INFORMATION HANDOUT

For Contract No. 04-2G9904
At SCL-130

Identified by
Project ID 0412000012

U.S. Fish and Wildlife Service Letter of concurrence dated 04/03/2015

MATERIALS INFORMATION

Final Foundation Recommendation for Soldier Pile Wall dated 4/14/16

Lead Data Report dated April 2016

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, California 95825-1846

In Reply Refer to:
08ESMF00-2015-I-0156-1

Ms. Melanie Brent, Deputy District Director
Caltrans District 4 Environmental Analysis
California Department of Transportation
P.O. Box 23660
Oakland, California 94623-0660

APR 30 2015

Subject: Informal Consultation on the Proposed State Route 130 Storm Damage Repair Project, Santa Clara County, California (Caltrans EA 04-2G990)

Dear Ms. Brent:

This letter responds to your January 29, 2015, letter requesting informal consultation and written concurrence for the proposed State Route 130 (SR-130) Storm Damage Repair Project, Santa Clara County, California. Your letter was received by the U.S. Fish and Wildlife Service (Service) on February 9, 2015 (Caltrans EA 04-2G990). This consultation concerns the effects of the proposed action on the endangered threatened Alameda whipsnake (*Masticophis lateralis euryxanthus*), threatened California red-legged frog (*Rana draytonii*), threatened California tiger salamander (*Ambystoma californiense*) Central Valley Distinct Population Segment (Central California tiger salamander). No designated or proposed critical habitat for any of these species is present within the action area. This letter is issued under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act).

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) legislation (23 U.S.C. 327) allows the Secretary of the U.S. Department of Transportation acting through the Federal Highway Administration (FHWA) to establish a Surface Transportation Project Delivery Pilot Program, whereby a State may assume the FHWA responsibilities under the National Environmental Policy Act (NEPA) for environmental review, agency consultation and other action pertaining to the review or approval of a specific project. Caltrans assumed these responsibilities for the FHWA on July 1, 2007 through a Memorandum of Understanding (MOU) within the State of California (http://www.dot.ca.gov/ser/downloads/MOUs/nepa_delegation/sec6005mou.pdf).

The purpose of the proposed action is to improve vehicle and motorist safety, repair storm damage to SR-130 caused by winter rains in 2013, and update the road drainage system to current State standards. The project would include widening the shoulder by 4 feet, constructing an approximately 200-foot soldier pile wall along the eastbound lane to stabilize the existing roadway, installing a 200-foot Midwest Guardrail System (MGS) parallel to the soldier pile wall, the updated standard for metal beam guardrail. The purpose of roadway widening and installing the MGS is to enhance safety on this segment of the roadway. In addition, the project would re-establish an existing drainage ditch, to improve drainage systems along the roadway and prevent future storm damage to the roadway. The existing pavement would receive an AC overlay from post mile (PM) 5.6 to PM 6.0.

The Service attended a site visit with Caltrans on June 19, 2014, to review the project and discuss components of the project that could result in take of listed species or affect critical habitat. The action area is defined in 50 CFR §402.02, as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." For the purposes of the proposed action, the Service considers the action area to encompass 3.54 acres and includes all construction access, staging areas, vehicle parking, and construction work zones as specified by Caltrans and submitted to the Service in the January 29, 2015, letter requesting informal consultation, June 19, 2014, site visit, and January 2015 biological assessment. Habitat within the action area comprises bare ground, ruderal, non-native trees and grass species, and paved and unimproved shoulders. Habitat onsite is highly disturbed, consists of steep slopes, lacks fossorial mammal activity, and does not provide habitat features associated with the life history requirements of the California red-legged frog or Central California tiger salamander. The action area is located approximately 5 miles south of the Sunol-Cedar Mountain Alameda whipsnake recovery unit and not located within the current species range.

