	
1501067-20	B6-1	**2.9**	mg/L	1.0	20	B5C0730	03/30/2015	03/30/15 12:39	
1501067-21	B7-0	**17**	mg/L	1.0	20	B5C0730	03/30/2015	03/30/15 12:42	

Client Sample ID B1-0
Lab ID: 1501067-01

STLC Metals by ICP-AES by EPA 6010B **Analyst: RR**

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chromium	**1.5**	1.0	20	B5C0730	03/30/2015	03/30/15 12:09	
Lead	**4.4**	1.0	20	B5C0730	03/30/2015	03/30/15 12:09	

Client Sample ID B8-0
Lab ID: 1501067-23

STLC Metals by ICP-AES by EPA 6010B **Analyst: RR**

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chromium	**1.7**	1.0	20	B5C0730	03/30/2015	03/30/15 12:44	
Lead	**14**	1.0	20	B5C0730	03/30/2015	03/30/15 12:44	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDENING, E8721-02
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/31/2015

Client Sample ID B9-0
Lab ID: 1501067-25

STLC Metals by ICP-AES by EPA 6010B — **Analyst: RR**

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chromium	**2.1**	1.0	20	B5C0730	03/30/2015	03/30/15 12:46	
Lead	**20**	1.0	20	B5C0730	03/30/2015	03/30/15 12:46	

Client Sample ID B10-0
Lab ID: 1501067-27

STLC Metals by ICP-AES by EPA 6010B — **Analyst: RR**

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chromium	**1.7**	1.0	20	B5C0730	03/30/2015	03/30/15 12:48	
Lead	**24**	1.0	20	B5C0730	03/30/2015	03/30/15 12:48	

Client Sample ID B11-0
Lab ID: 1501067-29

STLC Metals by ICP-AES by EPA 6010B — **Analyst: RR**

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chromium	**4.5**	1.0	20	B5C0731	03/30/2015	03/30/15 12:02	
Lead	**24**	1.0	20	B5C0731	03/30/2015	03/30/15 12:02	

Client Sample ID B12-0
Lab ID: 1501067-31

STLC Metals by ICP-AES by EPA 6010B — **Analyst: RR**

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chromium	**2.0**	1.0	20	B5C0731	03/30/2015	03/30/15 12:18	
Copper	**1.6**	1.0	20	B5C0731	03/30/2015	03/30/15 12:18	
Lead	**10**	1.0	20	B5C0731	03/30/2015	03/30/15 12:18	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDENING, E8721-02
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/31/2015

Client Sample ID B12-1.5

Lab ID: 1501067-32

STLC Metals by ICP-AES by EPA 6010B **Analyst: RR**

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chromium	ND	1.0	20	B5C0731	03/30/2015	03/30/15 12:23	
Lead	**3.0**	1.0	20	B5C0731	03/30/2015	03/30/15 12:23	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDENING, E8721-02
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/31/2015

QUALITY CONTROL SECTION

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

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0730 - STLC_S Extraction									
Blank (B5C0730-BLK1)					Prepared: 3/30/2015 Analyzed: 3/30/2015				
Chromium	ND	1.0			NR				
Copper	ND	1.0			NR				
Lead	ND	1.0			NR				
Blank (B5C0730-BLK2)					Prepared: 3/30/2015 Analyzed: 3/30/2015				
Chromium	ND	1.0			NR				
Copper	ND	1.0			NR				
Lead	ND	1.0			NR				
LCS (B5C0730-BS1)					Prepared: 3/30/2015 Analyzed: 3/30/2015				
Chromium	1.98521		2.00000		99.3	80 - 120			
Copper	2.04650		2.00000		102	80 - 120			
Lead	1.93152		2.00000		96.6	80 - 120			
Duplicate (B5C0730-DUP1)		**Source: 1500757-61**			Prepared: 3/30/2015 Analyzed: 3/30/2015				
Chromium	0.190249	1.0		0.116696	NR		47.9	20	R
Copper	0.180314	1.0		0.144348	NR		22.2	20	
Lead	0.126676	1.0		0.253400	NR		66.7	20	R
Duplicate (B5C0730-DUP2)		**Source: 1501067-12**			Prepared: 3/30/2015 Analyzed: 3/30/2015				
Chromium	1.05652	1.0		1.04156	NR		1.43	20	
Copper	0.965230	1.0		0.958929	NR		0.655	20	
Lead	3.97755	1.0		4.06071	NR		2.07	20	
Matrix Spike (B5C0730-MS1)		**Source: 1500757-61**			Prepared: 3/30/2015 Analyzed: 3/30/2015				
Chromium	2.50548		2.50000	0.116696	95.6	74 - 121			
Copper	2.60116		2.50000	0.144348	98.3	62 - 129			
Lead	2.58415		2.50000	0.253400	93.2	44 - 130			
Matrix Spike (B5C0730-MS2)		**Source: 1501067-12**			Prepared: 3/30/2015 Analyzed: 3/30/2015				
Chromium	3.36479		2.50000	1.04156	92.9	74 - 121			
Copper	3.38989		2.50000	0.958929	97.2	62 - 129			
Lead	6.21487		2.50000	4.06071	86.2	44 - 130			
Matrix Spike Dup (B5C0730-MSD1)		**Source: 1500757-61**			Prepared: 3/30/2015 Analyzed: 3/30/2015				
Chromium	2.51127		2.50000	0.116696	95.8	74 - 121	0.231	20	
Copper	2.60513		2.50000	0.144348	98.4	62 - 129	0.152	20	
Lead	2.55908		2.50000	0.253400	92.2	44 - 130	0.975	20	
Batch B5C0731 - STLC_S Extraction									
Blank (B5C0731-BLK1)					Prepared: 3/30/2015 Analyzed: 3/30/2015				
Chromium	ND	1.0			NR				
Copper	ND	1.0			NR				
Lead	ND	1.0			NR				

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDENING, E8721-02
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/31/2015

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

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5C0731 - STLC_S Extraction (continued)									
Blank (B5C0731-BLK1) - Continued					Prepared: 3/30/2015 Analyzed: 3/30/2015				
LCS (B5C0731-BS1)					Prepared: 3/30/2015 Analyzed: 3/30/2015				
Chromium	2.06281		2.00000		103	80 - 120			
Copper	2.05334		2.00000		103	80 - 120			
Lead	2.06282		2.00000		103	80 - 120			
Duplicate (B5C0731-DUP1)		**Source: 1501067-29**			Prepared: 3/30/2015 Analyzed: 3/30/2015				
Chromium	5.22156	1.0		4.45577	NR		15.8	20	
Copper	3.37222	1.0		3.08606	NR		8.86	20	
Lead	25.6708	1.0		24.2356	NR		5.75	20	
Matrix Spike (B5C0731-MS1)		**Source: 1501067-29**			Prepared: 3/30/2015 Analyzed: 3/30/2015				
Chromium	6.76121		2.50000	4.45577	92.2	74 - 121			
Copper	5.42304		2.50000	3.08606	93.5	62 - 129			
Lead	24.8322		2.50000	24.2356	23.9	44 - 130			M1
Matrix Spike Dup (B5C0731-MSD1)		**Source: 1501067-29**			Prepared: 3/30/2015 Analyzed: 3/30/2015				
Chromium	7.12042		2.50000	4.45577	107	74 - 121	5.18	20	
Copper	5.70201		2.50000	3.08606	105	62 - 129	5.02	20	
Lead	26.2068		2.50000	24.2356	78.8	44 - 130	5.39	20	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDENING, E8721-02
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 03/31/2015

Notes and Definitions

R	RPD value outside acceptance criteria. Calculation is based on raw values.
M1	Matrix spike recovery outside of acceptance limit. The analytical batch was validated by the laboratory control sample.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

Notes:
(1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
(2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.
(3) Results are wet unless otherwise specified.

Diane Galvan

From: Rick Day [day@geoconinc.com]
Sent: Thursday, March 26, 2015 4:30 PM
To: Diane Galvan
Cc: Luann Beadle
Subject: RE: Results/EDD/Invoice - CALTRANS, SF 280 SHOULDER WIDENING (1501067)

Hi, Diane.

