FOR CONTRACT NO.: 04-3A7764

INFORMATION HANDOUT
MATERIALS INFORMATION

USFWS INFORMAL CONSULTATION LETTER

SUITABLE HABITATS FOR LISTED SPECIES

GEOTECHNICAL DESIGN AND MATERIALS REPORT

HAZARDOUS MATERIALS REPORT

OSHA UNDERGROUND CLASSIFICATION

STORM WATER INFORMATION HANDOUT

NON-STORM WATER INFORMATION HANDOUT

ROUTE: 04-ALA-80-2.0/8.0
04-CC-80-0.0/13.5

United States Department of the Interior

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

In Reply Refer To:
81420-2011-I-0244-2

JUN 30 2011

Mr. James Richards
Office of Biological Sciences and Permits
California Department of Transportation
P.O. Box 23660
Oakland, California 94623-0660

Subject: Informal Consultation on the Proposed Interstate 80 Integrated Corridor Mobility Project, Alameda and Contra Costa Counties, California (Caltrans EA 04-3A7761 and 04-3A7771)

Dear Mr. Richards:

This letter responds to your December 17, 2010, letter requesting informal consultation and written concurrence for the proposed Interstate 80 Integrated Corridor Mobility (I-80 ICM) Project from the Carquinez Bridge south to Powell Street in Alameda and Contra Costa counties, California. The U.S. Fish and Wildlife Service (Service) received your letter on December 21, 2010, and was assigned the Service File Number 81420-2011-I-0244. The proposed action involves the incorporation of Intelligent Transportation System equipment – active traffic management gantries, variable advisory speed signs, changeable message signs, closed-circuit television cameras, system detection stations, adaptive ramp metering, variable message signs, and conduit and pull boxes for electrical and communications cables – in multiple locations along I-80 and the addition of High Occupancy Vehicle (HOV) bypass lanes at three on-ramps. The consultation concerns the possible effects of the proposed action on the threatened California red-legged frog (*Rana draytonii*), threatened Alameda whipsnake (*Masticophis lateralis euryxanthus*), endangered salt marsh harvest mouse (*Reithrodontomys raviventris*), and endangered California clapper rail (*Rallus longirostris obsoletus*). 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).

TAKE PRIDE® IN AMERICA

The Service issued a notification of data deficiencies letter on May 6, 2011. Caltrans provided a response to the notification on June 10, 2011, addressing the deficiencies and providing the requested information for the Service to fully evaluate the effects of the proposed action on listed species. 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 comprise 52.14 acres, encompassing the entire 24.70-acre project footprint including all construction access, staging areas, vehicle parking, turnouts, and construction work zones as specified by Caltrans and submitted to the Service in the December 15, 2011, biological assessment, and associated email and phone correspondence. The action area extends approximately 19.5 miles from post-mile (PM) Ala 1.99 to PM CC 3.49 and includes approximately 3.11 acres of California red-legged frog habitat, 4.43 acres of Alameda whipsnake habitat, and 2.63 acres of salt marsh harvest mouse and California clapper rail habitat.

The proposed action has been designed to minimize disturbance to sensitive habitats and is confined to several small, discrete locations throughout the I-80 ICM corridor with finite areas of disturbance. The majority of work will occur on existing pavement or within the shoulder of the mainline. As a result of the August 9, 2010, field visit attended by the Service, Caltrans and the biological consultant, an evaluation of noise levels on California clapper rails was incorporated into the biological assessment and conservation measures were evaluated, refined and incorporated into the project design to ensure the project did not result in take of listed species. The Service has reviewed the submitted project description provided in the December 15, 2011 biological assessment, supporting documentation, and evaluation of project effects, and concurs with your determination that the project effects on California red-legged frog, Alameda whipsnake, salt marsh harvest mouse, and California clapper rail will be insignificant and/or discountable.

The Service concurs that the proposed action is not likely to adversely affect the California red-legged frog and Alameda whipsnake because of the following: (1) construction activities within or adjacent to identified California red-legged frog and Alameda whipsnake habitat will be restricted to the dry season from April 15 and October 15 to avoid interfering with California red-legged frog breeding activities and when frogs are more likely to remain close to aquatic sources, and which corresponds to the seasonal active period for whipsnakes when they are not confined to subterranean hibernacula; (2) the project – drilling for gantry foundations and posts for the project devices, installation of electric cabinets and their footings, ramp metering and widening for HOV lanes, and trenching for electrical and communication conduits – has been designed to occur predominately within paved roadways, thereby minimizing disturbance to California red-legged frog and Alameda whipsnake habitat; (3) the potential for harming California red-legged frogs and Alameda whipsnakes would be minimized by conducting preconstruction surveys prior to vegetation clearing or ground disturbing activities, clearing vegetation within sensitive habitat using hand tools, employing Service-approved biological monitors within identified California red-legged frog and Alameda whipsnake habitat, incorporating environmental awareness training and stop work protocols if listed species are identified within the active construction areas, incorporating environmental sensitive area and wildlife exclusion fencing to prevent workers from entering or disturbing vegetated habitats and minimizes the potential for frogs and snakes to enter the work site, and restricting the use of erosion control devices that use plastic or synthetic mono-filament netting to minimize the potential for frogs and snakes to become entangled or trapped; and (4) the degradation of water

quality or spills within sensitive habitat would be avoided with the implementation of best management practices and spill prevention measures.

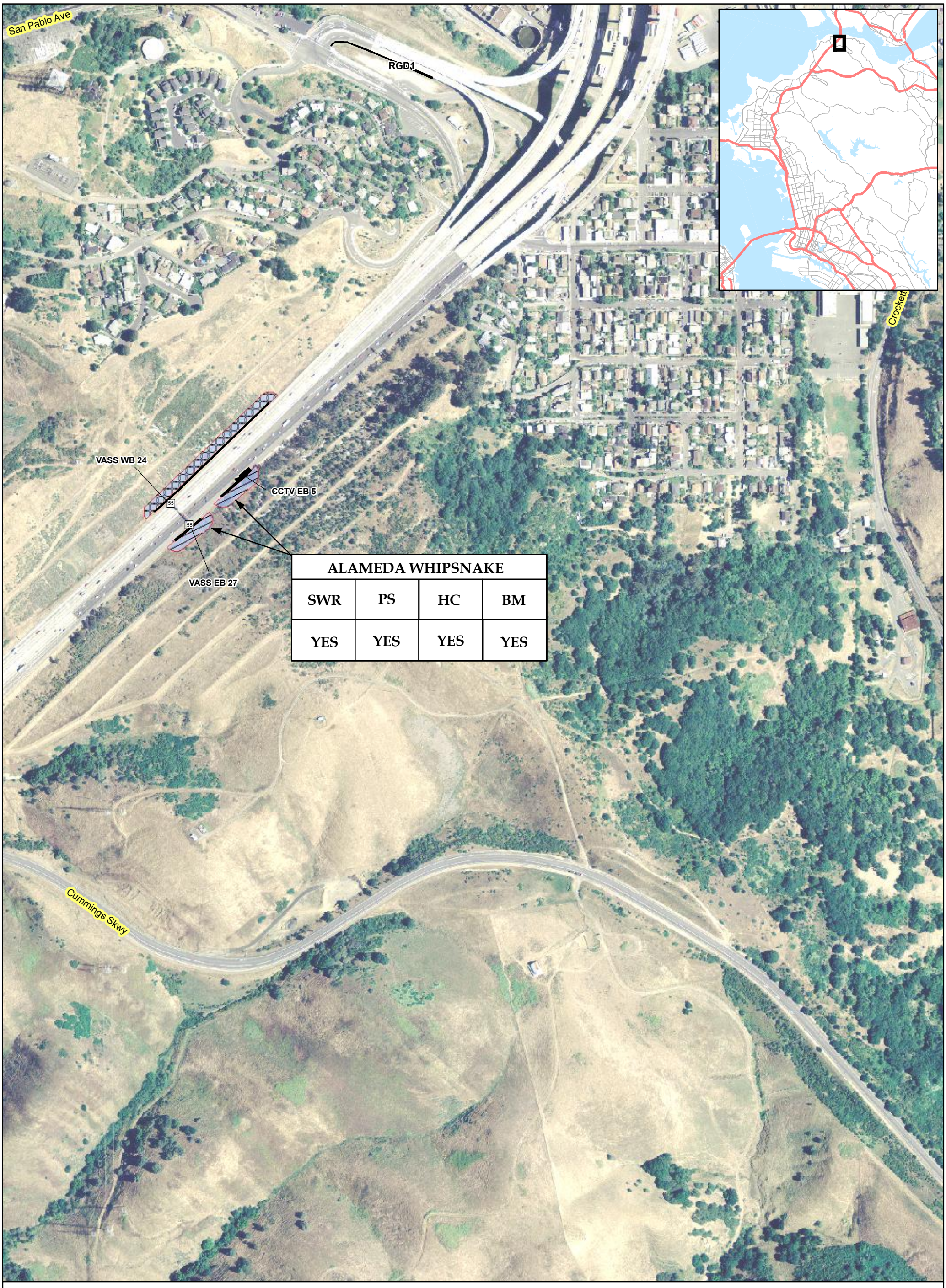
The Service concurs that the proposed action is not likely to adversely affect the salt marsh harvest mouse and California clapper rail because of the following: (1) no pile driving will occur at any of the gantry locations within the southern portion of the action area adjacent to salt marsh habitat; (2) staging areas and directional drilling in the vicinity of salt marsh habitat will be restricted to the east side of the frontage road (immediately west of I-80) away from salt marsh habitat, which will prevent workers from opportunistically parking adjacent to such habitat; (3) installation of anti-predator perching devices on project structures near suitable salt marsh harvest mouse and California clapper rail habitat that could provide predatory bird perches, such as close-circuit television and variable advisory speed signs; (4) directing night-lighting away from salt marsh habitat by placing lights on the west side of the freeway pointing eastward; (5) restricting work adjacent to suitable California clapper rail habitat (i.e., ATM 1, ATM 8 and RGD 85) to the non-breeding season from September 1 to January 31; (6) preventing the degradation of water quality or spills within sensitive habitat by implementing best management practices and spill prevention measures; and (7) requiring Service-approved biological monitors to be present during work conducted adjacent to potential salt marsh harvest mouse and California clapper rail habitat, conducting preconstruction California clapper rail surveys each morning prior to the start of daily work, and incorporating environmental awareness training and stop work protocols if listed species are identified within the active construction areas.

This concludes informal consultation on the proposed I-80 ICM Project in Contra Costa and Alameda counties, California. Therefore, unless new information reveals effects of the proposed action that may affect listed species in a manner or to an extent not considered, or a new species is listed, no further action pursuant to the Act is necessary. If you have questions concerning this letter in reference to the proposed I-80 ICM Project, please contact Jerry Roe or Ryan Olah Coast Bay/Forest Foothills Division Chief, at the letterhead address (916) 414-6600.

Sincerely,

for Eric Tattersall
Deputy Assistant Field Supervisor

cc:
Frances Malamud-Roam, California Department of Transportation, Oakland, California
Marcia Grefsrud, California Department of Fish and Game, Yountville, California
Liam Davis, California Department of Fish and Game, Yountville, California



ALAMEDA WHIPSNAKE			
SWR	PS	HC	BM
YES	YES	YES	YES

ACTIVE TRAFFIC MANAGEMENT (ATM) DEVICES

CCTV CAMERA

VARIABLE ADVISORY SPEED SIGN

CHANGEABLE MESSAGE SIGN

VARIABLE MESSAGE SIGN

0 87.5 175 350 525 700 Feet

FEDERAL ACTION AREA

SALT MARSH HARVEST MOUSE AND CALIFORNIA CLAPPER RAIL HABITAT

ALAMEDA WHIPSNAKE HABITAT

CALIFORNIA RED-LEGGED FROG HABITAT

POTENTIAL HABITAT INACCESSIBLE TO LISTED SPECIES

WETLAND/WATER GPS POINT

WETLAND LIMIT

BM = BIOLOGICAL MONITORING

HC = HAND CLEARANCE OF VEGETATION

PS = PRE-CONSTRUCTION SURVEYS

SWR = SEASONAL WORK RESTRICTIONS

PW-# SAMPLE POINT

CONDUIT RUNS (NOT TO SCALE)

1

Interstate 80 Integrated Corridor Mobility Project

SUITABLE HABITAT FOR LISTED SPECIES WITHIN THE PROJECT ACTION AREA AND MEASURES TO AVOID AND MINIMIZE POTENTIAL EFFECTS

SOURCE: ©2004, Aerial Express Maps

ALAMEDA WHIPSNAKE			
SWR	PS	HC	BM
YES	YES	YES	YES

ACTIVE TRAFFIC MANAGEMENT (ATM) DEVICES

CCTV CAMERA

VARIABLE ADVISORY SPEED SIGN

CHANGEABLE MESSAGE SIGN

VARIABLE MESSAGE SIGN

0 87.5 175 350 525 700 Feet

FEDERAL ACTION AREA

SALT MARSH HARVEST MOUSE AND CALIFORNIA CLAPPER RAIL HABITAT

ALAMEDA WHIPSNAKE HABITAT

CALIFORNIA RED-LEGGED FROG HABITAT

POTENTIAL HABITAT INACCESSIBLE TO LISTED SPECIES

WETLAND/WATER GPS POINT

WETLAND LIMIT

BM = BIOLOGICAL MONITORING

HC = HAND CLEARANCE OF VEGETATION

PS = PRE-CONSTRUCTION SURVEYS

SWR = SEASONAL WORK RESTRICTIONS

PW-# SAMPLE POINT

CONDUIT RUNS (NOT TO SCALE)

2

Interstate 80 Integrated Corridor Mobility Project

SUITABLE HABITAT FOR LISTED SPECIES WITHIN THE PROJECT ACTION AREA AND MEASURES TO AVOID AND MINIMIZE POTENTIAL EFFECTS

SOURCE: ©2004, Aerial Express Maps

ACTIVE TRAFFIC MANAGEMENT (ATM) DEVICES

CCTV CAMERA

VARIABLE ADVISORY SPEED SIGN

CHANGEABLE MESSAGE SIGN

VARIABLE MESSAGE SIGN

FEDERAL ACTION AREA

SALT MARSH HARVEST MOUSE AND CALIFORNIA CLAPPER RAIL HABITAT

ALAMEDA WHIPSNAKE HABITAT

CALIFORNIA RED-LEGGED FROG HABITAT

POTENTIAL HABITAT INACCESSIBLE TO LISTED SPECIES

WETLAND/WATER GPS POINT

WETLAND LIMIT

PW-# SAMPLE POINT

CONDUIT RUNS (NOT TO SCALE)

BM = BIOLOGICAL MONITORING

HC = HAND CLEARANCE OF VEGETATION

PS = PRE-CONSTRUCTION SURVEYS

SWR = SEASONAL WORK RESTRICTIONS

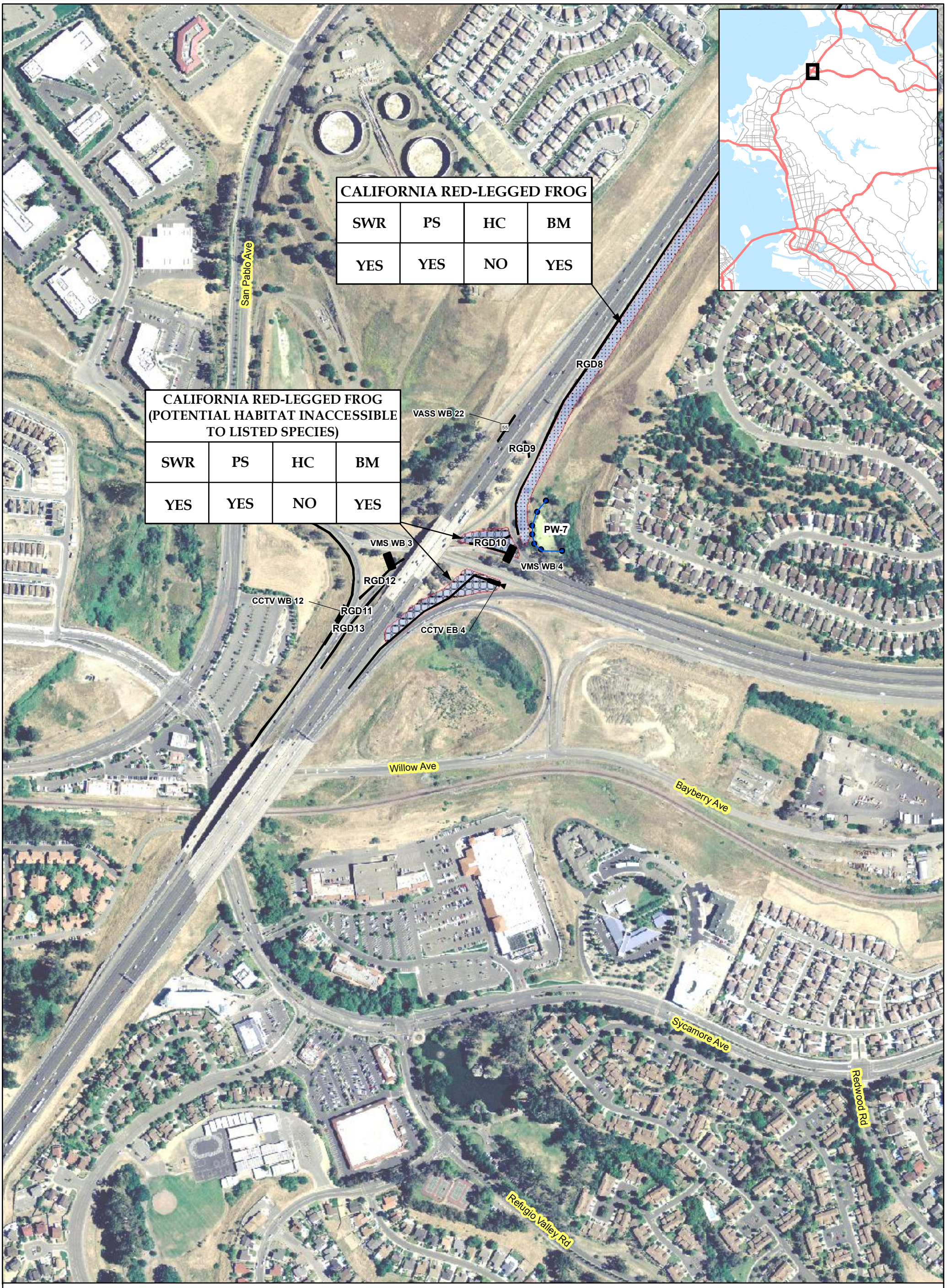
0 87.5 175 350 525 700 Feet

SOURCE: ©2004, Aerial Express Maps

3

Interstate 80 Integrated Corridor Mobility Project

SUITABLE HABITAT FOR LISTED SPECIES WITHIN THE PROJECT ACTION AREA AND MEASURES TO AVOID AND MINIMIZE POTENTIAL EFFECTS



ACTIVE TRAFFIC MANAGEMENT (ATM) DEVICES

CCTV CAMERA

55 VARIABLE ADVISORY SPEED SIGN

CHANGEABLE MESSAGE SIGN

VARIABLE MESSAGE SIGN

N

0 87.5 175 350 525 700 Feet

FEDERAL ACTION AREA

SALT MARSH HARVEST MOUSE AND CALIFORNIA CLAPPER RAIL HABITAT

ALAMEDA WHIPSNAKE HABITAT

CALIFORNIA RED-LEGGED FROG HABITAT

POTENTIAL HABITAT INACCESSIBLE TO LISTED SPECIES

WETLAND/WATER GPS POINT

WETLAND LIMIT

BM = BIOLOGICAL MONITORING

HC = HAND CLEARANCE OF VEGETATION

PS = PRE-CONSTRUCTION SURVEYS

SWR = SEASONAL WORK RESTRICTIONS

PW-# SAMPLE POINT

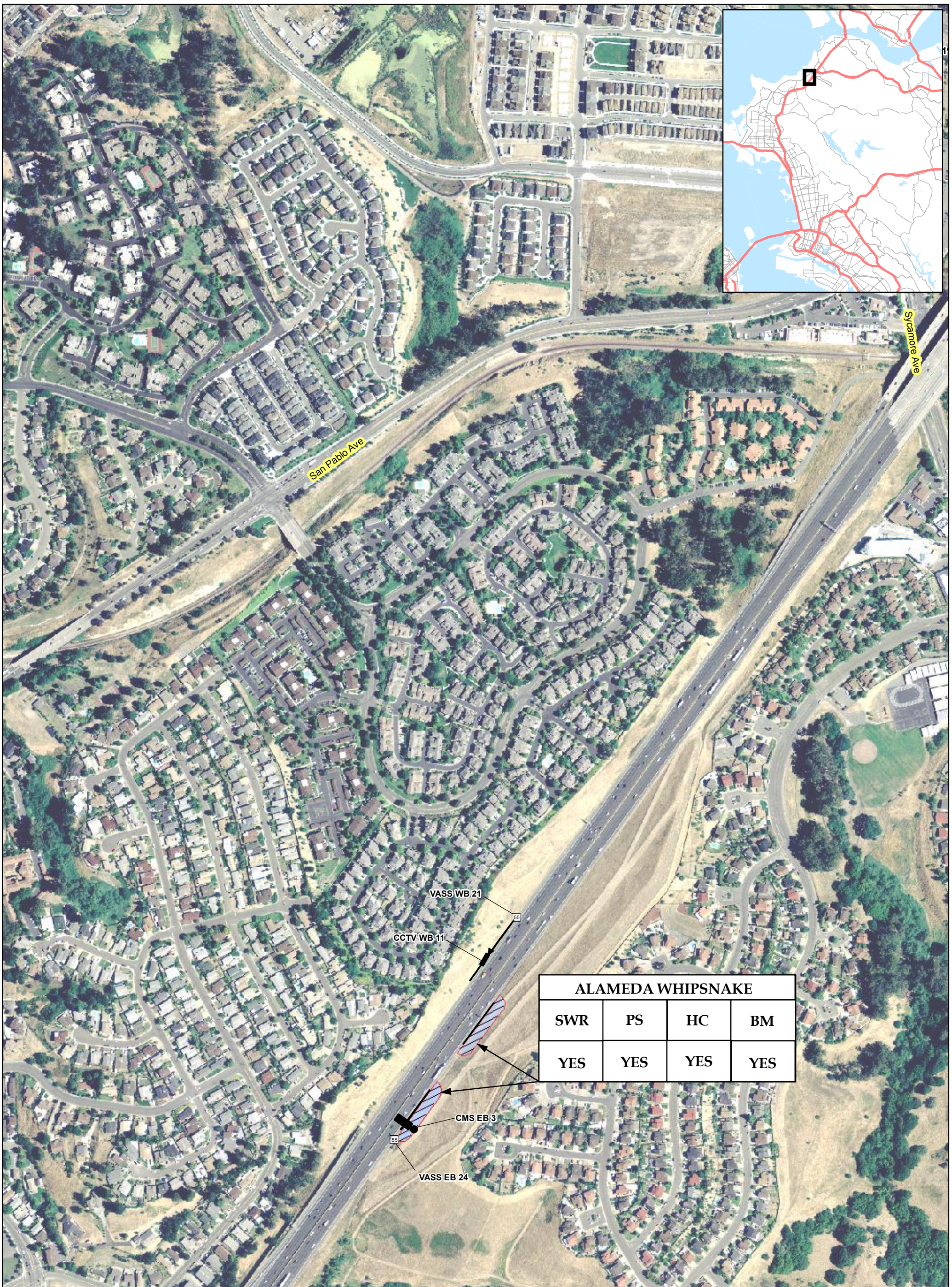
CONDUIT RUNS (NOT TO SCALE)

