INFORMATION HANDOUT

For Contract No. 08-0Q7904
At 08-SBd-40-R93.1/R
Project ID 0800020481

Hoff Wash Bridge (Replace)
Bridge No. 54-0889 L/R (Existing)
Bridge No. 54-1299 L/R (Proposed)

STRUCTURE HYDRAULICS & HYROLOGY
FINAL HYDRAULIC REPORT

DESERT TORTOISE
Desert Tortoise Protection Brochure

PROTECTION OF THE DESERT TORTOISE
(Gopherus agassizii)
DURING LIMITED SCOPE PROJECTS

MATERIAL REPORT

FOUNDATION REPORT
HOFF WASH BRIDGE

WATER RESOURCE INFORMATION LETTER
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DEPARTMENT OF FISH AND WILD LIFE

NOTIFICATION OF LAKE AND STREAMBED ALTERATION
NO. 1600-2015-0026-R6
INTERSTATE 40-HOFF WASH BRIDGE REPLACEMENT

State of California

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MR. BARTT GUNTER
Branch Chief
Office of Bridge Design South 2
Structure Design Branch 19

Date: January 7, 2015

File: 08-SBD-40-PM 93.7
08-0Q7901
Proj. ID: 0800020481
Hoff Wash Bridge (Replace)
Br. #54-1299 L/R

Attention: Mrs. Charles Lomicka

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design – South 2
Design Branch B

Subject: Foundation Report for Hoff Wash Bridge

In a memorandum dated June 18, 2014, Structures Design, Office of Bridge Design South 2, Bridge Design Branch 19 requested a Foundation Report (FR) for the proposed replacement of Hoff Wash Left and Right bridges (Br. No. 54-1299L/R). This FR supersedes all previously generated Preliminary Foundation Reports for these structures. The following recommendations are based on subsurface information gathered during the 2013 and 2014 subsurface investigations performed at the project site, and a review of "As-Built" Log of Test Boring (LOTB) data from the 1969 subsurface investigation performed for the left and right bridges. With regards to the current foundation recommendations, all elevations referenced within this report and shown on the recent Log of Test Boring sheets are based on the NGVD 1929 vertical datum.

Project Description

The existing Hoff Wash Left and Right Bridges (Br. No. 54-0889L/R) are located in San Bernardino County on State Route 40 approximately 46 miles west of Needles, California. The proposed replacement bridges will consist of two-span, pre-cast, pre-stressed, concrete I-girder structures on seat type abutments.

Geology

The "Geologic Map of the San Bernardino Quadrangle, San Bernardino County, California (Bortugno and Spittler, Revised 1998)" indicates that the site is located on Quaternary Alluvium which consists of dissected and undifferentiated alluvium deposits, colluvium and fan conglomerate.

The 2013/2014 subsurface investigations consisted of six mud-rotary soil borings. The borings revealed the site is underlain by fill material at the abutment locations of the left and right

bridges. At the left bridge, the fill is approximately 16 feet and 11 feet thick at Abutments 1 and 3, respectively. At the right bridge, the fill is approximately 13 feet and 10 feet thick at Abutments 1 and 3, respectively. Underlying the fill at the abutments, and at Pier 2 locations, is native material, which consists of very dense poorly-graded sand with silt and gravel and cobbles. Under the alluvial material, bedrock was encountered, which ranged from decomposed to fresh, from soft to very hard metamorphic rock (Gneiss) to maximum depth explored (elevation 2331.8 feet). For more detail, please refer to the Log of Test Borings.

Ground Water

No ground water was encountered in any of the subsurface investigations. Due to the Hoff Wash bridge being located in an extremely arid environment, it is anticipated that surface water would only be present in the wash during brief wet periods. Ground water elevations are subject to seasonal fluctuations and will be encountered at higher or lower elevations depending on conditions at time of construction.

Scour Potential

Structure Hydraulics and Hydrology has provided a Final Hydraulic Report (FHR) in a memorandum dated September 30, 2014, which states that Hoff Wash has a potential for scour. The scour data presented in the report is shown in Table 1 below. Please refer to that FHR for more specific information.

Table 1 - Scour Data Hoff Wash Bridges (54-1299L/R)

Support Location	Long Term Scour (ft)		Short Term Scour (Local) Depth (ft)	Current Channel Thalweg Elevation (ft)
	Degradation	Contraction		
Left & Right Br. Abut 1	0	0	N/A	N/A
Right Br. Pier 2	1.5	0	6.5	2363.5
Left Br. Pier 2	0	0	6.5	2359.0
Left & Right Br. Abut 3	0	0	N/A	N/A

Corrosion

Corrosion test results are shown below in Table 2. The tested soil samples were taken from soil borings RC-13-002 and RC-13-004. Test results indicate the soil samples are considered non-corrosive by current Caltrans standards.

Table 2 - Corrosion Test Summary

Location	SIC Number	pH	Minimum Resistivity (Ohm-cm)	Sulfate Content (ppm)	Chloride Content (ppm)
RC-13-002 10.8' – 14.5' (Elev. 2362.5 ft–2358.8 ft)	C637011	8.28	4485	NA	NA
RC-13-004 9.5' – 14.5' (Elev. 2368.3 ft–2363.3 ft)	C637010	8.37	5209	NA	NA

Note: Caltrans currently defines a corrosive environment as an area where the soil has either a chloride concentration of 500 ppm or greater, a sulfate concentration of 2000 ppm or greater, or has a pH of 5.5 or less. With the exception of MSE walls, soil and water are not tested for chlorides and sulfates if the minimum resistivity is greater than 1,000 ohm-cm.

Fault and Seismic Data

The structure site is potentially subject to ground motions from nearby earthquake sources during the design life of the new structure. For the deterministic procedure, the controlling fault for the site is the Calico-Hidalgo (West Calico Section) fault zone (Fault ID 259). It is a right-lateral strike-slip (RLSS) fault with a maximum credible earthquake Mw=7.4, located approximately 55 miles southwest of the bridge site. Based on the 2013 Seismic Design Procedure, a minimum deterministic response spectrum for a vertical strike-slip fault of M_{max}= 6.5 at a distance of 12 km should be used in the design. The corresponding peak ground acceleration (PGA) is estimated to be 0.21g. The office of Geotechnical Design has provided Seismic Design Recommendations in a memorandum dated September 12, 2014. Please refer to that memorandum for more specific seismic recommendations.

Liquefaction/Settlement

The Seismic Design Recommendations state that due to the dense nature of the underlying soils and deep groundwater, the potential for soil to liquefy at the site will be low. The amount of seismic settlement due to strong ground shaking is considered less than one inch.

Surface Rupture Potential

The site does not fall within Fault Rupture Hazard Zones in California (Alquist-Priolo Earthquake Fault Maps). The surface rupture potential at the bridge site is considered low.

Foundation Recommendations

The following recommendations are for the proposed Hoff Wash left and right bridges (Br. #54-1299L/R), as shown on the General Plan dated October 21, 2014. Abutments 1 and 3 and Piers 2 may all be supported on spread footings.

Abutment Location

Abutments 1 and 3 of the left and right bridges can be supported on spread footings in the existing embankment fill. The Spread Footing Design Data, provided by Structure Design, is presented in Tables 4 and 5 below.

Table 4 – Abutments 1 & 3 Locations - Spread Footing Design Data

Support Location	Design Method	Finished Grade Elevation (ft)	Bottom of Footing Elevation (ft)	Footing Size (ft)		Permissible Settlement under Service Load (in)
				B	L	
Right Br. Abutment 1	WSD	2378.70	2373.70	8.00	71.69	1
Right Br. Abutment 3	WSD	2375.50	2370.50	8.00	73.23	1
Left Br. Abutment 1	WSD	2368.60	2363.60	8.00	74.52	1
Left Br. Abutment 3	WSD	2366.10	2361.10	8.00	76.09	1

Table 5 – Abutments 1 & 3 - Spread Footing Design Data – Service I Limit State Loads

Support Location	Total Load				Permanent Load		
	Vertical Load (kips)	Effective Dimensions (ft)		Horizontal Load in Longitudinal Direction (kips)	Vertical Load (kips)	Effective Dimensions (ft)	
		B'	L'			B'	L'
Left & Right Br. Abutment 1	1617	7.03	71.69	324	1403	7.56	71.69
Left & Right Br. Abutment 3	1613	6.88	73.23	325	1399	7.40	73.23

The recommended Permissible Gross Contact Stress, Allowable Gross Bearing Capacities and Bottom of Footing Elevations, for Abutments 1 and 3 of the left and right bridges, are listed in Table 6 below.

Table 6 - Foundation Design Recommendations for Abutments 1 and 3 – Left and Right Bridges

Support Location	Footing Size (ft)		Bottom of Footing Elevation (ft)	Minimum Horizontal Footing Embedment Depth (1) (ft)	Total Permissible Support Settlement (in)	WSD (LRFD Service Limit State Load Combination)	
	B	L				Permissible Gross Contact Stress (ksf)	Allowable Gross Bearing Capacity (ksf)
Right Br. Abutment 1	8.00	71.69	2373.70	4.0	1	8.5	3.4
Right Br. Abutment 3	8.00	73.23	2370.50	4.0	1	8.5	3.4
Left Br. Abutment 1	8.00	74.52	2363.60	4.0	1	8.5	3.4
Left Br. Abutment 3	8.00	76.09	2361.10	4.0	1	8.5	3.4

(1) Measured from top of footing

In Table 6 above, the recommended Permissible Gross Contact Stress (q_{pg}) and Allowable Gross Bearing Capacity to be used for design, are based on the following design criteria:

1) The final designed spread footing will have an effective width (B') that will produce an equivalent Gross Uniform Bearing Stress (q_o), which does not exceed the Allowable Gross Bearing Capacity (q_{all}).

2) The Allowable Gross Bearing Capacity (q_{all}) was calculated with a maximum slope of 1.5H:1V in front of the abutment.

3) The spread footings are to be constructed at or below the bottom of footing elevations shown in Table 6.

4) The minimum horizontal embedment depth is 4 feet, measured from the top of the footing.

Contact the Office of Geotechnical Design-South 2, Branch B for re-evaluation if any of the following change:

- The footing size (B) is reduced.
- The loading conditions change.
- The bottom of footing elevation is raised.
- The minimum horizontal footing embedment depths are reduced.

Pier Location

The Pier 2 locations of the left and right bridges will consist of one continuous support column on spread footings. Table 7 below, presents the Pier Spread Footing Design Data provided by Structure Design.

Table 7 – Pier 2 - Pier Spread Footing Design Data-Right and Left Bridges

Support Location	Design Method	Finished Grade Elevation (ft)	Bottom of Footing Elevation (ft)	Footing Size (ft)		Permissible Settlement under Service Load (in)
				B	L	
Right Br. Pier 2	LRFD	2363.40	2353.25	8.00	62.00	1
Left Br. Pier 2	LRFD	2359.50	2349.75	8.00	64.58	1

Tables 8 and 9 below, present the LRFD Service, Strength, and Extreme Limit State Design Data provided by Structure Design.

Table 8 – Pier 2 - LRFD Service-I Limit State Spread Footing Design Data

Support Location	Total Load			Permanent Load		
	Vertical Load (kips)	Effective Dimensions (ft)		Vertical Load (kips)	Effective Dimensions (ft)	
		B'	L'		B'	L'
Right Bridge Pier 2	2152	6.76	62.00	1731	8.00	62.00
Left Bridge Pier 2	2152	6.76	64.58	1731	8.00	64.58

Table 9 – Pier 2 - LRFD Strength and Extreme Event Limit States

Support Location Left & Right Bridge	Strength Limit State (Controlling Group)			Extreme Event Limit State (Control Group)		
	Vertical Load (kip)	Effective Dimensions (ft)		Vertical Load (kip)	Effective Dimensions (ft)	
		B'	L'		B'	L'
Right Bridge Pier 2	3493	7.02	62.00	2087	5.21	62.00
Left Bridge Pier 2	3493	7.02	64.58	2087	5.21	64.58

Foundation design recommendations for Pier 2, based on the spread footing design loading and approximate footing geometry provided by Structure Design, are presented below in Table 10.

Table 10 – Pier 2 - Foundation Design Recommendations

Support Location	Footing Size (ft)		Bottom of Footing Elevation (ft)	Minimum [1] Footing Embedment Depth (ft)	Total Permissible Support Settlement (in)	Service Limit State	Strength Limit State $\varphi = 0.45$	Extreme Limit State $\varphi = 1.0$
	B	L				Permissible Net Contact Stress (ksf)	Factored Gross Nominal Bearing Resistance (ksf)	Factored Gross Nominal Bearing Resistance (ksf)
Right Br. Pier 2	8.00	62.00	2353.25	5.0	1	N/A*	9.0	17.0
Left Br. Pier 2	8.00	64.58	2349.75	5.0	1	N/A*	9.0	17.0

[1] Minimum footing embedment depth starts below the combined degradation, contraction and local scour depths.
*Settlement is N/A due to bottom of footing founded on metamorphic bedrock, or on a thin veneer of alluvium overlying the bedrock.

In Table 10 above, the recommended Permissible Net Contact Stress (q_{pn}) and Factored Gross Nominal Bearing Resistances (q_R) to be used for design, are based on the following design criteria:

1) The final designed spread footing will have an effective width (B') such that:
   - The equivalent Net Uniform Bearing Stress ($q_{n,u}$), does not exceed Permissible Net Contact Stress (q_{pn}) for Service-I Limit State.

- The Gross Uniform Bearing Stress ($q_{g,u}$) does not exceed the recommended design values for the Factored Gross Nominal Bearing Resistances (q_R) for Strength and Extreme Limit States.

2) The spread footings are to be constructed at or below the recommended bottom of footing elevations shown in Table 10.

Contact the Office of Geotechnical Design-South 2, Branch B for re-evaluation if any of the following change:

- The footing size (B) is reduced.
- The loading conditions change.
- The bottom of footing elevation is raised.
- The minimum vertical footing embedment depths are reduced.

The Spread Footing Data table for Abutment and Pier supports is listed in Table 11, below.

Table 11 – Spread Footing Data Table for Left and Right Bridges

Support Location	Working Stress Design (WSD)		Load Resistance Factor Design (LRFD)		
	Permissible Gross Contact Stress (Settlement) (ksf)	Allowable Gross Bearing Capacity (ksf)	Service Permissible Net Contact Stress (Settlement) (ksf)	Strength Factored Gross Nominal Bearing Resistance $\varphi = 0.45$ (ksf)	Extreme Event Factored Gross Nominal Bearing Resistance $\varphi = 1.00$ (ksf)
Abutment 1	8.5	3.4	N/A	N/A	N/A
Pier 2	N/A	N/A	N/A*	9.0	17.0
Abutment 3	8.5	3.4	N/A	N/A	N/A

*Settlement is N/A due to bottom of footing founded on metamorphic bedrock, or on a thin veneer of alluvium overlying the bedrock.

Construction Considerations:

1) For the left and right bridges of Abutments 1 and 3 support locations, the bottom of footings are to be constructed on existing fill. Concrete for the support footings shall be placed neat against the undisturbed material at the bottom of the footing excavation. Should the bottom of the footing excavation be disturbed then the bottom of the footing excavation is to be re-compacted or replaced with structural backfill compacted to 95% relative compaction, prior to placement of steel and concrete for the structure support footings.

2) At Pier 2 support location of the right bridge, it is anticipated that bottom of footing will be founded on native metamorphic bedrock. If it is found during construction that any portion of the bottom of footing is on alluvial material, the alluvial material is to be subexcavated down to the metamorphic bedrock, and backfilled with lean concrete up to the bottom of footing elevation.

3) At Pier 2 support location of the left bridge, it is anticipated that bottom of footing will be founded on native metamorphic bedrock on the upstream side, but may be partially on alluvial material on the downstream side. If it is found during construction that any portion of the proposed bottom of footing is on alluvial material, the alluvial material is to be subexcavated down to the metamorphic bedrock, and backfilled with lean concrete up to the bottom of footing elevation.

4) At Pier 2 support locations of the left and right bridges, the new support footings will be wider than the existing footings; therefore, it is anticipated that the contractor will have to excavate into very hard metamorphic rock to complete the footing excavation. Refer to the Log of Test Borings for additional information.

5) At all support locations, the excavations/subexcavations are to be inspected and approved by a representative of the Office of Geotechnical Design-South 2, Branch B, prior to placing any lean concrete or structure concrete. The required inspection is to verify that the material at the bottom of the excavation/subexcavation is metamorphic bedrock, as required in this report. Once the excavation/subexcavation has been completed to the specified elevations, the contractor is to allow the Office of Geotechnical Design-South 2, Branch B, seven (7) days to perform the inspection. The structures representative is to provide the Office of Geotechnical Design-South 2, Branch B, a one-week notification prior to beginning the seven-day contractor waiting period.

This Foundation Report is based on specific project information regarding structure type and location that have been provided by the Office of Bridge Design South 2. Once the project plans are available, the Office of Geotechnical Design-South 2, Design Branch B should review the information to determine if this FR is still applicable. Any questions regarding the above recommendations should be directed to the attention of Fernando De Haro, (916) 227-4556 or Mark DeSalvatore, (916) 227-5391, at the Office of Geotechnical Design-South 2, Branch B.

Prepared by: Date: January 7, 2015

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STRUCTURE HYDRAULICS & HYDROLOGY
FINAL HYDRAULIC REPORT

Hoff Wash Bridge (Replace)

Located approximately 48 miles west of the City of Needles
on State Route 40 over Hoff Wash in eastern San Bernardino County

JOB:
Bridge No. 54-0889 L/R (Existing)
Bridge No. 54-1299 L/R (Proposed)

LOCATION:
08-SBd-040-R93.7

EA 08-0Q790
Project ID 0800020481

WRITTEN BY:
Diane O'Brien

DATE:
September 30, 2014

Hoff Wash (Replace)
Br. No. 54-0889 L/R (Existing)
Br. No. 54-1299 L/R (Proposed)
08-SBd-040-R93.7
Project ID 0800020481

Hydrology/Hydraulics Report

General

It is proposed to replace Hoff Wash Bridge (Bridge No. 54-0889 L/R) located on State Route 40 (SR 40) six miles west of the Essex Road overcrossing. The bridge is being replaced due to alkali-silica reaction (ASR) causing extensive cracking and reducing the current structural performance. The Item 113 code for scour vulnerability is 5 (Bridge foundations determined to be stable for assessed or calculated scour condition). The existing two-span continuous reinforced concrete (RC) box girder structures were built in 1973. The substructures consist of a 1.5-foot-wide RC pier wall and RC open end diaphragm abutments, all supported on spread footings. The existing Left Bridge is 152 feet long with a structure depth of 4'-9". The existing Right Bridge is 170 feet long with a structure depth of 5'-3". Both structures are 42 feet wide with a 51-degree bridge skew and -1.5% cross slope.

The new proposed two-span precast/prestressed (PC/PS) I-Girder bridges will be on the same alignment and have an approximate 52-degree bridge skew. The proposed Left and Right Bridges will have total lengths of 159 feet and 176 feet, respectively. Both will have a total width of 43 feet, a structure depth of 4'-3", and a -2% cross slope. The proposed substructure for each bridge is a 2-foot-wide pier wall and seat abutments, all supported on spread footings.

This report is based on General Plan No. 1 dated 09/04/14 and General Plan No. 2 dated 08/27/14 provided by Structure Design, and Foundation Plan Sheets dated 09/09/14. **All elevations indicated in this report are based on Vertical Datum NGVD 1929.**

Basin

The Hoff Wash watershed is located in the Mojave Desert within eastern San Bernardino County. Hoff Wash originates on the north slope of the Clipper Mountains and flows northward under SR 40 before discharging into Clipper Valley Wash approximately 1.5 miles downstream of the Left Bridge. The land is undeveloped desert. The alluvial slopes are vegetated with predominately creosote bush desert scrub and desert wash scrub.

Watershed Modeling System (WMS) version 9.1 was used to estimate the 1.69 square mile drainage basin area upstream of the bridges. Elevations range from over 3,700 feet at the watershed divide to approximately 2,360 feet at the bridge site. The Mean Annual Precipitation is 6.1 inches.
There is a small drainage (0.36 sq. mi.) immediately to the east that flows under SR 40 through a concrete culvert and discharges into Hoff Wash approximately 450 feet downstream of the Left Bridge.

Discharge

Hoff Wash is an ungaged watershed. There is no information regarding the flood of record. The HEC-1 module within WMS was used to assist in the estimation of the 100-year and 50-year discharges at the bridge site. Per Section 819.7 of the Highway Design Manual, the 100-year 6-hour duration precipitation was used to model a summer convective storm. For drainage areas of less than 20 square miles in the Mojave Desert region, these storms produce higher peaks than a 24-hour general storm. The NOAA Atlas 14 6-hour duration, 100-year and 50-year precipitation depths, and temporal distributions were used to develop the rainfall. The Initial Loss and Uniform Loss Rate method was used to estimate the rainfall losses. A synthetic unit hydrograph was developed using the San Bernardino County S-Graph for Desert Areas. The estimated Q100 and Q50 discharges are 1,500 cfs and 1,250 cfs, respectively.

Water Surface Elevation

HEC-RAS 4.1.0 was used to model the Q100 and Q50 discharges in the channel and through the bridge openings. A composite Manning's roughness coefficient of 0.035 was selected to represent the desert wash. Due to the large bridge skew the bridge was not modeled in the typical way in order to keep the channel cross sections perpendicular to the flow and better represent hydraulic conditions. Since the pier walls are the only part of the structures that will be in the flow, they were modeled as 2-foot-wide obstructions. Cross sections perpendicular to the flow that intersect the upstream edges of the bridges at the locations of the Abutment 1 faces, Pier 2 centerlines and Abutment 3 faces were used to compute the maximum water surface elevation at those locations.

A small adjacent watershed to the east discharges through a culvert under SR 40 and joins Hoff Wash approximately 450 feet downstream of the Left Bridge. This flow was included in the hydraulic model although it does not impact the water surface elevation upstream at the bridges.

The maximum water surface elevations were computed at the upstream faces of the bridges. However, the low chord elevations are at the downstream sides of the bridges. So the freeboard calculations are slightly underestimated because the upstream water surface elevations are being compared to the downstream bridge soffit elevations. The bridge design provides more than 11 feet of freeboard over the Q100 water surface elevation for the Right Structure and more than 6 feet of free board over the Q100 water surface elevation for the Left Structure. The freeboard is more than adequate.

The overtopping flood is greater than the 500-year event.

	Q100 Water Surface Elevation (feet)	Q50 Water Surface Elevation (feet)	Low Chord Elevation (feet) *	Freeboard Above Q100 (feet)	Freeboard Above Q50 (feet)
Right Bridge					
Abutment 1	2369.3	2368.8	2382.1	12.8	13.3
Pier 2	2368.8	2368.4	2380.8	12.0	12.4
Abutment 3	2367.5	2366.7	2379.4	11.9	12.7
Left Bridge					
Abutment 1	2364.3	2363.9	2372.1	7.8	8.2
Pier 2	2363.6	2363.2	2370.9	7.3	7.7
Abutment 3	2362.9	2362.5	2369.6	6.7	7.1

*Low Chord elevations are on the downstream side of the bridges.

Velocity

The velocities corresponding to the Q100 discharge were computed using HEC-RAS 4.1.0. Using a "mixed" flow regime and the 100-year flood event, the average velocity approaching the proposed Right Bridge is 10.0 fps and approaching the Left Bridge is 9.0 fps. The peak velocity found at the thalweg at the Right Bridge is 12.2 fps and at the Left Bridge is 11.5 fps.

Streambed

At the bridge site Hoff Wash is a trapezoidal-shaped channel with a 40-foot-wide base and side slopes lined with rock slope protection (RSP). The streambed is composed of sand, gravel, cobbles and boulders. This material is scourable and subject to erosion. The current thalweg elevation is approximately 2363.5 feet at the Right Bridge and 2359.0 feet at the Left Bridge.

Scour

The long-term degradation of the channel invert over the life of the new structures was estimated to be 1.5 feet at the Right Bridge and zero at the Left Bridge. There is no contraction scour at either bridge. Abutments 1 and 3 are well outside the channel behind RSP and will not be in the flow.

The 2-foot-wide pier wall is aligned with the flow. The local pier scour depth for Pier 2 is estimated to be 6.5 feet for both the Right and Left Bridges. A laterally migrating thalweg is assumed.

Debris

The watershed is sparsely vegetated and no debris accumulation was reported or observed on the existing pier walls. Debris problems are not anticipated.

Bank Protection

District should design RSP appropriate for the velocities in the channel in order to protect the abutment slopes.

The asphalt V-ditch at the northeast side of the Left Bridge has a history of cracking and causing erosion at the abutment wingwall. The overside drains for the new structures should be designed to prevent this from occurring.

Demolition

Existing piers and footings should be completely removed.

Summary Information for the Bridge Designer - Right Bridge

Below are summaries of key design parameters based on the hydrologic and hydraulic analyses performed for the Right Bridge:

HYDROLOGIC AND HYDRAULIC SUMMARY RIGHT BRIDGE *Drainage Area: 1.69 mi²*			
Frequency	100-year	50-year	Overtopping Flood
Discharge (cfs)	1,500	1,250	>> 500-year
Water Surface Elevation (feet)	See Table on Page 4		-
Average Velocity (fps)	10.0	-	-
Peak Velocity (fps)	12.2	-	-
Flood plain data are based upon information available when the plans were prepared and are shown to meet federal requirements. The accuracy of said information is not warranted by the State and interested or affected parties should make their own investigation.			

Long Term Scour Depths - Right Bridge

	Degradation (feet)	Contraction Scour Depth (feet)
Abutment 1	0	0
Pier 2 (2-foot-wide pier wall)	1.5	0
Abutment 3	0	0

Scour Data (Elevations and Depths) - Right Bridge

	Long Term (Degradation and Contraction) Scour Elevation (feet)	Short Term (Local) Scour Depth (feet)
Abutment 1	n/a	0
Pier 2 (2-foot-wide pier wall)	2362.0	6.5
Abutment 3	n/a	0

ALL CALCULATED ELEVATIONS IN THIS REPORT ARE BASED ON THE VERTICAL DATUM NGVD29.

Summary Information for the Bridge Designer - Left Bridge

Below are summaries of key design parameters based on the hydrologic and hydraulic analyses performed for the Left Bridge:

HYDROLOGIC AND HYDRAULIC SUMMARY LEFT BRIDGE *Drainage Area: 1.69 mi²*			
Frequency	100-year	50-year	Overtopping Flood
Discharge (cfs)	1,500	1,250	>> 500-year
Water Surface Elevation (feet)	See Table on Page 4		
Average Velocity (fps)	9.0	-	
Peak Velocity (fps)	11.5	-	
Flood plain data are based upon information available when the plans were prepared and are shown to meet federal requirements. The accuracy of said information is not warranted by the State and interested or affected parties should make their own investigation.			

Long Term Scour Depths - Left Bridge

	Degradation (feet)	Contraction Scour Depth (feet)
Abutment 1	0	0
Pier 2 (2-foot-wide pier wall)	0	0
Abutment 3	0	0

Scour Data (Elevations and Depths) - Left Bridge

	Long Term (Degradation and Contraction) Scour Elevation (feet)	Short Term (Local) Scour Depth (feet)
Abutment 1	n/a	0
Pier 2 (2-foot-wide pier wall)	2359.0	6.5
Abutment 3	n/a	0

ALL CALCULATED ELEVATIONS IN THIS REPORT ARE BASED ON THE VERTICAL DATUM NGVD29.

