

INFORMATION HANDOUT

**For Contract No. 06-0H6304
At 06-Tul-198-R12.0**

**Identified by
Project ID 0600000132**

MATERIALS INFORMATION

Revised Final Foundation Report

Dated April 17, 2014

Asbestos and Lead containing Paint Survey report

Dated June 2011

Mid West Guard rail terminal systems

Memorandum

*Flex your power!
Be energy efficient!*

To: GARY JOE
Chief, Branch 17
Office of Bridge Design Central
Structure Design
Division of Engineering Services

Attention: Rene Coria

Date: April 17, 2014

File: 06-TUL-198-R12.0
EA: 06-0H6301
ID 0600000132
Vista POC
(replace)
Br. No. 46-0218

From: DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES – MS 5

Subject: Revised Final Foundation Report (Supercedes report dated 1/7/2014)

Introduction

Per your request, we are providing final foundation recommendations for the bridge replacement project referenced above. This report is for use by the project design engineer, construction personnel, bidders and contractors.

Pertinent Plans and Data

The following resources were used in the assessment of the site conditions for these recommendations:

1. The General plan for the proposed new bridge.
2. The Preliminary Foundation Report dated December 17, 2012 by this Office.
3. The as-built Log of Test Borings (LOTB) conducted in July, 1962 for the existing bridge.
4. CA Dept. of Water Resources (DWR) water well data.
5. U.S.D.A. Natural Resources Conservation Service Web Soil Survey (WSS).

Site Geology and Subsurface Conditions

The subsurface geology at the project site consists of alluvial fan and flood plain deposits. These deposits are composed of silts, fine-grained sands and trace gravels which vary in consistency from medium dense in the upper 30 feet to dense below 30 feet.

Laboratory Testing

No laboratory testing was performed for this report.

Subsurface Exploration

No recent exploratory borings were conducted for the bridge replacement. The 1962 borings for the original bridge structure were used for this report.

Groundwater

Regional records (DWR Well Nos. 18S25E27Q001M, 18S25E34L001M et. al.) indicate that regional groundwater was 51 feet below the ground surface in the area in 1991 and 52 feet below the ground surface in 2000. Localized perched/shallow water conditions may be encountered due to seasonal fluctuations, regulated flows and diversions. Groundwater is not a factor for foundation design and is not expected to be a factor during construction.

Seismic Recommendations

Using soil information from the as-built borings for the existing Vista Ave POC, a V_{S30} (the weighted average shear wave velocity for the top 100 feet of foundation material) of 890 ft/s was calculated for the proposed bridge site.

The deterministic spectrum from the Caltrans ARS Online Tool (version 2.3.06) is based on the nearest active fault which controls ground motion. This fault is the San Andreas (Cholame) rev fault (ID No. 220) with M_{Max} of 7.9. The fault is located southwest of the proposed bridge site and the closest distance from the bridge site to the fault rupture plane is approximately 70 miles. Caltrans ARS Online Tool refers to this fault as strike slip.

According to the "Methodology for Developing Design Response Spectrum for Use in Seismic Design Recommendations, November 2012", the governing design Acceleration Response Spectrum (ARS) curves are obtained by any or a combination of the following three methods for Vista Ave POC:

1. Statewide minimum deterministic spectrum with MMax of 6.5, vertical strike-slip event with a rupture distance of 7.5 miles.
2. Deterministic Seismic Hazard spectrum from the Caltrans ARS Online Tool (version 2.3.06).
3. The USGS Interactive Deaggregation procedure with a 5% Probability of Exceedance in 50 years (975 years return period).

For the proposed Vista Ave POC, the recommended ARS curve was obtained using method 3 as stated above. The peak ground acceleration is estimated to be 0.23g. The recommended ARS curve is presented on **Plate No. 1**.

Soil liquefaction occurs when loose, water-saturated soils lose shear strength in response to the sudden shaking from an earthquake and begin behaving like a liquid, reducing their ability to support embankments and structures. As groundwater is greater than 100 feet below the ground surface, the potential for liquefaction is considered non-existent.

The potential for surface rupture due to fault movement is considered minimal as there are no known faults projecting towards or passing directly through the bridge site.

Corrosivity

Corrosion testing of the subsurface soils was not performed as there was no exploratory excavations (borings or trenches) conducted. A search on the WSS online tool indicates that the project site soils are classified as Type #137, "Tagus Loam" and have chemical properties that characterize these materials as moderately corrosive to untreated steel foundation elements and low corrosive to concrete.

Scour

The bridge site will not be subjected to stream instability.

As-Built Foundation Information

The existing bridge is a continuous lightweight concrete slab structure. The as-built records (46-0218) indicate the bridge foundations consist of spread footings at all of the support locations. The bottom-of-footing elevations range from 340 to 343 feet with dimensions of 14 X 7 feet.

Foundation Recommendations

Spread Footing, Abutment 1

A review of the as-built LOTB for the original structure indicates that the soil is adequate to support a spread footing at the location of Abutment 1. Based on the provided footing

dimensions of 8 feet (B) by 11.5 feet (L) and a permissible settlement of 1 inch, a permissible gross contact stress of 3.5 kips/square foot or less may be used. The recommended bottom of footing excavation for Abutment 1 is 339.0. Table 1 shows the design recommendations to be included in the project plans. The footing excavations shall be overexcavated 2 feet below the footing bottom shown in the plans and recompacted with native soils to 95% relative compaction.

Table 1.
Foundation Recommendation for Spread Footing, Abutment 1

Support	Footing Size		Bottom of Footing Elevation (ft)	Minimum Footing Embedment Depth (ft)	Total Permissible Support Settlement (in)	WSD (LRFD Service-I Limit State Load Combination)		LRFD		
	B	L				Permissible Gross Contact Stress (ksf)	Allowable Gross Bearing Capacity (ksf)	Service	Strength $\phi_b = 0.45$	Extreme Event $\phi_b = 1.00$
								Net Permissible Contact Stress (ksf)	Factored Gross Nominal Bearing Resistance (ksf)	Factored Gross Nominal Bearing Resistance (ksf)
Abut 1	8	11.5	339.0	2	1	3.5	5.5	N/A	N/A	N/A

Driven Piles

Based on the review of the General plan, existing bridge records, soil conditions and structural design requirements, the optimum foundation type is Standard Class 140, Alternative “X” piles at the bent supports and Abutment 13. Tables 2 and 3 list the foundation recommendation parameters. Table 4 is the pile data table to be included in the project contract plans.

Table 2.
Foundation Recommendations for Bents
Standard Class 140, Alt. “X”

Supp Loc	Pile Type	Cut-off Elev (ft)	Service-I Limit State Load Per Support (kips)	Total Permissible Support Settlement (inches)	Required Factored Nominal Resistance (kips)				Design Tip Elevations (ft)	Spec Tip Elev (ft)	Nominal Driving Resistance Required (kips)
					Strength Limit		Extreme Event				
					Comp $\phi=0.7$	Tension $\phi=0.7$	Comp $\phi=1.0$	Tension $\phi=1.0$			
Bent 2	Class 140 Alt “X”	338.75	257	1	44	0	140	50	324 (a-I) 309 (a-II) 324 (b-II)	309	140
Bent 3	Class 140 Alt “X”	338.75	318	1	42	0	140	50	325 (a-I) 309 (a-II) 324 (b-II)	309	140
Bent 4	Class 140 Alt “X”	340.25	263	1	46	0	140	50	324 (a-I) 309 (a-II) 324 (b-II)	309	140
Bent 5	Class 140 Alt “X”	340.25	288	1	47	0	140	50	324 (a-I) 309 (a-II) 324 (b-II)	309	140
Bent 6	Class 140 Alt “X”	340.75	376	1	55	0	140	50	322 (a-I) 309 (a-II) 324 (b-II)	309	140
Bent 7	Class 140 Alt “X”	343.25	298	1	49	0	140	50	324 (a-I) 309 (a-II) 324 (b-II)	309	140
Bent 8	Class 140 Alt “X”	341.25	292	1	46	0	140	50	324 (a-I) 309 (a-II) 324 (b-II)	309	140
Bent 9	Class 140 Alt “X”	340.25	215	1	35	0	140	50	326 (a-I) 309 (a-II) 324 (b-II)	309	140
Bent 10	Class 140 Alt “X”	338.25	339	1	32	0	280	140	326 (a-I) 298 (a-II) 308 (b-II)	298	280
Bent 11	Class 140 Alt “X”	338.25	582	1	59	0	280	140	321 (a-I) 298 (a-II) 308 (b-II)	298	280
Bent 12	Class 140 Alt “X”	338.25	499	1	48	0	280	140	324 (a-I) 298 (a-II) 308 (b-II)	298	280

Design tip elevations are controlled by: (a-I) Compression (Strength Limit), (a-II) Compression (Extreme Event), (b-II) Tension (Extreme Event).

Table 3.
Foundation Recommendation for Abutment 13
Standard Class 140, Alt. "X"

Supp	Pile	Cut-off Elev (ft)	LRFD Service-I Limit State Load per Support (kips)		LRFD Service-I Limit State Load per Pile (Compression) (kips)	Nominal Resistance (kips)	Design Tip Elevations (ft)	Spec Tip Elev (ft)	Nominal Driving Resistance Required (kips)
			Total	Permanent					
Abut 13	Class 140 Alt "X"	338.25	148	133	37	80	319 (a)	319	80

Design tip elevations are controlled by: (a) Compression.

Table 4.
Pile Data Table

Support Location	Pile Type	Nominal Resistance (kips)		Design Tip Elevations (ft)	Specified Tip Elevation (ft)	Nominal Driving Resistance (kips)
		Compression	Tension			
Bent 2	Class 140 Alt "X"	140	50	309 (a) 324 (b)	309	140
Bent 3	Class 140 Alt "X"	140	50	309 (a) 324 (b)	309	140
Bent 4	Class 140 Alt "X"	140	50	309 (a) 324 (b)	309	140
Bent 5	Class 140 Alt "X"	140	50	309 (a) 324 (b)	309	140
Bent 6	Class 140 Alt "X"	140	50	309 (a) 324 (b)	309	140
Bent 7	Class 140 Alt "X"	140	50	309 (a) 324 (b)	309	140
Bent 8	Class 140 Alt "X"	140	50	309 (a) 324 (b)	309	140
Bent 9	Class 140 Alt "X"	140	50	309 (a) 324 (b)	309	140
Bent 10	Class 140 Alt "X"	280	60	298 (a) 308 (b)	298	280
Bent 11	Class 140 Alt "X"	280	60	298 (a) 308 (b)	298	280
Bent 12	Class 140 Alt "X"	280	60	298 (a) 308 (b)	298	280
Abut 13	Class 140 Alt "X"	80	0	319 (a)	319	80

Design tip elevations for are controlled by: (a) Compression, (b) Tension.