Please run the following for STLC on 72-hr TAT:

1501067-01	B1-0	Chromium	55	mg/kg
1501067-01	B1-0	Lead	71	mg/kg
1501067-06	B3-0	Lead	120	mg/kg
1501067-07	B3-1.5	Lead	110	mg/kg
1501067-08	B3-3.5	Lead	81	mg/kg
1501067-11	B4-0	Lead	130	mg/kg
1501067-12	B4-1.5	Lead	91	mg/kg
1501067-15	B5-0	Lead	160	mg/kg
1501067-16	B5-1.5	Lead	110	mg/kg
1501067-17	B5-3.5	Lead	93	mg/kg
1501067-19	B6-0	Lead	110	mg/kg
1501067-20	B6-1	Lead	50	mg/kg
1501067-21	B7-0	Lead	250	mg/kg
1501067-23	B8-0	Chromium	51	mg/kg
1501067-23	B8-0	Lead	190	mg/kg
1501067-25	B9-0	Chromium	61	mg/kg
1501067-25	B9-0	Lead	290	mg/kg
1501067-27	B10-0	Chromium	80	mg/kg
1501067-27	B10-0	Lead	480	mg/kg
1501067-29	B11-0	Chromium	140	mg/kg
1501067-29	B11-0	Lead	380	mg/kg
1501067-31	B12-0	Chromium	71	mg/kg
1501067-31	B12-0	Copper	340	mg/kg
1501067-31	B12-0	Lead	160	mg/kg
1501067-32	B12-1.5	Chromium	58	mg/kg
1501067-32	B12-1.5	Lead	61	mg/kg

Thanks,
Rick.

Richard Day, CEG, CHG | *Principal / Senior Geologist*
GEOCON CONSULTANTS, INC.
6671 Brisa Street, Livermore, California 94550
P|925.371.5900 ext. 401 M|925.872.5860
www.geoconinc.com / Facebook / Linkedin

Bay Area ~ Fairfield ~ Sacramento ~ Bakersfield ~ Los Angeles ~ Orange County ~ Riverside County ~ Palm Desert ~ San Diego

Geotechnical Engineering Environmental Services Engineering Geology Construction Inspection
Land Development Transportation Infrastructure Institutional Brownsfields/Redevelopment Natural Resources

ADVANCED TECHNOLOGY LABORATORIES

April 03, 2015

Rick Day
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
Tel: (925) 961-5270
Fax:(925) 371-5915

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

Re: ATL Work Order Number : 1501067
Client Reference : CALTRANS, SF 280 SHOULDER WIDENING, E8721-02-26

Enclosed are the results for sample(s) received on March 25, 2015 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

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

Sincerely,

Eddie Rodriguez
Laboratory Director

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDENING, E8721-02
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 04/03/2015

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B3-0	1501067-06	Soil	3/24/15 8:31	3/25/15 8:00
B3-1.5	1501067-07	Soil	3/24/15 8:34	3/25/15 8:00
B4-0	1501067-11	Soil	3/24/15 9:00	3/25/15 8:00
B5-0	1501067-15	Soil	3/24/15 9:07	3/25/15 8:00
B5-1.5	1501067-16	Soil	3/24/15 9:11	3/25/15 8:00
B5-3.5	1501067-17	Soil	3/24/15 9:17	3/25/15 8:00
B6-0	1501067-19	Soil	3/24/15 10:07	3/25/15 8:00
B7-0	1501067-21	Soil	3/24/15 9:59	3/25/15 8:00
B8-0	1501067-23	Soil	3/24/15 9:41	3/25/15 8:00
B9-0	1501067-25	Soil	3/24/15 9:40	3/25/15 8:00
B10-0	1501067-27	Soil	3/24/15 11:10	3/25/15 8:00
B11-0	1501067-29	Soil	3/24/15 11:25	3/25/15 8:00
B12-0	1501067-31	Soil	3/24/15 11:17	3/25/15 8:00

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDENING, E8721-02
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 04/03/2015

TCLP Metals by ICP-AES EPA 6010B

Analyte: Lead **Analyst: RR**

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1501067-06	B3-0	**ND**	mg/L	0.050	1	B5D0092	04/03/2015	04/03/15 13:57	
1501067-07	B3-1.5	**0.057**	mg/L	0.050	1	B5D0092	04/03/2015	04/03/15 14:07	
1501067-11	B4-0	**0.094**	mg/L	0.050	1	B5D0092	04/03/2015	04/03/15 14:09	
1501067-15	B5-0	**0.11**	mg/L	0.050	1	B5D0092	04/03/2015	04/03/15 14:12	
1501067-16	B5-1.5	**0.12**	mg/L	0.050	1	B5D0092	04/03/2015	04/03/15 14:18	
1501067-19	B6-0	**0.11**	mg/L	0.050	1	B5D0092	04/03/2015	04/03/15 14:21	
1501067-21	B7-0	**0.20**	mg/L	0.050	1	B5D0092	04/03/2015	04/03/15 14:23	
1501067-23	B8-0	**0.22**	mg/L	0.050	1	B5D0092	04/03/2015	04/03/15 14:26	
1501067-25	B9-0	**0.34**	mg/L	0.050	1	B5D0092	04/03/2015	04/03/15 14:28	
1501067-27	B10-0	**0.23**	mg/L	0.050	1	B5D0092	04/03/2015	04/03/15 14:31	
1501067-29	B11-0	**0.13**	mg/L	0.050	1	B5D0092	04/03/2015	04/03/15 14:33	
1501067-31	B12-0	**0.073**	mg/L	0.050	1	B5D0092	04/03/2015	04/03/15 14:36	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDENING, E8721-02
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 04/03/2015

STLC DI Metals by ICP-AES by EPA 6010B

Analyte: Lead **Analyst: RR**

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1501067-06	B3-0	**ND**	mg/L	1.0	20	B5D0093	04/03/2015	04/03/15 12:42	
1501067-07	B3-1.5	**ND**	mg/L	1.0	20	B5D0093	04/03/2015	04/03/15 12:44	
1501067-11	B4-0	**ND**	mg/L	1.0	20	B5D0093	04/03/2015	04/03/15 12:46	
1501067-15	B5-0	**ND**	mg/L	1.0	20	B5D0093	04/03/2015	04/03/15 12:48	
1501067-16	B5-1.5	**ND**	mg/L	1.0	20	B5D0093	04/03/2015	04/03/15 12:50	
1501067-17	B5-3.5	**ND**	mg/L	1.0	20	B5D0093	04/03/2015	04/03/15 12:52	
1501067-19	B6-0	**ND**	mg/L	1.0	20	B5D0093	04/03/2015	04/03/15 12:55	
1501067-21	B7-0	**1.6**	mg/L	1.0	20	B5D0093	04/03/2015	04/03/15 13:00	
1501067-23	B8-0	**1.3**	mg/L	1.0	20	B5D0093	04/03/2015	04/03/15 13:03	
1501067-25	B9-0	**2.0**	mg/L	1.0	20	B5D0093	04/03/2015	04/03/15 13:05	
1501067-27	B10-0	**1.2**	mg/L	1.0	20	B5D0093	04/03/2015	04/03/15 13:11	
1501067-29	B11-0	**ND**	mg/L	1.0	20	B5D0093	04/03/2015	04/03/15 13:14	
1501067-31	B12-0	**ND**	mg/L	1.0	20	B5D0093	04/03/2015	04/03/15 13:16	

pH by EPA 9045C

Analyte: pH **Analyst: LA**

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1501067-19	B6-0	**6.6**	pH Units	0.10	1	B5D0097	04/03/2015	04/03/15 11:48	
1501067-21	B7-0	**6.6**	pH Units	0.10	1	B5D0097	04/03/2015	04/03/15 11:48	
1501067-25	B9-0	**7.2**	pH Units	0.10	1	B5D0097	04/03/2015	04/03/15 11:48	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDENING, E8721-02
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 04/03/2015