4

Interstate 80 Integrated Corridor Mobility Project

SUITABLE HABITAT FOR LISTED SPECIES WITHIN THE PROJECT ACTION AREA AND MEASURES TO AVOID AND MINIMIZE POTENTIAL EFFECTS

SOURCE: ©2004, Aerial Express Maps



ALAMEDA WHIPSNAKE			
SWR	PS	HC	BM
YES	YES	YES	YES

ACTIVE TRAFFIC MANAGEMENT (ATM) DEVICES

CCTV CAMERA

VARIABLE ADVISORY SPEED SIGN

CHANGEABLE MESSAGE SIGN

VARIABLE MESSAGE SIGN

FEDERAL ACTION AREA

SALT MARSH HARVEST MOUSE AND CALIFORNIA CLAPPER RAIL HABITAT

ALAMEDA WHIPSNAKE HABITAT

CALIFORNIA RED-LEGGED FROG HABITAT

POTENTIAL HABITAT INACCESSIBLE TO LISTED SPECIES

WETLAND/WATER GPS POINT

WETLAND LIMIT

BM = BIOLOGICAL MONITORING

HC = HAND CLEARANCE OF VEGETATION

PS = PRE-CONSTRUCTION SURVEYS

SWR = SEASONAL WORK RESTRICTIONS

PW-# SAMPLE POINT

CONDUIT RUNS (NOT TO SCALE)

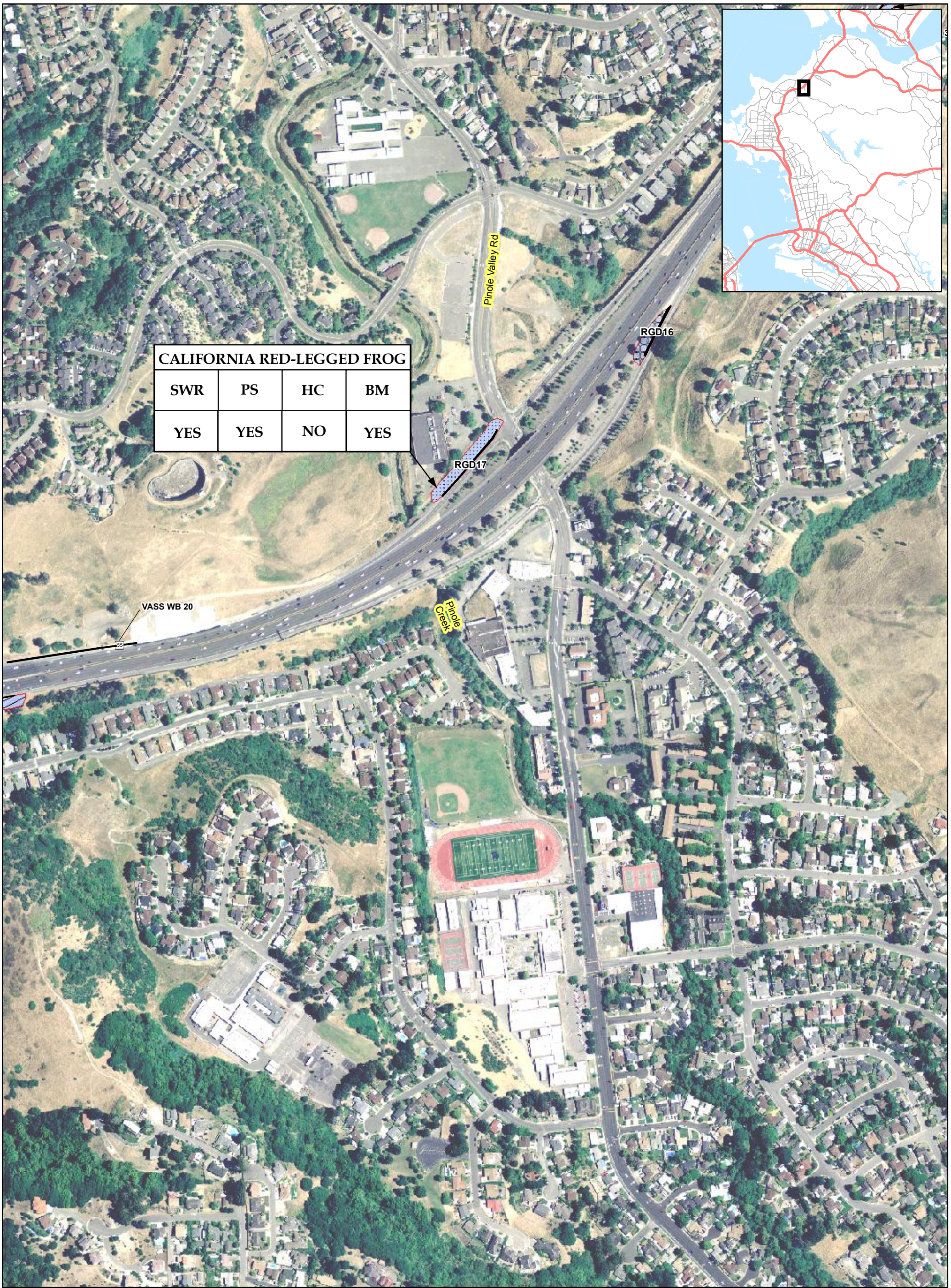
N

0 87.5 175 350 525 700 Feet

SOURCE: ©2004, Aerial Express Maps

Interstate 80 Integrated Corridor Mobility Project

SUITABLE HABITAT FOR LISTED SPECIES WITHIN THE PROJECT ACTION AREA AND MEASURES TO AVOID AND MINIMIZE POTENTIAL EFFECTS



ACTIVE TRAFFIC MANAGEMENT (ATM) DEVICES

CCTV CAMERA

VARIABLE ADVISORY SPEED SIGN

CHANGEABLE MESSAGE SIGN

VARIABLE MESSAGE SIGN

0 87.5 175 350 525 700 Feet

FEDERAL ACTION AREA

SALT MARSH HARVEST MOUSE AND CALIFORNIA CLAPPER RAIL HABITAT

ALAMEDA WHIPSNAKE HABITAT

CALIFORNIA RED-LEGGED FROG HABITAT

POTENTIAL HABITAT INACCESSIBLE TO LISTED SPECIES

WETLAND/WATER GPS POINT

WETLAND LIMIT

BM = BIOLOGICAL MONITORING

HC = HAND CLEARANCE OF VEGETATION

PS = PRE-CONSTRUCTION SURVEYS

SWR = SEASONAL WORK RESTRICTIONS

PW-# SAMPLE POINT

CONDUIT RUNS (NOT TO SCALE)

6

Interstate 80 Integrated Corridor Mobility Project

SUITABLE HABITAT FOR LISTED SPECIES WITHIN THE PROJECT ACTION AREA AND MEASURES TO AVOID AND MINIMIZE POTENTIAL EFFECTS

SOURCE: ©2004, Aerial Express Maps

ALAMEDA WHIPSNAKE			
SWR	PS	HC	BM
YES	YES	YES	YES

ACTIVE TRAFFIC MANAGEMENT (ATM) DEVICES

CCTV CAMERA

VARIABLE ADVISORY SPEED SIGN

CHANGEABLE MESSAGE SIGN

VARIABLE MESSAGE SIGN

FEDERAL ACTION AREA

SALT MARSH HARVEST MOUSE AND CALIFORNIA CLAPPER RAIL HABITAT

ALAMEDA WHIPSNAKE HABITAT

CALIFORNIA RED-LEGGED FROG HABITAT

POTENTIAL HABITAT INACCESSIBLE TO LISTED SPECIES

WETLAND/WATER GPS POINT

WETLAND LIMIT

BM = BIOLOGICAL MONITORING

HC = HAND CLEARANCE OF VEGETATION

PS = PRE-CONSTRUCTION SURVEYS

SWR = SEASONAL WORK RESTRICTIONS

PW-# SAMPLE POINT

CONDUIT RUNS (NOT TO SCALE)

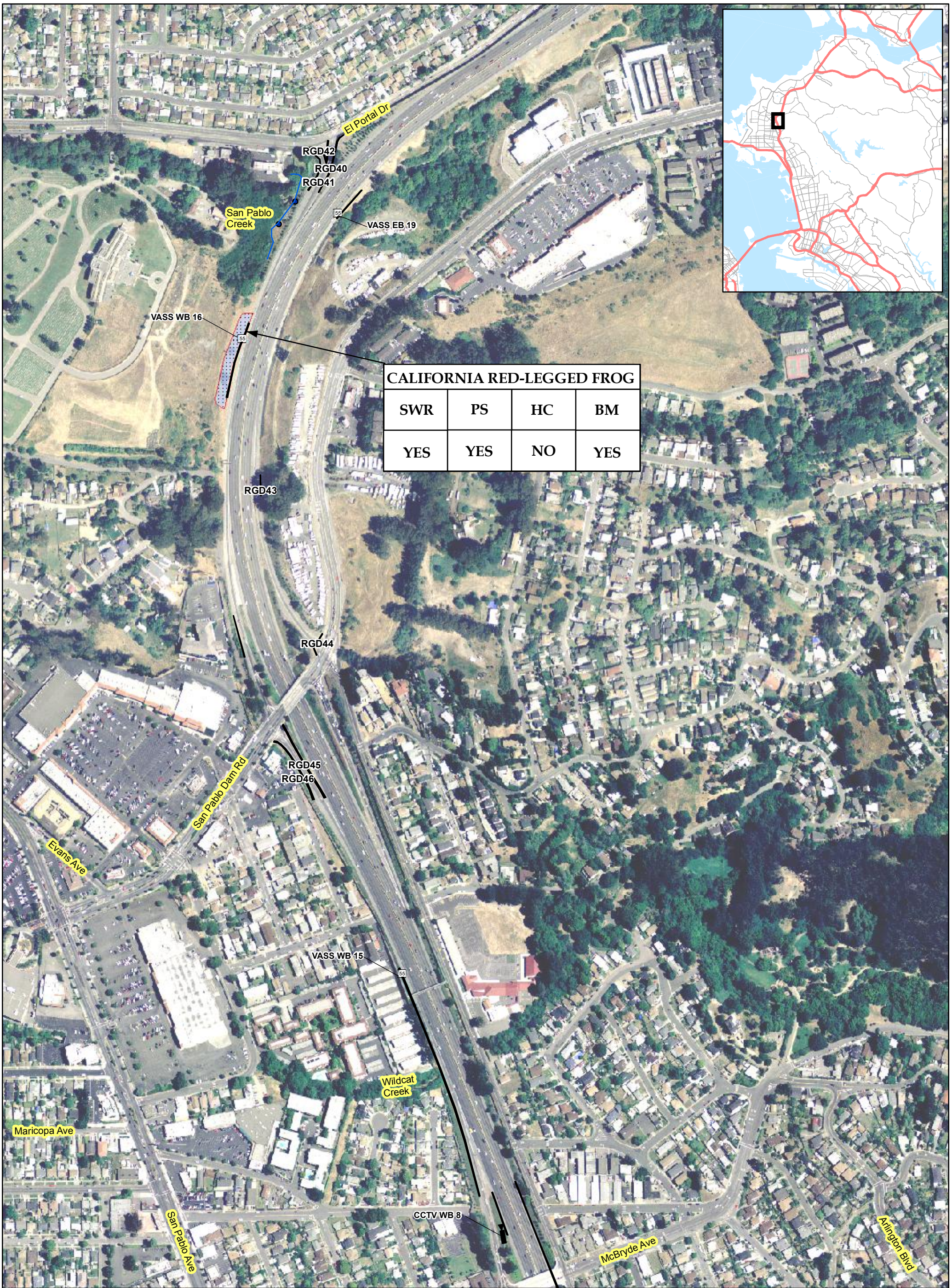
N

0 87.5 175 350 525 700 Feet

SOURCE: ©2004, Aerial Express Maps

Interstate 80 Integrated Corridor Mobility Project

SUITABLE HABITAT FOR LISTED SPECIES WITHIN THE PROJECT ACTION AREA AND MEASURES TO AVOID AND MINIMIZE POTENTIAL EFFECTS



CALIFORNIA RED-LEGGED FROG			
SWR	PS	HC	BM
YES	YES	NO	YES

ACTIVE TRAFFIC MANAGEMENT (ATM) DEVICES

CCTV CAMERA

VARIABLE ADVISORY SPEED SIGN

CHANGEABLE MESSAGE SIGN

VARIABLE MESSAGE SIGN

FEDERAL ACTION AREA

SALT MARSH HARVEST MOUSE AND CALIFORNIA CLAPPER RAIL HABITAT

ALAMEDA WHIPSNAKE HABITAT

CALIFORNIA RED-LEGGED FROG HABITAT

POTENTIAL HABITAT INACCESSIBLE TO LISTED SPECIES

WETLAND/WATER GPS POINT

WETLAND LIMIT

BM = BIOLOGICAL MONITORING

HC = HAND CLEARANCE OF VEGETATION

PS = PRE-CONSTRUCTION SURVEYS

SWR = SEASONAL WORK RESTRICTIONS

PW-# SAMPLE POINT

CONDUIT RUNS (NOT TO SCALE)

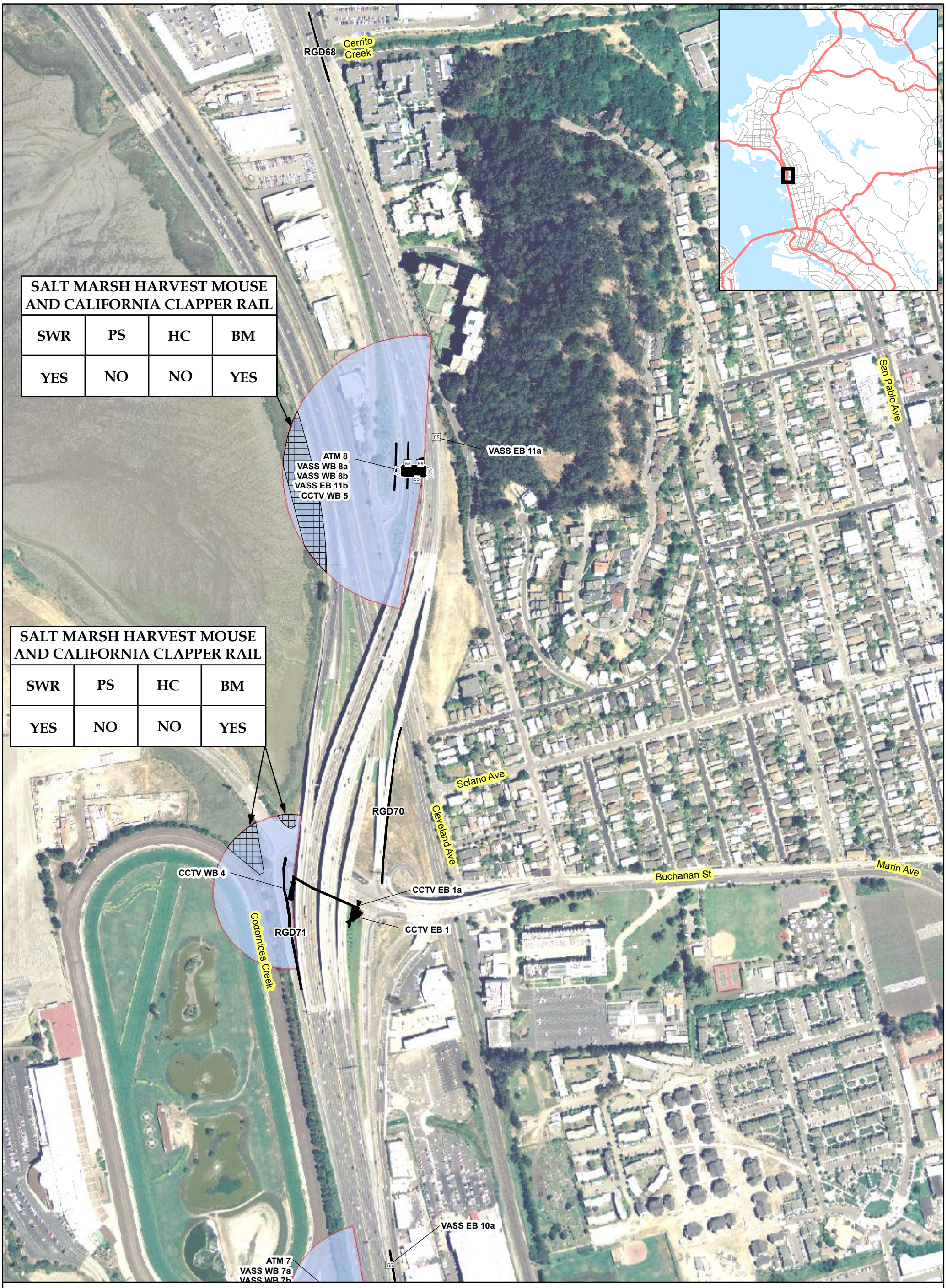
N

0 87.5 175 350 525 700 Feet

SOURCE: ©2004, Aerial Express Maps

Interstate 80 Integrated Corridor Mobility Project

SUITABLE HABITAT FOR LISTED SPECIES WITHIN THE PROJECT ACTION AREA AND MEASURES TO AVOID AND MINIMIZE POTENTIAL EFFECTS



ACTIVE TRAFFIC MANAGEMENT (ATM) DEVICES

CCTV CAMERA

VARIABLE ADVISORY SPEED SIGN

CHANGEABLE MESSAGE SIGN

VARIABLE MESSAGE SIGN

FEDERAL ACTION AREA

SALT MARSH HARVEST MOUSE AND CALIFORNIA CLAPPER RAIL HABITAT

ALAMEDA WHIPSNAKE HABITAT

CALIFORNIA RED-LEGGED FROG HABITAT

POTENTIAL HABITAT INACCESSIBLE TO LISTED SPECIES

WETLAND/WATER GPS POINT

WETLAND LIMIT

PW-# SAMPLE POINT

CONDUIT RUNS (NOT TO SCALE)