Table 5¹
Spread Footing Data Table

Support Location	Working Stress Design (WSD)		Load Resistance Factor Design (LRFD)		
	Permissible Gross Contact Stress (Settlement) (ksf)	Allowable Gross Bearing Capacity (ksf)	Service ² Permissible Net Contact Stress (Settlement) (ksf)	Strength/Construction ³ Factored Gross Nominal Bearing Resistance $\phi_b = 0.45$ (ksf)	Extreme Event ³ Factored Gross Nominal Bearing Resistance $\phi_b = 1.00$ (ksf)
Abut 1	3.5	5.5	N/A	N/A	N/A

Notes:

1. Stresses and resistances were calculated for controlling load combinations.
2. Controlling load combination for Service Limit State is the one resulting in the highest ratio of $q_{n,u}/q_{pn}$ for foundations on soil, or $q_{n,max}/q_{pn}$ for foundations on rock.
3. Controlling load combination for Strength, Construction, and Extreme Event is the one resulting in the highest ratio of $q_{g,u}/q_R$ for foundations on soil, or $q_{g,max}/q_R$ for foundations on rock.

Construction Considerations

- 1) All spread footing excavation bottoms shall be observed after overexcavation to 2 feet below bottom of footing. If any loose or unsuitable materials are encountered, these materials shall also be removed and recompacted to 95% relative compaction prior to backfilling to bottom of footing.

If any conceptual changes are proposed during final project design, the Office of Geotechnical Design-North should review those changes to determine if the recommendations contained herein are still applicable.

Project Information

Data and information attached with the project plans are:

One Log of Test Borings As-Built sheet for original bridge.

Data and information included in the Supplemental Project Information:

Final Foundation Report for Vista POC (Replace) dated April 17, 2014

Data and information available for inspection at the District Office:

None.

Data and information available for inspection at the Transportation Laboratory are:

None

If you have any questions or comments, or need additional information please contact Christopher Koepke at (916) 227-1040 or Ben Barnes (Seismic) at 227-1039.

Report by:




Christopher Koepke
Engineering Geologist
Office of Geotechnical Design – North
Branch E

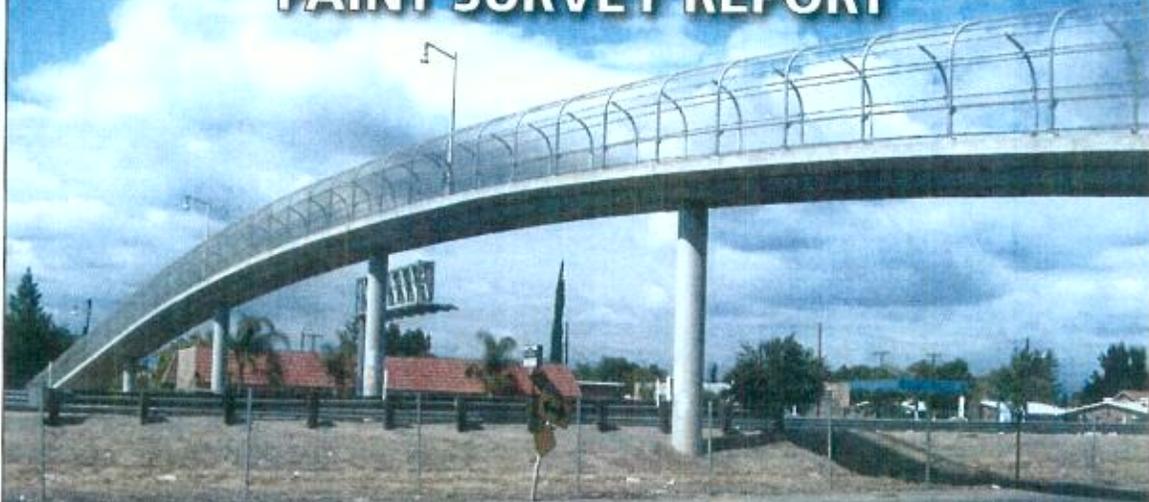



Benjamin M. Barnes
Transportation Engineer
Office of Geotechnical Design – North
Branch E

Attachment: ARS curve

cc: Qiang Huang, R.E., Pending, Structures OE (E-copy), GDN File, D06 PCE, D06 DME, GS File Room

ASBESTOS AND LEAD-CONTAINING PAINT SURVEY REPORT



TULARE 99 and TULARE 198 Pedestrian Overcrossing Demolition and Replacement Project Tulare County, California

PREPARED FOR:

CALIFORNIA DEPARTMENT OF TRANSPORTATION – DISTRICT 6
HAZARDOUS WASTE BRANCH
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PREPARED BY:

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GEOCON PROJECT NO. S9525-06-27
TASK ORDER NO. 27, EA 06-0H6300

JUNE 2011



Project No. S9525-06-27
June 30, 2011

Ms. Susan Greenwood, Task Order Manager
California Department of Transportation - District 6
Hazardous Waste Branch
855 M Street, Suite 200
Fresno, California 93721

Subject: ASBESTOS AND LEAD-CONTAINING PAINT SURVEY REPORT
TULARE 99 AND TULARE 198 PEDESTRIAN OVERCROSSING DEMOLITION
AND REPLACEMENT PROJECT
TULARE COUNTY, CALIFORNIA
CONTRACT NO. 06A1580
TASK ORDER NO. 27, EA NO. 06-0H6300
E-FIS PROJECT NO. 06-0000-0132-0

Dear Ms. Greenwood:

In accordance with California Department of Transportation Contract No. 06A1580 and Task Order No. 27, we have performed an asbestos and lead-containing paint (LCP) survey of the project locations in Tulare County, California. The scope of services included surveying two pedestrian overcrossing bridge structures for suspect asbestos-containing materials and LCP, collecting bulk samples, collecting background air samples, and submitting the samples to laboratories for analyses.

The accompanying report summarizes the services performed and laboratory analysis.

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

Please contact us if you have questions concerning the contents of this report or if we may be of further service.

Sincerely,

GEOCON CONSULTANTS, INC.


Chris Giuntoli, CAC
Senior Project Scientist


John E. Juhrend, PE, CEG
Project Manager

(2 + 2 CD) Addressee

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FIGURES

- 1-1 and 1-2. Vicinity Maps
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PHOTOGRAPHS (1 through 8)

TABLES

- 1. Summary of Asbestos Analytical Results
- 2. Summary of Paint Analytical Results – Total Lead
- 3. Summary of Background Air Sample Analytical Results

APPENDIX

- A. Analytical Laboratory Reports and Chain-of-custody Documentation

ASBESTOS AND LEAD-CONTAINING PAINT SURVEY REPORT

1.0 INTRODUCTION

This asbestos and lead-containing paint (LCP) survey report was prepared by Geocon Consultants, Inc. under Caltrans Contract No. 06A1580, Task Order No. 27 (TO-27).

1.1 Project Description

The Tulare 99 and Tulare 198 Pedestrian Overcrossing (POC) Demolition and Replacement Project (EA 06-0H6300, E-FIS Project No. 06-0000-0132-0) is located in Tulare County, California. We performed asbestos and LCP survey and background air sampling activities at the Avenue 80 POC (Bridge 46-0180) and Vista Avenue POC (Bridge 46-0218). The POC locations are depicted on the Vicinity Maps, Figures 1-1 and 1-2, and the Site Plan, Figure 2.

1.2 General Objectives

The primary purpose of the scope of services outlined in TO-27 was to: 1) determine the presence and quantity of asbestos construction materials and deteriorated LCP at the POC locations, and 2) conduct background air sampling to evaluate pre-disturbance airborne asbestos levels prior to bridge demolition activities. The information obtained from this investigation will be used by Caltrans for waste profiling, determining California Occupational Safety and Health Administration (Cal/OSHA) applicability, and coordinating asbestos and LCP disturbance activities.

It was not Geocon's intent during this inspection to conduct an evaluation of lead-based paint hazards in accordance with U.S. Department of Housing and Urban Development (HUD) guidelines.

2.0 BACKGROUND

2.1 Asbestos

The *Code of Federal Regulations (CFR)*, 40 CFR 61, Subpart M, National Emissions Standards for Hazardous Air Pollutants (NESHAP) and Federal Occupational Safety and Health Administration (FED OSHA) classify asbestos-containing material (ACM) as any material or product that contains *greater than 1%* asbestos. Nonfriable ACM is classified by NESHAP as either Category I or Category II material defined as follows:

- **Category I** – asbestos-containing packings, gaskets, resilient floor coverings, and asphalt roofing products.
- **Category II** – all remaining types of nonfriable asbestos-containing material not included in Category I that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Regulated asbestos-containing material (RACM), a hazardous waste when friable, is classified as any manufactured material that contains *greater than 1%* asbestos by dry weight *and is*:

- Friable (can be crumbled, pulverized, or reduced to powder by hand pressure); or
- Category I material that has become friable; or
- Category I material that has been subjected to sanding grinding, cutting or abrading; or
- Category II nonfriable material that has a high probability of becoming crumbled, pulverized, or reduced to a powder during demolition or renovation activities.

Activities that disturb materials containing *any* amount of asbestos are subject to certain requirements of the Cal/OSHA asbestos standard contained in Title 8, CCR Section 1529. Typically, removal or disturbance of more than 100 square feet of material containing more than 0.1% asbestos must be performed by a registered asbestos abatement contractor, but associated waste labeling is not required if the material contains 1% or less asbestos. When the asbestos content of a material exceeds 1%, virtually all requirements of the standard become effective.

Materials containing greater than 1% asbestos are also subject to NESHAP regulations (40 CFR Part 61, Subpart M). RACM (friable ACM and nonfriable ACM that will become friable during demolition operations) must be removed from structures prior to demolition. Certain nonfriable ACM and materials containing 1% or less asbestos may remain in structures during demolition; however, there are waste handling/disposal issues and Cal/OSHA work requirements that must be addressed. Contractors are responsible for segregating and characterizing waste streams prior to disposal.

With respect to potential worker exposure, notification, and registration requirements, Cal/OSHA defines asbestos-containing construction material (ACCM) as construction material that contains greater than 0.1% asbestos (Title 8, CCR 341.6).

2.2 Lead Paint

Construction activities (including demolition) that disturb materials or paints containing *any* amount of lead are subject to certain requirements of the Cal/OSHA lead standard contained in Title 8, CCR, Section 1532.1. Deteriorated paint is defined by Title 17, CCR, Division 1, Chapter 8, §35022 as a surface coating that is cracking, chalking, flaking, chipping, peeling, non-intact, failed, or otherwise separated from a component. Demolition of a deteriorated LCP component would require waste characterization and appropriate disposal. Intact LCP on a component is currently accepted by most landfill facilities; however, contractors are responsible for segregating and characterizing waste streams prior to disposal.

For a solid waste containing lead, the waste is classified as California hazardous when: 1) the total lead content equals or exceeds the respective Total Threshold Limit Concentration (TTLC) of 1,000 milligrams per kilogram (mg/kg); or 2) the soluble lead content equals or exceeds the respective Soluble Threshold Limit Concentration (STLC) of 5 milligrams per liter (mg/l) based on the standard Waste Extraction Test (WET). A waste has the potential for exceeding the lead STLC when the waste's total lead content is greater than or equal to ten times the respective STLC value since the WET uses a 1:10 dilution ratio. Hence, when total lead is detected at a concentration greater than or equal to 50 mg/kg, and assuming that 100 percent of the total lead is soluble, soluble lead analysis is required. Lead-containing waste is classified as "Resource, Conservation, and Recovery Act" (RCRA) hazardous, or Federal hazardous, when the soluble lead content equals or exceeds the Federal regulatory level of 5 mg/l 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; however, for the purposes of this investigation, toxicity (i.e., 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.