QUALITY CONTROL SECTION

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

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5D0092 - EPA 3010A_S									
Blank (B5D0092-BLK1)					Prepared: 4/3/2015 Analyzed: 4/3/2015				
Lead	ND	0.050			NR				
LCS (B5D0092-BS1)					Prepared: 4/3/2015 Analyzed: 4/3/2015				
Lead	0.963052	0.050	1.00000		96.3	80 - 120			
Duplicate (B5D0092-DUP1)		**Source: 1501067-06**			Prepared: 4/3/2015 Analyzed: 4/3/2015				
Lead	0.037858	0.050		0.043077	NR		12.9	20	
Matrix Spike (B5D0092-MS1)		**Source: 1501067-06**			Prepared: 4/3/2015 Analyzed: 4/3/2015				
Lead	2.33155	0.050	2.50000	0.043077	91.5	77 - 121			
Matrix Spike Dup (B5D0092-MSD1)		**Source: 1501067-06**			Prepared: 4/3/2015 Analyzed: 4/3/2015				
Lead	2.26194	0.050	2.50000	0.043077	88.8	77 - 121	3.03	20	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDENING, E8721-02
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 04/03/2015

STLC DI Metals by ICP-AES by EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5D0093 - STLC DI_S Extraction									
Blank (B5D0093-BLK1)					Prepared: 4/3/2015 Analyzed: 4/3/2015				
Lead	ND	1.0			NR				
Blank (B5D0093-BLK2)					Prepared: 4/3/2015 Analyzed: 4/3/2015				
Lead	ND	1.0			NR				
LCS (B5D0093-BS1)					Prepared: 4/3/2015 Analyzed: 4/3/2015				
Lead	2.08305		2.00000		104	80 - 120			
Duplicate (B5D0093-DUP1)		**Source: 1501067-31**			Prepared: 4/3/2015 Analyzed: 4/3/2015				
Lead	0.230002	1.0		0.087892	NR		89.4	20	R
Duplicate (B5D0093-DUP2)		**Source: 1501067-25**			Prepared: 4/3/2015 Analyzed: 4/3/2015				
Lead	1.85260	1.0		2.00617	NR		7.96	20	
Matrix Spike (B5D0093-MS1)		**Source: 1501067-31**			Prepared: 4/3/2015 Analyzed: 4/3/2015				
Lead	2.55432		2.50000	0.087892	98.7	70 - 130			
Matrix Spike (B5D0093-MS2)		**Source: 1501067-25**			Prepared: 4/3/2015 Analyzed: 4/3/2015				
Lead	4.39213		2.50000	2.00617	95.4	70 - 130			
Matrix Spike Dup (B5D0093-MSD1)		**Source: 1501067-31**			Prepared: 4/3/2015 Analyzed: 4/3/2015				
Lead	2.55069		2.50000	0.087892	98.5	70 - 130	0.142	20	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDENING, E8721-02
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 04/03/2015

pH by EPA 9045C - Quality Control

Analyte	Result (pH Units)	PQL (pH Units)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5D0097 - Prep_WC1_S									
Duplicate (B5D0097-DUP1)		**Source: 1501067-19**			Prepared: 4/3/2015 Analyzed: 4/3/2015				
pH	6.72000	0.10		6.58000	NR		2.11	20	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS, SF 280 SHOULDER WIDENING, E8721-02
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 04/03/2015

Notes and Definitions

R	RPD value outside acceptance criteria. Calculation is based on raw values.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

Notes:
(1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
(2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.
(3) Results are wet unless otherwise specified.

Diane Galvan

From: Luann Beadle [beadle@geoconinc.com]
Sent: Tuesday, March 31, 2015 3:25 PM
To: Diane Galvan
Cc: Rick Day
Subject: RE: Additional Results/EDD/Invoice - CALTRANS, SF 280 SHOULDER WIDENING (1501067)

Hi Diane,

Could you please run DI-WET lead on sample B5-3.5 and DI-WET and TCLP lead on samples

B3-1.5
B3-0
B5-1.5
B6-0
B5-0
B4-0
B12-0
B8-0
B7-0
B9-0
B10-0
B11-0

And pH on samples B6-0, B7-0, B9-0. All on an expedited TAT.

Thank you,
Luann

EMSL Analytical, Inc
464 McCormick Street, San Leandro, CA 94577
Phone/Fax: (510) 895-3675 / (510) 895-3680
http://www.EMSL.com sanleandrolab@emsl.com

EMSL Order:	091504108
CustomerID:	GECN21
CustomerPO:	E8721-02-26
ProjectID:	E8721-02-xx

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

Phone:	(925) 371-5900
Fax:	(925) 371-5915
Received:	03/24/15 1:45 PM
Analysis Date:	3/31/2015
Collected:	3/24/2015

Project: **E8721-02-26 SF 280 SHOULDER WIDENING**

Test Report: PLM Analysis of Bulk Samples for Asbestos via EPA 600/R-93/116 Method with CARB 435 Prep (Milling) Level A for 0.25% Target Analytical Sensitivity

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
B1-0 *091504108-0001*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B2-1 *091504108-0002*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B2-1.5 *091504108-0003*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B3-0 *091504108-0004*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B3-3.5 *091504108-0005*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B3-5.5 *091504108-0006*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B4-1.5 *091504108-0007*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**

Analyst(s)

Matthew Batongbacal (19)

Chris Dojlidko, Laboratory Manager
or other approved signatory

Initial report from 03/31/2015 15:46:48

EMSL Analytical, Inc
464 McCormick Street, San Leandro, CA 94577
Phone/Fax: (510) 895-3675 / (510) 895-3680
http://www.EMSL.com sanleandrolab@emsl.com

EMSL Order:	091504108
CustomerID:	GECN21
CustomerPO:	E8721-02-26
ProjectID:	E8721-02-xx

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

Phone:	(925) 371-5900
Fax:	(925) 371-5915
Received:	03/24/15 1:45 PM
Analysis Date:	3/31/2015
Collected:	3/24/2015

Project: **E8721-02-26 SF 280 SHOULDER WIDENING**

Test Report: PLM Analysis of Bulk Samples for Asbestos via EPA 600/R-93/116 Method with CARB 435 Prep (Milling) Level A for 0.25% Target Analytical Sensitivity

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
B4-5.5 *091504108-0008*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B5-1.5 *091504108-0009*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B5-3.5 *091504108-0010*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B5-5.5 *091504108-0011*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B6-1 *091504108-0012*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B7-1 *091504108-0013*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B8-1 *091504108-0014*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**

Analyst(s)

Matthew Batongbacal (19)

Chris Dojlidko, Laboratory Manager
or other approved signatory

Initial report from 03/31/2015 15:46:48

EMSL Analytical, Inc
464 McCormick Street, San Leandro, CA 94577
Phone/Fax: (510) 895-3675 / (510) 895-3680
http://www.EMSL.com sanleandrolab@emsl.com

EMSL Order:	091504108
CustomerID:	GECN21
CustomerPO:	E8721-02-26
ProjectID:	E8721-02-xx

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

Phone:	(925) 371-5900
Fax:	(925) 371-5915
Received:	03/24/15 1:45 PM
Analysis Date:	3/31/2015
Collected:	3/24/2015

Project: **E8721-02-26 SF 280 SHOULDER WIDENING**

Test Report: PLM Analysis of Bulk Samples for Asbestos via EPA 600/R-93/116 Method with CARB 435 Prep (Milling) Level A for 0.25% Target Analytical Sensitivity

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
B9-1 *091504108-0015*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B10-1.5 *091504108-0016*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B11-1.5 *091504108-0017*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B12-0 *091504108-0018*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B12-3.5 *091504108-0019*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**

Analyst(s)

Matthew Batongbacal (19)

Chris Dojlidko, Laboratory Manager
or other approved signatory

Initial report from 03/31/2015 15:46:48

OrderID: 091504108

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number *(Lab Use Only)*.