The Service has reviewed the submitted project as described in the January 29, 2015, letter to the Service, June 19, 2014, site visit, January 2015 biological assessment, evaluation of project effects, and concurs with the determination that the project as described is not likely to adversely affect the Alameda whipsnake, California red-legged frog, Central California tiger salamander as the effects will be discountable. The Service concurs with this determination based on the following: (1) the action area lacks appropriate habitat to support the California red-legged frog and Central California tiger salamander, and is not located within the current range of the Alameda whipsnake; (2) construction activities, including staging, laydown and vehicle parking, will occur within paved or unvegetated road shoulders; (3) no work or habitat disturbance will occur within suitable habitat for these species; (4) construction will occur outside any designated environmentally sensitive areas; (5) Caltrans will implement construction and erosion control Best Management Practices; (6) all on-site personnel will attend environmental awareness training prior to beginning project activities; (7) work will be conducted during the dry season between May 1 and November 1; and (8) Service-approved biological monitors will conduct preconstruction surveys prior to any vegetation removal or ground-disturbing activities and will monitor construction activities adjacent to California red-legged frog, Central California tiger salamander, and Alameda whipsnake habitat.

This concludes informal consultation on the proposed SR-130 Storm Damage Repair Project, Santa Clara County, California. Therefore, unless new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this informal consultation; the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this informal consultation; or a new species is listed or critical habitat designated that may be affected by the action, no further action pursuant to the Act is necessary. If you have questions please contact Jerry Roe, Endangered Species Biologist, or Ryan Olah Coast Bay Division Chief, at the letterhead address (916) 414-6600, or via email at Jerry_Roe@fws.gov or Ryan_Olah@fws.gov.

Sincerely,

for Eric Tattersall
Deputy Assistant Field Supervisor

cc:
Melissa Escaron, California Department of Fish and Wildlife, Napa, California

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Memorandum

Serious drought
Help Save Water!

To: MS. ROSA CANDIOTTI
Branch Chief
Office of Structures Design

Date: April 14, 2016

Attention: Kimberly Mori

File: 04-SCL-130 PM 5.6
04-2G990
Crother Rd. Soldier Pile

From: MOHAMMAD DEHGHAN
Associate Materials and Research Engineers
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

HOOSHMAND NIKOUI
Chief, Branch A
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

RONALD KARPOWICZ
Engineering Geologist
Office of Geotechnical Design-West
Geotechnical Services
Division of Engineering Services

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

PROFESSIONAL GEOLOGIST
RONALD KARPOWICZ
CERTIFIED ENGINEERING GEOLOGIST
No. 2579
Exp. 12/31/16
STATE OF CALIFORNIA

Subject : FINAL FOUNDATION RECOMMENDATION FOR SOLDIER PILE WALL

INTRODUCTION

The project is located on Route 130 at PM 5.6 Santa Clara County, (see attached Exhibit A, Vicinity Map).

A slipout occurred at this site during the Winter of 2011. The slipout occurred along the westbound lane of State Route 130 at PM 5.6, at 0.1 mile east of Crothers Road in the city of San Jose in Santa Clara County.

The roadway is showing signs of distress and subsidence due to the downhill movement of the slope which extends approximately 6 feet into the eastbound lane. The total length of this slipout is approximately 100 feet.

This report provides foundation recommendations for a retaining wall that will stabilize the roadway and also provide additional space for widening.

Recommendations contained in this report are based on the submitted layout and cross section plans, field survey, subsurface exploration, laboratory test results and engineering analysis and judgment.

Recommendations contained in this report are based on the submitted layout and cross section plans, field survey, subsurface exploration, laboratory test results and engineering analysis and judgment.

1. PROJECT PURPOSE AND NEED

The need for this project is to improve the road safety by both stabilizing the sliding slope and also providing additional room for widening of the traveled way.

2. SCOPE OF WORK

The following tasks were performed for the preparation of this Foundation Report:

- Review of as-built plans;
- Field geotechnical exploration, including drilling 2 borings near the edge of the traveled way;
- Laboratory testing results on selected samples;
- Geotechnical design analysis; and
- Preparation of this Geotechnical Design Recommendation.

3. SITE GEOLOGY AND SEISMICITY

3.1 Regional Geology

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

4.2 Site Geology

According to the geologic map of the area, the site is located in an area underlain by Quaternary landslide deposits (Wentworth and others, 1998). The landslide deposits are described as locally derived bedrock materials that range from rubble to nearly intact rock displaced down slope by slumping and sliding; only larger landslides are shown (typically with diameters greater than about 350 m or areas greater than about 0.1 km^2).