Potential hazards exist to workers who remove or cut through LCP coatings during demolition. Dust containing hazardous concentrations of lead may be generated during scraping or cutting materials coated with lead-containing paint. Torching of these materials may produce lead oxide fumes. Therefore, air monitoring and/or respiratory protection may be required during the demolition of materials coated with LCP. Guidelines regarding regulatory provisions for construction work where workers may be exposed to lead are presented in the Title 8, CCR, Section 1532.1.

2.3 Architectural Drawings and Previous Survey Activities

We reviewed the Bridge Inspection Records Information System (BIRIS) packages for information pertaining to the use of asbestos and LCP at the POC structures. No indication of asbestos or lead paint used at the POC structures was identified in the documentation provided. Previous asbestos and LCP survey reports were not available for our review.

3.0 SCOPE OF SERVICES

Mr. Chris Giuntoli, a California-Certified Asbestos Consultant (CAC), certification No. 02-3163 (expiration June 19, 2012), and Certified Lead Paint Inspector/Assessor with the California Department of Public Health (DPH), certification number I-5502 (expiration June 14, 2012), performed the asbestos and LCP survey and background air sampling activities at the project location on June 6, 2011.

3.1 Asbestos

Suspect ACM were grouped into homogeneous areas with representative samples randomly collected from each. In addition, each potential ACM was evaluated for friability. A total of ten bulk asbestos samples representing five material types were collected at the POC locations.

Our procedures for inspection and sampling in accordance with TO-27 are discussed below:

- Collected bulk asbestos samples after first wetting suspect material with a light mist of water. The samples were then cut from the substrate and transferred to a labeled container. Note that when multiple samples were collected, the sampling locations were distributed throughout the homogeneous area (spaces where the material was observed).
- Relinquished bulk asbestos samples under chain-of-custody protocol to EMSL Analytical, Inc. (EMSL), a California-licensed and Caltrans-approved subcontractor, for asbestos analysis in accordance with United States Environmental Protection Agency (EPA) Test Method 600/R-93/116 using polarized light microscopy (PLM). EMSL is a laboratory accredited by the National Institute of Standards and Technology National Voluntary Laboratory Accreditation Program (NIST-NVLAP) for bulk asbestos fiber analysis. The laboratory analysis was requested on a ten-day turnaround time.

Sample group identification numbers, material descriptions, approximate quantities, friability assessments, and photo references are summarized in Table 1. Approximate sample locations are presented on Figure 2. Materials represented by the samples collected are shown in the attached photographs.

3.2 Lead Paint

Four bulk paint samples were collected from suspect LCP observed at the POC locations. Our sampling procedures in accordance with TO-27 are discussed below:

- Collected bulk samples of suspect LCP using techniques presented in HUD guidelines. In addition, the painted area was evaluated for evidence of deterioration such as flaking or cracking.
- Relinquished the bulk LCP samples under chain-of-custody protocol to Advanced Technology Laboratories (ATL), a California-licensed and Caltrans-approved subcontractor, for lead analysis in accordance with EPA Test Method 6010B. The laboratory analysis was requested on a ten-day turnaround time.

Paint sample identification numbers, descriptions, peeling and flaking quantities, and photo references are summarized in Table 2. Approximate sample locations are presented on Figure 2. Materials represented by the samples collected are shown in the attached photographs.

4.0 INVESTIGATIVE RESULTS

4.1 Asbestos Analytical Results

Asbestos was not detected in samples of the suspect materials collected during our survey. A summary of the analytical laboratory test results for asbestos is presented in Table 1.

4.2 Paint Analytical Results

A summary of the analytical laboratory test results for paint is presented in Table 2.

Samples representing intact gray graffiti abatement paint on Bridge 46-0180 exhibited total lead concentrations of 54 and 34 mg/kg.

Samples representing intact gray graffiti abatement paint on Bridge 46-0218 exhibited total lead concentrations of 18 and 7.8 mg/kg.

4.3 Background Air Sampling Results

A summary of the analytical laboratory test results for air samples is presented in Table 3.

Laboratory analytical results for the background air samples analyzed by PCM were less than the laboratory reporting limit of 0.002 fibers per cubic centimeter (f/cc). Reproductions of the laboratory reports and chain-of-custody documentation are presented in Appendix A.

5.0 RECOMMENDATIONS

Based on our findings, we recommend the following:

5.1 Asbestos

Since no asbestos was detected in samples collected during our survey, the Cal/OSHA asbestos standard does not apply for planned activities. In addition, demolition debris would not be considered as a California hazardous waste based on asbestos content. However, in accordance with San Joaquin Valley Air Unified Pollution Control District (SJVUAPCD) Regulation IV, Rule 4002, written notification to the SJVUAPCD is required ten working days prior to commencement of *any* demolition activity (whether asbestos is present or not).

5.2 Lead Paint

Intact LCP was identified on both bridges during our survey. Additional analysis of identified lead-containing graffiti abatement paint used on Bridge 46-0180 would be required to evaluate waste classification as a California hazardous waste or Federal (RCRA) waste based on lead content.

Intact gray graffiti abatement paint used on Bridge 46-0218 would not be classified as a California hazardous waste based on lead content if stripped, blasted, or otherwise separated from the substrate.

We recommend that all paints at the project location (graffiti, graffiti abatement, signage, etc.) be treated as lead-containing for purposes of determining the applicability of the Cal/OSHA lead standard during any future maintenance, renovation, and demolition activities. This recommendation is based on LCP sample results and the fact that lead was a common ingredient of paints manufactured before 1978 and is still an ingredient of some paints. In accordance with Title 8, CCR, Section 1532.1(p), written notification to the nearest Cal/OSHA district office is required at least 24 hours prior to certain lead-related work.

5.3 Air Samples

The reported asbestos levels for the background air samples are below the United States EPA re-occupancy limit (following asbestos abatement) of 0.01 f/cc. Based on these results, we conclude that elevated concentrations of airborne asbestos fibers were not present in air monitored at the perimeter of the POC locations.

6.0 REPORT LIMITATIONS

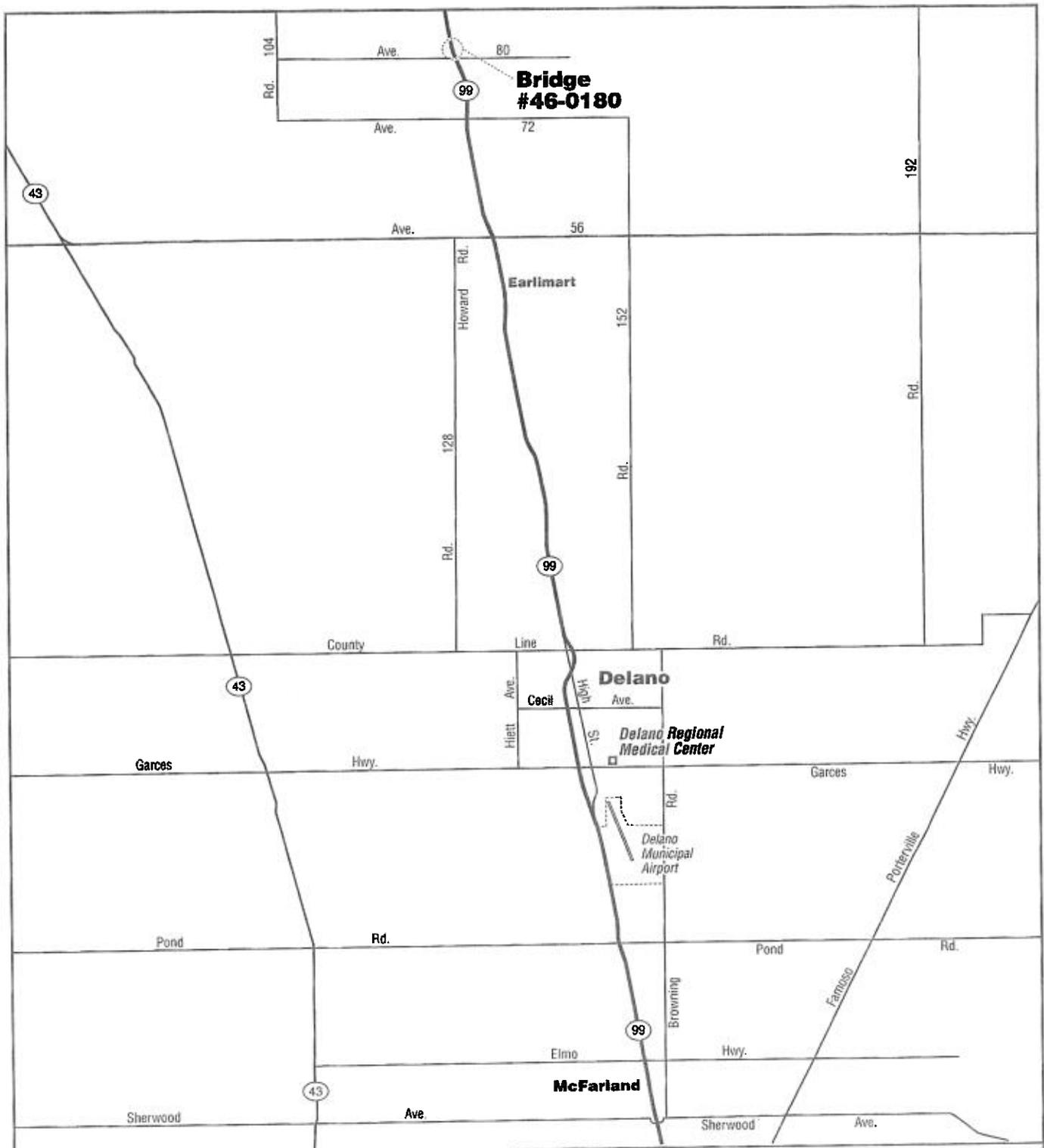
This asbestos and LCP survey was conducted in conformance with generally accepted standards of practice for identifying and evaluating asbestos and LCP in structures. The survey addressed only the structures identified in Section 1.1. Due to the nature of structure surveys, asbestos and LCP use, and laboratory analytical limitations, some ACM or LCP at the project location may not have been identified. Spaces such as cavities, voids, crawlspaces, and pipe chases may have been concealed to our investigator. Previous renovation work may have concealed or covered spaces or materials or may have partially demolished materials and left debris in inaccessible areas. Additionally, renovation activities may have partially replaced ACM with indistinguishable non-ACM. Asbestos and/or LCP may exist in areas of the structures that were not accessible or sampled in conjunction with this TO.

During renovation or demolition operations, suspect materials may be uncovered which are different from those accessible for sampling during this assessment. Personnel in charge of renovation/demolition should be alerted to note materials uncovered during such activities that differ substantially from those included in this or previous assessment reports. If suspect ACM and/or LCP are found, additional sampling and analysis should be performed to determine if the materials contain asbestos or lead.

This report has been prepared exclusively for Caltrans. 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.