References

1. Hoff Wash Bridge - (Replace) - General Plan No. 1 dated 09/04/14, General Plan No. 2 dated 08/27/14, Abutment Layout dated 08/27/14, Abutment Details No. 1 dated 08/27/14 and Pier Details No. 1 dated 09/11/14.

2. Hoff Wash Bridge – As-Built Plans, Date Completed 05/01/73.

3. San Bernardino County Hydrology Manual, August 1986.

4. Drainage Design Manual for Maricopa County, Arizona, 4th Edition, August 15, 2013.

5. Caltrans Highway Design Manual, Chapter 810 Hydrology, March 7, 2014.

6. Hydraulic Engineering Circular No. 18, Evaluating Scour at Bridges, Fifth Edition, April 2012.

7. Caltrans Bridge Maintenance Records.

Hoff Wash (Replace)
Br. No. 54-0889 L/R (Existing)
Br. No. 54-1299 L/R (Proposed)
08-SBd-040-R93.7
Project ID 0800020481

This report has been prepared under my direction as the professional engineer in responsible charge of the work, in accordance with the provisions of the Professional Engineers Act of the State of California.

REGISTERED PROFESSIONAL ENGINEER
DIANE K. O'BRIEN
No. C48483
Exp. 6/30/16
CIVIL
STATE OF CALIFORNIA

REGISTERED CIVIL ENGINEER (SIGNATURE)

REGISTRATION NUMBER C 48483

DATE: June 30, 2016

State of California | Business, Transportation and Housing Agency

Memorandum

To:	**Mustapha Raouf,** **Office Chief, Design A**	Date:	**Jan 27, 2015**
Attention:	**Joseph William,** **Project Engineer**	File No:	**08-SBd-040 PM** **R93.1/R94.2** **EA 08-0Q790K** **PN: 0800020481** **Bridge Replacement**
From:	**DEPARTMENT OF TRANSPORTATION** **Bruce W. Kean, District 8 Materials Engineer**		
Subject:	**Materials Report**		

1.0 GENERAL

1.1 Proposed Improvements

According to your request, this project proposes to replace the Hoff Wash Bridge (Bridge #54-0889 L&R) on the Interstate 40 near Essex in the County of San Bernardino. Temporary detour will be constructed for the median crossover during the replacement of the bridge. All work will be performed within the State right of way limits.

1.2 Existing Facilities

Interstate 40 (I-40) is a major east-west route of the Interstate Highway System. It starts out at a junction with I-15 in Barstow and heads east across the Mojave Desert in San Bernardino County past the Clipper Mountains to Needle, before it crosses into Arizona east of Kingman.

I-40 was realigned in 1970 between Kelbaker Road (PM 79.7) and Essex Road (PM 100.3), and the new alignment lies northerly from the original highway. Near and at the project site, I-40 is a four-lane divided (independent alignments) highway. Both roadbeds are separated with about 200 feet dirt median.

1.3 Geology, Terrain

The project is located in the Mojave Desert Region, the limits of which are roughly bounded by the Garlock Fault on the north and northwest, the San Andreas Fault and San Bernardino Mountains on the southwest and south and the Colorado River on the east. Broad linear valleys, most of which contain playas or dry lakes, characterize the desert east of Barstow. Isolated mountain masses and linear ridges, mostly disposed without apparent pattern are evident. Cinder cones are widely found in the Mojave Region and many flows of basalt have moved down the valleys.

1.4 Climate

The normal annual rainfall in the project area is about five inches. Storms during the months of July through October, which account for half of the yearly precipitation, are largely the result of tropical air masses. These storms, of short duration, are characterized by very intense rates of rainfall. The annual range of temperatures is from a minimum of 20 °F to a maximum of 120 °F.

2.0 Existing Structural Section

2.1 As-built

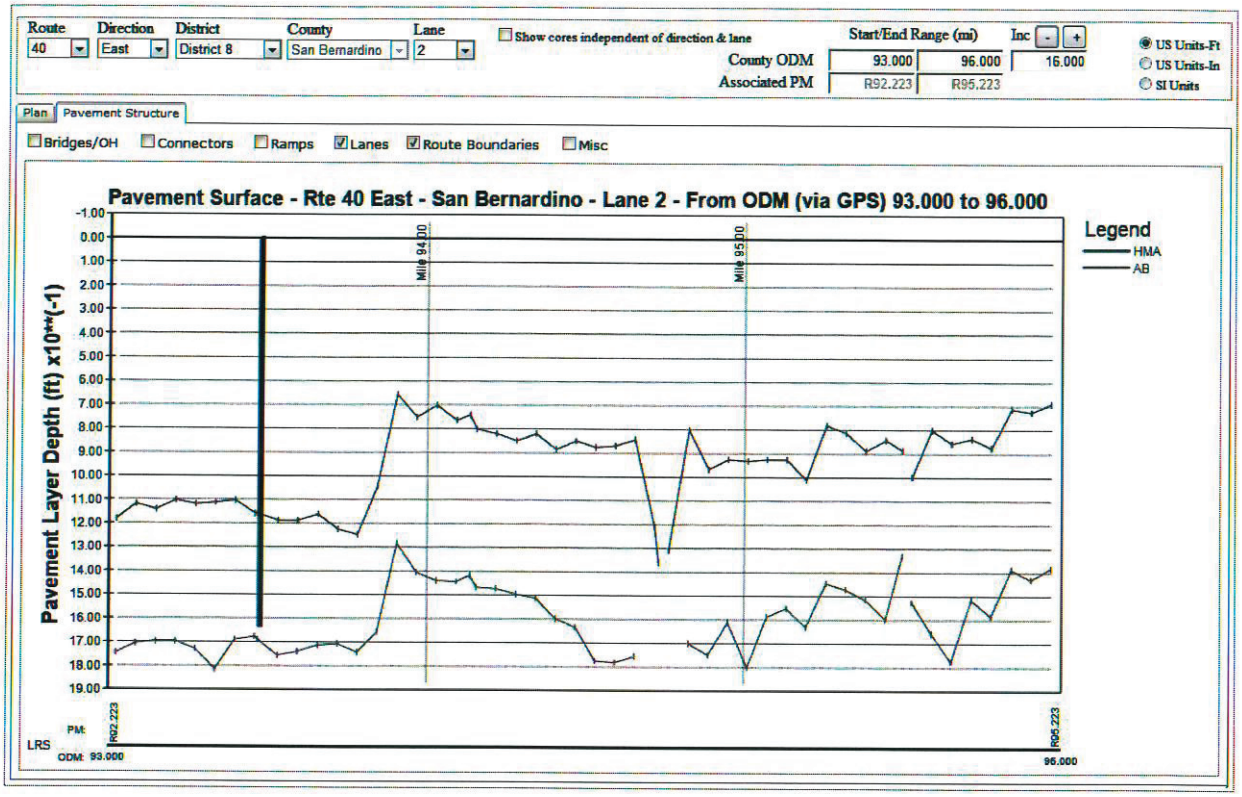
As per as-built, the pavement (mainlines and the inside & outside shoulders) consisted (2009 as-built EA: 48630 and 2005 as-built EA: 48377) 0.79' AC over 0.50' Cement Treated Base (CTB).

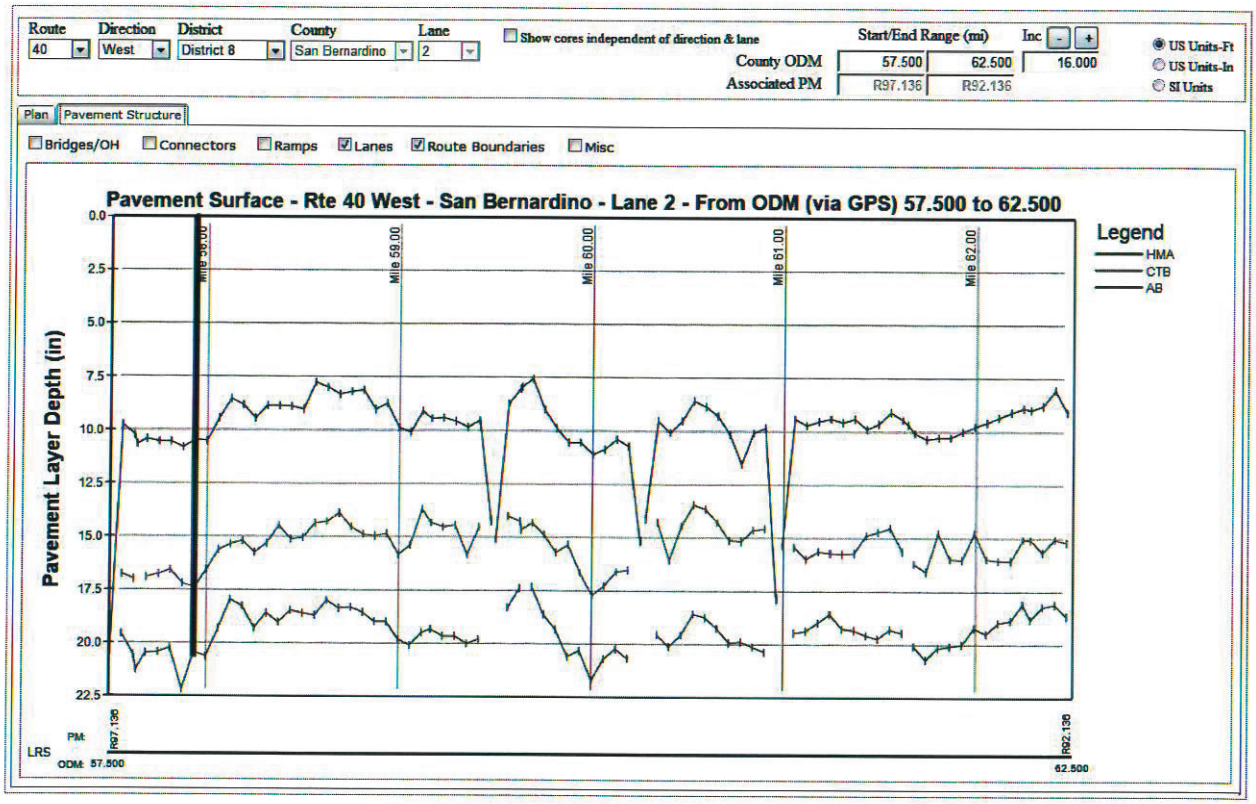
The following shows a list of As-Builts found for this Route near or within the project limits:

- Year 2007: Replace Bridges Eastbound, EA: 0J101 (PM R80.4/ R97.7)
- Year 2009: Pavement Rehabilitation with Median Shoulder Widen, EA: 48630 (PM 89.0/119.0)
- Year: 2005: Bridge Rehabilitation - Treat Bridge Decks & Seals, EA:48377 (PM R80.4/ PM R119.6)

2.2 Ground Penetrating Radar (iGPR)

The Caltrans Pavement Program has recently developed a web application called internet Ground Penetrating Radar (iGPR), that allows the user to access a pavement structure inventory of most of California's pavement network layer thicknesses and materials type, including information on pavement cores. The iGPR graphs below obtained from this web application show the indication of the existing HMA pavement (thin blue line) within this project limit, and the locations of two pavement cores which are slightly outside of this project limit, one at PM 92.35 in lane no. 2 (bold blue and red line) in eastbound direction and the other at PM 96.67 in lane no. 2 (bold blue and red line) in westbound direction.


Route 40
Direction East
District District 8
County San Bernardino
Lane 2
Show cores independent of direction & lane
Start/End Range (mi)
Inc 16.000
County ODM 93.000 96.000
Associated PM R92.223 R95.223
US Units-Ft
US Units-In
SI Units
Plan
Pavement Structure
Bridges/OH
Connectors
Ramps
Lanes
Route Boundaries
Misc
Pavement Surface - Rte 40 East - San Bernardino - Lane 2 - From ODM (via GPS) 93.000 to 96.000
Pavement Layer Depth (ft) x10**(-1)
Mile 94.00
Mile 95.00
Legend
HMA
AB
LRS
PM:
ODM: 93.000
R92.223
R95.223
96.000


Route 40
Direction West
District District 8
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Show cores independent of direction & lane
Start/End Range (mi)
Inc 16.000
County ODM 57.500 62.500
Associated PM R97.136 R92.136
US Units-Ft
US Units-In
SI Units
Plan
Pavement Structure
Bridges/OH
Connectors
Ramps
Lanes
Route Boundaries
Misc
Pavement Surface - Rte 40 West - San Bernardino - Lane 2 - From ODM (via GPS) 57.500 to 62.500
Pavement Layer Depth (in)
Mile 58.00
Mile 59.00
Mile 60.00
Mile 61.00
Mile 62.00
Legend
HMA
CTB
AB
LRS
PM:
ODM: 57.500
R97.136
R92.136
62.500

The graphs above do not provide information on the year the GPR data was performed, but we can consider Year 2010 since the pavement cores were taken on 2010. According to these graphs, the existing asphalt pavement thickness can be summarized as follow:

- In lane 2, eastbound direction, from PM R93.1 to PM R94.2, the existing AC thickness is at least 0.70'
- In lane 2, westbound direction, from PM R93.1 to PM R94.2, the existing AC thickness is at least 0.70'

The pavement core at PM 92.35 in lane no. 2 in eastbound direction, taken on September 30, 2010, and the pavement core at PM 96.67 in lane no. 2 in westbound direction, taken on October 04, 2010 indicate that the structural section consisted of about 1 feet of existing AC.

3.0 PAVEMENT DESIGN PARAMETERS

3.1 Traffic Index (TI)

The following Traffic Index values (TI) were provided in the memorandum dated Sep 06, 2013 from the Office of Forecasting.

Forecasted Period	SBd-040 PM 93.1/ 94.2	
	Mainlines	Shoulders
10-Year	13.5	8.5
20-Year	15.5	10.0
40-Year	17.0	11.0

The above 20-Year TI (15.5) and the HDM Table 613.3C "Conversion of ESAL to Traffic Index" were used to estimate the TI for the temporary median crossover. Since it is unknown at this time how long

these temporary crossovers are going to be in service, TIs for different service lives are estimated and shown in the table below:

Service Life	Temporary Crossovers
9-month	10.5
12-month	11.0
15-months	11.0

3.2 Pavement Design Life

For the detour (median crossovers), we will provide pavement design for 9, 12, and 15-month service life.

A possibility may exist that the roadway approaches may be necessary to reconstruct after the bridge replacement due to change in Bridge profile and grade . The design period for new pavement is 20-Year or 40-Year, depending on the LCCA analysis.

3.3 R- Values for Basement Soils

Materials Report for project EA: 046851 dated February 07, 1968 (SBd 40 PM 79.7/100.3) on State Route 40 in San Bernardino County between Kelbaker Rd and Essex Rd, mentioned that east of Sta 2500 + 00 (Hoff Wash Br is 3175 +/-) the project will be constructed on embankment averaging 6 feet in height. The embankment will be constructed on soils consisting mainly of gravelly sands with occasional pockets of sandy gravels and silty sands. This report recommended R-value of 70 for imported borrow for the upper four feet of the embankmentr5.

The Soil Survey sheet shows an R-value of 81 at Sta 3176 + 00.

The Hoff Wash Bridge foundation study states the bridge is entirely under laid by foliated quartzite. A thin veneer of sand and gravel partially covers the quartzite in the existing channel. One channel bank is formed by exposed and soil covered bedrock. The other bank is cut from an alluvial fan. The fan is composed of silty, sandy partially cemented cobbles and boulders.

Based on the above information, and following the HDM Topic 614.3 guidelines for R-values limitations, an R-value of 50 will be selected for pavement design. Based on reviewing the Materials Report for EA: 046851, dated February 07, 1968 (SBd 40 PM 79.7/ 100.3), there may be some pockets of Caliche encountered in various locations in the job site. In the event that the Caliche is encountered, the first four feet from the grading plane should be removed and replaced with imported borrow as specified in Section 5.0 Earthwork of this report.

4.0 STRUCTURAL SECTION DESIGN

According to the project scope, a temporary AC pavement design for the median crossover during the replacement of the bridge and pavement design for the existing AC pavement which will need to be reconstructed at the beginning and end of the detour are required.

The project may also require to reconstruct the mainlines and shoulders in the roadway approaches due to change in Bridge profile and grade. we will provide structural section design for the mainlines and shoulders in Section 4.2 of this report.

4.1 Temporary Median Crossover

A flexible pavement design is recommended. Pavement sections shown below were obtained employing CalFP version 1.1, a computer program based on design methodology as documented in Chapter 630 of the Caltrans Highway Design Manual (HDM).

Several Design Lives, R-value 50

Structural Section	Temporary Median Crossovers Design Life		
	09-month (TI=10.5)	**12-month** (TI=11.0)	**15-months** (TI=11.0)
Hot Mix Asphalt Type A (HMA-A)	0.55'	0.60'	0.60'
Class 2 Aggregate Base (AB Cl 2)	0.65'	0.65'	0.65'

4.2 Structural Section for Reconstructing Existing AC Pavement

We offer both rigid and flexible structural sections for reconstructing the existing AC pavement. A rigid structural section is more durable, strong and more cost effective in the long run. The following rigid structural section is obtained from Caltrans Highway Design Manual (HDM), using the Rigid Pavement Design Catalog, Table 623.1(H), "Desert" climate region, Type I soil.

The TI value for the mainlines for 20-Yr is 15.5 which is too high to use the regular HMA pavement using CalFP version 1.1, a computer program based on design methodology as documented in Chapter 630 of the HDM. In this scenario, we will determine the flexible pavement sections using maximum TI value of 15.0 and CalFP 1.1 program. To compensate the TI value limitation of the computer program, 0.1' HMA has been added to the top surface layer of the pavement section.

As the HDM Section 613.5 says "The total depth of the shoulder pavement structure (depth from the surface to the subgrade) shall match the pavement structure grading plane of the adjacent traffic lane", so in preparing the shoulder structural sections, the depth of the shoulder base has been increased in order to match the grading plane of the shoulder pavement structure to that of the adjacent traffic lane. This will provide a path for water in the pavement structure to drain away from the lane and into the shoulder. It can also provide a more cost effective means to upgrade the shoulder to a traffic lane in the future.

20-Yr Design:

Location	Option 1 (Rigid Pavement)	Option 2 (HMA)
Mainlines + first 2' of the Outside Shoulder and first 1' of the Inside Shoulder (TI=15.50)	1.25' JPCP over 0.10' HMA - A over 0.50' LCB	1.00' HMA-Type A over 0.75' Class 2 Aggregate Base
Shoulders* (Inside/ Outside) (TI=10.0)	0.80' JPCP over 0.10' HMA - A over 0.95' LCB	0.55' HMA-Type A over 1.20' Class 2 Aggregate Base

* If the shoulder width is less than 5 feet, as per Caltrans HDM Topic 613.5 2(b), shoulder shall have the same structural section as the adjacent mainline.

4.3 Detour on Shoulder

According to the project plan, temporary pavement detour (median cross over) will be constructed. It is currently unknown whether shoulders will be used for detour. In the event that this is planned in the project, per HDM Section 612.6 (Temporary Pavements and Detours) and Section 613.5 (2) (Shoulders), shoulders should be engineered/reconstructed as per the current TI to accommodate the anticipated traffic loading that the pavement will experience during the construction period.

5.0 EARTHWORK

Earthwork will be necessary to construct the temporary crossovers. Any Imported or Local Borrow required should conform to Section 19-7.02 of the Standard Specifications and the R-value minimum shall not be less than 50.

6.0 MATERIALS SPECIFICATIONS

6.1 Earthwork

- Clearing and grubbing is recommended as per section 16 of the Standard Specifications, to remove vegetation, topsoil, and any artificial fills or debris, and to prepare the site for the proposed facilities.
- Earthwork should conform to Section 19 of the Standard Specifications.
- The subgrades for paved areas should be compacted to a minimum relative compaction of 95%, as per Section 19-5.03B "Relative Compaction (95 Percent)" of the Standard Specifications.
- The subgrades to receive pavements should have a minimum R-value of 50, including any Imported or Local Borrow.

6.2 Base Materials

- Aggregate Base (AB) should be Class 2 Aggregate Base, and conform to Section 26 of the Standard Specifications.

6.3 Flexible Pavement

- **Hot Mix Asphalt (HMA):**

  a) HMA-Type A: aggregate will comply with 1-inch grading. .

- **Asphalt Binder:**

  a) HMA-Type A: PG 64-28M

- Aggregates for the HMA-Type A mix are to be treated with lime slurry marination.
- Prime Coat shall be applied to base material prior to placing hot mix asphalt concrete.
- Tack Coat shall be applied to the existing AC surface and between successive layers of HMA.

7.0 REFERENCE

- Materials Report for project EA 0N591K, prepared by Materials Engineering Branch, dated July 19, 2010 (Route SBd 40 PM R94.5/R95.7).
- Materials Report for project EA: 046851 on State Route 40 in San Bernardino County between Kelbaker Rd and Essex Rd, dated February 07, 1968 (SBd-040 79.7/100.3).
- Highway Design Manual, California Department of Transportation.
- CalFP Version 1.1, a computer program.
- internet Ground Penetrating Radar (iGPR), a web application developed by Caltrans Pavement Program.

8.0 CLOSURE

Our findings and recommendations were obtained in accordance with generally accepted professional principles in Materials Engineering, and are based on the results of the historical research, and Caltrans Highway Design Manual guidelines. If any change (i.e., structure type, location, scope of the project etc.) is implemented which materially alters the project, our recommendations may need to be revised.

If you have any questions, you may call Kazi Ahmed of my staff at 909-888-2090, or myself at 909-888-2029.

BWK:KFA

AERIALLY DEPOSITED LEAD (ADL) INVESTIGATION REPORT

REPLACE HOFF WASH, BRIDGE NO. 54-0889L&R
08-SBD-40-PM R93.1/94.2
SAN BERNARDINO COUNTY, CALIFORNIA
PN: 08-000-204810 (EA#0Q7900)
TASK ORDER #20
CONTRACT 08A2047

PREPARED FOR:

CALIFORNIA DEPARTMENT OF TRANSPORTATION, DISTRICT 8
464 WEST FOURTH STREET, 6TH FLOOR
SAN BERNARDINO, CALIFORNIA 92401-1400

JANUARY 16, 2014

EXECUTIVE SUMMARY

At the request of the California Department of Transportation (Caltrans) District 8, an Aerially Deposited Lead (ADL) survey was conducted to support the proposed construction associated with the replacement of the Hoff Wash bridges located along westbound State Route 40 (SR40), approximately 93 miles east of the city of Barstow, in San Bernardino County, state of California (Figure 1). The purpose of this task order was to evaluate the magnitude and distribution of ADL concentrations in the median just east and west of the Hoff Wash bridges (#54-0889L&R) as directed by Caltrans (Figures 2). All survey work was limited to the existing right-of-way along the unpaved median of SR40.

A total of twenty-four (24) soil samples were collected from 12 borings (6 borings to the west and 6 to the east of the bridges) at depths ranging from 0.0-0.5, 1-1.5 and 1.5-2 feet bgs, and submitted to the laboratory for analysis of total lead. Laboratory data indicate that total lead concentrations were reported in the range of 3.5 to 11 mg/kg, with a mean concentration of 6.6 mg/kg.

Based on these data, the following are concluded:

1. Total lead concentrations appear to be consistent with typical background levels for Southern California.
2. The reported lead concentrations do not exceed California hazardous waste total threshold limit concentration (TTLC) of 1,000 mg/kg.
3. Total lead concentrations did not exceed the United States Environmental Protection Agency (USEPA) residential or commercial Regional Screening Level (RSL) of 400 mg/kg and 800 mg/kg, respectively.
4. Total lead concentrations did not exceed the residential or commercial California Human Health Screening Level (CHHSL) of 80 mg/kg and 320 mg/kg, respectively.

Based on the findings and conclusions presented herein, the following are recommended:

1. In consideration of total lead and soluble lead concentrations, soil may be managed as non-hazardous or reused onsite without restrictions.

2. Surplus soil within the study zone may be released to the Contractor for disposition.

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Figure 2 Sample Location/Site Vicinity Map (boring locations)

APPENDICES

Appendix A Analytical Laboratory Reports and Chain-of-Custody Records
Appendix B Photolog

1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION AND OBJECTIVES

At the request of the California Department of Transportation (Caltrans) District 8, an Aerially Deposited Lead (ADL) survey was conducted to support the proposed construction associated with the replacement of the Hoff Wash bridges located along westbound and eastbound State Route 40 (SR40), approximately 93 miles east of the city of Barstow, in San Bernardino County, state of California (Figure 1). The purpose of this task order was to evaluate the magnitude and distribution of ADL concentrations in the median just east and west of the Hoff Wash bridges (#54-0889 L&R) as directed by Caltrans (Figures 2). All survey work was limited to the existing right-of-way along the unpaved median of SR40.

The overall objective of this investigation was to evaluate lead concentrations in the subsurface soil profile within the construction zone and to make recommendations for any special handling or disposal of lead-impacted soil. The ADL survey was performed in accordance with Caltrans District 8 protocols for similar sites in San Bernardino County.

1.2 SCOPE-OF-WORK

The scope of the ADL survey consisted of the following general elements:

- Pre-field Activities
- Field Sampling Activities
- Laboratory Analysis
- Investigative results, data evaluation and report development

Each of these is discussed in detail in the following subsections.

1.2.1 Pre-Field Activities

From information obtained through consultation with the District 8 Hazardous Waste Coordinator, Rosanna Roa, potential sample locations were designated on Department provided site plans. In addition, a site-specific HASP was developed in accordance with California Occupational Safety and Health Administration (Cal OSHA) requirements to guide field activities.

1.2.2 Field Sampling Activities

Proposed field sampling activities included the following general tasks:

- Advance twelve (12) shallow hand-auger borings along accessible portions of the median, just to the west and east of the bridge abutment approaches, within the proposed construction area to a maximum depth of two (2) feet below ground surface (bgs);

- Collect three (3) soil samples at the 0.0-0.5, 1-1.5 and 1.5-2.0 feet bgs for ADL analysis.

1.2.3 Laboratory Analyses

A total of twenty-four (24) soil samples were submitted under chain-of-custody to ATL Laboratories (ATL). ATL is certified by the California Environmental Laboratory Accreditation Program (ELAP) to perform the laboratory tests required in this task order. Selected samples were analyzed for the following analytes:

- Total Lead by EPA test method 6010B.

1.2.4 Report Preparation

This report presents the methodology, findings, and recommendations of the ADL survey and investigation. Also included with this are laboratory test results and recommendations for lead-contaminated soil management during construction, if necessary. This report was prepared in accordance with the work plan and proposal dated July 15, 2013.

1.3 PREVIOUS SITE INVESTIGATIONS

Additional information was not provided relative to previous aerially deposited lead studies within the study area.

2.0 ADL SURVEY METHODOLOGY

The field methods used during this site investigation project were generally consistent with the work plan submitted to Caltrans dated July 15, 2013. The proposed borings were located along the center median approaching the Hoff Wash bridges from the west and the east along SR40, in San Bernardino County, California. The following subsections describe the methodology for conducting the ADL survey.

Deviations from the proposed scope of work included the following:

1. Basalt rock was encountered at shallow depths in several locations resulting in refusal of the hand auger. Step-out attempts were made to relocate the boring to achieve the proposed depth. As a result of the subsurface rock encountered, the borings total depths are as follows:
    - Two of the twelve borings were advanced to the proposed depth of two feet bgs
    - Eight of the twelve borings were advanced to one foot bgs, and
    - Two borings of the twelve borings were advanced to 0.5 feet bgs.