4.3 Faulting and Seismicity

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

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

4.4 Site Seismicity

According to the latest California Seismic Hazard Map Version 2.0.4 (USGS, 2008), which is based on the United States Geological Survey (USGS) and California Geological Survey (CGS) maps, the nearest active faults are the Hayward, Calaveras, and Silver Creek faults. The site is not located in an Alquist-Priolo Earthquake Fault Zone. The Hayward Fault is a strike slip fault, has a Mmax of 6.7 and is located approximately 0.3 miles west of the site. The Calaveras fault is a strike slip fault, has a Maximum Magnitude (Mmax) of 6.9, and is located approximately 2.1 miles to the southwest of the project. The Silver Creek Fault is a strike slip fault, has a Mmax of 6.9 and is located approximately 4.5 miles southwest of the site. The fault distances were measured on Google Earth and represent the horizontal distances from the fault traces or surface projections of the top of rupture planes to the project site.

4.5 Site Ground Motions

Since geophysical testing, including shear wave velocity, was not performed at the site, we determined the Vs30 based on the geologic map and logs of test borings. Vs30 refers to the average shear wave velocity in the upper 30 meters of the soil/rock profile and is a measure of the near surface soil stiffness. As noted in previously, the geologic map for the area indicates that the site is underlain by landslide deposits and bedrock. Based on the conditions described by the geologic map, we assigned a NEHRP class C to the site, which correlates to a shear wave velocity (Vs30) of 560 m/s, very dense soil/soft rock.

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

Table 1: Fault Data[1]

Fault Name	Distance: Miles	Fault ID:	Fault Type:	Maximum Magnitude (MMax):	Peak Ground Acceleration (g)	Hazard Analysis Type
Hayward (Southern Extension)	0.3	149	Strike-Slip	6.7	0.73	DSHA
Calaveras (Central) 2011 CFM	2.1	151	Strike-Slip	6.9	0.45	DSHA
Silver Creek	4.5	148	Strike-Slip	6.9	0.38	DSHA
Probabilistic Model USGS Seismic Hazard Map(2008) 975 Year Return Period					0.9	PSHA

4.6 Liquefaction

Since we did not encounter any water during the soil investigation and the subsurface soil/rock condition consist mostly of hard sandstone, we consider the Liquefaction potential to be very low.

4. SUBSURFACE SOIL INVESTIGATION

The subsurface exploration was performed by the Office of Geotechnical Design West (OGDW) in September of 2013. It consists of 2 mud-rotary borings with Standard Penetration Tests (SPT). Soil samples were taken every 5 feet from the Standard Penetration Test (SPT) sampling. All foundation soil classifications were based on Caltrans "Soil and Rock Logging, Classification, and Presentation Manual".

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

The borings were drilled along the proposed retaining wall alignment. The borings show highly fractured sandstone. The subsurface conditions can vary from soft to hard, and very hard blocks of rock may occur in the excavation.

Ground water was not encountered. However, water elevations are subject to seasonal fluctuations.

5. GEOTECHNICAL TESTING

5.1 In Situ Testing

In all borings, Standard Penetration Test (SPT) was performed at 5-feet interval in soil strata. Visual soil classifications were made in the field in accordance with the Unified Soil Classification System. Soil samples were collected at various depth for laboratory testing, which will be included in the Final GDR.

6. GEOTECHNICAL DESIGN RECOMMENDATIONS

Based on the site condition and the results of our field investigation, we recommend that a soldier pile wall be constructed at this location. This wall should be constructed at the outside edge of the proposed new shoulder. with a maximum height of 10 ft, and extend from Station 101 + 70 $\pm$ to 102 + 70.0 as shown in the typical section on attached Exhibits B and C. This wall will cover the entire unstable area as well as the proposed roadway widening.

We recommend the tieback soldier pile wall be designed for the following loads;

Lateral Earth Pressures

For active earth pressure against the wall/piles, use the following:

- Internal friction angle ϕ=30 degrees and c=500 psf and soil unit weight γ =130 pcf.
- For earth pressure, use a triangular pressure distribution...
- For traffic surcharge, use 240 psf, rectangular pressure distribution.

The above recommended earth pressures are based on the assumption that an adequate drainage system will be provided to prevent the development of hydrostatic pressure behind the wall.

For passive earth pressure against the soldier piles, use the following:

- Use passive earth coefficient (Kp) of 3.0. This Kp was computed using engineering properties of Franciscan Melange (internal friction angle ϕ =30°, cohesion c = 500 psf, and total unit weight of soil/rock γ = 130 pcf).

