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February 21, 2013
File No.: 130985-2

Ms. Cori Marsalek, P.E.
County of San Luis Obispo, Department of Public Works
1050 Monterey Street, Rm. 207
San Luis Obispo, California 93408

SUBJECT: Limited Environmental Assessment and Geologic Reconnaissance
Main Street Bridge Replacement Project
Cambria, California

Dear Ms. Marsalek:

The following letter presents the results of Kleinfelder's limited environmental assessment and geologic reconnaissance in the vicinity of the Main Street Bridge (Bridge No. 49C-0337) at Santa Rosa Creek in the northeastern portion of Cambria, California (Site, Plate 1). The work scope was developed through discussions with the County of San Luis Obispo, Department of Public Works (County), the Regional Water Quality Control Board (RWQCB), and Kleinfelder in December 2012. The purpose of the work scope was to evaluate the potential for elevated concentrations of mercury in the soils which would be disturbed during construction of the new bridge. The evaluation consisted of sampling and analyzing accessible soils, reviewing various geologic and historic data, and performing a brief field reconnaissance.

BACKGROUND

The County has been pursuing the planning and engineering for the replacement of the Main Street Bridge over Santa Rosa Creek for several years. The existing two-span bridge will be removed and replaced with a new single-span bridge 150 feet in length. The proposed centerline for the replacement bridge is located approximately 36 feet upstream from the existing centerline (northeast of the existing bridge). The new bridge foundation is to be supported on a series of driven piles at either abutment, while the wingwalls and retaining walls will be supported on drilled, cast in drilled hole (CIDH) piles. Rock slope protection (RSP) will be placed on the creek banks to protect the bridge abutments from bank erosion. Depths of the RSP will be on the order of 14 feet below the bottom of the creek.

Based upon communications between the County and RWQCB in October 2012, Kleinfelder understands that one project stakeholder has expressed concern regarding the presence of abandoned mercury mines in the upper Santa Rosa Creek watershed and possible downstream impacts to soils local to the bridge area. Through sampling performed as part of the RWQCB Central Coast Ambient Monitoring Program (CCAMP), the mercury levels were shown in Santa Rosa Creek to be below regulatory hazardous waste thresholds (*Site-Specific Monitoring Workplan FY 2003-2004*, RWQCB, p. 23), however, RWQCB requested the County investigate stakeholder concerns through this soil sampling and review prior to issuance of the 401 Certification for construction. The objective of this limited environmental assessment is to

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obtain current knowledge about the soil mercury content at the Site prior to breaking ground and how these concentrations compare to hazardous waste thresholds.

SOIL SAMPLING AND MERCURY ANALYSIS

The literature indicates natural mercury was actively mined in the Curti Creek sub-watershed of the upper Santa Rosa Creek (4 to 5 miles or more upstream of the bridge) beginning in 1865 (Eckel et al, 1941). Mercury was mined at several locations in the foothill bedrock east of Cambria and west of Paso Robles on either side of the divide. These mining operations continued until the mid-1940s during World War II then decreased significantly. As the bedrock and mine tailings erode, the natural mercury has an affinity to adsorb to soil particle surfaces (primarily carbon molecules) and form insoluble precipitates. Typically, mass transport of mercury in mining-affected watersheds is dominated by particle transport rather than transported as dissolved mercury. The distance sediment will travel is effected by several factors including drainage slope angle, vegetative cover, severity of rainfall and stream flow rate.

The CDFG *Santa Rosa Creek Watershed Management Plan* (Plan; prepared by Stillwater Sciences, February 2012) presents an in-depth discussion of the sediment processes in the watershed and includes a summary of soil sample analytical results for mercury from creek sediment samples. The document indicates mercury concentrations in the creek sediments as high as 8.48 milligrams per kilogram (mg/kg) near Curti Creek. Two stream sample analytical results from near the bridge were reported mercury at 0.12 and 0.16 mg/kg.

Because of the potential for mercury to be in sediments that would be disturbed by the proposed new bridge construction, the County proposed collecting soil samples in the creek channel just upstream of the bridge location, in the area of proposed RSP installation. These samples would be analyzed for total mercury to provide an indication of the concentration of mercury in the sediments that would be disturbed by installation of the proposed RSP during construction. Collection of samples was proposed at two foot intervals to the deepest proposed depth of the RSP installation (about 14 feet below the creek bottom). The location for sampling was selected by Kleinfelder and the County in the field on December 18, 2012 (see Plate 2). The location chosen was accessible through the dense brush and allowed sampling the geologically recent soils from the east side of the creek channel approximately 70 feet upstream of the existing bridge. Kleinfelder obtained utility clearance of the proposed auger location prior to attempting sample collection.

The sampling was proposed from a depositional soil bench located approximately five feet higher than the surface of the creek within the creek channel. Such sediments are typically the result of past periods of elevated stream flow and subsequent deposition. As such, these sediments should be older than the current stream level sediments. Additional sampling was also attempted at the stream level. The uppermost flood plain surface sediments, above and adjacent to the east side of the incised creek channel (approximately 20 feet above stream level), were not sampled since the age of these upper sediments are likely to predate the past mining operations.

A hand auger was used to advance the sample boring in the surface sediments of the creek, thus minimizing impact to the area. Soil sampling by mechanized drilling was not considered due to the need to traverse and disturb highly vegetated areas to access the sampling area. The initial surface soil sample and 2 to 2.5-foot deep sample were collected as per the approved workplan. However, a dense gravel-rich layer was encountered at the 2.5-foot depth, which

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inhibited further penetration to deeper depths by hand. Sampling was attempted at four additional areas within a 25-foot radius of the initial sample location and these borings had auger refusal at 2.5 feet except one of the borings. At the third attempted boring in this area (about three feet from the original boring), a sample was collected from 2.5 to 3 feet after which auger refusal occurred again. Soil sampling depths occurred from 0 to 6 inches and 2 to 2.5 feet from the first boring and from 2.5 to 3 feet deep in the third boring. Kleinfelder then attempted sample collection in the lower soil bench area at approximately the stream elevation at three locations but could not penetrate deeper than about one foot in gravel soils; therefore, no samples were collected at stream elevation.

Each of the three soil samples collected from the creek bench location (about five feet above flowing water) was homogenized in the field in a 1-gallon bag then split into two clean glass sample jars supplied by Basic Laboratory, Incorporated of Redding, California. Each pair of jars was labeled, logged on a chain-of-custody form, and placed in an iced cooler chest until delivery to the analytical laboratory. Basic Laboratory submitted the samples to Eurofins/Frontier Global Sciences Laboratory in Bothell, Washington to be analyzed for total mercury using low detection limit analysis (EPA Method 1631).

Copies of the analytical data sheets from the analytical laboratory are attached at the end of this letter. The reported total mercury analytical data indicates that the concentrations do not exceed the California Code of Regulations (CCR), Title 22, Article 11, §66261.24 Total Threshold Limit Concentrations (TTLC) for classification for hazardous substances. The following table summarizes the data.

Table 1 Summary of Mercury Sample Results

Sample Location	Sampling Date	Depth of Sample (Ft.)	Total Mercury Concentration (mg/kg)	TTLC Mercury (mg/kg)
Hg1@0-6	01/03/2013	0 – 0.5	0.56	20
Hg1@2-2.5	01/03/2013	2 - 2.5	3.29	20
Hg1@2.5-3	01/03/2013	2.5 - 3	1.05	20

RELATIVE AGE OF SOILS

Kleinfelder reviewed readily available documents and aerial photography, followed by a brief field reconnaissance during the soil sampling, in an effort to evaluate the relative age of the creek sediments and their potential for containing elevated concentrations of mercury. The document review along with the laboratory results would allow the County to assess the potential for elevated mercury concentrations in the soils proposed for removal for the new bridge RSP.

Initially, Kleinfelder reviewed geologic mapping for the Central Coast, including the Santa Rosa Creek watershed, published by numerous parties over the years (Eckel, Yates, Granger, 1941; Hall, 1974; Hall and others, 1979; etc.). These documents and maps depict the flood plain and Santa Rosa Creek channel deposits as Quaternary alluvium of Holocene epoch. No other maps were located that separate or date the recent creek channel sediments from older alluvial soils. Kleinfelder also contacted Environmental Data Resources, Incorporated (EDR) to obtain available historic aerial photography and historic topographic maps of the bridge area. This data was reviewed in order to observe apparent changes in the drainage channel and

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topographic maps over time through erosive and human processes. Available aerial photography were obtained from 1937, 1949, 1956, 1969, 1978, 1989 (thermal infra-red), 1994, 2005 (color), and 2006 (color). Topographic maps were obtained for 1919, 1942, 1959, 1959 (different contour interval), and 1979 (copies of these data sets are included at the end of this letter). Following review of this information, Kleinfelder performed a reconnaissance of the exposed soils in the bridge area to observe the conditions indicated on the historic maps and aerial photography.

The aerial photography depicts conditions within about one half mile radius of the bridge. Obvious changes in vegetative cover in the active channel are evident but the location of the stream channel is uncertain near the bridge due to the vegetation. Minimal lateral creek migration over the years is evident at the bridge. The topographic map contour intervals allow for interpretation of sizable physical changes in the area but the level of contour resolution does not provide information on small topographic changes expected from minor creek erosion or deposition. The contouring in the bridge area appears constant from year to year reviewed; suggesting that the sediment loading and deposition within this lower reach of the creek channel to have been relatively stable for at least the past approximately 100 years.

The two geotechnical boring logs located outside of the active stream channel at either end of the existing bridge (Kleinfelder, 2006) were reviewed in light of the background and geologic information for the site. The two borings encountered up to approximately 19 feet of approach fill soil overlying native sediments at an approximate elevation of 60 feet. This contact is estimated to be 12 feet above the current top of creek with the creek surface at approximately 48 feet elevation. The native sediments were described in the geotechnical report as "...interbedded, laterally discontinuous, medium dense to dense silty sand, medium dense to dense clayey sand, medium stiff to stiff sandy clay, medium dense sand and some medium dense to dense sandy gravel." The creek alluvial soil encountered in the hand auger borings contrast with the boring samples as by being loose silty sand and poorly graded sand to approximately 2.5 feet below ground surface (bgs). Below this depth, a significant amount of gravel and cobble were encountered and prevented hand sampling at depths greater than 3 feet bgs in the bench soils above the creek. The hand auger borings also did not penetrate the creek sediments and enter into the older native alluvium. The depth to the contact between recent creek sediments and the native older alluvium at the sampling locations is uncertain in the creek channel.

DISCUSSION AND CONCLUSIONS

The field and laboratory data accumulated by Kleinfelder was supplemented by Appendix A of the CDFG Plan (February 2012) to prepare the following summary of information and conclusions pertaining to mercury concentrations which may be encountered during construction of the new bridge.

Geologic processes causing mountain uplift and subsequent erosion and deposition have been changing the landscape of the Central Coast throughout the centuries. A watershed landscape is developed that is a balance between the local tectonic uplift and erosion. The Santa Rosa Creek watershed is located primarily in Franciscan mélange and other metamorphic rock materials. The tectonic activity and softer nature of the rock materials in the higher foothills erode at a higher rate than harder rock materials. Natural erosion is driven by winter storm runoff, the natural vegetation land cover.