091504108

EMSL ANALYTICAL, INC
2235 POLVOROSA DR , STE 230
SAN LEANDRO, CA 94577
PHONE: (510) 895-3675
FAX: (510) 895-3680

Company : GEOCON CONSULTANTS, INC.		**EMSL-Bill to:** ☐ Same ☐ Different If Bill to is Different note instructions in Comments** *Third Party Billing requires written authorization from third party*	
Street: 6671 BRISA ST			
City: LIVERMORE	**State/Province:** CA	**Zip/Postal Code:** 94550	**Country:**
Report To (Name): R.DAY, L.BEAGLE		**Fax #:** 925-371-5915	
Telephone #: 925-371-5900		**Email Address:**	
Project Name/Number: E8721-02-26 SR 280 SHOULDER WIDENING			
Please Provide Results: ☐ Fax ■ Email	**Purchase Order:**	**U.S. State Samples Taken:**	

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ■ 1 Week ☐ 2 Week

**For TEM Air 3 hours/6 hours, please call ahead to schedule.*There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.*

PCM - Air
- ☐ NIOSH 7400
- ☐ w/ OSHA 8hr. TWA

PLM - Bulk (reporting limit)
- ☐ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)

Point Count
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)

Point Count w/Gravimetric
- ☐ 400 (<0.25%) ☐ 1000 (<0 1%)
- ☐ NYS 198.1 (friable in NY)
- ☐ NYS 198 6 NOB (non-friable-NY)
- ☐ NIOSH 9002 (<1%)

TEM – Air ☐ **4-4.5hr TAT (AHERA only)**
- ☐ AHERA 40 CFR, Part 763
- ☐ NIOSH 7402
- ☐ EPA Level II
- ☐ ISO 10312

TEM - Bulk
- ☐ TEM EPA NOB
- ☐ NYS NOB 198 4 (non-friable-NY)
- ☐ Chatfield SOP
- ☐ TEM Mass Analysis-EPA 600 sec. 2.5

TEM – Water: EPA 100.2
- Fibers >10µm ☐ Waste ☐ Drinking
- All Fiber Sizes ☐ Waste ☐ Drinking

TEM- Dust
- ☐ Microvac - ASTM D 5755
- ☐ Wipe - ASTM D6480
- ☐ Carpet Sonication (EPA 600/J-93/167)

Soil/Rock/Vermiculite
- ■ PLM CARB 435 - A (0.25% sensitivity)
- ☐ PLM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - C (0.01% sensitivity)
- ☐ EPA Protocol (Semi-Quantitative)
- ☐ EPA Protocol (Quantitative)

Other:
- ☐

☐ **Check For Positive Stop – Clearly Identify Homogenous Group**

Samplers Name: **Samplers Signature:**

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
	B1-0 SOIL		3-24-15
	B2-1		
	B2-1.5		
	B3-0		
	B3-3.5		
	B3-5.5		
	B4-1.5		
	B4-5.5		

Client Sample # (s): B1 - B12 **Total # of Samples:** 19

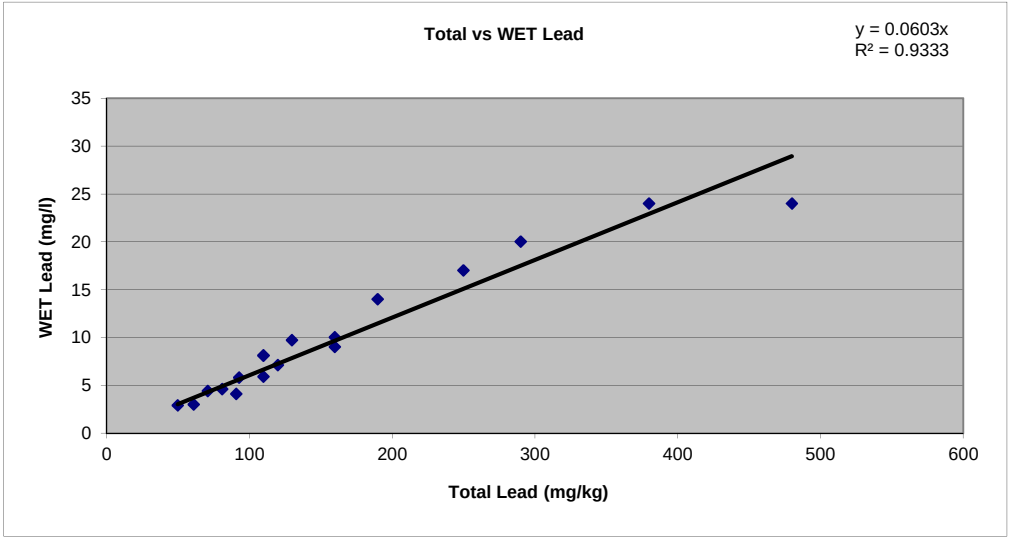
Relinquished (Client): CHRIS MERRITT **Date:** 3-24-15 **Time:** 1330

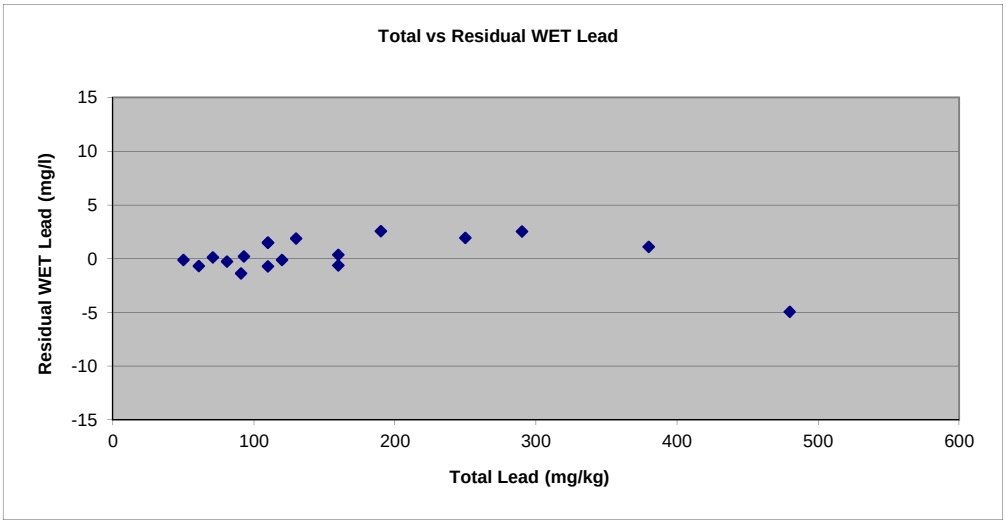
Received (Lab): 2.A **Date:** 3/24/15 **Time:** 1:45pm (W.I)

Comments/Special Instructions:

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	71	4.4	0.12	0.01
B3-0	0 to 0.5	120	7.1	-0.13	0.02
B3-1.5	1 to 1.5	110	5.9	-0.73	0.53
B3-3.5	3.5 to 4	81	4.6	-0.28	0.08
B4-0	0 to 0.5	130	9.7	1.86	3.47
B4-1.5	1 to 1.5	91	4.1	-1.39	1.92
B5-0	0 to 0.5	160	9.0	-0.64	0.41
B5-1.5	1 to 1.5	110	8.1	1.47	2.16
B5-3.5	3.5 to 4	93	5.8	0.19	0.04
B6-0	0 to 0.5	110	8.1	1.47	2.16
B6-1	1 to 1.5	50	2.9	-0.11	0.01
B7-0	0 to 0.5	250	17	1.93	3.73
B8-0	0 to 0.5	190	14	2.55	6.49
B9-0	0 to 0.5	290	20	2.52	6.35
B10-0	0 to 0.5	480	24	-4.93	24.33
B11-0	0 to 0.5	380	24	1.10	1.20
B12-0	0 to 0.5	160	10	0.36	0.13
B12-1.5	1.5 to 2	61	3.0	-0.68	0.46





Pb Location 1 - 0

Number of Valid Observations	9
Number of Distinct Observations	9
Minimum	26
Maximum	290
Mean	150
Median	130
SD	83.53
Variance	6977
Coefficient of Variation	0.558
Skewness	0.377
Mean of log data	4.821
SD of log data	0.727
90% Standard Bootstrap UCL	**183**
95% Standard Bootstrap UCL	**193**

Pb Location 1 - 1

Number of Valid Observations	9
Number of Distinct Observations	8
Minimum	2.4
Maximum	110
Mean	53.6
Median	47
SD	41.08
Variance	1688
Coefficient of Variation	0.767
Skewness	0.369
Mean of log data	3.502
SD of log data	1.285
90% Standard Bootstrap UCL	**69.8**
95% Standard Bootstrap UCL	**74.5**

Pb Location 1 - 3.5

Number of Valid Observations	4
Number of Distinct Observations	4
Minimum	1.4
Maximum	93
Mean	50.1

Pb Location 1 - 5.5

Number of Valid Observations	3
Number of Distinct Observations	3
Minimum	2.3
Maximum	28
Mean	13.3