- For Friction Factor use $\delta = 2/3\ \phi°$

- Use an arching factor of 2 (equal to 8 percent of soil friction angle).

- Minimum of 5 feet wide bench at the base of the wall.

- Corrosion test results will be included in the Final Geotechnical Recommendation.

7. CONSTRUCTION CONSIDERATIONS AND REQUIREMENTS

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

- The contractor may encounter difficulties during drilling for the soldier beam pile. This is likely due to the presence of large blocks of hard rock in a clay matrix, loose/soft slide mass.

- During drilling operation for the proposed soldier beam piles, we believe that some caving of the drilled holes may occur. Thus, use of casing is required. Installation of soldier piles may require drilling and placing concrete in wet conditions, if de-watering is not desirable. For displacement of groundwater, the contractor may choose to use a closed system using a concrete pump or a tremie tube to place concrete at the bottom of the holes for soldier piles. A positive head should be maintained at all times to reduce potential for concrete segregation.

- Installation of the soldier beam piles should be performed in accordance with Section 49-4 of the May 2010 Caltrans Standard Specifications.

- The drilling and concrete placement for soldier beam piles construction shall be staggered. No open holes shall be adjacent.

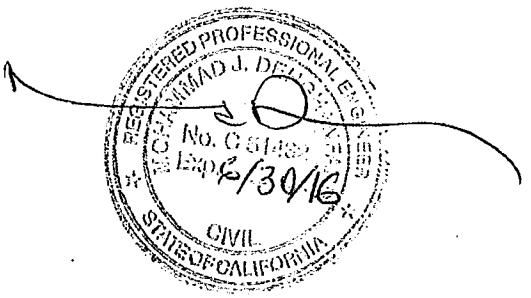
* * * * *

Should you have any questions, please call me at (510) 286-4717 or Hooshmand Nikoui, Brach Chief at (510)286-4811.

Attachments:

c: TPokrywka, HNikoui, MDehghan, Dily File, Project File

MDehghan/mm

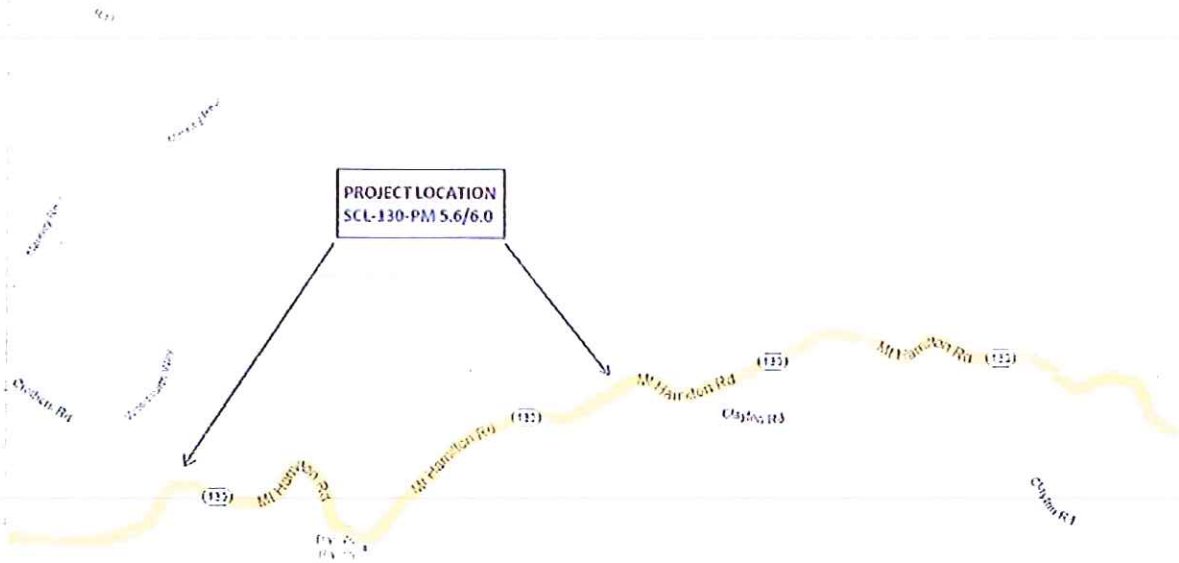


EXIBIT A

EXHIBIT A

PROJECT FACT SHEET

SCL 130 Storm Damage Repair



EXIBIT B

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

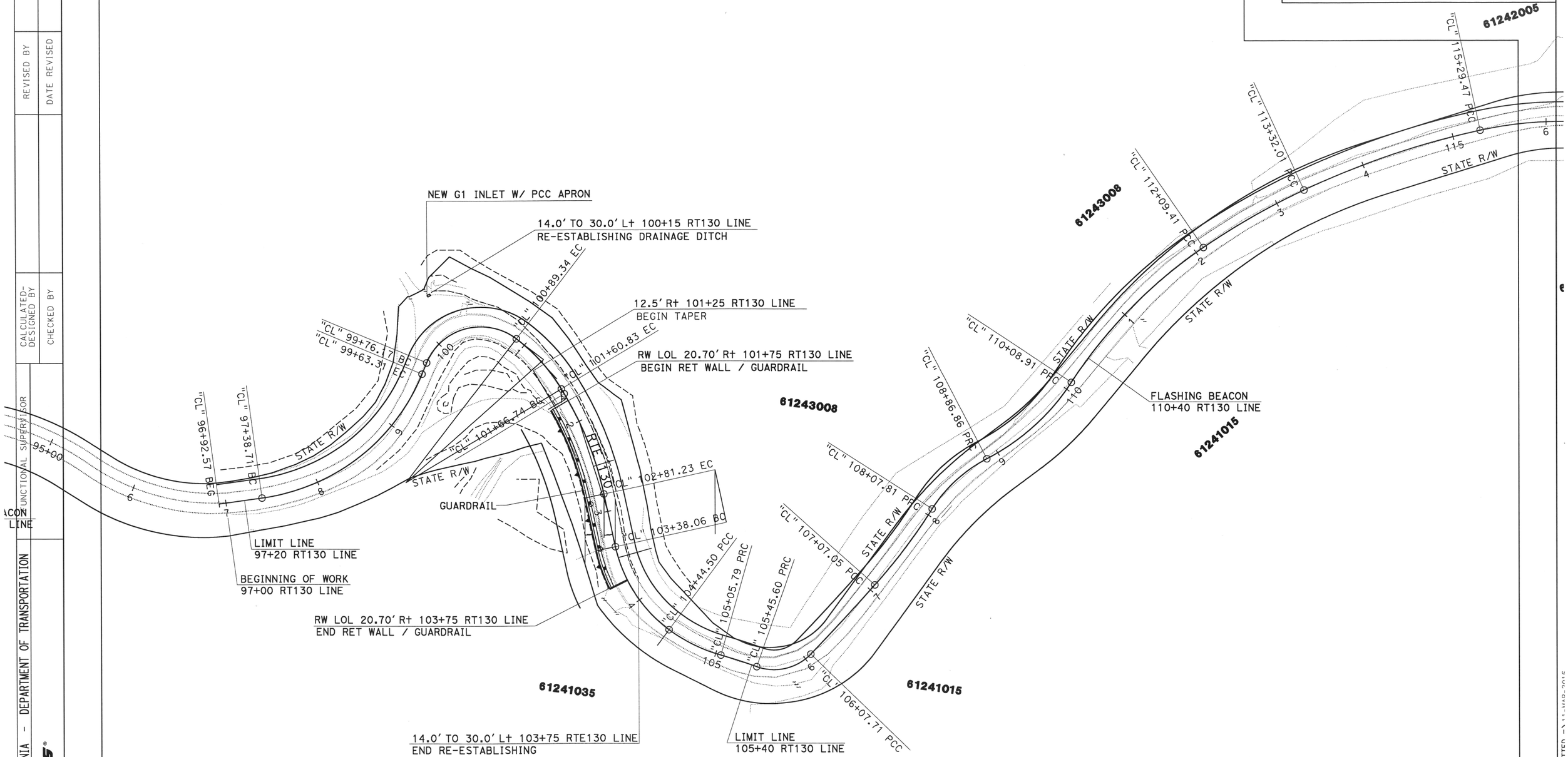
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

LEGEND:

GUARDRAIL
RETAINING WALL



EA 2G9900 (0412000012)
04-SCL-130-PM 5.6/6.0

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY
CHECKED BY
FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION DATE PLOTTED

USERNAME => s136238

EXIBIT C

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	130	5.6/6.0	2	A

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER — No. — EXP. — CIVIL — STATE OF CALIFORNIA

LEGEND:

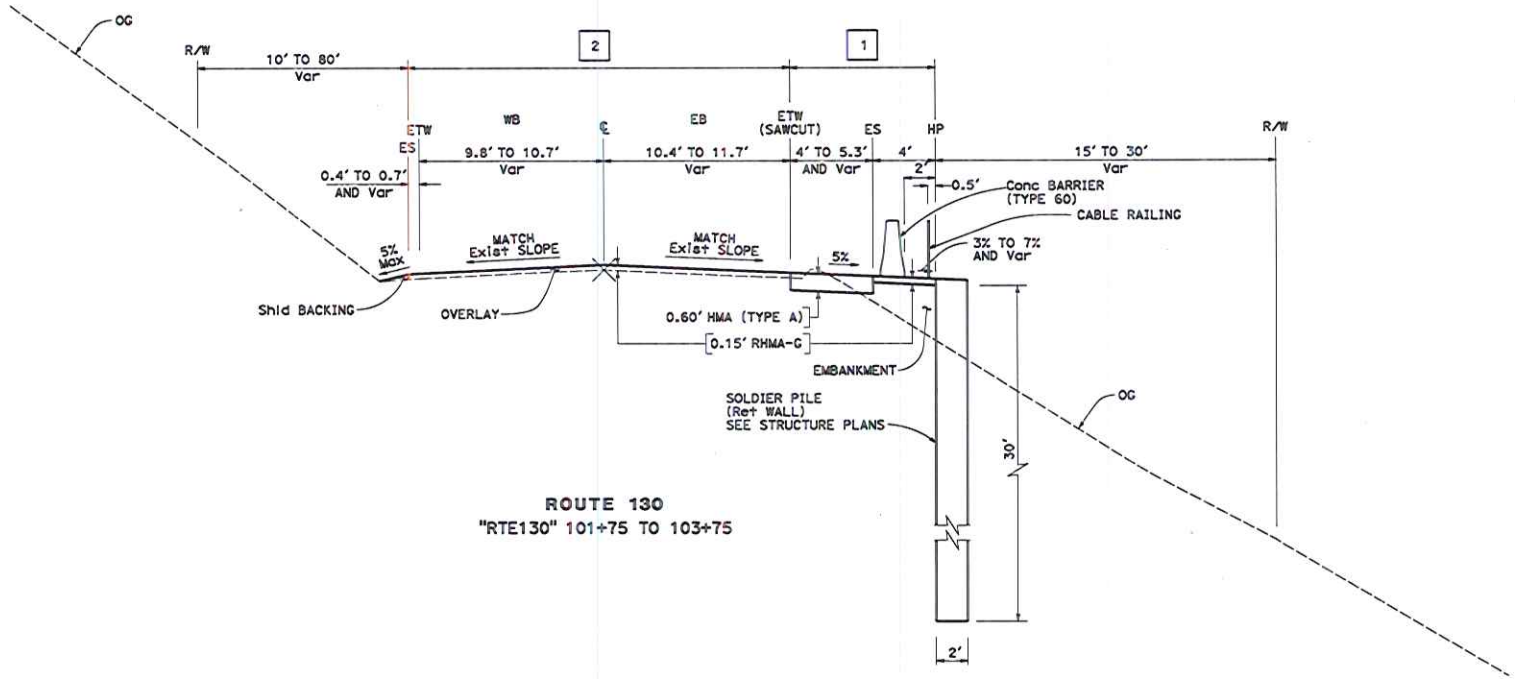
[No.] STRUCTURAL SECTION NUMBER

ABBREVIATION:

RHMA-G RUBBERIZED HOT MIX ASPHALT (GAP GRADED)

NOTE:

1. DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.



ROUTE 130
"RTE130" 101+75 TO 103+75

TYPICAL CROSS SECTIONS
NO SCALE

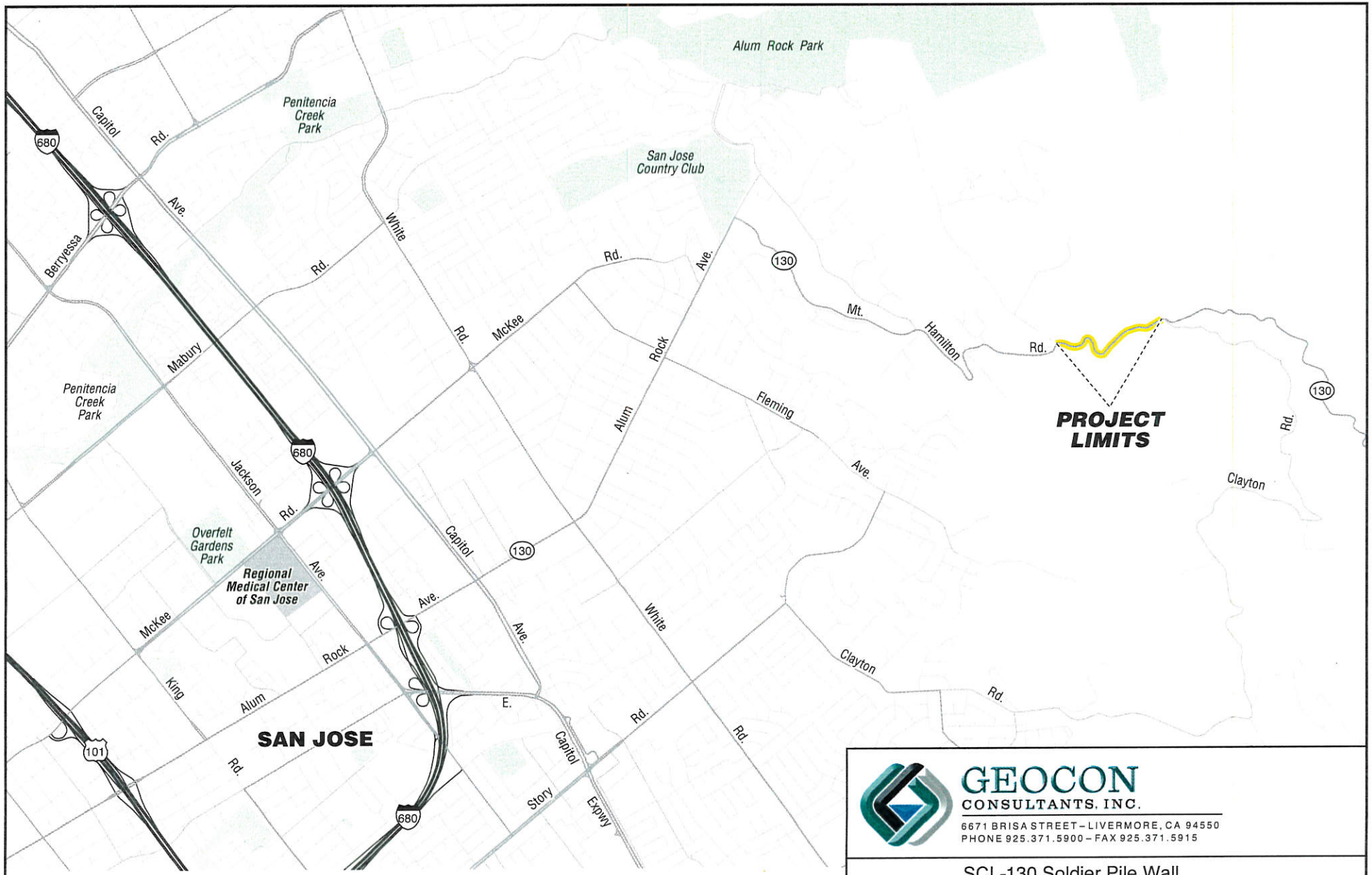
X-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DESIGN

FUNCTIONAL SUPERVISOR: GHULAM POPAL
CALCULATED-DESIGNED BY: PARI ABEDI
CHECKED BY: GHULAM POPAL
REVISED BY: PA
DATE REVISED: 12-18-15

LAST REVISION 01-25-16
DATE PLOTTED => 01-FEB-2016
TIME PLOTTED => 11:03

BORDER LAST REVISED 7/2/2010
USERNAME => a111499
DGN FILE => 0412000012ca001.DGN
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0708
PROJECT NUMBER & PHASE 04120000121