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The settlement of the area by influx of people in the mid 1800's (described in Appendix A of the Plan) resulted in a significant physical change to the watershed. The population growth changed the landscape by clearing the land for agriculture and timber harvesting as well as mining operations for mercury. The native trees and shrubs were replaced by shallow rooted grasses. The result of this change was spikes in the erosion during rainfall and less vegetation to hold the soil. From 1950 through about 1995, the town of Cambria began to grow larger as the population rose in this time period. The growth slowed as the drinking water availablilty became more apparent.

The CDFG Plan (Appendix A) geomorphology study evaluated the hillslope erosive features in the watershed and noted that gullies accounted for more than two-thirds of the total area erosion features with road and landslides accounting for significantly less area. CDFG attributed increased erosion due to the 1860's population growth in the area and concluded that much of the total volume of sediment transported "...would have been focused in the early years of gully existence." Much of this erosion occurred in the upper terrain consisting of fractured and sheared Franciscan mélange and Monterey Formation and characterized by moderately steep slopes. The study which considered various limitations including minimal data concluded the highest sediment supply to the creek appears from the watersheds of the East Fork Santa Rosa and Curti Creeks and two unnamed tributaries draining to the adjacent Green Valley and Perry Creek sub-watershed.

Other characteristics were assessed in the CDFG Plan including frequency of large rain-driven flood events, gradient of the creek from headwaters to the ocean, and channel dynamics (stream sinuosity and incision, stream power for sediment transport, and likely bed loading). The discussion indicates that the watershed has received relatively frequent large flood events (eight noted since stream gauging began in 1952), which mobilize sediments that were deposited during dryer periods of time. The CDFG Plan graphic of stream channel migration (Figure 4-10C) shows the creek thalweg (deepest portion of the actively flowing stream water) at the bridge site flowing between the western abutment and center bent in 1937 and that it had switched to between the center bent and the eastern abutment in 2007. Currently, the channel thalweg is again closer to the western abutment. This indicates that the deposited sediments in the lower reach of the creek at the bridge has been mobilized and removed then more recent sediments re-deposited on a frequent basis over the past one hundred years.

The older dense alluvial soils observed in the geotechnical boring in the area of the existing bridge abutments are outside of the active stream channel and anticipated to predate the mercury mining operations that occurred in the late 1800s to mid-1900s. Although an accurate age date of the active creek channel sediments was not determined, these sediments are considered younger than and overlie denser older flood plain alluvium (non-fill soil encountered in the geotechnical borings).

Our opinion based on the above information is that more mercury-laden sediments from upstream mining operations were likely deposited earlier in the century at the bridge site. However relatively frequent higher energy flood events over the years would be expected to have removed sediments at this location in a cyclic fashion including re-deposition of younger, post-mining sediments. The Kleinfelder analytical results and the previous creek sediment analyses show more elevated mercury concentrations near the confluence with Curti Creek and considerably less concentrations reported from the bridge area. The mercury concentrations reported in this report for stream sediments in the watershed have been less than half of the mercury hazardous waste threshold concentration of 20 mg/kg (CCR, Chapter. 11, Article 3, § 66261.24-1, Table II). Considering the frequency of sediment removal and re-deposition by

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younger sediments and the noted mercury results, it is reasonable to conclude that the sediments that would be removed by installation of the proposed bridge RSP would also be expected to have mercury concentrations below the hazardous threshold.

LIMITATIONS

Our work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions and at the date the services were provided. Our conclusions, opinions and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

Regulations and professional standards applicable to Kleinfelder's engineering services are continually evolving. Techniques are, by necessity, often new and relatively untried. Different professionals may reasonably adopt different approaches to similar problems. As such, our services are intended to provide San Luis Obispo County with a source of professional advice, opinions and recommendations based on our limited number of field observations and tests, collected and performed in accordance with the generally accepted engineering practice that exists at the time our services were rendered and may depend on, and be qualified by, information gathered previously by others and provided to Kleinfelder by San Luis Obispo County.

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. Although risk can never be eliminated, more detailed and extensive studies will yield more information, which may help understand and manage the level of risk involved. Since detailed study and analysis involves greater expense, our clients participate in determining levels of service that provide adequate information for their purposes at acceptable levels of risk. More extensive studies could be performed to reduce these uncertainties.

We appreciate the opportunity of presenting this report. If you have questions regarding the report or require additional information, please contact the undersigned at (559) 486-0750.

Sincerely,
KLEINFELDER WEST, INC.

Richard C. Fink, PG
Principal Geologist/Project Manager

David Pearson, CE
Principal Geotechnical Engineer

RCF:DP:xxx

Enclosures:
Plates
- Plate 1 Site Vicinity Map
- Plate 2 Rock Slope Protection Map

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Historic Topographic Maps
Historic Aerial Photography

Analytical Laboratory Data

REFERENCES

California Department of Fish and Game, 2012, *Santa Rosa Creek Watershed Management Plan*. Prepared by Science Solutions, February 2012.

Eckel, E.B., Yates, R.G., and Granger, A.E., 1941, Quicksilver Deposits in San Luis Obispo County and Southwestern Monterey County California. U.S. Geological Survey Bulletin 922-R, pp. 521-580.

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Hall, C.A., Ernst, W.G., Prior, S.W., and Wiese J.W., 1979, Geologic Map of the San Luis Obispo-San Simeon Region, California. USGS Miscellaneous Investigations Map I-1097, scale 1:48,000.

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Pacific Hydrologic Incorporated, 2009, Design Hydraulic Study Bridge 49C-337, Main Street, Cambria over Santa Rosa Creek, San Luis Obispo County. January 14, 2009.

T.Y. Lyn International, 2012, Project Plans for Construction of The Main Street Bridge Over Santa Rosa Creek. San Luis Obispo County Department of Public Works, August 31, 2012.

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PLATES

N

Adapted from Cambria, CA 7.5 Minute Topographic Map (USGS 1989 version)

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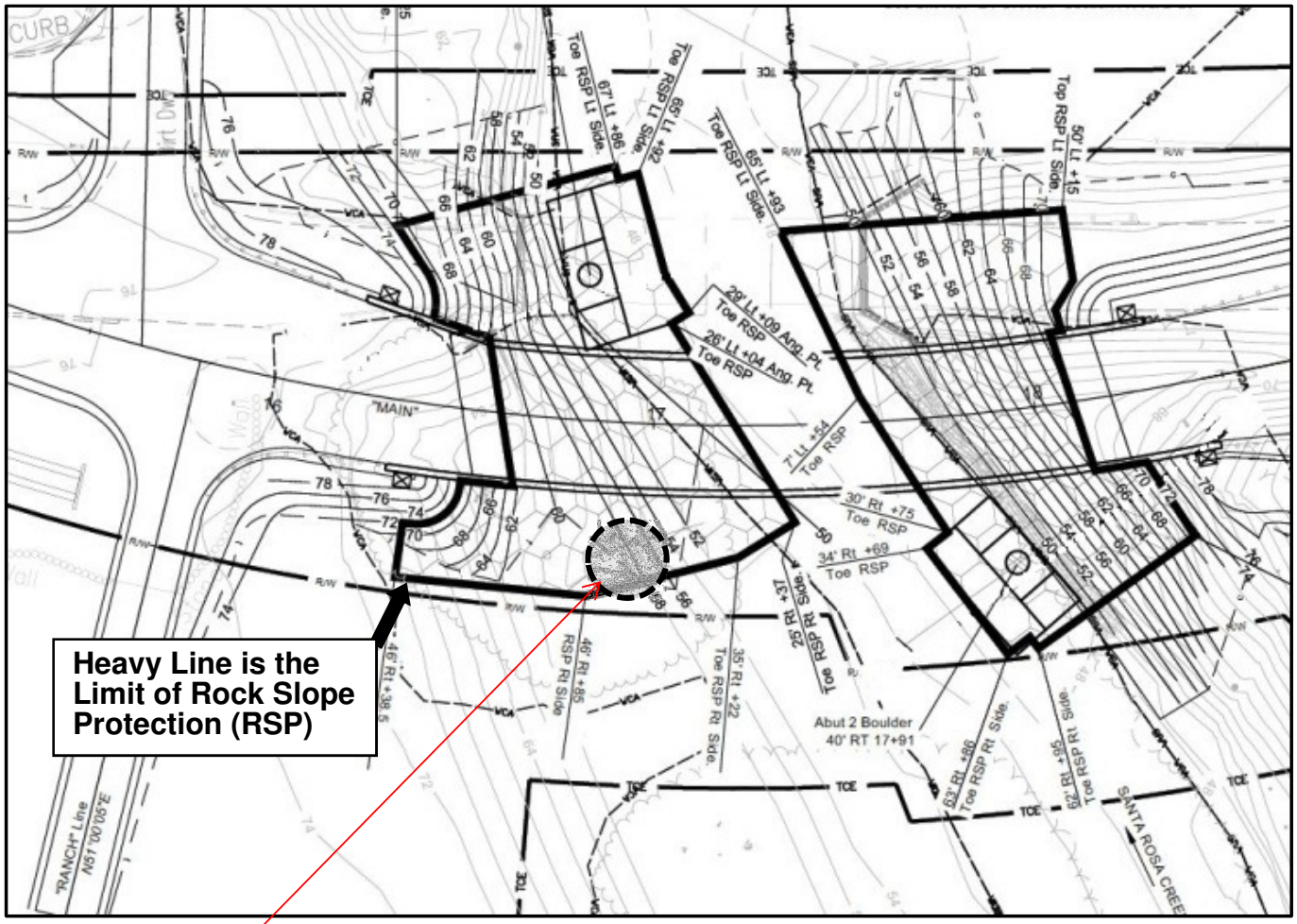
PROJECT NO. 130985-2	**VICINITY MAP**	PLATE
DRAWN: 01/21/13		
DRAWN BY: RCF		**1**
CHECKED BY:	Main Street Bridge Over Santa Rosa Creek Cambria, California	
FILE NAME: Vicinity		



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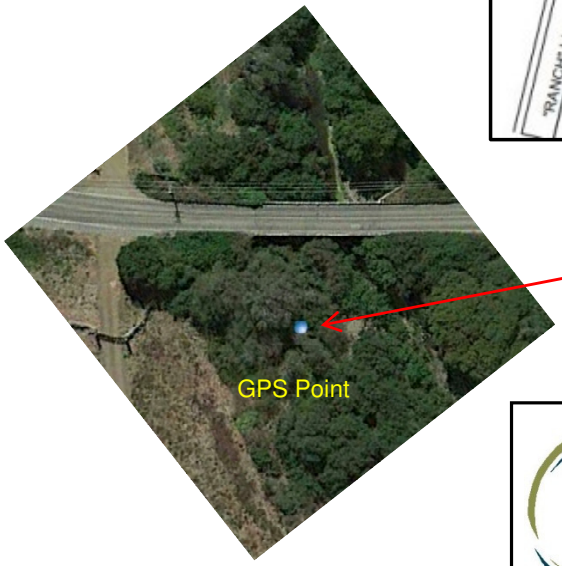
SCALE