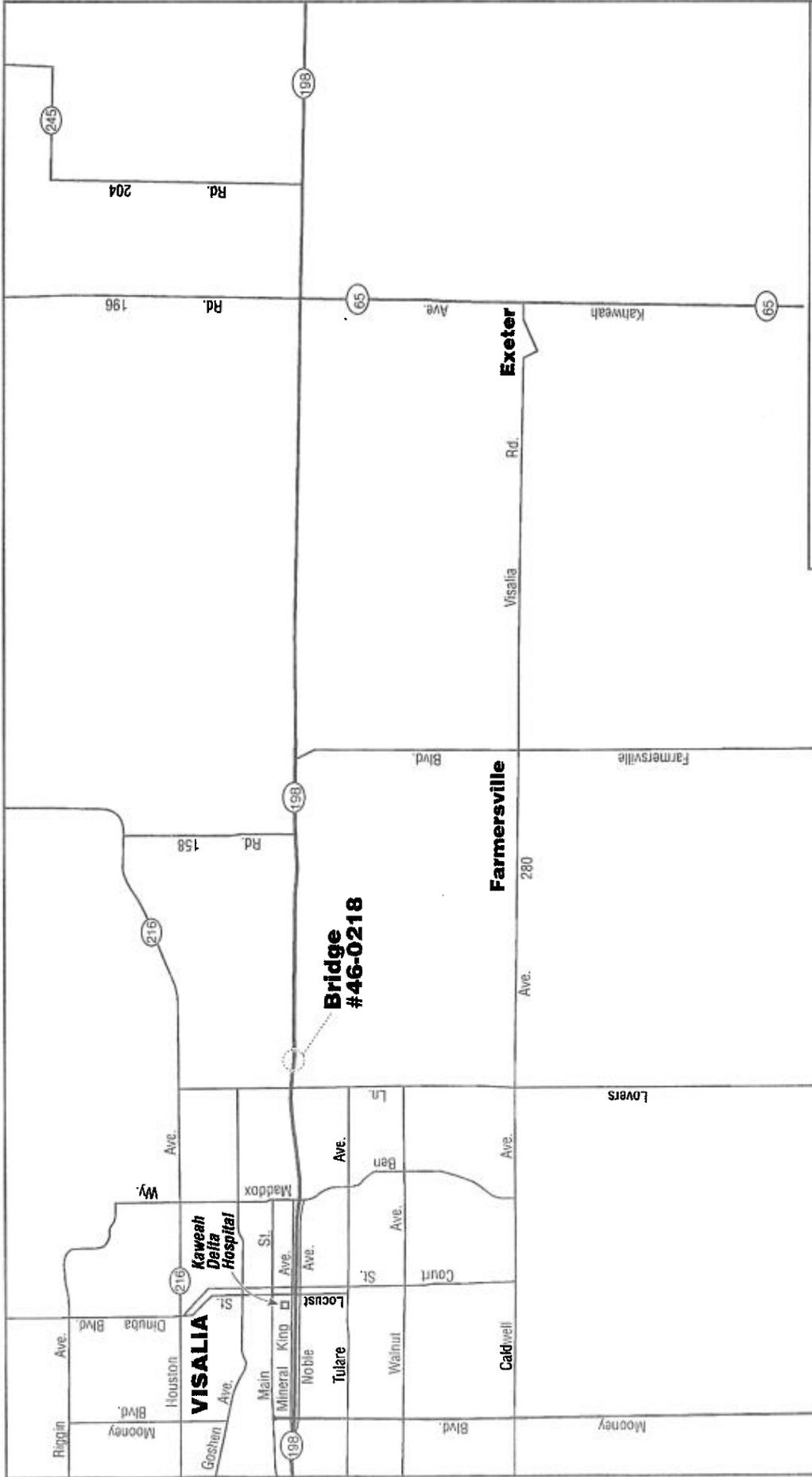




GEOCON
CONSULTANTS, INC.
3160 GOLD VALLEY DR - SUITE 600 - RANCHO CORDOVA, CA 95742
PHONE 916.652.9118 - FAX 916.652.9132

**TULARE 99 and TULARE 198 Pedestrian Overcrossing
Demolition and Replacement**

Tulare County, California	VICINITY MAP	
GEOCON Proj. No. S9525-06-27	June 2011	Figure 1-1
Task Order No. 27, EA 06-0H6300		





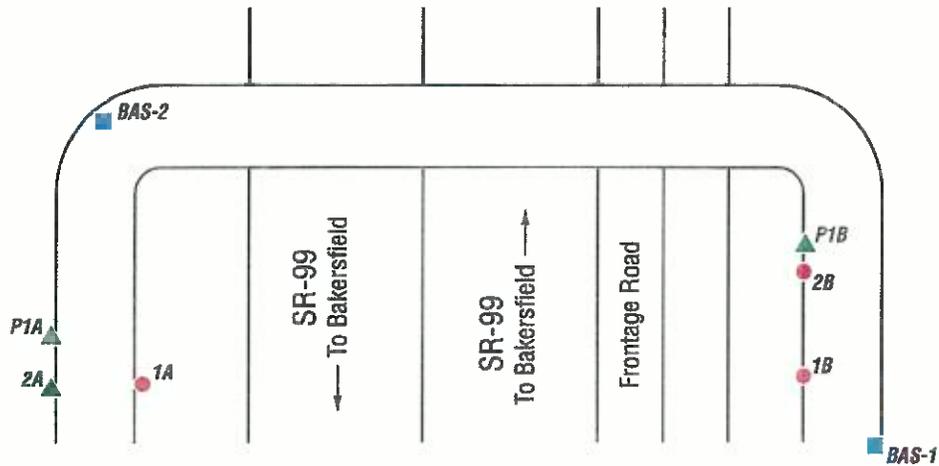
GEOCON
CONSULTANTS, INC.

3180 GOLD VALLEY DR - SUITE 800 - RANCHO CORDOVA, CA 95742
PHONE 916.852.9118 - FAX 916.852.8132

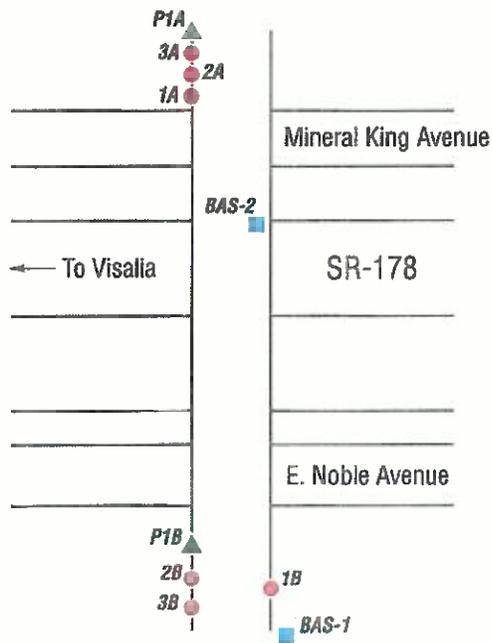
**TULARE 99 and TULARE 198 Pedestrian Overcrossing
Demolition and Replacement**

Tulare County, California	VICINITY MAP
GEOCON Proj. No. S9525-06-27	
Task Order No. 27, EA 06-01H6300	June 2011
	Figure 1-2





AVENUE 80 POC (46-0180)



VISTA AVENUE POC (46-0218)



NOT TO SCALE

LEGEND:

- Approximate Asbestos Sample Location
- ▲ Approximate Paint Sample Location
- Approximate Air Sample Location



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**TULARE 99 and TULARE 198 Pedestrian Overcrossing
Demolition and Replacement**

Tulare County, California

SITE PLAN

GEOCON Proj. No. S9525-06-27

Task Order No. 27, EA 06-0H6300

June 2011

Figure 2



Photo 1 – Avenue 80 POC (Bridge 46-0180)



Photo 2 – Bridge 46-0180 expansion joint fill material

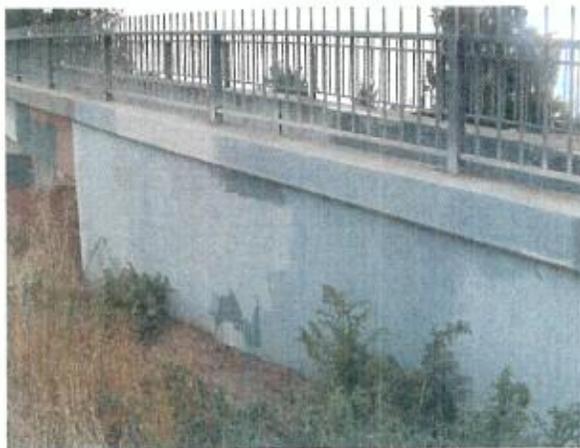


Photo 3 – Bridge 46-0180 graffiti abatement paint



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3160 GOLD VALLEY DR - SUITE 300 - RANCHO CORDOVA, CA 95742
PHONE 916.852.9118 - FAX 916.852.9132

PHOTOGRAPHS 1, 2, & 3

Tulare 99 and Tulare 198 Pedestrian Overcrossing
Demolition and Replacement Project
Tulare County, California

S9525-06-27

EA 06-0H6300

June 2011



Photo 4 – Bridge 46-0180 typical air monitoring station



Photo 5 – Vista Avenue POC (Bridge 46-0218)



Photo 6 – Bridge 46-0218 expansion joint fill material and graffiti abatement paint



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PHOTOGRAPHS 4, 5, & 6

Tulare 99 and Tulare 198 Pedestrian Overcrossing
Demolition and Replacement Project
Tulare County, California

S9525-06-27

EA 06-0H6300

June 2011



Photo 7 – Bridge 46-0218 black drain pipe



Photo 8 – Bridge 46-0218 typical air monitoring station



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3160 GOLD VALLEY DR - SUITE 800 - RANCHO CORDOVA, CA 95742
PHONE 916.852.9118 - FAX 916.852.9132

PHOTOGRAPHS 7 & 8

Tulare 99 and Tulare 198 Pedestrian Overcrossing
Demolition and Replacement Project
Tulare County, California

S9525-06-27

EA 06-0H6300

June 2011

TABLE 1

SUMMARY OF ASBESTOS ANALYTICAL RESULTS
 TULARE 99 AND TULARE 198 PEDESTRIAN OVERCROSSING DEMOLITION AND REPLACEMENT PROJECT
 CALTRANS CONTRACT 06A1580, TASK ORDER NO. 27, EA 06-0H6300
 TULARE COUNTY, CALIFORNIA

Polarized Light Microscopy (PLM) - EPA Test Method 600/R-93/116

Bridge No.	Sample Group No.	Description of Material	Approximate Quantity	Friable	Site Photos	Asbestos Content
46-0180	1	Expansion joint material	NA	NA	2	ND
	2	Paint	NA	NA	3	ND
46-0218	1	Expansion joint material	NA	NA	6	ND
	2	Paint	NA	NA	6	ND
	3	Black drain pipe	NA	NA	7	ND

Notes:

NA = Not applicable (no asbestos detected)

ND = Not detected

TABLE 2

SUMMARY OF PAINT ANALYTICAL RESULTS - TOTAL LEAD
 TULARE 99 AND TULARE 198 PEDESTRIAN OVERCROSSING DEMOLITION AND REPLACEMENT PROJECT
 CALTRANS CONTRACT 06A1580, TASK ORDER NO. 27, EA 06-0HG300
 TULARE COUNTY, CALIFORNIA