BM = BIOLOGICAL MONITORING

HC = HAND CLEARANCE OF VEGETATION

PS = PRE-CONSTRUCTION SURVEYS

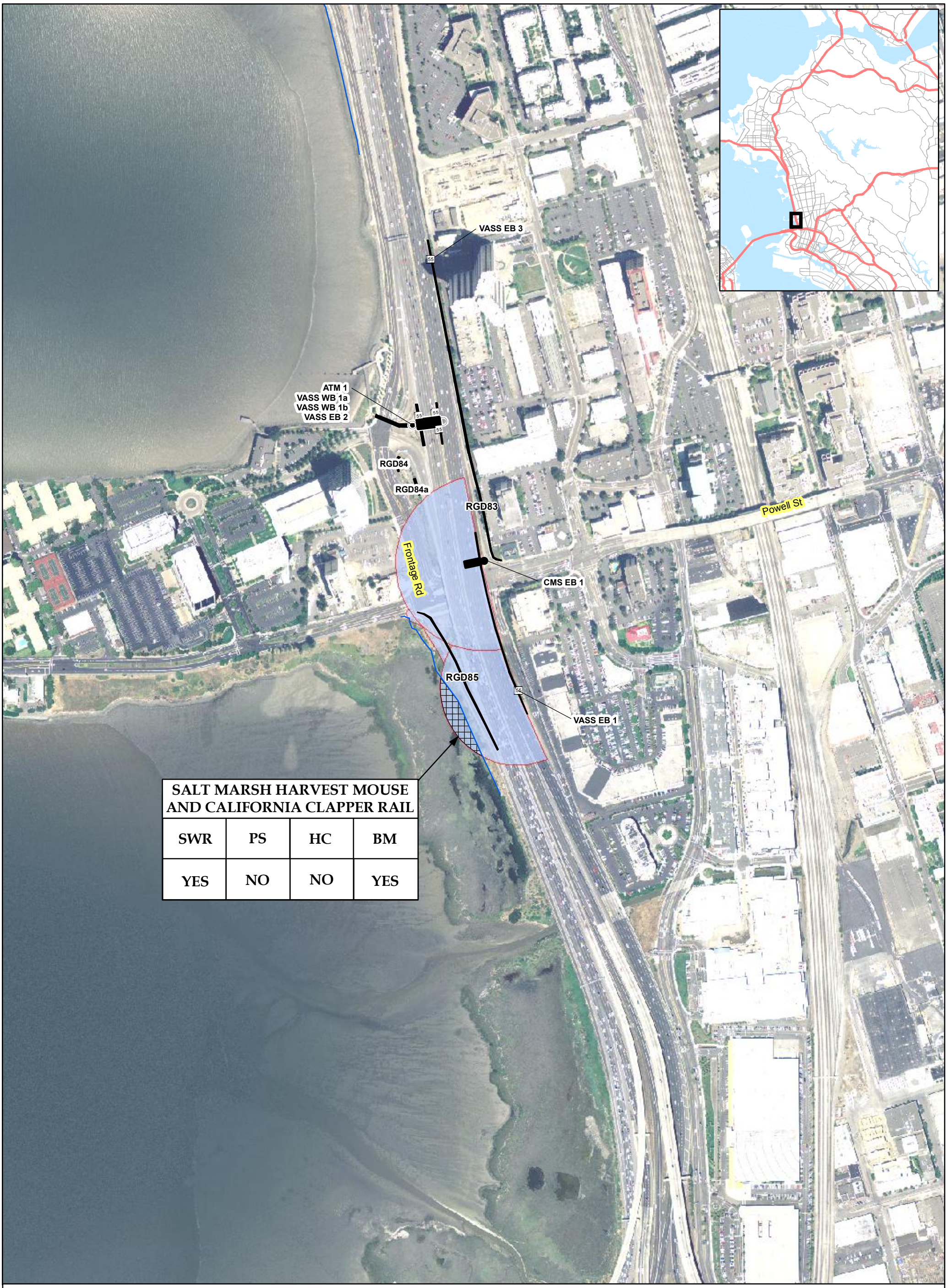
SWR = SEASONAL WORK RESTRICTIONS

0 87.5 175 350 525 700 Feet

SOURCE: ©2004, Aerial Express Maps

Interstate 80 Integrated Corridor Mobility Project

SUITABLE HABITAT FOR LISTED SPECIES WITHIN THE PROJECT ACTION AREA AND MEASURES TO AVOID AND MINIMIZE POTENTIAL EFFECTS



ACTIVE TRAFFIC MANAGEMENT (ATM) DEVICES

CCTV CAMERA

VARIABLE ADVISORY SPEED SIGN

CHANGEABLE MESSAGE SIGN

VARIABLE MESSAGE SIGN

0 87.5 175 350 525 700 Feet

FEDERAL ACTION AREA

SALT MARSH HARVEST MOUSE AND CALIFORNIA CLAPPER RAIL HABITAT

ALAMEDA WHIPSNAKE HABITAT

CALIFORNIA RED-LEGGED FROG HABITAT

POTENTIAL HABITAT INACCESSIBLE TO LISTED SPECIES

WETLAND/WATER GPS POINT

WETLAND LIMIT

BM = BIOLOGICAL MONITORING

HC = HAND CLEARANCE OF VEGETATION

PS = PRE-CONSTRUCTION SURVEYS

SWR = SEASONAL WORK RESTRICTIONS

PW-# SAMPLE POINT

CONDUIT RUNS (NOT TO SCALE)

SOURCE: ©2004, Aerial Express Maps

Interstate 80 Integrated Corridor Mobility Project

SUITABLE HABITAT FOR LISTED SPECIES WITHIN THE PROJECT ACTION AREA AND MEASURES TO AVOID AND MINIMIZE POTENTIAL EFFECTS

PARIKH

Practicing in the Geosciences

Geotechnical ■
Environmental ■
Materials Testing ■
Construction Inspection ■

Kimley-Horn & Associates
555 12th Street Suite 1230
Oakland, CA 94607

Job No.: 2011-114-RMP
August 05, 2011

Attn: Mr. Randy Durrenberger

Sub: GEOTECHNICAL DESIGN & MATERIALS REPORT
ROUTE 80 AT ASHBY AVENUE RAMP WIDENING
ALAMEDA COUNTY, CALIFORNIA

Dear Mr. Durrenberger:

Transmitted herewith is the Draft Geotechnical Materials Report for the subject project. The report was prepared in accordance with the scope of work outlined in our proposal.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning our findings or conclusions, please feel free to contact this office at (408) 452-9000.

Very truly yours,
PARIKH Consultants, Inc.

Gary Parikh, P.E., G.E.
President

Attachment: Geotechnical Design & Materials Report (6 Copies)

GEOTECHNICAL DESIGN & MATERIALS REPORT
RTE 80 AT ASHBY AVE RAMP WIDENING PROJECT
ALAMEDA COUNTY, CALIFORNIA
DRAFT

For

KIMLEY-HORN & ASSOCIATES

555 12th Street Suite 1230

Oakland, California 94609

PARIKH CONSULTANTS, INC.

2360 Qume Drive, Suite A

San Jose, CA 95131

(408) 452-9000

July 2011

Job No. 2011-114-RMP

"Approved as to impact on State facilities and conformance with applicable State standards and practices, and the technical oversight were performed as described in the California Department of Transportation A&E Consultant Services Manual."

Caltrans_____

Title_____

Date_____

Caltrans_____

Title_____

Date_____

TABLE OF CONTENTS

Page

1. INTRODUCTION 1
2. EXISTING FACILITIES AND PROPOSED IMPROVEMENTS 1
3. PERTINENT REPORTS AND INVESTIGATION 2
4. PHYSICAL SETTING 2
   - 4.1 Climate 2
   - 4.2 Topography and Drainage 2
   - 4.3 Man-Made and Natural Features of Engineering and Construction Significance 3
   - 4.4 Regional Geology 3
5. EXPLORATION 4
   - 5.1 Drilling and Sampling 4
   - 5.2 Geologic Mapping 5
   - 5.3 Geophysical Studies 5
   - 5.4 Instrumentation 5
   - 5.5 Exploration Notes 5
6. GEOTECHNICAL TESTING 5
   - 6.1 In-Situ Testing 5
   - 6.2 Laboratory Testing 5
7. GEOTECHNICAL CONDITIONS 6
   - 7.1 Site Geology 6
     - *7.1.1 Lithology* 6
     - 7.1.2 *Structure* 6
     - *7.1.3 Existing Slope Stability* 6
   - 7.2 Subsurface Soil Conditions 7
   - 7.3 Water 7
     - 7.3.1 *Surface Water* 7
       - 7.3.1.1 *Scour* 7
       - 7.3.1.2 *Erosion* 7

7.3.2 *Groundwater* 8
7.4 Project Site Seismicity 8
7.4.2 *Ground Rupture* 9
8. GEOTECHNICAL ANALYSIS AND DESIGN 9
8.1 Dynamic Analysis 9
8.1.1 *Parameter Selection* 9
8.1.2 *Analysis* 9
8.1.3 *Liquefaction Potential* 9
8.2 Cuts and Excavations 9
8.2.1 Stability 9
8.2.2 *Rippability* 10
8.2.3 Grading Factor 10
8.3 Culverts 10
8.3.1 *Corrosion Investigation* 10
9. STRUCTURAL PAVEMENT 11
10. MATERIAL SOURCES 12
11. MATERIAL DISPOSAL 13
12. CONSTRUCTION CONSIDERATIONS 13
12.1 Construction Advisories 13
12.2 Construction Consideration that Influence Specifications 14
12.3 Hazardous Waste Considerations 14
12.4 Differing Site Conditions 14
13. RECOMMENDATIONS AND SPECIFICATIONS 15
13.1 Summary of Recommendations 15
13.2 Recommended Materials Specifications 15
13.2.1 *Standard Specifications* 15
13.2.2 *Special Provisions* 16
14. INVESTIGATION LIMITATIONS 17
REFERENCES 19

APPENDICES

Appendix A

Laboratory Tests..... Plate A-1

R-value Test Results .....Plates A-2A thru A-2B

Corrosion Test Results.....Plates A-3

Appendix B

Structural Pavement Design Calculations

LIST OF TABLES

1 Summary of Boring Program 4

2 Soils Encountered from Borings 7

3 Fault Data 8

4 Summary of Corrosion Test Results 10

5 Summary of R-Value Test Results 11

6 Recommended (Minimum) Structural Pavement Sections 11

7 Sources of Asphalt and Aggregate Material 13

LIST OF FIGURES

Project Location Map ..... Plate 1

Boring Location Map ..... Plate 2

Geologic Map ..... Plate 3

Fault Map ..... Plate 4

DRAFT GEOTECHNICAL DESIGN & MATERIALS REPORT

ROUTE 80 AT ASHBY AVENUE RAMP WIDENING MATERIALS REPORT

04-ALA-80 PM 4.4 PROJECT NO. 04-0000-2043-1

1. INTRODUCTION

This report presents the results of our geotechnical investigation for the proposed widening on Ashby Avenue Westbound On-Ramp in Alameda County, California. The general location of the project site and its limits are shown in Plate 1, Project Location Map.

This report addresses the design of structural pavement sections, and corrosion investigation recommendations. The investigation included review of readily available soils and geologic literature pertaining to the site, site reconnaissance, obtaining representative samples and logging soil materials encountered in exploratory borings, laboratory testing of the representative samples, performing engineering analyses, and preparation of this report.

The purpose of this report is to document subsurface geotechnical conditions, provide analyses of anticipated site conditions as they pertain to the project described herein, and to recommend design and construction criteria for the project.

The report is intended for use by the project roadway design engineer, construction personnel, bidders, and contractors for information and reference purposes only and should not be construed directly as project specifications.

2. EXISTING FACILITIES AND PROPOSED IMPROVEMENTS

The Ashby Avenue West Bound On-Ramp is a two lane facility merging on to Route 80. The proposed improvements include widening the on-ramp for capacity improvement. The general area is shown in the Project Location Map, Plate 1.

The Alameda County Congestion Management Agency (ACCMA), in cooperation with the

California Department of Transportation (Caltrans), proposes to widen the ramp. The roadway improvements will include earthwork, and pavement sections.

3. PERTINENT REPORTS AND INVESTIGATION

The following as-built LOTB and report were also reviewed to supplement the subsurface information obtained for the project.

- Preliminary Geotechnical Report I-80 Integrated Corridor Mobility Project, Alameda County and Contra Costa County, California (September 2010), Parikh Consultants Inc.
- Caltrans As-Built Typical Cross Section Ashby Avenue - Location 2 (1993)

4. PHYSICAL SETTING

4.1 Climate

The climate in the project area is characterized by moderate climatic conditions, which consists of mild winters, mild summers, small daily and seasonal temperature ranges. Based on the statistical data from "Western Regional Climate Center", the average total annual precipitation varies along the project vicinity and is approximately 17.7 inches to 23.38 inches. Most of the rainfall is recorded in January with an average total precipitation of 3.55 inches to 5.01 inches. July is the month with the least average rainfall precipitation of 0.03 to 0.04 inch. Extreme temperature ranges from location and the average minimum temperature is approximately 40.8° F to 42.7° F in January to average maximum temperature of 70.0° F to 78.7° F in September.

4.2 Topography and Drainage

Based on the available plans, the topography within the project site along Ashby Avenue On-Ramp is relatively flat with gradual grade decrease from approximate Elevation of +34 ft at western end of the ramp overpass to approximate Elevation of +15 ft at I-80 Interchange. It appears that surface water runoff is collected through local drainage systems.

4.3 Man-Made and Natural Features of Engineering and Construction Significance

The subject was considered and was determined to be not significant for the project.

4.4 Regional Geology

The project area is located within the Coast Ranges Belt which is the natural topographic barrier between the Great Valley of Central California (to the east) and the Pacific Ocean (to the west). Individual ranges of hills within the belt are separated by long, linear valleys of various widths. The long axes of the ranges and valleys trend about 30 degrees west of north, roughly parallel with the ocean coastline. San Francisco Bay is a mixed fresh water and salt water estuary that occupies the widest valley in the belt.

The Franciscan Complex is the underlying "basement" bedrock in the region. It was formed 70 to 140 millions years ago by accretion of sedimentary and volcanic rocks that were brought together by the convergent movement of tectonic plates. Sediments on the sea floor were pulled down and mixed with the rock material in the earth's mantle. The main rock types that compose the Franciscan Complex are predominately marine sedimentary rocks such as sandstone and shale with lesser amounts of marine basaltic rocks and chert as well as serpentinite, a hydro-thermally altered ultramafic (low silica, high iron and magnesium) oceanic crust. The resulting "mélange" zones contain exotic blocks of other Franciscan rocks in a sheared shale or clay matrix often separate more coherent thrust sheets. Some of the sedimentary rocks (graywacke sandstone, radiolarian cherts) and volcanics (basalts) have been metamorphosed. Eventually, the Franciscan Complex rocks were uplifted and exposed at the earth's surface by erosion. Subsequently, they were buried by Cretaceous- and Tertiary-age marine and non-marine sediments that eventually became rock units themselves. The active subduction process ended in the Bay Area about 25 million years ago with the formation of the strike-slip San Andreas Fault.

In recent time, sediments washed from the hillsides have accumulated to form the lowlands adjacent

to the San Francisco Bay. Gravels and sands were deposited in the high energy environments at the heads of these alluvial fans; silts and clays were deposited in the low energy environments of the floodplains and tidal marshlands at the margins of the bay. Some of these young alluvial sediments were deposited directly upon the eroded surface of Franciscan basement bedrock.

The site of this project is situated on historic fill placed over the young estuary and alluvial sediments that overly the Franciscan rocks at unknown depth.

5. EXPLORATION

5.1 Drilling and Sampling

Based on the preliminary plans, discussions with the design team, and readily available geotechnical data in the area, two borings (R-1 and R-2) were drilled at selected locations to a depth of 5 feet below the existing ground surface to collect bulk samples for pavement design. No Log of Test Boring (LOTB) has been prepared since the borings are shallow. The boring program is presented in Table 1 below.

TABLE 1 – SUMMARY OF BORING PROGRAM

Boring No.	Purpose
R-1	Pavement
R-2	Pavement

The approximate locations of these explorations are shown on the attached Boring Location Map, Plate 2.

Due to limitations inherent in geotechnical investigations, it is neither uncommon to encounter unforeseen variations in the soil conditions during construction nor is it practical to determine all such variations during an acceptable program of drilling and sampling for a project of this scope.

Such variations, when encountered, generally require additional engineering services to attain a properly constructed project. We, therefore recommend that a contingency fund be provided to accommodate any additional charges resulting from technical services that may be required during construction.

5.2 Geologic Mapping

The subject was considered and was determined to be not significant for the project.

5.3 Geophysical Studies

The subject was considered and was determined to be not applicable to the project.

5.4 Instrumentation

The subject was considered and was determined to be not applicable to the project.

5.5 Exploration Notes

The exploratory borings mainly encountered undivided surficial deposits. Drilling conditions using hollow stem augers were considered normal for this site considering the shallow depth of the boring/sampling.

6. GEOTECHNICAL TESTING

6.1 In-Situ Testing

Bulk samples were collected for pavement design. In-situ testing was not performed at this site.

6.2 Laboratory Testing

Laboratory tests performed for the study include the following: R-value Test (California Test Method 301), and Corrosion Test (California Test Method 643). The laboratory test results are

attached in Appendix A.

7. GEOTECHNICAL CONDITIONS

7.1 Site Geology

General geologic conditions at the site were evaluated by reference to the Quaternary Geology of Alameda County and Surrounding Areas, California by E.J. Helley and R.W. Graymer. The map shows the project site situated on Artificial Fill (Historic, af), which is described as:

> af – Artificial Fill (Historic)--Manmade deposit of various materials and ages. Some are compacted and quite firm, but fills made before 1965 are nearly everywhere not compacted and consist simply of dumped materials.

The portion of the published geologic map that includes the project area is shown on Plate 3.

7.1.1 *Lithology*

The subject was considered and was determined to be not applicable for the project. Detailed description of subsoil conditions are presented in Section 7.2.

7.1.2 Structure

The site consists of roadway fill, and artificial fill. The subject was considered and was determined to be not applicable for the project.

7.1.3 Existing Slope Stability

The slopes at the project site consist of man-made embankment slope along the on-ramp. No other major slopes are present within the project limit. These existing slopes typically have gradient of 2.5H:1V or flatter, covered with vegetation, and generally appear to be in good condition. No new work is proposed within the embankment area.

7.2 Subsurface Soil Conditions

Based on the current boring data, the subsurface soil conditions of the site consist of poorly graded sand within the upper five feet of ground surface in borings R-1 and R-2. Groundwater was not encountered during drilling. The soil classification data is presented in the following table.

TABLE 2 – SOILS ENCOUNTERED FROM BORINGS

Boring No.	Depth Below the Existing Ground Surface, ft	Soil Type
R-1	0 to 5	POORLY GRADED SAND (SP)
R-2	0 to 5	POORLY GRADED SAND (SP)

It should be noted that these descriptions and related information depict subsurface conditions only at the locations indicated. Because of the variability from place to place within soil in general, subsurface soil conditions at other locations may differ from conditions occurring at the locations explored. The abrupt stratum changes shown on the logs may be gradational and relatively minor changes in soil types within a stratum may not be noted due to field limitations. Also, the passage of time may result in a change in the soil conditions at the locations due to environmental changes.

7.3 Water

7.3.1 *Surface Water*

There is no surface water body at the site.

7.3.1.1 *Scour*

The subject was considered and was determined to be not applicable for the roadway project.

7.3.1.2 *Erosion*

The existing slopes and adjacent area have established landscaping to help control erosion. The terrain along route 80 slightly slopes from north to south within the project vicinity. The surface

water/drainage generally follows the ground topography and is collected in local storm drainage system. However, due to the granular soil conditions newly disturbed areas should be protected from erosion with new landscaping and vegetation program.

7.3.2 *Groundwater*

Groundwater was not encountered during drilling. However, it is anticipated that groundwater level will vary with the passage of time due to seasonal groundwater fluctuations, surface and subsurface flow, ground surface run-off, and other factors that were not existent at the time of our investigation.

7.4 Project Site Seismicity

7.4.1 *Ground Motions*

The project is located in a seismically active part of northern California. Many faults that exist in the San Francisco Bay Area are capable of producing earthquakes that may cause strong ground shaking at the site. The attached Fault Map (Plate 4) presents the locations of the fault systems relative to the project site.

Maximum credible earthquake magnitudes for some of the major faults in the area are determined by Caltrans' recently developed online ARS tool. These maximum credible earthquake magnitudes represent the largest earthquakes that could occur on the given fault based on the current understanding of the regional tectonic structure. The distances from the site to the faults are summarized below in Table 3.

TABLE 3 - FAULT DATA

Fault	Estimated Closest Distance to the Project Area (mi)	Maximum Earthquake Magnitude
Hayward fault zone (Northern section)	3.1	7.3
Calaveras fault zone (Northern Calaveras section)	13.4	7.4
San Andreas Fault zone (Peninsula section)	15.8	7.9

7.4.2 *Ground Rupture*

No active faults pass through the project site, Therefore, the potential for fault rupture is low.

8. GEOTECHNICAL ANALYSIS AND DESIGN

8.1 Dynamic Analysis

8.1.1 *Parameter Selection*

Caltrans recently updated the 1996 Seismic Hazard map with the new Caltrans Deterministic PGA Map (2008) and the Caltrans ARS Online (V1.0) design spectrum for the development of response spectra for design. The structural designer should conform to Caltrans new seismic design criteria. The new design methods incorporate both deterministic and probabilistic seismic hazards to produce the Design Response Spectrum. The probabilistic response spectrum to be used for design of structures is based on data from the 2008 USGS National Seismic Hazard Map for the 5% in 50 years probability of exceedance (975 year return period). The subject is considered and was determined to be not applicable for the project.

8.1.2 *Analysis*

The subject was considered and was determined to be not applicable for the project.

8.1.3 *Liquefaction Potential*

The subject was considered and was determined to be not applicable for the project.

8.2 Cuts and Excavations

No major cuts or excavations are planned for the project.

8.2.1 Stability

The subject was considered and was determined to be not applicable for the project.

8.2.2 *Rippability*

Based on the investigation, rippability does not appear to be a concern for construction.

8.2.3 Grading Factor

The on-site native soil meeting the project specifications may be used as engineered fill. For preliminary estimate, a grading factor of 0.9 may be assumed for the import materials based on our previous experience.

8.3 Culverts

8.3.1 *Corrosion Investigation*

The corrosion investigation for this project was performed in general accordance with the provisions of California Test Method 643. Chemical tests were performed on a soil sample, namely from Borings R-1, to evaluate the corrosion potential of the subsurface soil. A summary of the corrosion test result is presented in Table 4.

TABLE 4 - SUMMARY OF CORROSION TEST RESULTS

Boring No.	Depth (ft)	Min. Resistivity (ohm-cm)	pH	Sulfate (ppm)	Chloride (ppm)
R-1	0-5	13130	7.74	1.3	6.7

For selection of pipe material for culvert and storm drain applications, it is our understanding that AltPipe computer program is used by Caltrans to assist designers. AltPipe program is a web-based tool (http://dap1.dot.ca.gov//design/altpipe/) and updates and supersedes the previous CULVERT 4 program. The computations performed by AltPipe are based on the procedures and California Test Methods described in Chapter 850 of the Caltrans Highway Design Manual (HDM). AltPipe incorporates current requirements from the HDM supplemented by Caltrans Design Information

Bulletin No. 83 (D.I.B. No. 83, June 30, 2003) for abrasion potential for material selection.