Approximate Area of Soil Sampling

Adapted from Construction Drawing Sheet #RSP-1 (8/31/12)

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File PlateRSP	

ROCK SLOPE PROTECTION MAP

Main Street Bridge Over Santa Rosa Creek
Cambria, California

PLATE

2

HISTORIC MAPS AND PHOTOGRAPHY

Main Street Bridge
Main Street
Cambria, CA 93428

Inquiry Number: 3473700.1
December 10, 2012

EDR Historical Topographic Map Report

EDR® Environmental Data Resources Inc

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Historical Topographic Map

N	TARGET QUAD NAME: SAN SIMEON MAP YEAR: 1919 SERIES: 15 SCALE: 1:62500	SITE NAME: Main Street Bridge ADDRESS: Main Street Cambria, CA 93428 LAT/LONG: 35.5654 / -121.0746	CLIENT: Kleinfelder, Inc. CONTACT: Richard Fink INQUIRY#: 3473700.1 RESEARCH DATE: 12/10/2012

Historical Topographic Map

N	TARGET QUAD NAME: SAN SIMEON MAP YEAR: 1942 SERIES: 15 SCALE: 1:62500	SITE NAME: Main Street Bridge ADDRESS: Main Street Cambria, CA 93428 LAT/LONG: 35.5654 / -121.0746	CLIENT: Kleinfelder, Inc. CONTACT: Richard Fink INQUIRY#: 3473700.1 RESEARCH DATE: 12/10/2012

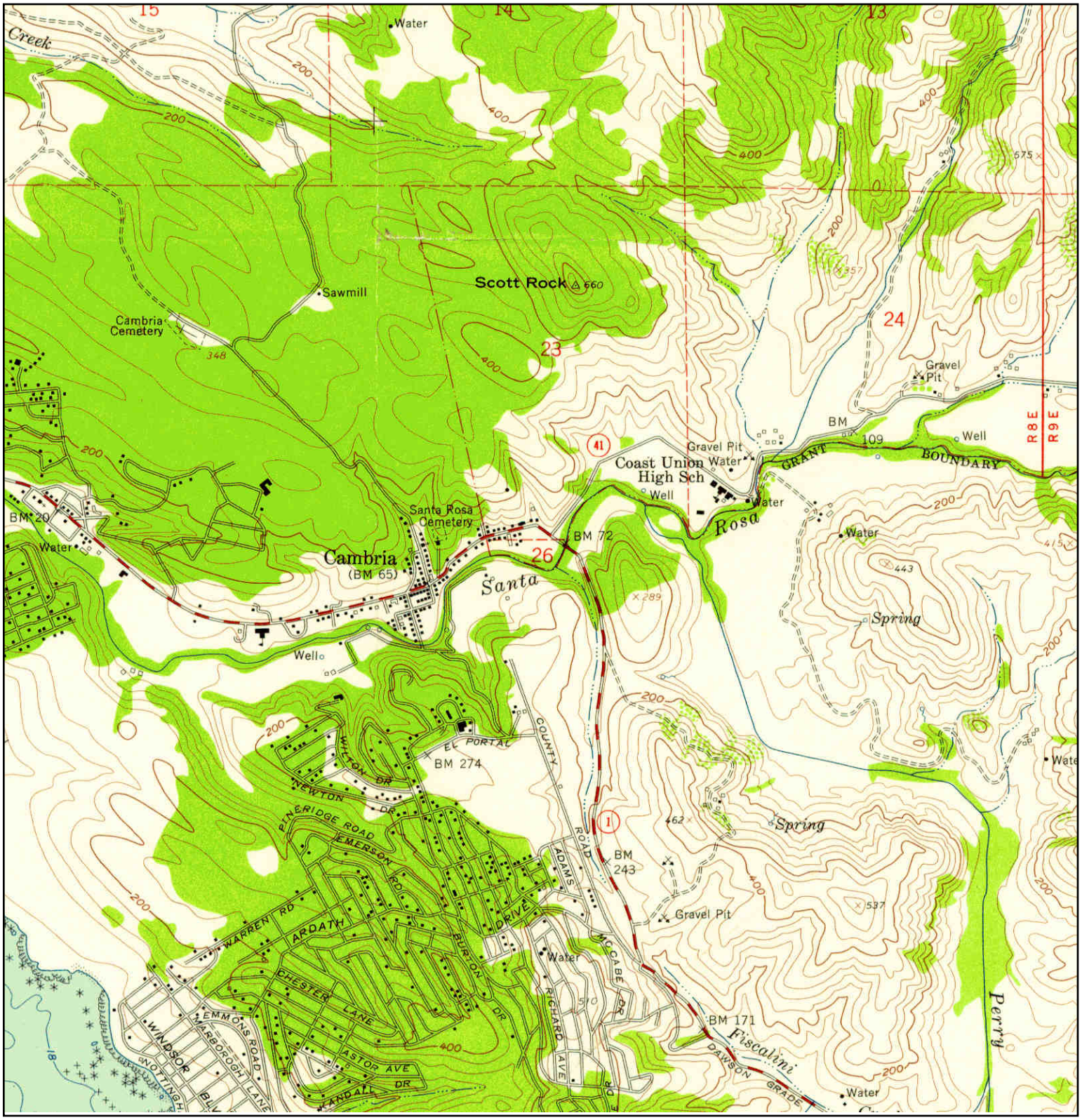
Historical Topographic Map

N	TARGET QUAD NAME: SAN SIMEON MAP YEAR: 1947 SERIES: 15 SCALE: 1:50000	SITE NAME: Main Street Bridge ADDRESS: Main Street Cambria, CA 93428 LAT/LONG: 35.5654 / -121.0746	CLIENT: Kleinfelder, Inc. CONTACT: Richard Fink INQUIRY#: 3473700.1 RESEARCH DATE: 12/10/2012

Historical Topographic Map

N	TARGET QUAD NAME: SAN SIMEON MAP YEAR: 1959 SERIES: 15 SCALE: 1:62500	SITE NAME: Main Street Bridge ADDRESS: Main Street Cambria, CA 93428 LAT/LONG: 35.5654 / -121.0746	CLIENT: Kleinfelder, Inc. CONTACT: Richard Fink INQUIRY#: 3473700.1 RESEARCH DATE: 12/10/2012

Historical Topographic Map



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Historical Topographic Map

N	TARGET QUAD NAME: CAMBRIA MAP YEAR: 1979 PHOTOREVISED FROM :1959 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Main Street Bridge ADDRESS: Main Street Cambria, CA 93428 LAT/LONG: 35.5654 / -121.0746	CLIENT: Kleinfelder, Inc. CONTACT: Richard Fink INQUIRY#: 3473700.1 RESEARCH DATE: 12/10/2012

Main Street Bridge
Main Street
Cambria, CA 93428

Inquiry Number: 3473700.2
December 17, 2012

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Date EDR Searched Historical Sources:

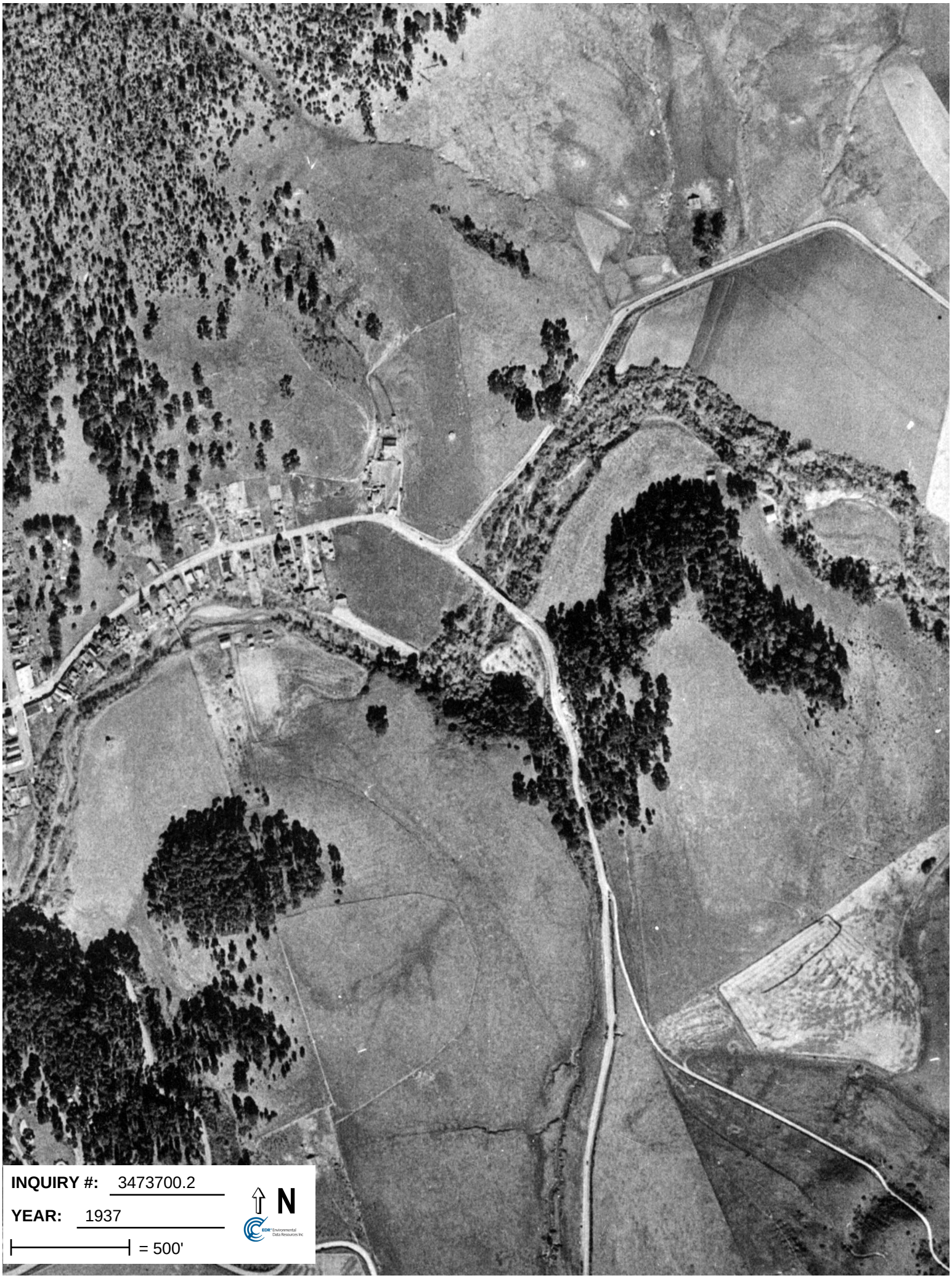
Aerial Photography December 17, 2012

Target Property:

Main Street

Cambria, CA 93428

Year	***Scale***	***Details***	***Source***
1937	Aerial Photograph. Scale: 1"=500'	Flight Year: 1937	Army
1949	Aerial Photograph. Scale: 1"=500'	Flight Year: 1949	Park
1956	Aerial Photograph. Scale: 1"=500'	Flight Year: 1956	Hycon
1969	Aerial Photograph. Scale: 1"=500'	Flight Year: 1969	Western
1978	Aerial Photograph. Scale: 1"=500'	Flight Year: 1978	Pacific Air
1989	Aerial Photograph. Scale: 1"=500'	Flight Year: 1989	USGS
1994	Aerial Photograph. Scale: 1"=500'	/Composite DOQQ - acquisition dates: 1994	EDR
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	EDR
2006	Aerial Photograph. Scale: 1"=500'	Flight Year: 2006	EDR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INQUIRY #: 3473700.2
YEAR: 1978
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EDR Environmental Data Resources Inc

ANALYTICAL LABORATORY DATA

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11720 North Creek Parkway North, Suite 400
Bothell, WA 98011
Ph: 425-686-1996
Fx: 425-686-3096

29 January 2013

Barb Hurley
Basic Labs
2218 Railroad Avenue
Redding, CA 96001-2504
RE: Redding

Enclosed are the analytical results for samples received by Eurofins Frontier Global Sciences. All quality control measurements are within established control limits and there were no analytical difficulties encountered with the exception of those listed in the case narrative section of this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kate Haney
Client Services Manager

FEB 07 2013

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ANALYTICAL REPORT FOR SAMPLES

Laboratory: Eurofins Frontier Global Sciences, Inc. **SDG:**

Client: Basic Labs **Project:** Redding

Sample ID	Lab ID	Matrix	Date Sampled	Date Received
3010374-01	1301156-01	Soil/Sediment	03-Jan-13 09:56	11-Jan-13 11:35
3010374-02	1301156-02	Soil/Sediment	03-Jan-13 10:07	11-Jan-13 11:35
3010374-03	1301156-03	Soil/Sediment	03-Jan-13 10:40	11-Jan-13 11:35

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Kate Haney, Client Services Manager

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CASE NARRATIVE

REVISED REPORT
The enclosed report has been revised to report the results on an as-received (wet weight) basis instead of a dry weight basis.

SAMPLE RECEIPT-3010374
Three (3) samples were received January 11th, 2013 at Eurofins Frontier Global Sciences. The samples were received intact, within a cooler at ambient temperature.

SAMPLE PREPARATION AND ANALYSIS
The samples were prepared and analyzed for total mercury by cold vapor atomic fluorescence spectroscopy (CV-AFS) in accordance with EPA 1631 Modified.

Sample preparation and analysis for total solids was performed according to Standard Methods 2540B.

ANALYTICAL AND QUALITY CONTROL ISSUES
The submitted samples were inhomogeneous and did not have strong reproducibility. Sample 3010374-01 (1301156-01) was prepped twice (due to a failing blank spike) and sourced for QC in the first prep. Both the Duplicate and the MSD failed in the first prep with RPDs of 45.8% and 120% respectively.

Samples 3010374-02 and 03 (1301156-02 and 1301156-03) were prepped a third time. Sample 3010374-02 did not have any results within an acceptable reproducible range for the method. Sample 3010374-03 (1301156-03) was sourced for QC for the third prep. Both the Duplicate and the MS/MSD failed with an RPD of 48.3% and 43.2% respectively. The second results and first passing results for these samples is reported.

The recommended holding time for Total Solids analysis is within seven (7) days of sampling. At Frontier, total solids are prepared at the same time as the preparation for the analyte(s) of interest in order to provide the most accurate dry mass correction. Total solids data was flagged with O-04 and O-09.

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CHAIN OF CUSTODY FORMS

SUBCONTRACT ORDER
Basic Laboratory, Inc.
3010374 1301156

SENDING LABORATORY:	RECEIVING LABORATORY:
Basic Laboratory, Inc.	FRONTIER GLOBAL SCIENCES
2218 Railroad Avenue	11720 NORTH CREEK PKWY NORTH, SUITE 400
Redding, CA 96001-2504	BOTHELL, WA 98011
Phone: (530) 243-7234	Phone :(425) 686-1966
Fax: (530) 243-6204	Fax: (425) 686-3096
Project Manager: Ricky Jensen	E-Mail: rdjensen@basiclab.com

Please use standard TAT unless specific due date is requested. Email results & Element transfer file to reporting@basiclab.com.

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 3010374-01	Solid	Sampled:01/03/13 09:56	[redacted]	
Hg LL CVAFS 1631 SUB	~~01/21/13 13:00~~	~~04/03/13 09:56~~		
Containers Supplied:				
Sample ID: 3010374-02	Solid	Sampled:01/03/13 10:07	[redacted]	
Hg LL CVAFS 1631 SUB	~~01/21/13 13:00~~	~~04/03/13 10:07~~		
Containers Supplied:				
Sample ID: 3010374-03	Solid	Sampled:01/03/13 10:40	[redacted]	
Hg LL CVAFS 1631 SUB	~~01/21/13 13:00~~	~~04/03/13 10:40~~		
Containers Supplied:				

Released By	Date	Received By	Date
[signature]	1-9-13	[signature], A. BAHM EFGS	1-11-13 1440
Released By	Date	Received By	Date
		VTSR: 11:35 w/out COC seals, ambient	
		UPS: 1Z 833 6E3 03 6691 4411	

Eurofins Frontier Global Sciences

[signature]

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CHAIN OF CUSTODY FORMS

FGS Work Order: 1301156 **Sample Receipt Checklist** Frontier Global Sciences

Client: Basiclabs Date & Time Received: 1/11/13 14:40 Date Logged In: 1/11/13 Date Labeled: 1/12/13

Project: _____ Received By: AMB Logged By: OD Labeled By: AMB

# of Coolers Received: 1 Samples Arrived By: ✓ Shipping Service ___ Courier ___ Hand ___ Other: _____

Tracking/Airbill Number(s): 12 832 6E3 03 6691 4411

Thermal Preservation: ✓ None (Ambient) ___ Loose Ice ___ Gel/Blue Ice ___ Other: _____

Thermal Preservation Required: Y / (N)

Thermometer ID: —		CF: —							
Cooler 1:	°C	Cooler 4:	°C	Cooler 7:	°C	Cooler 10:	°C	Cooler 13:	°C
Cooler 2:	°C	Cooler 5:	°C	Cooler 8:	°C	Cooler 11:	°C	Cooler 14:	°C
Cooler 3:	°C	Cooler 6:	°C	Cooler 9:	°C	Cooler 12:	°C	Cooler 15:	°C

Cooler Information:	Y/N	Comments
The coolers do not appear to be tampered with:	Y	
Custody Seals are present and intact:	N/A	
Custody seals signed by:	N/A	

Chain of Custody:	Y/N	Comments
Sample ID/Description:	Y	
Date/Time of collection:	Y	
Sampled by:	Y	
Preservation type:	Y	
Requested analyses:	Y	
Required signatures:	Y	
Internal COC required:	Y	

Sample Condition/Integrity:	Y/N	Comments
Sample containers intact:	Y	
Sample labels are present and legible:	Y	
Sample ID on container matches COC:	N	
Correct sample containers used:	Y	
Samples received within holding times:	Y	
Sample volume sufficient for requested analyses:	Y	
Correct preservative used for requested analyses:	Y	
pH of preserved samples verified and recorded:	N/A	

Client Contacted: _____ Date/Time: _____ Method: _____

Anomalies/Non-conformances (attach additional pages if needed):
Sample 1 has "8.2°C" written on its lid.
Sample 2 has "8.4°C" written on its lid.
Sample 3 has "7.8°C" written on its lid. This info does not appear on the COC. AMB 1-12-13

Discussion/Resolution:
Sample 1: additional label info not on COC: "Main St Bridge," "HG 1 @ 0-6" Also in job field on label is "130985-2." AMB 1-12-13
Sample 2: additional label info: "Main St Bridge," "HG1 @ 2-2½" and job number field: "130985-2."
Sample 3: additional label info: "Main St Bridge," "HG1 @ ~~2.5-3"~~ 2.5-3" and in job number field on the label is, "130985-2." AMB 1-12-13

FGS Sample Receipt Checklist Revision 2; 07/09/2012

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ANALYTICAL RESULTS

3010374-01

Matrix: Soil/Sediment **Laboratory ID:** 1301156-01

Analyte	Result	MDL	MRL	Units	Dilution	Batch	Sequence	Analyzed	Method	Notes
% Solids	**83.5**	0.1	0.1	% by Weight	1	F301113		01/16/13	SM 2540B	O-04, O-09
Mercury	**555**	2.33	21.2	ng/g	500	F301143	3A22005	01/22/13	EPA 1631B	

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ANALYTICAL RESULTS

3010374-02

Matrix: Soil/Sediment **Laboratory ID:** 1301156-02

Analyte	Result	MDL	MRL	Units	Dilution	Batch	Sequence	Analyzed	Method	Notes
% Solids	**89.8**	0.1	0.1	% by Weight	1	F301113		01/16/13	SM 2540B	O-04, O-09
Mercury	**3290**	10.5	95.6	ng/g	2000	F301143	3A22005	01/22/13	EPA 1631B	

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ANALYTICAL RESULTS

3010374-03

Matrix: Soil/Sediment **Laboratory ID:** 1301156-03

Analyte	Result	MDL	MRL	Units	Dilution	Batch	Sequence	Analyzed	Method	Notes
% Solids	**92.5**	0.1	0.1	% by Weight	1	F301113		01/16/13	SM 2540B	O-04, O-09
Mercury	**1050**	2.43	22.1	ng/g	500	F301143	3A22005	01/22/13	EPA 1631B	

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MATRIX DUPLICATES/TRIPLICATES

SOURCE: 1301156-01

Batch: F301113 **Sequence:**

Preparation: Solids Analysis **Lab Number:** F301113-DUP1

Analyte	Sample Concentration % by Weight	Duplicate Concentration % by Weight	MRL	% RPD	RPD Limit	Method	Notes
% Solids	83.5	84.0	0.1	0.597	10	SM 2540B	O-04, O-09

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MATRIX DUPLICATES/TRIPLICATES

SOURCE: 1301157-07

Batch: F301113 **Sequence:**

Preparation: Solids Analysis **Lab Number:** F301113-DUP2

Analyte	Sample Concentration % by Weight	Duplicate Concentration % by Weight	MRL	% RPD	RPD Limit	Method	Notes
% Solids	87.2	86.9	0.1	0.345	10	SM 2540B	O-04, O-09

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MATRIX DUPLICATES/TRIPLICATES

SOURCE: 1301157-05RE1

Batch: F301143 **Sequence:** 3A22005

Preparation: Cold Aqua Regia Digestion for Hg **Lab Number:** F301143-DUP1

Analyte	Sample Concentration ng/g	Duplicate Concentration ng/g	MDL	% RPD	RPD Limit	Method	Notes
Mercury	144.7	150.8	0.51	4.09	24	EPA 1631B	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1301157-05RE1

Batch: F301143 **Sequence:** 3A22005

Preparation: Cold Aqua Regia Digestion for Hg **Lab Number:** F301143-MS/MSD1

Analyte	Sample Concentration (ng/g)	Spike Added (ng/g)	MS Concentration (ng/g)	MS % Recovery	Recovery Limits	Method	Notes
Mercury	144.7	385.38	530.5	100	71 - 125	EPA 1631B	