2.1 FIELD INVESTIGATIONS

Twelve (12) hand-auger borings were advanced along accessible areas within the proposed construction zone. Site borings were advanced in the median to each side of the bridges (refer to Figure 2 for boring locations). A total of twenty-four (24) soil samples were collected from depths ranging from:

- Surface sample: 0.5-1 foot bgs,
- One foot sample: 1-1.5 feet bgs
- Two foot sample: 1.5-2.0 feet bgs

The sample depths represent a three to six-inch thick sample collected using a hand-auger. Soil samples were discharged directly from the hand-auger bailer into a plastic zipper lock bag and manually homogenized in the field to minimize sample heterogeneity. Homogenized soil was then discharged to eight-ounce laboratory provided glass jars. Each sample jar was labeled with a specific sample I.D., boring I.D., project I.D., sample date, and sample time. Samples were also recorded on chain-of-custody forms and delivered to an environmental laboratory for analysis in accordance with the methods described in Section K 17 of Attachment 1 within Agreement 08A2047.

Accessible areas are defined as those areas that allow work vehicles and personnel to work safely at distances no closer than six feet from paved portions of the roadway. No samples were collected from areas that would have required workers to work within six feet of paved shoulders. Where possible, sample locations falling within inaccessible areas were moved to locations that could be safely sampled. The sample locations are indicated on Figure 2.

All sample locations were plotted on a field map with a unique boring identification (I.D.) number to represent each borehole.

Prior to sampling at each sample interval, sample equipment was decontaminated in non-phosphate detergent solution and double rinsed with distilled water. Excess soil cuttings were replaced in the borehole.

2.2 LABORATORY ANALYSIS

Twenty-four (24) soil samples were submitted under chain-of-custody to ATL. Each of the samples was analyzed by EPA test method 6010B for total lead. The lab was directed to perform the following additional analyses based on the detected total lead concentrations:

- Cal WET-Citric soluble lead analysis on all samples exhibiting total lead concentrations greater than 25 milligrams per kilogram (mg/kg).
- TCLP soluble lead analysis on all Cal WET-Citric samples exhibiting soluble lead concentrations greater than five (5) milligrams per liter (mg/L).
- pH on all TCLP analyzed samples.
- Cal WET-DI analysis in the following order of preference:
    - TCLP samples where the 95 percent upper confidence level of the mean of the TCLP data is greater than 0.5 mg/L; or
    - Ten percent of the sample population biasing the Cal WET-DI analyses to samples that required Cal WET-Citric analysis; or
    - Ten percent of the sample population biasing the Cal WET-DI analyses to samples that exhibited the highest concentrations of total lead.

These analyses, if necessary, would be performed for statistical evaluation of data against state and federal hazardous waste limits and with the conditions of the Caltrans variance.

3.0 INVESTIGATIVE RESULTS

3.1 SUBSURFACE CONDITIONS

The soils encountered during sampling were generally light brown in color and consisted primarily of medium-grained sands with gravels and coarse cobbles. Groundwater was not encountered in any of the boreholes and not expected to be present in the upper 10 feet.

3.2 ANALYTICAL RESULTS

A summary of the analytical results is presented in Table 1. Boring global positioning system (GPS) coordinates are attached as Table 2. Copies of the laboratory reports and chain-of-custody forms are included in Appendix A. A photo log of the sampling area is included as Appendix B.

3.2.1 Total Lead

Twenty-four (24) soil samples were analyzed for total lead by EPA test method 6010B. Total lead concentrations ranged from 3.5 to 11 mg/kg with a mean concentration of 6.6 mg/kg (see Table 1).

Total lead concentrations did not exceed the Total Threshold Limit Concentrations (TTLC) of 1,000 mg/kg in any of the samples.

3.2.2 Soluble Lead (Cal WET- Citric)

Cal WET soluble lead analysis was not performed due to the fact that all soil samples reported total lead concentrations less than 25 mg/Kg (see Table 1).

3.2.3 Toxicity Characteristic Leaching Procedure (TCLP)

TCLP for lead analyses were not performed due to the fact that all total lead samples reported concentrations less than 25 mg/kg and therefore Cal WET soluble lead analysis were not performed.

3.2.4 Soluble Lead (Cal WET- DI)

The Caltrans variance allows for reuse of materials exceeding the Soluble Threshold Limit Concentration (STLC) for lead if the soluble concentrations do not exceed 1.5 mg/L using a less rigorous extraction test that incorporates distilled water as the solvent rather than the Cal WET citric acid or TCLP acetic acid extractant. This method is known as the DHS modified Cal WET-DI test.

Soluble lead analyses by the Cal WET – DI extraction method were not performed due to the fact that all total lead samples reported concentrations less than 25 mg/kg.

3.2.5 pH Results

Samples were not analyzed for pH since TCLP analysis was not required for any samples.

3.3 DATA VALIDATION

Prior to submitting soil samples to the laboratory, the chain-of-custody documentation was reviewed for accuracy and completeness. The laboratory reports were cross-checked with the chain-of-custody forms to confirm accurate transposing of sample information. Field and Laboratory quality assurance and quality control (QA/QC) data (equipment blanks, method blanks, laboratory control samples and duplicates, matrix spike samples and duplicates) were also reviewed for compliance with QA/QC objectives. Based on this validation process, the data contained herein are adequate for the purposes of this study. Copies of the laboratory reports and chain-of-custody forms are included as Appendix A.

4.0 STATISTICAL DATA EVALUATION

Total lead concentrations were reported in the range of 3.5 to 11 mg/kg, with a mean concentration of 6.6 mg/kg. CAL WET-citric soluble lead analysis and TCLP for lead analysis were not performed due to the low total lead concentrations and no further statistical analyses were necessary.

5.0 CONCLUSIONS

At the request of the California Department of Transportation (Caltrans) District 8, an Aerially Deposited Lead (ADL) survey was conducted to support the proposed construction associated with the replacement of the Hoff Wash bridges located along westbound State Route 40 (SR40), approximately 93 miles east of the city of Barstow, in San Bernardino County, state of California (Figure 1). The purpose of this task order was to evaluate the magnitude and distribution of ADL concentrations in the median just east and west of the Hoff Wash bridges (#54-0889L&R) as directed by Caltrans (Figures 2). All survey work was limited to the existing right-of-way along the unpaved median of SR40.

A total of twenty-four (24) soil samples were collected from 12 borings (6 borings to the west and 6 to the east of the bridges) at depths ranging from 0.0-0.5, 1-1.5 and 1.5-2 feet bgs, and submitted to the laboratory for analysis of total lead. Laboratory data indicate that total lead concentrations were reported in the range of 3.5 to 11 mg/kg, with a mean concentration of 6.6 mg/kg.

Based on these data, the following are concluded:

1. Total lead concentrations appear to be consistent with typical background levels for Southern California.
2. The reported lead concentrations do not exceed California hazardous waste total threshold limit concentration (TTLC) of 1,000 mg/kg.
3. Total lead concentrations did not exceed the United States Environmental Protection Agency (USEPA) residential or commercial Regional Screening Level (RSL) of 400 mg/kg and 800 mg/kg, respectively.
4. Total lead concentrations did not exceed the residential or commercial California Human Health Screening Level (CHHSL) of 80 mg/kg and 320 mg/kg, respectively.

6.0 RECOMMENDATIONS

Based on the findings and conclusions presented herein, the following are recommended:

1. In consideration of total lead and soluble lead concentrations, soil may be managed as non-hazardous or reused onsite without restrictions.

2. Surplus soil within the study zone may be released to the Contractor for disposition.

7.0 LIST OF PREPARERS

This ADL survey report has been prepared under the direction of the following environmental professionals.

Preparers:

- Kevin K. Miskin, P.E.
  Stantec Consulting Corporation (Stantec)
  M.S., Civil Engineering, Purdue University, West Lafayette, Indiana
  ADL Investigation Report Senior Reviewer

- Anne Perez
  Stantec
  M.S., Geology, University of California, Riverside, California
  ADL Investigation Report Author

If you have any questions or comments regarding the information enclosed herein, please contact the undersigned at your convenience.

Respectfully submitted,
Stantec Consulting Corporation

Anne E. Perez
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TABLES

TABLE 1 - SUMMARY OF ANALYTICAL RESULTS
LEAD
TO-20: REPLACE HOFF WASH, BRIDGE NO. 54-0889
08-SBD-40-PM R93.1/94.2
SAN BERNARDINO COUNTY, CALIFORNIA
PN: 08-000-204810 (EA#0Q7900)
TASK ORDER #20
CONTRACT 08A2047

	Sample ID [(A)]	Total Lead [(1)] (mg/kg)
Raw Sample Data	HA-13-0	9.1
	HA-13-1	7.8
	HA-13-2	8.7
	HA-14-0	3.5
	HA-14-1	3.7
	HA-15-0	7.9
	HA-16-0	10
	HA-16-1	8.5
	HA-17-0	5.8
	HA-18-0	5.5
	HA-18-1	5.7
	HA-18-2	4.4
	HA-19-0	8.0
	HA-19-1	6.6
	HA-20-0	4.2
	HA-20-1	5.4
	HA-21-0	4.0
	HA-21-1	4.3
	HA-22-0	6.5
	HA-22-1	7.7
	HA-23-0	5.3
	HA-23-1	11
	HA-24-0	8.2
	HA-24-1	6.0
Statistics	Distribution	---
	Minimum	3.5
	Maximum	11
	Mean	6.6
	Standard Deviation	2.1
Threshold Limits	California Hazardous Waste	1,000
	RCRA Hazardous Waste	--
	X	<1000
	Y1	≤1411
	Y2	≤3397

Notes:
(1) Total Lead analysis by EPA method 6010B
mg/kg = milligrams per kilogram
(A) Sample set HA-1 through HA-12 are included with
PN 08-000-201020/EA 0N5500 (Watson Wash Bridge)

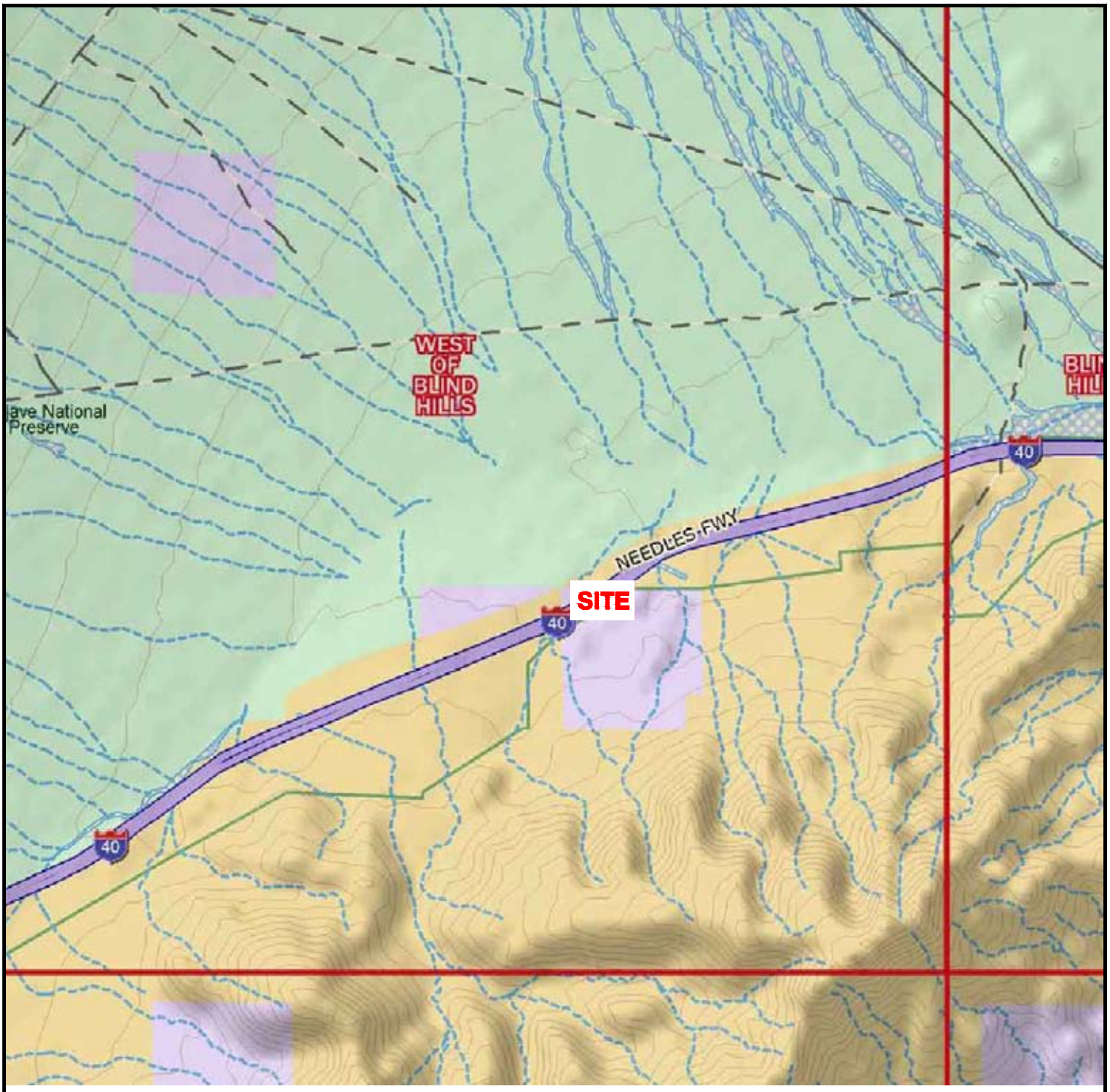
TABLE 2 - BORING GPS COORDINATES
TO-20: REPLACE HOFF WASH, BRIDGE NO. 54-0889
08-SBD-40-PM R93.1/94.2
SAN BERNARDINO COUNTY, CALIFORNIA
PN: 08-000-204810 (EA#0Q7900)
TASK ORDER #20
CONTRACT 08A2047

Boring ID	Latitude [1] (degrees north)	Longitude [1] (degrees west)
HA-13	34.80992847	115.2092778
HA-14	34.81003107	115.2091043
HA-15	34.81010391	115.2089946
HA-16	34.81022968	115.2087952
HA-17	34.81034173	115.2086251
HA-18	34.81050070	115.2083407
HA-19	34.80983056	115.2162722
HA-20	34.80976667	115.2158000
HA-21	34.80966111	115.2151806
HA-22	34.80965833	115.2147611
HA-23	34.80960833	115.2144722
HA-24	34.80958889	115.2139111

Notes:

[1] North American Datum 83 (WPS 84)
AMSL = above mean sea level

FIGURES



0 1/2 1
APPROXIMATE SCALE (MILES)

2000 0 2000 4000 6000
APPROXIMATE SCALE (FEET)

REFERENCE: DELORME TOPO MAPS_WEST OF BLIND HILLS, CALIFORNIA

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Stantec

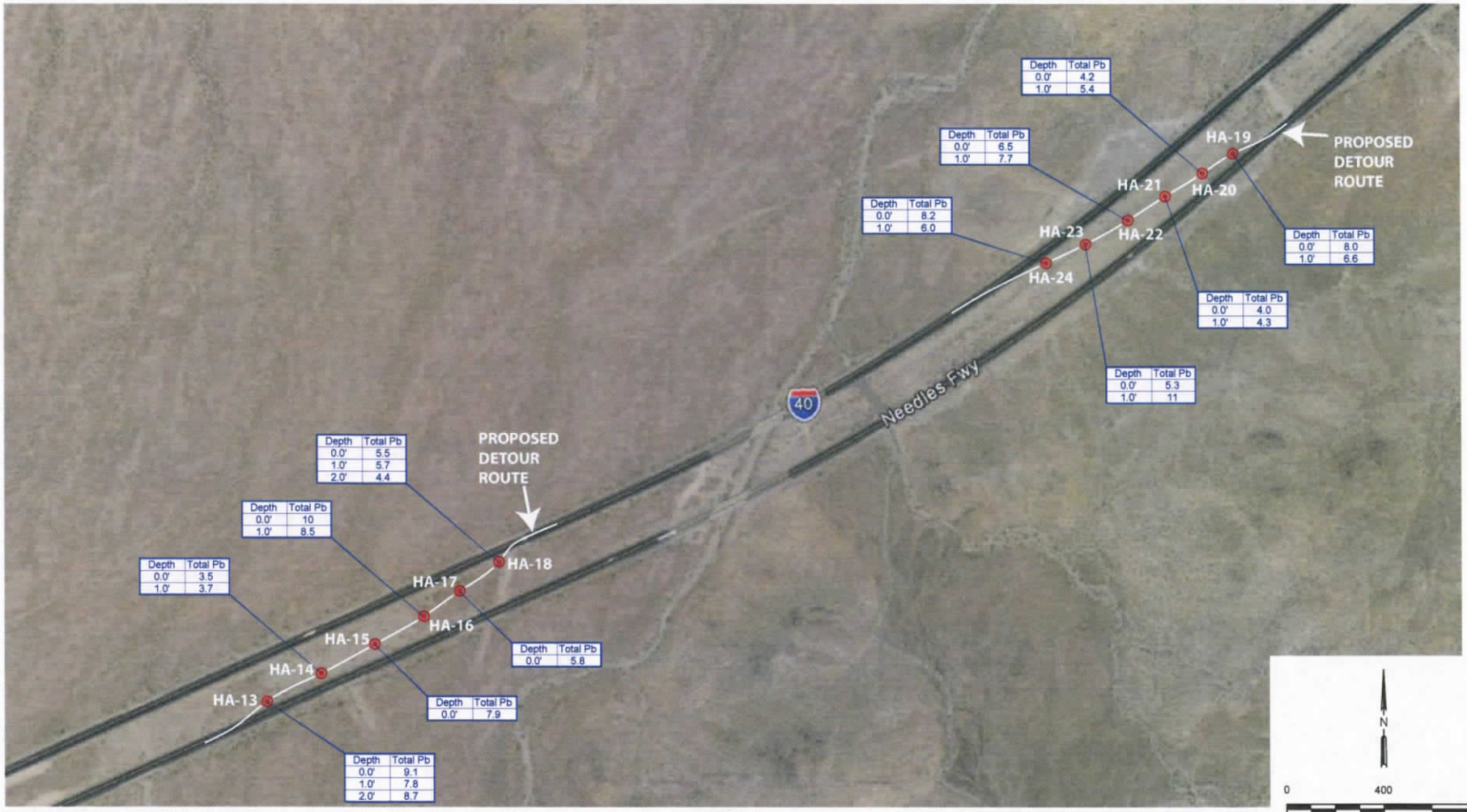
FOR: ADL SITE INVESTIGATION
Agreement No. 08A2047
Task Order No. 20
08-SBD-40-PM R93.1/R94.2
San Bernardino County, California
PN: 08-000-204810 - EA: 0Q7900

SITE LOCATION MAP

FIGURE: **1**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185802876	STA	AP	AP	03/28/14

FILEPATH:M:_00 OTHER OFFICES\04-REDLANDS\CAL-TRANS\ADL\TO-X\FIG 1_SITE LOCATION MAP_03-17-2014.dwg|saguinaldo|Mar 28, 2014 at 21:42|Layout: Layout1



LEGEND:

SOIL BORING LOCATION

KEY:

Depth	Total Pb
0.0'	5.8

SAMPLE DEPTH IN FEET BELOW GROUND SURFACE AND ANALYTE CONCENTRATION

Total Pb — TOTAL LEAD (mg/kg)

mg/kg — MILLIGRAMS PER KILOGRAM

No warranty is made by Stantec Consulting Services Inc. as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed electronically, and may be updated without notification. Any reproduction may result in a loss of scale and or information.

Stantec
25864-F BUSINESS CENTER DRIVE
REDLANDS, CALIFORNIA 92374
PHONE: (909) 335-6116 FAX: (909) 556-6516

FOR: ADL SITE INVESTIGATION
Agreement No. 08A2047
Task Order No. 20
08-SBD-40-PM R93.1/R94.2
San Bernardino County, California
PN: 08-000-204810 - EA: 0Q7900

BORING LOCATION MAP

FIGURE: 2

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185802876	STA	A. PEREZ	-	03/28/14

FILEPATH:M:_00 OTHER OFFICES\04-REDLANDS\CAL-TRANS\ADL\TO-X\BORING LOCATIONS_03-28-2014.dwg|saguinaldo|Mar 31, 2014 at 15:00|Layout: 11X17 L

APPENDIX A
ANALYTICAL LABORATORY REPORTS and CHAIN-OF-CUSTODY RECORDS

ADVANCED TECHNOLOGY LABORATORIES

September 03, 2013

ELAP No.: 1838
NELAP No.: 02107CA
CSDLAC No.: 10196
ORELAP No.: CA300003
TCEQ No.: T104704502

Anne Perez
Stantec
25864-F Business Center Drive
Redlands, CA 92374
Tel: (909) 255-8202
Fax:(909) 335-6120

Re: ATL Work Order Number : 1302647
Client Reference : 185802876 Highway 40

Enclosed are the results for sample(s) received on August 30, 2013 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

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

Sincerely,

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.

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www.atlglobal.com

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
EBQC-20130829	1302647-01	Water	8/29/13 4:45	8/30/13 9:10
HA-13-0	1302647-02	Soil	8/29/13 6:15	8/30/13 9:10
HA-13-1	1302647-03	Soil	8/29/13 6:17	8/30/13 9:10
HA-13-2	1302647-04	Soil	8/29/13 6:20	8/30/13 9:10
HA-14-0	1302647-05	Soil	8/29/13 6:35	8/30/13 9:10
HA-14-1	1302647-06	Soil	8/29/13 6:45	8/30/13 9:10
HA-15-0	1302647-07	Soil	8/29/13 6:55	8/30/13 9:10
HA-16-0	1302647-08	Soil	8/29/13 6:58	8/30/13 9:10
HA-16-1	1302647-09	Soil	8/29/13 7:03	8/30/13 9:10
HA-17-0	1302647-10	Soil	8/29/13 7:15	8/30/13 9:10
HA-18-0	1302647-11	Soil	8/29/13 7:23	8/30/13 9:10
HA-18-1	1302647-12	Soil	8/29/13 7:25	8/30/13 9:10
HA-18-2	1302647-13	Soil	8/29/13 7:27	8/30/13 9:10
HA-19-0	1302647-14	Soil	8/29/13 7:50	8/30/13 9:10
HA-19-1	1302647-15	Soil	8/29/13 7:53	8/30/13 9:10
HA-20-0	1302647-16	Soil	8/29/13 8:02	8/30/13 9:10
HA-20-1	1302647-17	Soil	8/29/13 8:07	8/30/13 9:10
HA-21-0	1302647-18	Soil	8/29/13 8:30	8/30/13 9:10
HA-21-1	1302647-19	Soil	8/29/13 8:35	8/30/13 9:10
HA-22-0	1302647-20	Soil	8/29/13 8:40	8/30/13 9:10
HA-22-1	1302647-21	Soil	8/29/13 8:45	8/30/13 9:10
HA-23-0	1302647-22	Soil	8/29/13 9:00	8/30/13 9:10
HA-23-1	1302647-23	Soil	8/29/13 9:03	8/30/13 9:10
HA-24-0	1302647-24	Soil	8/29/13 9:25	8/30/13 9:10
HA-24-1	1302647-25	Soil	8/29/13 9:27	8/30/13 9:10

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

CASE NARRATIVE

Sample Receiving/General Comments:

Documentation pertaining to additional analyses/change order available upon request.

Results were J-flagged. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID EBQC-20130829

Lab ID: 1302647-01

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

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	ND	0.0050	0.0022	1	B3H0593	08/30/2013	08/30/13 15:07	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID HA-13-0

Lab ID: 1302647-02

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

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**9.1**	1.0	0.14	1	B3H0591	08/30/2013	08/30/13 13:14	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID HA-13-1

Lab ID: 1302647-03

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

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**7.8**	1.0	0.14	1	B3H0591	08/30/2013	08/30/13 13:15	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID HA-13-2

Lab ID: 1302647-04

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

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**8.7**	1.0	0.14	1	B3H0591	08/30/2013	08/30/13 13:15	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID HA-14-0

Lab ID: 1302647-05

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

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**3.5**	1.0	0.14	1	B3H0591	08/30/2013	08/30/13 13:16	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID HA-14-1

Lab ID: 1302647-06

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

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**3.7**	0.99	0.14	1	B3H0591	08/30/2013	08/30/13 13:17	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID HA-15-0

Lab ID: 1302647-07

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

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**7.9**	0.99	0.14	1	B3H0591	08/30/2013	08/30/13 13:17	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID HA-16-0
Lab ID: 1302647-08

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

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**10**	1.0	0.14	1	B3H0591	08/30/2013	08/30/13 13:18	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID HA-16-1
Lab ID: 1302647-09

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

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**8.5**	1.0	0.14	1	B3H0591	08/30/2013	08/30/13 13:20	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID HA-17-0

Lab ID: 1302647-10

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

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**5.8**	1.0	0.14	1	B3H0591	08/30/2013	08/30/13 13:21	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID HA-18-0
Lab ID: 1302647-11

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

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**5.5**	0.99	0.14	1	B3H0591	08/30/2013	08/30/13 13:21	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID HA-18-1
Lab ID: 1302647-12

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

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**5.7**	1.0	0.14	1	B3H0591	08/30/2013	08/30/13 13:23	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID HA-18-2
Lab ID: 1302647-13

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

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**4.4**	1.0	0.14	1	B3H0591	08/30/2013	08/30/13 13:24	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID HA-19-0

Lab ID: 1302647-14

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

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**8.0**	1.0	0.14	1	B3H0591	08/30/2013	08/30/13 13:25	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID HA-19-1

Lab ID: 1302647-15

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

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**6.6**	1.0	0.14	1	B3H0591	08/30/2013	08/30/13 13:25	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID HA-20-0

Lab ID: 1302647-16

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

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**4.2**	0.99	0.14	1	B3H0591	08/30/2013	08/30/13 13:26	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID HA-20-1

Lab ID: 1302647-17

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

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**5.4**	1.0	0.14	1	B3H0591	08/30/2013	08/30/13 13:28	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID HA-21-0
Lab ID: 1302647-18

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

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**4.0**	1.0	0.14	1	B3H0591	08/30/2013	08/30/13 13:29	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID HA-21-1

Lab ID: 1302647-19

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

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**4.3**	0.99	0.14	1	B3H0591	08/30/2013	08/30/13 13:30	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID HA-22-0

Lab ID: 1302647-20

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

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**6.5**	1.0	0.14	1	B3H0591	08/30/2013	08/30/13 13:30	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID HA-22-1

Lab ID: 1302647-21

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

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**7.7**	1.0	0.14	1	B3H0591	08/30/2013	08/30/13 13:31	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID HA-23-0

Lab ID: 1302647-22

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

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**5.3**	1.0	0.14	1	B3H0592	08/30/2013	08/30/13 13:37	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID HA-23-1

Lab ID: 1302647-23

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

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**11**	1.0	0.14	1	B3H0592	08/30/2013	08/30/13 13:37	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID HA-24-0

Lab ID: 1302647-24

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

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**8.2**	1.0	0.14	1	B3H0592	08/30/2013	08/30/13 13:38	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Client Sample ID HA-24-1
Lab ID: 1302647-25

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

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Lead	**6.0**	1.0	0.14	1	B3H0592	08/30/2013	08/30/13 13:39	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

