

INFORMATION HANDOUT

**For Contract No. 07-259024
At 07-LA-5, 10, 91, 110, 134-Var**

**Identified by
Project ID 0713000046**

MATERIALS INFORMATION

Geotechnical Design Report

Fiber Optic System as-built drawing

Hazardous Waste Sample Locations Map

Memorandum

*Flex your power!
Be energy efficient!*

To: MR. AMIR ELSHARIEF,
Senior Transportation Engineer
District 7, Office of Design "C"

Date: December 2, 2013

File: 07-LA-VAR-PM/VAR
0713000046 (EA 07-259021)
LA River TMDL's Project

Attention: Mr. Dan Pham

From: DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design – South 1 MS # 18

Subject: Geotechnical Design Report for Los Angeles River Metal Total Maximum Daily Load Project

1.0 Scope of Work

The Office of Geotechnical Design South 1 has prepared this Memorandum to provide the Geotechnical Design Report for the Los Angeles River TMDL's (Total Maximum Daily Load) Project. This report is based on the information provided by your office including the Corridor Stormwater Management Studies conducted for this project (2009 to 2010), and additional project information provided by the District Design Office including draft plans, specifications, hydraulic plans, survey results, and cross sections. This report includes discussions of geology at Location No. 1 through Location No. 18 and specific recommendations at locations selected by your office per email dated September 27, 2013.

2.0 Project Description

This project is in the PS&E phase for the Los Angeles River TMDL's project (EA 259021), to attain water quality standards for stormwater discharged from the State's drainage system to the Los Angeles River. This project includes construction of 17 Austin Vault Sand Filters (AVSF) (Location 4 has a single and a double AVSF), one Biofiltration Swale (BSW) and one Biofiltration Strip (BST). There will be a need for reconstructing/realigning the existing drainage systems at some of the project locations to install the devices. The devices are to be constructed outside the traveled way and within the State Right of Way. Final locations for the placement of devices have been identified based on the recommendations of the Corridor Stormwater Management Study and based on input from the Hydraulics Unit.

3.0 Geotechnical Investigation

There are a total of 18 locations. Borings were conducted at 17 of the 18 locations and a total of 19 borings were completed (2 borings were conducted for locations L-4 and L-5 and no boring was conducted for location L-16). Borings were completed using hollow stem augers by either a CME 85 truck mounted drill rig or a CS 1000 track mounted drill rig. Samples were collected using the

Standard Penetration Test method (ASTM D 1586 and ASTM D 6066) where a 1.4-inch diameter sampler was hammered into the ground by a 140-pound automatic hammer. The number of blows required to pound the sampler from 0.5 to 1.5 feet below the cleanout depth of each sample interval were recorded to determine the relative density of the soils. All borings were logged using the Caltrans Soil and Rock Logging Manual, 2010. The types of material encountered were classified and the results are presented as Boring Records in Appendix A of this report. Summary of borings is presented in Table 1.

Table 1. Summary of Borings

Location No.	Plan Location	Type of Device	Boring No.	Reference Line for Stationing and Offset	Stationing and Offset	Top of Boring Elev. (ft)	Total Depth (ft)	Date
1	SB I-5 & S. Concord St.	AVSF	A-13-016	"A1" Rte 5	80' Lt. Sta. 835+25	238.5	42.5	7/16/13
2	SB I-5 & Rte 10	AVSF	A-13-015	"A1" Rte 5	95' Lt. Sta. 966+40	327.0	42.5	7/17/13
3	NB I-5 & Rte 110	AVSF	A-13-019	"A1" Rte 5	110' Lt. Sta. 1075+60	340.0	42.5	7/9/13
4	NB I-5 & Riverside Dr.	AVSF	A-13-008	"A1" Rte 5	270' Rt. Sta. 1100+60	328.0	42.5	7/9/13
			A-13-009	"A1" Rte 5	200' Lt. Sta. 1101+50	333.0	32.5	7/9/13
5	SB I-5 & SR 2	BSW	A-13-012	"A1" Rte 5	220' Lt. Sta. 1195+30	379.0	26.5	7/10/13
			A-13-013	"A1" Rte 5	200' Lt. Sta. 1195+33	369.0	31.5	7/10/13
6	NB I-5 & Colorado Blvd.	AVSF	A-13-014	"A1" Rte 5	120' Rt. Sta. 1365+15	434.0	41.2	7/11/13
7	WB I-10 & Campus Rd.	AVSF	A-13-017	"B1" Rte 10	100' Lt. Sta. 1112+00	406.0	37.5	7/16/13
8	WB 91 & Willowbrook St.	AVSF	A-13-002	"C1" Line Rte 91	98' Lt. Sta. 189+25	100.0	42.0	6/11/13
9	EB 91 & Alameda Str.	AVSF	A-13-001	"C1" Line Rte 91	120' Rt. Sta. 192+50	93.5	42.0	6/11/13
10	NB I-110 & Manchester Ave.	AVSF	A-13-003	"D1" Line Rte 110	150' Rt. Sta. 837+95	145.0	41.5	6/12/13
11	SB I-110 & Manchester Ave.	AVSF	A-13-005	"D1" Line Rte 110	155' Lt. Sta. 839+60	147.0	42.0	6/11/13
12	SB I-110 & Manchester Ave.	AVSF	A-13-004	"D1" Line Rte 110	160' Lt. Sta. 848+25	149.0	42.0	6/12/13
13	SB I-110 & Slauson Ave	AVSF	A-13-007	"D1" Line Rte 110	160' Lt. Sta. 945+00	174.0	41.5	6/13/13
14	NB I-110 & MLK Blvd.	AVSF	A-13-006	"D1" Line Rte 110	125' Rt. Sta. 1023+65	190.0	42.0	6/12/13
15	NB I-110 & W 37 th St.	AVSF	A-13-011	"D1" Line Rte 110	185' Rt. Sta. 1049+60	193.0	42.5	7/10/13
17	WB 134 & Route 2	AVSF	A-13-018	"E1" Line Rte 134	197' Lt. sta. 616+60	699.8	42.5	7/17/13
18	EB 134 & Figueroa St.	AVSF	A-13-010	"E1" Line Rte 134	85' Rt. Sta. 749+25	869.1	41.8	7/9/13

4.0 Geologic Considerations

4.1 Regional Geology

The Los Angeles River drainage area shares portions of the Transverse Ranges Geologic Province and the Peninsular Range Geologic Province. The southern portion of the drainage is within the Peninsular Ranges which are characterized by northerly and northwesterly trending mountain ranges and associated valleys. This project area for Locations 7-15 are located within the Coastal Plain of Los Angeles County, which is comprised of shallow Pleistocene marine sediments overlain by Holocene alluvial deposits (Department of Water Resources, 1961). The Coastal Plain is bounded by the Santa Monica Mountains, Elysian Hills, Repetto Hills, Merced Hills and Puente Hills on the north and bounded by the Palos Verdes Hills on the south. Northwest-southeast trending strike-slip faults are present within and bordering the Coastal Plain (Newport Inglewood Fault and Whittier Fault). Reverse and thrust faults including the Santa Monica-Hollywood Fault and Puente Hills Thrust Fault are present and associated with shortening or compression of the Coastal Plain.

The northern portion of the Los Angeles River Drainage is within the Transverse Ranges Province which is characterized by east-west trending mountains and valleys. This area of the project including Locations 1-6 and 17-18, is bounded on the south by the Santa Monica Mountains, Elysian Hills, Repetto Hills, Merced Hills and Puente Hills and on the north by the San Gabriel Mountains, The Verdugo Mountains and the San Rafael Hills. East-west trending faults associated with this area include the Puente Hills Thrust, Sierra Madre, Raymond and San Gabriel faults.

4.2 Site Geology

In general all of the sites consist of alluvium or fill over alluvium. The alluvium is derived locally from river and stream deposits and consists of sand, silt, clay and gravels and mixtures of all of these materials. The types of material encountered were classified and the results are presented as Boring Records in Appendix A of this report. The site geology based on the borings conducted for this project is discussed for each location in the following paragraphs. All elevations below are in feet above mean sea level.

Location No. 1: AVSF at I-5 & S. Concord St. (Layout sheet L-1):

The site is located on a gentle slope away from the freeway behind an existing soundwall. The freeway is in fill. The fill may range from 0 to 15 feet thick on the site. The slope was landscaped with thick vegetation at the time of the investigation. One boring A-13-016 was conducted. Medium dense sand was encountered from the surface elevation of 238.5 feet to approximately elevation 222.5 feet. Loose sand was encountered from elevation 222.5 feet to approximate elevation 213.5 feet. Very stiff clay was encountered from elevation 213.5 feet to approximate elevation 202.0 feet. Very dense sand was encountered from elevation 202.0 feet to the bottom of the boring at approximate elevation 116.0 feet. No groundwater was encountered.

Location No. 2: AVSF at SB I-5 & Rte 10. (Layout sheet L-2):

The site is located at the dirt gore area between a freeway connector and the SB I-5 mainline. The freeway and surrounding areas appear to be at or near original grade. One boring A-13-015 was conducted. Medium dense sand with silt was encountered from the surface elevation of 327.0 feet to approximately elevation 315.5 feet. Interbedded very stiff sandy clay and medium dense sand was encountered from elevation 315.5 feet to approximately elevation 284.5 feet. Groundwater was encountered at elevation 310.5 feet at the time of the boring approximately 16.5 feet below the surface.

Location No. 3: AVSF at SB I-110 ramp to NB I-5 (Layout sheet L-3):

The site is located between an on-ramp and the Arroyo Seco Flood Channel just north of the mainline Route 5. The site is in fill. One boring A-13-019 was conducted. Loose to dense sandy material with debris was encountered from the surface at elevation 340.0 feet to approximately elevation 307.5 feet. This material looks like an old un-regulated landfill and non-engineered fill. Medium dense sand was encountered below the fill from elevation 307.5 feet to the bottom of the boring at approximately elevation 297.5 feet. Groundwater was encountered at elevation 299.5 feet approximately 40.5 feet below the surface.

Location No. 4: AVSF at I-5 & Riverside Dr. (Layout sheet L-4):

The site is located between Riverside Drive which is at grade and the on-ramp to the NB I-5 which is in fill. There are two AVSF's proposed at this location. Two borings were conducted (one at each AVSF location) A-13-008 and A-13-009. Loose to medium dense sand was encountered in both borings from the surface at approximate elevation 330.0 feet to approximate elevation 306.5 feet. Medium stiff silt and clay interbedded with loose sand was encountered from elevation 306.5 feet to the bottom of the borings at approximate elevation 300.0 feet. Groundwater was encountered in both borings at elevation 306.5 feet approximately 21.5 to 26.0 feet below the ground surface.

Location No. 5: BSW at SB I-5 & SR 2 (Layout sheet L-5):

The site is located between Riverside Drive which is at grade and the on-ramp to the SB SR-2 which is in fill. There is a BSW proposed at this location. Two borings were conducted (one on the fill and one at grade) A-13-012 and A-13-013. Medium dense sand, stiff clay, and concrete was encountered in the fill for the ramp from the surface elevation at 379.0 feet to approximate elevation 349.0 feet. Very loose to medium dense sand was encountered in boring A-13-013 from the surface elevation of 369.0 feet to elevation 343.5 feet. Sedimentary rock was encountered from elevation 343.5 feet to the bottom of the boring at elevation 337.5 feet. Groundwater was encountered in boring A-13-013 at elevation 344.0 feet approximately 25.0 feet below the ground surface.

Location No. 6: AVSF at Colorado Street On ramp to NB I-5 (Layout sheet L-6):

The site is between the NB I-5 freeway on-ramp and the Los Angeles River channel. The site appears to be at grade below the freeway on-ramp that is in fill. One boring A-13-014 was conducted at the base of the fill in the area of the proposed AVSF. Medium dense to dense sand with cobbles was encountered from the surface elevation of 434.0 feet to elevation 403.0 feet. This material also contained concrete and was interpreted as fill. Soft clay was encountered from elevation 403.0 to 399.0 feet. Dense sand was encountered from elevation 399.0 feet to the bottom of the boring at elevation 393.0 feet. Groundwater was encountered at elevation 410.0 feet, approximately 24.0 feet below ground surface.

Location No. 7: AVSF at WB I-10 & Campus Road (Layout sheet L-7):

The site is between the WB I-10 and the connector lanes from the SB 710 to the WB I-10. The site appears to be at grade of in some thin fill. One boring A-13-017 was conducted. Stiff silt was encountered from the surface elevation of 406.0 feet to elevation 395.0 feet. Stiff to medium stiff interbedded silt and clay was encountered from elevation 395.0 feet to 381.0 feet. Sedimentary rock was encountered from elevation 381.0 feet to the bottom of the boring at elevation 368.5 feet. Groundwater was encountered at elevation 380.0 feet, approximately 26.0 feet below ground surface.

Location No. 8: AVSF at WB SR 91 & Artesia (Layout sheet L-8):

The site is between the WB SR 91 and Artesia Blvd. The freeway and the slope below is in fill section. One boring A-13-002 was conducted along the top of the embankment along the WB SR 91 above the proposed AVSF location. Medium dense sand with cobbles fill was encountered for the entire depth of the boring from elevation 100.0 feet to elevation 58.0 feet. No Groundwater was encountered.

Location No. 9: AVSF at EB SR 91 Off ramp to S. Alameda Street (Layout sheet L-8):

The site is adjacent to the EB SR 91 near the off-ramp to S. Alameda Street. The freeway and the slope below is in fill section. One boring A-13-001 was conducted in the area between the off-ramp and the freeway at the approximate location of the proposed AVSF. Medium dense silt with sand and silty sand with asphalt pieces (fill) was encountered from the surface elevation of 93.5 feet to elevation 71.0 feet. Below the fill medium dense silt with sand was encountered from elevation 71.0 feet to elevation 53.5 feet. No groundwater was encountered.

Location No. 10: AVSF at NB I-110 at Manchester (Layout sheet L-9):

The site is adjacent to the NB I-110 near the off-ramp to Manchester. The freeway and the slope below is in fill section. One boring A-13-003 was conducted in the area between the off-ramp and the freeway at the approximate location of the proposed AVSF. Medium dense sand (fill) and an old asphalt road was encountered from the surface elevation of 147.0 feet to elevation 132.0 feet.

Below the fill medium dense sand was encountered from elevation 132.0 to the bottom of the boring at elevation 105.0 feet. No groundwater was encountered.

Location No. 11: AVSF at SB I-110 from EB Manchester (Layout sheet L-9):

The site is adjacent to the SB I-110 near the on-ramp from EB Manchester . The freeway and the slope below is in fill section. One boring A-13-005 was conducted in the area between the off-ramp and the freeway at the approximate location of the proposed AVSF. Medium dense sand with silt with concrete debris (fill) was encountered from the surface elevation of 145.0 feet to elevation 129.0 feet. Below the fill stiff clay was encountered from elevation 129.0 feet to elevation 113.5 feet. Dense sand was encountered from elevation 113.5 feet to the bottom of the boring at elevation 103.5 feet. No groundwater was encountered.

Location No. 12: AVSF at SB I-110 to WB Manchester (Layout sheet L-9):

The site is adjacent to the SB I-110 near the off-ramp to WB Manchester. The freeway and the slope below is in fill section. One boring A-13-004 was conducted in the area between the off-ramp and the freeway at the approximate location of the proposed AVSF. Very dense sand with gravel and cobbles (fill) was encountered from the surface elevation of 149.0 feet to elevation 132.0 feet. Below the fill medium to very dense sand with clay, sand with silt and sand was encountered from elevation 132.0 to the bottom of the boring at elevation 107.0 feet. No groundwater was encountered.

Location No. 13: AVSF at SB I-110 & Slauson (Layout sheet L-10):

The site is adjacent to the SB I-110 near the off-ramp and on-ramp to and from Slauson Blvd. The freeway and the slope below is in fill section. One boring A-13-007 was conducted in the area between the off-ramp and on-ramp and the freeway at the approximate location of the proposed AVSF. Medium dense sand with silt with brick debris (fill) was encountered from the surface elevation of 174.0 feet to elevation 148.5 feet. Below the fill loose to medium dense sand was encountered from elevation 148.5 feet to elevation 138.5 feet. Stiff to very stiff silt and clay was encountered from elevation 138.5 feet to the bottom of the boring at elevation 132.5 feet. No groundwater was encountered.

Location No. 14: AVSF at NB I-110 & MLK (Layout sheet L-11):

The site is adjacent to the NB I-110 near the off-ramp and on-ramp to/from MLK Blvd. The freeway and the slope below is in fill section. One boring A-13-006 was conducted in the area between the off-ramp and on-ramp and the freeway at the approximate location of the proposed AVSF. Dense sand with silt with brick debris (fill) was encountered from the surface elevation of 190.0 feet to elevation 175.0 feet. Below the fill loose to medium dense sand was encountered from elevation 175.0 feet to elevation 164.0 feet. Loose sand with silt was encountered from elevation 164.0 feet to the bottom of the boring at elevation 148.0 feet. No groundwater was encountered.

Location No. 15: AVSF at NB I-110 and West 37th Street (Layout sheet L-12):

The site is adjacent to the NB I-110 near the off-ramp to W 37th Street. The freeway and the slope below is in fill section. One boring A-13-011 was conducted in the area between the off-ramp and the freeway at the approximate location of the proposed AVSF. Dense to medium dense sand (fill) was encountered from the surface elevation of 193.0 feet to elevation 173.0 feet. Below the fill clay with gravel was encountered from elevation 173.0 to 170.0 feet. Very dense sand and silty sand was encountered from elevation 170.0 feet to 150.5 feet. No groundwater was encountered.

Location No. 16: BST at SB I-110 & 2nd Street (Layout sheet L-13):

The location is located between the SB-I-110 and the off-ramp to Second Street. No boring was conducted at this location. The site is in fill and the surface soils consist of sand and silt.

Location No. 17: AVSF at NB SR-2 to the WB 134 (Layout sheet L-14):

The site is adjacent to the ramp from the NB 2 to the WB 134. The freeway and the slope below is in fill section. One boring A-13-018 was conducted in the loop area of the off-ramp at the approximate location of the proposed AVSF. Medium dense to very dense sand (fill) and wood debris was encountered from the surface elevation of 699.8 feet to elevation 663.8 feet. Below the fill loose sand was encountered from elevation 663.8 to the bottom of the boring at elevation 657.3 feet. No groundwater was encountered.