Analyte	Spike Added (ng/g)	MSD Concentration (ng/g)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Mercury	358.50	514.6	103	3.02	71 - 125	24	EPA 1631B	

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LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATE

RECOVERY AND RPD

Batch: F301143 **Sequence:** 3A22005

Preparation: Cold Aqua Regia Digestion for Hg **Lab Number:** F301143-BS/BSD1

LCS Source: MESS-3

Analyte	Spike Added (ng/g)	LCS Concentration (ng/g)	LCS % Recovery	Recovery Limits	Method	Notes
Mercury	89.908	88.14	98.0	77 - 123	EPA 1631B	

Analyte	Spike Added (ng/g)	LCSD Concentration (ng/g)	LCSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Mercury	89.908	89.07	99.1	1.05	77 - 123	24	EPA 1631B	

Eurofins Frontier Global Sciences

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PREPARATION BLANKS

Instrument: Hg2600-1

Sequence: 3A22005

Preparation: Cold Aqua Regia Digestion for Hg

Lab Sample ID	Analyte	Found	MDL	Units	Batch	Method	Notes
F301143-BLK1	Mercury	0.04	0.11	ng/g	F301143	EPA 1631B	U
F301143-BLK2	Mercury	-0.006	0.11	ng/g	F301143	EPA 1631B	U
F301143-BLK3	Mercury	-0.004	0.11	ng/g	F301143	EPA 1631B	U

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Notes and Definitions

U	Analyte included in the analysis, but not detected
O-09	Total Solids are prepared at the same time as the preparation for the analyte(s) of interest in order to provide the most accurate dry mass correction.
O-04	This sample was analyzed outside of the recommended holding time.
DET	Analyte Detected
MDL	Minimum Detection Limit
MRL	Minimum Reporting Limit
ND	Analyte Not Detected at or above the reporting limit
wet	Sample results reported on a wet weight basis
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
RSD	Relative Standard Deviation

Eurofins Frontier Global Sciences

Kate Haney, Client Services Manager

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April 8, 2013
File No.: 130985-2

Ms. Cori Marsalek, P.E.
County of San Luis Obispo, Department of Public Works
1050 Monterey Street, Rm. 207
San Luis Obispo, California 93408

SUBJECT: Soil Boring Assessment for Mercury
Main Street Bridge Replacement Project
Cambria, California

Dear Ms. Marsalek:

The following letter presents the results of Kleinfelder's drilling efforts to collect additional soil samples for chemical analysis of mercury in the vicinity of the Main Street Bridge (Bridge No. 49C-0337) at Santa Rosa Creek in the northeastern portion of Cambria, California (Site, Plate 1). The initial sampling efforts at an accessible location on January 3, 2013 (using a hand auger) could not penetrate near surface gravel below a depth of three feet. This second work scope was developed through discussions with the County of San Luis Obispo, Department of Public Works (County), the Regional Water Quality Control Board (RWQCB), and Kleinfelder. The purpose of the current work scope was to attempt soil sampling through drilling efforts and subsequent chemical analysis to evaluate the potential for elevated concentrations of mercury in the soils which would be disturbed during construction of the new bridge.

BACKGROUND

The existing two-span bridge, built in 1929, will be removed and replaced with a new single-span bridge over Santa Rosa Creek. The proposed centerline for the replacement bridge is located approximately 36 feet upstream from the existing centerline (northeast of the existing bridge). Rock slope protection (RSP) will be placed on the creek banks to protect the new bridge abutments from bank erosion. Depths of the RSP will be on the order of 14 feet below the bottom of the creek.

Kleinfelder understands that one project stakeholder has expressed concern regarding the creek soils which will be disturbed during construction. The party is aware of abandoned mercury mines in the upper Santa Rosa Creek watershed and is concerned about possible downstream impacts to soils local to the bridge area. The objective of Kleinfelder's January 2013 environmental assessment was to obtain current knowledge about the soil mercury content at the Site by collection and analysis of soil samples from the RSP area. Samples could be obtained only to a depth of three feet below the creek bed soils using a hand auger. The goal of the sampling was to obtain soil samples to the proposed depth of the RSP, or about 14 feet below the creek. Results of laboratory analysis of the three samples collected, using EPA Method 1631, indicated that mercury concentrations ranged from 0.56 to 3.29 milligrams per kilogram. The findings were summarized in a report to the County, dated February 21, 2013.

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5125 N. Gates, Suite 102, Fresno, CA 93722 **p** | 559.486.0750 **f** | 559.442.5081

The County requested Kleinfelder attempt to collect deeper samples of the soils using drilling methods. Due to the dense brush surrounding the eastern abutment, the County authorized Kleinfelder to drill through the bridge deck to the soils beneath to collect the samples. The following describes the services provided and the results of laboratory analysis of the soil samples.

SOIL SAMPLING AND MERCURY ANALYSIS

Prior to drilling, Kleinfelder submitted a County encroachment permit to drill on the bridge in the County right-of-way. Kleinfelder also notified Underground Service Alert to obtain utility clearance directly beneath the bridge and scheduled with the County to provide traffic control during the lane closure and drilling operations. Prior to coring the bridge deck, Kleinfelder observed the underside of the bridge to locate piped utilities attached to the bridge as well as locate the girder supports. The location of the boring is shown on the attached Plate 2.

On March 8, 2013, Taber Drilling cored an approximate 6-inch diameter hole thru the bridge deck, about 25 feet west of the face of the eastern bridge abutment. Steel drill casing was extended through the core hole to the creek bed soils then pushed into the soils in about 5-foot long sections. A Cal-modified sampler was placed inside the casing and driven in two foot long sections into the soils in the casing. Each 2-foot sample was retrieved, the soils logged, and portions of each 2-foot section retained in laboratory supplied glass jars for upcoming chemical analysis. This process continued to a total depth of 16 feet into the creek sediments.

No soil cuttings were produced during the sampling activities. Upon completion, the steel casing was removed and the hole collapsed upon itself. The bridge deck hole was patched with fast curing concrete. Soils were primarily coarse granular then became finer grained below about 13 feet. A log of the boring is attached to this letter and describes the soils encountered and the sample intervals retained for chemical analysis.

Eight soil samples were analyzed for mercury by BC Laboratories, Inc. in Bakersfield, California. The RWQCB requested the samples be analyzed for total mercury using EPA Method 7471A, and for Soluble Threshold Limit Concentration (STLC) and Toxicity Characteristic Leaching Potential (TCLP). The analytical data are summarized below on Table 1 and copies of the laboratory data sheets are provided at the end of this letter.

DISCUSSION

The drilling was successful in acquiring samples to the proposed total depth of the RSP. The soils were primarily coarse granular and became finer grained below about 14 feet below ground surface. Sample recovery was relatively low in the sampling interval between four and six feet below ground surface; however, ample material was recovered for laboratory analysis.

The analytical results indicate that excavated materials in this area have low enough total mercury concentrations to allow disposal at a municipal landfill. Likewise, the soluble concentrations of the mercury using two different methods would also be acceptable in municipal facilities. However, the mercury concentrations are significantly greater than the recommended RWQCB threshold for requiring a soil management plan to be developed and implemented during construction activities.

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Table 1
Summary of Mercury Analytical Testing

Sample No.	Depth Interval (ft)	Sample Date	Total Hg (mg/Kg)	Soluble Hg by STLC (mg/L)	Soluble Hg by TCLP (mg/L)
MSB-1A	0.5 - 1.5	3/8/13	0.28	<0.002	<0.002
MSB-1B	3 - 4	3/8/13	0.25	0.00085 J	<0.002
MSB-1C	4.5 - 5	3/8/13	0.64	<0.002	<0.002
MSB-1D	6.5 - 7.5	3/8/13	1.6	0.00068 J	<0.002
MSB-1E	9 - 10	3/8/13	0.20	<0.002	<0.002
MSB-1F	11.5 - 12	3/8/13	0.65	<0.002	<0.002
MSB-1G	13.5 - 14	3/8/13	4.9	<0.002	<0.002
MSB-1H	15 - 16	3/8/13	0.27	<0.002	<0.002
Title 22 Limit			20	0.2	0.2

Hg – mercury
mg/Kg – milligrams per kilogram
mg/L – milligrams per liter
STLC – soluble threshold limit concentration
TCLP – toxicity characteristic leaching procedure

LIMITATIONS

Kleinfelder's work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions and at the date the services were provided. Our conclusions, opinions and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

Regulations and professional standards applicable to Kleinfelder's engineering services are continually evolving. Techniques are, by necessity, often new and relatively untried. Different professionals may reasonably adopt different approaches to similar problems. As such, our services are intended to provide San Luis Obispo County with a source of professional advice, opinions and recommendations based on our limited number of field observations and tests, collected and performed in accordance with the generally accepted engineering practice that exists at the time our services were rendered and may depend on, and be qualified by, information gathered previously by others and provided to Kleinfelder by San Luis Obispo County.

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. Although risk can never be eliminated, more detailed and extensive studies will yield more information, which may help understand and manage the level of risk involved. Since detailed study and analysis involves greater expense, our clients participate in determining levels of service that provide adequate information for their purposes at acceptable levels of risk. More extensive studies could be performed to reduce these uncertainties.

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Your continued use of Kleinfelder on this project is greatly appreciated. If you have questions regarding the report or require additional information, please contact the undersigned at (559) 486-0750.

Sincerely,
KLEINFELDER WEST, INC.

Richard C. Fink, CEG #1464
Principal Geologist/Project Manager

Michael Lawson, PE
Principal Engineer

RCF:ML:am

Attachments:

Plates
- Plate 1 Vicinity Map
- Plate 2 Soil Sampling Map

Boring Log MSB-1

Analytical Laboratory Data

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PLATES

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Adapted from Cambria, CA 7.5 Minute Topographic Map (USGS 1989 version)