The AltPipe program is intended for final design by the civil or hydraulic designer. In addition to soil corrosivity data, the input requires data such as Abrasion Level, 2-5 year Flow Velocity, and height of cover that should be determined while finalizing the drainage design.

9. STRUCTURAL PAVEMENT

New pavement will be constructed on existing grade. For designing the proposed pavement sections, we have conducted R-value tests on representative samples collected at proposed subgrade level. The sample description and the test results are summarized in Table 5.

TABLE 5 - SUMMARY OF R-VALUE TEST RESULTS

Boring No.	Depth (ft)	Description	R-value
R-1	0-5	Poorly Graded Sand with traces of Clay lumps, olive brown	72
R-2	0-5	Poorly Graded Sand with traces of Clay lumps, olive brown	74

According to available Caltrans as-built roadway plan, the existing pavement section along the Ashby Avenue On-Ramp consists of the following:

Traveled Way: 0.33 feet AC, 0.67 feet CTB, 0.33 feet AS.
CHP Enforcement Area: 0.60 feet AC (A).

Per Caltrans highway design manual, California R-value for subgrade soils used for pavement design should be limited to no more than 50. Therefore, an R-value of 50 is used for pavement design.

Based on discussion with the designer, the anticipated Traffic Index (TI) values are 9.0 for 10-year

design life and 10.0 for 20-year design life for Ashby Avenue Westbound On-Ramp. We understand that it is preferred to use a pavement section consisting of Hot Mix Asphalt (HMA) for the project. Since R-value of subgrade material is greater than 50, subbase may not be needed based on Caltrans Highway Design Manual.

Based on the provided TIs and the state of California Department of Transportation design procedures (Highway Design Manual – Section 608), the structural pavement sections are tabulated in the following table. The detailed pavement calculations are shown in Appendix B.

TABLE 6 – RECOMMENDED (MINIMUM) STRUCTURAL PAVEMENT SECTIONS

Location	R-Value	TI	Structural Pavement Section		
			Option 1	Option 2	
			HMA (Full Depth)	HMA	AB
Ramp	50	9.0 (10 year)	0.75	0.50'	0.45'
		10.0 (20 year)	0.85'	0.50'	0.65'

Design R-value = 50

HMA: Hot Mix Asphalt;

AB: Class 3 Aggregate Base with R-value equal to 78;

Design values are based on the Highway Design Manual Tables (empirical method).

10. MATERIAL SOURCES

There are several commercial sources of asphalt, concrete, and aggregate products in the area. Table 7 lists available commercial suppliers in the area.

TABLE 7 - SOURCES OF ASPHALT AND AGGREGATE MATERIAL

Source	Location	Approx. Haul Dist. (One way, miles)
O C Jones & Sons Inc.	1520 4th Street, Berkeley, CA 94710	0.7
Allied Concrete	3213 Wood Street, Oakland, CA, 94607	4.2
Muller Construction Supply	Oakland, CA 94601	11.4
American Aggregates & Slurry Inc.	851-81st Ave. Suite 227, Oakland, CA 94621	12.6

11. MATERIAL DISPOSAL

Based on our understanding, the project will require minimum disposal of the excess materials.

12. CONSTRUCTION CONSIDERATIONS

12.1 Construction Advisories

These sections are written primarily for the engineer responsible for the preparation of plans and specifications. Since these sections identify potential construction issues related to the project, it may also be of use to the Agency's representatives involved in monitoring of construction activity. The field investigation performed by us primarily addresses design issues and was not planned specifically to identify construction issues.

The project site is located along the existing US Route 80 and Ashby Avenue Interchange. Therefore, traffic control is required to maintain traffic flow along Route 80 and the respective city streets. The contractor should verify the utility lines, be aware of the existing conditions and plan the construction activities accordingly.

In our opinion, conventional equipment may be used to excavate the on-site soil materials. The

materials to be excavated may consist of poorly graded sand. Localized subgrade pumping may be encountered during earthwork construction depending on the weather, moisture condition of the subsurface soils, and surface drainage conditions. Equipment mobility may also be difficult if the subgrade is wet. In which case, the subgrade soils may require reworking, aeration, or over-excavation and replacing with dry granular fill to facilitate earthwork construction. It is possible that unknown old buried utilities or abandoned structures, concrete rubble etc. are located along the alignment. It might require special equipment and additional efforts to remove these buried objects.

Prospective contractors for the project must evaluate construction-related issues on the basis of their own knowledge and experience in the local area, on the basis of similar projects in other localities, or on the basis of field investigation on the site performed by them, taking into account their proposed construction methods and procedures. In addition, construction activities related to excavation and lateral earth support must conform to safety requirements of OSHA and other applicable municipal and Stage regulatory agencies.

12.2 Construction Consideration that Influence Specifications

The contractor should verify the conditions of the existing utility lines. These locations should not be used for stockpiling of borrow materials. Any conflicts with proposed construction should also be reviewed prior to construction.

12.3 Hazardous Waste Considerations

The project environmental study report should be referred to for further details about any potential hazardous materials within the project site.

12.4 Differing Site Conditions

The soil conditions described in this report are based on available boring data. It should be noted that these borings depict subsurface conditions only at the locations drilled. Because of the

variability from place to place within soils in general, and the nature of geologic depositions, subsurface conditions could change between the explored locations.

Early communication should be made between the Resident Engineer, the Contractor, and the Geotechnical Engineer as soon as conditions that differ from those established in this report are recognized by any of the parties. Additional recommendations could be provided if such conditions arise.

13. RECOMMENDATIONS AND SPECIFICATIONS

13.1 Summary of Recommendations

If the designer has questions or concerns with any of these recommendations, or, if conditions are found to be different during construction, the Geotechnical Engineer who prepared this report should be contacted. Additional fieldwork, analysis or changes in recommendations may be required. These services may be provided under a separate authorization, as necessary. A concise summary of the geotechnical recommendations is presented below:

- The subsoil consists of poorly graded sands.
- Groundwater was not encountered during the time of the drilling.
- Structural pavement design recommendations are presented in Section 9 of this report.

13.2 Recommended Materials Specifications

13.2.1 *Standard Specifications*

Unless otherwise stated in the special provisions, all materials specifications should conform to Caltrans Standard Specifications, May 2006 edition, including but not limited to the following: Earthwork, Structure Backfill, Pervious Backfill Material, Reinforcing Geofabric, Thermoplastic Pipes, Asphalt Concrete, Aggregate Base, Aggregate Subbase, Cement Treated Base, etc.

13.2.2 *Special Provisions*

Imported Borrow:

Imported material should be in accordance with the specifications set forth in Caltrans Section 19. In particular, for new embankment/roadway construction, the material placed within 4 ft of the finish pavement subgrade should meet the following requirements:

1. Free of organic or other deleterious materials.
2. An R-value of no less than 50.

Aggregate Base: Class 3 aggregate base shall conform to the provisions in Section 26 of the Standard Specifications and to these Special Provisions. It shall also be clean and free from organic matter and other deleterious substances. The percentage composition by weight of Class 3 aggregate base shall conform to the following grading as determined by California Test Method No. 202.

Gradation Requirement (Percent Passing)

Sieve Sizes	1-1/2 inch Maximum		¾ inch Maximum	
	Operating Range	Contract Compliance	Operating Range	Contract Compliance
2"	100	100		
1-1/2"	90 – 100	87 - 100		
1"	--	--	100	100
¾"	50 – 85	45 – 90	90 – 100	87 – 100
No. 4	24 - 45	20 – 50	35 – 60	30 – 65
No. 30	10 – 25	6 – 29	10 – 30	5 – 35
No. 200	2 -11	0 -14	2 -11	0 - 14

Quality requirements

California Test Method	Operating Range	Contract Compliance
Sand Equivalent (217)	25 Min.	22 Min.
Resistance (R-value) (301)	-	78 Min.
Durability Index	-	35 Min.

14. INVESTIGATION LIMITATIONS

Our services consist of professional opinions and recommendations made in accordance with generally accepted geotechnical engineering principles and practices and are based on our field exploration and the assumption that the soil conditions do not deviate from observed conditions.

No warranty, expressed or implied, of merchantability or fitness, is made or intended in connection with our work or by the furnishing of oral or written reports or findings. The scope of our services did not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in structures, soil, surface water, groundwater or air, below or around this site. Unanticipated soil conditions are commonly encountered and cannot be fully determined by taking soil samples and excavating test borings; different soil conditions may require that additional expenditures be made during construction to attain a properly constructed project. Some contingency fund is thus recommended to accommodate these possible extra costs.

This report has been prepared for the proposed project as described earlier, to assist the engineer in the design of this project. In the event any changes in the design or location of the facilities are planned, or if any variations or undesirable conditions are encountered during construction, our findings and recommendations shall not be considered valid unless the changes or variations are reviewed and our recommendations modified or approved by us in writing.

This report is issued with the understanding that it is the designer's responsibility to ensure that the

information and recommendations contained herein are incorporated into the project and that necessary steps are also taken to see that the recommendations are carried out in the field.

The findings in this report are valid as of the present date. However, changes in the soil conditions can occur with the passage of time, whether they are due to natural processes or to the works of man, on this or adjacent properties. In addition, changes in applicable or appropriate standards occur, whether they result from legislation or from the broadening of knowledge. Accordingly, the findings in this report might be invalidated, wholly or partially, by changes outside of our control.

Respectfully submitted,

PARIKH CONSULTANTS, INC.

Emre Ortakci, P.E. 76040
Senior Staff Engineer

Gary Parikh, P.E., G.E. 666
Project Manager

REGISTERED PROFESSIONAL ENGINEER
GAURANGA R. PARIKH
No. 666
EXP. 12-31-11
GEOTECHNICAL
STATE OF CALIFORNIA

S:\Ongoing\Gary Parikh\2011-114-RMP

REFERENCES

1. Caltrans Department of Transportation, May 2006, Standard Specifications.

2. Caltrans Department of Transportation, September 2007, Deterministic PGA Map.

3. Caltrans Department of Transportation, July 2008, Highway Design Manual, Chapter 600.

4. Caltrans Department of Transportation, August 2009, Geotechnical Services Design Manual (Version 1.0.4).

5. Caltrans Department of Transportation As-Built Typical Cross Section Ashby Avenue - Location 2 (1993).

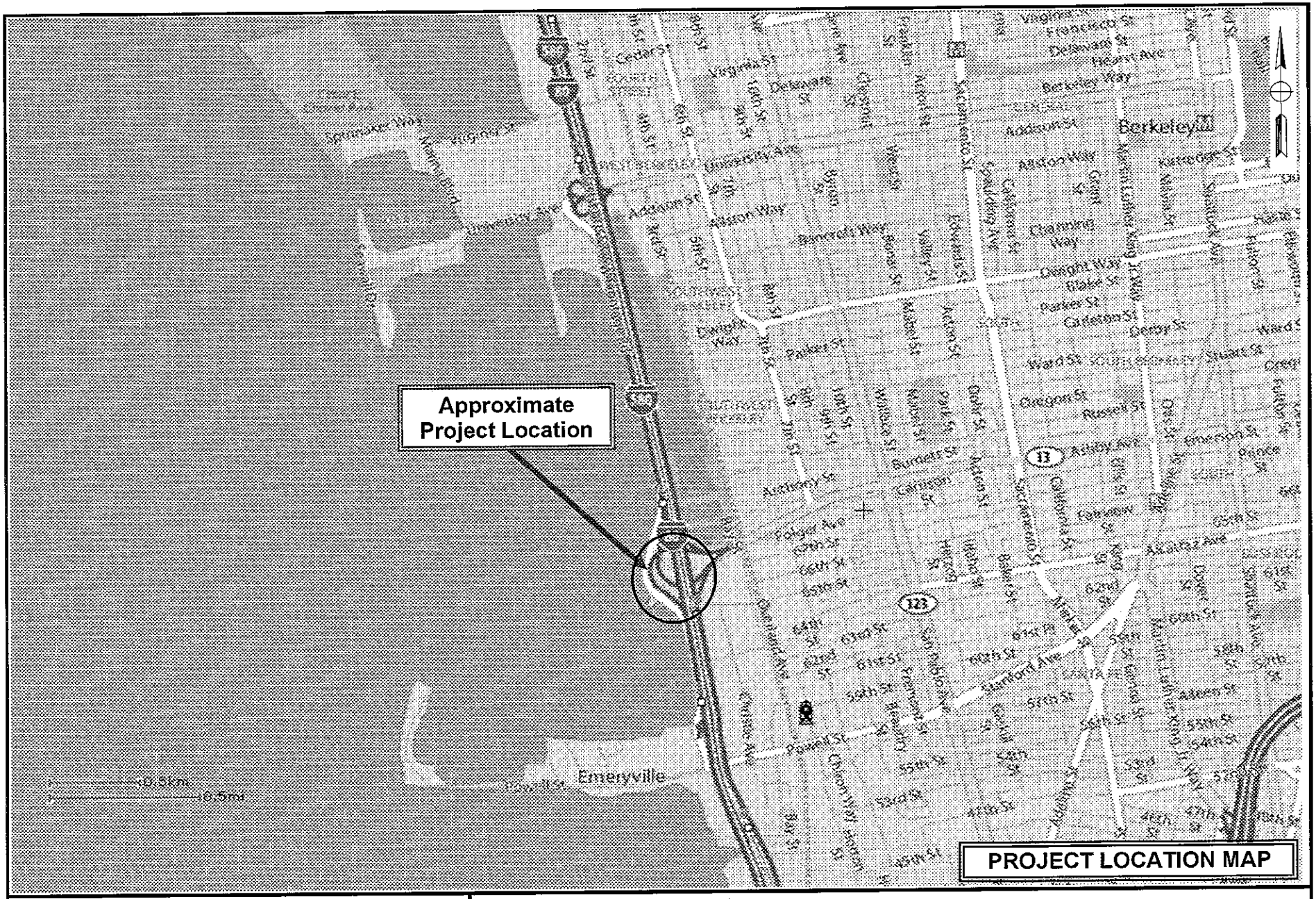
6. California Department of Conservation, Division of Mines and Geology, January 1982, State of California Special Studies Zones, West Oakland Quadrangle, Revised Official Map.

7. Caltrans Department of Transportation, December 2009, ARS Online – Version 1.04.

8. Helley, E.J., and Graymer, R.W., 1997, Quaternary geology of Alameda County, and parts of Contra Costa, Santa Clara, San Mateo, San Francisco, Stanislaus, and San Joaquin Counties, California: A digital database: U.S. Geological Survey Open-File Report 97-97.

9. Preliminary Geotechnical Report I-80 Integrated Corridor Mobility Project, Alameda County and Contra Costa County, California (September 2010), Parikh Consultants Inc.