Location No. 18 AVSF and Manhole at EB SR 134 Off ramp to N. Figueroa Street (L-15):

The site is located adjacent to the EB 134 freeway just east of Figueroa Street off-ramp. The freeway is in fill and the area of the proposed AVSF is descending away from the freeway. One boring A-13-010 was conducted. Loose to medium dense sand with gravel and with brick and asphalt debris was encountered in the fill from the surface elevation at 869.1 feet to approximate elevation 839.1 feet. Sedimentary rock was encountered from elevation 839.1 feet to the bottom of the boring at approximate elevation 827.3 feet. No groundwater was encountered.

4.3 Groundwater

Groundwater within the Los Angeles River basin is highly variable. In some areas the groundwater is very deep but in other areas the groundwater is near the surface and could be groundwater or perched water. Groundwater was encountered in the borings for some of the AVSF and is discussed in the Site Geology, Section 4.2 above. Seasonal or localized groundwater may be higher during and after heavy rainfall seasons which may lead to a condition of shallow groundwater. When this occurs during or prior to construction of the project then precautions may need to be taken for dewatering of excavations at the AVSF locations.

4.4 Seismicity

The seismicity in the area of the project is based on many different faults located in the Los Angeles area. The AVSF structures are based on Standard Plans and do not require input from Headquarters Structure Design. Therefore, no analysis has been performed to develop and recommend ground motion parameters for the seismic design of these structures. The AVSF locations are basically four walls with the bottom constructed of reinforced concrete and filled with sand and are not critical structures that may be impacted by earthquakes. The main issue in an earthquake is ground shaking and deformation of the soils from settlement, ground rupture and liquefaction induced settlement and spreading. If these AVSF are subjected to earthquakes they may expect to be damaged primarily by heavy ground shaking which could be expected to produce damage in the form of settlement and possibly broken connections to the hydraulic lines into or out of the AVSF.

4.5 Liquefaction Potential

Liquefaction is a phenomenon in which loose and saturated, fine grained granular soils behave like a fluid when subjected to high intensity ground shaking. Liquefaction occurs when three general conditions exist: (1) shallow ground water (2) low-density, fine sandy soils and (3) high-intensity ground motion. Saturated, loose and medium dense, near surface cohesionless soils exhibit the liquefaction potential, while dense cohesionless soil and cohesive soil exhibit the lowest, negligible liquefaction potential. Effects of liquefaction on ground surface include sand boils, settlement and lateral spreading. Groundwater was not encountered or is too deep to cause liquefaction at Locations 1, 3, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, and 18, therefore liquefaction is considered low. Groundwater was encountered in borings for AVSF at Locations 2, 4, and 6 of this project and liquefaction potential is considered to be moderate to low.

4.6 Corrosion Evaluation

Composite soil samples from many of the exploratory borings at the AVSF locations were tested at the Southern Regional Transportation Laboratory in Fontana or the Headquarters Soils and/or Chemical Laboratory for corrosion potential. A summary of corrosion test results is presented in Table 2.

Caltrans considers a site to be corrosive if one or more of the following conditions exist for the representative soil and/or water samples taken at the site: Chloride concentration is greater than or equal to 500 ppm, sulfate concentration is greater than or equal to 2000 ppm, or the pH is 5.5 or less.

Based on the results of corrosion analyses, the sites are considered non-corrosive to metal and reinforced concrete.

Table 2 - Corrosion Test Results

Location No.	Boring No.	Sample Depth	pH	Minimum Resistivity (Ohm-Cm)	Sulfate* Content (PPM)	Chloride* Content (PPM)
9	A-13-001	0' - 42'	8.27	1300	-	-
8	A-13-002	0' - 42'	8.34	1400	-	-
11	A-13-003	0' - 42'	8.24	1100	-	-
12	A-13-004	0' - 42'	8.23	1800	-	-
10	A-13-005	0' - 41.5'	8.30	1050	-	-
14	A-13-006	0' - 42'	8.29	2400	-	-
13	A-13-007	0' - 41.5'	8.45	2500	-	-
4	A-13-008	0' - 42.5'	8.15	3700	-	-
18	A-13-010	0' - 41.8'	8.16	2200	-	-
15	A-13-011	0' - 41'	8.87	4000	-	-
5	A-13-013	0' - 31.5'	8.22	2300	-	-
6	A-13-014	0' - 41.2'	7.27	9900	-	-
2	A-13-015	0' - 42.5'	7.64	1400	-	-
1	A-13-016	0' - 42.5'	7.47	1200	-	-
7	A-13-017	0' - 37.5'	8.23	693	1250	40
17	A-13-018	0' - 42.5'	8.21	2100	-	-
3	A-13-019	0' - 42.5'	8.09	1020	-	-

* The Corrosion Technology Section policy states that if the minimum resistivity is greater than 1000 Ohm-Cm the sample is considered to be non-corrosive and testing to determine sulfate and chloride is not performed.

5.0 Geotechnical Considerations

The following locations were selected for geotechnical considerations as your office has requested geotechnical input for these locations via email dated September 27, 2013.

Location No. 1: AVSF at I-5 & S. Concord St. (Layout sheet L-1):

There is an existing sound wall approximately 3.7' away from the side wall of AVSF. Therefore, permanent active shoring is recommended for that side. For other three sides, if 1:2 (V:H) slope

cannot be maintained for back cut during excavation due to limited space, temporary shoring is required.

Location No. 2: AVSF at SB I-5 & Rte 10. (Layout sheet L-2):

There are existing curbs approximately 5' and 7' away from two side walls of AVSF. Therefore, temporary shoring is required for these side walls. For other two sides, if 1:2 (V:H) slope cannot be maintained for back cut during excavation due to limited space, temporary shoring is required.

Pipe jack (item "2i"), 18' deep pipe near shoulder (item "2k"), and 11' deep pipe near shoulder (item "2a") (Sheet W-2):

Pipe Jacking is feasible for the soil types encountered in this area. Where entry/exit pits are required for pipe jacking temporary shoring or temporary back cut is recommended. Any areas of temporary back cut should use 1:2 (V:H) slopes. Where there is not enough room to accommodate temporary back cut temporary shoring will be necessary.

16' deep jack pipe near existing wing walls (item "2n") (Sheet W-2):

There are two existing wing walls near the proposed pipe jack, perpendicular to the pipe alignment. Therefore, permanent active shoring is recommended near the wing walls.

Location No. 3: AVSF at SB I-110 ramp to NB I-5 (Layout sheet L-3):

There is an existing bridge footing supported on piles, approximately 8' away from the side wall of AVSF. Therefore, permanent active shoring is recommended for that side.

For other three sides, if 1:2 (V:H) slope cannot be maintained for back cut during excavation due to limited space, temporary shoring is required.

Retaining Wall No. 180 near Bridge Abutment (Layout sheet L-3):

Type 1 Retaining Wall as per Caltrans Standard Plans is feasible from the geotechnical perspective, provided existing structure is protected by an active shoring system.

Pipe jack (items "4e" and "4g") (Sheet W-3):

Pipe Jacking is feasible in the soil types encountered in this area. Where entry/exit pits are required for pipe jacking temporary shoring or back cut is recommended. Any areas of back cut should use 1:2 (V:H) slopes. Where there is not enough room to accommodate back cut, temporary shoring will be necessary.

Location No. 4: AVSF at I-5 & Riverside Dr. (Layout sheet L-4):

The Right of Way is approximately 3.5' away from side wall of AVSF. Therefore, temporary or permanent shoring with sheet piles or soldier piles with lagging is required for this side. For other three sides, if 1:2 (V:H) slope cannot be maintained for back cut during excavation due to limited space, temporary shoring is required.

Pipe jack (items "6b" and "7b") (Sheet W-4):

Pipe Jacking is feasible in the soil types encountered in this area. Where entry/exit pits are required for pipe jacking temporary shoring or back cut is recommended. Any areas of back cut should use 1:2 (V:H) slopes. Where there is not enough room to accommodate back cut, temporary shoring will be necessary.

Location No. 6: AVSF at Colorado Street On ramp to NB I-5 (Layout sheet L-6):

The Right of Way is approximately 3.5' away from side wall of AVSF. Therefore, temporary or permanent shoring with sheet piles or soldier piles with lagging is required for this side. For other three sides, if 1:2 (V:H) slope cannot be maintained for back cut during excavation due to limited space, temporary shoring is required.

Location No. 9: AVSF at EB SR 91 Off ramp to S. Alameda Street (Layout sheet L-8):

The existing MBGR is approximately 6' away from one side wall of AVSF. Therefore, temporary shoring is required for this side. For other three sides, if 1:2 (V:H) slope cannot be maintained for back cut during excavation due to limited space, temporary shoring is required.

Manhole (item "15r") at EB SR 91 Off ramp to S. Alameda Street (WPC Plan W-8):

Proposed 23' deep manhole is approximately 13' away from shoulder of EB SR 91 and near the bridge abutment. Therefore, permanent shoring is required for the construction of this manhole.

Location No. 15: AVSF at NB I-110 and West 37th Street (Layout sheet L-12):

The existing MBGR is approximately 10' away from side wall of AVSF. This side will be on slope as well. Therefore, permanent active shoring is required for this side. For other three sides, if 1:2 (V:H) slope cannot be maintained for back cut during excavation due to limited space, temporary shoring is required.

Two Manholes at EB SR 134 Off Ramp to N. Figueroa Street (WPC Plan W-15):

Proposed 18' deep manholes are at the toe of uphill. Therefore, permanent shoring is required for the construction of these manholes.

6.0 Conclusions and Recommendations

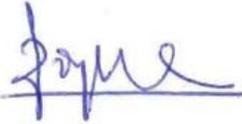
In conclusion this project is feasible from the geotechnical perspective. For permanent active shoring recommended for locations where there are existing structures.

7.0 Construction Considerations

1. For sides of any AVSF, manholes or hydraulic pipes, if 1:2 (V:H) slope cannot be maintained for back cut during excavation due to limited space, temporary shoring is required.
2. Ground water was encountered during field investigation at bottom of elevation of AVSFs at Locations No. 2 and Location No. 6. Dewatering may be necessary during construction at these locations. However, if seasonal groundwater is encountered in any excavation for AVSF construction, dewatering will be necessary.
3. If loose or soft material is encountered in the base of any excavation for AVSF, over-excavation of the layer of loose or soft material up to 5', and replacement with granular material at 90% compaction is recommended to assure adequate bearing capacity for the footing.

If you have any questions or comments, please call Christopher Harris at (213) 620-2147, or Deepa Wathugala at (213) 620-2134.

Prepared by: Date: 12/2/2013



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Office of Geotechnical Design – South 1
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Supervised by: Date: 12/2/2013



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Prepared by: Date: 12/2/2013



Christopher Harris, P.G., C.E.G.
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APPENDIX A

BORING RECORDS

LOGGED BY C. Harris	BEGIN DATE 6-11-13	COMPLETION DATE 6-11-13	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID A-13-001
DRILLING CONTRACTOR Caltrans			BOREHOLE LOCATION (Offset, Station, Line) 120.0' Rt Sta 192+50 "C1" Line	SURFACE ELEVATION 93.5 ft
DRILLING METHOD Hollow-Stem Auger			DRILL RIG CME-85	BOREHOLE DIAMETER 6 in
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")			SPT HAMMER TYPE Automatic	HAMMER EFFICIENCY, ERI 68%
BOREHOLE BACKFILL AND COMPLETION Backfill with cttings; Bentonite chip plug			GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS	TOTAL DEPTH OF BORING 42.0 ft

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		SILT with SAND (ML); medium dense; brown; dry; few fine SAND ; (Fill).												CR (0' - 42')
88.50	5			X	1	3 8	15								
83.50	10		SILTY SAND (SM); medium dense; brown; dry; fine SAND ; (Fill).	X	2	3 11	18								
78.50	15			X	3	6 10 13	23								
73.50	20		ASPHALT @ 21.5' to 22.0' (Fill).	X	4	5 7 7	14								
68.50	25		SILT with SAND (ML); medium dense; light brown; moist. Color changes at 26.5' to dark gray.	X	5	4 5 5	10								
63.50	30		Cobbles at 31.5'; medium dense.	X	6	10 7 7	14								
58.50	35		Light gray.	X	7	7 8 8	16								
53.50	40		CLAYEY SILT (ML/CL); medium stiff; moist; dark gray/black; pp = 0.75 tsf.	X	8	2 2 4	6								
			Bottom of borehole at 42.0 ft bgs												
48.50	45		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												
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REPORT TITLE BORING RECORD				HOLE ID A-13-001
DIST. 07	COUNTY LA	ROUTE SR 91	POSTMILE 10.2	PROJECT ID 0713000046
PROJECT OR BRIDGE NAME Storm Water BMPs for LA River Metal TMDL				
BRIDGE NUMBER	PREPARED BY D. Wathugala	DATE 7-29-13	SHEET 1 of 1	

LOGGED BY C. Harris	BEGIN DATE 6-11-13	COMPLETION DATE 6-11-13	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID A-13-002
DRILLING CONTRACTOR Caltrans	BOREHOLE LOCATION (Offset, Station, Line) 98.0' Lt Sta 189+25 "C1" Line		SURFACE ELEVATION 100.0 ft	
DRILLING METHOD Hollow-Stem Auger	DRILL RIG CME-85		BOREHOLE DIAMETER 6 in	
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")	SPT HAMMER TYPE Automatic		HAMMER EFFICIENCY, ERI 68%	
BOREHOLE BACKFILL AND COMPLETION Backfill with cttings; Bentonite chip plug	GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS		TOTAL DEPTH OF BORING 42.0 ft	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		Poorly graded SAND (SP); medium dense; brown; dry; trace GRAVEL ; few fine SAND ; (Garbage; Fill).												CR (0' - 42')
95.00	5			X	1	7 10 12	22								
90.00	10			X	2	5 9 11	20								
85.00	15			X	3	6 7 9	16								
80.00	20		Dense.	X	4	7 13 16	29								
75.00	25		Medium dense; moist; trace CLAY.	X	5	7 7 8	15								
70.00	30		Cobbles @ 31.5'; Fill.	X	6	7 11 13	24								
65.00	35		Mottled; Fill.	X	7	10 11 12	23								
60.00	40		No recovery.	X		5 7 7	14								
			Bottom of borehole at 42.0 ft bgs												
55.00	45		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												
50	50														

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REPORT TITLE BORING RECORD				HOLE ID A-13-002
DIST. 07	COUNTY LA	ROUTE SR 91	POSTMILE 10.1	PROJECT ID 0713000046
PROJECT OR BRIDGE NAME Storm Water BMPs for LA River Metal TMDL				
BRIDGE NUMBER	PREPARED BY D. Wathugala		DATE 9-1-13	SHEET 1 of 1

LOGGED BY C. Harris	BEGIN DATE 6-11-13	COMPLETION DATE 6-11-13	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID A-13-003
DRILLING CONTRACTOR Caltrans			BOREHOLE LOCATION (Offset, Station, Line) 150.0' Rt Sta 837+95 "C1" Line	SURFACE ELEVATION 147.0 ft
DRILLING METHOD Hollow-Stem Auger			DRILL RIG CME-85	BOREHOLE DIAMETER 6 in
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")			SPT HAMMER TYPE Automatic	HAMMER EFFICIENCY, ERI 68%
BOREHOLE BACKFILL AND COMPLETION Backfill with cttings; Bentonite chip plug			GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS	TOTAL DEPTH OF BORING 42.0 ft

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		Poorly graded SAND (SP); medium dense; brown; dry; mostly fine SAND ; trace CLAY; trace SILT.												CR (0' - 42')
142.00	5			X	1	6 7 10	17								
137.00	10		Old Road @ 11.5'.	X	2	4 7 50/1"	57/7								bouncing on Asphalt
132.00	15		Moist; trace coarse SAND.	X	3	6 10 11	21								
127.00	20		Few coarse SAND @ 20.5'.	X	4	12 11 11	22								
122.00	25			X	5	4 7 8	15								
117.00	30		Dense; light Brown; few CLAY; trace SILT.	X	6	11 14 18	32								
112.00	35		Trace medium SAND.	X	7	6 10 18	28								
107.00	40		Trace CLAY; trace SILT.	X	8	12 8 17	25								
			Bottom of borehole at 42.0 ft bgs												
102.00	45		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												
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REPORT TITLE BORING RECORD				HOLE ID A-13-003
DIST. 07	COUNTY LA	ROUTE I-110	POSTMILE 15.8	PROJECT ID 0713000046
PROJECT OR BRIDGE NAME Storm Water BMPs for LA River Metal TMDL				
BRIDGE NUMBER	PREPARED BY D. Wathugala	DATE 9-1-13	SHEET 1 of 1	

LOGGED BY C. Harris	BEGIN DATE 6-12-13	COMPLETION DATE 6-12-13	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID A-13-004
DRILLING CONTRACTOR Caltrans	BOREHOLE LOCATION (Offset, Station, Line) 160.0' Lt Sta 848+25 "C1" Line		SURFACE ELEVATION 149.0 ft	
DRILLING METHOD Hollow-Stem Auger	DRILL RIG CME-85		BOREHOLE DIAMETER 6 in	
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")	SPT HAMMER TYPE Automatic		HAMMER EFFICIENCY, ERI 68%	
BOREHOLE BACKFILL AND COMPLETION Backfill with cttings; Bentonite chip plug	GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS		TOTAL DEPTH OF BORING 42.0 ft	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		Poorly graded SAND (SP); very dense; light brown; dry; few coarse GRAVEL ; mostly fine SAND ; (Fill).												CR (0' - 42')
144.00	5			X	1	9 23 43	66								
139.00	10		Dense; few coarse GRAVEL or COBBLES.	X	2	30 17 15	32								
134.00	15		Medium dense; trace GRAVEL.	X	3	20 11 8	19								
129.00	20		Poorly graded SAND with CLAY (SP-SC); medium dense; brown; moist; mostly fine SAND ; some CLAY.	X	4	3 4 10	14								
124.00	25			X	5	6 11 14	25								
119.00	30		Poorly graded SAND with SILT (SP-SM); medium dense; light brown; dry; mostly fine SAND ; some SILT; ().	X	6	4 5 10	15								
114.00	35		Poorly graded SAND (SP); very dense; brown; dry; mostly fine SAND.	X	7	14 21 23	44								
109.00	40		Poorly graded SAND with SILT (SP-SM); dense; light brown; dry; mostly fine SAND ; some SILT.	X	8	9 10 17	27								
			Bottom of borehole at 42.0 ft bgs												
104.00	45		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												
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REPORT TITLE BORING RECORD				HOLE ID A-13-004
DIST. 07	COUNTY LA	ROUTE I-110	POSTMILE 16.0	PROJECT ID 0713000046
PROJECT OR BRIDGE NAME Storm Water BMPs for LA River Metal TMDL				
BRIDGE NUMBER	PREPARED BY D. Wathugala	DATE 9-10-13	SHEET 1 of 1	