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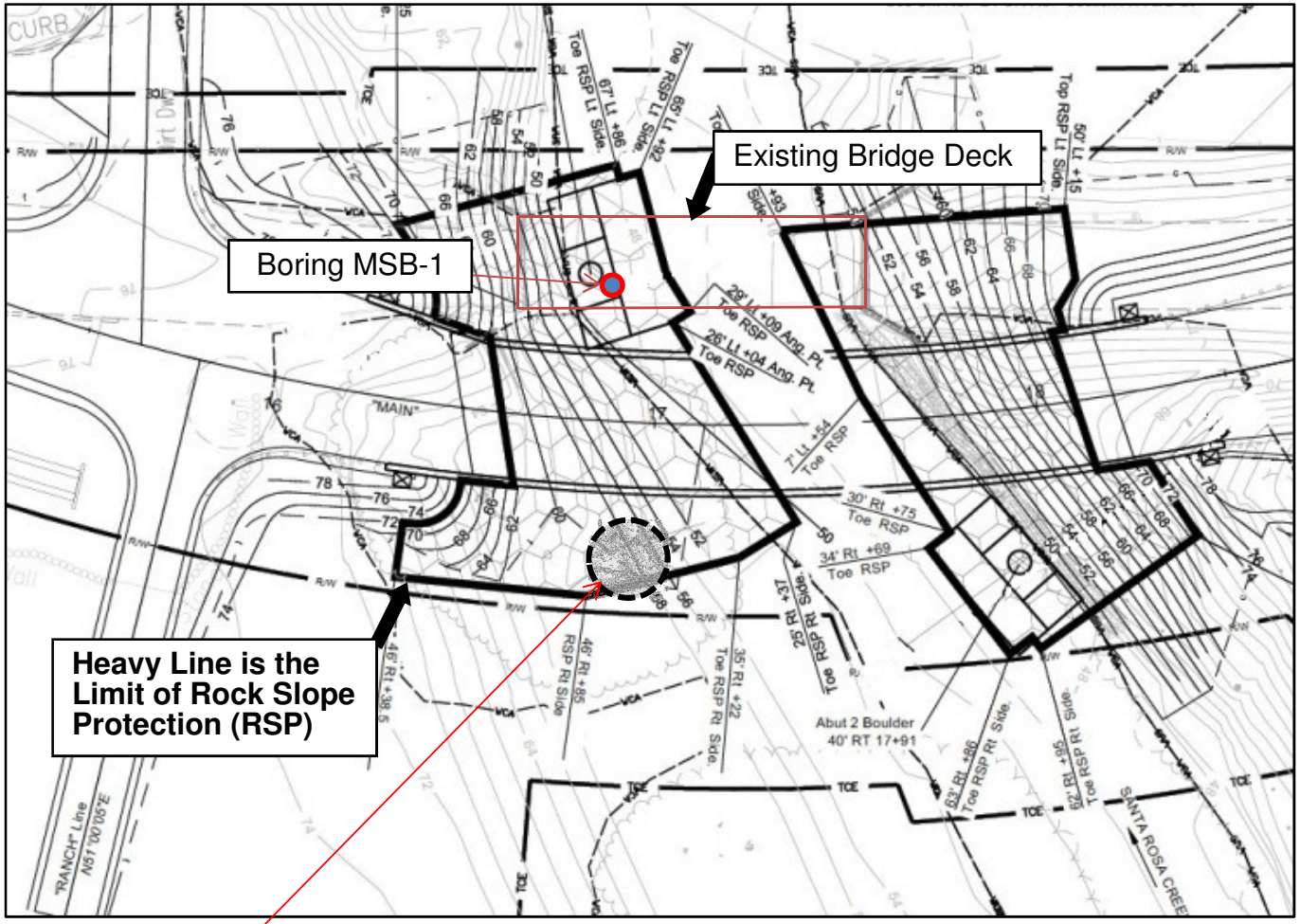
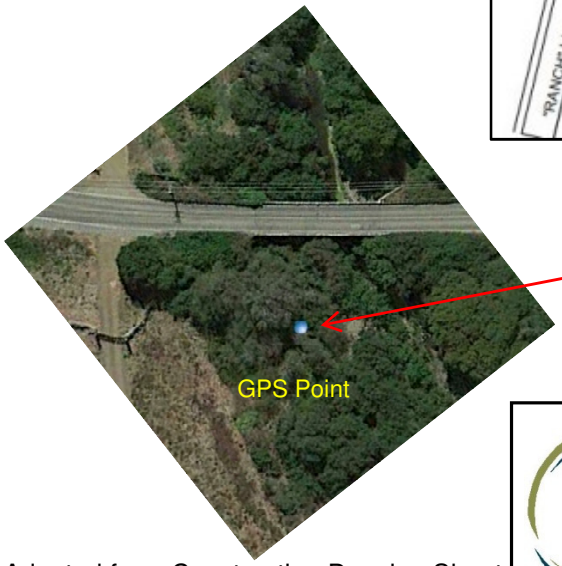
PROJECT NO. 130985-2	**VICINITY MAP**	PLATE
DRAWN: 01/21/13		
DRAWN BY: RCF		**1**
CHECKED BY:	Main Street Bridge Over Santa Rosa Creek Cambria, California	
FILE NAME: Vicinity		



0 30'
SCALE



Adapted from Construction Drawing Sheet #RSP-1 (8/31/12)

Area of Soil Sampling 1/03/13

Soil Boring 3/08/13

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PROJ. NO. 130985-2	
DRAWN: 3/26/13	
DRAWN BY: RCF	
CHECKED BY:	
File Plate2	

SOIL SAMPLING MAP

Main Street Bridge Over Santa Rosa Creek
Cambria, California

PLATE
2

BORING LOG MSB-1

Date Begin - End:	3/08/2013	**Drill Company:**	Taber		**BORING LOG MSB-1**
Logged By:	R. Shiplee	**Drill Crew:**	S. Taber		
Hor.-Vert. Datum:	Not Available	**Drill Equipment:**	CME-55 Track Rig	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Angle from Vert.:	0 degrees	**Exploration Method:**	Solid Stem Auger		
Weather:		**Auger Diameter:**	8 in. O.D.		

No Coordinates Available
No Elevation Available
Location Offset: Deck of Main Street Bridge

Surface Condition: Asphalt

Depth (feet)	Graphical Log	FIELD EXPLORATION	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. blows/6 in.	Recovery (NR=No Recovery)	LABORATORY RESULTS: USCS Symbol	Water Content (%)	Dry Density (pcf)	Passing No.4 Sieve (%)	Passing #200 Sieve (%)	Liquid Limit (NV=No Value)	Plasticity Index (NP=No Plasticity)	Other Tests/ Remarks
		Sandy SILT (ML): dark gray, wet, fine sand with gravel				18 in.								MSB-1A (0.5'-1.5')
		Silty SAND (SM): dark gray, wet, fine to medium sand				20 in.								
		fine to coarse sand												MSB-1B (3'-4')
5						6 in.								MSB-1C (4.5'-5')
		Poorly-Graded SAND (SP): dark gray, wet, fine to coarse sand				22 in.								MSB-1D (6.5'-7.5')
		pea gravel up to 1/4 inch diameter				24 in.								
10		**Silty GRAVEL (GP)**: dark grayish brown, wet, coarse sand and 1/4 inch gravel												MSB-1E (9'-10')
		gravel up to 2 inches in diameter				12 in.								
		Silty SAND (SM): dark gray, wet, fine sand												MSB-1F (11.5'-12')
		with gravel up to 1/2 inch in diameter				18 in.								MSB-1G (13.5'-14)
15		**Sandy SILT (ML)**: dark bluish gray, wet, fine sand with trace gravel up to 1 inch diameter increase in sand with gravel up to 2 inches in diameter				20 in.								MSB-1H (15'-16')
		CLAY (CL): dark bluish gray, wet, firm												
20		The exploration was terminated at approximately 16 ft. below ground surface. The exploration was backfilled with auger cuttings on March 08, 2013.												
25														
30														

GROUNDWATER LEVEL INFORMATION:
Groundwater was observed at approximately 4 ft. below ground surface during drilling.
GENERAL NOTES:

KLEINFELDER
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PROJECT NO.:	130985-2	BORING LOG MSB-1	PLATE
DRAWN BY:	MO		1
CHECKED BY:	RF	Main Street Bridge Over Santa Rosa Creek Cambria, California	
DATE:	3/13/2013		
REVISED:	3/14/2013		PAGE: 1 of 1

gINT FILE: L:\drafting\2013\130985\130985_boring Log.gpj U:KLF_STANDARD_GINT_LIBRARY_SR.1.1.GLB [KLF_BORING/TEST PIT SOIL LOG]

ANALYTICAL LABORATORY DATA

Date of Report: 03/20/2013

Richard Fink

Kleinfelder
5125 North Gates Avenue, Suite 102
Fresno, CA 93722

Project: Soil Analysis
BC Work Order: 1304957
Invoice ID: B142034

Enclosed are the results of analyses for samples received by the laboratory on 3/11/2013. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Tina Green
Client Services Manager

Authorized Signature

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#1304957

PROJECT NO.: 130985-2
PROJECT NAME: MSBridge
L.P. NO. (PO. NO.): —
SAMPLERS: (Signature/Number): Richard Fink
RECEIVING LAB: BC Labs, Pickup

	DATE MM/DD/YY	SAMPLE I.D. TIME HH-MM-SS	SAMPLE I.D.	MATRIX	NO. OF CONTAINERS	TYPE OF CONTAINERS	7471A - Mercury	TCLP - Mercury	STLC - Mercury	INSTRUCTIONS/REMARKS
1	03/08/13	2:10	MSB-1A	Soil	2	Glass	✓	✓	✓	6-7.8"
2		2:20	MSB-1B	S	2	Jars	✓	✓	✓	3-4'
3		2:35	MSB-1C	S	2		✓	✓	✓	4.5-5'
4		2:45	MSB-1D				✓	✓	✓	6.5-7.5'
5		3:15	MSB-1E				✓	✓	✓	9-10'
6		3:25	MSB-1F				✓	✓	✓	11.5-12'
7		3:35	MSB-1G				✓	✓	✓	13.5-14'
8		3:45	MSB-1H				✓	✓	✓	15-16'
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

CHK BY: BLJ
DISTRIBUTION: WP BLJ
SUB-OUT ☐

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Richard Fink	3/11/13 1525	[illegible]
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[illegible]	3-11-13 2115	Kom
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)

Instructions/Remarks: Standard Turnaround
rfink@kleinfelder.com

Send Results To: hard Copy and PDF to:
Richard Fink
Kleinfelder
5125 N. Gates Ave, #2
Attn: Fresno, CA 93722

ENV-02 REV 05/08)
White – Sampler Canary – Return Copy To Shipper Pink – Lab Copy

CHAIN OF CUSTODY

COC No. 25664

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4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com

Chain of Custody and Cooler Receipt Form for 1304957 Page 2 of 2

BC LABORATORIES INC. COOLER RECEIPT FORM Rev. No. 13 08/17/12 Page 1 Of 1

Submission #: 1304957

SHIPPING INFORMATION	SHIPPING CONTAINER
Federal Express ☐ UPS ☐ Hand Delivery ☐	Ice Chest ☒ None ☐
BC Lab Field Service ☒ Other ☐ (Specify)_____	Box ☐ Other ☐ (Specify)_____

Refrigerant: Ice ☒ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☒ Comments:

All samples received? Yes ☒ No ☐ All samples containers intact? Yes ☒ No ☐ Description(s) match COC? Yes ☒ No ☐