10. Western Regional Climate Center, (http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca0693).



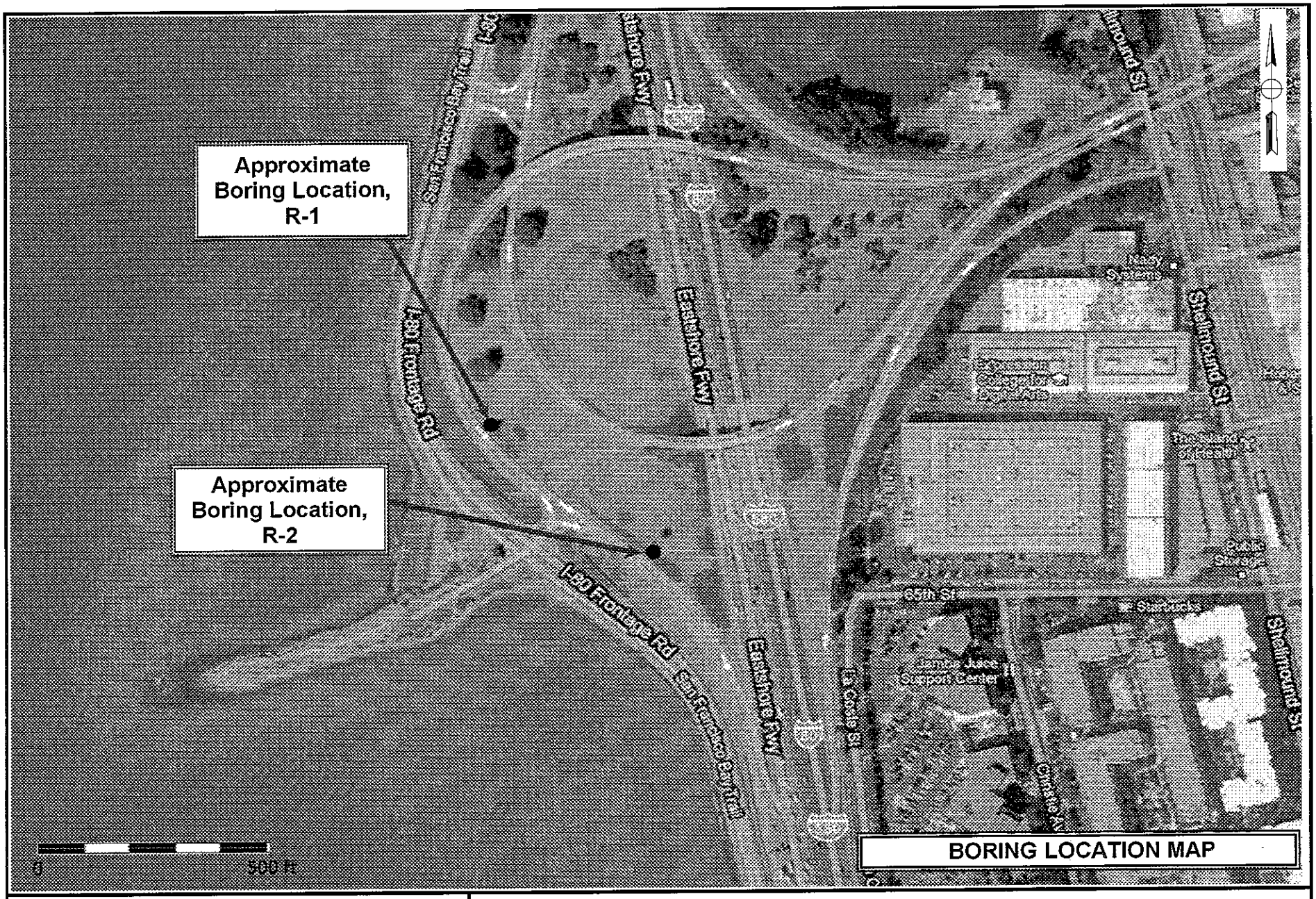
PROJECT LOCATION MAP

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

RTE 80 AT ASHBY AVENUE RAMP WIDENING
ALAMEDA COUNTY, CALIFORNIA

JOB NO.: 2011-114-RMP

PLATE NO.: 1

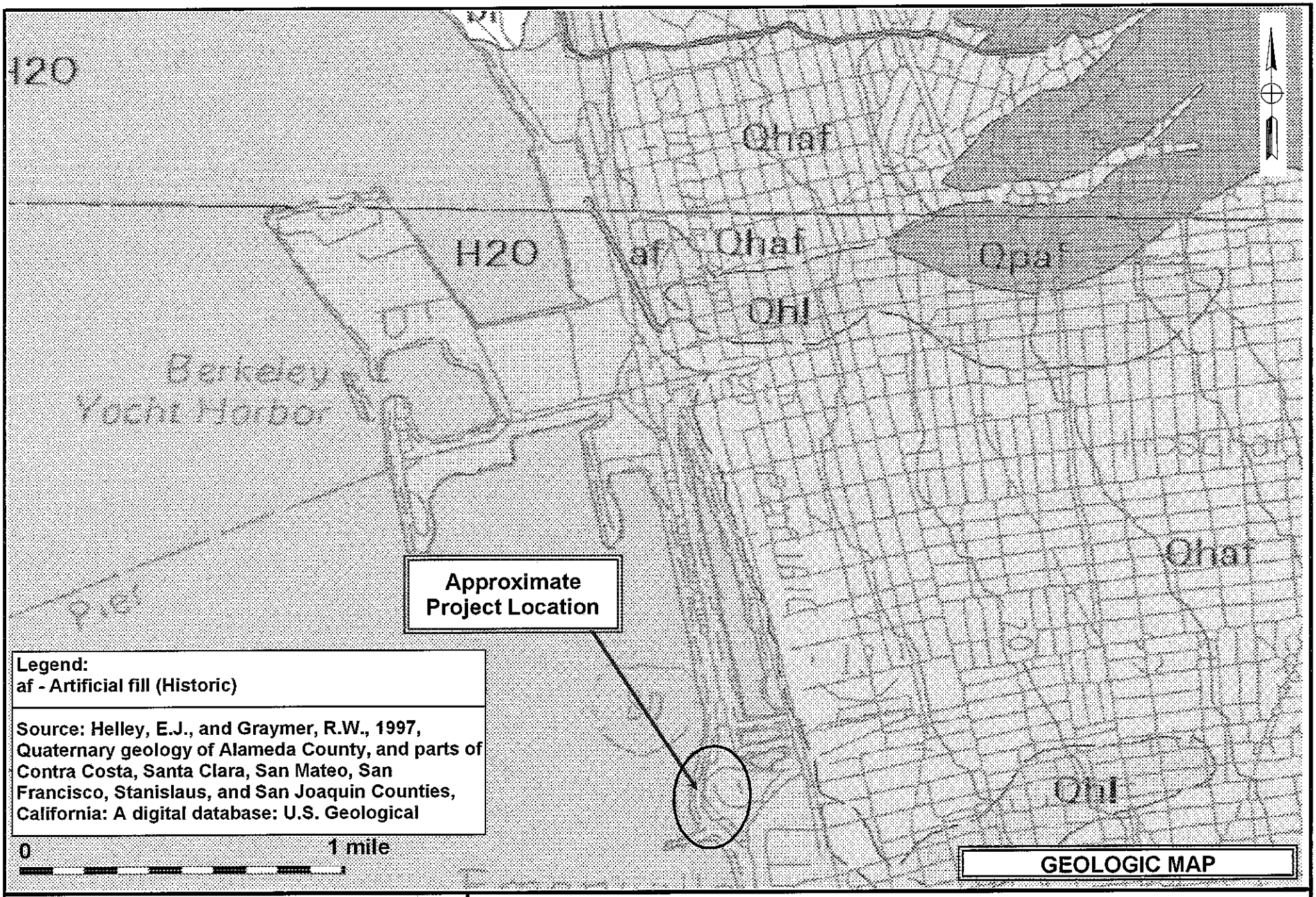


BORING LOCATION MAP

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

RTE 80 AT ASHBY AVENUE RAMP WIDENING
ALAMEDA COUNTY, CALIFORNIA

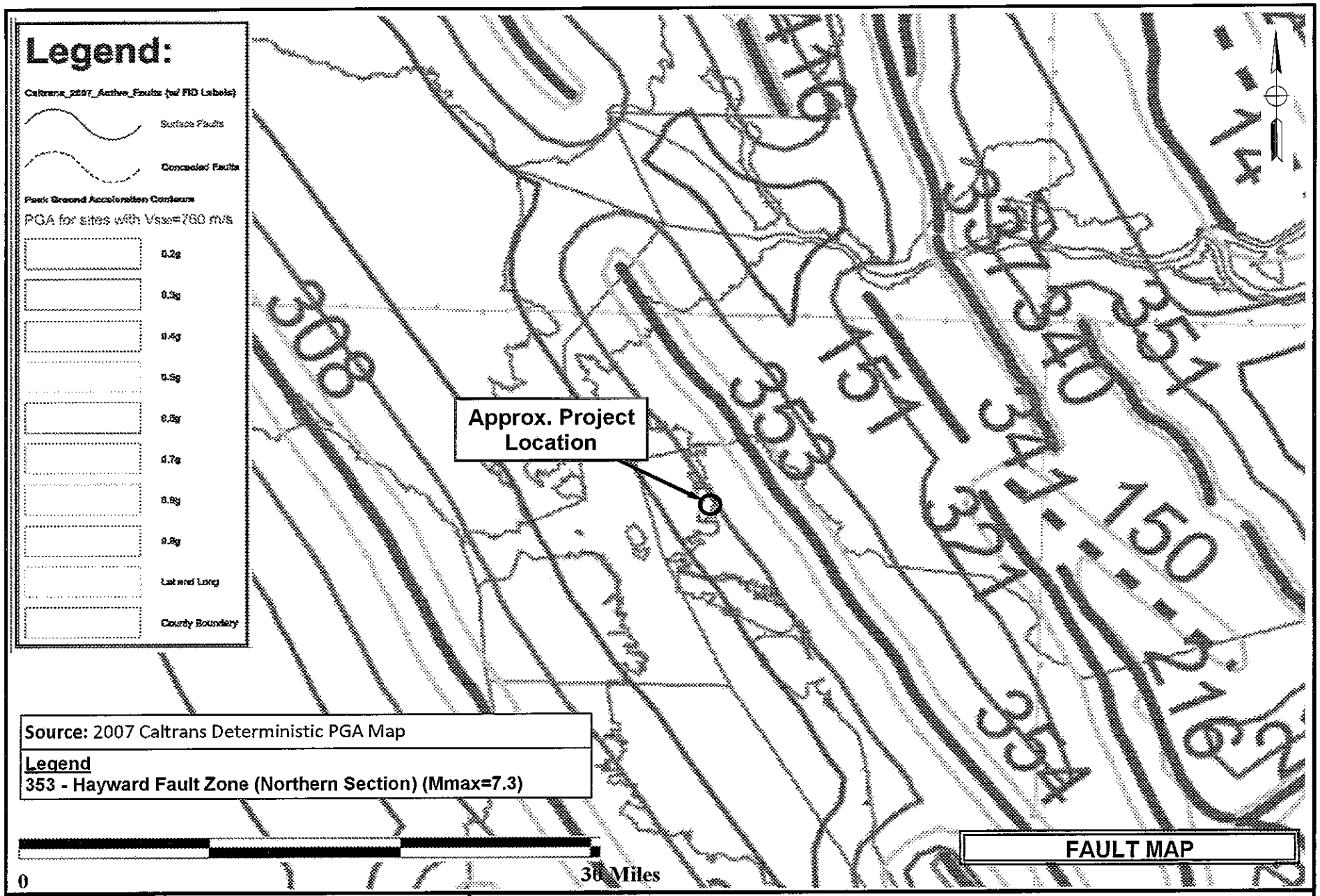
JOB NO.: 2011-114-RMP	PLATE NO.: 2



PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

RTE 80 AT ASHBY AVENUE RAMP WIDENING
ALAMEDA COUNTY, CALIFORNIA

JOB NO.: 2011-114-RMP | PLATE NO.: 3



Source: 2007 Caltrans Deterministic PGA Map

Legend
353 - Hayward Fault Zone (Northern Section) (Mmax=7.3)

FAULT MAP

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

RTE 80 AT ASHBY AVENUE RAMP WIDENING
ALAMEDA COUNTY, CALIFORNIA

JOB NO.: 2011-114-RMP | PLATE NO.: 4

APPENDIX A

APPENDIX A
LABORATORY TESTS

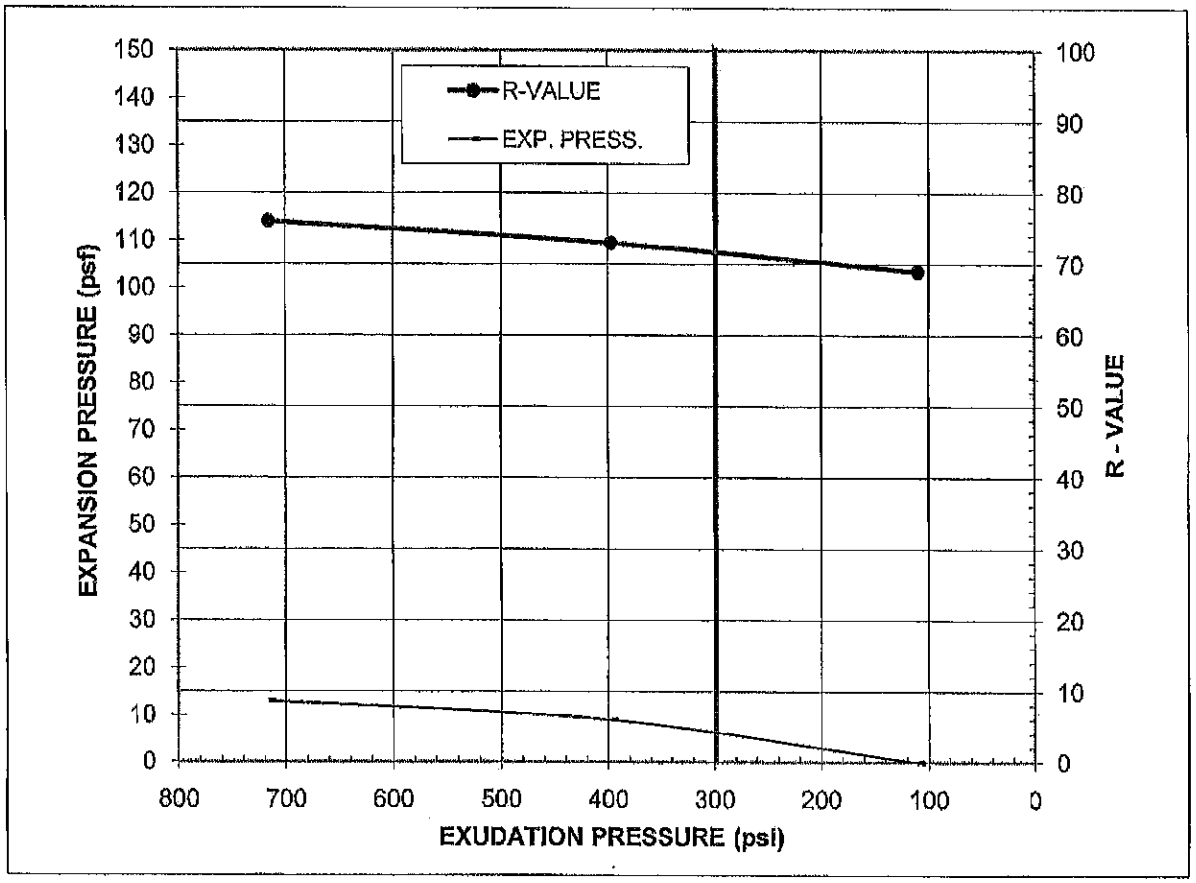
Corrosion Tests
Corrosion tests were performed on a selected sample to determine the corrosion potential of the soils. The pH and minimum resistively tests were performed according to California Test Method 643. The tests were performed by Sunland Analytical. The test results are presented on Plate A-3, Appendix A

R-value Tests
R-value tests were performed on representative bulk samples for pavement design. The tests were performed according to California Test Method 301. The test results are presented in Plates A-2A and A-2B, Appendix A

R-VALUE REPORT

Parikh Consultants, Inc. ASTM D2844 or CTM 301 (408) 452-9000

Project Name:	I-80 Intigradet Mobility Project	Date:	5/2/11
Client:	Kimley Horn Associates	Project #:	2011-114-RMP
Sample #: R-1	Depth: 0'-5'	Lab #:	M818
Location / Source:	On Site / Native	Sample Date:	
Material :	Poorly graded Sand with traces of Clay lumps, olive brown		



Specimen No.	A	B	C
Exudation Pressure, psi	110	397	716
Expansion Pressure, psf	0	9	13
R-Value	69	73	76
Moisture Content at Test, %	14.4	13.5	12.7
Dry Density at Test, pcf	107.7	108.2	109.6

R-Value @ 300 psi Exudation Pressure = 72 | Expansion Pressure @300 psi Exudation, psf = 8

Minimum R-Value Requirement:

Comments:

Report By: Prav Dayah

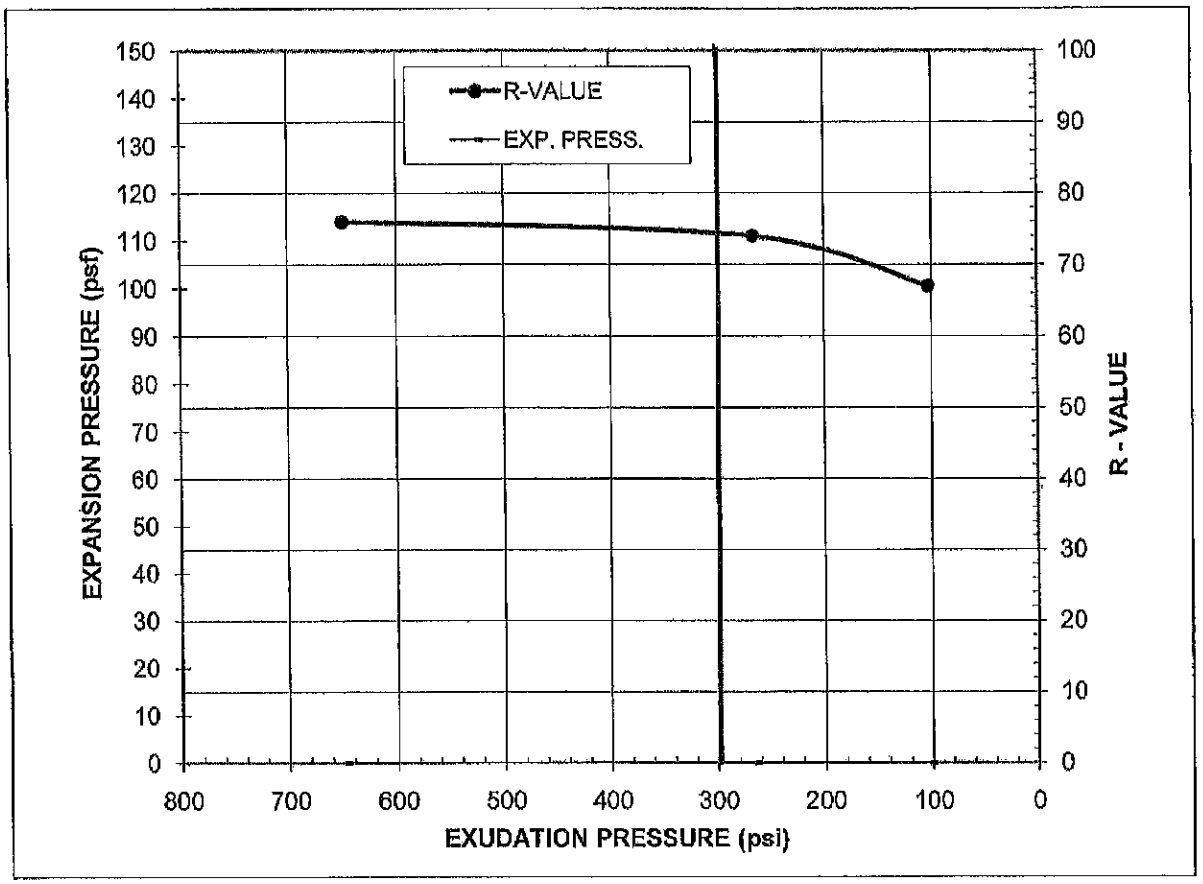
RVALUE with calcs pdp

PLATE NO.: A-2A

R-VALUE REPORT

Parikh Consultants, Inc. ASTM D2844 or CTM 301 (408) 452-9600

Project Name:	I-80 Intigradet Mobility Project	Date:	5/2/11
Client:	Kimley Horn Associates	Project #:	2011-114-RMP
Sample #: R-2	Depth: 0'-5'	Lab #:	M818
Location / Source:	On Site / Native	Sample Date:	
Material :	Poorly graded Sand with traces of Clay lumps, olive brown		



Specimen No.	A	B	C
Exudation Pressure, psi	103	266	649
Expansion Pressure, psf	0	0	0
R-Value	67	74	76
Moisture Content at Test, %	13.9	13.0	12.1
Dry Density at Test, pcf	107.5	108.4	110.9

R-Value @ 300 psi Exudation Pressure = 74

Expansion Pressure @300 psi Exudation, psf = **0**

Minimum R-Value Requirement:

Comments:

Report By: Prav Dayah

RVALUE with calcs pdp

PLATE NO.: A-2B

Sunland Analytical
11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 04/29/2011
Date Submitted 04/25/2011

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 2011-114-MSO/T-80 Site ID : R-1 @ 0-5'.
Thank you for your business.

* For future reference to this analysis please use SUN # 59947-122450.

EVALUATION FOR SOIL CORROSION

Soil pH	7.74		
Minimum Resistivity	13.13 ohm-cm (x1000)		
Chloride	6.7 ppm	00.00067	%
Sulfate	1.3 ppm	00.00013	%

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

APPENDIX B

PAVEMENT DESIGN

PER HIGHWAY DESIGN MANUAL, CHAP. 600

PROJECT NAME: *Rte 80 Ashby Ave Ramp Widening*
PROJECT NO.: *2011-114-RMP*

Design Case: AC over AB

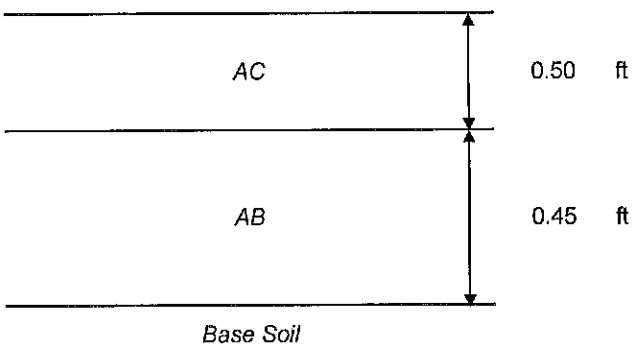
Design TI=	***9***	input	10 year design
R_{BS}=	***50***	input	
R_{AB}=	78		

$GE_{AC+AB} = 0.0032*TI*(100-R_{BS}) =$ 1.44

$GE_{AC} = 0.0032*TI*(100-R_{AB}) =$		0.63	
=>	GE'_{AC} =	0.90	(add 0.2 ft safety factor)
	AC Thickness =	0.50	ft
=>	AC Thickness =	**0.50**	ft (round up to the nearest 0.05 ft)
	$G_{f,AC}$ =	1.89	
	GE_{AC} =	0.95	

$GE_{AB} = GE_{AC+AB} - GE_{AC} =$		0.50	
	AB thickness=	0.45	ft
=>	AB Thickness=	**0.45**	ft (round up to the nearest 0.05 ft)
	GE_{AB}=	0.50	$G_{f,AB}$=1.1

Design Section:



PAVEMENT DESIGN

PER HIGHWAY DESIGN MANUAL, CHAP. 600

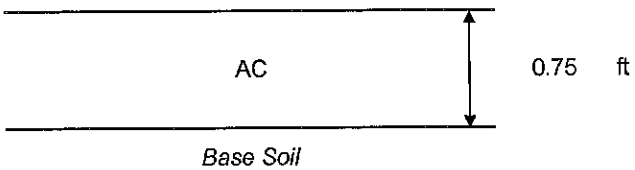
PROJECT NAME: *Rte 80 Ashby Ave Ramp Widening*
PROJECT NO.: *2011-114-RMP*

Design Case: Full depth AC

Design TI=	***9***	input	10 year design
R_{BS}=	***50***	input	

$GE_{AC} = 0.0032*TI*(100-R_{BS}) =$		1.44	
=>	GE'_{AC}=	1.54	(add 0.1 ft safety factor)
=>	AC Thickness=	0.73	
=>	AC Thickness=	**0.75**	ft (round up to the nearest 0.05 ft)

Design Section:



PAVEMENT DESIGN

PER HIGHWAY DESIGN MANUAL, CHAP. 600

PROJECT NAME: *Rte 80 Ashby Ave Ramp Widening*
PROJECT NO.: *2011-114-RMP*

Design Case: AC over AB

Design TI=	***10***	input	20 year design
R_{BS}=	***50***	input	
R_{AB}=	78		

$GE_{AC+AB} = 0.0032*TI*(100-R_{BS}) =$ 1.60

$GE_{AC} = 0.0032*TI*(100-R_{AB}) =$ 0.70

=> GE'_{AC} = 0.90 (add 0.2 ft safety factor)

AC Thickness = 0.50 ft

=> AC Thickness = **0.50** ft (round up to the nearest 0.05 ft)

$G_{f,AC}$ = 1.79

GE_{AC} = 0.90

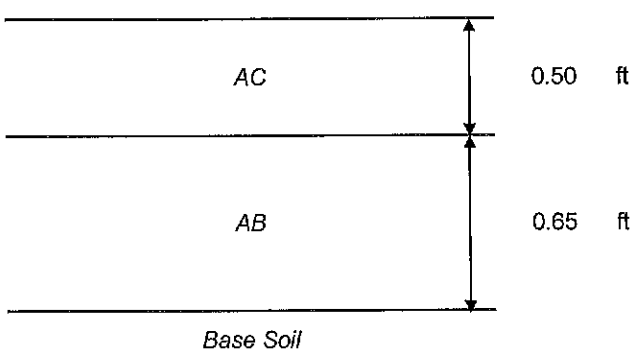
$GE_{AB} = GE_{AC+AB} - GE_{AC} =$ 0.70

AB thickness= 0.64 ft

=> AB Thickness= **0.65** ft (round up to the nearest 0.05 ft)

GE_{AB}= 0.72 $G_{f,AB}$=1.1

Design Section:



PAVEMENT DESIGN

PER HIGHWAY DESIGN MANUAL, CHAP. 600

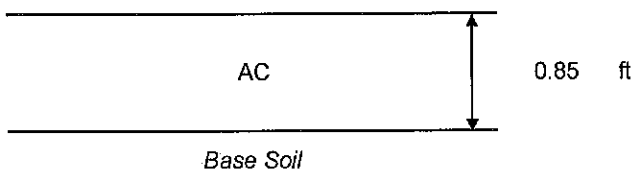
PROJECT NAME: *Rte 80 Ashby Ave Ramp Widening*
PROJECT NO.: *2011-114-RMP*

Design Case: Full depth AC

Design TI=	***10***	input	20 year design
R_{BS}=	***50***	input	

$GE_{AC} = 0.0032*TI*(100-R_{BS}) =$		1.60	
=>	GE'_{AC}=	1.70	(add 0.1 ft safety factor)
=>	AC Thickness=	0.82	
=>	AC Thickness=	**0.85**	ft (round up to the nearest 0.05 ft)

Design Section:



GEOTECHNICAL DESIGN & MATERIALS REPORT
JOHN MUIR PARKWAY AT I-80
CONTRA COSTA COUNTY, CA
(04-CC-80- 9.7/10.0 EA 3A7761)

For

Kimley-Horn & Associates, Inc.
555 12th Street Suite 1230
Oakland, California 94607

PARIKH CONSULTANTS, INC.