LOGGED BY C. Harris	BEGIN DATE 6-12-13	COMPLETION DATE 6-12-13	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID A-13-005
DRILLING CONTRACTOR Caltrans			BOREHOLE LOCATION (Offset, Station, Line) 155.0' Lt Sta 839+60 "C1" Line	SURFACE ELEVATION 145.0 ft
DRILLING METHOD Hollow-Stem Auger			DRILL RIG CME-85	BOREHOLE DIAMETER 6 in
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")			SPT HAMMER TYPE Automatic	HAMMER EFFICIENCY, ERI 68%
BOREHOLE BACKFILL AND COMPLETION Backfill with cttings; Bentonite chip plug			GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS	TOTAL DEPTH OF BORING 41.5 ft

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		Poorly graded SAND with SILT (SP-SM); medium dense; brown; dry; mostly fine SAND ; little SILT (Fill).												CR (0' - 41.5')
140.00	5			X	1	9 7 13	20								
135.00	10		Dense; Broken concrete; trace CLAY.	X	2	8 12 16	28								
130.00	15		Lean CLAY (CL); stiff; brown; moist; pp = 1.5 tsf.	X	3	2 5 3	8								
125.00	20		Light brown.	X	4	3 4 5	9								
120.00	25		Gray; trace SAND ; pp = 1.5 tsf.	X	5	3 4 5	9								
115.00	30			X	6	7 7 9	16								
110.00	35		Poorly graded SAND (SP); dense; brown; dry; mostly fine SAND ; trace medium SAND; trace coarse SAND.	X	7	7 13 24	37								
105.00	40		Very dense; light brown; trace fine GRAVEL ; few medium SAND; few coarse SAND.	X	8	19 28 27	55								
			Bottom of borehole at 41.5 ft bgs												
100.00	45		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												
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REPORT TITLE BORING RECORD				HOLE ID A-13-005
DIST. 07	COUNTY LA	ROUTE I-110	POSTMILE 15.8	PROJECT ID 0713000046
PROJECT OR BRIDGE NAME Storm Water BMPs for LA River Metal TMDL				
BRIDGE NUMBER	PREPARED BY D. Wathugala	DATE 9-10-13	SHEET 1 of 1	

LOGGED BY C. Harris	BEGIN DATE 6-12-13	COMPLETION DATE 6-12-13	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID A-13-006
DRILLING CONTRACTOR Caltrans			BOREHOLE LOCATION (Offset, Station, Line) 125.0' Rt Sta 1023+65 "D1" Line	SURFACE ELEVATION 190.0 ft
DRILLING METHOD Hollow-Stem Auger			DRILL RIG CME-85	BOREHOLE DIAMETER 6 in
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")			SPT HAMMER TYPE Automatic	HAMMER EFFICIENCY, ERI 68%
BOREHOLE BACKFILL AND COMPLETION Backfill with cttings; Bentonite chip plug			GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS	TOTAL DEPTH OF BORING 42.0 ft

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		Poorly graded SAND with SILT (SP-SM); dense; brown; dry; mostly fine SAND ; little SILT; (Fill).												CR (0' - 42')
185.00	5			X	1	14 18 19	37								
180.00	10		Very loose; Brick fragments @ 11'.	X	2	2 2 2	4								
175.00	15		Poorly graded SAND (SP); loose; brown; dry; mostly fine SAND.	X	3	2 3 3	6								
170.00	20		Medium dense; light brown; few medium SAND ; trace coarse SAND.	X	4	5 8 10	18								
165.00	25		Poorly graded SAND with SILT (SP-SM); loose; brown; dry; mostly fine SAND ; some SILT; trace CLAY.	X	5	3 4 4	8								
160.00	30		3" Sand lens @32'.	X	6	5 4 4	8								
155.00	35			X	7	6 5 5	10								
150.00	40			X	8	2 3 4	7								
			Bottom of borehole at 42.0 ft bgs												
145.00	45		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												
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REPORT TITLE BORING RECORD				HOLE ID A-13-006
DIST. 07	COUNTY LA	ROUTE I-110	POSTMILE 19.3	PROJECT ID 0713000046
PROJECT OR BRIDGE NAME Storm Water BMPs for LA River Metal TMDL				
BRIDGE NUMBER	PREPARED BY D. Wathugala		DATE 9-10-13	SHEET 1 of 1

LOGGED BY C. Harris	BEGIN DATE 6-13-13	COMPLETION DATE 6-13-13	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID A-13-007
DRILLING CONTRACTOR Caltrans			BOREHOLE LOCATION (Offset, Station, Line) 160.0' Lt Sta 945+00 "D1" Line	SURFACE ELEVATION 174.0 ft
DRILLING METHOD Hollow-Stem Auger			DRILL RIG CME-85	BOREHOLE DIAMETER 6 in
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")			SPT HAMMER TYPE Automatic	HAMMER EFFICIENCY, ERI 68%
BOREHOLE BACKFILL AND COMPLETION Backfill with cttings; Bentonite chip plug			GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS	TOTAL DEPTH OF BORING 41.5 ft

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		Poorly graded SAND with SILT (SP-SM); dense; brown; dry; mostly fine SAND ; few fines ; Cobbles @ 6.0' - 6.4' (Fill).												CR (0' - 41.5')
169.00	5			X	1	23 30 20	50								
164.00	10		Medium dense; trace coarse SAND.	X	2	8 9 12	21								
159.00	15		No coarse SAND; (1" thick Tarsand layer @16.3').	X	3	7 9 12	21								
154.00	20		Dense; Debris-brick.	X	4	9 14 17	31								
149.00	25		Poorly graded SAND (SP); loose; brown; dry; mostly fine SAND.	X	5	4 4 4	8								
144.00	30		Medium dense; gray.	X	6	7 10 12	22								
139.00	35		SILT (ML); stiff; gray; moist; pp = 1.25 tsf; pp = 1.25 tsf.	X	7	3 7 9	16								
134.00	40		SILTY CLAY (CL-ML); very stiff; gray; moist; pp = 2.5 -2.75 tsf.	X	8	2 5 8	13								
			Bottom of borehole at 41.5 ft bgs												
129.00	45		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												
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REPORT TITLE BORING RECORD				HOLE ID A-13-007
DIST. 07	COUNTY LA	ROUTE I-110	POSTMILE 17.8	PROJECT ID 0713000046
PROJECT OR BRIDGE NAME Storm Water BMPs for LA River Metal TMDL				
BRIDGE NUMBER	PREPARED BY D. Wathugala	DATE 9-10-13	SHEET 1 of 1	

LOGGED BY C. Harris	BEGIN DATE 7-9-13	COMPLETION DATE 7-9-13	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID A-13-008
DRILLING CONTRACTOR Caltrans	BOREHOLE LOCATION (Offset, Station, Line) 270.0' Rt Sta 1100+60 "CL Rte 5"		SURFACE ELEVATION 328.0 ft	
DRILLING METHOD Hollow-Stem Auger	DRILL RIG CME-85		BOREHOLE DIAMETER 6 in	
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")	SPT HAMMER TYPE Automatic		HAMMER EFFICIENCY, ERI 68%	
BOREHOLE BACKFILL AND COMPLETION Backfill with cttings; Bentonite chip plug	GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS 21.5 ft		TOTAL DEPTH OF BORING 42.5 ft	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		Poorly graded SAND (SP); medium dense; light brown; dry; mostly fine SAND.												CR (0' - 42.5')
323.00	5			X	1	5 6 6	12								
318.00	10		Trace coarse SAND.	X	2	5 10 14	24								
313.00	15		Trace GRAVEL ; few medium SAND ; few coarse SAND.	X	3	7 7 7	14								
308.00	20			X	4	6 9 3	12								
303.00	25		SILT (ML); medium stiff; gray; moist. Poorly graded SAND (SP); gray; wet; mostly coarse SAND ; GWS. Lean CLAY (CL); medium stiff; dark gray; moist. PP = 0.5 -0.7 tsf.	X	5	1 3 2	4								
298.00	30			X	6	2 4 10	14								
293.00	35		Poorly graded SAND (SP); medium dense; light gray; wet; trace GRAVEL ; mostly coarse SAND ; moderately interbedded with CLAY (CL); medium stiff; dark gray; wet.	X	7	4 3 3	6								
288.00	40			X	8	4 8 3	11								
283.00	45		Bottom of borehole at 42.5 ft bgs												
50	50		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												

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REPORT TITLE BORING RECORD				HOLE ID A-13-008
DIST. 07	COUNTY LA	ROUTE I-5	POSTMILE 20.8	PROJECT ID 0713000046
PROJECT OR BRIDGE NAME Storm Water BMPs for LA River Metal TMDL				
BRIDGE NUMBER	PREPARED BY D. Wathugala	DATE 9-12-13	SHEET 1 of 1	

LOGGED BY C. Harris	BEGIN DATE 7-9-13	COMPLETION DATE 7-9-13	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID A-13-009
DRILLING CONTRACTOR Caltrans	BOREHOLE LOCATION (Offset, Station, Line) 200.0' Lt Sta 1101+50 "CL Rte 5"		SURFACE ELEVATION 333.0 ft	
DRILLING METHOD Hollow-Stem Auger	DRILL RIG CME-85		BOREHOLE DIAMETER 6 in	
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")	SPT HAMMER TYPE Automatic		HAMMER EFFICIENCY, ERI 68%	
BOREHOLE BACKFILL AND COMPLETION Backfill with cttings; Bentonite chip plug	GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS 26.0 ft		TOTAL DEPTH OF BORING 32.5 ft	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		Poorly graded SAND (SP); loose; light brown; dry; mostly fine SAND ; few medium SAND.												
328.00	5			X	1	3 4 4	8								
323.00	10		Trace SILT.	X	2	5 5 5	10								
318.00	15		Medium dense; few medium SAND.	X	3	9 11 9	20								
313.00	20		COBBLE in shoe.	X	4	6 4 10	14								
308.00	25		GWS. Trace GRAVEL @ 26.5'. Lean CLAY (CL); medium stiff; dark gray; moist-wet.	X	5	5 6 9	15								
303.00	30			X	6	7 8 4	12								
298.00	35		Poorly graded SAND (SP). Bottom of borehole at 32.5 ft bgs												
			This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												

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REPORT TITLE BORING RECORD				HOLE ID A-13-009
DIST. 07	COUNTY LA	ROUTE I-5	POSTMILE 20.8	PROJECT ID 0713000046
PROJECT OR BRIDGE NAME Storm Water BMPs for LA River Metal TMDL				
BRIDGE NUMBER	PREPARED BY D. Wathugala	DATE 9-13-13	SHEET 1 of 1	

LOGGED BY C. Harris	BEGIN DATE 7-9-13	COMPLETION DATE 7-9-13	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID A-13-010
DRILLING CONTRACTOR Caltrans	BOREHOLE LOCATION (Offset, Station, Line) 85.0' Rt Sta 749+25 "E1" Line		SURFACE ELEVATION 869.1 ft	
DRILLING METHOD Hollow-Stem Auger	DRILL RIG CME-85		BOREHOLE DIAMETER 6 in	
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")	SPT HAMMER TYPE Automatic		HAMMER EFFICIENCY, ERI 68%	
BOREHOLE BACKFILL AND COMPLETION Backfill with cuttings; Bentonite chip plug	GROUNDWATER DURING DRILLING AFTER DRILLING (DATE)		TOTAL DEPTH OF BORING 41.8 ft	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		Poorly graded SAND (SP); medium dense; brown; dry; trace GRAVEL ; mostly fine and coarse SAND ; trace fines ; (Fill).												CR (0' - 41.8')
864.10	5		(Gravel in cuttings).	X	1	14 13 12	25								
859.10	10		Loose; dark brown; moist; trace GRAVEL ; mostly fine SAND ; trace coarse SAND.	X	2	4 3 3	6								
854.10	15		(Brick fragments).	X	3	8 13 21	34								
849.10	20			X	4	3 4 3	7								
844.10	25		(Asphalt).	X	5	8 83/3"	83/3								
839.10	30		SEDIMENTARY ROCK (SANDSTONE); medium to fine grained; light reddish brown; very soft; unfractured; (SAND (SP); very dense; dry; mostly medium sand; some fine sand; trace gravel; weak to no cementation).	X	6	99/3"	REF								
834.10	35			X	7	165/6"	REF								
829.10	40			X	8	130 135/4"	135/4								
			Bottom of borehole at 41.8 ft bgs												
824.10	45		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												
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REPORT TITLE BORING RECORD				HOLE ID A-13-010
DIST. 07	COUNTY LA	ROUTE SR 134	POSTMILE 11.6	PROJECT ID 0713000046
PROJECT OR BRIDGE NAME Storm Water BMPs for LA River Metal TMDL				
BRIDGE NUMBER	PREPARED BY D. Wathugala	DATE 9-11-13	SHEET 1 of 1	

LOGGED BY C. Harris	BEGIN DATE 7-10-13	COMPLETION DATE 7-10-13	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID A-13-011
DRILLING CONTRACTOR Caltrans	BOREHOLE LOCATION (Offset, Station, Line) 185.0' Rt Sta 1049+60 "D1" Line		SURFACE ELEVATION 193.0 ft	
DRILLING METHOD Hollow-Stem Auger	DRILL RIG CME-85		BOREHOLE DIAMETER 6 in	
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")	SPT HAMMER TYPE Automatic		HAMMER EFFICIENCY, ERI 68%	
BOREHOLE BACKFILL AND COMPLETION Backfill with cttings; Bentonite chip plug	GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS		TOTAL DEPTH OF BORING 42.5 ft	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		Poorly graded SAND (SP); dense; light brown; dry; mostly fine SAND.												CR (0' - 41')
188.00	5				1	13 13 17	30								
183.00	10		Medium dense; trace medium SAND ; trace coarse SAND.		2	4 5 8	13								
178.00	15		Loose; moist; mostly fine SAND.		3	7 3 2	5								
173.00	20		Lean CLAY with GRAVEL (CL); brown; moist; trace coarse SAND ; soft.		4	1 3 5	8								
168.00	25		Poorly graded SAND with GRAVEL (SP); very dense; light brown; dry; mostly coarse SAND ; Granitic rock in shoe; bouncing on rock.		5	65/6"	REF								
163.00	30		Drilled through 6" cobble @ 26.5'-27'.		6	16 25 33	58								
158.00	35		SILTY SAND (SM); very dense; light brown; dry; mostly fine SAND.		7	9 21 27	48								
153.00	40		Poorly graded SAND (SP); very dense; reddish brown; dry; mostly fine SAND.		8	19 25 32	57								
148.00	45		Bottom of borehole at 42.5 ft bgs												
			This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												

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REPORT TITLE BORING RECORD				HOLE ID A-13-011
DIST. 07	COUNTY LA	ROUTE I-110	POSTMILE 19.8	PROJECT ID 0713000046
PROJECT OR BRIDGE NAME Storm Water BMPs for LA River Metal TMDL				
BRIDGE NUMBER	PREPARED BY D. Wathugala	DATE 9-11-13	SHEET 1 of 1	

LOGGED BY C. Harris	BEGIN DATE 7-10-33	COMPLETION DATE 7-10-13	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID A-13-012
DRILLING CONTRACTOR Caltrans	BOREHOLE LOCATION (Offset, Station, Line) 220.0' Lt Sta 1195+30 "CL Rte 2"		SURFACE ELEVATION 379.0 ft	
DRILLING METHOD Hollow-Stem Auger	DRILL RIG CS 1000		BOREHOLE DIAMETER 6 in	
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")	SPT HAMMER TYPE Automatic		HAMMER EFFICIENCY, ERI 95%	
BOREHOLE BACKFILL AND COMPLETION Backfill with cttings; Bentonite chip plug	GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS		TOTAL DEPTH OF BORING 26.5 ft	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	1		Poorly graded SAND (SP); medium dense; reddish brown; dry.												
377.00	2		Lean CLAY with SAND (CL); medium dense; dark brown; dry; trace SAND ; mostly fines ; Broken bricks; (Fill).												
375.00	3														
373.00	4														
373.00	5														
373.00	6			X	1	4 10 12	22								
371.00	7														
371.00	8														
371.00	9														
369.00	10		CONCRETE (42).												Hard to drill from 9.0' to 12.5'; refusal
369.00	11														
367.00	12														
367.00	13		Lean CLAY (CL); No recovery; soft.												Easier to drill; dark brown cuttings
365.00	14														
365.00	15		Becomes stiff.												
363.00	16			X		4 5 4	9								
363.00	17														
361.00	18														
361.00	19														
359.00	20														
359.00	21		Poorly graded SAND (SP); medium dense; light brown; dry; mostly fine SAND.	X	2	4 6 7	13								
357.00	22														
357.00	23														
355.00	24														
355.00	25														
353.00	26		Dense; trace GRAVEL.	X	3	8 13 12	25								
353.00	27		Bottom of borehole at 26.5 ft bgs												
351.00	28														
351.00	29														
349.00	30		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												
349.00	31														

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REPORT TITLE BORING RECORD				HOLE ID A-13-012
DIST. 07	COUNTY LA	ROUTE 2	POSTMILE 22.7	PROJECT ID 0713000046
PROJECT OR BRIDGE NAME Storm Water BMPs for LA River Metal TMDL				
BRIDGE NUMBER	PREPARED BY D. Wathugala	DATE 9-13-13	SHEET 1 of 1	