N

0 1/2
Scale in Miles

GEOCON
CONSULTANTS, INC.
6671 BRISA STREET – LIVERMORE, CA 94550
PHONE 925.371.5900 – FAX 925.371.5915

SCL-130 Soldier Pile Wall

San Jose, California	**VICINITY MAP**	
GEOCON Proj. No. E8721-02-46		
Task Order No. 46	April 2016	Figure 1

6671 BRISA ST

TABLE 1
Boring Coordinates
SCL-130 Soldier Pile Wall
San Jose, California

Boring	Latitude	Longitude
B1	37.376833	-121.789784
B2	37.376813	-121.789753
B3	37.376449	-121.789282
B4	37.376284	-121.789190
B5	37.376044	-121.789141

TABLE 2
Summary of Lead and pH Results
SCL-130 Soldier Pile Wall
San Jose, California

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	DI-WET Lead (mg/l)	TCLP Lead (mg/l)	pH
B1-0	0 to 0.5	17	---	---	---	---
B1-1	1 to 1.5	54	8.9	0.047	---	8.0
B1-2.5	2.5 to 3	9.7	---	---	---	---
B2-0	0 to 0.5	310	7.8	3.0	0.14	7.6
B2-1	1 to 1.5	8.0	---	---	---	7.8
B2-2.5	2.5 to 3	14	---	---	---	---
B3-0	0 to 0.5	8.8	---	---	---	---
B3-1	1 to 1.5	5.9	---	---	---	---
B3-2.5	2.5 to 3	5.5	---	---	---	---
B3-5.5	5.5 to 6	5.1	---	---	---	7.8
B3-9.5	9.5 to 10	7.1	---	---	---	---
B3-19.5	19.5 to 20	4.8	---	---	---	---
B3-34.5	34.5 to 35	<5.0	---	---	---	---
B4-0	0 to 0.5	4.7	---	---	---	---
B4-1	1 to 1.5	5.4	---	---	---	---
B4-2.5	2.5 to 3	<5.0	---	---	---	---
B4-5.5	5.5 to 6	4.8	---	---	---	7.8
B4-9.5	9.5 to 10	<5.0	---	---	---	---
B4-19.5	19.5 to 20	<5.0	---	---	---	---
B4-34.5	34.5 to 35	5.0	---	---	---	---
B5-0	0 to 0.5	44	---	---	---	---
B5-1	1 to 1.5	18	---	---	---	---
B5-2.5	2.5 to 3	<5.0	---	---	---	---
B5-5.5	5.5 to 6	4.1	---	---	---	8.0
B5-9.5	9.5 to 10	<5.0	---	---	---	---
B5-19.5	19.5 to 20	3.0	---	---	---	---
B5-34.5	34.5 to 35	<5.0	---	---	---	---
Hazardous Waste Criteria						
	TTLC (mg/kg)	1,000	---	---	---	---
	STLC (mg/l)	---	5.0	5.0	---	---
	TCLP (mg/l)	---	---	---	5.0	---

Notes:
mg/kg = Milligrams per kilogram
mg/l = Milligrams per liter
WET = Waste Extraction Test using citric acid as the extraction fluid
TCLP = Toxicity Characteristic Leaching Procedure
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration

B1 to B5
All Depths Combined

Sample Interval (feet)	Total Lead 90% UCL (mg/kg)	Total Lead 95% UCL (mg/kg)	Total Lead Mean (mg/kg)	Total Lead Minimum (mg/kg)	Total Lead Maximum (mg/kg)
0 to 35	34.8	39.0	20.6	2.5	310

90% UCL applicable for waste classification and onsite reuse; 95% UCL applicable for risk assessment and offsite disposal

Per Caltrans, soil excavated from the site will be managed as a whole and UCL calculations were therefore based on all data combined. Soil samples from the site reported maximum total lead concentrations less than the TTLC of 1,000 mg/kg and a 95% UCL of 39.0 mg/kg. This concentration is less than 50 mg/kg (less than ten times the STLC of 5 mg/l). Accordingly, soil excavated to a depth of 35 feet from the entire site and managed as a whole would be classified as non-hazardous based on lead content.