2360 Qume Drive, Suite A
San Jose, CA 95131
(408) 452-9000

September 23, 2009 Job No. 209102.JMP

Kimley-Horn & Associates, Inc.
555 12th Street, Suite 1230
Oakland, CA 94607

Job No.: 209102.JMP
September 23, 2009

Attn: Mr. Kenneth Chan

Sub: GEOTECHNICAL DESIGN & MATERIALS REPORT
JOHN MUIR PARKWAY AT I-80
CONTRA COSTA COUNTY, CA

Dear Mr. Chan:

Transmitted herewith is the Geotechnical Design & Materials Report for the subject project. The report was prepared in accordance with the scope of work outlined in our proposal.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning our findings or conclusions, please feel free to contact this office.

Very truly yours,
PARIKH Consultants, Inc.

Gary Parikh, P.E., G.E.
President

Attachment: Geotechnical Design & Materials Report

"Approved as to impact on State facilities and conformance with applicable State standards and practices, and the technical oversight were performed as described in the California Department of Transportation A&E Consultant Services Manual."

Caltrans_____

Title_____

Date_____

Caltrans_____

Title_____

Date_____

TABLE OF CONTENTS **page**

1. INTRODUCTION 1
2. EXISTING FACILITIES AND PROPOSED IMPROVEMENTS 2
3. PERTINENT REPORTS AND INVESTIGATION 2
4. PHYSICAL SETTING 2
   4.1 Climate and Drainage 2
   4.2 Topography and Drainage 2
   4.3 Man-Made and Natural Features of Engineering and Construction Significance 3
   4.4 Regional Geology and Seismicity 3
5. EXPLORATION 3
   5.1 Drilling and Sampling 3
   5.2 Geologic Mapping 4
   5.3 Geophysical Studies 4
   5.4 Instrumentation 4
   5.5 Exploration Notes 4
6. GEOTECHNICAL TESTING 5
   6.1 In-Situ Testing 5
   6.2 Laboratory Testing 5
7. GEOTECHNICAL CONDITIONS 5
   7.1 Site Geology 5
      7.1.1 Lithology 6
      7.1.2 *Structure* 6
   7.2 Subsurface Soil Conditions 6
   7.3 Water 6
      7.3.1 *Surface Water* 6
      7.3.1.1 *Scour* 7
      7.3.1.2 *Erosion* 7
      7.3.2 *Groundwater* 7
   7.4 Project Site Seismicity 7
      7.4.1 *Ground Motions* 7
      7.4.2 *Ground Rupture* 8
8. GEOTECHNICAL ANALYSIS AND DESIGN 8
   8.1 Dynamic Analysis 8
      8.1.1 *Parameter Selection* 8
      8.1.2 *Liquefaction Potential* 8
   8.2 Cuts and Excavations 8
      8.2.1 *Stability* 9
      8.2.2 *Rippability* 9
      8.2.3 *Grading* 9
   8.3 Embankments 9
   8.3.1 *Evaluation of Embankment Settlement* 9
   8.4 Earth Retaining Systems 10
   8.5 Culverts 10
      8.5.1 *Corrosion Investigation* 10

9. STRUCTURAL PAVEMENTS 11
10. MATERIAL SOURCES 12
11. MATERIAL DISPOSAL 13
12. CONSTRUCTION CONSIDERATIONS 13
12.1 Construction Advisories 13
12.2 Construction Consideration that Influence Specifications 14
12.3 Hazardous Waste Considerations 14
12.4 Differing Site Conditions 14
13. RECOMMENDATIONS AND SPECIFICATIONS 14
13.1 Summary of Recommendations 14
13.2 Recommended Materials Specifications 15
13.2.1 *Standard Specifications* 15
13.2.2 *Special Provisions* 15
14. INVESTIGATION LIMITATIONS 17
REFERENCES 19

Appendix A

Log of Test Borings
As Built LOTB

Appendix B

Laboratory Tests ..... Plate B-1
Gradation Analysis ..... Plate B-2
Corrosion Test Results ..... Plates B-3A thru B-3B
R-value Test Results ..... Plates B-4A thru B-4B

Appendix C

Pavement Design
As Built Pavement Section

LIST OF TABLES

1 Earthquake Data 08

2 Summary of Corrosion Test Results 10

3 Summary of R-Value Test Results 11

4 Recommended (Minimum) Structural Pavement Sections 12

5 Sources of Asphalt and Aggregate Material 12

LIST OF FIGURES

Location Map ..... Plate 1

Site Plan ..... Plate 2

Geologic Map ..... Plate 3

Fault Map ..... Plate 4

Attenuation Relationships for Shallow Crustal Earthquakes ..... Plate 5

GEOTECHNICAL DESIGN & MATERIALS REPORT
JOHN MUIR PARKWAY AT ROUTE 80, HERCULES
CONTRA COSTA COUNTY, CALIFORNIA

1. INTRODUCTION

This report presents the results of our geotechnical investigation for the proposed improvements on the John Muir Parkway South Bound On-ramp in the City of Hercules in Contra Costa County. The general location of the project site and its limits are shown in Plate 1, Project Location Map.

This report addresses the design of structural pavement sections, embankment and corrosion investigation recommendations. The investigation included review of readily available soils and geologic literature pertaining to the site including as-built information and "Log of Test Borings" (LOTB) and pavement as-built data, site reconnaissance, obtaining representative samples and logging soil materials encountered in exploratory borings, laboratory testing of the representative samples, performing engineering analyses, and preparation of this report.

The purpose of this report is to document subsurface geotechnical conditions, provide analyses of anticipated site conditions as they pertain to the project described herein, and to recommend design and construction criteria for the project. This report also establishes a geotechnical baseline to be used in assessing the existence and scope of changed site conditions, if any.

The report is intended for use by the project roadway design engineer, construction personnel, bidders, and contractors for information and reference purposes only and should not be constructed directly as project specifications.

Due to limitations inherent in geotechnical investigations, it is neither uncommon to encounter unforeseen variations in the soil conditions during construction nor is it practical to determine all such variations during an acceptable program of drilling and sampling for a project of this scope. Such variations, when encountered, generally require additional engineering services to attain a properly constructed project. We, therefore recommend that a contingency fund be provided to accommodate any additional charges resulting from technical services that may be required during construction.

2. EXISTING FACILITIES AND PROPOSED IMPROVEMENTS

The John Muir Parkway South Bound On-Ramp is a two lane overcrossing merging on to Route 80. The proposed improvements include widening the on-ramp to accommodate a HOV lane, and an embankment. The general area is shown in the Project Location Map, Plate 1.

The Alameda County Congestion Management Agency (ACCMA), in cooperation with the California Department of Transportation (Caltrans) proposes to widen the ramp. The roadway improvements will include earthwork, and pavement sections. The existing South Bound on-ramp will be widened to accommodate HOV lane by adding about 2 feet of embankment fill on the outside slope.

3. PERTINENT REPORTS AND INVESTIGATION

Caltrans As-built information obtained from Kimley-Horn and Associates was reviewed for the project during this study.

4. PHYSICAL SETTING

4.1 Climate and Drainage

The climate in the project area is characterized by moderate climatic conditions, which consists of mild winters, mild summers, small daily and seasonal temperature ranges. Based on the statistical data from "Western Regional Climate Center", the average total annual precipitation varies along the project vicinity and is approximately 17.7 inches to 23.38 inches. Most of the rainfall is recorded in January with an average total precipitation of 3.55 inches to 5.01 inches. July is the month with the least average rainfall precipitation of 0.03 to 0.04 inch. Extreme temperature ranges from location and the average minimum temperature is approximately 40.8º F to 42.7º F in January to average maximum temperature of 70.0º F to 78.7º F in September.

4.2 Topography and Drainage

The topography within the project site along John Muir Parkway South Bound On-Ramp is relatively flat along Rte 80 with slight grade increase to the west. Some grade differences are noted

due to roadway crossing and bridge embankment along the alignment. The site drainage is generally by sheet flow towards the southwest, or collected by local drainage systems.

The main drainage system within the project limits is Refugio Creek to the NE direction of the John Muir Parkway South Bound On-ramp.

4.3 Man-Made and Natural Features of Engineering and Construction Significance

The subject was considered and was determined to be not significant for the project.

4.4 Regional Geology and Seismicity

General geologic features pertaining to the site were evaluated by reference to the Map of Dibblee; 1980a and 1981 and Witter, et.al., 2006. The John Muir Parkway South Bound On-Ramp is situated on Artificial Fill (af) and Stream Channel Deposits (Qhc). A geologic map of the general project area is shown on Plate 3.

The project is located in a seismically active area of California. Many faults existing in this area are capable of producing earthquakes that may cause strong ground shaking within the project limits. The attached Fault Map (Plate 4) presents the locations of the fault systems relative to the project site. Maximum Magnitudes (Mmax) for the major faults in the area are determined by Mualchin (California Seismic Hazard Map 1996). These maximum magnitudes represent the largest earthquakes that could occur on the given fault based on the current understanding of the regional tectonic structure. Faults in the vicinity of the site have a moderate to high potential to release seismic energy include the Hayward Fault, San Andreas Fault, and the Franklin Fault. Based on Caltrans updated map and readily available geological data, the governing fault for the structure is the Hayward Fault (a strike-slip fault, Mw = 7.5).

5. EXPLORATION

5.1 Drilling and Sampling

Based on the preliminary plans, discussions with the design team, and readily available geotechnical data in the area, 6 borings were drilled at selected locations to depths ranging from 5 ft to 30 ft below the existing ground surface.

- Three borings, namely RW-1, RW-2, and RW-3 were drilled in the vicinity of John Muir Parkway South Bound On-Ramp for the design of roadway, and embankment. These borings were drilled to a depth of 30 ft.
- Borings R-4, R-5, and R-6 were drilled at shallow depth to collect bulk samples for pavement design.

Borings RW-1 and RW-2 were drilled by Access Drilling of San Mateo on May 7th, 2009 under the supervision of our field engineer. The borings were advanced using a portable rig using 4'' dia solid stem auger. Borings RW-3, R-4, R-5 and R-6 were drilled by Exploration Geoservice Inc. of San Jose on May 8th, 2009 under the supervision of our field engineer. The borings were advanced using truck-mounted rig using 8" hollow stem auger. The boring locations are shown on Plate 2, Site Plan.

Selected samples were obtained from 2.5-inch I.D. (Modified California, MC) and 1.4-inch I.D. (Standard Penetration Test, SPT) samplers at various depths. The samplers were driven into subsurface soils under the impact of a 140-pound hammer having a free fall of 30 inches. The blow counts are presented on the Log of Test Boring (LOTB) in Appendix A. The samples were sealed and transported to our laboratory for further evaluation and testing. The field investigation was conducted under the supervision of our field engineer who logged the test borings and prepared the samples for subsequent laboratory testing and evaluation.

5.2 Geologic Mapping

The subject was considered and was determined to be not significant for the project.

5.3 Geophysical Studies

The subject was considered and was determined to be not applicable to the project.

5.4 Instrumentation

The subject was considered and was determined to be not applicable to the project.

5.5 Exploration Notes

The exploratory borings mainly encountered artificial fill and stream channel deposits. Drilling conditions using hollow stem and solid stem augers were considered normal for this site.

6. GEOTECHNICAL TESTING

6.1 In-Situ Testing

In-situ testing consists of recording blow counts during sampling (using either Modified California sampler or Standard Penetration Test sampler) in the field. Based on our previous experience, when correlating standard penetration data in similar soils, the blow counts for the Modified California Sampler can be converted to equivalent Standard Penetration Test blow counts by multiplying a factor of 0.65. Based on the average values of the SPT-N values for the soil materials encountered in the field exploration, the subsurface soils are classified generally as loose to very dense clayey sands, silty sands. The in-situ test results are presented on the LOTB sheets attached in Appendix A.

6.2 Laboratory Testing

Laboratory tests performed for the study include the following: Laboratory determination of Moisture-Density (California Test Method 226), Grain Size Analysis (California Test Method 202), Unconfined Compression Test (California Test Method 221), R-value Test (California Test Method 301), and Corrosion Test (California Test Method 643). The laboratory test results are attached in Appendix B. Moisture-Density test and Unit Weight test results are summarized on the LOTB's attached in Appendix A.

7. GEOTECHNICAL CONDITIONS

7.1 Site Geology

General geologic features pertaining to the site were evaluated by reference to the Map of Dibblee; 1980a and 1981 and Witter, et.al., 2006. Based on the map, the site subsoil's consist of Artifical Fill (af), and Stream Channel Deposits (Qhc). A geologic map of the project vicinity is shown on Plate 3.

af – Artificial Fill (Historic) – Man made deposit of various materials and ages. Some are compacted and quite firm, but fills made before 1965 are nearly everywhere not compacted and consist simply of dumped materials.

Qhc – Stream Channel Deposits (Holocene) – Loose Sand, gravel, and cobbles with minor clay and silt deposited within active, natural stream channels.

7.1.1 Lithology

The site consists of Artificial Fill and Stream Channel Deposits. The subject was considered and was determined to be not applicable for the project. Detailed description of subsoil conditions are presented in Section 7.2.

7.1.2 *Structure*

The site consists of roadway fill, artificial fill, and stream channel deposits. The subject was considered and was determined to be not applicable for the project.

7.2 Subsurface Soil Conditions

Based on the boring data and the as-built LOTB, the subsurface soil conditions of the site generally consist of varying thickness of silty sands and clayey sands to 30 feet below existing grade, the maximum depth explored. The materials encountered in the borings generally consist of loose to very dense silty/clayey sands. Groundwater was not encountered during exploration. The SPT-N values were typically on the order of 8 to 64. The in-situ test results are presented on the LOTB in Appendix A.

Detailed descriptions of the materials encountered in the exploratory borings are presented in the LOTB in Appendix A "Log of Test Borings". It should be noted that these descriptions and related information depict subsurface conditions only at the locations indicated and on the particular date noted on the LOTB. Because of the variability from place to place within soil/rock in general, subsurface soil conditions at other locations may differ from conditions occurring at the locations explored. The abrupt stratum changes shown on the logs may be gradational and relatively minor changes in soil types within a stratum may not be noted due to field limitations. Also, the passage of time may result in a change in the soil conditions at the locations due to environmental changes.

7.3 Water

7.3.1 *Surface Water*

There is no surface water body at the site.

7.3.1.1 *Scour*

The subject was considered and was determined to be not applicable for the roadway project.

7.3.1.2 *Erosion*

The proposed project will primarily widen the pavement section, and embankment. The subject was considered and was determined to be not applicable for the project.

7.3.2 *Groundwater*

Groundwater was not encountered during drilling. Caltrans as-built LOTB indicated groundwater level at approximately 5 ft below the existing John Muir Parkway South Bound On-Ramp (Elev. 18.6 ft). It is anticipated that groundwater level will vary with the passage of time due to seasonal runoff, groundwater fluctuations, surface and subsurface flow, ground surface run-off, and other factors that were not existent at the time of investigation.

7.4 Project Site Seismicity

7.4.1 *Ground Motions*

The project is located in a seismically active part of northern California. Many faults exist in the Contra Costa County Area, which are capable of producing earthquakes, which may cause strong ground shaking at the site. The attached Fault Map (Plate 4) presents the locations of the fault systems relative to the project site.

Maximum Credible Earthquake (MCE) magnitudes for some of the major faults in the area determined by Mualchin (California Seismic Hazard Map 1996) are summarized below. These maximum credible earthquake magnitudes represent the largest earthquakes that could occur on the given fault based on the current understanding of the regional tectonic structure. Based on the boring information the governing fault for the structure is the Hayward Fault, which is at a distance of 5.95 km (3.7 miles). A summary of the earthquake data is presented in Table 1.

TABLE 1 - EARTHQUAKE DATA

Fault	Estimated Closest Distance to the Project Area (km)	Maximum Credible Earthquake	Peak Bedrock Acceleration (g)
Hayward Fault (strike - slip)	5.95 (3.70 miles)	7.5	0.54
San Andreas Fault (strike – slip)	34.5 (21.4 miles)	8.0	0.21
Franklin Fault (unknown type)	4.8(2.95 miles)	6.5	0.48

7.4.2 *Ground Rupture*

Since no active faults pass through the project site, the potential for fault rupture is low.

8. GEOTECHNICAL ANALYSIS AND DESIGN

8.1 Dynamic Analysis

8.1.1 *Parameter Selection*

Based on the seismic hazard map prepared by Mualchin (1996) and the attenuation relationship by Sadigh et Al. (1997), the Peak Bedrock Acceleration (PBA) at the project site is 0.54 g. According to Caltrans Guidelines for Structures Foundation Report (March 2007), the value of PBA (for a specific project site) from the seismic hazard map should be verified with that calculated using the attenuation relation by Sadigh et al. (1997).

Based on the boring information, the seismic design criteria based on Caltrans Seismic Design Criteria (Version 1.4) are as follows:

Governing Fault = Hayward Fault (strike-slip; Mw=7.5)
Closest Distance to Fault = 5.95 km (3.69 miles)
Peak Bed Rock Acceleration = 0.54 g

8.1.2 *Liquefaction Potential*

The subject was considered and was determined to be not applicable for the project.

8.2 Cuts and Excavations

It is expected that minor grading will be for pavement construction only. The subject was considered and was determined to be not applicable for the project.

8.2.1 *Stability*

Based on the embankment slope height (with the maximum height of about 2 feet) and ground conditions, the stability of the proposed embankment does not appear to be a concern for the project.

8.2.2 *Rippability*

The subject was considered and was determined to be not applicable for the project.

8.2.3 *Grading*

Typical grading specifications should conform to Caltrans Standards.

8.3 Embankments

As per the plans obtained from Kimley Horn and Associates, the proposed widening of ramp will require up to 2 feet of embankment construction. Based on boring data, the native soils can provide adequate support for the proposed embankments. Foundation of embankments should be prepared in accordance with Caltrans Standard for 'Clearing and Grubbing' and 'Earthwork'. The fill slopes should not have slope ratio more than 2H: 1V. The fill slopes should be protected against erosion.

8.3.1 *Evaluation of Embankment Settlement*

Based on our field visit and borings, the soil conditions of the site appears to be well compacted. We did not observe distress signs during our field visit that may indicate presence of on-going settlement. Approximately 2 feet of fill will be required for the proposed embankment construction. Based on the proposed fill thickness and subsurface soil conditions at the project site (which consists of very dense silty sand and clayey sand layers) it is our opinion that the settlements due to the placement of the fill does not appear to be a geotechnical concern. The localized loose material encountered in the upper zone in RW-1 is probably from slope disturbance and is not indicative of the embankment.

8.4 Earth Retaining Systems

The subject was considered and was determined to be not applicable for the project.

8.5 Culverts

8.5.1 *Corrosion Investigation*

The corrosion investigation for this project was performed in general accordance with the provisions of California Test Method 643. Chemical tests were performed on representative soil samples of Borings R-4, and R-6 to evaluate the corrosion potential of the subsurface soil. A summary of the corrosion test results are presented in Table 2.

TABLE 2 - SUMMARY OF CORROSION TEST RESULTS

Boring No.	Depth (ft)	Resistivity (ohm-cm)	pH	Sulfate (ppm)	Chloride (ppm)
R-4	0' – 5'	400	7.20	434.0	58.1
R-6	0' – 5'	350	7.48	62.7	526.2

Based on the laboratory test results and as per an internal memo from Caltrans (dated September, 2003) the subsoils are considered to be corrosive, and standard Type II modified or Type I-P (MS) modified cement may be used for any concrete substructures. The minimum cement factor and cover thickness should be per Caltrans Bridge Design Specifications (Section 8.22). The test results are presented in Appendix B.

For selection of pipe material for culvert and storm drain applications, it is our understanding that AltPipe computer program is used by Caltrans to assist designers. AltPipe program is a web-based tool (http://dap1.dot.ca.gov//design/altpipe/) and updates and supersedes the previous CULVERT 4 program. The computations performed by AltPipe are based on the procedures and California Test Methods described in Chapter 850 of the Caltrans Highway Design Manual (HDM). AltPipe incorporates current requirements from the HDM supplemented by Caltrans Design Information Bulletin No. 83 (D.I.B. No. 83, June 30, 2003) for abrasion potential for material selection.

The AltPipe program is intended for final design by the civil or hydraulic designer. In addition to soil corrosivity data, the input requires data such as Abrasion Level, 2-5 year Flow Velocity, and

height of cover that should be determined while finalizing the drainage design.

9. STRUCTURAL PAVEMENTS

R-value tests were conducted on representative samples collected at proposed subgrade level. The test results are summarized in Table 3.

TABLE 3 - SUMMARY OF R-VALUE TEST RESULTS

Boring No.	Description	R-value
R-4	Yellowish Brown – Silty Sand	37
R-6	Yellowish Brown – Silty Sand	32

Based on these results a design R-value of 15 is considered reasonable for proposed embankment and an R-value of 25 is recommended for existing Ramp. The design R-values are summarized as follows:

- New Embankment: R-value = 15
- Existing Ramp: R-value = 25

According to available Caltrans as-built roadway plans, the existing pavement sections along the John Muir Parkway consist of the following:

W/B Inside Lanes: 0.10’ OGAC, 0.30’ AC, 0.67’ PCC, 0.33’ CTB, 1.00’ SM
W/B Outside Lanes: 0.45’ AC, 0.70’ CTB, 1.00’ CL 4 AS
Widening: 0.60’ AC & 0.60’ ACB & 1.10’ & Var. CCO*20

Based on discussion with the designer, the anticipated Traffic Index (TI) values are 9.0 for 10-year design life and 10.0 for 20-year design for John Muir Parkway South Bound On-Ramp. We understand that it is preferred to use a composite pavement section consisting of HMA (A), base and subbase for the project.

The following pavement sections are provided in accordance with anticipated 10-year and 20-year design TIs.