Pb Location 2 - 0

Number of Valid Observations	3
Number of Distinct Observations	3
Minimum	160
Maximum	480
Mean	340

Pb Location 2 - 1.5

Number of Valid Observations	3
Number of Distinct Observations	3
Minimum	23
Maximum	61
Mean	40

As - Site

Number of Valid Observations	32
Number of Distinct Observations	16
Minimum	0.5
Maximum	10
Mean	2.413
Median	1.3
SD	2.601
Variance	6.768
Coefficient of Variation	1.078
Skewness	1.461
Mean of log data	0.35
SD of log data	1.039
95% Standard Bootstrap UCL	**3.17**

Cu - Site

Number of Valid Observations	32
Number of Distinct Observations	24
Minimum	4.1
Maximum	340
Mean	40.13
Median	22.5
SD	65.47
Variance	4287
Coefficient of Variation	1.632
Skewness	3.765
Mean of log data	3.103
SD of log data	0.988
95% Standard Bootstrap UCL	**58.2**

Pb - Site

Number of Valid Observations	32
Number of Distinct Observations	27
Minimum	1.4
Maximum	480
Mean	101.1
Median	66
SD	112.6
Variance	12672
Coefficient of Variation	1.113
Skewness	1.912
Mean of log data	3.91
SD of log data	1.443
95% Standard Bootstrap UCL	**133**

TPHmo

Number of Valid Observations	16
Number of Distinct Observations	15
Minimum	2.5
Maximum	230
Mean	66.57
Median	34.5
SD	69.46
Variance	4825
Coefficient of Variation	1.043
Skewness	1.457
Mean of log data	3.607
SD of log data	1.249
95% Standard Bootstrap UCL	**94.5**

Geotechnical Design Report for Maintenance Vehicle Pull Out Retaining Wall

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Memorandum

Serious drought
Help Save Water!

To: MR. PATRICK NG
District Branch Chief
Design South- Santa Clara

Date: March 2, 2015

Attention: Son Ly

File: 04-SF-280 PM 0.14/1.4
EA: 04-4H9001
E-FIS: 0413000300
Shoulder Improvements

From: DAVID NESBITT
Transportation Engineer
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

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

RON KARPOWICZ
Engineering Geologist
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

CHRIS RISDEN
Chief, Branch B
Office of Geotechnical Design-West
Geotechnical Services
Division of Engineering Services

Subject: GEOTECHNICAL DESIGN REPORT FOR MAINTENANCE VEHICLE PULL OUT RETAINING WALL

1. INTRODUCTION

This revised Geotechnical Design Report (GDR) supersedes the GDR dated January 15, 2014 and provides our recommendations for construction of a proposed retaining wall and a concrete barrier. The retaining wall and the concrete barrier are proposed for the shoulder improvement at two separate locations along Route 280 between PM 0.14 and PM 1.4, in the City and County of San Francisco.

1.1 Project Description

The proposed project involves constructing a retaining wall for an existing maintenance vehicle pullout (MVP) at the southbound I-280 John Daly Boulevard off ramp (Location 1). The project also involves widening the shoulder of northbound I-280 near the San Jose Ave Overcrossing (Location 2). Please refer to Figure #1 for project locations.

2. SCOPE OF WORK

We have performed a geotechnical investigation which included the following:

- Field reconnaissance to observe and document site conditions.
- Review geology open files and as-built Log of Test Borings (LOTB).
- Conduct engineering analyses and provide these foundation recommendations.

We reviewed available files for the existing bridges near the two proposed sites in the Bridge Inspection Record Information System (BIRIS). The as-built LOTB for the St. Charles Avenue Overcrossing (Bridge No. 35-0176) was used to evaluate the soil conditions for the proposed retaining wall foundation design and construction at Location #1. The as-built LOTB for the San Jose Avenue Overcrossing (Bridge No. 34-0087) was used to evaluate the soil conditions for the proposed concrete barrier design and construction at Location #2. Copies of the as-built LOTBs have been sent to your office.

Notice that elevations shown in as-built LOTB were based on the NGVD29 datum. At this site, the NAVD88 elevation is approximately +2.75 feet higher than NGVD29 elevation.

3. SITE EXPLORATION

Site visits were conducted on September 23 and October 21, 2014, respectively. The field visits consisted of evaluating the site at the existing MVP location (Location 1), and the slope at the proposed concrete barrier location (Location 2). There was no subsurface investigation for the proposed retaining wall for the existing MVP location, and the proposed concrete barrier.

4. PHYSICAL SETTINGS

4.1 Climate

The climate in the project area is characterized as Mediterranean, with warm, dry summers and cool, moist winters. The mean annual high temperature varies from 51°F and 70° F with the mean maximum temperature occurring in September of 70° F and the mean low temperature occurring in January of 46°F. The maximum temperature reported in San Francisco area was 103° F and the lowest reported temperature was 23°F. On the average, freezing temperatures do not occur in San Francisco and freeze-thaw conditions have a low potential to impact the proposed project.

The average annual precipitation for the San Francisco area over 63 years is 23 inches, with most of the precipitation falling between the months of November and March. Winter storms that move through the area are usually of moderate duration and intensity.

4.2 Topography and Drainage

The project locations are on relatively flat lying ground adjacent to embankment slopes that are approximately 2(H): 1(V).

5. GEOLOGY AND SUBSURFACE CONDITIONS

5.1 Regional Geologic Overview

The project is located in the Coast Range Geomorphic Province of Central California, a series of northwest-trending mountain ranges (2,000 to 4,000, occasionally 6,000 feet elevation above sea level), and intermountain valleys, bounded in the east by the Great Valley and to the west by the Pacific Ocean. The Coast Ranges are composed of thick Cenozoic sedimentary and volcanic strata overlying Mesozoic metamorphic basement rock. The northern and southern ranges are separated by a depression containing the San Francisco Bay. The Coast Range is sub parallel to the active San Andreas Fault, which is more than 600 miles long, extending from Pt. Arena to the Gulf of California.

5.2 Site Geology

According to the geologic map for the area, site location 1 is underlain by the Colma Formation (Qc). According to Bonilla (1998), the Colma Formation is described as mostly sandy clay and silty sand; yellowish orange to gray. Location 2 is underlain by the undifferentiated Cretaceous Sandstone and Shale (KJsk). According to Bonilla (1998), the Sandstone and Shale is described as interbedded sandstone and shale, hard where fresh and intact, soft where weathered or sheared. Commonly medium dark gray where fresh, olive gray to yellowish brown where moderately weathered, and yellowish orange to yellowish gray where highly weathered. A relevant portion of this map is included as Figure 2, Geologic Map.

5.3 Geologic Hazards

The site may be affected by activity along any of the active faults discussed below. Earthquake induced hazards can be categorized as primary and secondary seismic effects.

Primary seismic effects such as ground rupture or surface deformation resulting from differential movement along a fault trace are not expected to occur on the site since there are no active faults mapped within the project limits.

Secondary seismic effects result from various soil responses to ground acceleration. These effects result from activity of any nearby active faults and include the following:

- Liquefaction of Natural Ground – Liquefaction is a process by which soil deposits below the water table temporarily lose strength and behave as a viscous liquid rather than a solid, typically during a moderate to large earthquake. In general, very loose to medium dense, clean fine- to medium-grained sand, and very soft to firm, low plasticity silts that are relatively free of clay are most susceptible to liquefaction. Earthquake-induced ground shaking can cause these loose or soft materials to densify, resulting in increased pore water pressures and an upward movement of groundwater that may result in a liquefied condition. Depending on the weight of the structure, the depth to the liquefied stratum and the nature of the overlying soils, structures situated above such temporarily liquefied soils may sink or tilt, causing significant structural damage.

  According to the State Seismic Hazard Zones Map, the project is not located in an area where historic occurrence of liquefaction or local, geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) (See Figure 3, State Seismic Hazard Map) is necessary.

- Cracking – Lurch cracks may develop in the silty and clayey soil overlying the site. The potential for lurch cracking will be higher in the rainy periods when the soil is saturated. The hazard from cracking is considered minimal.

- Differential Settlement – During moderate to large earthquakes, soft or loose soil can densify and consolidate, often unevenly across a site. The hazard from differential settlement is considered minimal.