Bridge No.	Paint Sample No.	Paint Description	Approximate Quantity Peeling/Flaking	Site Photo	Total Lead (mg/kg)
46-0180	P1A	Gray graffiti abatement paint	Intact	3	54
	P1B	Gray graffiti abatement paint			34
46-0218	P1A	Gray graffiti abatement paint	Intact	6	18
	P1B	Gray graffiti abatement paint			7.8

Notes:

- mg/kg = milligrams per kilogram (EPA Test Method 6010)
- < = Not detected at or above the indicated laboratory reporting limit
- = Not analyzed

TABLE 3
 SUMMARY OF BACKGROUND AIR SAMPLE ANALYTICAL RESULTS
 TULARE 99 AND TULARE 198 PEDESTRIAN OVERCROSSING DEMOLITION AND REPLACEMENT PROJECT
 CALTRANS CONTRACT 06A1580, TASK ORDER NO. 27, EA 06-0H6300
 TULARE COUNTY, CALIFORNIA

Phase Contrast Microscopy (PCM) - National Institute for Occupational Safety and Health (NIOSH) Method 7400

Sample ID	Sample Location	Total Air Volume (liters)	Site Photos	Asbestos (f/cc) by PCM
		Bridge 46-0180		
BAS-180-1	Northern portion	1575.00	4	<0.002
BAS-180-2	Southern portion	1575.00		<0.002
		Bridge 46-0218		
BAS-218-1	Eastern portion	1512.00	8	<0.002
BAS-218-2	Western portion	1549.00		<0.002
FB-3	Field Blank	NA	NA	--
FB-4	Field Blank	NA	NA	--

Notes:

- f/cc = fibers per cubic centimeter
- BAS = Background air sample
- FB = Field blank
- NA = Not Applicable
- = Not analyzed

Air sample cassettes were positioned approximately five feet above ground level.

APPENDIX

A



EMSL Analytical, Inc

2235 Polvorosa Ave , Suite 230, San Leandro, CA 94577

Phone: (510) 895-3675 Fax: (510) 895-3680 Email: sanleandrolab@emsl.com

Attn: **Chris Giuntoli**
Geocon Consultants, Inc.
6671 Brisa Street

Livermore, CA 94550

Fax: (925) 371-5915 Phone: (925) 371-5900
Project: S9525-06-27 / Tulare & Kerns Bridges

Customer ID: GECN21
Customer PO: S9525-06-27
Received: 06/08/11 7:15 AM
EMSL Order: 091105873

EMSL Proj: S9525-06-27
Analysis Date: 6/21/2011

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
180-1A 091105873-0001		Brown Fibrous Homogeneous	30% Cellulose	70% Non-fibrous (other)	None Detected
180-1B 091105873-0002		Black Fibrous Homogeneous	30% Cellulose	70% Non-fibrous (other)	None Detected
180-2A 091105873-0003		Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
180-2B 091105873-0004		Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
218-1A 091105873-0005		Brown Fibrous Homogeneous	30% Cellulose	70% Non-fibrous (other)	None Detected
218-1B 091105873-0006		Black Fibrous Homogeneous	30% Cellulose	70% Non-fibrous (other)	None Detected

Initial report from 06/21/2011 16:53:48

Analyst(s)

Michelle LaVallee (10)

Baojia Ke, Laboratory Manager
or other approved signatory

Due to magnification limitations inherent in PLM, asbestos fibers in dimensions below the resolution capability of PLM may not be detected. Samples reported as <1% or none detected may require additional testing by TEM to confirm asbestos quantities. The above test report relates only to the items tested and may not be reproduced in any form without the express written approval of EMSL Analytical, Inc. EMSL's liability is limited to the cost of analysis. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc San Leandro, CA NVLAP Lab Code 101048-3, MA AA000201, WA C2007



EMSL Analytical, Inc

2235 Polvorosa Ave , Suite 230, San Leandro, CA 94577

Phone: (510) 895-3675 Fax: (510) 895-3680 Email: sanleandrolab@emsl.com

Attn: **Chris Giuntoli**
Geocon Consultants, Inc.
6671 Brisa Street

Livermore, CA 94550

Fax: (925) 371-5915 Phone: (925) 371-5900
Project: S9525-06-27 / Tulare & Kerns Bridges

Customer ID: GECN21
Customer PO: S9525-06-27
Received: 06/08/11 7:15 AM
EMSL Order: 091105873

EMSL Proj: S9525-06-**
Analysis Date: 6/21/2011

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
218-2A 091105873-0007		Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
218-2B 091105873-0008		Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
218-3A 091105873-0009		Black Fibrous Homogeneous	30% Cellulose	70% Non-fibrous (other)	None Detected
218-3B 091105873-0010		Black Fibrous Homogeneous	30% Cellulose	70% Non-fibrous (other)	None Detected

Initial report from 06/21/2011 16:53:48

Analyst(s)

Michelle LaVallee (10)

Baojia Ke, Laboratory Manager
or other approved signatory

Due to magnification limitations inherent in PLM, asbestos fibers in dimensions below the resolution capability of PLM may not be detected. Samples reported as <1% or none detected may require additional testing by TEM to confirm asbestos quantities. The above test report relates only to the items tested and may not be reproduced in any form without the express written approval of EMSL Analytical, Inc. EMSL's liability is limited to the cost of analysis. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc San Leandro, CA NVLAP Lab Code 101048-3, MA AA000201, WA C2007



Asbestos Chain of Custody EMSL Order Number (Lab Use Only):

091105873

EMSL ANALYTICAL, INC.
2235 POLYPOSA DR., STE 230
SAN LEANDRO, CA 94577
PHONE (510) 895-3875
FAX (510) 895-3680

Company: GEOCON		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different <small>If Bill to is Different note instructions in Comments**</small>	
Street: 6671 BIRISA ST		<small>Third Party Billing requires written authorization from third party</small>	
City: LIVERMORE	State/Province: CA	Zip/Postal Code: 94550	Country:
Report To (Name): CHRIS GIUNTOLE		Fax #:	
Telephone #: 925-371-5900 x205		Email Address: GIUNTOLE@GEOCONINC.COM	
Project Name/Number: TULARE & KEAR BRIDGES 39525-CG-27			
Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email		Purchase Order: _____ U.S. State Samples Taken: _____	
Turnaround Time (TAT) Options* - Please Check			
<input type="checkbox"/> 3 Hour <input type="checkbox"/> 6 Hour <input type="checkbox"/> 24 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 72 Hour <input type="checkbox"/> 96 Hour <input type="checkbox"/> 1 Week <input checked="" type="checkbox"/> 2 Week			
<small>*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.</small>			
PCM - Air <input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> w/ OSHA 8hr. TWA PLM - Bulk (reporting limit) <input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%) <input type="checkbox"/> PLM EPA NOB (<1%) Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) <input type="checkbox"/> NYS 198.1 (friable in NY) <input type="checkbox"/> NYS 198.6 NOB (non-friable-NY) <input type="checkbox"/> NIOSH 9002 (<1%)	TEM - Air <input type="checkbox"/> 4-4.5hr TAT (AHERA only) <input type="checkbox"/> AHERA 40 CFR, Part 763 <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> EPA Level II <input type="checkbox"/> ISO 10312 TEM - Bulk <input type="checkbox"/> TEM EPA NOB <input type="checkbox"/> NYS NOB 198.4 (non-friable-NY) <input type="checkbox"/> Chatfield SOP <input type="checkbox"/> TEM Mass Analysis-EPA 600 sec. 2.5 TEM - Water: EPA 100.2 Fibers >10µm <input type="checkbox"/> Waste <input type="checkbox"/> Drinking All Fiber Sizes <input type="checkbox"/> Waste <input type="checkbox"/> Drinking	TEM - Dust <input type="checkbox"/> Microvac - ASTM D 5755 <input type="checkbox"/> Wipe - ASTM D6480 <input type="checkbox"/> Carpet Sonication (EPA 600/J-93/167) Soil/Rock/Vermiculite <input type="checkbox"/> PLM CARB 435 - A (0.25% sensitivity) <input type="checkbox"/> PLM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - C (0.01% sensitivity) <input type="checkbox"/> EPA Protocol (Semi-Quantitative) <input type="checkbox"/> EPA Protocol (Quantitative) Other: <input type="checkbox"/>	
<input type="checkbox"/> Check For Positive Stop - Clearly Identify Homogenous Group			
Samplers Name: CHRIS GIUNTOLE		Samplers Signature: <i>[Signature]</i>	
Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
180-1A	EXPANSION JOINT FILL MATERIAL		6/6/11
180-1B	↓		
180-2A	PAINT		
180-2B	↓		
218-1A	EXPANSION JOINT FILL MATERIAL		
218-1B	↓		
218-2A	PAINT		
218-2B	↓		
Client Sample # (s): _____		Total # of Samples: 10	
Relinquished (Client): <i>[Signature]</i>	Date: 6/7/11	Time: 11:00	
Received (Lab): <i>[Signature]</i>	Date: 6/8/11	Time: 7:15 PM	
Comments/Special Instructions: _____			



EMSL Analytical, Inc

2235 Polvorosa Ave , Suite 230, San Leandro, CA 94577

Phone: (510) 895-3675 Fax: (510) 895-3680 Email: sanleandrolab@emsl.com

Attn: **Chris Giuntoli**
Geocon Consultants, Inc.
6671 Brisa Street

Livermore, CA 94550

Fax: (925) 371-5915 Phone: (925) 371-5900
Project: **S9525-06-27 / Tulare & Kern Bridges**

Customer ID: GECN21
Customer PO: S9525-06-27
Received: 06/08/11 7:15 AM
EMSL Order: 091105871

EMSL Proj: S9525-06-27
Analysis Date: 6/13/2011

**Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method,
Revision 3, Issue 2, 8/15/94**

Sample	Location	Sample Date	Volume (liters)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
BAS-218-1	South end	6/6/2011	1575.00	<5.5	100	0.002	<7.01	<0.002	
091105871-0001									
BAS-218-2	North end	6/6/2011	1575.00	<5.5	100	0.002	<7.01	<0.002	
091105871-0002									
BAS-180-1		6/6/2011	1512.00	<5.5	100	0.002	<7.01	<0.002	
091105871-0003									
BAS-180-2		6/6/2011	1549.00	<5.5	100	0.002	<7.01	<0.002	
091105871-0004									
FB-3 - HOLD	Field blank - HOLD	6/6/2011							Field Blank Not Analyzed
091105871-0005									
FB-4 - HOLD	Field blank - HOLD	6/6/2011							Field Blank Not Analyzed
091105871-0006									

The results reported have been blank corrected as applicable.