LOGGED BY C. Harris	BEGIN DATE 7-10-33	COMPLETION DATE 7-10-13	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID A-13-013
DRILLING CONTRACTOR Caltrans			BOREHOLE LOCATION (Offset, Station, Line) 200.0' Lt Sta 1195+33 "CL Rte 2"	SURFACE ELEVATION 369.0 ft
DRILLING METHOD Hollow-Stem Auger			DRILL RIG CS 1000	BOREHOLE DIAMETER 6 in
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")			SPT HAMMER TYPE Automatic	HAMMER EFFICIENCY, ERI 95%
BOREHOLE BACKFILL AND COMPLETION Backfill with cttings; Bentonite chip plug			GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS 25.0 ft	TOTAL DEPTH OF BORING 31.5 ft

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		Poorly graded SAND (SP); very loose; brown; moist; mostly fine SAND.		1	1 1 2	3								CR (0' to 31.5')
364.00	5		Loose; (Palm tree roots @ 7.0').		2	1 1 2	3								
					3	1 1 2	3								
					4	1 1 2	4								
					5	2 2 2	9								
359.00	10		Medium dense.		6	2 4 5	14								
					7	4 7 7	15								
					8	4 7 8	16								
			No recovery.		9	3 6 10	15								
354.00	15				10	3 6 9	14								
					11	3 6 8	22								
					12	4 13 9	18								
349.00	20					5 8 10									
344.00	25		GWS.		13	2 6 8	14								
			SEDIMENTARY ROCK; (Siltstone, Claystone); very thinly bedded poorly to moderate; indurated; moderately fractures; fractures healed.												
339.00	30				14	2 8 14	22								
			Bottom of borehole at 31.5 ft bgs												
334.00	35		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												

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REPORT TITLE BORING RECORD				HOLE ID A-13-013
DIST. 07	COUNTY LA	ROUTE 2	POSTMILE 22.7	PROJECT ID 0713000046
PROJECT OR BRIDGE NAME Storm Water BMPs for LA River Metal TMDL				
BRIDGE NUMBER	PREPARED BY D. Wathugala	DATE 9-16-13	SHEET 1 of 1	

LOGGED BY C. Harris	BEGIN DATE 7-11-13	COMPLETION DATE 7-11-13	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID A-13-014
DRILLING CONTRACTOR Caltrans			BOREHOLE LOCATION (Offset, Station, Line) 120.0' Rt Sta 1365+15 "CL Rte 5"	SURFACE ELEVATION 434.0 ft
DRILLING METHOD Hollow-Stem Auger			DRILL RIG CS 1000	BOREHOLE DIAMETER 6 in
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")			SPT HAMMER TYPE Automatic	HAMMER EFFICIENCY, ERI 95%
BOREHOLE BACKFILL AND COMPLETION Backfill with cttings; Bentonite chip plug			GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS 24.0 ft	TOTAL DEPTH OF BORING 41.2 ft

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		Poorly graded SAND with GRAVEL (SP); medium dense; brown; dry; few GRAVEL ; mostly fine SAND ; Few coarse SAND.												CR (0' - 41.2')
429.00	5			X	1	4 7 9	16								
424.00	10		Trace COBBLES (3" X 4" X 5").	X	2	7 6 7	13								
419.00	15			X	3	4 7 12	19								
414.00	20		Poorly graded SAND (SP); dense; brown; dry; trace GRAVEL ; mostly fine SAND ; few medium SAND; trace coarse SAND. (concrete in sample).	X	4	7 11 13	24								
409.00	25		GWS. Some medium SAND.	X	5	5 9 12	21								
404.00	30		Lean CLAY (CL); soft; dark brown; moist.	X	6	7 2 1	3								
399.00	35		Poorly graded SAND (SP); dense; brown; wet; mostly fine SAND ; some medium SAND.	X	7	14 15 19	34								
394.00	40		Some coarse SAND; few medium SAND.	X	8	18 20 50/3'	70/9								
			Bottom of borehole at 41.2 ft bgs												
389.00	45		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												
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REPORT TITLE BORING RECORD				HOLE ID A-13-014
DIST. 07	COUNTY LA	ROUTE I-5	POSTMILE 25.9	PROJECT ID 0713000046
PROJECT OR BRIDGE NAME Storm Water BMPs for LA River Metal TMDL				
BRIDGE NUMBER	PREPARED BY D. Wathugala	DATE 9-11-13	SHEET 1 of 1	

LOGGED BY C. Harris	BEGIN DATE 7-16-13	COMPLETION DATE 7-16-13	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID A-13-015
DRILLING CONTRACTOR Caltrans			BOREHOLE LOCATION (Offset, Station, Line) 95.0' Lt Sta 966+40 "CL Rte 5"	SURFACE ELEVATION 327.0 ft
DRILLING METHOD Hollow-Stem Auger			DRILL RIG CME-85	BOREHOLE DIAMETER 6 in
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")			SPT HAMMER TYPE Automatic	HAMMER EFFICIENCY, ERI 68%
BOREHOLE BACKFILL AND COMPLETION Backfill with cttings; Bentonite chip plug			GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS 16.5 ft	TOTAL DEPTH OF BORING 42.5 ft

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		Poorly graded SAND with SILT (SP-SM); dense; brown; dry; few fines.												CR (0' - 42.5')
322.00	5			X	1	10 13 17	30								
317.00	10		SANDY lean CLAY (CL); very stiff, grayish brown; moist.	X	2	5 6 11	17								
312.00	15		Poorly graded SAND (SP); medium dense; gray; wet. GWS.	X	3	11 8 12	20								
307.00	20		Poorly graded SAND (SP) thinly bedded with thin interbeds of Lean CLAY (CL). Poorly graded SAND; dense; gray; wet. Lean CLAY (CL); very stiff, red; wet; (some mottled zones in clay).	X	4	10 14 16	30								
302.00	25		Poorly graded SAND (SP); dense; gray; wet; mostly fine SAND.	X	5	5 13 15	28								
297.00	30		Poorly graded SAND (SP) very thinly bedded with very thin interbeds of SILT (ML). Poorly graded SAND; very dense; gray; moist. SILT (ML); very stiff; dark gray; moist.	X	6	12 17 33	50								
292.00	35		Lean CLAY (CL); very stiff, brown; dry.	X	7	11 20 28	48								
287.00	40			X	8	8 15 27	42								
			Bottom of borehole at 42.5 ft bgs												
282.00	45		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												
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REPORT TITLE BORING RECORD				HOLE ID A-13-015
DIST. 07	COUNTY LA	ROUTE I-5	POSTMILE 18.3	PROJECT ID 0713000046
PROJECT OR BRIDGE NAME Storm Water BMPs for LA River Metal TMDL				
BRIDGE NUMBER	PREPARED BY D. Wathugala	DATE 9-11-13	SHEET 1 of 1	

LOGGED BY C. Harris	BEGIN DATE 7-16-13	COMPLETION DATE 7-16-13	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID A-13-016
DRILLING CONTRACTOR Caltrans			BOREHOLE LOCATION (Offset, Station, Line) 80.0' Lt Sta 835+25 "CL Rte 5"	SURFACE ELEVATION 238.5 ft
DRILLING METHOD Hollow-Stem Auger			DRILL RIG CME-85	BOREHOLE DIAMETER 6 in
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")			SPT HAMMER TYPE Automatic	HAMMER EFFICIENCY, ERI 68%
BOREHOLE BACKFILL AND COMPLETION Backfill with cttings; Bentonite chip plug			GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS	TOTAL DEPTH OF BORING 42.5 ft

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		Poorly graded SAND (SP); medium dense; reddish brown; dry; trace GRAVEL ; mostly medium SAND ; few fines ; (mottled); (Fill).												CR (0; - 42.5')
233.50	5			X	1	8 8 10	18								
228.50	10			X	2	11 15 19	34								
223.50	15			X	3	2 4 4	8								
218.50	20		Poorly graded SAND (SP); loose; reddish brown; dry; mostly fine SAND.	X	4	9 9 10	19								
213.50	25		Lean CLAY (CL); very stiff; brown; dry.	X	5	6 14 23	37								
208.50	30		Medium dense.	X	6	10 20 33	53								
203.50	35			X	7	20 32 39	71								
198.50	40		Poorly graded SAND (SP); very dense; brown; dry; trace GRAVEL ; mostly fine SAND ; few coarse SAND.	X	8	15 27 33	60								
			Bottom of borehole at 42.5 ft bgs												
193.50	45		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												
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REPORT TITLE BORING RECORD				HOLE ID A-13-016
DIST. 07	COUNTY LA	ROUTE I-5	POSTMILE 15.7	PROJECT ID 0713000046
PROJECT OR BRIDGE NAME Storm Water BMPs for LA River Metal TMDL				
BRIDGE NUMBER	PREPARED BY D. Wathugala	DATE 9-11-13	SHEET 1 of 1	

LOGGED BY C. Harris	BEGIN DATE 7-16-13	COMPLETION DATE 7-16-13	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID A-13-017
DRILLING CONTRACTOR Caltrans			BOREHOLE LOCATION (Offset, Station, Line) 100.0' Lt Sta 1112+00 "CL Rte 10"	SURFACE ELEVATION 406.0 ft
DRILLING METHOD Hollow-Stem Auger			DRILL RIG CME-85	BOREHOLE DIAMETER 6 in
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")			SPT HAMMER TYPE Automatic	HAMMER EFFICIENCY, ERI 68%
BOREHOLE BACKFILL AND COMPLETION Backfill with cttings; Bentonite chip plug			GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS 26.0 ft	TOTAL DEPTH OF BORING 37.5 ft

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		SILT (ML); stiff; gray; dry.												CR (0' - 37.5')
401.00	5			X	1	6 11 10	21								
396.00	10		Interbedded SILT (ML) & CLAY (CL); stiff; gray; tan; reddish brown; dry; very thinly bedded.	X	2	10 12 15	27								
391.00	15			X	3	8 16 20	36								
386.00	20		Lean CLAY (CL); medium stiff; brown; moist.	X	4	3 4 12	16								
381.00	25		SEDIMENTARY ROCK; light reddish brown; intensely weathered; soft; intensely fractured; (Interbedded SILTSTONE & CLAYSTONE); (ML/CL); very stiff; moist/ dry; most). GWS.	X	5	7 11 17	28								
376.00	30			X	6	13 48 100	148								
371.00	35		Moderately hard; dry.	X	7	19 34 60	94								
			Bottom of borehole at 37.5 ft bgs												
366.00	40		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												
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REPORT TITLE BORING RECORD				HOLE ID A-13-017
DIST. 07	COUNTY LA	ROUTE I-10	POSTMILE 21.1	PROJECT ID 0713000046
PROJECT OR BRIDGE NAME Storm Water BMPs for LA River Metal TMDL				
BRIDGE NUMBER	PREPARED BY D. Wathugala	DATE 9-11-13	SHEET 1 of 1	

LOGGED BY C. Harris	BEGIN DATE 7-17-13	COMPLETION DATE 7-17-13	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID A-13-018
DRILLING CONTRACTOR Caltrans	BOREHOLE LOCATION (Offset, Station, Line) 197.0' Lt Sta 616+60 "E1" Line		SURFACE ELEVATION 699.8 ft	
DRILLING METHOD Hollow-Stem Auger	DRILL RIG CME-85		BOREHOLE DIAMETER 6 in	
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")	SPT HAMMER TYPE Automatic		HAMMER EFFICIENCY, ERI 68%	
BOREHOLE BACKFILL AND COMPLETION Backfill with cttings; Bentonite chip plug	GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS		TOTAL DEPTH OF BORING 42.5 ft	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		Poorly graded SAND (SP); dense; brown; dry; trace GRAVEL ; mostly coarse SAND ; few fine SAND; (Fill).												CR (0' - 42.5')
694.80	5			X	1	17 20 19	39								
689.80	10		Very dense; gray.	X	2	9 25 28	53								
684.80	15		Dense; brown.	X	3	8 14 18	32								
679.80	20		Medium dense.	X	4	8 12 13	25								
674.80	25			X	5	5 8 11	19								
669.80	30		(wood in shoe).	X	6	4 5 5	10								
664.80	35		Poorly graded SAND (SP); loose; brown; dry; mostly fine SAND ; trace coarse SAND.	X	7	2 3 4	7								
659.80	40			X	8	2 4 4	8								
654.80	45		Bottom of borehole at 42.5 ft bgs												
			This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												

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REPORT TITLE BORING RECORD				HOLE ID A-13-018
DIST. 07	COUNTY LA	ROUTE SR 2/134	POSTMILE 8.9	PROJECT ID 0713000046
PROJECT OR BRIDGE NAME Storm Water BMPs for LA River Metal TMDL				
BRIDGE NUMBER	PREPARED BY D. Wathugala	DATE 9-11-13	SHEET 1 of 1	

LOGGED BY C. Harris	BEGIN DATE 7-17-13	COMPLETION DATE 7-17-13	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID A-13-019
DRILLING CONTRACTOR Caltrans	BOREHOLE LOCATION (Offset, Station, Line) 110.0' Lt Sta 1075+60 "CL Rte 5"		SURFACE ELEVATION 340.0 ft	
DRILLING METHOD Hollow-Stem Auger	DRILL RIG CME-85		BOREHOLE DIAMETER 6 in	
SAMPLER TYPE(S) AND SIZE(S) (ID) SPT (1.4")	SPT HAMMER TYPE Automatic		HAMMER EFFICIENCY, ERI 68%	
BOREHOLE BACKFILL AND COMPLETION Backfill with cttings; Bentonite chip plug	GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS 40.5 ft		TOTAL DEPTH OF BORING 42.5 ft	

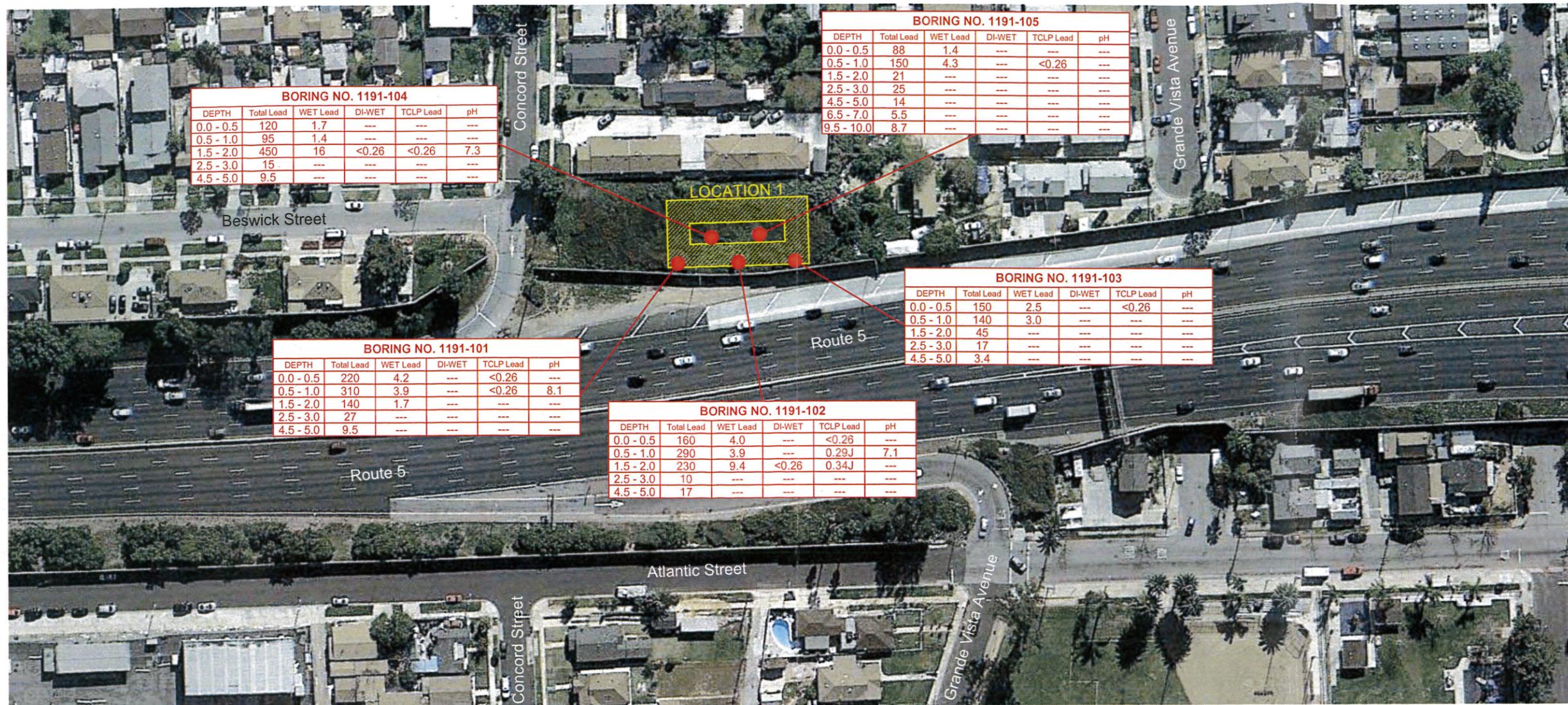
ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		Poorly graded SAND (SP); dense; brown; dry; trace GRAVEL ; mostly fine SAND ; few coarse SAND (Fill).												CR (0' - 42.5')
335.00	5			X	1	8 9 23	32								
330.00	10		Medium dense.	X	2	9 8 7	15								
325.00	15		Rock in sample; COBBLES and MARBLE @ 17'.	X	3	9 8 8	17								
320.00	20		Wire and brick fragments in sample.	X	4	13 7 5	12								
315.00	25		Chatter @ 29'; Glass and Concrete fragments in sample.	X	5	8 5 5	10								
310.00	30		Asphalt and brick fragments in sample; fine sand in shoe.	X	6	3 5 7	12								
305.00	35		Poorly graded SAND (SP); medium dense; dark gray; moist; mostly fine SAND ; trace CLAY.	X	7	2 4 6	10								
300.00	40		GWS. Few SILT.	X	8	2 3 11	14								
295.00	45		Bottom of borehole at 42.5 ft bgs												
50	50		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												

5 BR - STANDARD A-13-019.GPJ CALTRANS LIBRARY (FEB 2013).GLB 11/8/13



Department of Transportation
 Division of Engineering Services
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 Office of Geotechnical Design - South 1

REPORT TITLE BORING RECORD				HOLE ID A-13-019
DIST. 07	COUNTY LA	ROUTE 5/ 110	POSTMILE 20.3	PROJECT ID 0713000046
PROJECT OR BRIDGE NAME Storm Water BMPs for LA River Metal TMDL				
BRIDGE NUMBER	PREPARED BY D. Wathugala	DATE 9-13-13	SHEET 1 of 1	