QUALITY CONTROL SECTION

Lead by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3H0591 - EPA 3050 Modified									
Blank (B3H0591-BLK1)				Prepared: 8/30/2013 Analyzed: 8/30/2013					
Lead	0.519498	1.0			NR				J
Blank (B3H0591-BLK2)				Prepared: 8/30/2013 Analyzed: 8/30/2013					
Lead	0.208674	1.0			NR				J
LCS (B3H0591-BS1)				Prepared: 8/30/2013 Analyzed: 8/30/2013					
Lead	51.2140	1.0	50.0000		102	80 - 120			
Duplicate (B3H0591-DUP1)		**Source: 1302647-21**		Prepared: 8/30/2013 Analyzed: 8/30/2013					
Lead	7.95600	1.0		7.71846	NR		3.03	20	
Duplicate (B3H0591-DUP2)		**Source: 1302647-11**		Prepared: 8/30/2013 Analyzed: 8/30/2013					
Lead	7.26067	0.99		5.53267	NR		27.0	20	R
Matrix Spike (B3H0591-MS1)		**Source: 1302647-21**		Prepared: 8/30/2013 Analyzed: 8/30/2013					
Lead	239.558	0.99	247.525	7.71846	93.7	51 - 106			
Matrix Spike (B3H0591-MS2)		**Source: 1302647-11**		Prepared: 8/30/2013 Analyzed: 8/30/2013					
Lead	257.853	0.99	247.525	5.53267	102	51 - 106			
Matrix Spike Dup (B3H0591-MSD1)		**Source: 1302647-21**		Prepared: 8/30/2013 Analyzed: 8/30/2013					
Lead	237.860	1.0	250.000	7.71846	92.1	51 - 106	0.711	20	
Batch B3H0592 - EPA 3050 Modified									
Blank (B3H0592-BLK1)				Prepared: 8/30/2013 Analyzed: 8/30/2013					
Lead	0.290580	1.0			NR				J
LCS (B3H0592-BS1)				Prepared: 8/30/2013 Analyzed: 8/30/2013					
Lead	57.5148	1.0	50.0000		115	80 - 120			
Duplicate (B3H0592-DUP1)		**Source: 1302647-25**		Prepared: 8/30/2013 Analyzed: 8/30/2013					
Lead	5.10846	1.0		5.95204	NR		15.3	20	
Matrix Spike (B3H0592-MS1)		**Source: 1302647-25**		Prepared: 8/30/2013 Analyzed: 8/30/2013					
Lead	223.032	1.0	250.000	5.95204	86.8	51 - 106			
Matrix Spike Dup (B3H0592-MSD1)		**Source: 1302647-25**		Prepared: 8/30/2013 Analyzed: 8/30/2013					
Lead	237.244	1.0	250.000	5.95204	92.5	51 - 106	6.18	20	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

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

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B3H0593 - EPA 3010A									
Blank (B3H0593-BLK1)				Prepared: 8/30/2013 Analyzed: 8/30/2013					
Lead	ND	0.0050			NR				
LCS (B3H0593-BS1)				Prepared: 8/30/2013 Analyzed: 8/30/2013					
Lead	0.989815	0.0050	1.00000		99.0	80 - 120			
Duplicate (B3H0593-DUP1)		**Source: 1302647-01**		Prepared: 8/30/2013 Analyzed: 8/30/2013					
Lead	ND	0.0050		ND	NR			20	
Matrix Spike (B3H0593-MS1)		**Source: 1302647-01**		Prepared: 8/30/2013 Analyzed: 8/30/2013					
Lead	2.49583	0.0050	2.50000	ND	99.8	76 - 109			
Matrix Spike Dup (B3H0593-MSD1)		**Source: 1302647-01**		Prepared: 8/30/2013 Analyzed: 8/30/2013					
Lead	2.50280	0.0050	2.50000	ND	100	76 - 109	0.279	20	

Certificate of Analysis

Stantec		Project Number :	185802876 Highway 40
25864-F Business Center Drive		Report To :	Anne Perez
Redlands , CA 92374		Reported :	09/03/2013

Notes and Definitions

R	RPD value outside acceptance criteria. Calculation is based on raw values.
J	Analyte detected below the Practical Quantitation Limit but above or equal to the Method Detection Limit. Result is an estimated concentration.
ND	Analyte not detected at or above reporting limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA1	CA-NELAP (CDPH)
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

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

Stantec

CHAIN OF CUSTODY FORM

25864-F-Business Center Dr., Redlands, CA 92374 (909)335-6116, Fax (909) 335-6120

Client Name/Address:
Stantec
25864-F Business Center Drive
Redlands, CA

Project/PO Number:
185802876
Highway 40

Project Manager: **Anne Perez**
Email Address: **anne.perez@stantec.com**
Sampler: Bohn/Zellmer

Phone Number: : (909) 255-8202
Fax Number: (909) 335-6120

Analysis Required

1302647	Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	Total Lead 6010								Special Instructions
1	EBQC-20130829	W	Poly	1	8/29/13	0445	—	X								Lab filter and preserve.
2	HA-13-0	S	Jar	1	8/29/13	0615		X								
3	HA-13-1					0617		X								
4	HA-13-2					0620		X								
5	HA-14-0					0635		X								
6	HA-14-1					0645		X								
7	HA-15-0					0655		X								
8	HA-16-0					0658		X								
9	HA-16-1					0703		X								
10	HA-17-0					0715		X								
11	HA-18-0					0723		X								
12	HA-18-1					0725		X								
13	HA-18-2					0727		X								

Relinquished By:	Date/Time:	Received By:	Date/Time:	Turnaround	Time: (Check)
[signature]	8/29/13 1245	[signature]	8/29/13 1245	same day	
Relinquished By: [signature]	Date/Time: 8-30-13 9:10	Received By: [signature]	Date/Time: 8-30-13 9:10	24 hours	5 days
Relinquished By: [signature]	Date/Time: 8-30-13 10:43	Received in Lab By: C. Aguilar	Date/Time: 8/30/13 10:43	48 hours	normal

Sample Integrity: (Check)
intact _____ on ice _____

Note: By relinquishing samples, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

Stantec

CHAIN OF CUSTODY FORM

25864-F Business Center Dr., Redlands, CA 92374 (909)335-6116, Fax (909) 335-6120

Client Name/Address:
Stantec
25864-F Business Center Drive
Redlands, CA

Project/PO Number:
185802[illegible]76
Highway 40 ADL

Project Manager: Anne Perez
Email Address: anne.perez@stantec.com
Sampler: John ~~Bernstein~~/Zellmer

Phone Number: : (909) 255-8202
Fax Number: (909) 335-6120

Analysis Required

1 2 3 4 5 6 7	Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	Total Lead 6010	Title 22 Metals 6010								Special Instructions
14	HA-19-0	S	Jar	1	8/29/13	0750		X									
15	HA-19-1					0753		X									
16	HA-20-0					0802		X									
17	HA-20-1					0807		X									
18	HA-21-0					0830		X									
19	HA-21-1					0835		X									
20	HA-22-0					0840		X									
21	HA-22-1					0845		X									
22	HA-23-0					0900		X									
23	HA-23-1					0903		X									
24	HA-24-0					0925		X									
25	HA-24-1					0927		X									

Relinquished By:	Date/Time:	Received By:	Date/Time:	Turnaround	Time: (Check)
[signature]	8/29/13 1245	[signature]	8/29/13 1245	same day	
Relinquished By:	Date/Time:	Received By:	Date/Time:	24 hours	5 days
[signature]	8-30-13 9:10	[signature]	8-30-13 9:10	48 hours	normal
Relinquished By:	Date/Time:	Received in Lab By:	Date/Time:	Sample Integrity: (Check)	
[signature]	8-30-13 10:43	[signature]	8/30/13 1143	intact	on ice

Note: By relinquishing samples, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

APPENDIX B
PHOTOLOG

STANTEC CONSULTING SERVICES, INC PHOTOGRAPHIC RECORD	
Client: Calif. Department of Transportation, District 8	**Job Number:** 185802876
Site Name: Task Order #20– Hoff Wash Bridge	**Location:** Near Essex, CA
Photographer: Mitchel Bohn	**Date:** September 27, 2013

Photograph No. 1

HA-13.

Photograph No. 2

HA-14

STANTEC CONSULTING SERVICES, INC PHOTOGRAPHIC RECORD	
Client: Calif. Department of Transportation, District 8	**Job Number:** 185802876
Site Name: Task Order #20– Hoff Wash Bridge	**Location:** Near Essex, CA
Photographer: Mitchel Bohn	**Date:** September 27, 2013

Photograph No. 3

HA-15

Photograph No. 4

HA-16

STANTEC CONSULTING SERVICES, INC PHOTOGRAPHIC RECORD	
Client: Calif. Department of Transportation, District 8	**Job Number:** 185802876
Site Name: Task Order #20– Hoff Wash Bridge	**Location:** Near Essex, CA
Photographer: Mitchel Bohn	**Date:** September 27, 2013

Photograph No. 5

HA-17

Photograph No. 6

HA-18

STANTEC CONSULTING CORPORATION PHOTOGRAPHIC RECORD	
Client: Calif. Department of Transportation, District 8	**Job Number:** 185802876
Site Name: Task Order #20– Hoff Wash Bridge	**Location:** Near Essex, CA
Photographer: Mitchel Bohn	**Date:** September 27, 2013

Photograph No. 7

HA-19

Photograph No. 8

HA-20

STANTEC CONSULTING SERVICES, INC PHOTOGRAPHIC RECORD	
Client: Calif. Department of Transportation, District 8	**Job Number:** 185802876
Site Name: Task Order #20– Hoff Wash Bridge	**Location:** Near Essex, CA
Photographer: Mitchel Bohn	**Date:** September 27, 2013

Photograph No. 9

HA-21

Photograph No. 10

HA-22

STANTEC CONSULTING SERVICES, INC PHOTOGRAPHIC RECORD	
Client: Calif. Department of Transportation, District 8	**Job Number:** 185802876
Site Name: Task Order #20– Hoff Wash Bridge	**Location:** Near Essex, CA
Photographer: Mitchel Bohn	**Date:** September 27, 2013

Photograph No. 11

HA-23

Photograph No. 12

HA-24

ASBESTOS-CONTAINING MATERIALS AND LEAD-BASED PAINT SURVEY REPORT
REPLACE HOFF WASH BRIDGES NO. 54-0889(L&R)
08-SBD-40 PM R93.1/R94.2
SAN BERNARDINO COUNTY, CALIFORNIA
PN: 08-000-204810 (EA#0Q7900)
TASK ORDER #20
CONTRACT 08A2047

PREPARED FOR:

CALIFORNIA DEPARTMENT OF TRANSPORTATION, DISTRICT 8
464 WEST FOURTH STREET, 6TH FLOOR
SAN BERNARDINO, CALIFORNIA 92401-1400

February 26, 2014

EXECUTIVE SUMMARY

This Asbestos-Containing Materials (ACM) and Lead Based Paint (LBP) Survey Report was prepared at the request of California Department of Transportation (Caltrans) District 8 and describes the results of an ACM and LBP survey performed on the Hoff Wash Bridges (Bridge #54-0889 Left & Right), located along State Route 40, approximately 94 miles east of Barstow, San Bernardino County, California (Figure 1). The ACM/LBP surveys were performed to support Caltrans' proposed replacement of each existing bridge and were conducted pursuant to the provisions of Contract 08A2047.

The bridges surveyed as part of this scope of work are identified in the table below, along with general construction information from the *Log of Bridges on State Highways, District 8* prepared by Caltrans, dated January 2013:

POST MILE	BRIDGE NUMBER(1)	BRIDGE NAME	STRUCTURE TYPE(2)	LENGTH (meters/ feet)	WIDTH (meters/ feet)	YEAR BUILT	YEAR WIDENED
93.60	54-0889R	Hoff Wash	205	51.8/169.9	12.8/42.0	1973	NA
93.65	54-0889L	Hoff Wash	205	46.3/151.9	12.8/42.0	1973	NA

NOTES:
(1) R=right bridge, L=left bridge
(2) Structure type coding: 2=concrete continuous, 05=Box Beam or Girders - Multiple

The purpose of the ACM and LBP surveys was to assess the presence and quantities of ACMs and LBP prior to bridge demolition and construction. Caltrans will provide this information to the contractor for waste profiling and disposition, worker health and safety, and compliance with federal, state and local regulations.

Bulk samples of suspect ACM bridge materials were collected and analyzed by Polarized Light Microscopy (PLM). The United States Environmental Protection Agency (US EPA) and State of California, Division of Occupational Safety and Health (Cal/OSHA) define an ACM as any material containing more than one percent asbestos (>1%).

In California, potential asbestos exposure in construction is regulated when construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof contain asbestos [8 CCR §1529 (a)(1)(C)]. Additionally, in California, materials containing greater than one-tenth of one percent (>0.1%) asbestos are regulated as Asbestos-Containing Construction Materials (ACCMs). For the purpose of this report, materials with any detectable concentration of asbestos are considered positive.

For LBP analysis, representative bulk samples of paint were collected from the various types of paint and painted surfaces of the Site structures. Where possible, a sample approximately one-half square inch in size was collected from each painted surface.

Based on analytical results, only the leveling shim samples collected from each bridge tested positive for asbestos. ACMs were not encountered in any other materials tested on either bridge.

The leveling shims appeared to be in good condition at the time of the survey, and if left undisturbed are considered a Category II non-friable ACM. However, if the shims, or any other currently undiscovered ACM materials are disturbed during construction, they should be classified and handled as a RACM due to the high probability of becoming crumbled, pulverized, or reduced to a powder by the forces expected to act on the material in the course of demolition or construction.

Laboratory results indicate that none of the representative paint chip samples collected from the Hoff Wash Bridges (#54-0889L&R) roadway striping meet the definition of lead-based paint.

Recommendations are provided below to address the ACM leveling shims on the Hoff Wash Bridges (#54-0889L&R) should they be disturbed during construction.

- The ACM materials in their current state are considered NESHAP Category 2 non-friable ACM. However, it is expected that the material will become friable during construction demolition and will, therefore, be considered a RACM when disturbed.

- Any generated ACM wastes should be disposed as hazardous asbestos waste.

- ACM abatement is required by a licensed ACM abatement contractor prior to renovation, refurbishing, or demolition activities. The abatement contractor's responsibilities include,
    - Removal and disturbance of ACMs in accordance with Cal/OSHA requirements. (e.g.; CCR Title 8, Section 341.9 and 1529).
    - Segregation and disposal at a landfill permitted to accept hazardous RACM waste.
    - Compliance with all other local, state and federal regulations and requirements associated with the disturbance, management, handling and disposal of ACM.

- The amount of ACM that may be generated during bridge demolition activities is approximately 8.4 and 18.2 square feet on the Left and Right Bridges, respectively. Notification to the MDAQMD is required for all demolitions

regardless of the ACM square footage. The contractor is required to comply with all other MDAQMD and other agency notifications and requirements for demolition and construction.

Representative paint chip samples collected and analyzed for LBP from the Hoff Wash Bridges (#54-0889L&R) were below the action levels of 0.5 percent lead by weight and 5,000 ppm, therefore no special requirements pertaining to lead-based paint would apply during future demolition or construction/improvements to each bridge.

If the paint is stripped separately from structural surfaces, the paint should be containerized, tested, and profiled for disposition to evaluate whether the paint qualifies as either a California or RCRA hazardous waste. If structural components are disposed with paint coating intact it is unlikely that such wastes will qualify as a hazardous waste based on the volume of other structural components with respect to the volume of lead-based paint.

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LIST OF ACRONYMS

ACM –	Asbestos-Containing Material
ACCM –	Asbestos-Containing Construction Material
AHERA –	Asbestos Hazard Emergency Response Act
Cal/OSHA –	California Division of Occupational Safety and Health Administration
Caltrans –	California Department of Transportation, District 8
CCR –	California Code of Regulations
CFR –	Code of Federal Regulations
DOSH –	California Division of Occupational Safety and Health
DTSC –	Department of Toxic Substances Control
ELAP –	Environmental Laboratory Accreditation Program
EMC –	Environmental Management Consultant
ND –	None Detected
NESHAP –	National Emission Standard for Hazardous Air Pollutants
NVLAP –	National Voluntary Laboratory Accreditation Program
PLM –	Polarized Light Microcopy
QA/QC –	Quality Assurance/Quality Control
RACM –	Regulated Asbestos-Containing Material
MDAQMD –	Mojave Desert Air Quality Management District
TSI –	Thermal System Insulation
US EPA –	United States Environmental Protection Agency

1.0 INTRODUCTION

This Asbestos-Containing Materials (ACM) and Lead Based Paint (LBP) Survey Report was prepared at the request of California Department of Transportation (Caltrans) District 8 and describes the results of an ACM and LBP survey performed on the Hoff Wash Bridges (Bridge #54-0889 Left & Right), located along State Route 40, approximately 94 miles east of Barstow, San Bernardino County, California (Figure 1). The ACM/LBP surveys were performed to support Caltrans' proposed replacement of the existing bridges and were conducted pursuant to the provisions of Contract 08A2047.

1.1 PROJECT DESCRIPTION

As part of proposed highway plans, Caltrans will replace the Hoff Wash Bridges. The project will require demolition of the existing bridges. An ACM/LBP survey was conducted in support of the bridge demolition efforts.

1.2 SITE DESCRIPTION

The bridges surveyed as part of this scope of work are identified in the table below, along with general construction information from the *Log of Bridges on State Highways, District 8* prepared by Caltrans, dated January 2013:

POST MILE	BRIDGE NUMBER(1)	BRIDGE NAME	STRUCTURE TYPE(2)	LENGTH (meters/ feet)	WIDTH (meters/ feet)	YEAR BUILT	YEAR WIDENED
93.60	54-0889R	Hoff Wash	205	51.8/169.9	12.8/42.0	1973	NA
93.65	54-0889L	Hoff Wash	205	46.3/151.9	12.8/42.0	1973	NA

NOTES:
(1) R=right bridge, L=left bridge
(2) Structure type coding: 2=concrete continuous, 05=Box Beam or Girders - Multiple

A photographic log of structural components and current Site conditions is provided in Appendix A.

1.3 OBJECTIVES

The objectives of the surveys were to identify, estimate quantities, and assess the condition/friability of asbestos in suspect structural components, the content of lead on painted surfaces of the Site structures, and to make general recommendations for handling and disposing of ACM and LBP containing materials. These objectives were met by completing the following tasks:

- Perform a visual inspection and destructive sampling for asbestos following criteria outlined in the Asbestos Hazard Emergency Response Act (AHERA) to identify sources of friable and non-friable ACMs.

- Collect bulk samples of suspect asbestos-containing materials.
- Collect paint chip samples of painted surfaces.
- Submit bulk samples to a certified laboratory for analysis.
- Compile the findings into a report.
- Ensure the technical quality of all work by using AHERA-accredited Inspectors and Management Planners, Certified Consultants, and a proven Quality Assurance/Quality Control (QA/QC) Program.

1.4 FORMER REPORT REVIEW

No former ACM or LBP reports were provided for review.

2.0 ASBESTOS BACKGROUND

2.1 ASBESTOS

Asbestos is the name of a class of magnesium-silicate minerals that occur in fibrous form. Minerals that are included in this group are chrysotile, crocidolite, amosite, anthophyllite asbestos, tremolite asbestos, and actinolite asbestos. Although the chrysotile minerals are the most common type of asbestos found in the construction industry, all types of asbestos are regulated in the same manner. Asbestos has been used in thousands of different structural materials. Asbestos was added to structural materials to: increase fire-resistance, insulate against heat, cold and sound, resist corrosion, and increase tensile strength. Common structural materials that may contain asbestos include, but are not limited to the following: floor tile, floor sheeting, ceiling tile, mastics, roofing materials, fireproofing, acoustical treatments, gypsum board, pipe and boiler insulations. Adverse health effects have been associated with the inhalation of airborne asbestos. However, asbestos fibers that are tightly bound in structural materials, may not pose an exposure hazard, unless disturbed in such a way that releases airborne fibers (i.e., cutting, drilling, sanding, and other abrasive methods).

2.2 CURRENT REGULATIONS

The following sections summarize current state and federal regulations which contain requirements related to the performance of structural surveys for asbestos. These summaries are not intended to be all inclusive and do not contain every aspect of the regulations discussed. Regulations pertaining to the removal and disposal of ACMs are not included.

2.2.1 US EPA National Emission Standard for Hazardous Air Pollutants (NESHAPs), 40 CFR Part 61

Under the NESHAPs regulation, no visible emissions are allowed during facility demolition or renovation activities, which involve regulated asbestos-containing materials (RACMs). For this reason, all facilities must be surveyed for asbestos-containing materials prior to demolition or renovation. The EPA, and/or the local AQMD which has delegated authority from the EPA NESHAP, must be notified prior to any structural demolition, even if no asbestos-containing materials are present. Assessments are made by the inspector as to the condition of each material and whether or not the materials are "friable." The US EPA NESHAP regulation defines "friable" materials as:

> *Materials that, when dry,* ***can*** *be crumbled, pulverized or reduced to a powder using hand pressure.*

Conversely, a non-friable material **cannot**, when dry, be crumbled, pulverized or reduced to a powder. NESHAP classifies non friable ACMs in two categories:

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

RACM is classified as any manufactured material that contains greater than one percent asbestos by dry weight and is friable. Disturbed RACM must be disposed as hazardous waste. Category I and II non-friable ACM may be considered RACM under the following conditions:

- Category I material that has become friable;
- Category I material that has been subjected to sanding, grinding, cutting or abrading;
- Category II material that has a high probability of being crumbled, pulverized, or reduced to powder as part of demolition or renovation

RACMs must be removed prior to renovation or demolition.

2.2.2 Mojave Desert Air Quality Management District

The Mojave Desert Air Quality Management District (MDAQMD) regulates sources of air pollution within the area of the Hoff Wash Bridges. The District's regulating and enforcement authority comes from state law and, in certain cases, federal law. In response to the NESHAP requirements, MDAQMD implemented procedures that pertain to demolition/renovation activities including the removal and associated disturbance of ACMs. These requirements for demolition and renovation activities include notification, ACM removal procedures, time schedules, ACM handling and cleanup procedures, storage, disposal, and landfill requirements for asbestos-containing waste materials. These procedures are applicable to owners and operators of any demolition or renovation activity and associated disturbance of ACMs. Failure to comply could result in violations that carry daily penalties (penalties assessment is based upon the size of the project and severity of noncompliance).

2.2.3 California Division of Occupational Safety and Health (DOSH a.k.a. Cal/OSHA)

Pursuant to Cal/OSHA standard 1529, an asbestos-containing material is any material containing greater than one percent (>1%) asbestos. However, for worker classifications, Cal/OSHA follows the California Health and Safety Code definition of ACCMs which are defined as any materials with an asbestos content greater than one-tenth of one percent (>0.1%). The Cal/OSHA set forth licensing and work requirements for disturbance of ACMs and ACCMs. The requirements have been divided into four classes of work: Class I, Class II, Class III, and Class IV work. The materials are distinguished by their potential to release fibers when damaged. The Cal/OSHA prescribes specific engineering controls and work practices for each Class of work.

- Class I – This Class refers to removal of ACMs identified as Thermal System Insulation (TSI) or surfacing (sprayed-on or troweled-on) materials. These materials are generally considered friable.
- Class II – This Class refers to removal of ACMs identified that are not TSI or surfacing materials. These materials are generally considered non-friable.
- Class III – This Class refers to repair and maintenance operations of all identified ACMs.
- Class IV – This Class refers to incidental contact with identified ACMs such as custodial staff.

2.2.4 California Assembly Bill AB3713, Health and Safety Code Div. 20, Ch. 10.4, Sec. 25915-25924

The state of California has enacted legislation that requires owners, employers, lessees, etc. to notify tenants, employees and contractors of the presence of asbestos in both friable and non-friable forms. In addition, preventive maintenance activities must be developed and communicated to these parties. Notification is required 15 days after the identification of ACM in the building, and annually thereafter.

2.3 HAZARDOUS WASTE

The California Department of Toxic Substances Control (DTSC), a department of Cal EPA, has the regulatory and enforcement authority for hazardous wastes deposited or transported in California. DTSC regulates as "hazardous wastes" generated wastes containing more than one percent (>1%) asbestos that have been determined to be "friable." DTSC uses the same methods for determining percentage of asbestos and friability, as does the U.S. EPA. However, local agencies and Cal/OSHA may regulate waste handling and packaging even if the material contains one percent or less or is determined to be non-friable.

3.0 ACM SURVEY SCOPE OF WORK AND METHODOLOGY

The project team comprised the following Stantec staff: Mr. Jason Stagno, Associate Scientist and State of California, Cal/OSHA Certified Asbestos Consultant (CAC #12-4949) and State of California, Department of Public Health (CDPH) Lead Related Construction Inspector/Risk Assessor (LRCIA #19068), and Mr. Dion Monge, Associate Scientist with Stantec, and Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA) Accredited Building Inspector. Qualifications are presented in Appendix B.

The ACM survey field activities consisted of a visual inspection and sampling of existing representative building materials to identify potential ACMs. Reasonable efforts were made to locate, sample, and/or identify suspect ACMs associated with the structures; however, during demolition activities, suspect ACMs may be uncovered or discovered in areas that are currently not readily accessible. If any suspect ACMs are uncovered or discovered, these suspect ACMs are assumed positive for asbestos until sampling and analysis indicates otherwise.

3.1 VISUAL INSPECTION

Structural materials were visually inspected for asbestos using the methods presented in applicable sections of the Federal Asbestos Hazard Emergency Response Act (AHERA) regulations (40 CFR, Part 763). The principles presented under AHERA are generally accepted as the industry standard for ACM inspections. Suspect ACMs were also physically assessed for friability, condition, and disturbance factors.

Reasonable efforts were made to locate and sample materials representative of the entire Site. However, Stantec did not attempt to access concealed materials or materials that were inaccessible due to safety considerations. For any structure, the existence of unique or concealed materials or debris is a possibility. It is common practice to collect additional bulk samples during actual abatement or demolition activities when hidden suspect ACMs are discovered.

3.2 BULK SAMPLING FOR ASBESTOS

Bulk samples of visually identified homogeneous areas of suspect ACM were collected from areas than may be impacted by renovation/demolition activities. The EPA defines a homogeneous area as a surfacing material, thermal system insulation, or miscellaneous material that is uniform in color and texture. The use or application of the homogeneous area is also used to identify suspect ACMs.

At least one sample was collected from each suspect ACM. The samples were collected by removing representative pieces of material using a hand tools and placing the samples into plastic bags. The sample bags were sealed and labeled with

unique sample identification (ID) numbers, along with other pertinent information including the project ID, sample date, and material type.

No attempt was made to replace or repair the sampled media. The removal of small pieces of building materials does not typically compromise structural integrity.

The materials sampled for this investigation are listed in Section 4.0.

3.3 ASBESTOS LABORATORY TESTING

Bulk samples were analyzed by EMC Analytical Laboratories of Phoenix, Arizona. EMC is accredited under the National Institute of Standards and Technology's National Voluntary Laboratory Accreditation Program (NVLAP), and the State of Arizona and California Department of Health Services Environmental Laboratory Accreditation Program (ELAP) for the analysis of asbestos in bulk building material samples.

All samples were analyzed using PLM techniques in accordance with methodology approved by the US EPA. Both the US EPA, under their asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations, and the MDAQMD define and regulate ACMs containing more than one percent (>1%) asbestos. In California, asbestos exposure during construction is regulated when construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof contain asbestos [§1529 (a)(1)(C)]. Additionally, materials containing greater than one-tenth of one percent (> 0.1%) are regulated as Asbestos-Containing Construction Materials (ACCMs). For the purpose of this report, materials with any detectable concentration of asbestos are considered positive.

When "None Detected" (ND) appears in this report, it should be interpreted as meaning no asbestos was observed in the sample material above the reliable limit of detection for the PLM method which is material dependent and is less than one percent.

Copies of the laboratory reports are provided in Appendix C.