Initial report from 06/13/2011 19:01:54

Analyst(s)

William Riffel (4)

Baojia Ke, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Interlaboratory Sr values: 5-20 fibers = 0.35, 21-50 fibers = 0.30, 51-100 fibers = 0.20. The laboratory is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears not responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc San Leandro, CA MA AA000201



Asbestos Chain of Custody
EMSL Order Number (Lab Use Only):

091105871

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

Company : GEOCON		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different <small>If Bill to is Different note instructions in Comments**</small>	
Street: 6671 BIRISA ST		<i>Third Party Billing requires written authorization from third party</i>	
City: LIVERMORE	State/Province: CA	Zip/Postal Code: 94550	Country:
Report To (Name): CHRIS GIUNTOLO		Fax #:	
Telephone #: 925-371-5900 x 205		Email Address: GIUNTOLO@GEOCONVINC.COM	
Project Name/Number: TULARE & KERN BRIDGES 59525-EG-27			
Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email		Purchase Order: <input type="checkbox"/> U.S. State Samples Taken: <input type="checkbox"/>	
Turnaround Time (TAT) Options* - Please Check			
<input type="checkbox"/> 3 Hour <input type="checkbox"/> 6 Hour <input type="checkbox"/> 24 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 72 Hour <input type="checkbox"/> 96 Hour <input type="checkbox"/> 1 Week <input checked="" type="checkbox"/> 2 Week			
<small>*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.</small>			
PCM - Air <input checked="" type="checkbox"/> NIOSH 7400 <input type="checkbox"/> w/ OSHA 8hr. TWA PLM - Bulk (reporting limit) <input type="checkbox"/> PLM EPA 800/R-93/116 (<1%) <input type="checkbox"/> PLM EPA NOB (<1%) Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) <input type="checkbox"/> NYS 198.1 (friable in NY) <input type="checkbox"/> NYS 198.6 NOB (non-friable-NY) <input type="checkbox"/> NIOSH 9002 (<1%)		TEM - Air: <input type="checkbox"/> 4-4.5hr TAT (AHERA only) <input type="checkbox"/> AHERA 40 CFR, Part 763 <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> EPA Level II <input type="checkbox"/> ISO 10312 TEM - Bulk <input type="checkbox"/> TEM EPA NOB <input type="checkbox"/> NYS NOB 198.4 (non-friable-NY) <input type="checkbox"/> Chatfield SOP <input type="checkbox"/> TEM Mass Analysis-EPA 600 sec. 2.5 TEM - Water: EPA 100.2 Fibers >10µm <input type="checkbox"/> Waste <input type="checkbox"/> Drinking All Fiber Sizes <input type="checkbox"/> Waste <input type="checkbox"/> Drinking	
		TEM - Dust <input type="checkbox"/> Microvac - ASTM D 5755 <input type="checkbox"/> Wipe - ASTM D6480 <input type="checkbox"/> Carpet Sonication (EPA 600/J-93/167) Soil/Rock/Vermiculite <input type="checkbox"/> PLM CARB 435 - A (0.25% sensitivity) <input type="checkbox"/> PLM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - C (0.01% sensitivity) <input type="checkbox"/> EPA Protocol (Semi-Quantitative) <input type="checkbox"/> EPA Protocol (Quantitative) Other: <input type="checkbox"/>	
<input type="checkbox"/> Check For Positive Stop - Clearly Identify Homogenous Group			
Samplers Name: CHRIS GIUNTOLO		Samplers Signature: <i>[Signature]</i>	
Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
BAS-218-1	SOUTH END	125M ² x 12,600 L/M = 1,575 L	6/6/11
BAS-218-2	NORTH END	125M ² x 12,600 L/M = 1,575 L	1
BAS-180-1		120M ² x 12,600 L/M = 1,512	
BAS-180-2		123M ² x 12,600 L/M = 1,549	
FB-3	FIELD BLOCK		
FB-4			
Client Sample # (s):		Total # of Samples:	
Relinquished (Client): <i>[Signature]</i>	Date: 6/7/11	Time: 1:00	
Received (Lab): <i>[Signature]</i>	Date: 6/15/11	Time: 7:15 A	
Comments/Special Instructions:			

June 16, 2011



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

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003
Workorder No.: 118287

RE: TULARE & KERN BRIDGES, S9525-06-27

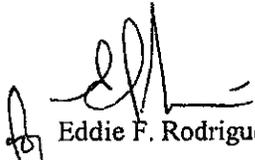
Attention: Chris Giuntoli

Enclosed are the results for sample(s) received on June 08, 2011 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,


Eddie F. Rodriguez
Laboratory Director

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



Advanced Technology Laboratories

Date: 16-Jun-11

CLIENT: Geocon Consultants, Inc.
Project: TULARE & KERN BRIDGES, S9525-06-27
Lab Order: 118287

CASE NARRATIVE

Analytical Comments for Method 6010

RPD for Sample Duplicate (DUP) is outside criteria for sample 118288-006A-DUP; however, the Laboratory Control Sample (LCS) validated the analytical batch.



Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: 16-Jun-11

CLIENT: Geocon Consultants, Inc.
Project: TULARE & KERN BRIDGES, S9525-06-27

Lab Order: 118287

Lab ID: 118287-001
Client Sample ID: 180-PIA

Collection Date: 6/6/2011
Matrix: PAINT CHIPS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B		EPA 6010B			
RunID: ICP8_110614D	QC Batch: 73557				PrepDate: 6/13/2011	Analyst: IL
Lead	54	2.0		mg/Kg	1	6/14/2011 02:14 PM

Lab ID: 118287-002
Client Sample ID: 180-P1B

Collection Date: 6/6/2011
Matrix: PAINT CHIPS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B		EPA 6010B			
RunID: ICP8_110614D	QC Batch: 73557				PrepDate: 6/13/2011	Analyst: IL
Lead	34	2.0		mg/Kg	1	6/14/2011 02:17 PM

Lab ID: 118287-003
Client Sample ID: 218-P1A

Collection Date: 6/6/2011
Matrix: PAINT CHIPS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B		EPA 6010B			
RunID: ICP8_110614D	QC Batch: 73557				PrepDate: 6/13/2011	Analyst: IL
Lead	18	2.0		mg/Kg	1	6/14/2011 02:22 PM

Lab ID: 118287-004
Client Sample ID: 218-P1B

Collection Date: 6/6/2011
Matrix: PAINT CHIPS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B		EPA 6010B			
RunID: ICP8_110614D	QC Batch: 73557				PrepDate: 6/13/2011	Analyst: IL
Lead	7.8	2.0		mg/Kg	1	6/14/2011 02:31 PM

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



**Advanced Technology
 Laboratories**

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

CHAIN OF CUSTODY RECORD

ADVANCED TECHNOLOGY LABORATORIES
 3775 Walnut Ave., Signal Hill, CA 90755
 Tel: (562) 989-4045 • Fax: (562) 989-4040

Client: **Geocon Consultants, Inc.**
 Attn: **CHARLES GIUNTERO**

Project Name: **TYLOR & KERN BRIDGES** Project #: **SAS25-08-27** Sampler: **C. Giuntero**

Relinquished by: (Signature and Printed Name) *[Signature]* Date: **6/7/11** Time: **16:30**

Relinquished by: (Signature and Printed Name) *[Signature]* Date: **6/7/11** Time: **16:30**

Relinquished by: (Signature and Printed Name) *[Signature]* Date: **6/7/11** Time: **16:30**

Relinquished by: (Signature and Printed Name) *[Signature]* Date: **6/7/11** Time: **16:30**

Relinquished by: (Signature and Printed Name) *[Signature]* Date: **6/7/11** Time: **16:30**

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

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

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

Special Instructions/Comments: **↓ SOLUBLE LEAD MAY BE REQUESTED BASED ON TOTAL LEAD RESULTS**

Bill To: **SKATE** Attn: **SKATE** City: **SKATE** State: **SKATE** Zip: **SKATE**

Circle or Add Analysis(es) Requested: **LEAD**

LAB USE ONLY: Batch #, Lab No., Sample I.D. / Location, Date, Time

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

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

LAB USE ONLY:	Sample Description	Sample I.D. / Location	Date	Time
1		130-PIA		
2		130-PIA		
3		218-PIA		
4		218-PIA		

QA/QC: RTNE CT Legal SWRCB Logcode OTHER _____

RESERVATION: CONTAINER(S), TAT #, Type

SPECIFY APPROPRIATE MATRIX: SEDIMENT, SOIL, DRINKING WATER, WASTEWATER, STORMWATER, AQUEOUS

ROUTINE: Routine E=7 Workdays
 URGENT: Urgent D=3 Workdays
 CRITICAL: Critical JIC=2 Workdays
 EMERGENCY: Emergency B=Next workday

TAT: A= Overnight ≤ 24 hrs B= Next workday

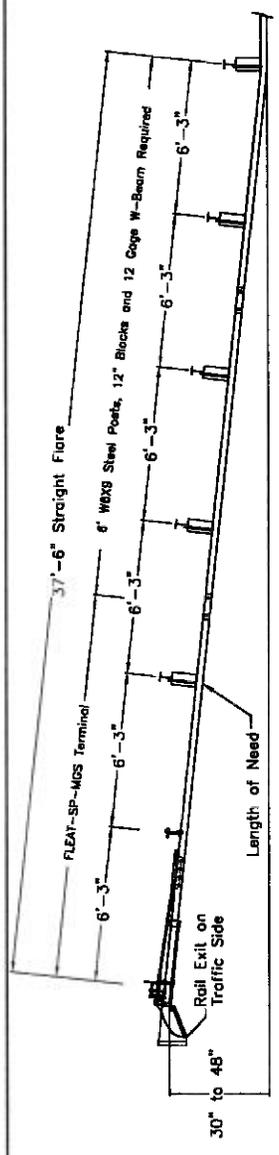
Container Types: T=Tube V=VOA L=Liter P=Plastic J=Jar B=Tedlar G=Glass M=Metal

Preservatives: H=Hcl N=HNO3 S=H2SO4 C=4°C Z=Zn(Ac)2 O=NaOH T=Na2S2O3

ITEM QTY	BILL OF MATERIALS	ITEM NO.
A 1	IMPACT HEAD	F 3000
B 1	W-BEAM GUARDRAIL END SECTION, 12 Ga.	MS-87103
C 1	FIRST POST TOP (EXTRA) (Tube)	THP1A
D 1	FIRST POST BOTTOM (6" Wx15)	THP1B
E 1	SECOND POST ASSEMBLY TOP	UHP2A
F 1	SECOND POST ASSEMBLY BOTTOM	HP2B
G 1	BEARING PLATE	E760
H 1	CABLE ANCHOR BOX	5760
J 1	BCT CABLE ANCHOR ASSEMBLY	E770
HARDWARE (ALL DIMENSIONS IN INCHES)		
a 2	5/16 x 1 HEX BOLT GRD 5	BS160104A
b 4	5/16 WASHER	WD516
c 2	5/16 HEX NUT	NS516
d 9	5/8 Dia. x 1 1/4 SPLICE BOLT (POST #2)	BS60122
e 1	5/8 Dia. x 9 HEX BOLT GRD 5	BS60044A
f 3	5/8 WASHER	WD50
g 10	5/8 Dia. H.G.R. NUT	NS50
h 1	3/4 Dia. x 8 1/2 HEX BOLT GRD A49	BS40854A
i 1	3/4 Dia. HEX NUT	NS30
k 2	1 ANCHOR CABLE HEX NUT	N100
m 2	1 ANCHOR CABLE WASHER	W100
n 2	1 CABLE ANCHOR BOX SHOULDER BOLT	SS58A
o 8	1/2 A325 STRUCTURAL NUT	NS55A
p 16	1 1/18 OD x 9/18 ID A325 STR. WASHER	WS50A