BORING NO. 1191-104

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	120	1.7	---	---	---
0.5 - 1.0	95	1.4	---	---	---
1.5 - 2.0	450	16	<0.26	<0.26	7.3
2.5 - 3.0	15	---	---	---	---
4.5 - 5.0	9.5	---	---	---	---

BORING NO. 1191-105

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	88	1.4	---	---	---
0.5 - 1.0	150	4.3	---	<0.26	---
1.5 - 2.0	21	---	---	---	---
2.5 - 3.0	25	---	---	---	---
4.5 - 5.0	14	---	---	---	---
6.5 - 7.0	5.5	---	---	---	---
9.5 - 10.0	8.7	---	---	---	---

BORING NO. 1191-101

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	220	4.2	---	<0.26	---
0.5 - 1.0	310	3.9	---	<0.26	8.1
1.5 - 2.0	140	1.7	---	---	---
2.5 - 3.0	27	---	---	---	---
4.5 - 5.0	9.5	---	---	---	---

BORING NO. 1191-103

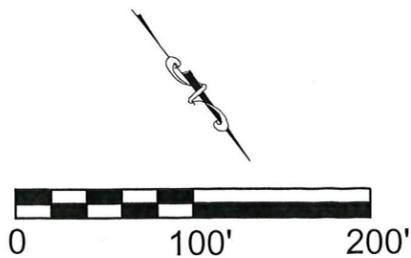
DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	150	2.5	---	<0.26	---
0.5 - 1.0	140	3.0	---	---	---
1.5 - 2.0	45	---	---	---	---
2.5 - 3.0	17	---	---	---	---
4.5 - 5.0	3.4	---	---	---	---

BORING NO. 1191-102

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	160	4.0	---	<0.26	---
0.5 - 1.0	290	3.9	---	0.29J	7.1
1.5 - 2.0	230	9.4	<0.26	0.34J	---
2.5 - 3.0	10	---	---	---	---
4.5 - 5.0	17	---	---	---	---

LEGEND

- -Approximate boring location
- TOTAL Lead -Total Lead results in mg/kg
- WET Lead -WET Lead results in mg/l
- DI-WET -DI-WET Lead results in mg/l
- TCLP Lead -TCLP Lead results in mg/l
- DEPTH -Depth in feet
- <0.5 -Not detected at or above laboratory detection limits specified
- J -Estimated Value: Results qualified as an estimated value due to analytical bias in precision of accuracy



REFERENCE AREA: Caltrans, Layout Plan L-1
BASE MAP: Google Earth Maps, 2010

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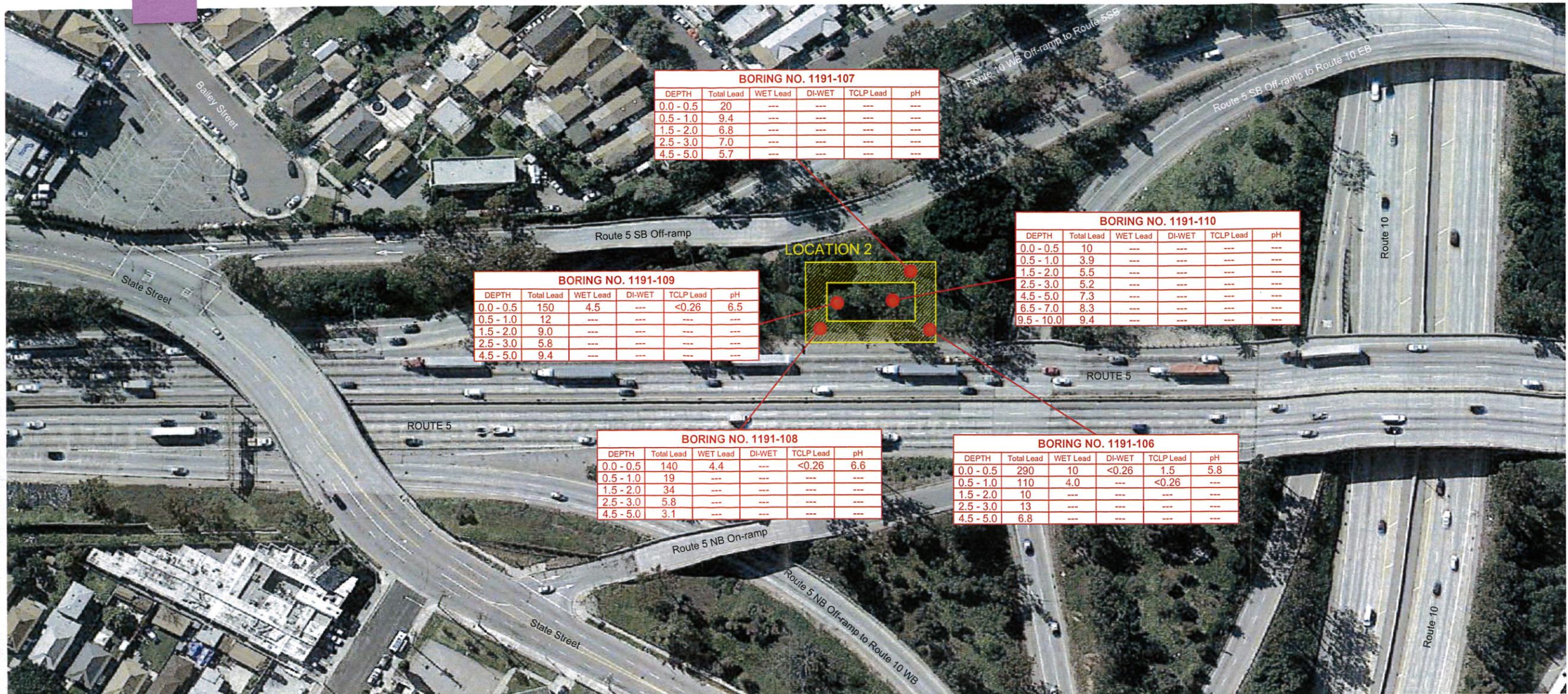
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FIG. 2



BORING NO. 1191-107					
DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	20	---	---	---	---
0.5 - 1.0	9.4	---	---	---	---
1.5 - 2.0	6.8	---	---	---	---
2.5 - 3.0	7.0	---	---	---	---
4.5 - 5.0	5.7	---	---	---	---

BORING NO. 1191-110					
DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	10	---	---	---	---
0.5 - 1.0	3.9	---	---	---	---
1.5 - 2.0	5.5	---	---	---	---
2.5 - 3.0	5.2	---	---	---	---
4.5 - 5.0	7.3	---	---	---	---
6.5 - 7.0	8.3	---	---	---	---
9.5 - 10.0	9.4	---	---	---	---

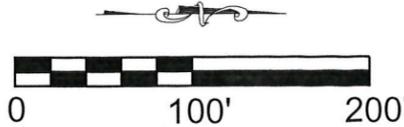
BORING NO. 1191-109					
DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	150	4.5	---	<0.26	6.5
0.5 - 1.0	12	---	---	---	---
1.5 - 2.0	9.0	---	---	---	---
2.5 - 3.0	5.8	---	---	---	---
4.5 - 5.0	9.4	---	---	---	---

BORING NO. 1191-108					
DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	140	4.4	---	<0.26	6.6
0.5 - 1.0	19	---	---	---	---
1.5 - 2.0	34	---	---	---	---
2.5 - 3.0	5.8	---	---	---	---
4.5 - 5.0	3.1	---	---	---	---

BORING NO. 1191-106					
DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	290	10	<0.26	1.5	5.8
0.5 - 1.0	110	4.0	---	<0.26	---
1.5 - 2.0	10	---	---	---	---
2.5 - 3.0	13	---	---	---	---
4.5 - 5.0	6.8	---	---	---	---

LEGEND

- -Approximate boring location
- TOTAL Lead -Total Lead results in mg/kg
- WET Lead -WET Lead results in mg/l
- DI-WET -DI-WET Lead results in mg/l
- TCLP Lead -TCLP Lead results in mg/l
- DEPTH -Depth in feet
- <0.5 -Not detected at or above laboratory detection limits specified
- J -Estimated Value: Results qualified as an estimated value due to analytical bias in precision of accuracy



REFERENCE AREA: Caltrans, Layout Plan L-2
 BASE MAP: Google Earth Maps, 2010

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FIG. 3



BORING NO. 1191-112

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	150	8.4	<0.26	0.57	---
0.5 - 1.0	320	22	<0.26	0.88	7.8
1.5 - 2.0	28	---	---	---	---
2.5 - 3.0	20	---	---	---	---
4.5 - 5.0	16	---	---	---	---

BORING NO. 1191-115

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	130	7.7	<0.26	0.37J	---
0.5 - 1.0	120	5.3	<0.26	0.43J	---
1.5 - 2.0	12	---	---	---	---
2.5 - 3.0	9.8	---	---	---	---
4.5 - 5.0	17	---	---	---	---
6.5 - 7.0	23	---	---	---	---
9.5 - 10.0	58	4.9	---	---	---

BORING NO. 1191-113

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	170	7.4	0.94	0.32J	---
0.5 - 1.0	10	---	---	---	---
1.5 - 2.0	7.6	---	---	---	---
2.5 - 3.0	16	---	---	---	---
4.5 - 5.0	5.2	---	---	---	---

BORING NO. 1191-114

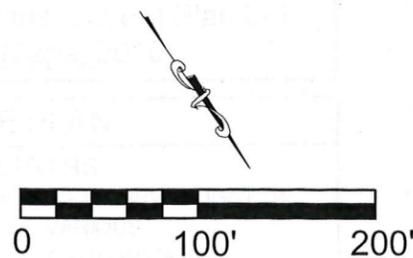
DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	110	3.0	---	---	---
0.5 - 1.0	24	---	---	---	---
1.5 - 2.0	6.9	---	---	---	---
2.5 - 3.0	15	---	---	---	---
4.5 - 5.0	16	---	---	---	---

BORING NO. 1191-111

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	78	3.7	---	---	---
0.5 - 1.0	31	---	---	---	---
1.5 - 2.0	120	4.1	---	---	---
2.5 - 3.0	210	8.0	<0.26	0.57	7.7
4.5 - 5.0	570	19	<0.26	0.58	7.9

LEGEND

- -Approximate boring location
- TOTAL Lead -Total Lead results in mg/kg
- WET Lead -WET Lead results in mg/l
- DI-WET -DI-WET Lead results in mg/l
- TCLP Lead -TCLP Lead results in mg/l
- DEPTH -Depth in feet
- <0.5 -Not detected at or above laboratory detection limits specified
- J -Estimated Value: Results qualified as an estimated value due to analytical bias in precision of accuracy



REFERENCE AREA: Caltrans, Layout Plan L-3
 BASE MAP: Google Earth Maps, 2010

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FEBRUARY 2013	PROJECT NO. S9475-06-23	FIG. 4
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BORING NO. 1191-117

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	23	---	---	---	---
0.5 - 1.0	4.8	---	---	---	---
1.5 - 2.0	8.5	---	---	---	---
2.5 - 3.0	15	---	---	---	---
4.5 - 5.0	5.9	---	---	---	---

BORING NO. 1191-118

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	47	---	---	---	---
0.5 - 1.0	36	---	---	---	---
1.5 - 2.0	6.4	---	---	---	---
2.5 - 3.0	8.0	---	---	---	---
4.5 - 5.0	1.5	---	---	---	---

BORING NO. 1191-116

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	130	8.4	<0.26	0.32J	7.6
0.5 - 1.0	4.0	---	---	---	---
1.5 - 2.0	2.6	---	---	---	---
2.5 - 3.0	6.2	---	---	---	---
4.5 - 5.0	3.1	---	---	---	---

BORING NO. 1191-119

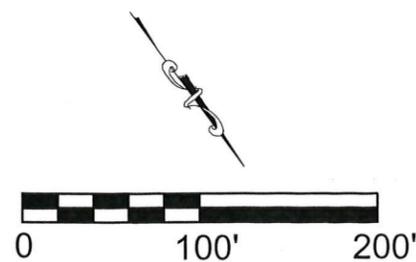
DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	86	5.4	<0.26	0.31J	7.1
0.5 - 1.0	190	13	<0.26	0.29J	7.7
1.5 - 2.0	12	---	---	---	---
2.5 - 3.0	8.9	---	---	---	---
4.5 - 5.0	4.8	---	---	---	---

BORING NO. 1191-120

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	39	---	---	---	---
0.5 - 1.0	24	---	---	---	---
1.5 - 2.0	15	---	---	---	---
2.5 - 3.0	15	---	---	---	---
4.5 - 5.0	4.6	---	---	---	---
6.5 - 7.0	5.0	---	---	---	---
9.5 - 10.0	3.0	---	---	---	---

LEGEND

- -Approximate boring location
- TOTAL Lead -Total Lead results in mg/kg
- WET Lead -WET Lead results in mg/l
- DI-WET -DI-WET Lead results in mg/l
- TCLP Lead -TCLP Lead results in mg/l
- DEPTH -Depth in feet
- <0.5 -Not detected at or above laboratory detection limits specified
- J -Estimated Value: Results qualified as an estimated value due to analytical bias in precision of accuracy



REFERENCE AREA: Caltrans, Layout Plan L-4
BASE MAP: Google Earth Maps, 2010

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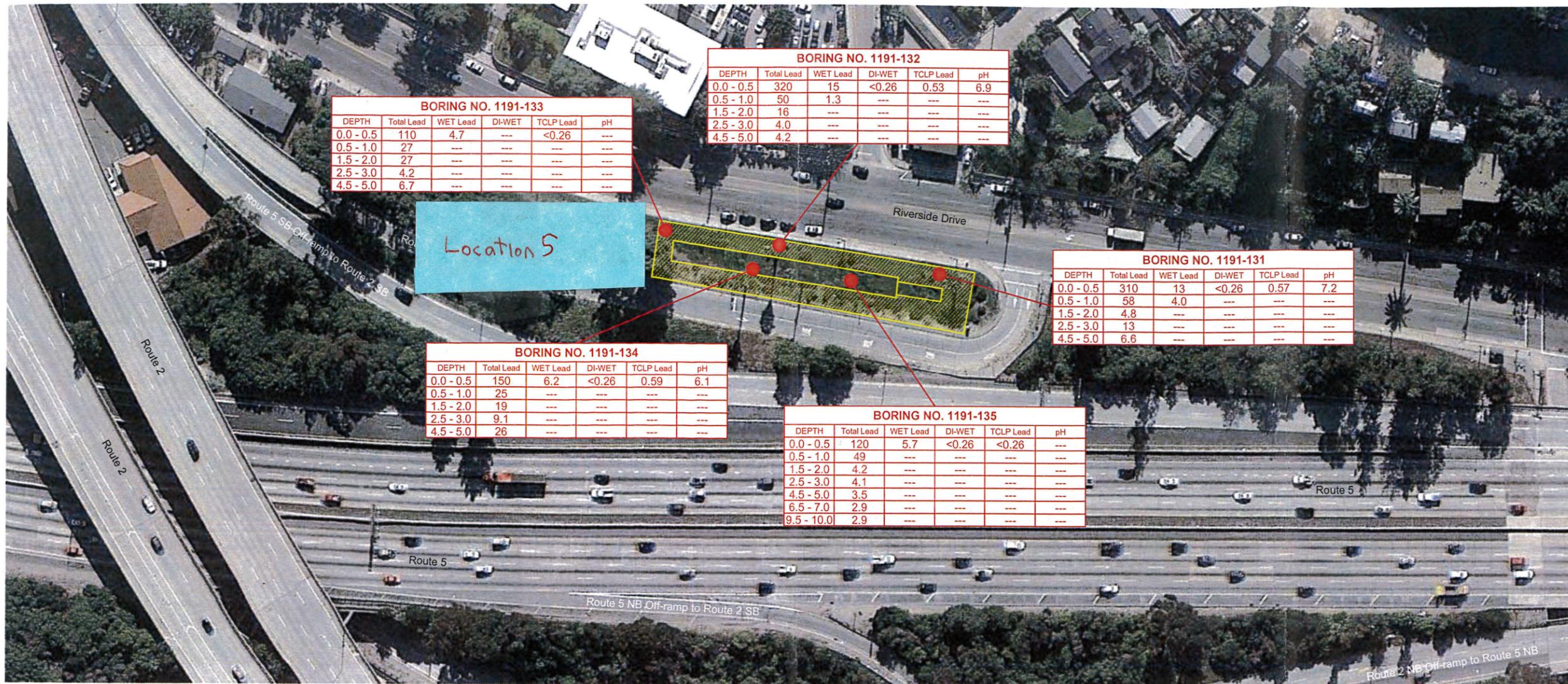
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FEBRUARY 2013	PROJECT NO. S9475-06-23	FIG. 5
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BORING NO. 1191-133

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	110	4.7	---	<0.26	---
0.5 - 1.0	27	---	---	---	---
1.5 - 2.0	27	---	---	---	---
2.5 - 3.0	4.2	---	---	---	---
4.5 - 5.0	6.7	---	---	---	---

BORING NO. 1191-132

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	320	15	<0.26	0.53	6.9
0.5 - 1.0	50	1.3	---	---	---
1.5 - 2.0	16	---	---	---	---
2.5 - 3.0	4.0	---	---	---	---
4.5 - 5.0	4.2	---	---	---	---

BORING NO. 1191-131

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	310	13	<0.26	0.57	7.2
0.5 - 1.0	58	4.0	---	---	---
1.5 - 2.0	4.8	---	---	---	---
2.5 - 3.0	13	---	---	---	---
4.5 - 5.0	6.6	---	---	---	---

BORING NO. 1191-134

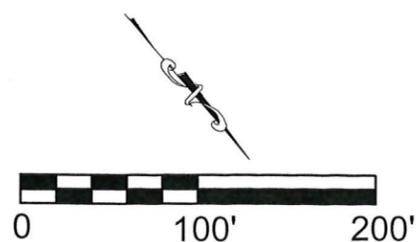
DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	150	6.2	<0.26	0.59	6.1
0.5 - 1.0	25	---	---	---	---
1.5 - 2.0	19	---	---	---	---
2.5 - 3.0	9.1	---	---	---	---
4.5 - 5.0	26	---	---	---	---