- Ground Shaking - Moderate to large earthquakes are probable along several active faults in the greater Bay Area. Therefore, strong ground shaking should be expected at some time during the design life of the proposed development. The improvements should be designed in accordance with current earthquake resistant standards.

- Shrink Swell - The expansion and/or contraction of clayey soil can cause foundations to shift and roadways to crack. Due to the lack of clayey soil at the site, the potential for shrink swell to impact the project is considered low.

5.4 Subsurface Conditions

Based on our review of the As-Built LOTB for the St. Charles Avenue Overcrossing (Location #1), Boring B-3 is located in the proximity of the proposed project site. Boring B-3 encountered slightly compact to compact brown fine to medium moderately silty sand in the top 8 feet. Below the top 8 feet, dense to very dense tan fine silty sand was encountered.

Based on our review of the As-Built LOTB for the San Jose Avenue Overcrossing (Location #2), Boring B-4 is located in the proximity of the proposed project site. Boring B-4 encountered slightly compact grey to brown silty fine to median sand in the top 5 feet. From a depth of 5 to 10 feet, dense mottled tan and buff clayey sandy silt. Below 10 feet, brown sandstone with interbedded shale layers.

5.5 Groundwater

Based on our review of the As-Built Plans for the St Charles Overcrossing (Location #1), groundwater was not recorded in boring B-3 which was drilled to a depth of 60 feet below the ground surface. Groundwater was measured in a boring B-2 at a depth of 15 feet below the ground surface.

Based on our review of the As-Built Plans for the San Jose Avenue Overcrossing (Location #2), groundwater was not recorded in boring B-4 which was drilled to a depth of 30 feet below the ground surface.

Groundwater elevations may vary with seasonal changes.

6. REGIONAL SEISMICITY AND FAULTS

6.1 Faulting and Seismicity

The San Francisco Bay Area is one of the most active seismic regions in the United States. Three major faults trend northwest through the Bay Area and have generated about 12 earthquakes per century large enough to cause significant structural damage. These earthquakes occur on any of the numerous faults that are part of the San Andreas Fault system that extends for at least 700 miles along the California Coast.

The U. S. Geological Survey concluded that there is a 62 percent probability for at least one "large" earthquake of magnitude 6.7 or greater in the Bay Area before 2032. There could also be more than one earthquake of this magnitude and that numerous "moderate" earthquakes of about magnitude 6 are probable before 2032. The San Andreas Fault is estimated to have a 21 percent probability of producing a magnitude 6.7 or larger earthquake by the Year 2032 (WGCEP, 2003). The probability of the Hayward, Calaveras, and Greenville Faults producing a similar size earthquake during the same time period is 27 percent, 11 percent and 3 percent, respectively (See Figure 4, San Francisco Bay Region Earthquake Probability Map).

6.2 Site

According to the latest California Seismic Hazard Map Version 2.0.4 (USGS, 2008), which is based on the United States Geological Survey (USGS) and California Geological Survey (CGS) maps, the nearest active faults are the San Andreas-Peninsula Section, San Andreas – North Coast Section, and the San Gregorio fault zones. The site is not located in an Alquist-Priolo Earthquake Fault Zone. The San Andreas-Peninsula Section fault is a strike slip fault, has a Maximum Magnitude (Mmax) of 8, and is located approximately 2.9 miles to the southwest of the project. The San Andreas – North Coast Section Fault zone is a strike slip fault, has a Mmax of 8 and is located approximately 10.4 miles northwest of the site. The San Gregorio Fault is a strike-slip fault, has a Mmax of 7.4 and is located approximately 6.8 miles west of the site. The fault distances were measured on Google Earth and represent the horizontal distances from the fault traces or surface projections of the top of rupture planes to the project site.

6.3 Site Ground Motions

Since geophysical testing, including shear wave velocity, was not performed at the site, we determined the Vs30 based on the geologic map and logs of test borings. Vs30 refers to the average shear wave velocity in the upper 30 meters of the soil/rock profile and is a measure of the near surface soil stiffness. As noted in the Geologic Conditions section, the geologic map for the area indicates that the site is underlain by Colma Formation sand and Sandstone and Shale bedrock. Logs of test borings in the area confirms that the sites are underlain by sand and sandstone bedrock at depth. Based on the boring logs and geologic map, we assigned a NEHRP class D to the site, which correlates to a shear wave velocity (Vs30) of 270 m/s, stiff soil.

We generated Acceleration Response Spectrum (ARS) curves with the Caltrans Deterministic Seismic Hazard Analysis (DSHA) and Probabilistic Seismic Hazard Analysis (PSHA) version 2.0.4 using a 975-year return period (5% probability of exceedance in 50 years). The probabilistic and deterministic data generated from the curves are listed in Table 1 below.

Table 1: Fault Data[1]

Fault Name	Distance: Miles	Fault ID:	Fault Type:	Maximum Magnitude (MMax):	Peak Ground Acceleration (g)	Hazard Analysis Type
San Andreas-Peninsula Section	2.9	134	Strike-Slip	8	0.45	DSHA
The San Andreas-North Coast Section	10.4	80	Strike-Slip	8	0.25	DSHA
San Gregorio	6.8	127	Strike-Slip	7.4	0.27	DSHA
Probabilistic Model USGS Seismic Hazard Map(2008) 975 Year Return Period					0.75	PSHA

7. ANALYSIS AND RECOMMENDATIONS

7.1 Foundation Recommendations

We are recommending that a Caltrans Standard Type 1 (Case 1) or a Caltrans Standard Type 5 (Case 1) retaining wall be used for the existing MVP (Location #1). The proposed concrete barrier at the Location #2 shall not be used in place of retaining wall to retain the existing slope.

7.2 Bearing Stress Analysis

The bearing stress analysis was performed using information from the as-built LOTBs. The bearing analysis was performed for the Type 1 (Case 1) and Type 5 (Case 1) for wall heights of 4 feet and 6 feet for Location #1.

8. CONSTRUCTION CONSIDERATIONS

The following construction considerations and requirements should be included in the design and construction specifications for the proposed retaining wall.

- The temporary back cuts for the construction of the Type 1 or Type 5 retaining walls cannot be steeper than 1(H): 1 (V). The excavation should follow Cal/OSHA excavation requirements. Our Office shall be contacted for specific recommendations to mitigate

[1] http://dap3.dot.ca.gov/ARS_Online/index.php

abnormal slope and foundation soil conditions, and problems encountered during construction.

- The foundation soil on which the wall or barrier is founded must be free from organics, debris and unsuitable materials. Any loose zone encountered shall be excavated and replaced with compacted structural fill.

- If the excavation for the concrete barrier exposes the foundation of the San Jose Avenue Overcrossing (Location #2), shoring may be required to prevent undermining of the abutment.