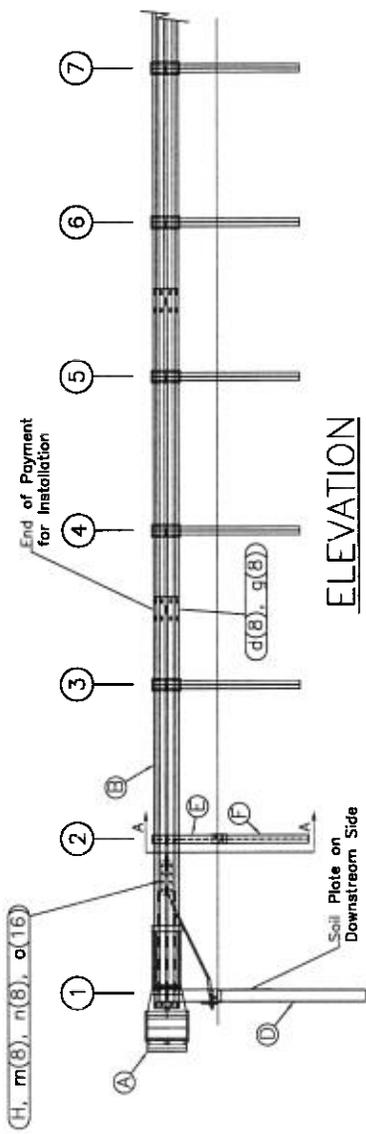
GENERAL NOTES:

- All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
- The lower sections of the Posts 1&2 shall not protrude more than 4 in above the ground (measured along a 5' cone). Site grading may be necessary to meet this requirement.
- The lower sections of the hinged posts should not be driven with the upper post attached. If the post is placed in a drilled hole, the backfill material must be satisfactorily compacted to prevent settlement.
- When competent rock is encountered, a 12" Ø post hole, 20 in. deep cored into the rock surface may be used if approved by the engineer for post 1. Granular material will be placed in the bottom of the hole, approximately 2.5' deep to provide drainage. The first post can be field cut to length, placed in the hole and backfilled with suitable backfill. The soil plate may be trimmed if required.
- The breakaway cable assembly must be taut. A locking device (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening nuts.

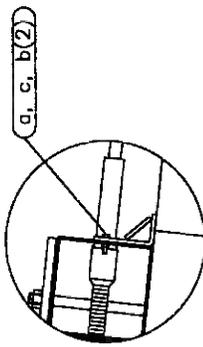


PLAN

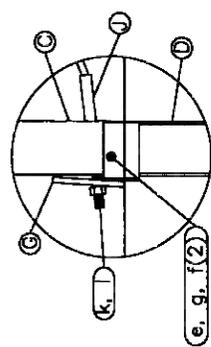
TRAFFIC →



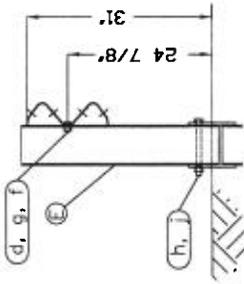
ELEVATION



Impact Head Connection Detail



Post #1 Connection Detail



SECTION A-A
Post #2



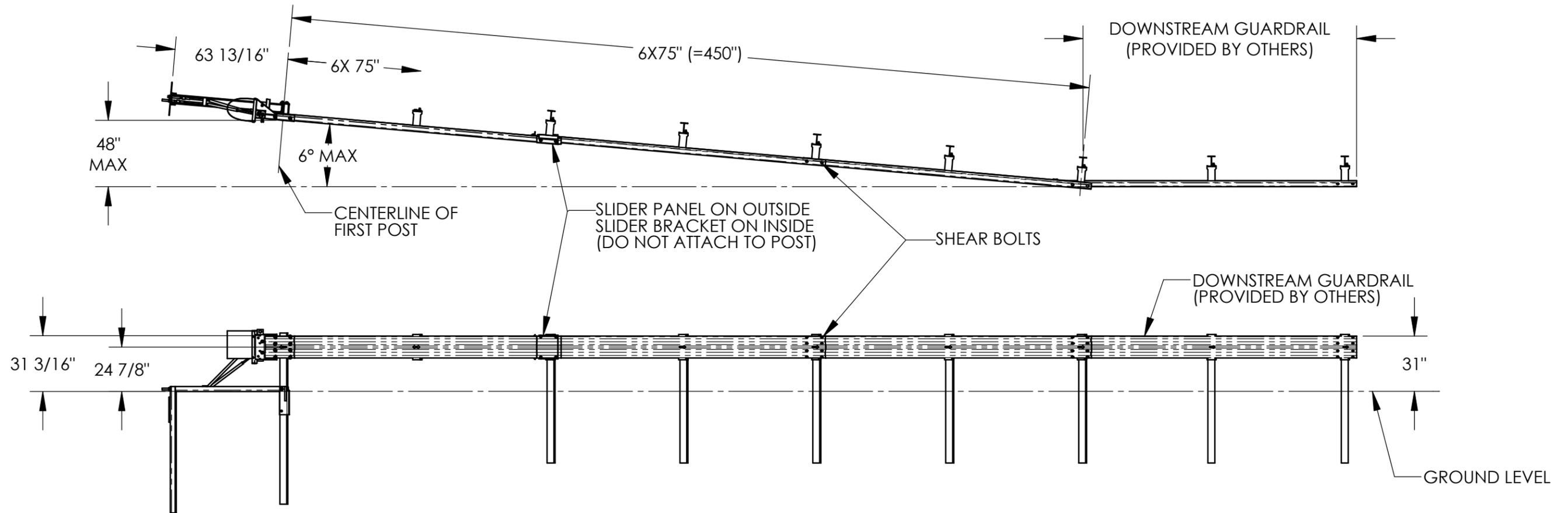
Road Systems, Inc.
Big Spring, TX
Phone: 432-263-2435
or Phone: 330-346-0751

FLEAT-SP-MGS Terminal
Midwest Guardrail System
31" Top of Rail

Drawing Name: FLT-SP-S-MGS	Scale: None
By: JRR	Rev: 0

NOTES: UNLESS OTHERWISE SPECIFIED.

1. X-TENSION SYSTEM TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
2. SYSTEM SHOWN USING STEEL WIDE FLANGE POST WITH COMPOSITE OR PLASTIC BLOCKOUTS. POST 2 MUST BE A BREAKAWAY STYLE POST CRIMPED (AS SHOWN).
3. SYSTEM MAY ALSO USE TIMBER CRT POSTS WITH TIMBER BLOCKOUTS OR STEEL POSTS WITH TIMBER BLOCKOUTS.



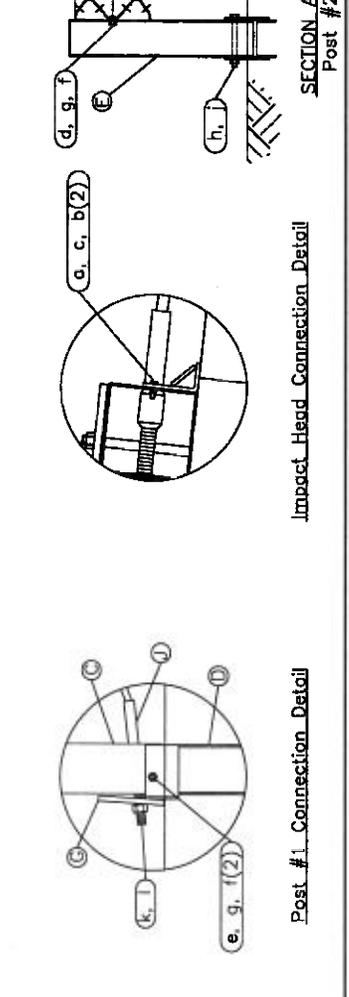
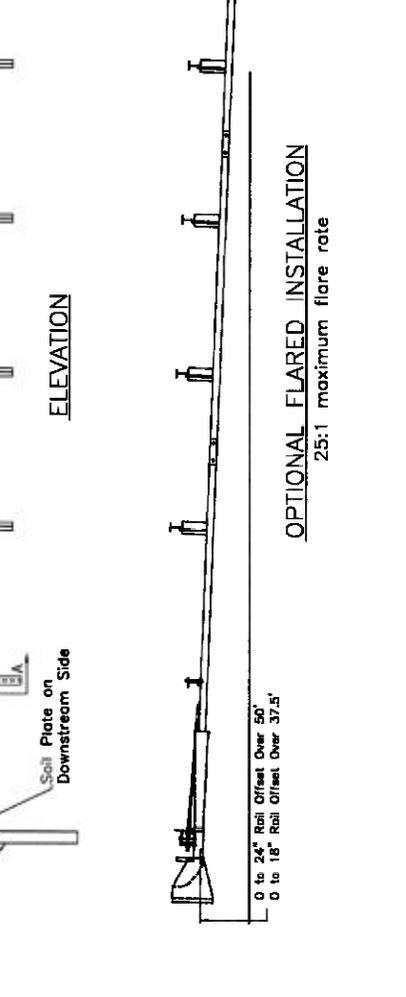
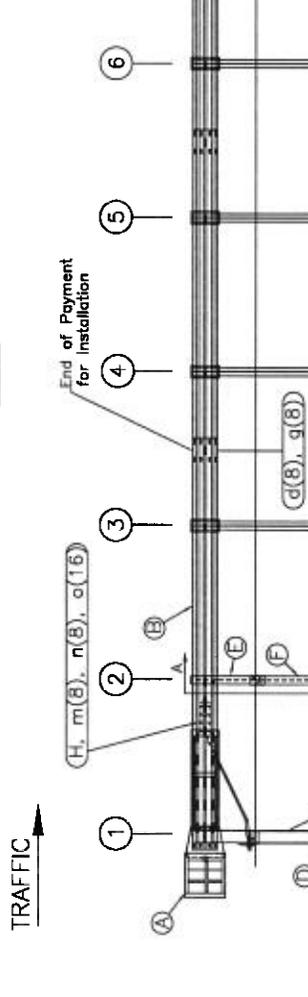
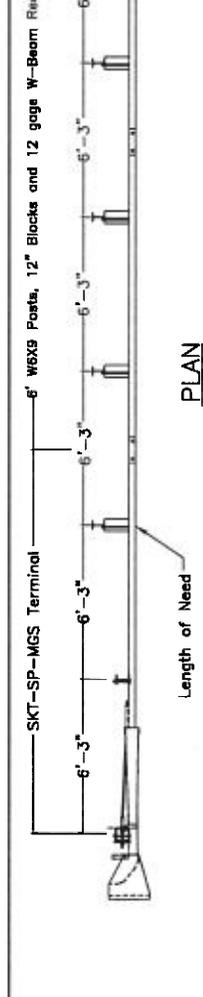
© 2012 BARRIER SYSTEMS INC. THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF BARRIER SYSTEMS INC. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF BARRIER SYSTEMS INC. IS PROHIBITED.		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACTIONS DECIMAL ANGLES $\pm 1/16$.XX = ± 0.03 $\pm 1/2^\circ$.XXX = ± 0.10				BARRIER SYSTEMS INC. 3333 Vaca Valley Parkway Ste 800 Vacaville, CA 95688 Tel: 888-800-3691 www.barriersystemsinc.com	
APPROVALS		INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5-1994		TITLE		31" X-TENSION GUARDRAIL SYSTEM FLARED CALTRANS	
DRAWN BY: NMB		THIRD ANGLE PROJECTION		SIZE B		DWG NO. BSI-1405049-AP	
DRAWN DATE: 5/28/14				REV 0		ECN#	
APPR'D BY:		DO NOT SCALE DRAWING		DATE 5/28/14		SCALE 1:60	
APPR'D DATE:		REV		ECN#		SHEET 1 OF 1	