4.0 LEAD-BASED PAINT BACKGROUND

Lead is a pliable, soft metal that is used in the construction of pipes, rods, and containers. Before 1978, lead was a common ingredient in paint because it added strength, shine and extended the life of the paint. Lead-based paint is recognized as a potential health risk due to the known toxic effects of lead exposure (primarily through ingestion) on the central nervous system, kidneys, and blood stream. Concern for lead-based paint is primarily related to residential structures, which in addition, may apply to commercial structures. The risk of lead toxicity of lead-based paint varies based upon the condition of the paint and the year of its application.

4.1 CURRENT REGULATIONS

The following sections summarize current state and federal regulations which contain requirements regarding lead-based paint. These summaries are not intended to be all inclusive and do not contain every aspect of the regulations discussed.

4.1.1 Department of Housing and Urban Development

The *Guidelines for the Evaluation and Control of Lead-based Paint Hazards in Housing,* HUD, 1995 (revised September 1997) *Lead Requirements for Lead-based Paint Activities in Target Housing and Child-Occupied Facilities: Final Rule*, (40 CFR Part 745), US EPA, 29 August 1996, define Lead-Based Paint as: paint, varnish, shellac, or other coating on surfaces that contain 1.0 milligrams per square centimeter (mg/cm^2), 5,000 parts per million (ppm), or more of lead or 0.5 percent or more lead by weight.

4.1.2 California Division of Occupational Safety and Health (DOSH a.k.a. Cal/OSHA)

Pursuant to Section 1532.1 in Title 8 of California Code of Regulations, construction employers are responsible for recognizing lead hazards and submitting samples of suspect materials to a US EPA lead accredited laboratory for analysis.

When lead is present on construction jobs the following is required:

- Housekeeping methods (including HEPA vacuuming, wet clean-up, or other effective methods) must be implemented to remove lead dust on surfaces;
- Hand and face washing facilities with soap and water must be provided for workers;
- Workers must receive training on lead hazards and how to protect themselves;
- Employee breathing-zone air sampling must be conducted to assess the amount of lead breathed by workers to determine protective measures and the type of respirator required for employee protection.

Special protective measures are required for highly hazardous tasks, commonly referred to as trigger tasks until employee airborne exposures to lead are determined to be below levels specified in Section 1532.1. Pre-job notification is required for all jobs

involving trigger tasks. Written notification must be made to the local CAL/OSHA district office at least 24 hours before the job starts.

- Level 1 – Any of the following with lead-containing coating or materials: spray painting, manual demolition, manual scraping or sanding, use of a heat gun, power tool cleaning with dust collection system. Minimum required protection is a half-face respirator with N-100, R-100, or P-100 filters.

- Level 2 - Any of the following with lead-containing coating or materials: using lead-containing mortar, lead burning, rivet busting, power tool cleaning without dust collection system, clean-up activities using dry expendable abrasives, abrasive blasting enclosure movement or removal. Minimum required protection is an air-supplied hood or helmet or loose fitting hood or helmet powered air-purifying respirator with N-100, R-100, or P-100 filters.

- Level 3 – Abrasive blasting, welding, cutting, or torch burning on structures where lead-containing coatings or materials are present. Minimum required protection is a half-mask supplied air respirator in a positive pressure mode.

All trigger tasks require: respirators, protective equipment, and clothing; clothing change areas; initial blood testing for lead and zinc protoporphyrin; basic lead hazard, respirator, and safety training; and warning signs.

If air sampling shows exposures to workers are above the permissible exposure limit (PEL), the following additional controls are required:

- Respirators appropriate to the levels of exposures measured;
- Clean areas for eating and clothing change;
- Showers;
- Full worker training;
- Medical monitoring with routine blood testing for lead and zinc protoporphyrin; and
- Certification by the California Department of Public Health for workers and supervisors working on jobs at residential and publicly accessible buildings.

4.1.3 Accreditation, Certification, and Work Practices for Lead-Based Paint and Lead Hazards (Title 17 California Code of Regulations, Division 1, Chapter 8)

Title 17 pertains to all public and residential buildings in California and is enforced by the California Department of Public Health (CDPH). Pursuant to Title 17, lead-based paint is defined as paint or other surface coatings containing an amount of lead equal to or greater than one milligram per square centimeter (1 mg/cm^2), more than half of one percent (>0.5%) by weight, or 5,000 parts per million (5,000 ppm). Title 17 also defines a lead hazard as deteriorated lead-based paint, disturbing lead-based paint or presumed lead-based paint without containment, or any other nuisances which may results in persistent or quantifiable lead exposure. A copy of the Lead Hazard Evaluation Report for the Site is included in Appendix D.

4.1.4 Hazardous Waste Regulations

Waste materials containing lead may be subject to regulations controlling the transportation and disposal of such materials. In California, the Department of Toxic Substances Control (DTSC) regulates the generation, transportation, treatment, storage and disposal of lead containing wastes that qualify as hazardous waste. Lead containing wastes may be classified as a hazardous waste based on toxicity characteristic by any one of the following Federal or State thresholds (California Code of Regulations, Title 22, Section 66261.24),

- Federal:
  - Toxicity Threshold = 5 milligrams per liter (mg/L) (Toxicity Leaching Characteristic Procedure [TCLP])
- California:
  - Total Threshold Limit Concentration = 1,000 mg/kg
  - Soluble Threshold Limit Concentration = 5 mg/L (California Waste Extraction Test)

In general, bulk demolition wastes do not exhibit sufficient lead concentration to be classified as a hazardous waste based on the above criteria as result of the bulk weight of the waste in comparison to the weight of lead in the painted surface. However, if the paint is stripped, the paint and stripping media may be classified as a hazardous waste and regulations controlling the generation, storage, treatment, transportation and disposal of lead containing hazardous waste will need to be implemented and observed. Additional health and safety requirements and protocols may also be required to prevent exposure and spreading of the waste material.

Where possible, paint containing lead over 50 mg/kg should be disposed of as a bulk waste to avoid the generation of hazardous waste.

4.2 LEAD PAINT REMOVAL REQUIREMENTS

The Cal/OSHA Lead Standard requires that if the permissible exposure limit of airborne lead particulate of 50 µg/m^3 of air is exceeded, then the work must be conducted in accordance with the standard. Pursuant to Title 17, lead-based paint is defined as paint or other surface coatings containing an amount of lead equal to or greater than one milligram per square centimeter (1 mg/cm^2), more than half of one percent (>0.5%) by weight, or 5,000 parts per million (5,000 ppm). Title 17 also defines a lead hazard as deteriorated lead-based paint, disturbing lead-based paint or presumed lead-based paint without containment, or any other nuisances which may result in persistent or quantifiable lead exposure.

LBP noted to be in a good, non-flaky condition that will be removed with the painted bulk material, would require no special handling of the painted surface prior to renovations or demolition. However, it is recommended that identified LBP in good

condition be encapsulated by a paint film stabilizer prior to demolition. If the LBP paint would be disturbed and rendered in a flaky condition during demolition, removal of the paint prior to demolition is required.

5.0 LEAD-BASED PAINT SURVEY SCOPE OF WORK AND METHODOLOGY

5.1 VISUAL INSPECTION

Building materials were visually inspected for evidence of blistered or peeling paint. No painted surfaces exhibited evidence of peeling or blistering. All paint surfaces appeared worn (from daily traffic wear) but intact.

5.2 BULK SAMPLING FOR LBP

Representative bulk samples of paint were collected from the various types of paint and painted surfaces. Where possible, a sample approximately one-half square inch in size was collected from each painted surface. The sample was collected by removing the paint using a chisel or other sharp instrument to cut a representative piece away. No attempt was made to replace or repair these materials. However, the removal of small pieces of building materials does not typically compromise structural integrity.

Each sample was placed in a hard-sided container and labeled (sample date, unique identifying number, sampler name, and job site), recorded on a chain of custody sheet and securely packaged for delivery to the laboratory. The sample number, location, material type, etc. were also recorded on field logs.

5.3 LBP LABORATORY TESTING

EMC Analytical Laboratories of Phoenix, Arizona, analyzed select samples. EMC is accredited under the National Institute of Standards and Technology's NVLAP, and the State of Arizona and California Department of Health Services ELAP for the analysis of LBP.

Samples were analyzed by EMC SOP Method #L01/1, after US EPA SW-846 Method 7420. US EPA, defines Lead-Based Paint as: paint, varnish, shellac, or other coating on surfaces that contains 0.5 percent or more lead by weight.

6.0 ACM SURVEY RESULTS

Bulk material samples were collected from representative homogeneous bridge materials and analyzed by PLM. A copy of the laboratory report is provided in Appendix C. The sample locations are shown on the attached Figure 2 and photographs of sampled media are provided in Appendix A. The sample locations and laboratory results are summarized in Table 1.

The sampled materials included:

- Concrete,
- Asphalt,
- Leveling Shims.
- Reflector Mastic,
- Concrete drain, and
- Drain line.

Of the materials submitted for analysis, only the leveling shim samples collected from each bridge tested positive for asbestos (see Table 1). All other materials from each bridge reported non-detect concentrations of ACMs.

Materials that contain greater than one-percent asbestos that are friable or may become friable if disturbed during construction demolition activities are described below.

- ***Leveling Shims – Left Bridge***
  - Three samples representing approximately 19 leveling shims were found to contain 65 percent asbestos.
  - Leveling shims measured approximately 8 inches by 8 inches.
  - The leveling shims represent a total estimated area of approximately 8.4 square feet of asbestos-containing material.
  - In current state, considered to be Category II non-friable ACM. However, during demolition the shims may become friable.

- ***Leveling Shims – Right Bridge***
  - Three samples representing approximately 41 leveling shims were found to contain 75 percent asbestos.
  - Leveling shims measured approximately 8 inches by 8 inches.
  - The leveling shims represent a total estimated area of approximately 18.2 square feet of asbestos-containing material.

- In current state, considered to be Category II non-friable ACM. However, during demolition the shims may become friable.

6.1 ASBESTOS HAZARD ASSESSMENT

The hazard assessment is based upon the physical assessment of ACMs for condition of the material and potential disturbance. The physical assessment usually includes the following considerations:

- Location and amount of material.
- Condition of the material which includes damage; the severity of the damage; the extent of the damage over large areas.
- Whether the material is accessible.
- Potential for future disturbance or future damage (air erosion, vibration, water).

The following table includes identified ACMs at the Site and the hazard ranking for each identified material.

ACM HAZARD ASSESSMENT							
Material Description	***S/T/M****	***Material Location***	***F/NF*****	***Condition Code******	***Accessibility***	***Potential for Disturbance***	***Quantity on Each Bridge***
Hoff Wash Bridge (54-0889L)							
Leveling Shims	M	Beneath Guardrail Posts	F	Good	Low (Located Beneath Guardrails)	HIGH (Removal, Demolition, Maintenance)	~8.4 square feet
Hoff Wash Bridge (54-0889R)							
Leveling Shims	M	Beneath Guardrail Posts	F	Good	Low (Located Beneath Guardrails)	HIGH (Removal, Demolition, Maintenance)	~18.2 square feet

NOTES:
* **S** = Surface Material; **T** = Thermal System Insulation; **M** = Miscellaneous Material
** **F** = Friable; **NF** = Non-Friable
***Good = < 5% Damage; **D**amage = 5-25% local or 10% General Damage; **S**ignificant **D**amage = 25% local or >10% General Damage

The potential for disturbance is considered high for the Hoff Wash Bridges based on the fact that current plans indicate each bridge will be demolished and replaced.

6.2 ASBESTOS RECOMMENDATIONS

Based on analytical results, only the leveling shims of the Hoff Wash Bridges (#54-0889L&R) were found to contain one percent or greater asbestos. ACMs were not encountered in any other materials sampled from each bridge.

The leveling shims appeared to be in good condition at the time of the survey, however, if the shims are disturbed during construction activities, they should be classified and handled as a RACM due to the high probability of becoming crumbled, pulverized, or reduced to a powder by the forces expected to act on the material in the course of demolition or construction. It should be noted however that the asbestos survey was limited to accessible materials only. If demolition of the Hoff Wash Bridges includes removal of on-site portions of underground utilities, evaluation of the asbestos content of these components must be performed prior to the removal process. Suspect materials identified in these locations are assumed positive for asbestos until sampling and analysis indicates otherwise. If during the course of a demolition project suspect ACMs are discovered that are not included within this report, those materials are to be assumed positive for asbestos unless additional sampling, analysis and/or assessment indicates otherwise. Asbestos abatement work should be performed in accordance with California Code of Regulations (CCR), Title 8, Section 1529 (Asbestos in Construction Standard). Submission of this report will be required for compliance with the NESHAP in accordance with MDAQMD Rule 306.

Recommendations are provided below to address the asbestos-containing leveling shims on the Hoff Wash Bridges (#54-0889L&R) should they be disturbed during construction.

- Any generated ACM wastes should be disposed as hazardous asbestos waste.

- ACM abatement is required by a licensed ACM abatement contractor prior to renovation, refurbishing, or demolition activities. The abatement contractor's responsibilities include,
    - Removal and disturbance of ACMs in accordance with Cal/OSHA requirements. (e.g.; CCR Title 8, Section 341.9 and 1529).
    - Segregation and disposal at a landfill permitted to accept hazardous RACM waste.
    - Compliance with all other local, state and federal regulations and requirements associated with the disturbance, management, handling and disposal of ACM.
    - The amount of ACM that may be generated during bridge demolition activities is approximately 8.4 and 18.2 square feet on the Left and Right Bridges, respectively. Notification to the MDAQMD is required for all demolitions regardless of the ACM square footage. The contractor is required to comply with all other MDAQMD and other agency notifications and requirements for demolition and construction.

7.0 LBP SURVEY RESULTS

Bulk material samples were collected from representative homogeneous bridge materials and analyzed by PLM. A copy of the laboratory report is provided in Appendix C. The sample locations are shown on the attached Figure 2 and photographs of sampled media are provided in Appendix A. The sample locations and laboratory results are summarized in Table 2.

The Cal/OSHA Lead Standard (the "Standard") states that work which involves the disturbance of materials containing more than 0.5 percent lead by weight, or 5,000 mg/Kg, or if the permissible exposure limit of airborne lead particulate of 50 $\mu g/m^3$ of air is exceeded, then the work must be conducted in accordance with the Standard.

An inspection of each bridge was conducted to evaluate the location, and condition of painted surfaces and random surfaces suitable for lead-based paint sampling. No surfaces on the bridge structures were observed to be painted. Samples of both the yellow and white roadway striping were collected at random locations for lead analysis. Table 2 and the attached Figure identify the areas where lead-based paint samples were collected.

EMC Analytical Laboratories of Phoenix, Arizona, analyzed the samples. All samples were analyzed by EMC SOP Method #L01/1, after US EPA SW-846 Method 7420.

Laboratory results (see Appendix C) indicate that none of the representative paint chip samples collected from the Hoff Wash Bridges (#54-0889L&R) roadway striping meet the definition of lead-based paint.

7.1 LEAD-BASED PAINT RECOMMENDATIONS

Because representative paint chip samples collected and analyzed from the Hoff Wash Bridges (#54-0889L&R) were below the action levels of 0.5 percent lead by weight and 5,000 ppm, no special requirements pertaining to lead-based paint would apply during future demolition or construction/improvements to each bridge. However, if Caltrans intends to strip the paint, additional testing should be performed to evaluate whether the paint itself qualifies as a hazardous waste.

In general, total lead concentrations in excess of 50 mg/kg are suspected to exhibit soluble concentrations in excess of the California STLC (STLC = 5 mg/L) when extracted using the California Waste Extraction Test. Similarly, total concentrations in excess of 100 mg/kg are suspected to exhibit soluble concentrations in excess of the federal toxicity characteristic level (TCLP = 5 mg/L) when analyzed by the TCLP method.

The following may qualify as hazardous waste if stripped and disposed separately from the painted structural components.

- **Roadway Stripe (Hoff Wash Bridges (54-0889L&R))**
    - White and yellow (concentrations not detected above the laboratory reporting limit of 100 mg/kg)

If the paint is stripped separately from the asphalt/concrete, the paint should be containerized, tested, and profiled for disposition to evaluate whether the paint qualifies as either a California or RCRA hazardous waste based on soluble lead concentrations. If structural components are disposed with paint coating intact it is unlikely that such wastes will qualify as a hazardous waste based on the volume of other structural components with respect to the volume of lead-based paint.

8.0 REPORT LIMITATIONS

Reasonable efforts have been made to locate, sample, and/or identify suspect ACMs and LBP with the bridges included in this project. For any structure, the existence of unique or concealed materials and debris is a possibility. In addition, sampling and laboratory analysis constraints typically hinder the investigation. Stantec does not warrant, guarantee or profess to have the ability to locate or identify all hazardous materials in a structure. The survey did not include underground utilities. Historically, some underground utility piping (e.g., Transite pipe) have been known to contain asbestos. If renovation or demolition of the bridges includes removal of on-site portions of underground utilities, evaluation of the asbestos content of these components must be performed prior to the removal process. Suspect materials identified in these locations are assumed positive for asbestos until inspection, sampling and analysis indicates otherwise. Stantec cannot warrant the effectiveness or damage thereof, at any of the patches or temporary repairs performed at sampling locations (concrete, asphalt, drains, shims, etc.). This report is intended for use in planning and construction in accordance with the scope of the Task Order. If during the course of a renovation/demolition project suspect ACMs or LBP are discovered that are not included within this report, such materials should be treated accordingly until additional sampling, analysis and/or assessment can be performed.

Additionally, the passage of time may result in a change in the environmental characteristics at the bridges included in this project. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions and recommendations expressed in this report are based only on conditions that were observed during the survey of the Hoff Wash Bridges and test results provided by EMC. These observations are time dependent, are subject to changing Site conditions, and revisions to federal, state, and local regulations. Reliance on this report by Third Parties (i.e., other than Caltrans) shall be at the Third Party's sole risk.

9.0 REFERENCES

California Department of Transportation (Caltrans), 2013. *California Log of Bridges on State Highways, District 8,* dated January 2013.

Victor Ramirez – Mojave Desert Air Quality Management District, Asbestos Program. vramirez@mdaqmd.ca.gov direct line (760) 245-1661 ext. 1806.

National Emission Standard for Hazardous Air Pollutants (NESHAP), regulation 40 CFR Part 61.

The California Health and Safety Code 25915 (former Connelly Bill).

Asbestos Hazard Emergency Response Act (AHERA)

Cal-OSHA standards, 1926.1101

Guidelines for the Evaluation and Control of Lead-based Paint Hazards in Housing, HUD, 1995 (revised September 1997) *Lead Requirements for Lead-based Paint Activities in Target Housing and Child-Occupied Facilities: Final Rule*, (40 CFR Part 745), US EPA, 29 August 1996

10.0 PREPARERS

This asbestos-containing materials (ACM) and lead-based paint (LBP) survey report has been prepared under the direction of the following environmental professionals:

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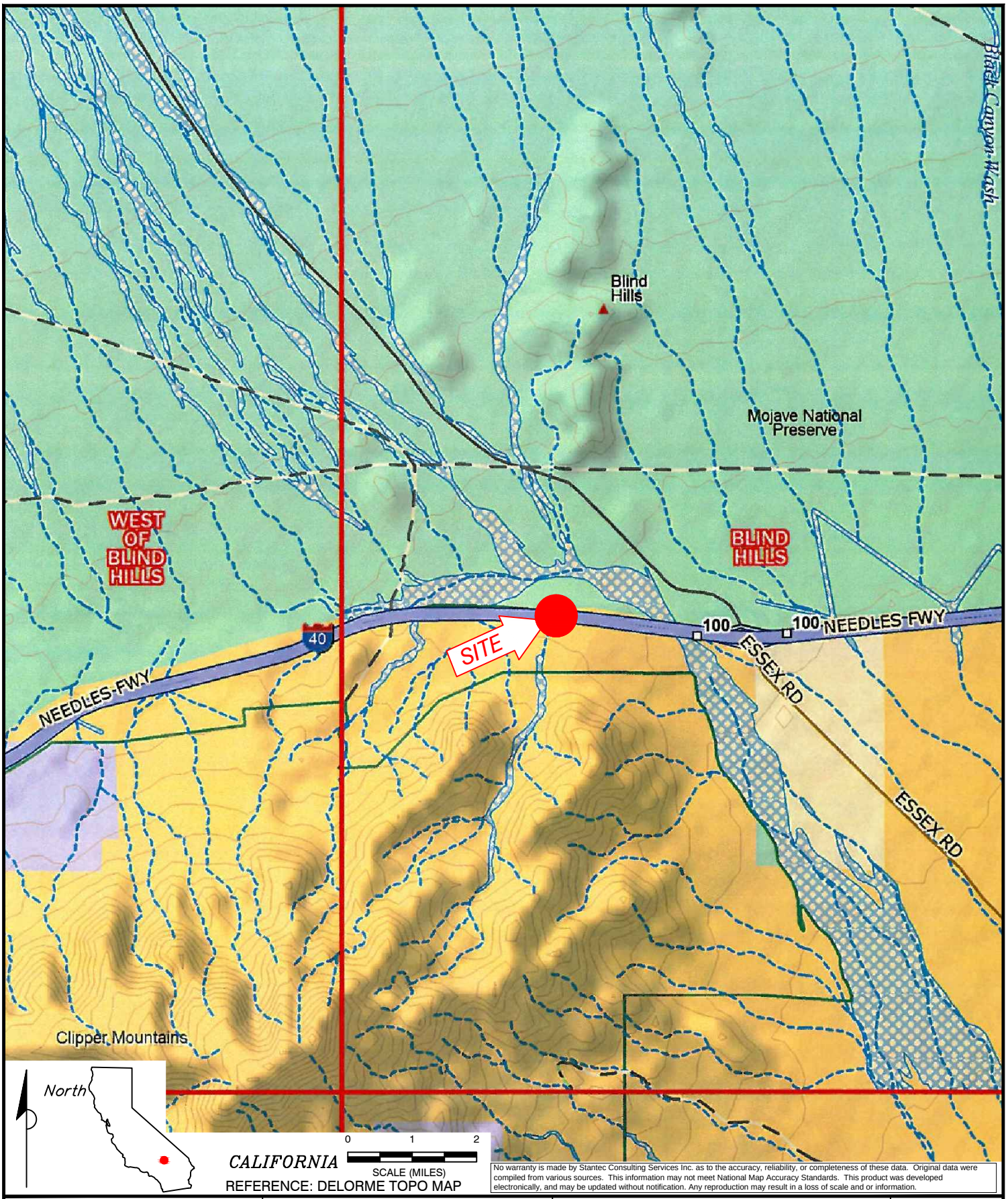
FIGURES



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Stantec

ACM/LBP SURVEY
Task Order No. 20
HOFF WASH BRIDGES
BRIDGE No. 54-0889 L & R
SAN BERNARDINO COUNTY, CALIFORNIA
PN# 185802876

SITE LOCATION MAP

FIGURE: **1**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
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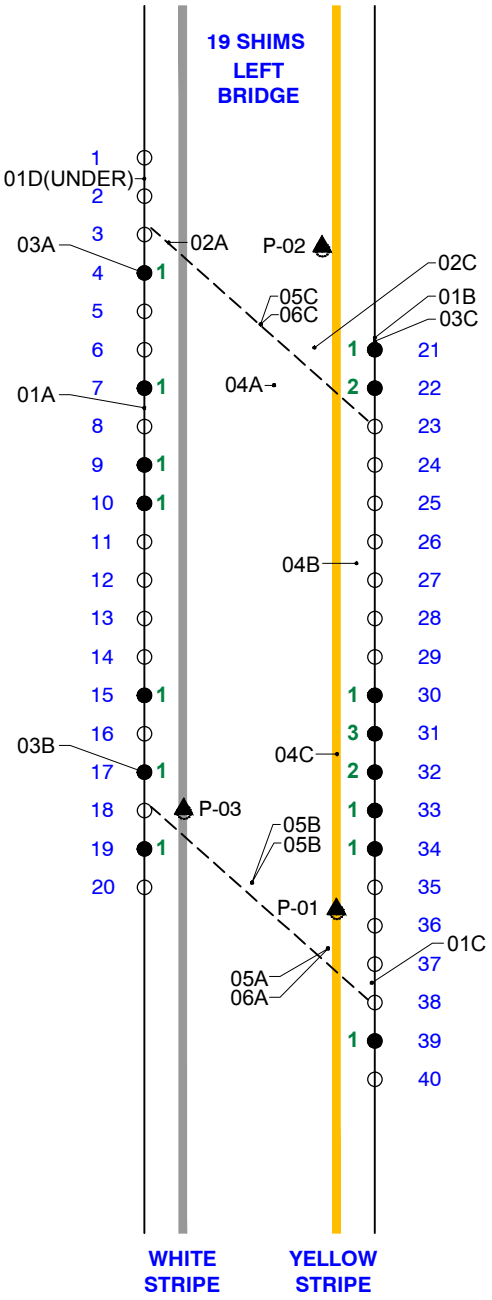
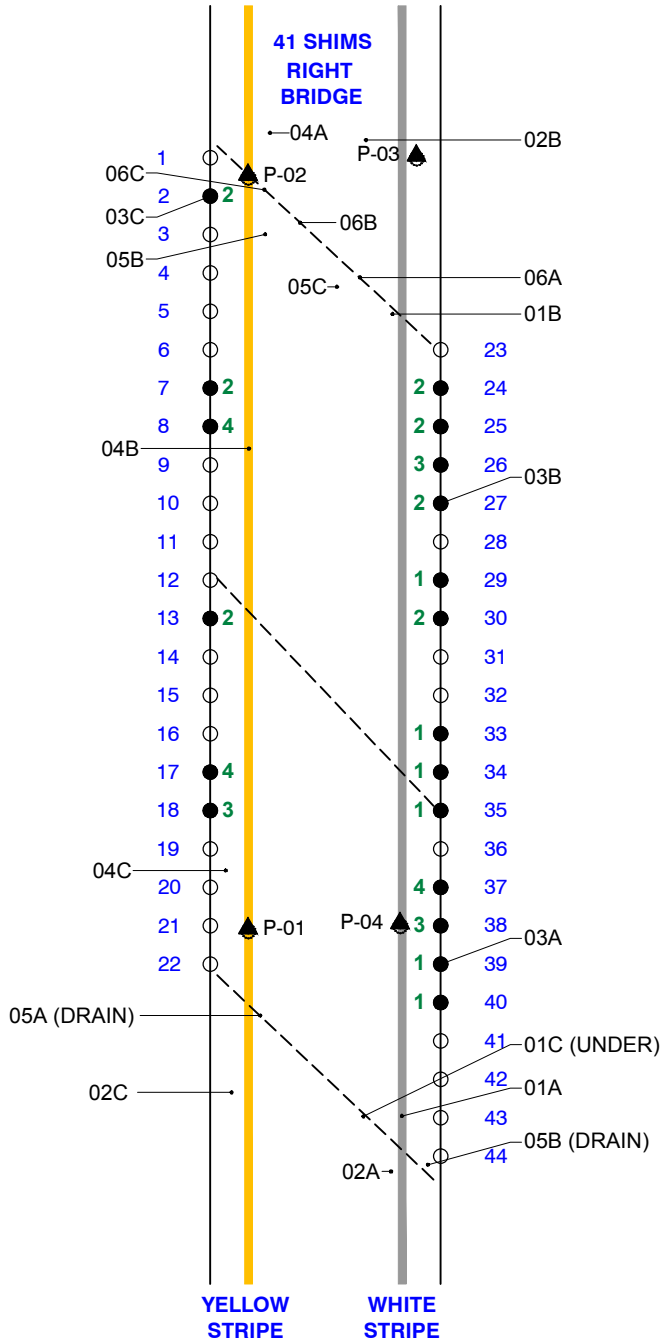
FILEPATH:M:_00 OTHER OFFICES\04-REDLANDS\CAL-TRANS\ADL\TO-20\FIG 1_185802876-TO-20_SITE LOCATION MAP.dwg | Layout Tab: 8-5X11 | Drafter: SAguinaldo | May 20, 2014 at 19:36





LEGEND:

01 = CONCRETE
02 = ASPHALT
03 = SHIMS
04 = REFLECTOR MARKER
05 = CONCRETE (VERTICAL DRAIN)
06 = DRAIN LINING
P = PAINTCHIP SAMPLE

2 ● GUARDRAIL POST OBSERVED WITH SHIMS (ESTIMATED NUMBER OF SHIMS NOTED IN GREEN)

25 ○ GUARDRAIL POST OBSERVED (NUMBER OF POSTS INDICATED IN BLUE)

N

NOT TO SCALE

No warranty is made by Stantec Consulting Services Inc. as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed electronically, and may be updated without notification. Any reproduction may result in a loss of scale and or information.