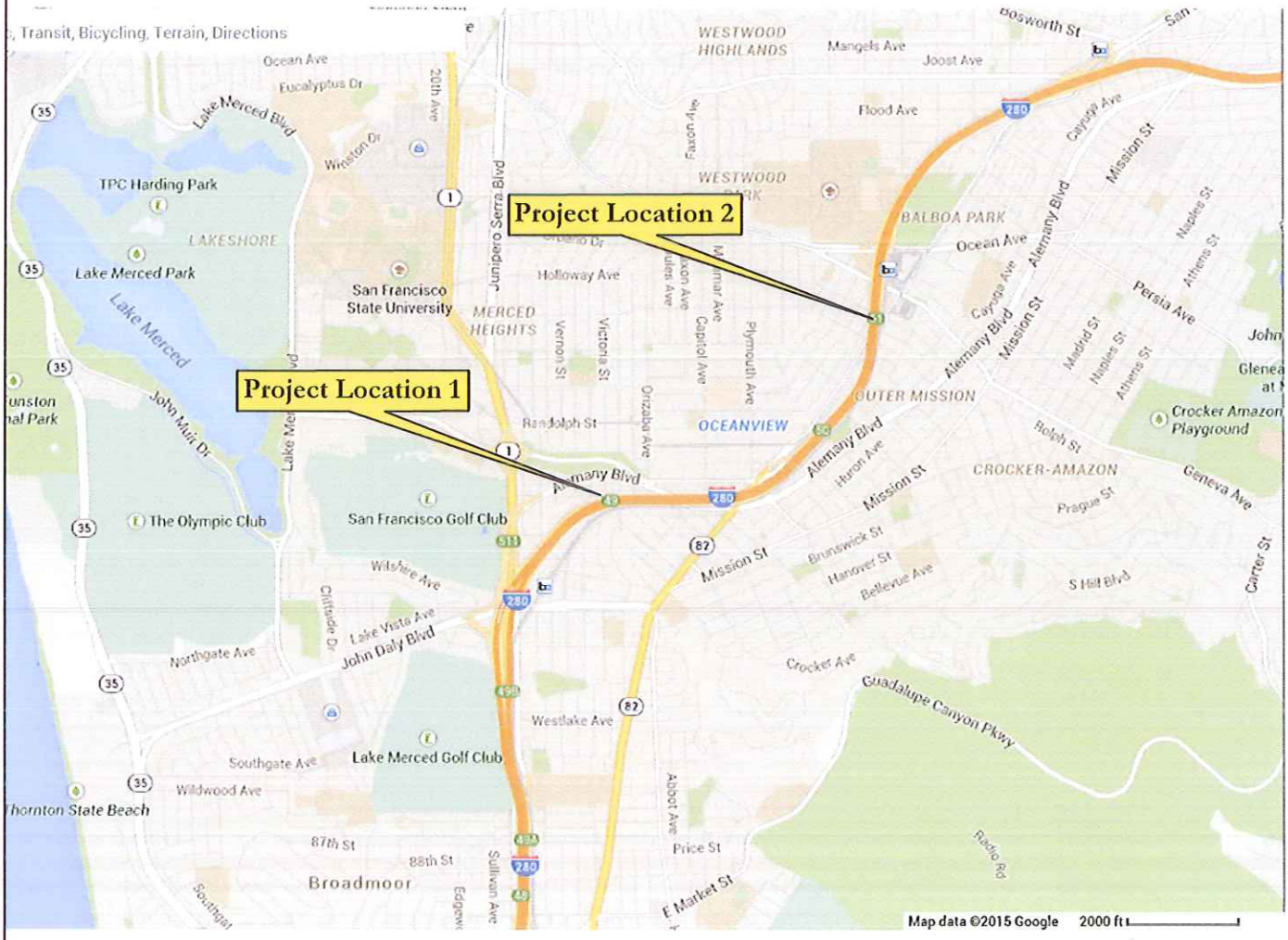
- Please refer to Chapter 19 of 2010 Caltrans Specifications for backfill, compaction, and embankment construction requirements.

The recommendations contained in this GDR are based on specific project information regarding structure type and location. If any conceptual changes are made during the final project design, the Office of Geotechnical Design-West, Design, Branch C should review those changes to determine if these recommendations are still applicable. Any questions regarding the above recommendations should be directed to the attention of David Nesbitt (510) 622-0104, or Mahmood Momenzadeh (510) 286-5732, Branch Chief at the Office of Geotechnical Design-West, Branch C.

Attachments:

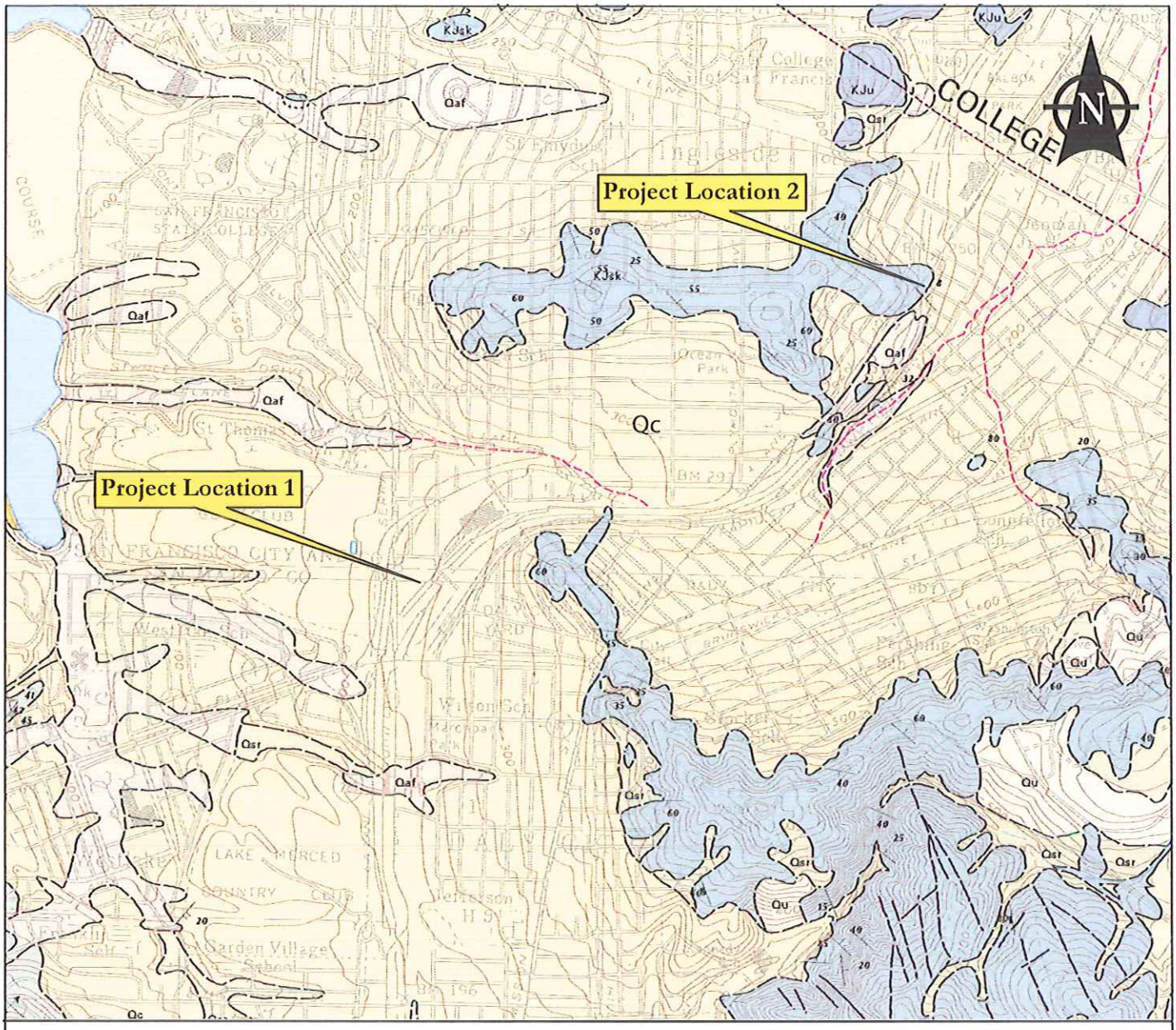
c: TJPokrywka, MMomenzadeh, CRisden, RKarpowicz, Daily File

DNesbitt/mm



Base: Google Maps, 2015
Scale as shown

Caltrans	MAINTENANCE VEHICLE PULLOUTS HIGHWAY 280 PM 0.14-1.4 SAN FRANCISCO COUNTY, CALIFORNIA	SITE LOCATIONS MAP
	EFIS#: 0413000300 / JANUARY 2015	FIGURE 1