TABLE 4 – RECOMMENDED (MINIMUM) STRUCTURAL PAVEMENT SECTIONS

Location	R-Value	TI	Structural Pavement Section					
			Option 1			Option 2	Option 3	
			HMA	AB	AS	HMA (Full Depth)	HMA	AB
New Embankment	15	10 (20 years)	0.55’	0.75’	0.90’	1.20’	0.55’	1.60’
Existing Ramp	25	9 (10 years)	0.45’	0.75’	0.50’	1.00’	0.45’	1.20’
		10 (20years)	0.55’	0.75’	0.60’	1.10’	0.55’	1.30’

Design R-value = 15, and 25
HMA: Hot Mix Asphalt (formerly known as Asphalt Concrete);
AB: Class 3 Aggregate Base with R-value equal to 78;
AS: Class 4 Aggregate Sub-base with the R-value equal to 50;
Design values are based on the Highway Design Manual Tables (empirical method).

The above design options for R-values of 15 and 25 are provided to allow flexibility in the design. For in place materials (existing ramp) the R-value is higher, however it may not be prudent to require such high R-value for import burrow. The designer may select to use one section throughout and therefore use R=15 and TI=10 design for the ramp.

10. MATERIAL SOURCES

There are several commercial sources of asphalt, concrete, and aggregate products in the area. Table 5 lists available commercial suppliers in the area.

TABLE 5 - SOURCES OF ASPHALT AND AGGREGATE MATERIAL

Source	Location	Approx. Haul Dist. (One way, miles)
Blacktop Knights	1442 Partridge Dr, Hercules, CA 94547	3.7
O. C. Jones & Sons, Inc.	1520 Fourth Street, Berkeley, CA 94710	15.2
Cemex	333 23rd Ave, Oakland, CA 94606	21.7
J. V. Lucas Paving, Inc.	1012B 2nd Street, Lafayette, CA 94549	22.0
Mission Valley Rock & Asphalt	401 Embarcadero, Oakland, CA 94606	22.0
Right Away Ready Mix	401 Kennedy Street, Oakland, CA 94606	22.0

11. MATERIAL DISPOSAL

Majority of the project will require fill for the proposed widening. Based on our understanding, the project will require minimal disposal of the excess materials.

12. CONSTRUCTION CONSIDERATIONS

12.1 Construction Advisories

The sections are written primarily for the engineer responsible for the preparation of plans and specifications. Since these sections identify potential construction issues related to the project, it may also be of use to the Agency's representatives involved in monitoring of construction activity. The field investigation performed by us primarily addresses design issues and was not planned specifically to identify construction issues.

The project site is located along the existing US Route 80 and John Muir Parkway South Bound On-Ramp. Therefore, traffic control is required to maintain traffic flow along Route 80 and the respective city streets. Several underground utilities exist at the John Muir Parkway Southbound On-Ramp. The contractor should verify the utility lines, be aware of the existing conditions and plan the construction activities accordingly.

In our opinion, conventional equipment may be used to excavate the on-site soil materials. The materials to be excavated may consist of loose to very dense clayey sand to silty sand. Localized subgrade pumping may be encountered during earthwork construction depending on the weather, moisture condition of the subsurface soils, and surface drainage conditions. Equipment mobility may also be difficult if the subgrade is wet. In which case, the subgrade soils may require reworking, aeration, or over-excavation and replacing with dry granular fill to facilitate earthwork construction. It is possible that unknown old buried utilities or abandoned structures, concrete rubble etc. are located along the alignment. It might require special equipment and additional efforts to remove these buried objects.

Prospective contractors for the project must evaluate construction-related issues on the basis of their own knowledge and experience in the local area, on the basis of similar projects in other localities, or on the basis of field investigation on the site performed by them, taking into account their proposed construction methods and procedures. In addition, construction activities related to

excavation and lateral earth support must conform to safety requirements of OSHA and other applicable municipal and State regulatory agencies.

12.2 Construction Consideration that Influence Specifications

The contractor should verify the conditions of the existing utility lines. These locations should not be used for stockpiling of borrow materials. Any conflicts with proposed construction should also be reviewed prior to construction.

12.3 Hazardous Waste Considerations

The project environmental study report should be referred to for further details about any potential hazardous materials within the project site.

12.4 Differing Site Conditions

The soil conditions described in this report are based on available boring data. It should be noted that these borings depict subsurface conditions only at the locations drilled. Because of the variability from place to place within soils in general, and the nature of geologic depositions, subsurface conditions could change between the explored locations.

Early communication should be made between the Resident Engineer, the Contractor, and the Geotechnical Engineer as soon as conditions that differ from those established in this report are recognized by any of the parties. Additional recommendations could be provided if such conditions arise.

13. RECOMMENDATIONS AND SPECIFICATIONS

13.1 Summary of Recommendations

If the designer has questions or concerns with any of these recommendations, or, if conditions are found to be different during construction, the Geotechnical Engineer who prepared this report should be contacted. Additional fieldwork, analysis or changes in recommendations may be required. These services may be provided under a separate authorization, as necessary. A concise summary of the geotechnical recommendations is presented below:

- The subsoil's consist of loose (localized) to very dense silty sand to clayey sand.
- Design peak bedrock acceleration (PBA) = 0.54g.
- Groundwater was not encountered below the existing ground surface, whereas

as-built LOTB (Caltrans 1992) indicated groundwater level at approximately 5 feet depth at the general vicinity of John Muir Parkway South Bound On-Ramp (Elev. 18.6 feet).

- Approximately 2 feet of fill will be required for the proposed embankment construction at the John Muir Parkway South Bound On-Ramp. Based on the fill thickness and subsurface soil conditions settlement due to placement of fill appear to be not a geotechnical concern.
- Based on the embankment slope height (2 feet) and ground conditions, the stability of the proposed embankment does not appear to be a concern.
- Based on the laboratory test results and as per an internal memo from Caltrans the subsoils are considered to be corrosive, and standard Type II modified or Type I-P (MS) modified cement may be used for the concrete substructures.
- Based on discussion with the designer it is preferred to use a pavement section consisting of HMA (A), aggregate base (class 3), aggregate subbase (class 4).

Location	R-Value	TI	Structural Pavement Section					
			Option 1			Option 2	Option 3	
			HMA	AB	AS	HMA (Full Depth)	HMA	AB
New Embankment	15	10 (20 years)	0.55’	0.75’	0.90’	1.20’	0.55’	1.60’
Existing Ramp	25	9 (10 years)	0.45’	0.75’	0.50’	1.00’	0.45’	1.20’
		10 (20years)	0.55’	0.75’	0.60’	1.10’	0.55’	1.30’

Designer may choose the R=15 and TI=10 option for the entire ramp section.

13.2 Recommended Materials Specifications

13.2.1 *Standard Specifications*

Unless otherwise stated in the special provisions, all materials specifications should conform to Caltrans Standard Specifications, May 2006 edition, including but not limited to the following: Earthwork, Structure Backfill, Pervious Backfill Material, Reinforcing Geofabric, Thermoplastic Pipes, Asphalt Concrete, Aggregate Base, Aggregate Subbase, Cement Treated Base, etc.

13.2.2 *Special Provisions*

Imported Borrow:

Imported material should be in accordance with the specifications set forth in Caltrans Section 19. In particular, for new embankment/roadway construction, the material placed within 4 ft of the

finish pavement subgrade should meet the following requirements:

1. Free of organic or other deleterious materials.
2. An R-value of no less than 15.

Aggregate Base: Class 3 aggregate base shall conform to the provisions in Section 26 of the Standard Specifications and to these Special Provisions. It shall also be clean and free from organic matter and other deleterious substances. The percentage composition by weight of Class 3 aggregate base shall conform to the following grading as determined by California Test Method No. 202.

Gradation Requirement (Percent Passing)

Sieve Sizes	1-1/2 inch Maximum		¾ inch Maximum	
	Operating Range	Contract Compliance	Operating Range	Contract Compliance
2”	100	100		
1-1/2”	90 – 100	87 - 100		
1”	--	--	100	100
¾”	50 – 85	45 – 90	90 – 100	87 – 100
No. 4	24 - 45	20 – 50	35 – 60	30 – 65
No. 30	10 – 25	6 – 29	10 – 30	5 – 35
No. 200	2 -11	0 -14	2 -11	0 - 14

Quality requirements

California Test Method	Operating Range	Contract Compliance
Sand Equivalent (217)	25 Min.	22 Min.
Resistance (R-value) (301)	-	78 Min.
Durability Index	-	35 Min.

Aggregate Subbase: Aggregate Subbase shall be Class 4 and shall conform to the provisions in Section 25 of the Standard Specifications and to these Special Provisions. Class 4 aggregate subbase shall be clean and free from organic matter and other deleterious substances. The percentage composition by weight of Class 4 aggregate subbase shall conform to the following grading as determined by California Test Method No. 202.

Gradation Requirement (Percent Passing)

Sieve Sizes	Operating Range	Contract Compliance
2-1/2"	100	100
No. 4	30 – 65	25 – 70
No. 200	0 – 15	0 – 18

Class 4 aggregate subbase shall also conform to the quality requirements given on the following table:

Quality requirements

California Test Method	Operating Range	Contract Compliance
Sand Equivalent (217)	21 Min.	18 Min.
Resistance (R-value) (301)	50	50 Min.

14. INVESTIGATION LIMITATIONS

Our services consist of professional opinions and recommendations made in accordance with generally accepted geotechnical engineering principles and practices and are based on our field exploration and the assumption that the soil conditions do not deviate from observed conditions. No warranty, expressed or implied, of merchantability or fitness, is made or intended in connection with our work or by the furnishing of oral or written reports or findings. The scope of our services did not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in structures, soil, surface water, groundwater or air, below or around this site. Unanticipated soil conditions are commonly encountered and cannot be fully determined by taking soil samples and excavating test borings; different soil conditions may require that additional expenditures be made during construction to attain a properly constructed project. Some contingency fund is thus recommended to accommodate these possible extra costs.

This report has been prepared for the proposed project as described earlier, to assist the engineer in the design of this project. In the event any changes in the design or location of the facilities are planned, or if any variations or undesirable conditions are encountered during construction, our findings and recommendations shall not be considered valid unless the changes or variations are reviewed and our recommendations modified or approved by us in writing.

This report is issued with the understanding that it is the designer's responsibility to ensure that the information and recommendations contained herein are incorporated into the project and that necessary steps are also taken to see that the recommendations are carried out in the field.

The findings in this report are valid as of the present date. However, changes in the soil conditions can occur with the passage of time, whether they are due to natural processes or to the works of man, on this or adjacent properties. In addition, changes in applicable or appropriate standards occur, whether they result from legislation or from the broadening of knowledge. Accordingly, the findings in this report might be invalidated, wholly or partially, by changes outside of our control.

Respectfully submitted,
PARIKH CONSULTANTS, INC.

Lakshmikanth Duddu
Staff Engineer

Gary Parikh, P.E., G.E. 666
Project Manager

S:/ONGOING PROJECTS/2007/209102.JMP

REFERENCES

1. Caltrans as-built Log of Test Borings for Route 80/4 Separation.

2. California Department of Transportation, May 2006, Standard Specifications, Sections 1 through 95.

3. California Department of Transportation, Highway Design Manual, July 2008.

4. California Department of Transportation, Bridge Design Specifications, September 2003.

5. Geologic Map of Dibblee; 1980a and 1981 and Witter, et.al. 2006.

6. Geologic Map of Late Cenozoic Deposits, Alameda County, CA (Helley, Lajoie, and Burk, 1972: Scale 1:62500; USGS Map MF-429).

7. Highway Design Manual, Chapter 600, California Department of Transportation, July 2008.

8. Mualchin, L., A Technical Report to Accompany the Caltrans California Seismic Hazard Map (1996).

9. Mualchin, L.; 1996; Modified from "California Seismic Hazard Map".

10. "Western Regional Climate Center".

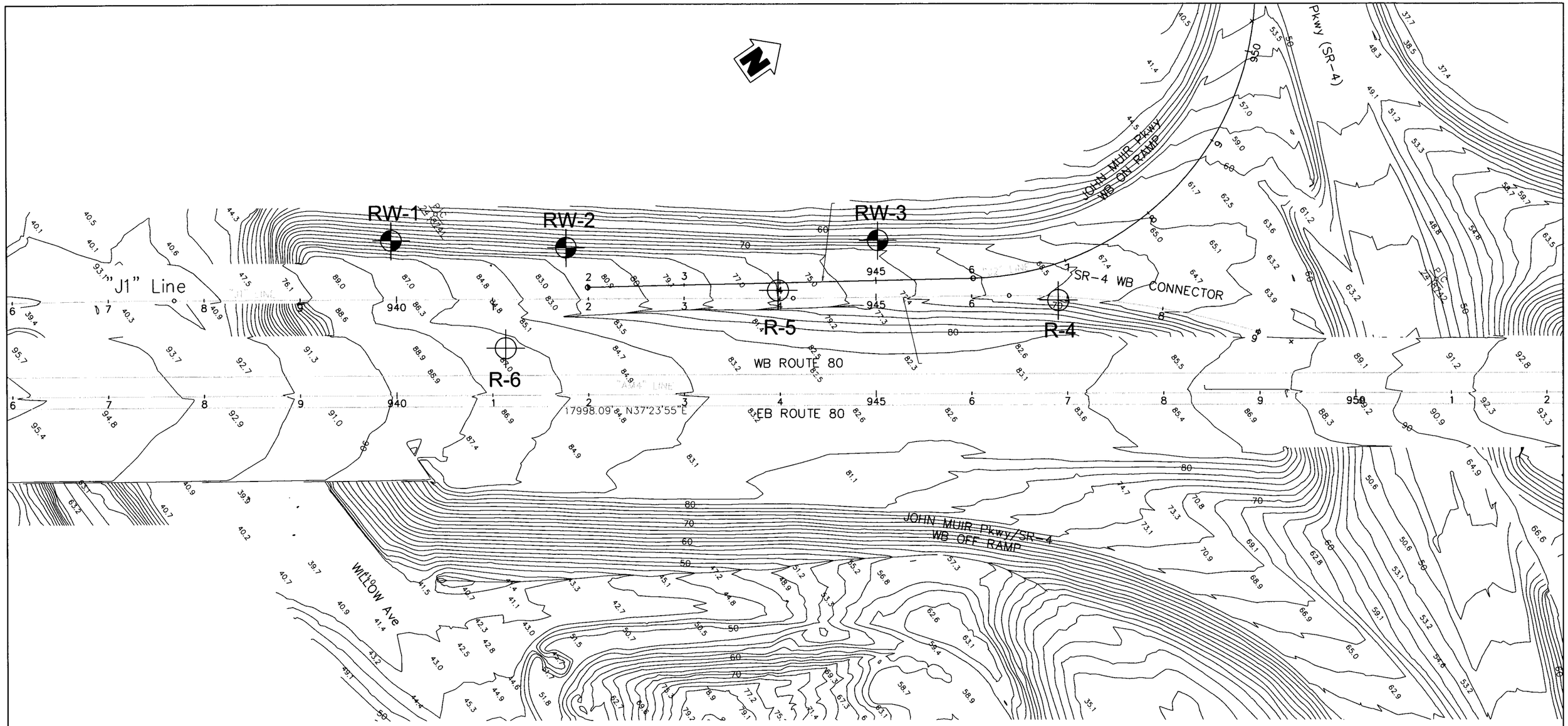
11. Sadigh, K., Chang, C.Y., Egan, J.A., Makdisi, and Youngs, R.R., 1997, "Attenuation Relationships for Shallow Crustal Earthquakes Based on California Strong Motion Data", Seismological Research Letters, Volume 68, No. 1, January/February 1997.

.

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

JOHN MUIR PARK WAY AT I-80
CONTRA COSTA COUNTY, CALIFORNIA

JOB NO.: 209102.JMP	PLATE NO.: 1



LEGEND

RW-1

Approx. Boring Location

R-4

Approx. R-Value Boring Location

0 1 2

PLAN

1" = 50'

Note: All units are in feet unless otherwise specified
Reference Map was provided by Wood Rodgers Inc.

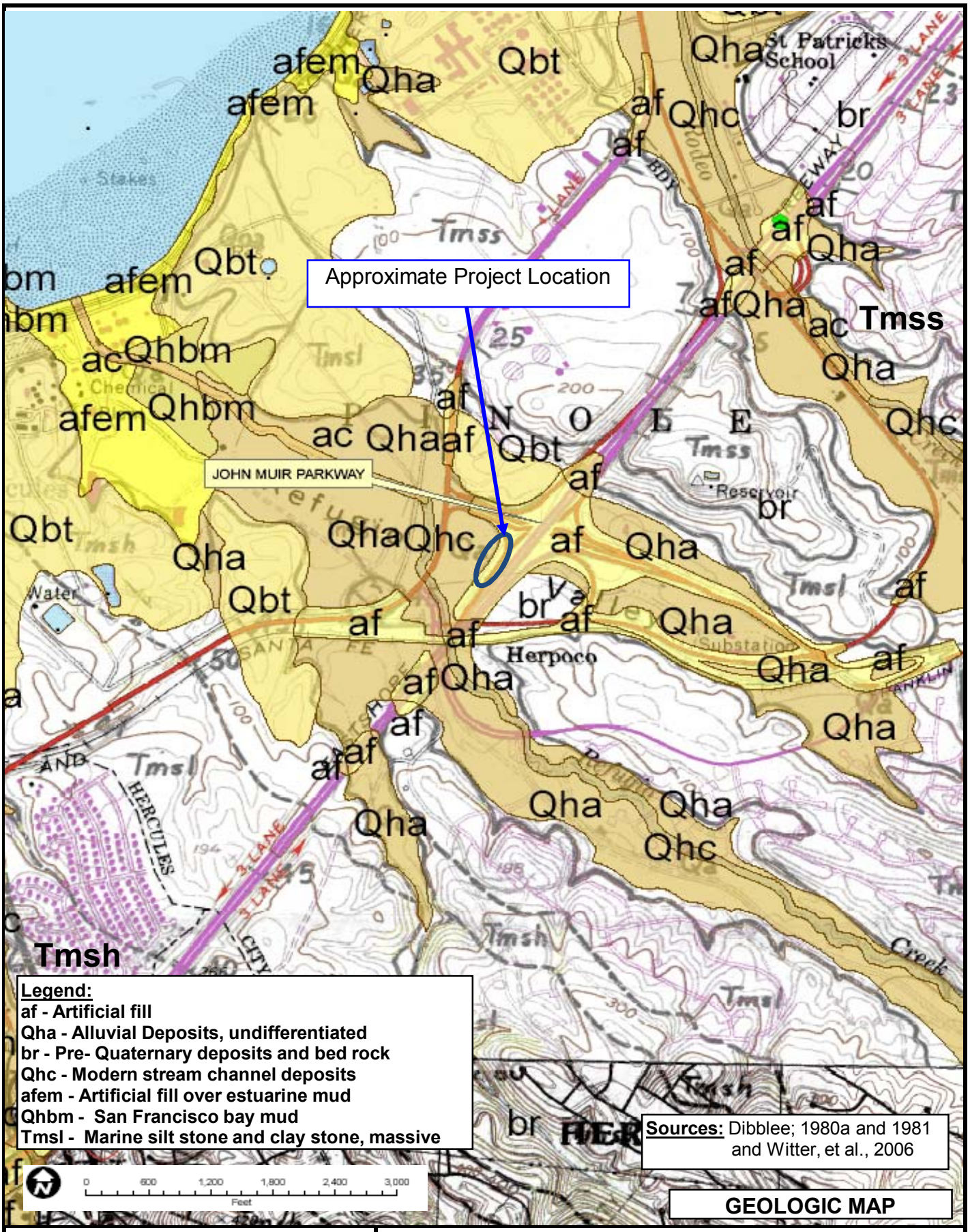
SITE PLAN

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS ENGINEERING

JOHN MUIR PARK WAY AT I-80
CONTRA COSTA COUNTY, CALIFORNIA

JOB NO.: 209102.JMP

PLATE NO: 2

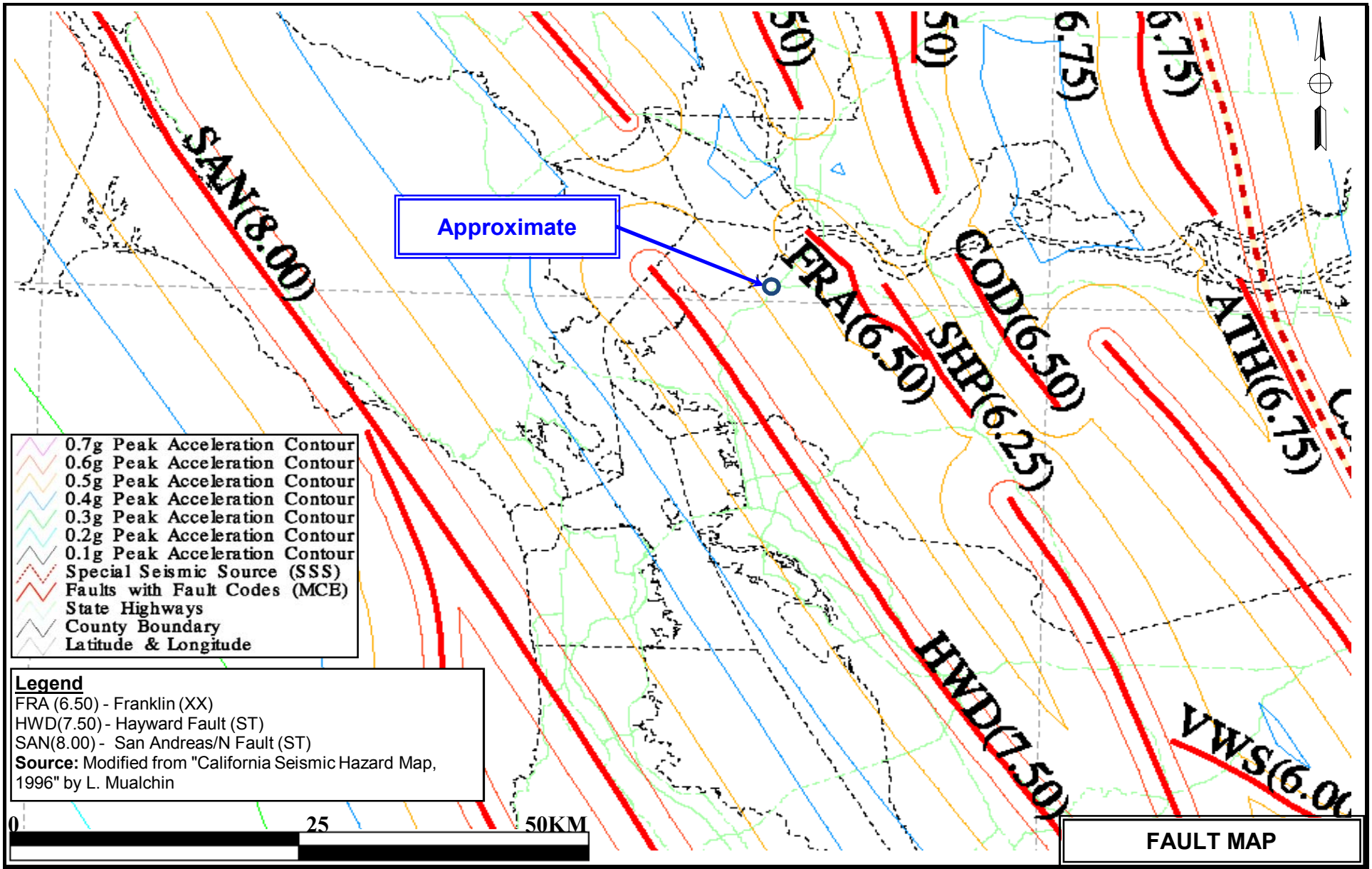


GEOLOGIC MAP

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

JOHN MUIR PARK WAY AT I-80
CONTRA COSTA COUNTY, CALIFORNIA

JOB NO.: 209102.JMP | PLATE NO.: 3



FAULT MAP

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

JOHN MUIR PKWY AT I-80
CONTRA COSTA COUNTY, CALIFORNIA

JOB NO.: 209102.JMP

PLATE NO.: 4

Attenuation Relationships for Shallow Crustal Earthquakes (Sadigh, et al, 1997)