COC Received ☒ YES ☐ NO

Emissivity: 0.95 Container: 4oz jar Thermometer ID: 807 Date/Time 3-11-13

Temperature: (A) 0.7 °C / (C) 0.8 °C Analyst Init JDW 2140

SAMPLE CONTAINERS	SAMPLE NUMBERS 1	2	3	4	5	6	7	8	9	10
T GENERAL MINERAL/ GENERAL PHYSICAL										
T PE UNPRESERVED										
T INORGANIC CHEMICAL METALS										
T INORGANIC CHEMICAL METALS										
T CYANIDE										
T NITROGEN FORMS										
T TOTAL SULFIDE										
oz. NITRATE / NITRITE										
T TOTAL ORGANIC CARBON										
T TOX										
T CHEMICAL OXYGEN DEMAND										
A PHENOLICS										
0ml VOA VIAL TRAVEL BLANK										
0ml VOA VIAL	( )	( )	( )	( )	( )	( )	( )	( )	( )	( )
T EPA 413.1, 413.2, 418.1										
T ODOR										
ADIOLOGICAL										
ACTERIOLOGICAL										
0 ml VOA VIAL- 504										
T EPA 508/608/8080										
T EPA 515.1/8150										
T EPA 525										
T EPA 525 TRAVEL BLANK										
00ml EPA 547										
00ml EPA 531.1										
T EPA 548										
T EPA 549										
T EPA 632										
T EPA 8015M										
T AMBER										
OZ. JAR	AB	AB	A	A	A	AB	A	AB		
~~2 OZ.~~ JAR 4oz			B	B	B		B			
OIL SLEEVE										
CB VIAL										
LASTIC BAG										
ERROUS IRON										
NCORE										
MART KIT										

mments:

mple Numbering Completed By: BLT Date/Time: 3/12/13 @ 1310

= Actual / C = Corrected

Kleinfelder
5125 North Gates Avenue, Suite 102
Fresno, CA 93722

Reported: 03/20/2013 8:39
Project: Soil Analysis
Project Number: 130985-2 MS Bridge
Project Manager: Richard Fink

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1304957-01	**COC Number:**	---	**Receive Date:**	03/11/2013 21:15
	Project Number:	---	**Sampling Date:**	03/08/2013 14:10
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MSB-1A 6-18"	**Lab Matrix:**	Solids
	Sampled By:	---	**Sample Type:**	Soil
1304957-02	**COC Number:**	---	**Receive Date:**	03/11/2013 21:15
	Project Number:	---	**Sampling Date:**	03/08/2013 14:20
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MSB-1B 3-4'	**Lab Matrix:**	Solids
	Sampled By:	---	**Sample Type:**	Soil
1304957-03	**COC Number:**	---	**Receive Date:**	03/11/2013 21:15
	Project Number:	---	**Sampling Date:**	03/08/2013 14:35
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MSB-1C 4-4.5'	**Lab Matrix:**	Solids
	Sampled By:	---	**Sample Type:**	Soil
1304957-04	**COC Number:**	---	**Receive Date:**	03/11/2013 21:15
	Project Number:	---	**Sampling Date:**	03/08/2013 14:45
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MSB-1D 6.5-7.5'	**Lab Matrix:**	Solids
	Sampled By:	---	**Sample Type:**	Soil
1304957-05	**COC Number:**	---	**Receive Date:**	03/11/2013 21:15
	Project Number:	---	**Sampling Date:**	03/08/2013 15:15
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MSB-1E 9-10'	**Lab Matrix:**	Solids
	Sampled By:	---	**Sample Type:**	Soil
1304957-06	**COC Number:**	---	**Receive Date:**	03/11/2013 21:15
	Project Number:	---	**Sampling Date:**	03/08/2013 15:25
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MSB-1F 11.5-12'	**Lab Matrix:**	Solids
	Sampled By:	---	**Sample Type:**	Soil
1304957-07	**COC Number:**	---	**Receive Date:**	03/11/2013 21:15
	Project Number:	---	**Sampling Date:**	03/08/2013 15:35
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MSB-1G 13.5-14'	**Lab Matrix:**	Solids
	Sampled By:	---	**Sample Type:**	Soil

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Kleinfelder 5125 North Gates Avenue, Suite 102 Fresno, CA 93722	**Reported:** 03/20/2013 8:39 Project: Soil Analysis Project Number: 130985-2 MS Bridge Project Manager: Richard Fink

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1304957-08	**COC Number:**	---	**Receive Date:**	03/11/2013 21:15
	Project Number:	---	**Sampling Date:**	03/08/2013 15:45
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MSB-1H 15-16'	**Lab Matrix:**	Solids
	Sampled By:	---	**Sample Type:**	Soil

Kleinfelder
5125 North Gates Avenue, Suite 102
Fresno, CA 93722

Reported: 03/20/2013 8:39
Project: Soil Analysis
Project Number: 130985-2 MS Bridge
Project Manager: Richard Fink

WET Test (STLC)

BCL Sample ID: 1304957-01 | **Client Sample Name:** MSB-1A 6-18", 3/8/2013 2:10:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Mercury	ND	mg/L	0.0020	0.00030	EPA-7470A	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7470A	03/18/13	03/18/13 16:04	MEV	CETAC1	1	BWC1070

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5125 North Gates Avenue, Suite 102
Fresno, CA 93722

Reported: 03/20/2013 8:39
Project: Soil Analysis
Project Number: 130985-2 MS Bridge
Project Manager: Richard Fink

TCLP Toxicity

BCL Sample ID: 1304957-01 | **Client Sample Name:** MSB-1A 6-18", 3/8/2013 2:10:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Mercury	ND	mg/L	0.0020	0.00030	EPA-7470A	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7470A	03/18/13	03/18/13 13:53	MEV	CETAC1	1	BWC1068

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Kleinfelder 5125 North Gates Avenue, Suite 102 Fresno, CA 93722	**Reported:** 03/20/2013 8:39 Project: Soil Analysis Project Number: 130985-2 MS Bridge Project Manager: Richard Fink

Total Concentrations (TTLC)

BCL Sample ID: 1304957-01 | **Client Sample Name:** MSB-1A 6-18", 3/8/2013 2:10:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Mercury	**0.28**	**mg/kg**	**0.16**	**0.025**	**EPA-7471A**	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7471A	03/18/13	03/19/13 13:51	MEV	CETAC1	0.977	BWC1100

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Kleinfelder
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Fresno, CA 93722

Reported: 03/20/2013 8:39
Project: Soil Analysis
Project Number: 130985-2 MS Bridge
Project Manager: Richard Fink

WET Test (STLC)

BCL Sample ID: 1304957-02 | **Client Sample Name:** MSB-1B 3-4', 3/8/2013 2:20:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Mercury	**0.00085**	**mg/L**	**0.0020**	**0.00030**	**EPA-7470A**	ND	**J**	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7470A	03/18/13	03/18/13 15:53	MEV	CETAC1	1	BWC1070

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Kleinfelder 5125 North Gates Avenue, Suite 102 Fresno, CA 93722	**Reported:** 03/20/2013 8:39 Project: Soil Analysis Project Number: 130985-2 MS Bridge Project Manager: Richard Fink

TCLP Toxicity

BCL Sample ID: 1304957-02 | **Client Sample Name:** MSB-1B 3-4', 3/8/2013 2:20:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Mercury	ND	mg/L	0.0020	0.00030	EPA-7470A	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7470A	03/18/13	03/18/13 13:55	MEV	CETAC1	1	BWC1068

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Kleinfelder
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Fresno, CA 93722

Reported: 03/20/2013 8:39
Project: Soil Analysis
Project Number: 130985-2 MS Bridge
Project Manager: Richard Fink

Total Concentrations (TTLC)

BCL Sample ID: 1304957-02 | **Client Sample Name:** MSB-1B 3-4', 3/8/2013 2:20:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Mercury	**0.25**	**mg/kg**	**0.16**	**0.025**	**EPA-7471A**	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7471A	03/18/13	03/19/13 13:54	MEV	CETAC1	0.962	BWC1100

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Fresno, CA 93722

Reported: 03/20/2013 8:39
Project: Soil Analysis
Project Number: 130985-2 MS Bridge
Project Manager: Richard Fink

WET Test (STLC)

BCL Sample ID: 1304957-03 | **Client Sample Name:** MSB-1C 4-4.5', 3/8/2013 2:35:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Mercury	ND	mg/L	0.0020	0.00030	EPA-7470A	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7470A	03/18/13	03/18/13 16:06	MEV	CETAC1	1	BWC1070

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Kleinfelder
5125 North Gates Avenue, Suite 102
Fresno, CA 93722

Reported: 03/20/2013 8:39
Project: Soil Analysis
Project Number: 130985-2 MS Bridge
Project Manager: Richard Fink

TCLP Toxicity

BCL Sample ID: 1304957-03 | **Client Sample Name:** MSB-1C 4-4.5', 3/8/2013 2:35:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Mercury	ND	mg/L	0.0020	0.00030	EPA-7470A	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7470A	03/18/13	03/18/13 13:58	MEV	CETAC1	1	BWC1068

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Kleinfelder
5125 North Gates Avenue, Suite 102
Fresno, CA 93722

Reported: 03/20/2013 8:39
Project: Soil Analysis
Project Number: 130985-2 MS Bridge
Project Manager: Richard Fink

Total Concentrations (TTLC)

BCL Sample ID: 1304957-03 | **Client Sample Name:** MSB-1C 4-4.5', 3/8/2013 2:35:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Mercury	**0.64**	**mg/kg**	**0.16**	**0.025**	**EPA-7471A**	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7471A	03/18/13	03/19/13 13:56	MEV	CETAC1	0.962	BWC1100

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Kleinfelder 5125 North Gates Avenue, Suite 102 Fresno, CA 93722	**Reported:** 03/20/2013 8:39 Project: Soil Analysis Project Number: 130985-2 MS Bridge Project Manager: Richard Fink

WET Test (STLC)

BCL Sample ID: 1304957-04 | **Client Sample Name:** MSB-1D 6.5-7.5', 3/8/2013 2:45:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Mercury	**0.00068**	**mg/L**	**0.0020**	**0.00030**	**EPA-7470A**	ND	**J**	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7470A	03/18/13	03/18/13 16:08	MEV	CETAC1	1	BWC1070

Kleinfelder
5125 North Gates Avenue, Suite 102
Fresno, CA 93722

Reported: 03/20/2013 8:39
Project: Soil Analysis
Project Number: 130985-2 MS Bridge
Project Manager: Richard Fink

TCLP Toxicity

BCL Sample ID: 1304957-04 | **Client Sample Name:** MSB-1D 6.5-7.5', 3/8/2013 2:45:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Mercury	ND	mg/L	0.0020	0.00030	EPA-7470A	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7470A	03/18/13	03/18/13 14:04	MEV	CETAC1	1	BWC1068

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Kleinfelder
5125 North Gates Avenue, Suite 102
Fresno, CA 93722

Reported: 03/20/2013 8:39
Project: Soil Analysis
Project Number: 130985-2 MS Bridge
Project Manager: Richard Fink

Total Concentrations (TTLC)

BCL Sample ID: 1304957-04 | **Client Sample Name:** MSB-1D 6.5-7.5', 3/8/2013 2:45:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Mercury	**1.6**	**mg/kg**	**0.16**	**0.025**	**EPA-7471A**	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7471A	03/18/13	03/19/13 13:58	MEV	CETAC1	0.962	BWC1100

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Kleinfelder 5125 North Gates Avenue, Suite 102 Fresno, CA 93722	**Reported:** 03/20/2013 8:39 Project: Soil Analysis Project Number: 130985-2 MS Bridge Project Manager: Richard Fink

WET Test (STLC)

BCL Sample ID: 1304957-05 | **Client Sample Name:** MSB-1E 9-10', 3/8/2013 3:15:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Mercury	ND	mg/L	0.0020	0.00030	EPA-7470A	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7470A	03/18/13	03/18/13 16:15	MEV	CETAC1	1	BWC1070