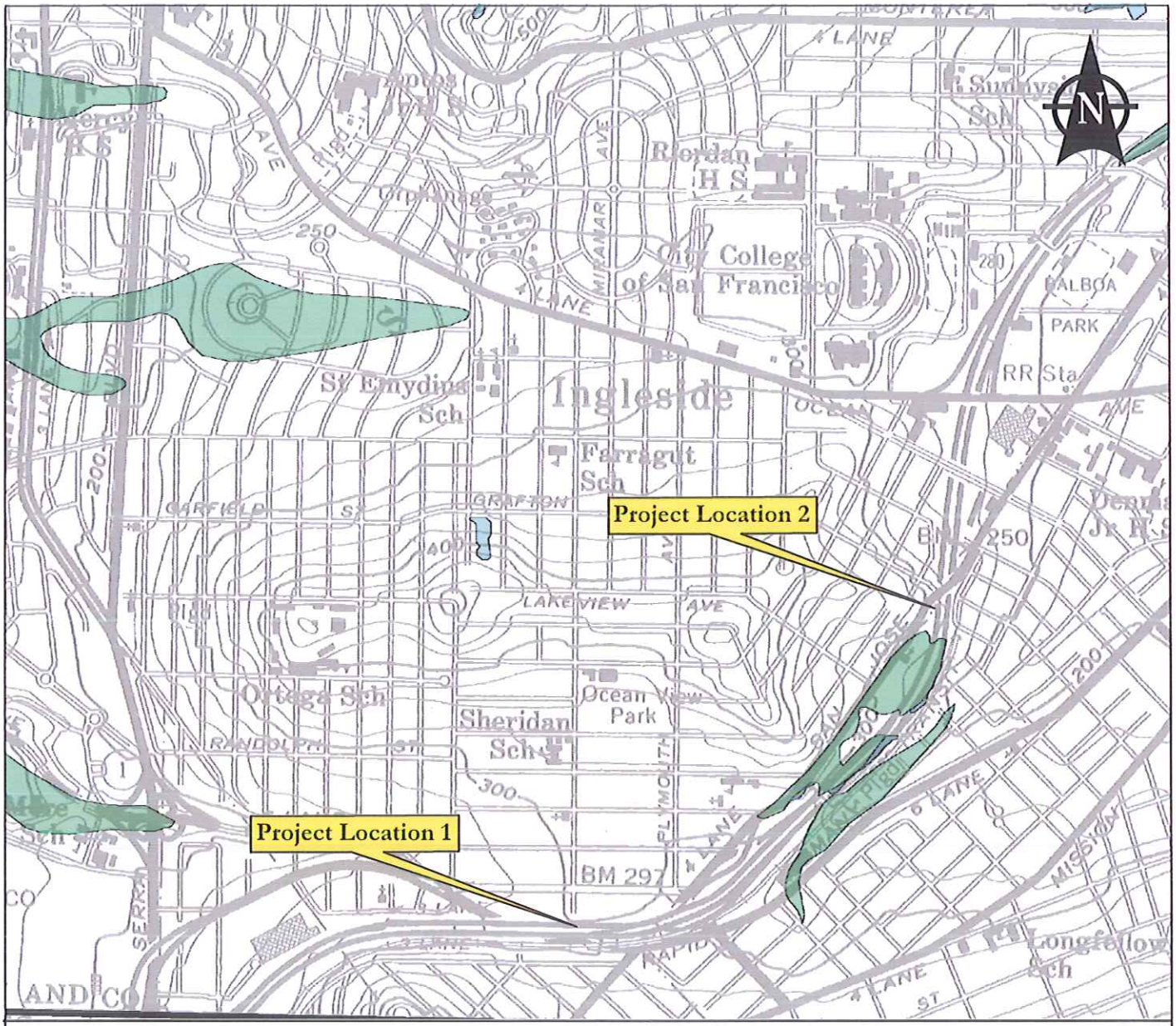


LEGEND

Qaf	artificial fill	Qc	Colma Formation
Qaf/tf	artificial fill over tidal flat	KJsk	Sandstone and shale
Qal	alluvium	KJg	Franciscan Complex Greenstone

Base: Preliminary Geologic Map of the San Francisco South 7.5' Quadrangle, (Bonilla, 1998)
not to scale

Caltrans	MAINTENANCE VEHICLE PULLOUTS HIGHWAY 280 PM 0.14-1.4 SAN FRANCISCO COUNTY, CALIFORNIA	GEOLOGIC MAP
	EFIS#: 0413000300 / JANUARY 2015	FIGURE 2



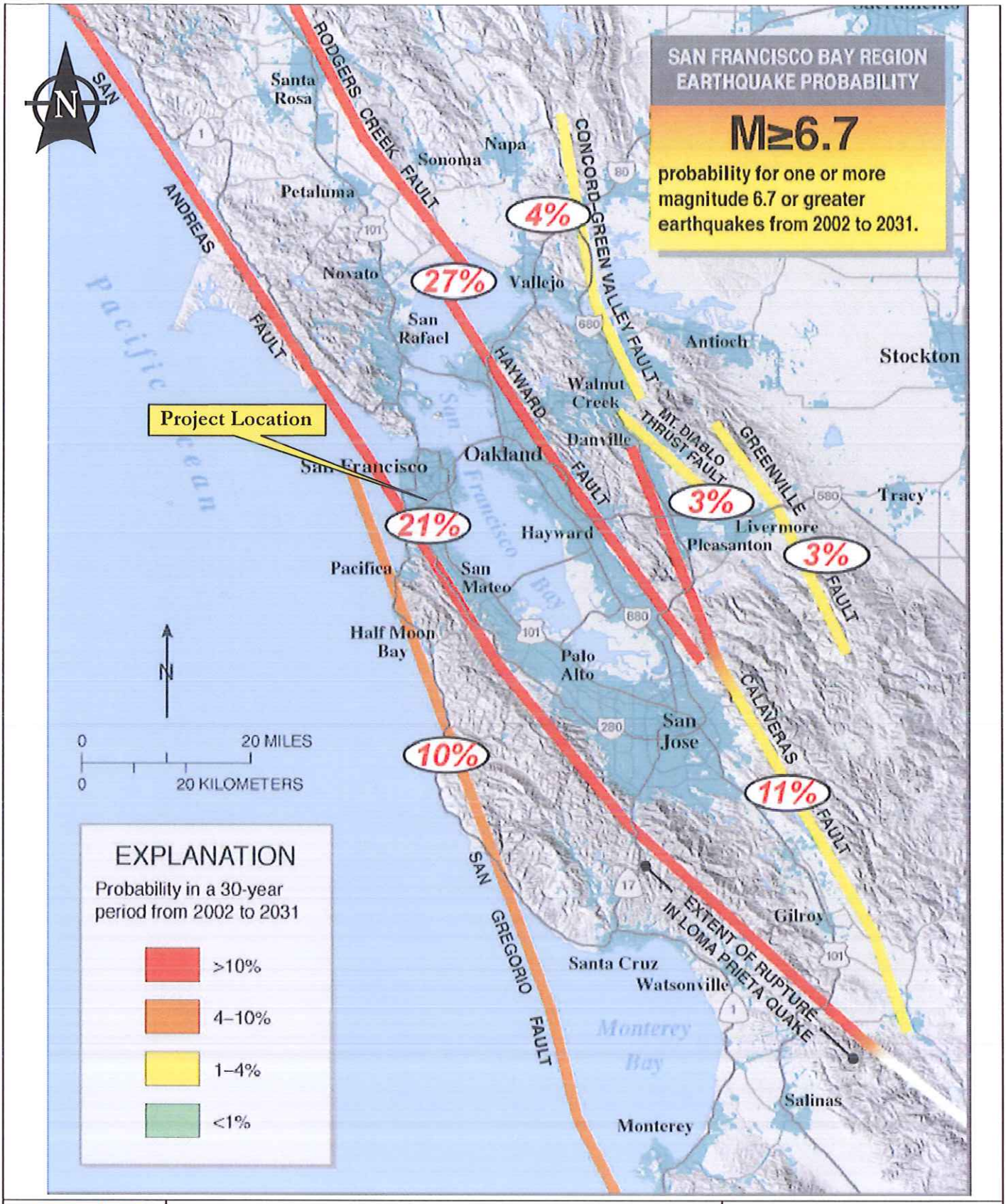
LEGEND

Areas where historic occurrence of liquefaction, or local, geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

Areas where previous occurence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that
mitigation as defined in Public Resources Code Section 2693(c) would be required.

Base: State of California Seismic Hazard Zone Map for the San Francisco South 7.5 Minute Quadrangle, CGS 2000.
Scale: 1 inch = 2,000 feet

Caltrans	MAINTENANCE VEHICLE PULLOUTS HIGHWAY 280 PM 0.14-1.4 SAN FRANCISCO COUNTY, CALIFORNIA	STATE SEISMIC HAZARD MAP
	EFIS#: 0413000300 / JANUARY 2015	FIGURE 3



Caltrans	MAINTENANCE VEHICLE PULLOUTS HIGHWAY 280 PM 0.14-1.4 SAN FRANCISCO COUNTY, CALIFORNIA	SF BAY REGION EARTHQUAKE PROBABILITYY MAP
	EFIS#: 0413000300 — JANUARY 2015	FIGURE 4