Stantec

FOR: ACM/LBP SURVEY
Task Order No. 20
HOFF WASH BRIDGES
BRIDGE No. 54-0889 L & R
SAN BERNARDINO COUNTY, CALIFORNIA
PN# 185802876

SAMPLE LOCATION MAP

FIGURE: **2**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185802876	STA	AP	AP	05/19/14

FILEPATH:M:_00 OTHER OFFICES\04-REDLANDS\CAL-TRANS\ADL\TO-20\FIG 2_185802876-TO-20_SAMPLE LOCATION_05-19-2014.dwg|SAguinaldo|May 20, 2014 at 15:30|Layout: Layout1

TABLES

TABLE 1
ASBESTOS SAMPLE LOG AND ANALYSIS RESULTS
HOFF WASH BRIDGE #54-0889
08-SBD-40 PM R93.1/R94.2
PN: 08-000-204810; EA#0Q7900
TO #20; CONTRACT 08A2047

FIELD SAMPLE ID	SAMPLE DATE	LABORATORY SAMPLE ID	SAMPLE LOCATION	MATERIAL DESCRIPTION	ANALYSIS RESULTS	CONDITION FRIABLE YES/NO	IF ACM, ESTIMATED SQUARE FOOTAGE	HAZARD RATING
HOFF WASH BRIDGE - LEFT								
01A	8/19/2013	0130641-001	THROUGHOUT-NORTH CENTRAL	CONCRETE, GRAY	ND	NO	--	NA
01B	8/19/2013	0130641-002	THROUGHOUT-SE	CONCRETE, GRAY	ND	NO	--	NA
01C	8/19/2013	0130641-003	THROUGHOUT-SW	CONCRETE, GRAY	ND	NO	--	NA
01D	8/19/2013	0130641-004	THROUGHOUT-NW-BENEATH	CONCRETE, GRAY	ND	NO	--	NA
02A	8/19/2013	0130641-005	ROADWAY AT BRIDGE DECK-NE	ASPHALT, BLACK	ND	NO	--	NA
02B	8/19/2013	0130641-006	ROADWAY AT BRIDGE DECK-NE	ASPHALT, BLACK	ND	NO	--	NA
02C	8/19/2013	0130641-007	ROADWAY AT BRIDGE DECK-SE	ASPHALT, BLACK	ND	NO	--	NA
03A	8/19/2013	0130641-008	GUARDRAIL POSTS-SHIM 4	SHIM, GRAY/BLACK	65% CHRYSOTILE	YES*	~19 8-inch X 8-inch SHIMS = ~8.4 sq.ft.	HIGH
03B	8/19/2013	0130641-009	GUARDRAIL POSTS-SHIM 17	SHIM, LT GRAY	65% CHRYSOTILE	YES*		
03C	8/19/2013	0130641-010	GUARDRAIL POSTS-SHIM 21	SHIM, GRAY/BLACK	65% CHRYSOTILE	YES*		
04A	8/19/2013	0130641-011	ROADWAY REFLECTORS-E-CENTER	MASTIC, BLACK	ND	NO	--	NA
04B	8/19/2013	0130641-012	ROADWAY REFLECTORS-S-CENTER	MASTIC, BLACK	ND	NO	--	NA
04C	8/19/2013	0130641-013	ROADWAY REFLECTORS-SW	MASTIC, BLACK	ND	NO	--	NA
05A	8/19/2013	0130641-014	BELOW BRIDGE DECK-SW	CONCRETE DRAIN, GRAY	ND	NO	--	NA
05B	8/19/2013	0130641-015	BELOW BRIDGE DECK-W.-CENTER	CONCRETE DRAIN, GRAY	ND	NO	--	NA
05C	8/19/2013	0130641-016	BELOW BRIDGE DECK-E.-CENTER	LAYER 1, CONCRETE DRAIN, GRAY/BEIGE	ND	NO	--	NA
				LAYER 2, CONCRETE DRAIN, GRAY	ND	NO	--	NA
				LAYER 3, CONCRETE DRAIN, GRAY	ND	NO	--	NA
06A	8/19/2013	0130641-017	BENEATH DECK IN ABUTMENT-SW	DRAIN LINE, BLACK	ND	NO	--	NA
06B	8/19/2013	0130641-018	BENEATH DECK IN ABUTMENT-W.CENTER	DRAIN LINE, BLACK	ND	NO	--	NA
06C	8/19/2013	0130641-019	BENEATH DECK IN ABUTMENT-E.CENTER	DRAIN LINE, BLACK	ND	NO	--	NA
HOFF WASH BRIDGE - RIGHT								
01A	8/19/2013	0130642-001	THROUGHOUT-SW	CONCRETE, GRAY	ND	NO	--	NA
01B	8/19/2013	0130642-002	THROUGHOUT-SE	CONCRETE, GRAY	ND	NO	--	NA
01C	8/19/2013	0130642-003	THROUGHOUT-SW (UNDER DECK)	CONCRETE , GRAY	ND	NO	--	NA
02A	8/19/2013	0130642-004	ROADWAY AT BRIDGE DECK-SW	ASPHALT, BLACK	ND	NO	--	NA
02B	8/19/2013	0130642-005	ROADWAY AT BRIDGE DECK- SE	ASPHALT, BLACK	ND	NO	--	NA
02C	8/19/2013	0130642-006	ROADWAY AT BRIDGE DECK-NW	ASPHALT, BLACK	ND	NO	--	NA
03A	8/19/2013	0130642-007	GUARD RAIL POSTS-SHIM 39	SHIM, GRAY	75% CHRYSOTILE	YES*	~41 8-inch X 8-inch SHIMS = ~18.2 sq.ft.	HIGH
03B	8/19/2013	0130642-008	GUARD RAIL POSTS-SHIM 27	SHIM, GRAY	75% CHRYSOTILE	YES*		
03C	8/19/2013	0130642-009	GUARD RAIL POSTS-SHIM 2	SHIM, GRAY	75% CHRYSOTILE	YES*		
04A	8/19/2013	0130642-010	ROADWAY REFLECTORS-NE	MASTIC, BLACK	ND	NO	--	NA
04B	8/19/2013	0130642-011	ROADWAY REFLECTORS-N.CENTER	MASTIC, BLACK	ND	NO	--	NA
04C	8/19/2013	0130642-012	ROADWAY REFLECTORS-NW	MASTIC, BLACK	ND	NO	--	NA
05A	8/19/2013	0130642-013	BENEATH BRIDGE DECK-NW BENEATH	CONCRETE DRAIN, GRAY	ND	NO	--	NA
05B	8/19/2013	0130642-014	BENEATH BRIDGE DECK-NE BENEATH	CONCRETE DRAIN, GRAY	ND	NO	--	NA
05C	8/19/2013	0130642-015	BENEATH BRIDGE DECK-E. CENTRAL- BENEATH	CONCRETE DRAIN, GRAY	ND	NO	--	NA
06A	8/19/2013	0130642-016	BENEATH DECK IN ABUTMENT-SE	DRAIN LINE, BLACK	ND	NO	--	NA
06B	8/19/2013	0130642-017	BENEATH DECK IN ABUTMENT-E. CENTRAL	DRAIN LINE, BLACK	ND	NO	--	NA
06C	8/19/2013	0130642-018	BENEATH DECK IN ABUTMENT-NE	DRAIN LINE, BLACK	ND	NO	--	NA

NOTES:
**Friable if disturbed but in current state considered non-friable.*
ND = No asbestos detected.
Asbestos sample locations are depicted on attached Figures.
Bulk sample analyses completed by polarized light microscopy (PLM).
Number of shims is approximate – many shims overlapped others or were concealed by the bridge concrete and post setting
NA = Not applicable since no asbestos was detected
Analytical documentation is in Appendix B

TABLE 2
LEAD BASED PAINT SAMPLE LOG AND ANALYSIS RESULTS
HOFF WASH BRIDGE
08-SBD-40 PM R93.1/94.2
PN: 08-000-204810; EA#0Q7900
TASK ORDER #20; CONTRACT 08A2047

FIELD SAMPLE ID	SAMPLE DATE	LABORATORY SAMPLE ID	MATERIAL DESCRIPTION	PB (MG/KG)	% PB BY WEIGHT
HOFF WASH BRIDGE -RIGHT					
P-01	8/19/2013	L49996-1	NW-YELLOW	<100	<0.010
P-02	8/19/2013	L49996-2	NE-YELLOW	<100	<0.010
P-03	8/19/2013	L49996-3	SE-WHITE	<100	<0.010
P-04	8/19/2013	L49996-4	SW-WHITE	<100	<0.010
HOFF WASH BRIDGE -LEFT					
P-01	8/19/2013	L49999-1	SW-YELLOW	<100	<0.010
P-02	8/19/2013	L49999-2	SE-YELLOW	<100	<0.010
P-03	8/19/2013	L49999-3	NW-WHITE	<100	<0.010
P-04	8/19/2013	L49999-4	NE-WHITE	<100	<0.010

NOTES:

Analytical documentation is in Appendix B. Paint Chip sample locations are depicted on the attached Figure.

Sample analyses completed by EMC SOP Method #L01/1, US EPA SW-846 Method 7420

APPENDIX A
PHOTOGRAPHIC RECORD

STANTEC CONSULTING SERVICES, INC PHOTOGRAPHIC RECORD	
Client: Calif. Department of Transportation, District 8	**Job Number:** 185802876
Site Name: Task Order #20– Hoff Wash Bridge	**Location:** Near Essex, CA
Photographer: Dion Monge	**Date:** August 19, 2013

Photograph No. 1

Hoff Wash Bridge identification.

Photograph No. 2

Hoff Wash Bridge view looking west.

STANTEC CONSULTING SERVICES, INC PHOTOGRAPHIC RECORD	
Client: Calif. Department of Transportation, District 8	**Job Number:** 185802876
Site Name: Task Order #20– Hoff Wash Bridge	**Location:** Near Essex, CA
Photographer: Dion Monge	**Date:** August 19, 2013

Photograph No. 3

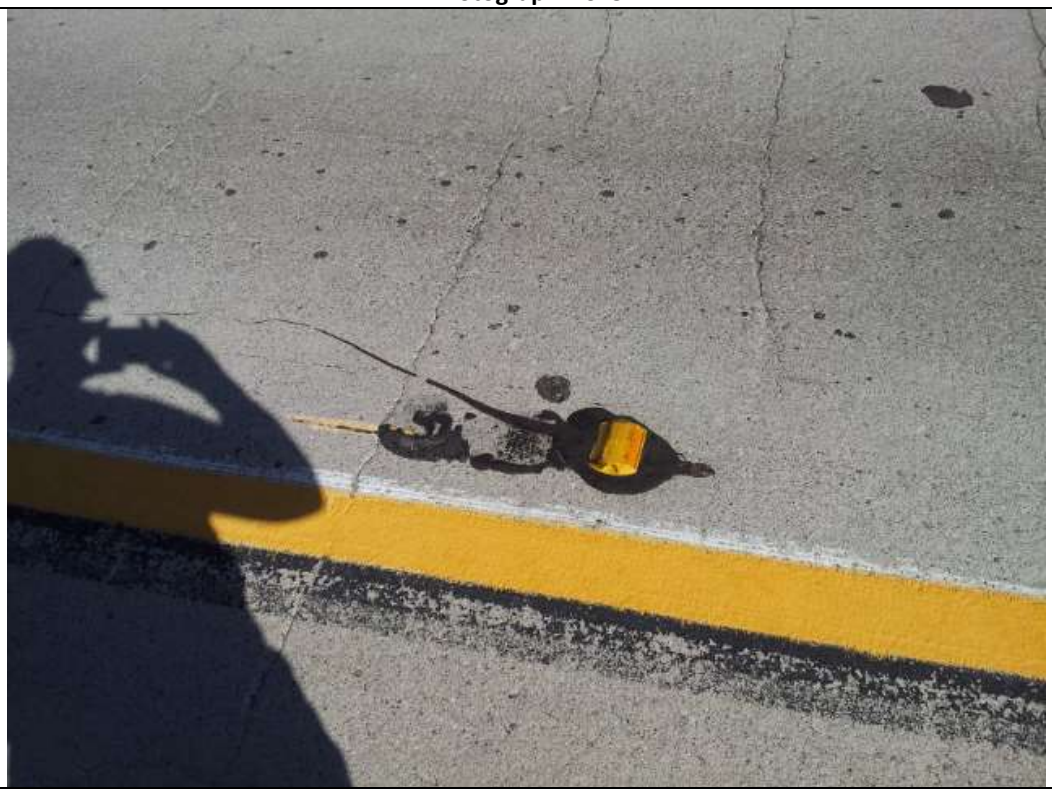
Hoff Wash bridge guardrail post containing leveling shims.

Photograph No. 4

Hoff Wash bridge view of several drain lines.

STANTEC CONSULTING SERVICES, INC PHOTOGRAPHIC RECORD	
Client: Calif. Department of Transportation, District 8	**Job Number:** 185802876
Site Name: Task Order #20– Hoff Wash Bridge	**Location:** Near Essex, CA
Photographer: Mitchel Bohn	**Date:** September 27, 2013

Photograph No. 5



Hoff Wash bridge yellow striping and reflective dot mastics.

Photograph No. 6

Hoff Wash bridge white roadway striping.

APPENDIX B
QUALIFICATIONS

Certifications
Jason J. Stagno

State of California
Division of Occupational Safety and Health

Certified Asbestos Consultant

Jason J Stagno
Name

Certification No. **12-4949**

Expires on **11/14/13**

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.

State of California Department of Public Health

Lead-Related Construction Certificate

Certificate Type	Expiration Date
Inspector Assessor	07/31/2014

Jason J. Stagno ID #: **19068**

APPENDIX C
ANALYTICAL LABORATORY REPORTS AND CHAIN-OF-CUSTODY RECORDS

EMC LABS, INC.

9830 S. 51st Street, Suite B109, Phoenix, AZ 85044
Phone: 800-362-3373 or 480-940-5294 - Fax: (480) 893-1726

Laboratory Report
0130642

Bulk Asbestos Analysis by Polarized Light Microscopy

NVLAP#101926-0

Client:	STANTEC CONSULTING	Job# / P.O. #:	185802876
Address:	25867-F BUSINESS CENTER DRIVE	Date Received:	08/21/2013
	REDLANDS CA 92374	Date Analyzed:	08/26/2013
Collected:	08/19/2013	Date Reported:	08/26/2013
Project Name:	TO 20-HOFF WASH BRIDGE-RIGHT	EPA Method:	EPA 600/R-93/116
Address:		Submitted By:	DION MONGE
		Collected By:	

Lab ID Client ID	Sample Location	Layer Name / Sample Description	Asbestos Detected	Asbestos Type (%)	Non-Asbestos Constituents	
0130642-001 01A	THROUGHOUT-SW	Concrete, Gray	No	None Detected		
					Quartz Gypsum Carbonates Mica Binder/Filler	100%
0130642-002 01B	THROUGHOUT-SE	Concrete, Gray	No	None Detected		
					Quartz Gypsum Carbonates Mica Binder/Filler	100%
0130642-003 01C	THROUGHOUT-SW (UNDER DECK)	Concrete, Gray	No	None Detected		
					Quartz Gypsum Carbonates Mica Binder/Filler	100%
0130642-004 02A	ROADWAY AT BRIDGE DECK-SW	Asphalt, Black	No	None Detected		
					Gypsum Quartz Carbonates Binder/Filler	100%
0130642-005 02B	ROADWAY AT BRIDGE DECK-SE	Asphalt, Black	No	None Detected		
					Gypsum Quartz Carbonates Binder/Filler	100%

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Laboratory Report
0130641

Bulk Asbestos Analysis by Polarized Light Microscopy

NVLAP#101926-0

Client:	STANTEC CONSULTING	Job# / P.O. #:	185802876
Address:	25867-F BUSINESS CENTER DRIVE	Date Received:	08/21/2013
	REDLANDS CA 92374	Date Analyzed:	08/26/2013
Collected:	08/19/2013	Date Reported:	08/26/2013
Project Name:	TO 20-HOFF WASH BRIDGE-LEFT	EPA Method:	EPA 600/R-93/116
Address:		Submitted By:	DION MONGE
		Collected By:	

Lab ID Client ID	Sample Location	Layer Name / Sample Description	Asbestos Detected	Asbestos Type (%)	Non-Asbestos Constituents	
0130641-001 01A	THROUGHOUT-NORTH CENTRAL	Concrete, Gray	No	None Detected	Cellulose Fiber	<1%
					Carbonates	
					Gypsum	
					Mica	
					Quartz	
					Binder/Filler	99%
0130641-002 01B	THROUGHOUT-SE	Concrete, Gray	No	None Detected	Cellulose Fiber	<1%
					Carbonates	
					Gypsum	
					Mica	
					Quartz	
					Binder/Filler	99%
0130641-003 01C	THROUGHOUT-SW	Concrete, Gray	No	None Detected		
					Carbonates	
					Gypsum	
					Mica	
					Quartz	
					Binder/Filler	100%
0130641-004 01D	THROUGHOUT-NW-BENEATH	Concrete, Gray	No	None Detected	Cellulose Fiber	<1%
					Carbonates	
					Gypsum	
					Mica	
					Quartz	
					Binder/Filler	99%
0130641-005 02A	ROADWAY AT BRIDGE DECK-NE	Asphalt, Black	No	None Detected	Cellulose Fiber	<1%
					Gypsum	
					Quartz	
					Mica	
					Binder/Filler	99%

EMC LABS, INC.

9830 S. 51st Street, Suite B109, Phoenix, AZ 85044
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Laboratory Report
0130641

Bulk Asbestos Analysis by Polarized Light Microscopy

NVLAP#101926-0

Client:	STANTEC CONSULTING	Job# / P.O. #:	185802876
Address:	25867-F BUSINESS CENTER DRIVE	Date Received:	08/21/2013
	REDLANDS CA 92374	Date Analyzed:	08/26/2013
Collected:	08/19/2013	Date Reported:	08/26/2013
Project Name:	TO 20-HOFF WASH BRIDGE-LEFT	EPA Method:	EPA 600/R-93/116
Address:		Submitted By:	DION MONGE
		Collected By:	

Lab ID Client ID	Sample Location	Layer Name / Sample Description	Asbestos Detected	Asbestos Type	(%)	Non-Asbestos Constituents	
0130641-006 02B	ROADWAY AT BRIDGE DECK-NE	Asphalt, Black	No	None Detected		Cellulose Fiber	<1%
						Gypsum	
						Quartz	
						Mica	
						Binder/Filler	99%
0130641-007 02C	ROADWAY AT BRIDGE DECK-SE	Asphalt, Black	No	None Detected		Cellulose Fiber	<1%
						Gypsum	
						Quartz	
						Mica	
						Binder/Filler	99%
0130641-008 03A	GUARDRAIL POSTS-SHIM 4	Shim, Gray/ Black	Yes	Chrysotile	65%		
						Gypsum	
						Binder/Filler	35%
0130641-009 03B	GUARDRAIL POSTS-SHIM 17	Shim, Lt. Gray	Yes	Chrysotile	65%		
						Gypsum	
						Mica	
						Binder/Filler	35%
0130641-010 03C	GUARDRAIL POSTS-SHIM 21	Shim, Gray/ Black	Yes	Chrysotile	65%		
						Gypsum	
						Binder/Filler	35%
0130641-011 04A	ROADWAY REFLECTORS-E-CENTER	Mastic, Black	No	None Detected		Cellulose Fiber	<1%
						Gypsum	
						Carbonates	
						Binder/Filler	99%

EMC LABS, INC.

9830 S. 51st Street, Suite B109, Phoenix, AZ 85044
Phone: 800-362-3373 or 480-940-5294 - Fax: (480) 893-1726

Laboratory Report
0130641

Bulk Asbestos Analysis by Polarized Light Microscopy

NVLAP#101926-0

Client:	STANTEC CONSULTING	Job# / P.O. #:	185802876
Address:	25867-F BUSINESS CENTER DRIVE	Date Received:	08/21/2013
	REDLANDS CA 92374	Date Analyzed:	08/26/2013
Collected:	08/19/2013	Date Reported:	08/26/2013
Project Name:	TO 20-HOFF WASH BRIDGE-LEFT	EPA Method:	EPA 600/R-93/116
Address:		Submitted By:	DION MONGE
		Collected By:	

Lab ID Client ID	Sample Location	Layer Name / Sample Description	Asbestos Detected	Asbestos Type (%)	Non-Asbestos Constituents	
0130641-012 04B	ROADWAY REFLECTORS-S-CENTER	Mastic, Black	No	None Detected	Cellulose Fiber	1%
					Gypsum Carbonates Binder/Filler	99%
0130641-013 04C	ROADWAY REFLECTORS-SW	Mastic, Black	No	None Detected		
					Gypsum Carbonates Binder/Filler	100%
0130641-014 05A	BELOW BRIDGE DECK-SW	Concrete Drain, Gray	No	None Detected	Cellulose Fiber	<1%
					Gypsum Carbonates Mica Quartz Binder/Filler	99%
0130641-015 05B	BELOW BRIDGE DECK-W.-CENTER	Concrete Drain, Gray	No	None Detected		
					Gypsum Carbonates Mica Quartz Binder/Filler	100%

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Laboratory Report
0130641

Bulk Asbestos Analysis by Polarized Light Microscopy

NVLAP#101926-0

Client:	STANTEC CONSULTING	Job# / P.O. #:	185802876
Address:	25867-F BUSINESS CENTER DRIVE	Date Received:	08/21/2013
	REDLANDS CA 92374	Date Analyzed:	08/26/2013
Collected:	08/19/2013	Date Reported:	08/26/2013
Project Name:	TO 20-HOFF WASH BRIDGE-LEFT	EPA Method:	EPA 600/R-93/116
Address:		Submitted By:	DION MONGE
		Collected By:	

Lab ID Client ID	Sample Location	Layer Name / Sample Description	Asbestos Detected	Asbestos Type	(%)	Non-Asbestos Constituents	
0130641-016 05C	BELOW BRIDGE DECK-E.-CENTER	LAYER 1 Concrete Drain, Gray/ Beige	No	None Detected		Cellulose Fiber	3%
						Carbonates	
						Mica	
						Binder/Filler	97%
		LAYER 2 Concrete Drain, Gray	No	None Detected			
						Gypsum	
						Carbonates	
						Mica	
						Quartz	
						Binder/Filler	100%
		LAYER 3 Concrete Drain, Gray	No	None Detected		Cellulose Fiber	<1%
						Gypsum	
						Carbonates	
						Mica	
						Quartz	
						Binder/Filler	99%
0130641-017 06A	BENEATH DECK IN ABUTMENT-SW	Drain Line, Black	No	None Detected		Cellulose Fiber	50%
						Gypsum	
						Binder/Filler	50%
0130641-018 06B	BENEATH DECK IN ABUTMENT-W. CENTER	Drain Line, Black	No	None Detected		Cellulose Fiber	50%
						Gypsum	
						Binder/Filler	50%
0130641-019 06C	BENEATH DECK IN ABUTMENT-E. CENTER	Drain Line, Black	No	None Detected		Cellulose Fiber	50%
						Gypsum	
						Binder/Filler	50%

EMC LABS, INC.

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Laboratory Report
0130641

Bulk Asbestos Analysis by Polarized Light Microscopy

NVLAP#101926-0

Client:	STANTEC CONSULTING	Job# / P.O. #:	185802876
Address:	25867-F BUSINESS CENTER DRIVE	Date Received:	08/21/2013
	REDLANDS CA 92374	Date Analyzed:	08/26/2013
Collected:	08/19/2013	Date Reported:	08/26/2013
Project Name:	TO 20-HOFF WASH BRIDGE-LEFT	EPA Method:	EPA 600/R-93/116
Address:		Submitted By:	DION MONGE
		Collected By:	

Lab ID Client ID	Sample Location	Layer Name / Sample Description	Asbestos Detected	Asbestos Type (%)	Non-Asbestos Constituents

Analyst - Paul Hofer

Signatory - Lab Director - Kurt Kettler

Distinctly stratified, easily separable layers of samples are analyzed as subsamples of the whole and are reported separately for each discernible layer. All analyses are derived from calibrated visual estimate and measured in area percent unless otherwise noted. The report applies to the standards or procedures identified and to the sample(s) tested. The test results are not necessarily indicated or representative of the qualities of the lot from which the sample was taken or of apparently identical or similar products, nor do they represent an ongoing quality assurance program unless so noted. These reports are for the exclusive use of the addressed client and that they will not be reproduced wholly or in part for advertising or other purposes over our signature or in connection with our name without special written permission. The report shall not be reproduced except in full, without written approval by our laboratory. The samples not destroyed in testing are retained a maximum of thirty days. The laboratory measurement of uncertainty for the test method is approximately less than 1 by area percent. Accredited by the National Institute of Standards and Technology, Voluntary Laboratory Accreditation Program for selected test method for asbestos. The accreditation or any reports generated by this laboratory in no way constitutes or implies product certification, approval, or endorsement by the National Institute of Standards and Technology. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government. Polarized Light Microscopy may not be consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials.

EMC LABS, INC.

9830 S. 51st Street, Suite B109, Phoenix, AZ 85044
Phone: 800-362-3373 or 480-940-5294 - Fax: (480) 893-1726

Laboratory Report
0130642

Bulk Asbestos Analysis by Polarized Light Microscopy

NVLAP#101926-0

Client:	STANTEC CONSULTING	Job# / P.O. #:	185802876
Address:	25867-F BUSINESS CENTER DRIVE	Date Received:	08/21/2013
	REDLANDS CA 92374	Date Analyzed:	08/26/2013
Collected:	08/19/2013	Date Reported:	08/26/2013
Project Name:	TO 20-HOFF WASH BRIDGE-RIGHT	EPA Method:	EPA 600/R-93/116
Address:		Submitted By:	DION MONGE
		Collected By:	

Lab ID Client ID	Sample Location	Layer Name / Sample Description	Asbestos Detected	Asbestos Type	(%)	Non-Asbestos Constituents	
0130642-006 02C	ROADWAY AT BRIDGE DECK-NW	Asphalt, Black	No	None Detected			
						Gypsum Quartz Carbonates Binder/Filler	100%
0130642-007 03A	GUARD RAIL POSTS-SHIM 39	Shim, Gray	Yes	Chrysotile	75%		
						Gypsum Binder/Filler	25%
0130642-008 03B	GUARD RAIL POSTS-SHIM 27	Shim, Gray	Yes	Chrysotile	75%		
						Gypsum Binder/Filler	25%
0130642-009 03C	GUARD RAIL POSTS-SHIM 2	Shim, Gray	Yes	Chrysotile	75%		
						Gypsum Binder/Filler	25%
0130642-010 04A	ROADWAY REFLECTORS-NE	Mastic, Black	No	None Detected			
						Carbonates Gypsum Binder/Filler	100%
0130642-011 04B	ROADWAY REFLECTORS-N. CENTER	Mastic, Black	No	None Detected		Cellulose Fiber	1%
						Carbonates Gypsum Binder/Filler	99%
0130642-012 04C	ROADWAY REFLECTORS-NW	Mastic, Black	No	None Detected			
						Carbonates Gypsum Binder/Filler	100%

EMC LABS, INC.