ITEM QTY	DESCRIPTION	ITEM NO.
A	1 IMPACT HEAD	S3000
B	1 W-BEAM GUARDRAIL END SECTION, 12 Ga.	MS8-SF1203
C	1 FIRST POST TOP (6"x6"x Tube)	TPHP1A
D	1 FIRST POST BOTTOM (6" WEX15)	TPHP1B
E	1 SECOND POST ASSEMBLY TOP	UHP2A
F	1 SECOND POST ASSEMBLY BOTTOM	HP2B
G	1 BEARING PLATE	E750
H	1 CABLE ANCHOR BOX	S760
J	1 BCT CABLE ANCHOR ASSEMBLY	E770

BILL OF MATERIALS		ITEM NO.
a	2 5/16 x 1 HEX BOLT GRD 5	B5180104A
b	4 5/16 WASHER	W0516
c	2 5/16 HEX NUT	N0516
d	9 5/8 Dia. x 1 1/4 SPLICE BOLT (POST #2)	B580122
e	1 5/8 Dia. x 9 HEX BOLT GRD 5	B580804A
f	3 5/8 WASHER	W050
g	10 5/8 Dia. H.C.R. NUT	N050
h	1 3/4 Dia. x 8 1/2 HEX BOLT GRD A449	B340854A
i	1 3/4 Dia. HEX NUT	N030
k	2 1 ANCHOR CABLE HEX NUT	N100
l	2 1 ANCHOR CABLE WASHER	W100
m	8 CABLE ANCHOR BOX SHOULDER BOLT	S858A
n	8 1/2 A325 STRUCTURAL NUT	N055A
o	16 1 1/8 OD x 9/16 ID A325 STR. WASHER	W050A

GENERAL NOTES:

- All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
- The lower sections of the Posts 1&2 shall not protrude more than 4 in above the ground (measured along a 5' cord). Site grading may be necessary to meet this requirement.
- The lower sections of the hinged posts should not be driven with the upper post attached. If the post is placed in a drilled hole, the backfill material must be satisfactorily compacted to prevent settlement.
- When competent rock is encountered, a 12" Ø post hole, 20 in. deep cored into the rock surface may be used if approved by the engineer for post 1. Granular material will be placed in the bottom of the hole, approximately 2 ft deep, provide drainage. The first post can be field cut to length, placed in the hole and backfilled with suitable backfill. The soil plate may be trimmed if required.
- A site evaluation should be considered if there is less than 25' between the outlet side of the terminal and any adjacent driving lane.
- The breakaway cable assembly must be taut. A locking device (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening nuts.



Road Systems, Inc.
 1000 W. 12th St.
 Phoenix, AZ 85003
 Tel: 602-998-1100
 Fax: 602-998-1101

**SKT-SP-MGS Terminal
 Midwest Guardrail System
 31" Top of Rail**

Sheet: 1
 Date: 02/24/10
 By: JRR
 Scale: None
 Rev: 0

**ET-31™ Guardrail End Treatment
NCHRP Report 350 Test Level 3
System Length 53'-1 1/2" (16.19 m)**

For specific assembly, maintenance, or repair details refer to the state or specifying agency's standard drawings and/or Trinity standard layout drawings.

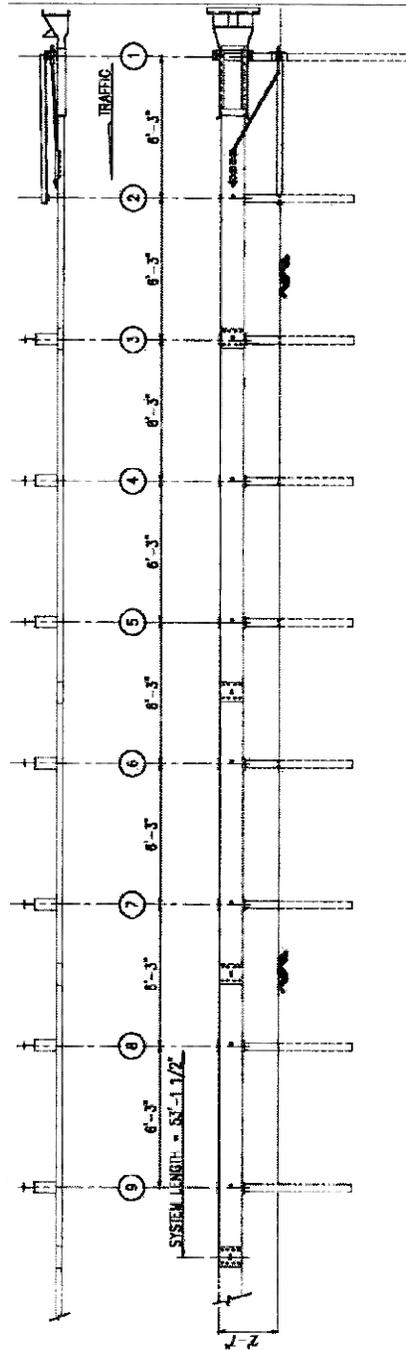
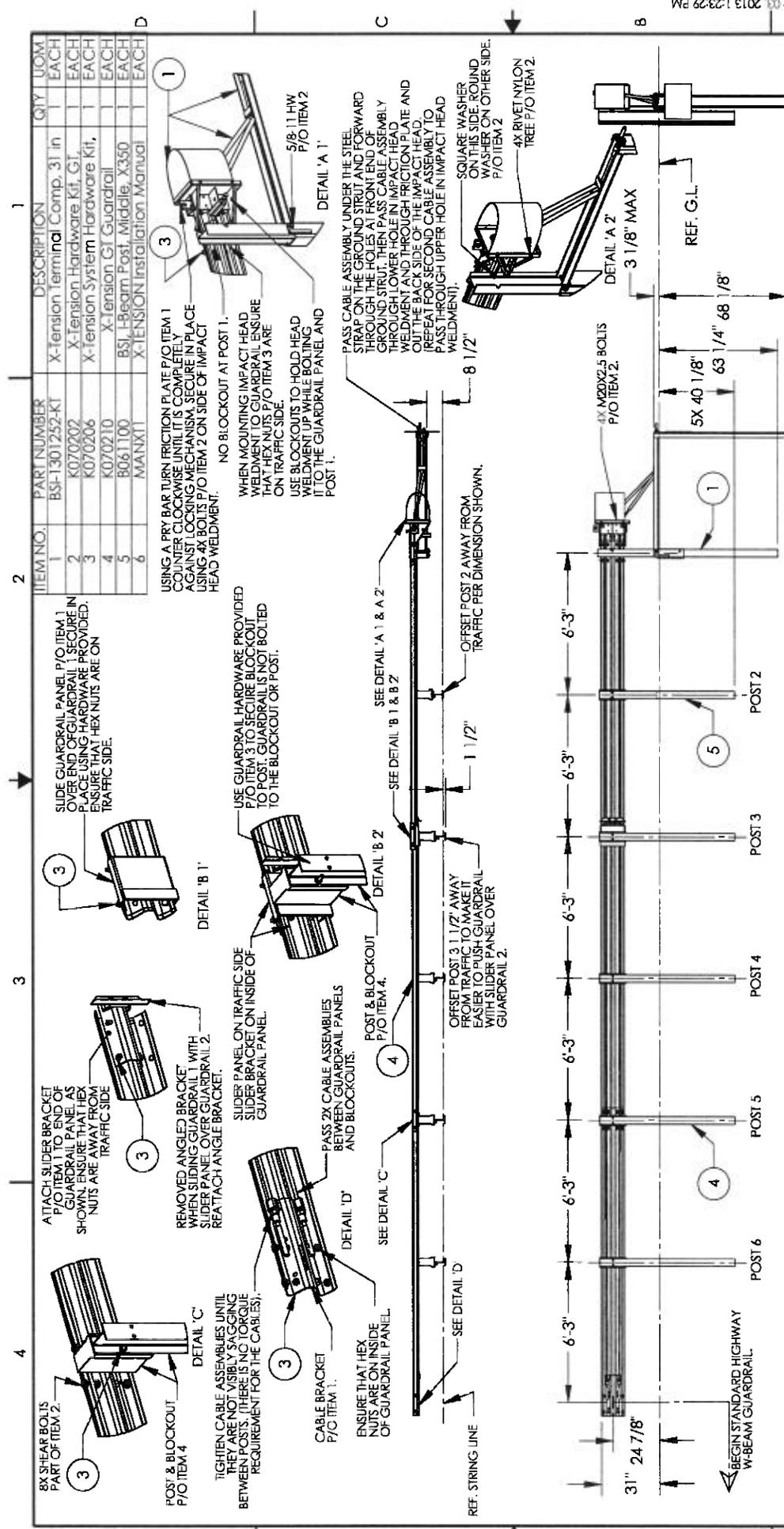


Figure 4 (TL-3)

[This drawing represents one version of the 53'-1 1/2" (16.19 m) system]



ITEM NO.	PART NUMBER	DESCRIPTION	QTY	UOM
1	BSH-1301252-KT	X-tension Terminal Comp, 31 in	1	EACH
2	K070202	X-tension Hardware Kit, G1	1	EACH
3	K070206	X-tension System Hardware Kit,	1	EACH
4	K070210	X-tension G1 Guardrail	1	EACH
5	B061100	BSJ L-beam Post, Middle, X350	1	EACH
6	MANX11	X-tension Installation Manual	1	EACH

LINDSAY
TRANSPORTATION SOLUTIONS

3333 WINDYWAY, CANTON, OH 44705
www.lindsayinc.com

X-TENSION GUARDRAIL TERMINAL SYSTEM
STEEL POST WITH COMPOSITE BLOCKOUT
31" RAIL HEIGHT

APPROVALS	DESIGNED BY: NMV	DATE: 2/08/13	REV: B	
	APPROVED BY: JMT	DATE: 2/08/13	SIZE: B	DWG NO: XGTGSS5
	APPROVED DATE: 2/08/13	REV: A	SCALE: 1:50	SHEET: 1 OF 1

NOTES: UNLESS OTHERWISE SPECIFIED.

- SYSTEM TO BE INSTALLED PER MANUFACTURER SPECIFICATIONS.
- ONLY TIGHTEN THE CABLE ASSEMBLIES USING THE NUTS AT THE CABLE BRACKET (SEE DETAIL 'D'). DO NOT TIGHTEN THE CABLES AT THE FRONT OF THE GROUND ANCHOR.
- WHEN DRIVING STEEL POST, ENSURE THAT A DRIVING CAP WITH TIMBER OR PLASTIC INSERT IS USED TO PREVENT DAMAGE TO THE GALVANIZING TO THE TOP OF THE POST.