BORING NO. 1191-135

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	120	5.7	<0.26	<0.26	---
0.5 - 1.0	49	---	---	---	---
1.5 - 2.0	4.2	---	---	---	---
2.5 - 3.0	4.1	---	---	---	---
4.5 - 5.0	3.5	---	---	---	---
6.5 - 7.0	2.9	---	---	---	---
9.5 - 10.0	2.9	---	---	---	---

LEGEND

- -Approximate boring location
- TOTAL Lead -Total Lead results in mg/kg
- WET Lead -WET Lead results in mg/l
- DI-WET -DI-WET Lead results in mg/l
- TCLP Lead -TCLP Lead results in mg/l
- DEPTH -Depth in feet
- <0.5 -Not detected at or above laboratory detection limits specified
- J -Estimated Value: Results qualified as an estimated value due to analytical bias in precision of accuracy



REFERENCE AREA: Caltrans, Layout Plan L-5
 BASE MAP: Google Earth Maps, 2010

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FEBRUARY 2013

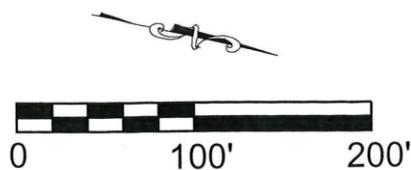
PROJECT NO. S9475-06-23

FIG. 8



LEGEND

- -Approximate boring location
- TOTAL Lead -Total Lead results in mg/kg
- WET Lead -WET Lead results in mg/l
- DI-WET -DI-WET Lead results in mg/l
- TCLP Lead -TCLP Lead results in mg/l
- DEPTH -Depth in feet
- <0.5 -Not detected at or above laboratory detection limits specified
- J -Estimated Value: Results qualified as an estimated value due to analytical bias in precision of accuracy



REFERENCE AREA: Caltrans, Layout Plan L-6
 BASE MAP: Google Earth Maps, 2010

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FIG. 10



BORING NO. 1191-153

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	220	10	<0.26	<0.26	7.3
0.5 - 1.0	120	6.2	<0.26	<0.26	---
1.5 - 2.0	10	---	---	---	---
2.5 - 3.0	18	---	---	---	---
4.5 - 5.0	9.6	---	---	---	---

BORING NO. 1191-155

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	420	21	0.31J	<0.26	6.9
0.5 - 1.0	200	8.3	<0.26	<0.26	---
1.5 - 2.0	12	---	---	---	---
2.5 - 3.0	7.1	---	---	---	---
4.5 - 5.0	11	---	---	---	---
6.5 - 7.0	130	9.5	<0.26	<0.26	---
9.5 - 10.0	5.8	---	---	---	---

BORING NO. 1191-152

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	32	---	---	---	---
0.5 - 1.0	99	4.6	---	---	---
1.5 - 2.0	10	---	---	---	---
2.5 - 3.0	13	---	---	---	---
4.5 - 5.0	6.8	---	---	---	---

BORING NO. 1191-154

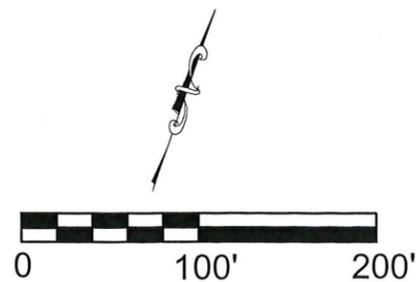
DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	120	8.2	<0.26	<0.26	---
0.5 - 1.0	57	3.1	---	---	---
1.5 - 2.0	15	---	---	---	---
2.5 - 3.0	28	---	---	---	---
4.5 - 5.0	7.0	---	---	---	---

BORING NO. 1191-151

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	240	16	0.27J	0.29J	7.3
0.5 - 1.0	33	---	---	---	---
1.5 - 2.0	22	---	---	---	---
2.5 - 3.0	11	---	---	---	---
4.5 - 5.0	6.1	---	---	---	---

LEGEND

- -Approximate boring location
- TOTAL Lead -Total Lead results in mg/kg
- WET Lead -WET Lead results in mg/l
- DI-WET -DI-WET Lead results in mg/l
- TCLP Lead -TCLP Lead results in mg/l
- DEPTH -Depth in feet
- <0.5 -Not detected at or above laboratory detection limits specified
- J -Estimated Value: Results qualified as an estimated value due to analytical bias in precision of accuracy



REFERENCE AREA: Caltrans, Layout Plan 6-7
 BASE MAP: Google Earth Maps, 2010

GEOCON
 CONSULTANTS, INC.

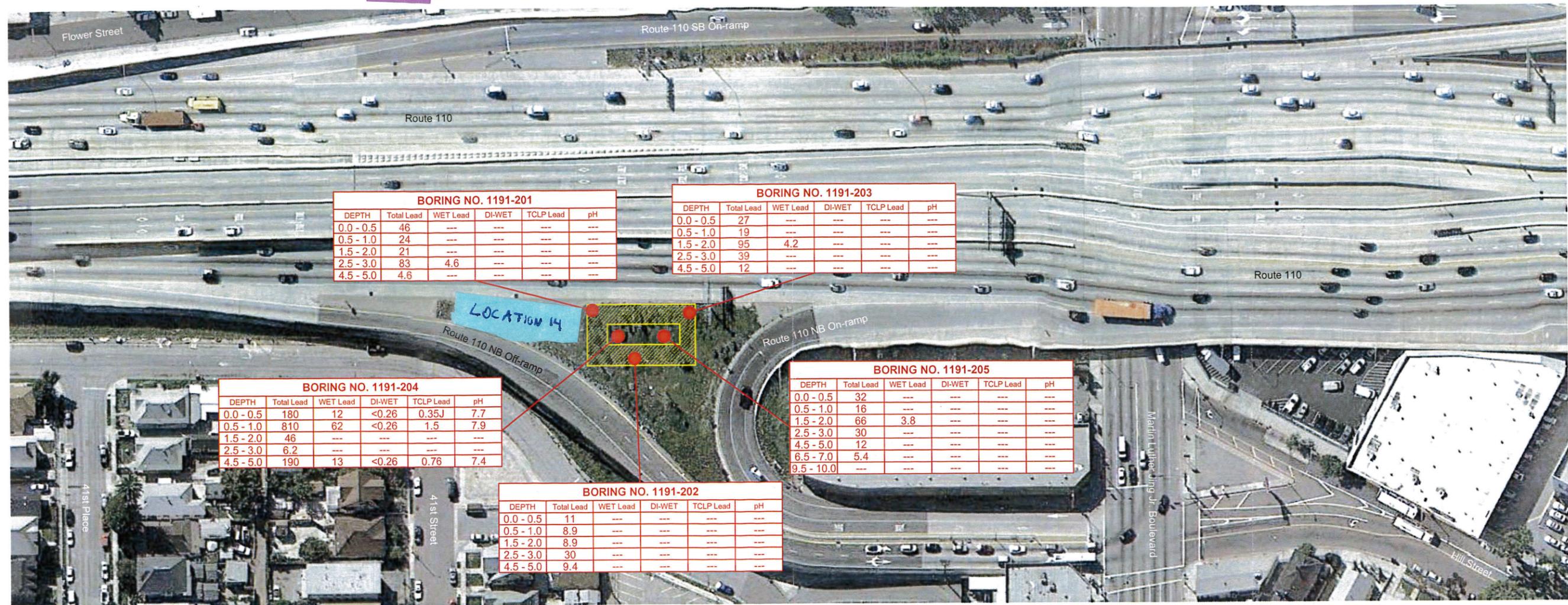
ENVIRONMENTAL GEOTECHNICAL MATERIALS
 3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
 PHONE (818) 841-8388 - FAX (818) 841-1704

CHL 8000

SITE PLAN

CALTRANS
 ROUTE LA 5, 10, 91, 110, 134 - ADL INVESTIGATION
 POST MILE: VARIOUS
 LOS ANGELES, CALIFORNIA

FEBRUARY 2013 PROJECT NO. S9475-06-23 FIG. 12



BORING NO. 1191-201

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	46	---	---	---	---
0.5 - 1.0	24	---	---	---	---
1.5 - 2.0	21	---	---	---	---
2.5 - 3.0	83	4.6	---	---	---
4.5 - 5.0	4.6	---	---	---	---

BORING NO. 1191-203

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	27	---	---	---	---
0.5 - 1.0	19	---	---	---	---
1.5 - 2.0	95	4.2	---	---	---
2.5 - 3.0	39	---	---	---	---
4.5 - 5.0	12	---	---	---	---

BORING NO. 1191-204

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	180	12	<0.26	0.35J	7.7
0.5 - 1.0	810	62	<0.26	1.5	7.9
1.5 - 2.0	46	---	---	---	---
2.5 - 3.0	6.2	---	---	---	---
4.5 - 5.0	190	13	<0.26	0.76	7.4

BORING NO. 1191-205

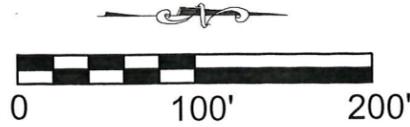
DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	32	---	---	---	---
0.5 - 1.0	16	---	---	---	---
1.5 - 2.0	66	3.8	---	---	---
2.5 - 3.0	30	---	---	---	---
4.5 - 5.0	12	---	---	---	---
6.5 - 7.0	5.4	---	---	---	---
9.5 - 10.0	---	---	---	---	---

BORING NO. 1191-202

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	11	---	---	---	---
0.5 - 1.0	8.9	---	---	---	---
1.5 - 2.0	8.9	---	---	---	---
2.5 - 3.0	30	---	---	---	---
4.5 - 5.0	9.4	---	---	---	---

LEGEND

- -Approximate boring location
- TOTAL Lead -Total Lead results in mg/kg
- WET Lead -WET Lead results in mg/l
- DI-WET -DI-WET Lead results in mg/l
- TCLP Lead -TCLP Lead results in mg/l
- DEPTH -Depth in feet
- <0.5 -Not detected at or above laboratory detection limits specified
- J -Estimated Value: Results qualified as an estimated value due to analytical bias in precision of accuracy



REFERENCE AREA: Caltrans, Layout Plan 4-11
 BASE MAP: Google Earth Maps, 2010

GEOCON
 CONSULTANTS, INC.



ENVIRONMENTAL GEOTECHNICAL MATERIALS
 3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
 PHONE (818) 841-8388 - FAX (818) 841-1704

CHL

8000

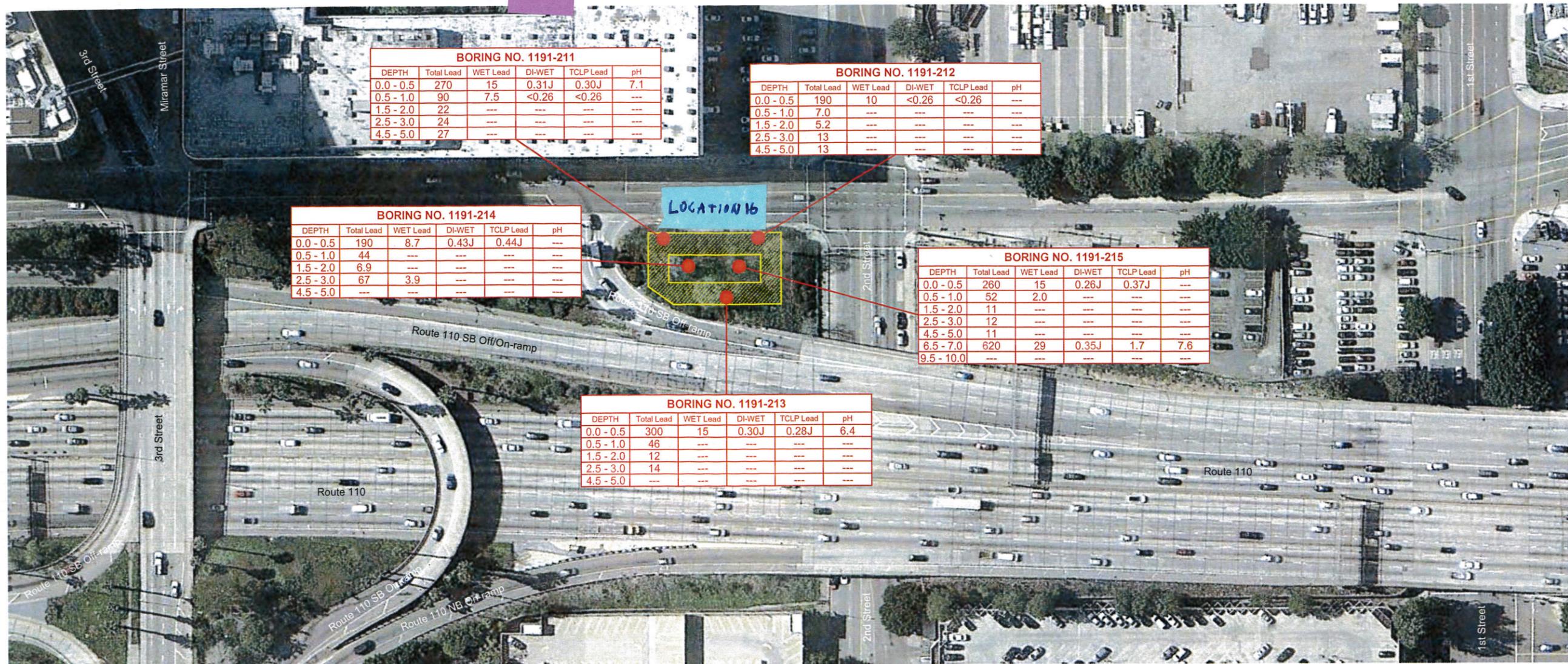
SITE PLAN

CALTRANS
 ROUTE LA 5, 10, 91, 110, 134 - ADL INVESTIGATION
 POST MILE: VARIOUS
 LOS ANGELES, CALIFORNIA

FEBRUARY 2013

PROJECT NO. S9475-06-23

FIG. 18



BORING NO. 1191-211

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	270	15	0.31J	0.30J	7.1
0.5 - 1.0	90	7.5	<0.26	<0.26	---
1.5 - 2.0	22	---	---	---	---
2.5 - 3.0	24	---	---	---	---
4.5 - 5.0	27	---	---	---	---

BORING NO. 1191-212

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	190	10	<0.26	<0.26	---
0.5 - 1.0	7.0	---	---	---	---
1.5 - 2.0	5.2	---	---	---	---
2.5 - 3.0	13	---	---	---	---
4.5 - 5.0	13	---	---	---	---

BORING NO. 1191-214

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	190	8.7	0.43J	0.44J	---
0.5 - 1.0	44	---	---	---	---
1.5 - 2.0	6.9	---	---	---	---
2.5 - 3.0	67	3.9	---	---	---
4.5 - 5.0	---	---	---	---	---

BORING NO. 1191-215

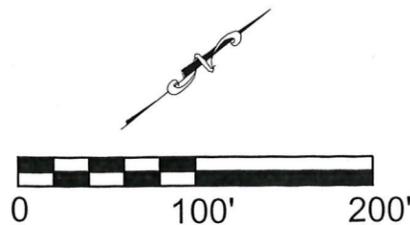
DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	260	15	0.26J	0.37J	---
0.5 - 1.0	52	2.0	---	---	---
1.5 - 2.0	11	---	---	---	---
2.5 - 3.0	12	---	---	---	---
4.5 - 5.0	11	---	---	---	---
6.5 - 7.0	620	29	0.35J	1.7	7.6
9.5 - 10.0	---	---	---	---	---

BORING NO. 1191-213

DEPTH	Total Lead	WET Lead	DI-WET	TCLP Lead	pH
0.0 - 0.5	300	15	0.30J	0.28J	6.4
0.5 - 1.0	46	---	---	---	---
1.5 - 2.0	12	---	---	---	---
2.5 - 3.0	14	---	---	---	---
4.5 - 5.0	---	---	---	---	---

LEGEND

- -Approximate boring location
- TOTAL Lead -Total Lead results in mg/kg
- WET Lead -WET Lead results in mg/l
- DI-WET -DI-WET Lead results in mg/l
- TCLP Lead -TCLP Lead results in mg/l
- DEPTH -Depth in feet
- <0.5 -Not detected at or above laboratory detection limits specified
- J -Estimated Value: Results qualified as an estimated value due to analytical bias in precision of accuracy



REFERENCE AREA: Caltrans, Layout Plan L-13
 BASE MAP: Google Earth Maps, 2010

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 3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
 PHONE (818) 841-8388 - FAX (818) 841-1704

CHL		8000
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SITE PLAN

CALTRANS
 ROUTE LA 5, 10, 91, 110, 134 - ADL INVESTIGATION
 POST MILE: VARIOUS
 LOS ANGELES, CALIFORNIA

FEBRUARY 2013	PROJECT NO. S9475-06-23	FIG. 20
---------------	-------------------------	---------

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans OFFICE OF ITS FUNCTIONAL SUPERVISOR
 JACQUELINE C. TAN
 JACQUELINE C. TAN
 CONWAY CHU
 JACQUELINE C. TAN
 REVISIONS: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

PROJECT NOTES: (THIS SHEET ONLY)

- 1 RC CONDUCTORS AND INNERDUCTS. INSTALL 2-48SMFO, 72SMFO AND 4 SIZE 25 INNERDUCTS.
- 2 2-48SMFO AND 72SMFO IN 103C WITH 4 SIZE 25 INNERDUCTS. 103C, MT.
- 5 RC CONDUCTORS. INSTALL 12SMFO.
- 10 COIL 15 m OF 12SMFO IN PULL BOX.
- 28 RC TP SPLICE CLOSURE. INSTALL FO SPLICE CLOSURE.
- 32 TRENCH AND INSTALL CONDUIT(S) IN PAVED SHOULDER.