9830 S. 51st Street, Suite B109, Phoenix, AZ 85044
Phone: 800-362-3373 or 480-940-5294 - Fax: (480) 893-1726

Laboratory Report
0130642

Bulk Asbestos Analysis by Polarized Light Microscopy

NVLAP#101926-0

Client:	STANTEC CONSULTING	Job# / P.O. #:	185802876
Address:	25867-F BUSINESS CENTER DRIVE	Date Received:	08/21/2013
	REDLANDS CA 92374	Date Analyzed:	08/26/2013
Collected:	08/19/2013	Date Reported:	08/26/2013
Project Name:	TO 20-HOFF WASH BRIDGE-RIGHT	EPA Method:	EPA 600/R-93/116
Address:		Submitted By:	DION MONGE
		Collected By:	

Lab ID Client ID	Sample Location	Layer Name / Sample Description	Asbestos Detected	Asbestos Type	(%)	Non-Asbestos Constituents	
0130642-013 05A	BENEATH BRIDGE DECK-NW BENEATH	Concrete Drain, Gray	No	None Detected			
						Quartz	
						Gypsum	
						Carbonates	
						Mica	
						Binder/Filler	100%
0130642-014 05B	BENEATH BRIDGE DECK-NE BENEATH	Concrete Drain, Gray	No	None Detected			
						Quartz	
						Gypsum	
						Carbonates	
						Mica	
						Binder/Filler	100%
0130642-015 05C	BENEATH BRIDGE DECK-E. CENTRAL-BENEATH	Concrete Drain, Gray	No	None Detected			
						Quartz	
						Gypsum	
						Carbonates	
						Mica	
						Binder/Filler	100%
0130642-016 06A	BENEATH DECK IN ABUTMENT-SE	Drain Line, Black	No	None Detected		Cellulose Fiber	45%
						Gypsum	
						Binder/Filler	55%
0130642-017 06B	BENEATH DECK IN ABUTMENT-E. CENTRAL	Drain Line, Black	No	None Detected		Cellulose Fiber	45%
						Gypsum	
						Binder/Filler	55%
0130642-018 06C	BENEATH DECK IN ABUTMENT-NE	Drain Line, Black	No	None Detected		Cellulose Fiber	45%
						Gypsum	
						Binder/Filler	55%

EMC LABS, INC.

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Laboratory Report
0130642

Bulk Asbestos Analysis by Polarized Light Microscopy

NVLAP#101926-0

Client:	STANTEC CONSULTING	Job# / P.O. #:	185802876
Address:	25867-F BUSINESS CENTER DRIVE	Date Received:	08/21/2013
	REDLANDS CA 92374	Date Analyzed:	08/26/2013
Collected:	08/19/2013	Date Reported:	08/26/2013
Project Name:	TO 20-HOFF WASH BRIDGE-RIGHT	EPA Method:	EPA 600/R-93/116
Address:		Submitted By:	DION MONGE
		Collected By:	

Lab ID Client ID	Sample Location	Layer Name / Sample Description	Asbestos Detected	Asbestos Type (%)	Non-Asbestos Constituents

Analyst - Kurt Kettler

Signatory - Lab Manager - Ken Scheske

Distinctly stratified, easily separable layers of samples are analyzed as subsamples of the whole and are reported separately for each discernible layer. All analyses are derived from calibrated visual estimate and measured in area percent unless otherwise noted. The report applies to the standards or procedures identified and to the sample(s) tested. The test results are not necessarily indicated or representative of the qualities of the lot from which the sample was taken or of apparently identical or similar products, nor do they represent an ongoing quality assurance program unless so noted. These reports are for the exclusive use of the addressed client and that they will not be reproduced wholly or in part for advertising or other purposes over our signature or in connection with our name without special written permission. The report shall not be reproduced except in full, without written approval by our laboratory. The samples not destroyed in testing are retained a maximum of thirty days. The laboratory measurement of uncertainty for the test method is approximately less than 1 by area percent. Accredited by the National Institute of Standards and Technology, Voluntary Laboratory Accreditation Program for selected test method for asbestos. The accreditation or any reports generated by this laboratory in no way constitutes or implies product certification, approval, or endorsement by the National Institute of Standards and Technology. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government. Polarized Light Microscopy may not be consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials.

EMC LABS, INC.

9830 South 51st Street, Suite B-109 / PHOENIX, ARIZONA 85044 / 480-940-5294 or 800-362-3373 / FAX 480-893-1726
emclab@emclabs.com

LEAD (Pb) IN PAINT CHIP SAMPLES

EMC SOP METHOD #L01/1 EPA SW-846 METHOD 7420

EMC LAB #:	L49996	**DATE RECEIVED:**	08/21/13
CLIENT:	Stantec	**REPORT DATE:**	08/26/13
		DATE OF ANALYSIS:	08/23/13
CLIENT ADDRESS:	25864-F Business Center Drive Redland, CA 92374	**P.O. NO.:**	
PROJECT NAME:	TO 20 – Hoff Wash Bridge – Right	**PROJECT NO.:**	185802876

EMC # L49996-	SAMPLE DATE /13	CLIENT SAMPLE #	DESCRIPTION	REPORTING LIMIT (%Pb by weight)	%Pb BY WEIGHT
1	08/19	P – 1	Paint Chip / Concrete / Yellow – NW / Yellow	0.010	BRL
2	08/19	P – 2	Paint Chip / Concrete / Yellow – NE / Yellow	0.010	BRL
3	08/19	P – 3	Paint Chip / Concrete / White Line – SE / White	0.010	BRL
4	08/19	P – 4	Paint Chip / Concrete / White Line – SW / White	0.010	BRL

^ = Dilution Factor Changed * = Excessive Substrate May Bias Sample Results **BRL** = Below Reportable Limits # = Very Small Amount Of Sample Submitted, May Affect Result

This report applies to the standards or procedures identified and to the samples tested only. The test results are not necessarily indicative or representative of the qualities of the lot from which the sample was taken or of apparently identical or similar products, nor do they represent an ongoing quality assurance program unless so noted. Unless otherwise noted, all quality control analyses for the samples noted above were within acceptable limits.

Where it is noted that a sample with excessive substrate was submitted for laboratory analysis, such analysis may be biased. The lead content of such sample may, in actuality, be greater than reported. EMC makes no warranty, express or implied, as to the accuracy of the analysis of samples noted to have been submitted with excessive substrate. Resampling is recommended in such situations to verify original laboratory results.

These reports are for the exclusive use of the addressed client and are rendered upon the condition that they will not be reproduced wholly or in part for advertising or other purposes over our signature or in connection with our name without special written permission. Samples not destroyed in testing are retained a maximum of sixty (60) day.

ANALYST: Jason Thompson

QA COORDINATOR: Kurt Kettler

Rev. 11/30/08

EMC LABS, INC.

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emclab@emclabs.com

LEAD (Pb) IN PAINT CHIP SAMPLES

EMC SOP METHOD #L01/1 EPA SW-846 METHOD 7420

EMC LAB #:	L49999	**DATE RECEIVED:**	08/21/13
CLIENT:	Stantec	**REPORT DATE:**	08/26/13
		DATE OF ANALYSIS:	08/23/13
CLIENT ADDRESS:	25864-F Business Center Drive Redland, CA 92374	**P.O. NO.:**	
PROJECT NAME:	TO 20 – Hoff Wash Bridge – Left	**PROJECT NO.:**	185802876

EMC # L49999-	SAMPLE DATE /13	CLIENT SAMPLE #	DESCRIPTION	REPORTING LIMIT (%Pb by weight)	%Pb BY WEIGHT
1	08/19	P-01	Paint Chip / Concrete / Yellow Line – SW / Yellow	0.010	BRL
2	08/19	P-02	Paint Chip / Concrete / Yellow Line – SE / Yellow	0.010	BRL
3	08/19	P-03	Paint Chip / Concrete / White Line – NW / White	0.010	BRL
4	08/19	P-04	Paint Chip / Concrete / White Line – NE / White	0.010	BRL

^ = Dilution Factor Changed * = Excessive Substrate May Bias Sample Results **BRL** = Below Reportable Limits # = Very Small Amount Of Sample Submitted, May Affect Result

This report applies to the standards or procedures identified and to the samples tested only. The test results are not necessarily indicative or representative of the qualities of the lot from which the sample was taken or of apparently identical or similar products, nor do they represent an ongoing quality assurance program unless so noted. Unless otherwise noted, all quality control analyses for the samples noted above were within acceptable limits.

Where it is noted that a sample with excessive substrate was submitted for laboratory analysis, such analysis may be biased. The lead content of such sample may, in actuality, be greater than reported. EMC makes no warranty, express or implied, as to the accuracy of the analysis of samples noted to have been submitted with excessive substrate. Resampling is recommended in such situations to verify original laboratory results.

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ANALYST: Jason Thompson

QA COORDINATOR: Kurt Kettler

Rev. 11/30/08

CHAIN OF CUSTODY

EMC Laboratories
9830 S. 51ST St., Ste B-109
Phoenix, AZ 85044
(800) 362-3373 Fax (480) 893-1726

LAB#: 130642
TAT: 3 days
Rec'd: AUG 21 P.M.

COMPANY NAME: STANTEC
25864-F Business Center Drive
Redland, CA 92374
CONTACT: Dion Monge
Phone/Fax: (909) 556-6516 / (909) 335-6120
Email: dion.monge@stantec.com / anne.perez@stantec.com

BILL TO: (If Different Location)
Stantec
Attn: Dion Monge
Dion.monge@stantec.com

Now Accepting: VISA – MASTERCARD **Price Quoted: $_____ / Sample $____ / Layers**

COMPLETE ITEMS 1-4: (Failure to complete any items may cause a delay in processing or analyzing your samples)

1. TURNAROUND TIME: [4hr rush} [8hr rush} [1-Day] [2-Day] [3-Day] [5-Day] [6-10 Day]

****Prior confirmation of turnaround time is required**
****Additional charges for rush analysis (please call marketing department for pricing details)**
****Laboratory analysis may be subject to delay if credit terms are not met**

2. TYPE OF ANALYSIS: x [Bulk-PLM] [Air-PCM] [Lead] [Point Count - Gravimetric] [Fungi: AOC, W-C, Bulk, Tape]

3. DISPOSAL INSTRUCTIONS: X [Dispose of samples at EMC] / [Return samples to me at my expense]
(If you do not indicate preference, EMC will dispose of samples 60 days from analysis.)

4. Project Name: TO 20 - Hoff Wash Bridge - Right
P.O. Number: _____ **Project Number:** 185802876

EMC SAMPLE #	CLIENT SAMPLE #	DATE & TIME SAMPLED	LOCATION/MATERIAL TYPE	Samples Accepted Yes / No	AIR SAMPLE INFO / COMMENTS ON	OFF	FLOW RATE
1	O1A	8/19	See attached logs	Y N			
5	5	1		Y N			
				Y N			
18	O6C	1		Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			

SPECIAL INSTRUCTIONS:_____

Sample Collector: (Print) Dion Monge (Signature) [signature]

Relinquished by: [signature] Date/Time: 8/20/13; 1200 Received by: Diana Federico Date/Time: 8/21/13

Relinquished by: Diana Federico Date/Time: 8/21/13 Received by: [signature] Date/Time: 8/21/13

CHAIN OF CUSTODY

EMC Laboratories
9830 S. 51ST St., Ste B-109
Phoenix, AZ 85044
(800) 362-3373 Fax (480) 893-1726

LAB#: L49996
TAT: 3day
Rec'd: 8/21/13

COMPANY NAME: STANTEC
25864-F Business Center Drive
Redland, CA 92374
CONTACT: Dion Monge
Phone/Fax: (909) 556-6516 / (909) 335-6120
Email: dion.monge@stantec.com / anne.perez@stantec.com

BILL TO: (If Different Location)
Stantec
Attn: Dion Monge
Dion.monge@stantec.com

Now Accepting: VISA – MASTERCARD **Price Quoted: $_____ / Sample $____ / Layers**

COMPLETE ITEMS 1-4: (Failure to complete any items may cause a delay in processing or analyzing your samples)

1. TURNAROUND TIME: [4hr rush} [8hr rush} [1-Day] [2-Day] [3-Day] [5-Day] [6-10 Day]

****Prior confirmation of turnaround time is required**
****Additional charges for rush analysis (please call marketing department for pricing details)**
****Laboratory analysis may be subject to delay if credit terms are not met**

2. TYPE OF ANALYSIS: [Bulk-PLM] [Air-PCM] X [Lead] [Point Count - Gravimetric] [Fungi: AOC, W-C, Bulk, Tape]

3. DISPOSAL INSTRUCTIONS: X [Dispose of samples at EMC] / [Return samples to me at my expense]
(If you do not indicate preference, EMC will dispose of samples 60 days from analysis.)

4. Project Name: TO 20 - Hoff Wash Bridge - Right
P.O. Number: _____ **Project Number:** 185802876

EMC SAMPLE #	CLIENT SAMPLE #	DATE & TIME SAMPLED	LOCATION/MATERIAL TYPE	Samples Accepted Yes / No	AIR SAMPLE INFO / COMMENTS ON	OFF	FLOW RATE
1	P-1	8/19	See attached log	Y N			
2	P-2	/		Y N			
3	P-3	/		Y N			
4	P-4	/		Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			

SPECIAL INSTRUCTIONS:

Sample Collector: (Print) Dion Monge (Signature)

Relinquished by: _____ Date/Time: 8/20/13 1200 Received by: _____ Date/Time: 8/21/13 9:30

Relinquished by: _____ Date/Time: 8/21/13 1:45 Received by: _____ Date/Time: 8/21/13 1:45

CHAIN OF CUSTODY

EMC Laboratories
9830 S. 51ST St., Ste B-109
Phoenix, AZ 85044
(800) 362-3373 Fax (480) 893-1726

LAB#: 130641
TAT: 3 days
Rec'd: AUG 21 P.M.

COMPANY NAME: STANTEC
25864-F Business Center Drive
Redland, CA 92374
CONTACT: Dion Monge
Phone/Fax: (909) 556-6516 / (909) 335-6120
Email: dion.monge@stantec.com / anne.perez@stante.com

BILL TO: (If Different Location)
Stantec
Attn: Dion Monge
Dion.monge@stantec.com

Now Accepting: VISA – MASTERCARD **Price Quoted: $_____ / Sample $____ / Layers**

COMPLETE ITEMS 1-4: (Failure to complete any items may cause a delay in processing or analyzing your samples)

1. TURNAROUND TIME: [4hr rush} [8hr rush} [1-Day] [2-Day] [3-Day] [5-Day] [6-10 Day]

******Prior confirmation of turnaround time is required**
******Additional charges for rush analysis (please call marketing department for pricing details)**
******Laboratory analysis may be subject to delay if credit terms are not met**

2. TYPE OF ANALYSIS: **X** [Bulk-PLM] [Air-PCM] [Lead] [Point Count - Gravimetric] [Fungi: AOC, W-C, Bulk, Tape]

3. DISPOSAL INSTRUCTIONS: **X** [Dispose of samples at EMC] / [Return samples to me at my expense]
(If you do not indicate preference, EMC will dispose of samples 60 days from analysis.)

4. Project Name: TO 20 - Hoff Wash Bridge - Left
P.O. Number: _____ **Project Number:** 185802876

EMC SAMPLE #	CLIENT SAMPLE #	DATE & TIME SAMPLED	LOCATION/MATERIAL TYPE	Samples Accepted Yes / No	AIR SAMPLE INFO / COMMENTS ON	OFF	FLOW RATE
1	01A	8/19	See attached logs	Y N			
5	5	/		Y N			
				Y N			
19	06C	/		Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			

SPECIAL INSTRUCTIONS:

Sample Collector: (Print) Dion Monge (Signature)

Relinquished by: Date/Time: 8/20/13 1200 Received by: Diana Federico Date/Time: 8/21/13

Relinquished by: Diana Federico Date/Time: 8/21/13 Received by: Date/Time: 8-21-13

CHAIN OF CUSTODY

EMC Laboratories
9830 S. 51ST St., Ste B-109
Phoenix, AZ 85044
(800) 362-3373 Fax (480) 893-1726

LAB#: L49999
TAT: 3day
Rec'd: 8/21/13

COMPANY NAME: STANTEC
25864-F Business Center Drive
Redland, CA 92374
CONTACT: Dion Monge
Phone/Fax: (909) 556-6516 / (909) 335-6120
Email: dion.monge@stantec.com / anne.perez@stantec.com

BILL TO: (If Different Location)
Stantec
Attn: Dion Monge
Dion.monge@stantec.com

Now Accepting: VISA – MASTERCARD **Price Quoted: $_____ / Sample $____ / Layers**

COMPLETE ITEMS 1-4: (Failure to complete any items may cause a delay in processing or analyzing your samples)

1. TURNAROUND TIME: [4hr rush} [8hr rush} [1-Day] [2-Day] [3-Day] [5-Day] [6-10 Day]

****Prior confirmation of turnaround time is required**
****Additional charges for rush analysis (please call marketing department for pricing details)**
****Laboratory analysis may be subject to delay if credit terms are not met**

2. TYPE OF ANALYSIS: [Bulk-PLM] [Air-PCM] X [Lead] [Point Count - Gravimetric] [Fungi: AOC, W-C, Bulk, Tape]

3. DISPOSAL INSTRUCTIONS: X [Dispose of samples at EMC] / [Return samples to me at my expense]
(If you do not indicate preference, EMC will dispose of samples 60 days from analysis.)

4. Project Name: TO 20 - Hoff Wash Bridge - Left
P.O. Number: _____ **Project Number:** 185802876

EMC SAMPLE #	CLIENT SAMPLE #	DATE & TIME SAMPLED	LOCATION/MATERIAL TYPE	Samples Accepted Yes / No	AIR SAMPLE INFO / COMMENTS ON	OFF	FLOW RATE
1	P-01	8/19	See attached log	Y N			
2	P-02			Y N			
3	P-03			Y N			
4	P-04			Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			

SPECIAL INSTRUCTIONS: _____

Sample Collector: (Print) Dion Monge (Signature) [signature]

Relinquished by: [signature] Date/Time: 8-20-13 1200 Received by: [signature] Date/Time: 8/21/13 9:30

Relinquished by: [signature] Date/Time: 8/21/13 11:30 Received by: John Nguyen Date/Time: 8/22/13 11:20

24999

Stantec

Paint Chip Sample Log

25864 Business Center Dr, Ste F
Redlands, CA 92374
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Task Order 20 Site Name: Hoff Bridge – Left Date: 8/19/13

Project #: 185802876 Task #: 200.0002 Site Address: San Bernardino Co Inspector: JS/DM

Sample Number	Room	Component	Substrate	Sample Location*	Estimated Quantity	Notes/Condition/ Paint Color
P-01		Paint chip	Concrete	yellow line - SW	~170 LF	yellow
P-02		↓	↓	yellow line - SE	↓	yellow
P-03		↓	↓	white line - NW	↓	white
P-04		↓	↓	white line - NE	↓	white

* - Include sample dimensions if trying to achieve mg/cm^2.

Relinquished By: [signature] Date: 8-20-13 Received By: [signature] Date: 8/21/13

Relinquished By: [signature] Date: 8/21/13 Received By: Date:

13064

Stantec

Asbestos Bulk Sample Log

25864 – F Business Center Drive
Redlands, CA 92374
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Task Order 20
Project #: 185802876 200.0002
:

Site Name: Hoff Wash Bridge - Left
Site Address: San Bernardino Co

Date: 8-19-13
Inspector: JS/DM

MATERIAL

HA#	01
Material Type:	Concrete
Color:	Gray
Description:	Concrete Assoc. w/ Bridge
Total Qty.:	

HAZARD ASSESSMENT

Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	Low	Med	(High)
Air Movement:	Low	(Med)	High

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
	Throughout		G

SAMPLES

Sample #	Sample Location
1 01 A	North-central
2 01 B	SE
3 01 C	SW
4 01 D	NW-beneath
~~5~~ E	
F	
G	

Notes:

Relinquished By: [signature] Date: 8-20-13 Received By: Diana Federico Date: 8/21/13

130641

Stantec

Asbestos Bulk Sample Log

25864 – F Business Center Drive
Redlands, CA 92374
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Task Order 20
Project #: 185802876 200.0002
:

Site Name: Hoff Wash Bridge-Left
Site Address: San Bernardino Co

Date: 8-19-13
Inspector: JS/DM

MATERIAL

HA#	02
Material Type:	Asphalt
Color:	Black
Description:	
Total Qty.:	

HAZARD ASSESSMENT

Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	Low	Med	(High)
Air Movement:	Low	(Med)	High

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
	Roadway at Bridge Deck		G

SAMPLES

Sample #	Sample Location
6 02A	NE
4 02B	NE
1 02C	SE
D	
E	
F	
G	

Notes:

Relinquished By: [signature] Date: 8-20-13

Received By: Diana Federico Date: 8/21/13

Stantec

Asbestos Bulk Sample Log

25864 – F Business Center Drive
Redlands, CA 92374
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Task Order 20
Project #: 185802876 200.0002
:

Site Name: Watson Wash Bridge-Left
Site Address: San Bernardino Co

Date: 8-19-13
Inspector: JS/DM

MATERIAL

HA#	03
Material Type:	Shim
Color:	Gray
Description:	Leveling Shim Assoc. w/ Guardrail posts
Total Qty.:	~10#

HAZARD ASSESSMENT

Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	Low	Med	(High)
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
	Guardrail Posts	~10#	G

SAMPLES

Sample #	Sample Location
8 03 A	Shim 4
9 03 B	Shim 17
10 03 C	Shim 21
D	
E	
F	
G	

Notes:

Relinquished By: [signature] Date: 8-20-13 Received By: Diana Federico Date: 8/21/13

Stantec

Asbestos Bulk Sample Log

25864 – F Business Center Drive
Redlands, CA 92374
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Tusk Order 20 Site Name: Hoff Wash Bridge-Left Date: 8-19-13

Project #: 185802876 200.0002 Site Address: San Bernardino Co. Inspector: JS/DM

:

MATERIAL	
HA#	04
Material Type:	Mastic
Color:	Black
Description:	Reflector mastic
Total Qty.:	

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	Low	Med	(High)
Air Movement:	Low	(Med)	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
	Roadway Reflectors		G

SAMPLES	
Sample #	Sample Location
11 04 A	East-center
12 04 B	South-center
13 04 C	SW
D	
E	
F	
G	

Notes:

Relinquished By: [signature] Date: 8-20-13 Received By: Diana Federico Date: 8/21/13

Stantec

Asbestos Bulk Sample Log

25864 – F Business Center Drive
Redlands, CA 92374
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Task Order 20
Project #: 185802876 200.0002
:

Site Name: Hoff Bridge - Left
Site Address: San Bernardino Co

Date: 8-19-13
Inspector: JS/DM

MATERIAL

HA#	05
Material Type:	Concrete Drain
Color:	Gray
Description:	Drain Fitting
Total Qty.:	

HAZARD ASSESSMENT

Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	Low	Med	(High)
Air Movement:	Low	(Med)	High

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
	Below Bridge Deck		G

SAMPLES

Sample #	Sample Location
14 05 A	SW
15 05 B	West-center
16 05 C	East-center
D	
E	
F	
G	

Notes: Drain fitting on deck bottom

Relinquished By: [signature] Date: 8-20-13 Received By: Diana Federico Date: 8/21/13

Stantec

Asbestos Bulk Sample Log

25864 – F Business Center Drive
Redlands, CA 92374
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Task Order 20
Project #: 185802876 200.0002
:

Site Name: Hoff Bridge - left
Site Address: San Bernardino

Date: 8-19-13
Inspector: JS/DM

MATERIAL	
HA#	06
Material Type:	Drain Line
Color:	Black
Description:	Horizontal Drain lines in abutment
Total Qty.:	

HAZARD ASSESSMENT			
Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
	Beneath deck in abutment		G

SAMPLES	
Sample #	Sample Location
17 06 A	SW
18 06 B	West-center
19 06 C	East-center
D	
E	
F	
G	

Notes: East & west abutments (2x3)

Relinquished By: [signature] Date: 8-20-13

Received By: Diana Federico Date: 8/21/13

Y4996

Stantec

Paint Chip Sample Log

25864 Business Center Dr, Ste F
Redlands, CA 92374
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Task Order 20 Site Name: Hoff Bridge – Right Date: 8/19/13

Project #: 185802876 Task #: 200.0002 Site Address: San Bernardino Co Inspector: JS/DM

Sample Number	Room	Component	Substrate	Sample Location*	Estimated Quantity	Notes/Condition/ Paint Color
P-01		Paint chip	Concrete	yellow - NW	~152LF	yellow
P-02		↓	↓	yellow - NE	↓	yellow
P-03		↓	↓	white line - SE	↓	white
P-04		↓	↓	white line - SW	↓	white

* - Include sample dimensions if trying to achieve mg/cm².

Relinquished By: [signature] Date: 8-20-13 Received By: [signature] Date: 8/21/13

Relinquished By: [signature] Date: 8/21/13 Received By: Date:

130642

Stantec

Asbestos Bulk Sample Log

25864 – F Business Center Drive
Redlands, CA 92374
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Task Order 20
Project #:
:

Site Name: Hoff Wash Bridge-Right
Site Address: San Bernardino Co

Date: 8-19-13
Inspector: JS/DM

MATERIAL

HA#	01
Material Type:	Concrete
Color:	Gray
Description:	
Total Qty.:	

HAZARD ASSESSMENT

Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	Low	Med	(High)
Air Movement:	Low	(Med)	High

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
	Throughout		G

SAMPLES

Sample #	Sample Location
1 01 A	SW
2 01 B	SE
3 01 C	SW (under deck)
D	
E	
F	
G	

Notes:

Relinquished By: [signature] Date: 8/20/13 Received By: Diana Federico Date: 8/21/13

130642

Stantec

Asbestos Bulk Sample Log

25864 – F Business Center Drive
Redlands, CA 92374
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Task Order 20
Site Name: Hoff Wash Bridge-Right
Date: 8-19-13
Project #:
Site Address:
Inspector: JS/DM
:

MATERIAL	
HA#	02
Material Type:	Asphalt
Color:	Black
Description:	
Total Qty.:	

HAZARD ASSESSMENT			
Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
	Roadway at bridge deck		G

SAMPLES	
Sample #	Sample Location
4 02A	SW
5 02B	SE
6 02C	NW
D	
E	
F	
G	

Notes:

Relinquished By: [signature] Date: 8-20-13 Received By: Diana Federico Date: 8/21/13

13064 2

Stantec

Asbestos Bulk Sample Log

25864 – F Business Center Drive
Redlands, CA 92374
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Task Order 20
Project #:
:

Site Name: Hoff Wash Bridge-Right
Site Address: San Bernardino Co

Date: 8-19-13
Inspector: JS /DM

MATERIAL

HA#	03
Material Type:	Shim
Color:	Gray
Description:	Leveling Shim Assoc. w/ Guardrail Post
Total Qty.:	~20#

HAZARD ASSESSMENT

Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	Low	Med	(High)
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
	Guardrail Posts	~20#	G

SAMPLES

Sample #	Sample Location
7 03 A	Shim 39
8 03 B	Shim 27
9 03 C	Shim 2
D	
E	
F	
G	

Notes:

Relinquished By: [signature] Date: 8-20-13 Received By: Diana Federico Date: 8/21/13

130642

Stantec

Asbestos Bulk Sample Log

25864 – F Business Center Drive
Redlands, CA 92374
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Task Order 20
Project #:
:

Site Name: Hoff Wash Bridge - Right
Site Address: San Bernardino Co.