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Kleinfelder
5125 North Gates Avenue, Suite 102
Fresno, CA 93722

Reported: 03/20/2013 8:39
Project: Soil Analysis
Project Number: 130985-2 MS Bridge
Project Manager: Richard Fink

TCLP Toxicity

BCL Sample ID: 1304957-05 | **Client Sample Name:** MSB-1E 9-10', 3/8/2013 3:15:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Mercury	ND	mg/L	0.0020	0.00030	EPA-7470A	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7470A	03/18/13	03/18/13 14:06	MEV	CETAC1	1	BWC1068

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Kleinfelder
5125 North Gates Avenue, Suite 102
Fresno, CA 93722

Reported: 03/20/2013 8:39
Project: Soil Analysis
Project Number: 130985-2 MS Bridge
Project Manager: Richard Fink

Total Concentrations (TTLC)

BCL Sample ID: 1304957-05 | **Client Sample Name:** MSB-1E 9-10', 3/8/2013 3:15:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Mercury	**0.20**	**mg/kg**	**0.16**	**0.025**	**EPA-7471A**	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7471A	03/18/13	03/19/13 14:00	MEV	CETAC1	0.977	BWC1100

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Kleinfelder 5125 North Gates Avenue, Suite 102 Fresno, CA 93722	**Reported:** 03/20/2013 8:39 Project: Soil Analysis Project Number: 130985-2 MS Bridge Project Manager: Richard Fink

WET Test (STLC)

BCL Sample ID: 1304957-06 | **Client Sample Name:** MSB-1F 11.5-12', 3/8/2013 3:25:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Mercury	ND	mg/L	0.0020	0.00030	EPA-7470A	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7470A	03/18/13	03/18/13 16:17	MEV	CETAC1	1	BWC1070

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Kleinfelder 5125 North Gates Avenue, Suite 102 Fresno, CA 93722	**Reported:** 03/20/2013 8:39 Project: Soil Analysis Project Number: 130985-2 MS Bridge Project Manager: Richard Fink

TCLP Toxicity

BCL Sample ID: 1304957-06 | **Client Sample Name:** MSB-1F 11.5-12', 3/8/2013 3:25:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Mercury	ND	mg/L	0.0020	0.00030	EPA-7470A	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7470A	03/18/13	03/18/13 13:43	MEV	CETAC1	1	BWC1068

Kleinfelder
5125 North Gates Avenue, Suite 102
Fresno, CA 93722

Reported: 03/20/2013 8:39
Project: Soil Analysis
Project Number: 130985-2 MS Bridge
Project Manager: Richard Fink

Total Concentrations (TTLC)

BCL Sample ID: 1304957-06 | **Client Sample Name:** MSB-1F 11.5-12', 3/8/2013 3:25:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Mercury	**0.65**	**mg/kg**	**0.16**	**0.025**	**EPA-7471A**	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7471A	03/18/13	03/19/13 14:02	MEV	CETAC1	1.025	BWC1100

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Kleinfelder 5125 North Gates Avenue, Suite 102 Fresno, CA 93722	**Reported:** 03/20/2013 8:39 Project: Soil Analysis Project Number: 130985-2 MS Bridge Project Manager: Richard Fink

WET Test (STLC)

BCL Sample ID: 1304957-07 | **Client Sample Name:** MSB-1G 13.5-14', 3/8/2013 3:35:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Mercury	ND	mg/L	0.0020	0.00030	EPA-7470A	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7470A	03/18/13	03/18/13 16:19	MEV	CETAC1	1	BWC1070

Kleinfelder
5125 North Gates Avenue, Suite 102
Fresno, CA 93722

Reported: 03/20/2013 8:39
Project: Soil Analysis
Project Number: 130985-2 MS Bridge
Project Manager: Richard Fink

TCLP Toxicity

BCL Sample ID: 1304957-07 | **Client Sample Name:** MSB-1G 13.5-14', 3/8/2013 3:35:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Mercury	ND	mg/L	0.0020	0.00030	EPA-7470A	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7470A	03/18/13	03/18/13 14:08	MEV	CETAC1	1	BWC1068

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Kleinfelder
5125 North Gates Avenue, Suite 102
Fresno, CA 93722

Reported: 03/20/2013 8:39
Project: Soil Analysis
Project Number: 130985-2 MS Bridge
Project Manager: Richard Fink

Total Concentrations (TTLC)

BCL Sample ID: 1304957-07 | **Client Sample Name:** MSB-1G 13.5-14', 3/8/2013 3:35:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Mercury	**4.9**	**mg/kg**	**0.80**	**0.12**	**EPA-7471A**	ND	**A01**	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7471A	03/18/13	03/19/13 15:42	MEV	CETAC1	5.040	BWC1100

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Kleinfelder 5125 North Gates Avenue, Suite 102 Fresno, CA 93722	**Reported:** 03/20/2013 8:39 Project: Soil Analysis Project Number: 130985-2 MS Bridge Project Manager: Richard Fink

WET Test (STLC)

BCL Sample ID: 1304957-08 | **Client Sample Name:** MSB-1H 15-16', 3/8/2013 3:45:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Mercury	ND	mg/L	0.0020	0.00030	EPA-7470A	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7470A	03/18/13	03/18/13 16:21	MEV	CETAC1	1	BWC1070

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Kleinfelder 5125 North Gates Avenue, Suite 102 Fresno, CA 93722	**Reported:** 03/20/2013 8:39 Project: Soil Analysis Project Number: 130985-2 MS Bridge Project Manager: Richard Fink

TCLP Toxicity

BCL Sample ID: 1304957-08 | **Client Sample Name:** MSB-1H 15-16', 3/8/2013 3:45:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Mercury	ND	mg/L	0.0020	0.00030	EPA-7470A	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7470A	03/18/13	03/18/13 14:11	MEV	CETAC1	1	BWC1068

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Kleinfelder
5125 North Gates Avenue, Suite 102
Fresno, CA 93722

Reported: 03/20/2013 8:39
Project: Soil Analysis
Project Number: 130985-2 MS Bridge
Project Manager: Richard Fink

Total Concentrations (TTLC)

BCL Sample ID: 1304957-08 | **Client Sample Name:** MSB-1H 15-16', 3/8/2013 3:45:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Mercury	**0.27**	**mg/kg**	**0.16**	**0.025**	**EPA-7471A**	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-7471A	03/18/13	03/19/13 14:07	MEV	CETAC1	1.025	BWC1100

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Kleinfelder 5125 North Gates Avenue, Suite 102 Fresno, CA 93722	**Reported:** 03/20/2013 8:39 Project: Soil Analysis Project Number: 130985-2 MS Bridge Project Manager: Richard Fink

WET Test (STLC)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BWC1070						
Mercury	BWC1070-BLK1	ND	mg/L	0.0020	0.00030	

Kleinfelder
5125 North Gates Avenue, Suite 102
Fresno, CA 93722

Reported: 03/20/2013 8:39
Project: Soil Analysis
Project Number: 130985-2 MS Bridge
Project Manager: Richard Fink

WET Test (STLC)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BWC1070										
Mercury	BWC1070-BS1	LCS	0.0010175	0.0010000	mg/L	102		85 - 115		

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Kleinfelder
5125 North Gates Avenue, Suite 102
Fresno, CA 93722

Reported: 03/20/2013 8:39
Project: Soil Analysis
Project Number: 130985-2 MS Bridge
Project Manager: Richard Fink

WET Test (STLC)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BWC1070	Used client sample: Y - Description: MSB-1B 3-4', 03/08/2013 14:20										
Mercury	DUP	1304957-02	0.00085000	0.00060000		mg/L	34.5		20		J,A02
	MS	1304957-02	0.00085000	0.010150	0.010000	mg/L		93.0		70 - 130	
	MSD	1304957-02	0.00085000	0.010275	0.010000	mg/L	1.2	94.2	20	70 - 130	

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Kleinfelder 5125 North Gates Avenue, Suite 102 Fresno, CA 93722	**Reported:** 03/20/2013 8:39 Project: Soil Analysis Project Number: 130985-2 MS Bridge Project Manager: Richard Fink

TCLP Toxicity

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BWC1068						
Mercury	BWC1068-BLK1	ND	mg/L	0.0020	0.00030	

Kleinfelder 5125 North Gates Avenue, Suite 102 Fresno, CA 93722	**Reported:** 03/20/2013 8:39 Project: Soil Analysis Project Number: 130985-2 MS Bridge Project Manager: Richard Fink

TCLP Toxicity

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BWC1068										
Mercury	BWC1068-BS1	LCS	0.0010075	0.0010000	mg/L	101		85 - 115		

Kleinfelder 5125 North Gates Avenue, Suite 102 Fresno, CA 93722	**Reported:** 03/20/2013 8:39 Project: Soil Analysis Project Number: 130985-2 MS Bridge Project Manager: Richard Fink

TCLP Toxicity

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BWC1068	Used client sample: Y - Description: MSB-1F 11.5-12', 03/08/2013 15:25										
Mercury	DUP	1304957-06	ND	ND		mg/L			20		
	MS	1304957-06	ND	0.010675	0.010000	mg/L		107		70 - 130	
	MSD	1304957-06	ND	0.010400	0.010000	mg/L	2.6	104	20	70 - 130	

Kleinfelder 5125 North Gates Avenue, Suite 102 Fresno, CA 93722	**Reported:** 03/20/2013 8:39 Project: Soil Analysis Project Number: 130985-2 MS Bridge Project Manager: Richard Fink

Total Concentrations (TTLC)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: BWC1100						
Mercury	BWC1100-BLK1	ND	mg/kg	0.16	0.025	

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Kleinfelder
5125 North Gates Avenue, Suite 102
Fresno, CA 93722

Reported: 03/20/2013 8:39
Project: Soil Analysis
Project Number: 130985-2 MS Bridge
Project Manager: Richard Fink

Total Concentrations (TTLC)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: BWC1100										
Mercury	BWC1100-BS1	LCS	0.81776	0.80000	mg/kg	102		80 - 120		

Kleinfelder
5125 North Gates Avenue, Suite 102
Fresno, CA 93722

Reported: 03/20/2013 8:39
Project: Soil Analysis
Project Number: 130985-2 MS Bridge
Project Manager: Richard Fink

Total Concentrations (TTLC)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: BWC1100	Used client sample: N										
Mercury	DUP	1304808-01	ND	ND		mg/kg			20		
	MS	1304808-01	ND	0.79646	0.76923	mg/kg		104		80 - 120	
	MSD	1304808-01	ND	0.79262	0.76923	mg/kg	0.5	103	20	80 - 120	

Kleinfelder 5125 North Gates Avenue, Suite 102 Fresno, CA 93722	**Reported:** 03/20/2013 8:39 Project: Soil Analysis Project Number: 130985-2 MS Bridge Project Manager: Richard Fink

Notes And Definitions

J	Estimated Value (CLP Flag)
MDL	Method Detection Limit
ND	Analyte Not Detected at or above the reporting limit
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
A01	PQL's and MDL's are raised due to sample dilution.
A02	The difference between duplicate readings is less than the PQL.

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