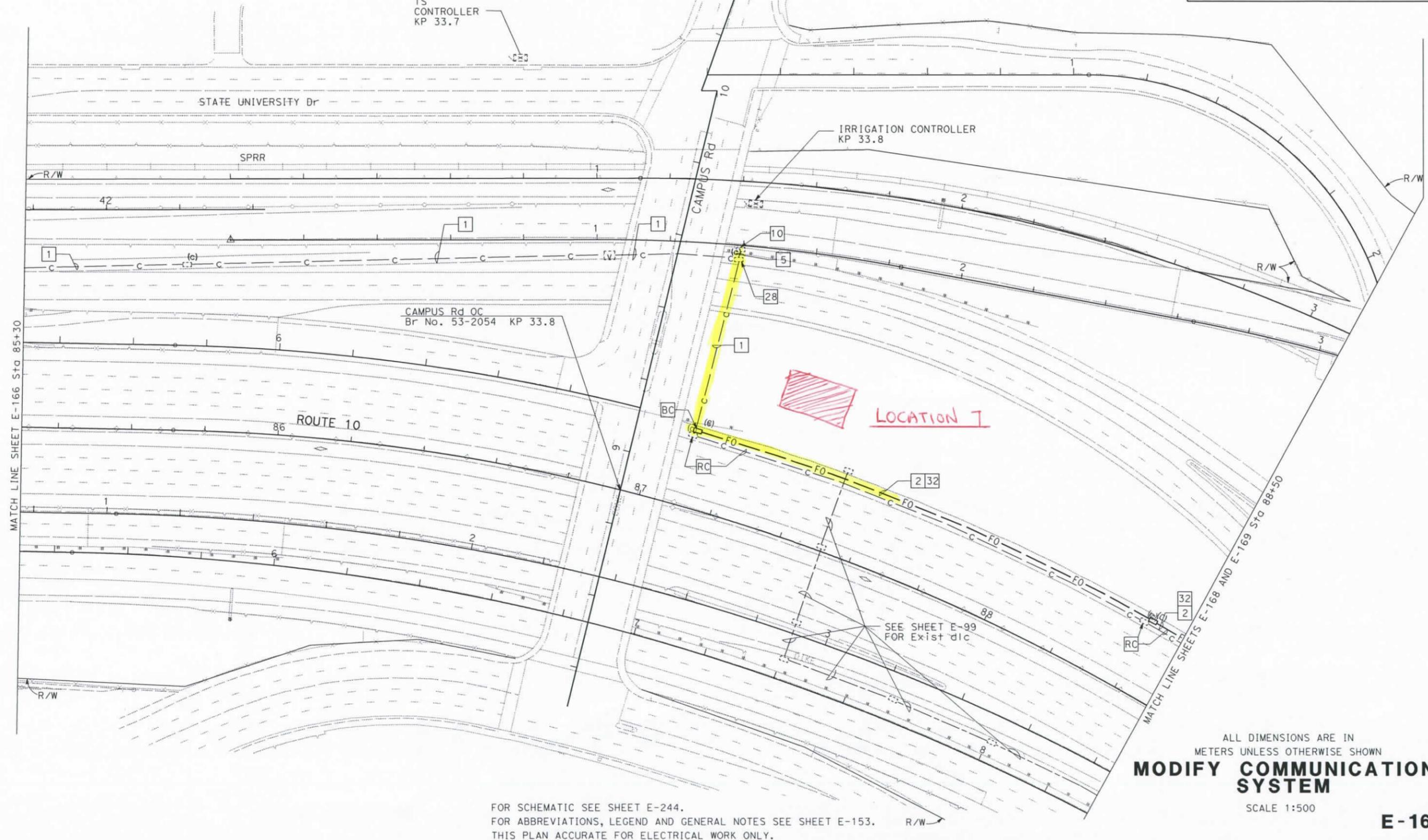
Dist	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	10	29.5/50.4	1131	1317

Conway Chu 1/14/08
 REGISTERED ELECTRICAL ENGINEER

5-5-08
 PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER
 CONWAY CHU
 No. E 15305
 Exp. 03-31-09
 ELECTRICAL
 STATE OF CALIFORNIA



FOR SCHEMATIC SEE SHEET E-244.
 FOR ABBREVIATIONS, LEGEND AND GENERAL NOTES SEE SHEET E-153.
 THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

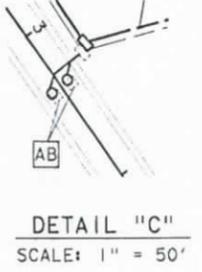
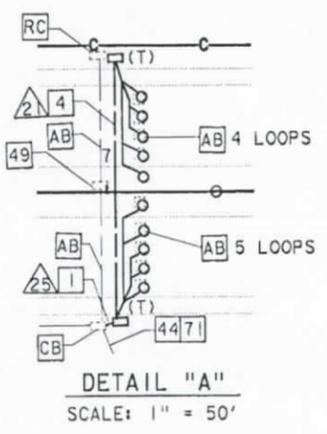
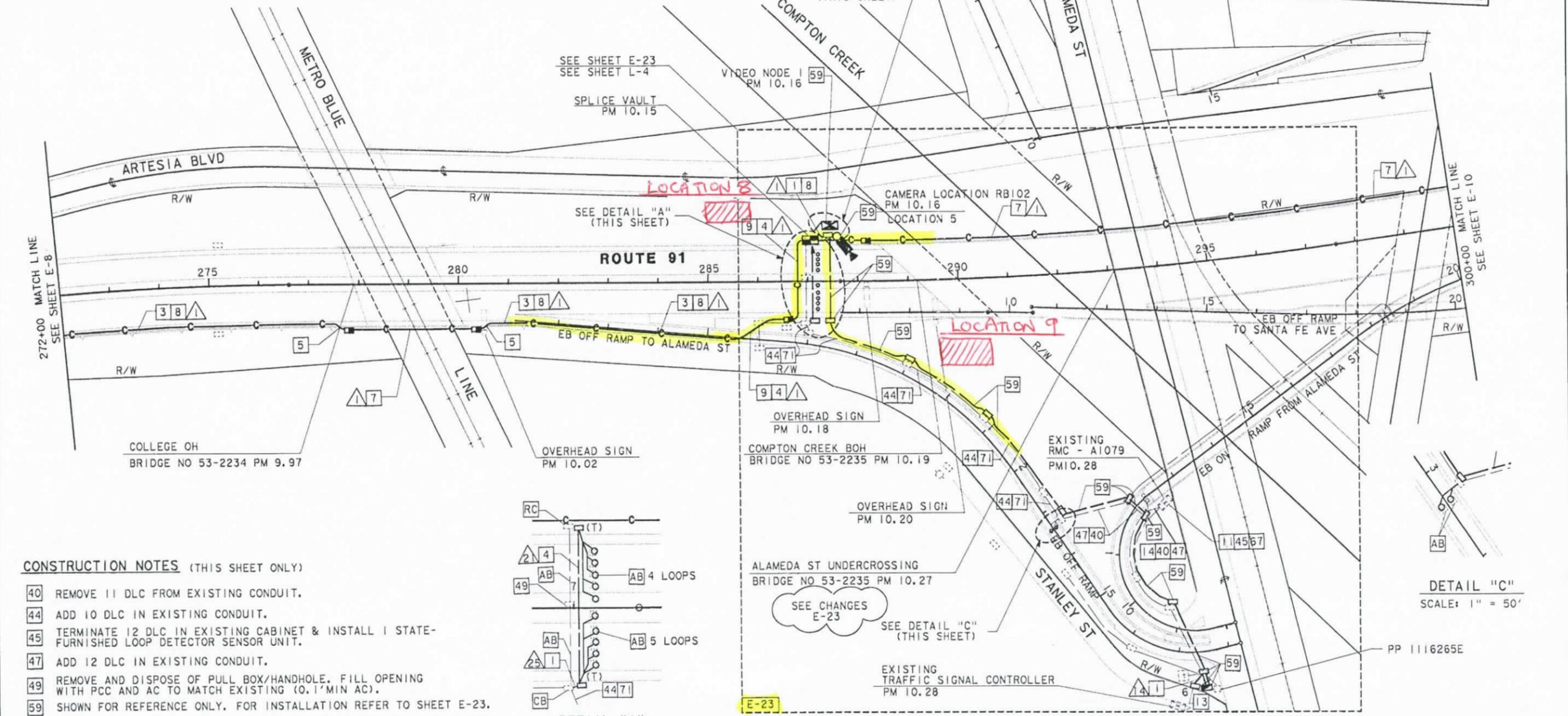
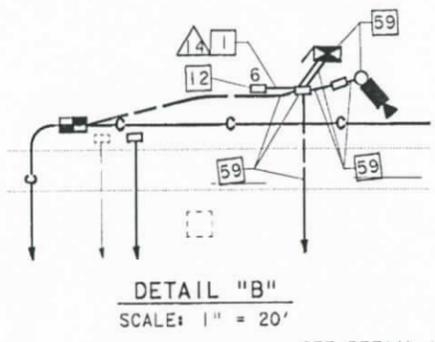
ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN
MODIFY COMMUNICATION SYSTEM
 SCALE 1:500
E-167

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	91	6.5/14.6	64	127

Albachew Bekele
REGISTERED ELECTRICAL ENGINEER
6-15-98
PLANS APPROVAL DATE
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AS-BUILT
Contract No. 07-120984
Resident Engineer: LUKE NGUYEN
Completion Date: 05/22/2001

CONDUIT AND CONDUCTOR SCHEDULE (THIS SHEET ONLY)					
CONDUCTOR TYPE	FUNCTION	RUN			
		1	4	2	25
6P22 CABLE	DATA/PHONE		1		
50P22 CABLE	DATA/PHONE	1			
36SMFO CABLE	VIDEO/DATA		1		
12SMFO CABLE	VIDE/DATA	1			
DLC	DETECTOR LEAD-IN CABLE			5	10
	INNERDUCT	1 1/4"	1 1/4"		
	CONDUIT SIZE	4"	2"	3"	2"



- CONSTRUCTION NOTES (THIS SHEET ONLY)**
- 40 REMOVE 11 DLC FROM EXISTING CONDUIT.
 - 44 ADD 10 DLC IN EXISTING CONDUIT.
 - 45 TERMINATE 12 DLC IN EXISTING CABINET & INSTALL 1 STATE-FURNISHED LOOP DETECTOR SENSOR UNIT.
 - 47 ADD 12 DLC IN EXISTING CONDUIT.
 - 49 REMOVE AND DISPOSE OF PULL BOX/HANDHOLE. FILL OPENING WITH PCC AND AC TO MATCH EXISTING (0.1' MIN AC).
 - 59 SHOWN FOR REFERENCE ONLY. FOR INSTALLATION REFER TO SHEET E-23.
 - 67 REUSE AND RE-TAG EXISTING DLC. RECONFIGURE LOOP DETECTOR CABLES IN CABINET TO PROVIDE REVISED DETECTOR LOOP OPERATION.
 - 71 REMOVE 9 DLC FROM EXISTING CONDUIT.

NOTE: THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY. SEE SHEET E-1 FOR LEGEND AND PROJECT NOTES. SEE SHEET U-9 FOR EXISTING UTILITIES.

DETECTOR LOOP, CLOSED CIRCUIT TELEVISION CAMERA (LOCATION RB102), VIDEO NODE 1 (LOCATION RB102) AND COMMUNICATIONS SYSTEM ROUTING

SCALE AS SHOWN

E-9

PROJECT ENGINEER: PAT SULLIVAN
 DEPARTMENT OF TRANSPORTATION
 STATE OF CALIFORNIA
 Eb Caltrans

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES

USERNAME: GCruz DGN FILE: 712098u0927093010

CU 07396

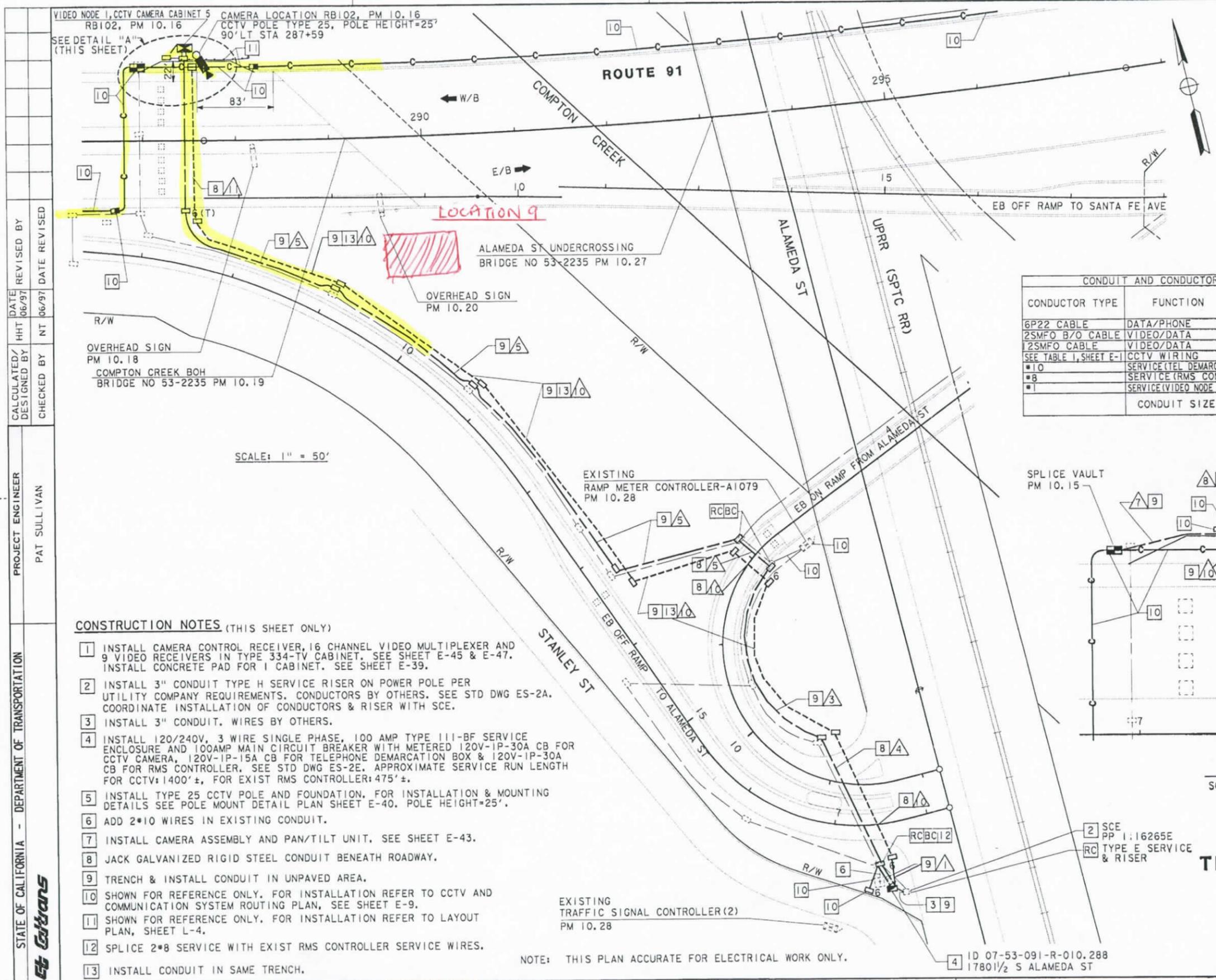
EA 120981

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	91	6.5/14.6	78	127

Albachi Bekele
REGISTERED ELECTRICAL ENGINEER

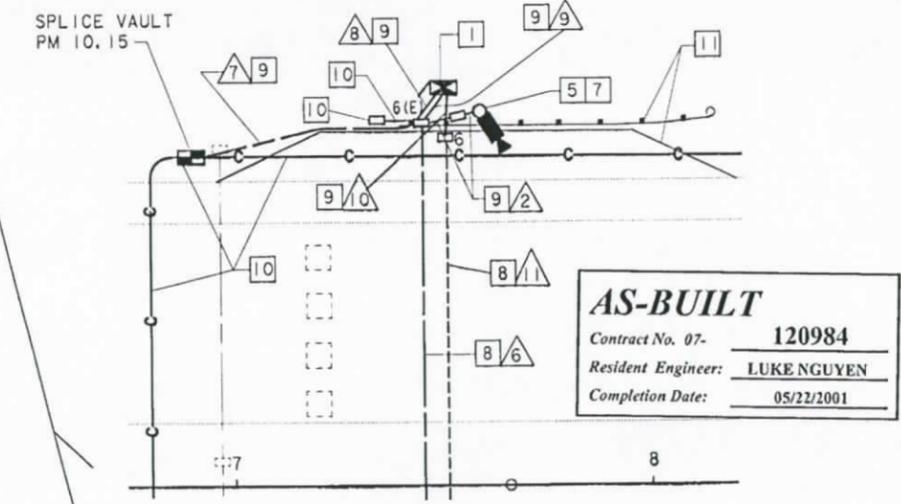
6-15-98
PLANS APPROVAL DATE

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CONDUIT AND CONDUCTOR SCHEDULE (THIS SHEET ONLY)

CONDUCTOR TYPE	FUNCTION	RUN													
		1	2	3	4	5	6	7	8	9	10				
6P22 CABLE	DATA/PHONE					2	2	4	1						
2SMFO B/O CABLE	VIDEO/DATA								1						
2SMFO CABLE	VIDEO/DATA								2	2					
SEE TABLE 1, SHEET E-1	CCTV WIRING														
#10	SERVICE (TEL DEMARCATION BOX)	2													
#8	SERVICE (RMS CONTROLLER)	2												2	2
#1	SERVICE (VIDEO NODE CONTROLLER)	2													
CONDUIT SIZE		2-3"	2"	2"	3"	2"	3"	3"	3"	3"	3"	3"	2"	3"	



AS-BUILT
Contract No. 07- 120984
Resident Engineer: LUKE NGUYEN
Completion Date: 05/22/2001

DETAIL "A"
SCALE: 1" = 20'

CLOSED CIRCUIT TELEVISION CAMERA (LOCATION RB102) VIDEO NODE 1 (LOCATION RB102)
SCALE: AS SHOWN

- CONSTRUCTION NOTES (THIS SHEET ONLY)**
- INSTALL CAMERA CONTROL RECEIVER, 16 CHANNEL VIDEO MULTIPLEXER AND 9 VIDEO RECEIVERS IN TYPE 334-TV CABINET. SEE SHEET E-45 & E-47. INSTALL CONCRETE PAD FOR 1 CABINET. SEE SHEET E-39.
 - INSTALL 3" CONDUIT TYPE H SERVICE RISER ON POWER POLE PER UTILITY COMPANY REQUIREMENTS. CONDUCTORS BY OTHERS. SEE STD DWG ES-2A. COORDINATE INSTALLATION OF CONDUCTORS & RISER WITH SCE.
 - INSTALL 3" CONDUIT. WIRES BY OTHERS.
 - INSTALL 120/240V, 3 WIRE SINGLE PHASE, 100 AMP TYPE III-BF SERVICE ENCLOSURE AND 100AMP MAIN CIRCUIT BREAKER WITH METERED 120V-1P-30A CB FOR CCTV CAMERA, 120V-1P-15A CB FOR TELEPHONE DEMARCATION BOX & 120V-1P-30A CB FOR RMS CONTROLLER. SEE STD DWG ES-2E. APPROXIMATE SERVICE RUN LENGTH FOR CCTV: 1400' ±, FOR EXIST RMS CONTROLLER: 475' ±.
 - INSTALL TYPE 25 CCTV POLE AND FOUNDATION. FOR INSTALLATION & MOUNTING DETAILS SEE POLE MOUNT DETAIL PLAN SHEET E-40. POLE HEIGHT=25'.
 - ADD 2#10 WIRES IN EXISTING CONDUIT.
 - INSTALL CAMERA ASSEMBLY AND PAN/TILT UNIT. SEE SHEET E-43.
 - JACK GALVANIZED RIGID STEEL CONDUIT BENEATH ROADWAY.
 - TRENCH & INSTALL CONDUIT IN UNPAVED AREA.
 - SHOWN FOR REFERENCE ONLY. FOR INSTALLATION REFER TO CCTV AND COMMUNICATION SYSTEM ROUTING PLAN, SEE SHEET E-9.
 - SHOWN FOR REFERENCE ONLY. FOR INSTALLATION REFER TO LAYOUT PLAN, SHEET L-4.
 - SPLICE 2#8 SERVICE WITH EXIST RMS CONTROLLER SERVICE WIRES.
 - INSTALL CONDUIT IN SAME TRENCH.