Date: 8-19-13
Inspector: JS/DM

MATERIAL	
HA#	04
Material Type:	Mastic
Color:	Black
Description:	Reflector Mastic
Total Qty.:	

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	Low	Med	(High)
Air Movement:	Low	(Med)	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
	Roadway Reflectors		G

SAMPLES	
Sample #	Sample Location
10 04 A	NE
11 04 B	North-center
12 04 C	NW
D	
E	
F	
G	

Notes:

Relinquished By: [signature] Date: 8-20-13 Received By: Diana Federico Date: 8/21/13

130642

Stantec

Asbestos Bulk Sample Log

25864 – F Business Center Drive
Redlands, CA 92374
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Task Order 20
Project #:
:

Site Name: Hoff Bridge - Right
Site Address: San Bernardino Co

Date: 8-19-13
Inspector: JS/DM

MATERIAL	
HA#	05
Material Type:	Concrete Drain
Color:	gray
Description:	Drain fitting
Total Qty.:	

HAZARD ASSESSMENT			
Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
	Beneath Bridge Deck		G

SAMPLES	
Sample #	Sample Location
13 05 A	NW beneath
14 05 B	NE beneath
15 05 C	E-central-beneath
D	
E	
F	
G	

Notes:

Relinquished By: [signature] Date: 8-20-13 Received By: Diana Federico Date: 8/21/13

130642

Stantec

Asbestos Bulk Sample Log

25864 – F Business Center Drive
Redlands, CA 92374
Tel: (909) 335-6116
Fax: (909) 335-6120

Project Name: Task Order 20
Project #:
:

Site Name: Hoff Bridge - Right
Site Address: San Bernardino Co

Date: 8-19-13
Inspector: JS/DM

MATERIAL	
HA#	06
Material Type:	Drain Line
Color:	Black
Description:	Horizontal Drain lines in abutment
Total Qty.:	

HAZARD ASSESSMENT			
Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	Low	Med	(High)
Air Movement:	Low	(Med)	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
	Beneath deck in abutment		G

SAMPLES	
Sample #	Sample Location
16 06 A	SE
17 06 B	East-central
18 06 C	NE
D	
E	
F	
G	

Notes: East abutment only
(3)

Relinquished By: [signature] Date: 8-20-13 Received By: Diana Federico Date: 8/21/13

APPENDIX D
LEAD EVALUATION FORM

LEAD HAZARD EVALUATION REPORT

Section 1 — Date of Lead Hazard Evaluation August 9, 2013

Section 2 — Type of Lead Hazard Evaluation (Check one box only)

☐ Lead Inspection ☐ Risk assessment ☐ Clearance Inspection ☑ Other (specify) Paint chip samples

Section 3 — Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]	City	County	Zip Code
Hoff Wash Bridges (No. 54-0889 [L & R]	Unincorporated	San Bernardino	

Construction date (year) of structure	Type of structure	Children living in structure?
1973	☐ Multi-unit building ☐ School or daycare ☐ Single family dwelling ☑ Other Bridges	☐ Yes ☑ No ☐ Don't Know

Section 4 — Owner of Structure (if business/agency, list contact person)

Name	Telephone number
State of California - Department of Transportation, District 8	

Address [number, street, apartment (if applicable)]	City	State	Zip Code
464 West Fourth Street	San Bernardino	California	92401

Section 5 — Results of Lead Hazard Evaluation (check all that apply)

☑ No lead-based paint detected ☐ Intact lead-based paint detected ☐ Deteriorated lead-based paint detected

☐ No lead hazards detected ☐ Lead-contaminated dust found ☐ Lead-contaminated soil found ☐ Other

Section 6 — Individual Conducting Lead Hazard Evaluation

Name	Telephone number
Jason Stagno	(805) 719-9392

Address [number, street, apartment (if applicable)]	City	State	Zip Code
290 Conejo Ridge Avenue	Thousand Oaks	California	91361

CDPH certification number	Signature	Date
19068		September 6, 2013

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Section 7 — Attachments

A. A foundation diagram or sketch of the structure indicating the specifc locations of each lead hazard or presence of lead-based paint;
B. Each testing method, device, and sampling procedure used;
C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector

Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:

California Department of Public Health
Childhood Lead Poisoning Prevention Branch Reports
850 Marina Bay Parkway, Building P, Third Floor
Richmond, CA 94804-6403
Fax: (510) 620-5656

Caltrans

Information Brochure

Protection

Of the

DESERT TORTOISE

(Gopherus agassizii)

During

LIMITED SCOPE PROJECTS

WEG/TortoiseBrochure (Limited Scope Projects)

THE

DESERT TORTOISE

(A THREATENED SPECIES)

<u>"IS PROTECTED BY LAW"</u>

ANY UNAUTHORIZED PERSON
WHO COLLECTS, HANDLES
OR DELIBERATELY MOLESTS A
TORTOISE
CAN
BE
PROSECUTED

VIOLATIONS CAN RESULT IN

1) FINES UP TO $50,000

AND/OR

2) IMPRISONMENT UP TO 1 YEAR

APPLICABLE LAWS INCLUDE:

The Federal Endangered Species Act of 1973
(16 U.S.C. 1531-1543)

and

The California Endangered Species Act

THIS BROCHURE IS INTENDED TO PROVIDE YOU WITH INFORMATION AND GUIDANCE TO AVOID VIOLATION OF THE ENDANGERED SPECIES ACTS

RESOURCE AGENCY FORMAL CONSULTATION

Limited scope projects normally have a low risk of encountering or harming a tortoise and no "TAKE" is anticipated. Therefore, Formal Consultation between Caltrans and the U.S. Fish and Wildlife Service under Section 7 of the federal Endangered Species Act has not been undertaken for this project to authorize "TAKE" during the conduct of this project.

"TAKE" is defined as:

Harassing, Harming, Pursuing, Hunting, Shooting, Wounding, Killing, Capturing, Collecting, or attempting to engage in any such conduct. Engaging in any of these activities can place you in violation of the law.

Tortoises found within Caltrans Right of Way are not exempt from this protection.

WHAT TO DO AND NOT DO.

CHECK UNDER MOTORIZED EQUIPMENT & VEHICLES – that have been parked over night or stationary for some length of time before moving the vehicle.

CHECK AROUND MATERIAL STACKS & UNITS - that have been stored in the open before moving them.

VISUALLY CHECK AROUND THE WORK AREA – for the presence of live tortoise that may have wandered into the disturbance zone. It is not intended to divert your attention from your work tasks and create a hazard for your or others on the job, but it is good practice to utilize a few seconds and visually scan the area around you when it is safe to do so.

IF A TORTOISE IS PRESENT – stop all work activities that could harm the tortoise and contact the Resident Engineer or designated contact person, or on-site biologist to have the tortoise removed to safety. Contact your supervisor (contractor's) for direction on proceeding with work activities.

DO NOT HANDLE OR MOVE A TORTOISE – yourself. Only a qualified biologist is authorized to do so.

DO NOT RETURN A TORTOISE – to the wild that has been held in captivity. They may have been infected with a pneumonia type virus that is the cause of pneumonia infections in humans. The tortoise is highly susceptible to this virus which attacks the lungs and the tortoise has no means to cure itself. More tortoises die from pneumonia than any other cause. Symptoms of infection include runny or bubbly nose, loss of appetite and gasping for breath. Returning them to the wild increases the potential for exposure of the virus into an otherwise healthy tortoise population.

HELP MAKE THE LITTER CONTROL REQUIREMENTS ON THIS PROJECT – work by using the closeable trash containers to dispose of left over food scraps, wrappers, cans bottles, etc., or secure and remove them from the project with you when you leave the job site. The purpose of litter control is to avoid attracting Ravens which are highly efficient hunters and killers of baby tortoises.

DO NOT NEEDLESSLY VENTURE OUT OF THE DESIGNATED WORK AREA – into adjoining habitat areas unless directed to do so after the area has been approved for such activity. Doing so, disturbs habitat which is also protected under the Endangered Species Acts.

ASK YOUR SUPERVISOR - if any other environmentally related special provisions have been placed in the contract exist that you should know about. We do recommend that environmental protection measures be reiterated and discussed at on-site "tail gate" meetings with safety and other project related issues brought up by your supervisor(s).

WE THANK YOU FOR YOUR COOPERATION
AND CARE

IN KEEPING WITH AMERICA'S DESIRE TO PROTECT THE ENVIRONMENT

Mojave Water Agency

FAX TRANSMISSION

Date:

To:

From: Kurt Carlson
Director of Operations
Mojave Water Agency

Re: **Construction Water**

Contractor,

Pursuant to a Board of Director's resolution the items that you will need to do in order to purchase water are as follows:

1. Submit a letter to the MWA to the attention of Kirby Brill with a request to purchase water for construction use. Please note location, duration and quantity of anticipated usage.
2. Provide proof that no local water entity has a desire or ability to supply the project with water. The agency will not deliver construction water in an area that is served by a local district.
3. Deposit with MWA a sum equivalent to the amount of water you anticipate using during construction. The price per acre foot varies with location, please contact Kathy Cortner, CFO for the price/acre foot for the location in which you will be using the water.
4. Provide a certificate of insurance with a general liability provision not less than $1,000,000 with MWA as an insured.
5. Provide a suitable water meter with an Eddy valve to connect to the blow-off. The agency valves shall not be used to regulate or control rate of flow (MWA has a 4" Jones head with 2 1/2" male hose thread)

The water from the MWA pipelines is non-potable and is interruptible. Water may not be available during drought conditions.

If you have any questions or need clarification please don't hesitate to give me call at 760-946-7035.

Kurt Carlson

Mojave Water Agency ♦ 22450 Headquarters Drive ♦ Apple Valley, CA 92307

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Inland Deserts Region
3602 Inland Empire Blvd, Suite C-220
Ontario, CA 91764
www.wildlife.ca.gov

EDMUND G. BROWN, Jr., Governor
CHARLTON H. BONHAM, Director

June 16, 2015

Mr. Scott Quinnell
California Department of Transportation
464 West Fourth Street
San Bernardino, CA 92401

Subject: Notification of Lake or Streambed Alteration No. 1600-2015-0026-R6
Interstate 40- Hoff Wash Bridge Replacement

Dear Mr. Quinnell,

The California Department of Fish and Wildlife (Department) had until April 21, 2015 to submit a draft Lake or Streambed Alteration Agreement (Agreement) to you or inform you that an Agreement is not required. The Department did not meet that date. As a result, by law, you may now complete the project described in your notification without an Agreement.

Please note that pursuant to Fish and Game Code section 1602(a)(4)(D), if you proceed with this project, it must be the same as described and conducted in the same manner as specified in the notification and any modifications to that notification received by the Department in writing prior to January 21, 2015. This includes completing the project within the proposed term and seasonal work period and implementing all avoidance and mitigation measures to protect fish and wildlife resources specified in the notification. If the term proposed in your notification has expired, you will need to re-notify the Department before you may begin your project. Beginning or completing a project that differs in any way from the one described in the notification may constitute a violation of Fish and Game Code section 1602.

Also note that while you are entitled to complete the project without an Agreement, you are still responsible for complying with other applicable local, state, and federal laws. These include, but are not limited to, the state and federal Endangered Species Acts and Fish and Game Code sections 5650 (water pollution) and 5901 (fish passage).

Finally, if you decide to proceed with your project without an Agreement, you must have a copy of this letter and your notification with all attachments available at all times at the work site. If you have any questions regarding this matter, please contact Rebecca Jones at 661- 285-5867 or Rebecca.Jones@wildlife.ca.gov.

Sincerely,

Ali Aghili
Senior Environmental Scientist (Supervisor)

cc: Rebecca Jones

CORR

FOR DEPARTMENT USE ONLY				
Date Received	Amount Received	Amount Due	Date Complete	Notification No.
	$	$		

STATE OF CALIFORNIA

DEPARTMENT OF FISH AND WILDLIFE

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

Complete EACH field, unless otherwise indicated, following the enclosed instructions and submit ALL required enclosures. Attach additional pages, if necessary.

1. APPLICANT PROPOSING PROJECT

Name	Scott Quinnell		
Business/Agency	California Department of Transportation, District 8		
Street Address	464 West Fourth Street		
City, State, Zip	San Bernardino, California, 92401		
Telephone	909-383-6936	Fax	909-383-6494
Email	scott.quinnell@dot.ca.gov		

2. CONTACT PERSON (*Complete only if different from applicant*)

Name	Mario Mariotta		
Street Address	464 West Fourth Street		
City, State, Zip	San Bernardino, California, 92401		
Telephone	909-806-4724	Fax	909-383-6494
Email	mario.mariotta@dot.ca.gov		

3. PROPERTY OWNER (*Complete only if different from applicant*)

Name			
Street Address			
City, State, Zip			
Telephone		Fax	
Email			

4. PROJECT NAME AND AGREEMENT TERM

A. Project Name	Hoff Wash Bridge Replacement			
B. Agreement Term Requested	☑ Regular (*5 years or less*) ☐ Long-term (*greater than 5 years)*			
C. Project Term		D. Seasonal Work Period		E. Number of Work Days
Beginning (*year*)	Ending (*year*)	Start Date (*month/day*)	End Date (*month/day*)	
2016	2017	02/01	11/30	220

5. AGREEMENT TYPE

Check the applicable box. If box B, C, D, or E is checked, complete the specified attachment.	
A.	☑ Standard *(Most construction projects, excluding the categories listed below)*
B.	☐ Gravel/Sand/Rock Extraction (*Attachment A*) *Mine I.D. Number:* _____
C.	☐ Timber Harvesting (*Attachment B*) THP *Number:* _____
D.	☐ Water Diversion/Extraction/Impoundment (*Attachment C*) *SWRCB Number:* _____
E.	☐ Routine Maintenance (*Attachment D*)
F.	☐ CDFW Fisheries Restoration Grant Program (FRGP) *FRGP Contract Number*_____
G.	☐ Master
H.	☐ Master Timber Harvesting

6. FEES

Please see the current fee schedule to determine the appropriate notification fee. Itemize each project's estimated cost and corresponding fee. ***Note: The Department may not process this notification until the correct fee has been received.***

	A. Project	B. Project Cost	C. Project Fee
1	Bridge Replacement	9,542,000	4,912.25
2			
3			
4			
5			
		D. Base Fee *(if applicable)*	
		E. TOTAL FEE ENCLOSED	4,912.25

7. PRIOR NOTIFICATION OR ORDER

A. Has a notification previously been submitted to, or a Lake or Streambed Alteration Agreement previously been issued by, the Department for the project described in this notification?

☐ Yes (*Provide the information below*) ☑ No

Applicant: _____ Notification Number: _____ Date: _____

B. Is this notification being submitted in response to an order, notice, or other directive ("order") by a court or administrative agency (including the Department)?

☑ No ☐ Yes (*Enclose a copy of the order, notice, or other directive. If the directive is not in writing, identify the person who directed the applicant to submit this notification and the agency he or she represents, and describe the circumstances relating to the order.*)

☐ *Continued on additional page(s)*

8. PROJECT LOCATION

A. Address or description of project location.

(*Include a map that marks the location of the project with a reference to the nearest city or town, and provide driving directions from a major road or highway*)

The project is in San Bernardino County, located along interstate 40 (I-40), 10 miles west-north-west of Essex, California as the crow flies. I-40 is a divided 4-lane facility with two 12-ft. lanes in each direction. The project is located at post-mile 93.6 of I-40. At this location the interstate crosses Hoff Wash, which is an intermittent stream that starts in the Clipper Mountains, directly to the south of the project site. The area surrounding the project location features natural mojavean desert scrub vegetation. There is no developed land, with the exception of the highway itself within 500 feet of the project location. To get to the project location from Essex, CA, take Essex Road northwest to I-40, then proceed west along the I-40 for approximately 5 miles.

☐ *Continued on additional page(s)*

B. River, stream, or lake affected by the project.	Hoff Wash
C. What water body is the river, stream, or lake tributary to?	Cadiz Dry Lake
D. Is the river or stream segment affected by the project listed in the state or federal Wild and Scenic Rivers Acts?	☐ Yes ☑ No ☐ Unknown
E. County	San Bernardino

F. USGS 7.5 Minute Quad Map Name	G. Township	H. Range	I. Section	J. ¼ Section
West of Blind Hills	8 N	15 E	17	NW 1/4, NW 1/4

☐ *Continued on additional page(s)*

K. Meridian (*check one*)	☐ Humboldt ☐ Mt. Diablo ☑ San Bernardino

L. Assessor's Parcel Number(s)

N/A

☐ *Continued on additional page(s)*

M. Coordinates (*If available, provide at least latitude/longitude or UTM coordinates and check appropriate boxes)*

Latitude/Longitude	*Latitude:* 34°47'12.87"	*Longitude:* 115°25'23.69" W	
	☑ Degrees/Minutes/Seconds	☐ Decimal Degrees	☐ Decimal Minutes
UTM	*Easting:*	*Northing:*	☐ Zone 10 ☐ Zone 11
Datum used for Latitude/Longitude or UTM	☐ NAD 27	☑ NAD 83 or WGS 84	

9. PROJECT CATEGORY AND WORK TYPE *(Check each box that applies)*

PROJECT CATEGORY	NEW CONSTRUCTION	REPLACE EXISTING STRUCTURE	REPAIR/MAINTAIN EXISTING STRUCTURE
Bank stabilization – bioengineering/recontouring	☐	☐	☐
Bank stabilization – rip-rap/retaining wall/gabion	☐	✔	☐
Boat dock/pier	☐	☐	☐
Boat ramp	☐	☐	☐
Bridge	☐	✔	☐
Channel clearing/vegetation management	☐	☐	☐
Culvert	☐	☐	☐
Debris basin	☐	☐	☐
Dam	☐	☐	☐
Diversion structure – weir or pump intake	☐	☐	☐
Filling of wetland, river, stream, or lake	☐	☐	☐
Geotechnical survey	☐	☐	☐
Habitat enhancement – revegetation/mitigation	☐	☐	☐
Levee	☐	☐	☐
Low water crossing	☐	☐	☐
Road/trail	☐	☐	☐
Sediment removal – pond, stream, or marina	☐	☐	☐
Storm drain outfall structure	☐	☐	☐
Temporary stream crossing	☐	☐	☐
Utility crossing : Horizontal Directional Drilling	☐	☐	☐
Jack/bore	☐	☐	☐
Open trench	☐	☐	☐
Other *(specify)*:	☐	☐	☐

10. PROJECT DESCRIPTION

A. Describe the project in detail. Photographs of the project location and immediate surrounding area should be included.

- Include any structures (e.g., rip-rap, culverts, or channel clearing) that will be placed, built, or completed in or near the stream, river, or lake.
- Specify the type and volume of materials that will be used.
- If water will be diverted or drafted, specify the purpose or use.

Enclose diagrams, drawings, plans, and/or maps that provide all of the following: site specific construction details; the dimensions of each structure and/or extent of each activity in the bed, channel, bank or floodplain; an overview of the entire project area (i.e., "bird's-eye view") showing the location of each structure and/or activity, significant area features, and where the equipment/machinery will enter and exit the project area.

The current bridges of the I-40 over Hoff Wash will be removed. A temporary detour road will cross the median on both sides of the bridges, so that all traffic will be routed onto one bridge while the bridge is demolished and re-constructed.

During construction, the bridges will be rebuilt according to the as-built design specifications. There will be no new structures built in the wash. Rock slope protection will be replaced according to the original design specifications, where it has eroded. Water will not be diverted during work.

Construction staging and storage will occur in the highway median adjacent to the wash. An existing construction access ramp on the western bank of the wash will be reinforced. Access to the wash will be via this ramp, and potentially from a new temporarily constructed access ramp from the eastern bank of the wash.

Temporary desert tortoise exclusion fencing will be installed along the entire length of highway, outside of the shoulder and across the median at the outer edges of the project site. Exclusion fencing will cross the wash during construction activities, but will be removed later. Turnarounds will be installed at the ends of the fencing to route tortoise away from the project site. At the conclusion of construction activities, the fencing will be removed from the site with the exception of the area near the bridge. Fencing will remain in place near the bridge in order to direct tortoises and other wildlife underneath the bridge.

☐ *Continued on additional page(s)*

B. Specify the equipment and machinery that will be used to complete the project.

Crane, concrete truck, excavator, dump truck, construction trucks.

☐ *Continued on additional page(s)*

C. Will water be present during the proposed work period (specified in box 4.D) in the stream, river, or lake (specified in box 8.B).	☐ Yes ☑ No (*Skip to box 11*)
D. Will the proposed project require work in the wetted portion of the channel?	☐ Yes (*Enclose a plan to divert water around work site*) ☐ No

11. PROJECT IMPACTS

A. Describe impacts to the bed, channel, and bank of the river, stream, or lake, and the associated riparian habitat. Specify the dimensions of the modifications in length (linear feet) and area (square feet or acres) and the type and volume of material (cubic yards) that will be moved, displaced, or otherwise disturbed, if applicable.

No new permanent impacts will occur as a result of project construction. The project will access the streambed from an existing ramp on the west bank of the stream, thus temporarily impacting the west bank. The streambed will also be impacted while construction equipment performs project activities there. Temporary fencing will be installed in streambed. streambed = 0.80 acre of temporary impact.

☑ *Continued on additional page(s)*

B. Will the project affect any vegetation? ☑ Yes (*Complete the tables below*) ☐ No

Vegetation Type	Temporary Impact	Permanent Impact
Desert Wash Scrub	Linear feet: 601 Total area: 0.80	Linear feet: 0 Total area: 0
Mojavean Desert Scrub	Linear feet: 4,680 Total area: 27.41	Linear feet: 0 Total area: 0

Tree Species	Number of Trees to be Removed	Trunk Diameter (range)
N/A	N/A	N/A

☐ *Continued on additional page(s)*

C. Are any special status animal or plant species, or habitat that could support such species, known to be present on or near the project site?

☑ Yes *(List each species and/or describe the habitat below)* ☐ No ☐ Unknown

Desert tortoise (Gopherus agassizii)

☐ *Continued on additional page(s)*

D. Identify the source(s) of information that supports a “yes” or “no” answer above in Box 11.C.

Natural Environment Study

☐ *Continued on additional page(s)*

E. Has a biological study been completed for the project site?

☑ Yes (*Enclose the biological study*) ☐ No

Note: A biological assessment or study may be required to evaluate potential project impacts on biological resources.

F. Has a hydrological study been completed for the project or project site?

☐ Yes (*Enclose the hydrological study*) ☑ No

Note: A hydrological study or other information on site hydraulics (e.g., flows, channel characteristics, and/or flood recurrence intervals) may be required to evaluate potential project impacts on hydrology.

12. MEASURES TO PROTECT FISH, WILDIFE, AND PLANT RESOURCES

A. Describe the techniques that will be used to prevent sediment from entering watercourses during and after construction.

Project activities will be halted during percipitation events.
Rock slope protection will be returned to the original design configuration in order to prevent the bank from eroding into the watercourse following construction.

☐ *Continued on additional page(s)*

B. Describe project avoidance and/or minimization measures to protect fish, wildlife, and plant resources.

A temporary desert tortoise fence will be installed around the perimeter of the temporary impact area, including across the wash and across the median in order to prevent desert tortoise from entering the site during construction activities.
A biological monitor will be assigned to the project who will perform weekly monitoring on site to check the integrity of the fence, search for any desert tortoise mortalities in the project area and check for compliance with the project's avoidance and minimization measures.

☐ *Continued on additional page(s)*

C. Describe any project mitigation and/or compensation measures to protect fish, wildlife, and plant resources.

☐ *Continued on additional page(s)*

13. PERMITS

List any local, state, and federal permits required for the project and check the corresponding box(es). Enclose a copy of each permit that has been issued.

A. 401 Water Quality Certification ☑ Applied ☐ Issued

B. Army Corps of Engineers Approved Jurisdictional Determination ☑ Applied ☐ Issued

C. _____ ☐ Applied ☐ Issued

D. Unknown whether ☐ local, ☐ state, or ☐ federal permit is needed for the project. (*Check each box that applies*)

☐ *Continued on additional page(s)*

14. ENVIRONMENTAL REVIEW

A. Has a draft or final document been prepared for the project pursuant to the California Environmental Quality Act (CEQA), National Environmental Protection Act (NEPA), California Endangered Species Act (CESA) and/or federal Endangered Species Act (ESA)?

☑ Yes (*Check the box for each CEQA, NEPA, CESA, and ESA document that has been prepared and enclose a copy of each*)

☐ No (*Check the box for each CEQA, NEPA, CESA, and ESA document listed below that will be or is being prepared*)

☑ Notice of Exemption	☐ Mitigated Negative Declaration	☑ NEPA document (*type*): Categorical exclusion
☑ Initial Study	☐ Environmental Impact Report	☐ CESA document (*type*):
☑ Negative Declaration	☐ Notice of Determination *(Enclose)*	☐ ESA document (*type*):
☐ THP/ NTMP	☐ Mitigation, Monitoring, Reporting Plan	

B. State Clearinghouse Number (*if applicable*)			
C. Has a CEQA lead agency been determined?	☑ Yes (*Complete boxes D, E, and F*)	☐ No (*Skip to box 14.G*)	
D. CEQA Lead Agency	California Department of Transportation		
E. Contact Person	Kerrie Hudson	F. Telephone Number	(909) 383-5918

G. If the project described in this notification is part of a larger project or plan, briefly describe that larger project or plan.

N/A

☐ *Continued on additional page(s)*

H. Has an environmental filing fee (Fish and Game Code section 711.4) been paid?

☑ Yes (*Enclose proof of payment*) ☐ No (*Briefly explain below the reason a filing fee has not been paid)*

Note: If a filing fee is required, the Department may not finalize a Lake or Streambed Alteration Agreement until the filing fee is paid.

15. SITE INSPECTION

Check one box only.

☑ In the event the Department determines that a site inspection is necessary, I hereby authorize a Department representative to enter the property where the project described in this notification will take place at any reasonable time, and hereby certify that I am authorized to grant the Department such entry.

☐ I request the Department to first contact (*insert name*) _____ at (*insert telephone number*) _____ to schedule a date and time to enter the property where the project described in this notification will take place. I understand that this may delay the Department's determination as to whether a Lake or Streambed Alteration Agreement is required and/or the Department's issuance of a draft agreement pursuant to this notification.

16. DIGITAL FORMAT

Is any of the information included as part of the notification available in digital format (i.e., CD, DVD, etc.)?

☐ Yes (Please enclose the information via digital media with the completed notification form)

☐ No

17. SIGNATURE

I hereby certify that to the best of my knowledge the information in this notification is true and correct and that I am authorized to sign this notification as, or on behalf of, the applicant. I understand that if any information in this notification is found to be untrue or incorrect, the Department may suspend processing this notification or suspend or revoke any draft or final Lake or Streambed Alteration Agreement issued pursuant to this notification. I understand also that if any information in this notification is found to be untrue or incorrect and the project described in this notification has already begun, I and/or the applicant may be subject to civil or criminal prosecution. I understand that this notification applies only to the project(s) described herein and that I and/or the applicant may be subject to civil or criminal prosecution for undertaking any project not described herein unless the Department has been separately notified of that project in accordance with Fish and Game Code section 1602 or 1611.

_____ _____

Signature of Applicant or Applicant's Authorized Representative Date

_____

Print Name

Impacts Within CDFW's Bed and Bank Jurisdiction

CDFW Jurisdiction

Temporary Impact Area

N

0 45 90 180 270 360 Feet