NOTE: THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.



USERNAME => GCruz
DGN FILE => 712098u2327093743

CU 07396 EA 120981

LAST REVISION: 08-13-97 DATE PLOTTED: 27-Aug-2001 TIME PLOTTED: 09:59:35



DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO	TOTAL SHEETS
07	LA	10,91,101, 105,110,405	15.3/28.0	81	165
		REGISTERED ELECTRICAL ENGINEER		11-02	
		REGISTERED ELECTRICAL ENGINEER		TAN, JACQUELINE	
		REGISTERED ELECTRICAL ENGINEER		No. E15611	
		REGISTERED ELECTRICAL ENGINEER		EXP. 12-31-04	
		REGISTERED ELECTRICAL ENGINEER		STATE OF CALIFORNIA	
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Caltrans now has a web site! To get to the web site, go to: http://www.dot.ca.gov					

NOTES: (THIS SHEET ONLY)

- 1 INSTALL CONDUIT(S) IN TRENCH IN SOIL OFF THE SHOULDER. FOR INSTALLATION OF CONDUITS, SEE SHEET E-33 FOR DETAILS.
- 6 ADD 2-6SMFO, COAX AND CCTV CONTROL CABLES AND CONNECT TO CONTROLLER.
- 11 **RS** EXISTING 2#6 POWER CONDUCTORS FOR CCTV CAMERA. INSTALL 2#6 POWER CONDUCTORS.
- 12 INSTALL NEW CCTV CAMERA AND NEW PAN/TILT ON SIGN No. 22. SEE SHEET C-7 FOR MOUNTING DETAILS ON SIGN STRUCTURE.
- 16 REUSE EXISTING 20 A, 120 V CIRCUIT BREAKER FOR CCTV CABINET.
- 17 INSTALL RELOCATED 334-TV CABINET FOR CCTV CAMERA HA161 ON EXISTING FOUNDATION. **RS** EXISTING CAMERA CONTROL RECEIVER, VIDEO TRANSMITTER. INSTALL NEW CAMERA CONTROL RECEIVER, VIDEO TRANSMITTER AND FODM. SEE SHEET E-40 DETAIL A, DETAIL C SHEET E-41 AND E-44.
- 26 THIS ITEM IS NOT INCLUDED IN THE QUANTITIES FOR PAYMENT ON THIS SHEET.
- 36 EXISTING 334-TV CABINET FOR CCTV CAMERA HA161 TO BE RELOCATED. SEE NOTE 17.
- 37. SEE SHEET E-44 FOR CCTV CONTROL CABLE DETAILS.
- 38. SEE SHEET U-22 FOR UTILITY PLAN AND SHEET E-23 FOR LOCATION OF CCTV TO BE RELOCATED.

CONDUIT AND CONDUCTOR SCHEDULE (THIS SHEET ONLY)			
CONDUIT AND CONDUCTOR TYPE AND SIZE	FUNCTION	RUN	
		△1	△2
6SMFO CABLE	DATA/PHONE	1	
6SMFO CABLE	VIDEO DISTRIBUTION	1	
CCTV CONTROL CABLE	CAMERA CONTROL		1
RG-59U COAX CABLE	VIDEO INTERFACE CABLE		1
CONDUIT SIZE		53	53

AS-BUILT
 Contract No. 07- **168114**
 Resident Engineer: **PAUL WANG**
 Completion Date: **8/ 11/ 05**



MODIFY CCTV CAMERA (LOCATION HA161)

FOR COMPLETE R/W AND ACCURATE ACCESS DATA, SEE R/W RECORD MAPS AT THE DISTRICT OFFICE. THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE NOTED.

SCALE 1:200 **E-32**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
ITS DEVELOPMENT
 PROJECT ENGINEER
 DAVID PADILLA

DATE REVISION BY
 DATE REVISION BY
 CALCULATED/DESIGNED BY
 CHECKED BY

FOR REDUCED PLANS ORIGINAL SCALE IS IN MILLIMETERS



USERNAME => s124928
 DGN FILE => 716811u32.dgn

CU 07388 EA 168111

DATE PLOTTED => 19-FEB-2008
 TIME PLOTTED => 3:50



DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO	TOTAL SHEETS
07	LA	110	14.0/15.8, 27.9/34.4	42a	76

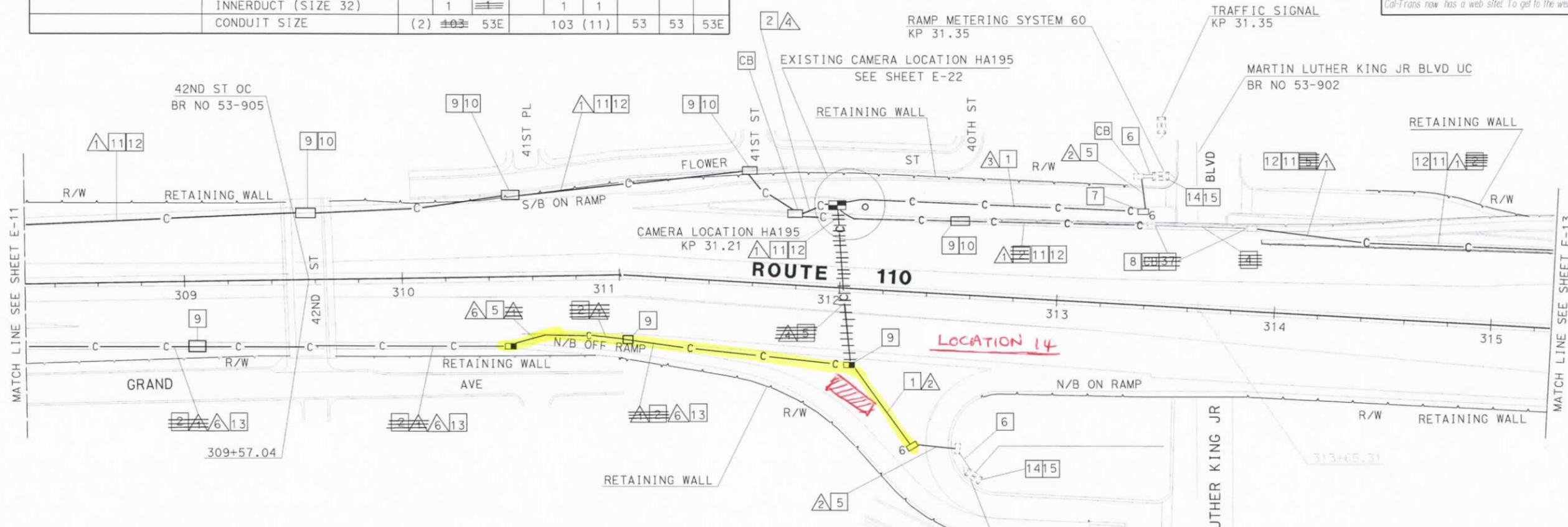
Jacqueline C. Tan 7/99
REGISTERED ELECTRICAL ENGINEER

10-25-99
PLANS APPROVAL DATE

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CONDUCTOR TYPE	FUNCTION	RUN				
		1	4	2	3	6
50P22 CABLE	DATA/PHONE	1	1			
24SMFO CABLE	VIDEO/DATA	1	1			
12SMFO CABLE	SH VIDEO		1	1		
6P22 CABLE	DATA/PHONE		1	1	2	1
	INNERDUCT (SIZE 32)	1	1	1		
	CONDUIT SIZE	(2) 103 53E	103 (11)	53	53	53E



NOTES: (THIS SHEET ONLY)

- 1 INSTALL CONDUIT IN TRENCH IN SOIL OFF THE SHOULDER. SEE SHEET E-26 FOR DETAILS.
- 2 INSTALL CONDUIT IN TRENCH IN CONCRETE SHOULDER. SEE SHEET E-26 FOR DETAILS.
- ~~4 ADD 50 P22, 24SMFO, AND 12SMFO CABLES IN EXISTING COMMUNICATION CONDUIT IN CONCRETE BARRIER WITHOUT INNERDUCT. INSTALL CABLES AFTER 1.3 m MINIMUM BENDING CONDUIT RADIUS HAS BEEN PLACED. SEE DETAIL 4, SHEET C-5.~~
- 5 JACK RIGID STEEL CONDUIT(S) UNDER ROADWAY. FOR INSTALLATION OF 103C, SEE SHEET E-27 FOR DETAILS.
- 6 ADD 6P22 CABLE(S) AND CONNECT TO EXISTING RMS 60 CONTROLLER.
- 7 COIL 30 m OF 6P22 CABLE IN PULL BOX FOR EXISTING TRAFFIC SIGNAL CONTROLLER. SPLICE IN/OUT PAIRS AT SPLICE VAULT.
- 14 INSTALL TELEPHONE BRIDGE AND 12-PAIR TERMINAL BLOCK IN CONTROLLER CABINET. SEE SHEET E-31 AND DETAIL 1 SHEET E-34.
- 15 DISCONNECT EXISTING TELCO DEMARCATION CABLE ONLY AFTER TESTING ALL INSTALLED EQUIPMENT, VERIFYING THE INSTALLATION IS OPERATIONAL AND GETTING APPROVAL FROM THE ENGINEER.
- ~~17 INSTALL 103C IN EXISTING COMMUNICATION PULLBOX IN CONCRETE BARRIER. SEE SHEET C-5 DETAIL 4.~~
- 38. SEE SHEET C-7 FOR EDGE DRAIN INFORMATION.

AS-BUILT

Contract No. 07- **168104**

Resident Engineer: **M. FARDOUN**

Completion Date: **03/ 05/ 02**

- 8 EXISTING COMMUNICATION PULL BOX IN CONCRETE BARRIER.
- 9 EXISTING COMMUNICATION PULL BOX IN CONCRETE SHOULDER.
- 10 REMOVE AND REPLACE 90 DEGREES BENDS FROM EXISTING 53C CONDUITS ENTERING EXISTING COMMUNICATION PULL BOXES WITH THE CONDUITS ENTERING THE ENDS OF THESE EXISTING BOXES, VERTICALLY AND HORIZONTALLY ALIGNED WITH CONDUITS AT THE OPPOSITE END OF THE BOX.
- 11 ADD 50P22 IN EXISTING 53C COMMUNICATION CONDUIT.
- 12 ADD 24SMFO AND 12SMFO CABLES WITH ONE SIZE 32 YELLOW INNERDUCT IN EXISTING 53C COMMUNICATION CONDUIT.
- 13 ADD 6P22 CABLE(S) IN EXISTING 53C IN CONCRETE SHOULDER.

COMMUNICATION SYSTEM ROUTING

SCALE =1:1000

E-12

PROJECT ENGINEER: DAVID PADILLA
 CALCULATED/DESIGNED BY: []
 CHECKED BY: []
 DATE REVISOR: []
 DATE REVISOR: []
 DATE REVISOR: []

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Traffic Design

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE NOTED.

FOR COMPLETE R/W AND ACCURATE ACCESS DATA, SEE R/W RECORD MAPS AT THE DISTRICT OFFICE. THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.



USERNAME => s129112
DGN FILE => 716810412a.dgn

CU 07396

EA 168101

DATE PLOTTED => 21-JUL-2009
 TIME PLOTTED => 3:15:21

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	110	21.4/30.5	44	109

Pat Sullivan
 REGISTERED CIVIL ENGINEER
 No. C30912
 Exp. 3/31/00
 CIVIL
 STATE OF CALIFORNIA

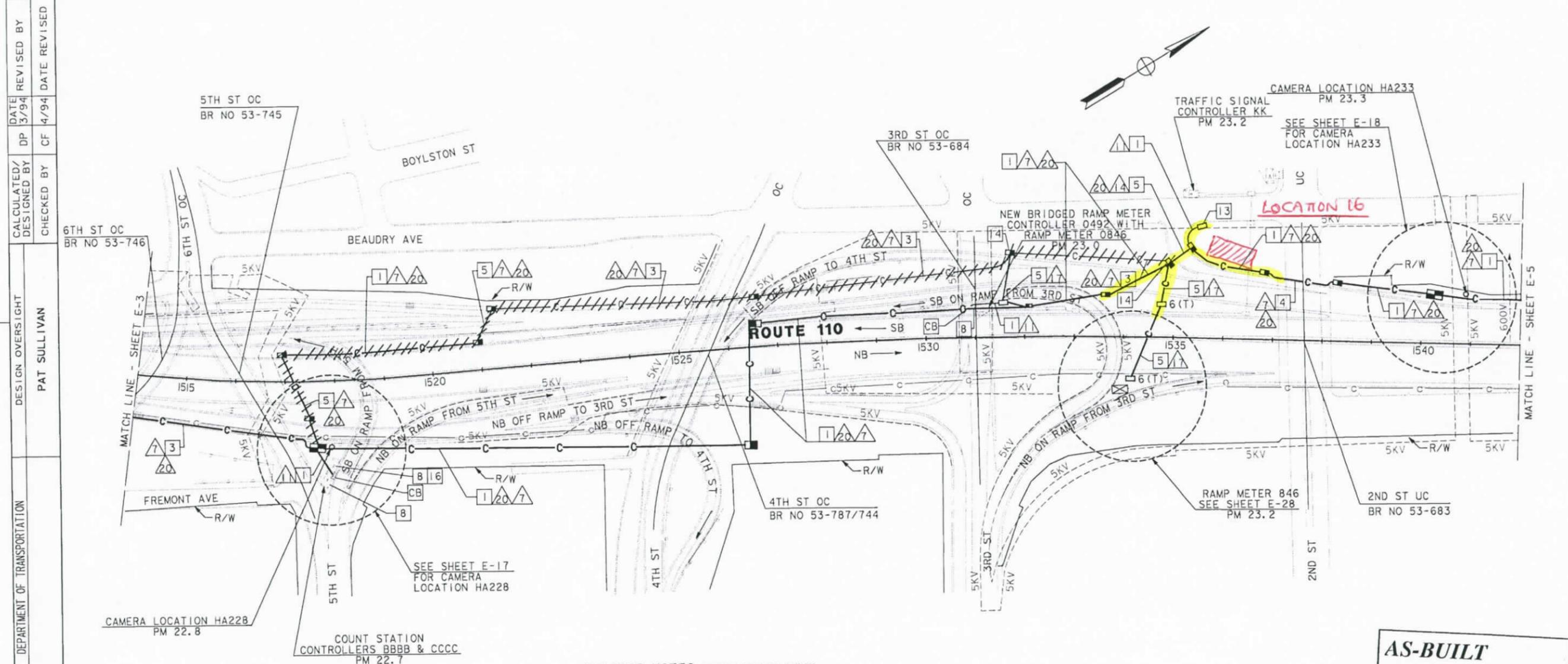
6-9-97
 PLANS APPROVAL DATE

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CONDUCTOR TYPE	FUNCTION	RUN				
		7	11	14	17	20
75P22 CABLE	COMMUNICATION DATA					
6P22 CABLE	CONTROLLER DATA					
24SMFO CABLE	DATA/VIDEO NODE TO HUB TRUNK					
12SMFO CABLE	CCTV CAMERA TO VIDEO DISTRIBUTION					
	INNERDUCT	1/4"	1/4"	1/4"	1/4"	1/4"
	CONDUIT SIZE	4"	2"	4"	4"	4"

WARNING

BEFORE STARTING WORK ON EXISTING SERIES LIGHTING CIRCUITS, THE CONTRACTOR MUST OBTAIN DAILY SAFETY CIRCUIT CLEARANCE FROM SERVING COMPANIES, DISCONNECT CIRCUITS AND PLACE "MEN AT WORK" SIGNS NEAR OPEN SWITCHES BEFORE DOING ANY WORK ON CIRCUITS.



PROJECT NOTES: (THIS SHEET ONLY)

16 INSTALL NEW TELEPHONE BRIDGE IN CONTROLLER FOR BRIDGING OF COUNT STATIONS.

AS-BUILT

Contract No. 07- 120854

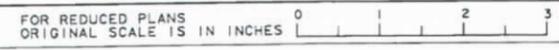
Resident Engineer: NGUYEN, L.

Completion Date: 04/24/2001

RMS, CCTV AND COMMUNICATION SYSTEM ROUTING

SCALE: 1" = 100'

NOTE: THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY. SEE SHEET E-1 FOR LEGEND AND PROJECT NOTES.



USERNAME -> GCrz
 DON FILE -> 712085u0408103806

CU 07396

EA 120851

DESIGN OVERSIGHT: PAT SULLIVAN
 DESIGNER: PAT SULLIVAN
 CHECKED BY: [blank]
 CALCULATED/DESIGNED BY: [blank]
 DATE: 3/94
 REVISED BY: [blank]
 DATE: 4/94

DATE PLOTTED -> 8-Aug-2001
 TIME PLOTTED -> 10:35
 LAST REVISION
 00-00-00