Fault = Franklin Fault (XX) - Not Known

Mw = 6.5 **Rrup = 4.76** **km**

M>=6.5 *ROCK SITE:*

C1 = -1.274 C2 = 1.1 C3 = 0 C4 = -2.1

C5 = -0.48451 C6 = 0.524 C7 = 0

A=C1+C2M+C3(8.5M)^2.5= 5.876

B=C4*Ln(Rrup+exp(C5+C6M))= -6.614

C=C7*Ln(Rrup+2)= 0

Ln(y) = A+B+C = -0.738

y = Exp(Ln(y)) = 0.48 **Peak Bed Rock Acceleration (PBA = 0.48g)**

Fault = Hayward Fault (ST) -Strike-Slip

Mw = 7.5 **Rrup = 5.95** **km**

A= 6.976

B= -7.600

C= 0

Ln(y) = -0.624

y = 0.54 **Peak Bed Rock Acceleration PBA = 0.54g**

Fault = Saline Valley-Hunter Mountain-Panamint Valley/N (NO) - Normal-Oblique

Mw = 6.25 **Rrup = 14.68** **km**

A= 5.601

B= -7.209

C= 0

Ln(y) = -1.608

y = 0.20 **Peak Bed Rock Acceleration PBA = 0.20g**

Fault = San Andreas/N Fault (SRT) - Strike Slip

Mw = 8 **Rrup = 34.52** **km**

A= 7.526

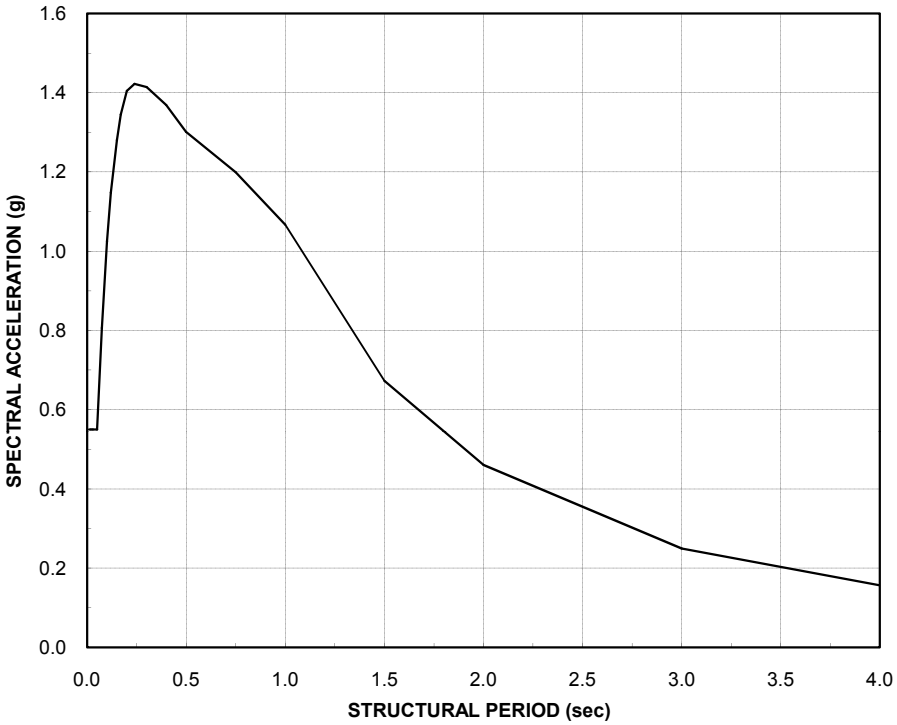
B= -9.074

C= 0

Ln(y) = -1.548

y = 0.21 **Peak Bed Rock Acceleration PBA = 0.21g**

John Muir Parkway at Rte 80



Spectral Data

Period (sec)	Spectral Accel. (g)
0.010	0.550
0.020	0.550
0.030	0.550
0.050	0.550
0.075	0.806
0.100	1.025
0.120	1.148
0.150	1.280
0.170	1.345
0.200	1.404
0.240	1.422
0.300	1.414
0.400	1.369
0.500	1.301
0.750	1.199
1.000	1.067
1.500	0.673
2.000	0.461
3.000	0.250
4.000	0.157

Caltrans SDC (v 1.3, June 2006), Figure B.8,
Governing Fault: Hayward Fault (HWD)
(Mw = 7.50, Soil Profile Type D, PBA = 0.55 g)
with the following modifications:
(1) No change of Sa for structural periods $\leq$ 0.5 sec
(2) 20% increase of Sa for structural periods > 1 sec
(3) Linear interpolation for structural periods between 0.5 and 1 sec

APPENDIX A

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (JUNE 2007)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC	80	9.7/10.0		

REGISTERED ENGINEER-GEOTECHNICAL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER GARY PARIKH No. G.E. 666 Exp. 12/31/09 GEOTECHNICAL STATE OF CALIFORNIA

PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131

ACCMA
1330 BROADWAY
OAKLAND, CALIFORNIA

KIMLEY-HORN & ASSOCIATES, INC.
555 12TH STREET SUITE 1230
OAKLAND, CALIFORNIA 94607

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

GROUP SYMBOLS AND NAMES

Graphic/Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND
GP	Poorly graded GRAVEL Poorly graded GRAVEL with SAND
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)
GP-GM	Poorly graded GRAVEL with SILT Poorly graded GRAVEL with SILT and SAND
GP-GC	Poorly graded GRAVEL with CLAY (or SILTY CLAY) Poorly graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)
GM	SILTY GRAVEL SILTY GRAVEL with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL
SP	Poorly graded SAND Poorly graded SAND with GRAVEL
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)
SP-SM	Poorly graded SAND with SILT Poorly graded SAND with SILT and GRAVEL
SP-SC	Poorly graded SAND with CLAY (or SILTY CLAY) Poorly graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)
SM	SILTY SAND SILTY SAND with GRAVEL
SC	CLAYEY SAND CLAYEY SAND with GRAVEL
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL
PT	PEAT
	COBBLES COBBLES and BOULDERS BOULDERS

Graphic/Symbol	Group Names
CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY ORGANIC elastic SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND

FIELD AND LABORATORY TESTING

- (C) Consolidation (ASTM D 2435)
- (CL) Collapse Potential (ASTM D 5333)
- (CP) Compaction Curve (CTM 216)
- (CR) Corrosivity Testing (CTM 643, CTM 422, CTM 417)
- (CU) Consolidated Undrained Triaxial (ASTM D 4767)
- (DS) Direct Shear (ASTM D 3080)
- (EI) Expansion Index (ASTM D 4829)
- (M) Moisture Content (ASTM D 2216)
- (OC) Organic Content-% (ASTM D 2974)
- (P) Permeability (CTM 220)
- (PA) Particle Size Analysis (ASTM D 422)
- (PI) Plasticity Index (AASHTO T 90) Liquid Limit (AASHTO T 89)
- (PL) Point Load Index (ASTM D 5731)
- (PM) Pressure Meter
- (PP) Pocket Penetrometer
- (R) R-Value (CTM 301)
- (SE) Sand Equivalent (CTM 217)
- (SG) Specific Gravity (AASHTO T 100)
- (SL) Shrinkage Limit (ASTM D 427)
- (SW) Swell Potential (ASTM D 4546)
- (TV) Pocket Torvane
- (UC) Unconfined Compression-Soil (ASTM D 2166) Unconfined Compression-Rock (ASTM D 2938)
- (UU) Unconsolidated Undrained Triaxial (ASTM D 2850)
- (UW) Unit Weight (ASTM D 4767)
- (VS) Vane Shear (AASHTO T 223)

APPARENT DENSITY OF COHESIONLESS SOILS

Description	SPT N_{60} (Blows / 12 inches)
Very loose	0 - 4
Loose	5 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	> 50

MOISTURE

Description	Criteria
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

PERCENT OR PROPORTION OF SOILS

Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5 to 10%
Little	15 to 25%
Some	30 to 45%
Mostly	50 to 100%

PARTICLE SIZE

Description		Size
Boulder		> 12"
Cobble		3" to 12"
Gravel	Coarse	3/4" to 3"
	Fine	No. 4 to 3/4"
Sand	Coarse	No. 10 to No. 4
	Medium	No. 40 to No. 10
	Fine	No. 200 to No. 40

CEMENTATION

Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

CONSISTENCY OF COHESIVE SOILS

Description	Unconfined Compressive Strength (tsf)	Pocket Penetrometer Measurement (tsf)	Torvane Measurement (tsf)	Field Approximation
Very Soft	< 0.25	< 0.25	< 0.12	Easily penetrated several inches by fist
Soft	0.25 to 0.50	0.25 to 0.50	0.12 to 0.25	Easily penetrated several inches by thumb
Medium Stiff	0.50 to 1.0	0.50 to 1.0	0.25 to 0.50	Penetrated several inches by thumb with moderate effort
Stiff	1 to 2	1 to 2	0.50 to 1.0	Readily indented by thumb but penetrated only with great effort
Very Stiff	2 to 4	2 to 4	1.0 to 2.0	Readily indented by thumbnail
Hard	> 4.0	> 4.0	> 2.0	Indented by thumbnail with difficulty

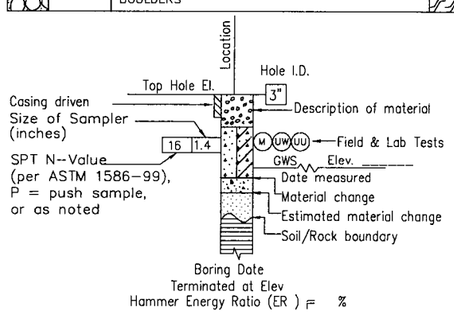
PLASTICITY OF FINE-GRAINED SOILS

Description	Criteria
Nonplastic	A 1/8-inch thread cannot be rolled at any water content.
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.

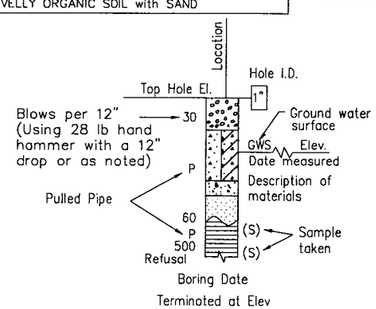
BOREHOLE IDENTIFICATION

Symbol	Hole Type	Description
Size	A	Auger Boring
Size	R P	Rotary drilled boring Rotary percussion boring (air)
Size	R	Rotary drilled diamond core
Size	HD HA	Hand driven (1-inch soil tube) Hand Auger
●	D	Dynamic Cone Penetration Boring
▲	CPT	Cone Penetration Test (ASTM D 5778-95)
□	O	Other

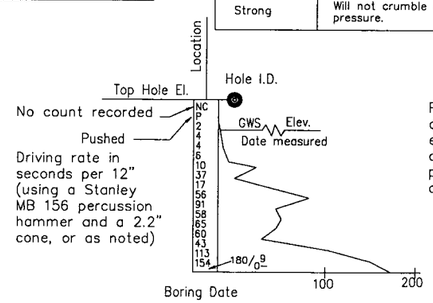
Note: Size in inches.



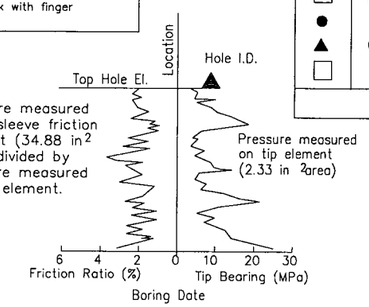
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) SOUNDING

ENGINEERING SERVICES	GEOTECHNICAL SERVICES
PREPARED BY	L. Duddu
CHECKED BY	D. WANG

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH

BRIDGE NO.
POST MILE

SOIL LEGEND
LOG OF TEST BORINGS

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 00000
EA 3A7761

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES

SHEET OF

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC	80	9.7/10.0		

REGISTERED ENGINEER-GEOTECHNICAL

PLANS APPROVAL DATE

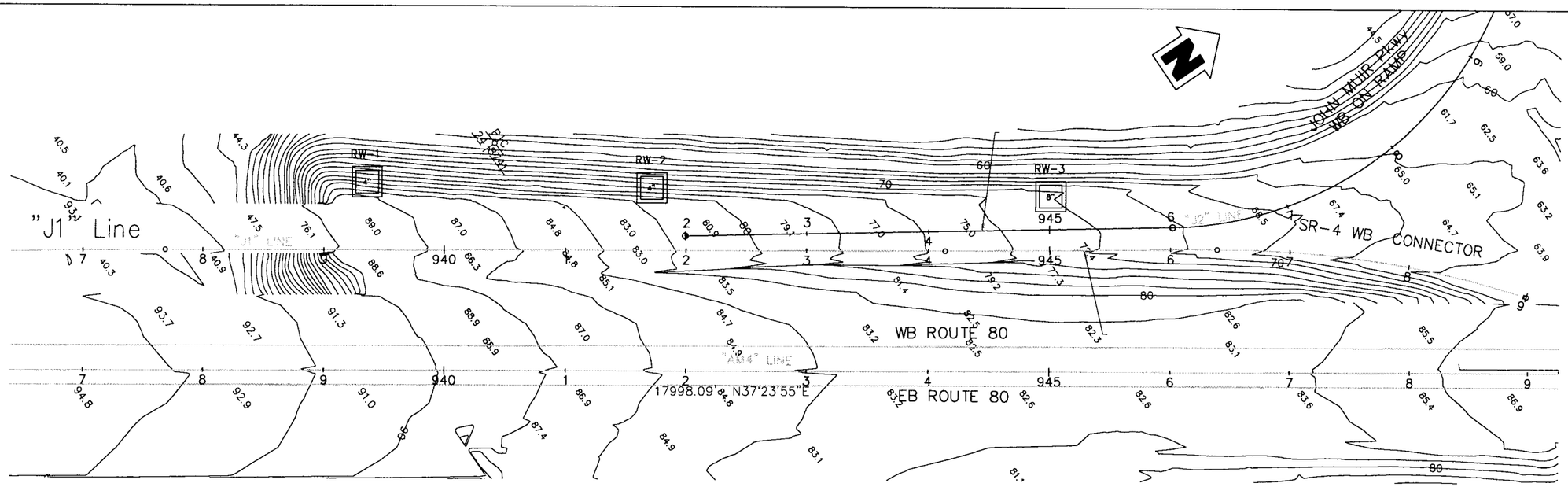
REGISTERED PROFESSIONAL ENGINEER GARY PARIKH No. GE 666 Exp.12/31/09 GEOTECHNICAL STATE OF CALIFORNIA

PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131

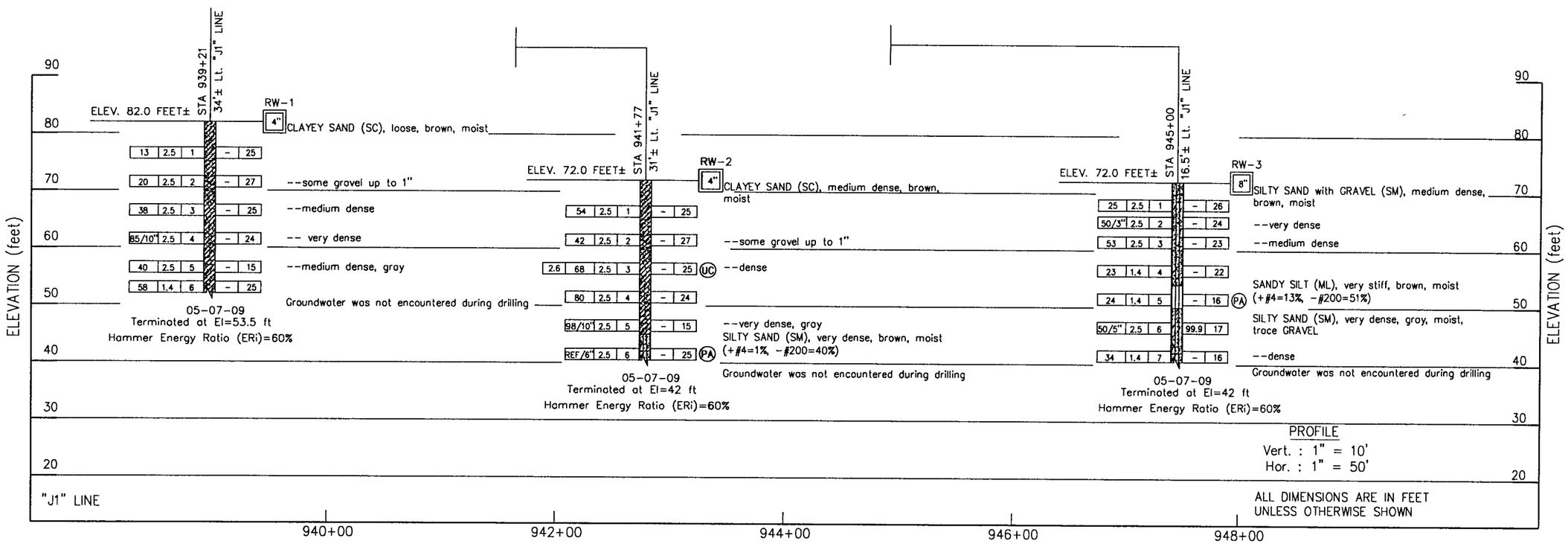
ACCMA
1330 BROADWAY
OAKLAND, CALIFORNIA

KIMLEY-HORN & ASSOCIATES, INC.
555 12TH STREET SUITE 1230
OAKLAND, CALIFORNIA 94607

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



PLAN
1" = 50'



PROFILE
Vert. : 1" = 10'
Hor. : 1" = 50'

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE SHOWN

G.PARIKH DESIGN OVERSIGHT	DRAWN BY	L. Duddu	L. Bhongoo FIELD INVESTIGATION BY:	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	G. Parikh PROJECT ENGINEER
SIGN OFF DATE	CHECKED BY	D. Wang	DATE: MAY 2009		

BRIDGE NO. ---

POST MILES ---

JOHN MUIR PARKWAY AT ROUTE 80

LOG OF TEST BORINGS

CU 00000
EA 3A7761

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES | SHEET | OF

OGS GEOTECHNICAL LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 06-01-09)

TO ACCOMPANY PLANS DATED 8-10-92

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC	80	10.0/11.3	33	45

REG. DIST. NO.	STATE	FEDERAL AID NO.	FEDERAL FUND	SHEET NO.	TOTAL SHEETS
7	CAL.	BRC-1184 (1)		119	187

DIST.	COUNTY	ROUTE	POST MILES	SHEET NO.	TOTAL SHEETS
7/12	CC	14-6	17	44	

REGISTERED PROFESSIONAL ENGINEER
KEITH J. GOODSELL
No. 2166
2/3/95
GEOTECHNICAL
STATE OF CALIFORNIA

Martin D. Hendrickson

The As-Built Log of Test Boring Sheets were used to prepare the geotechnical report.

AS BUILT

CORRECTIONS BY J. TOM (A.L. 1-4-94)

CONTRACT NO. 04-133064

DATE 5-5-93

NO AS BUILT CHANGES

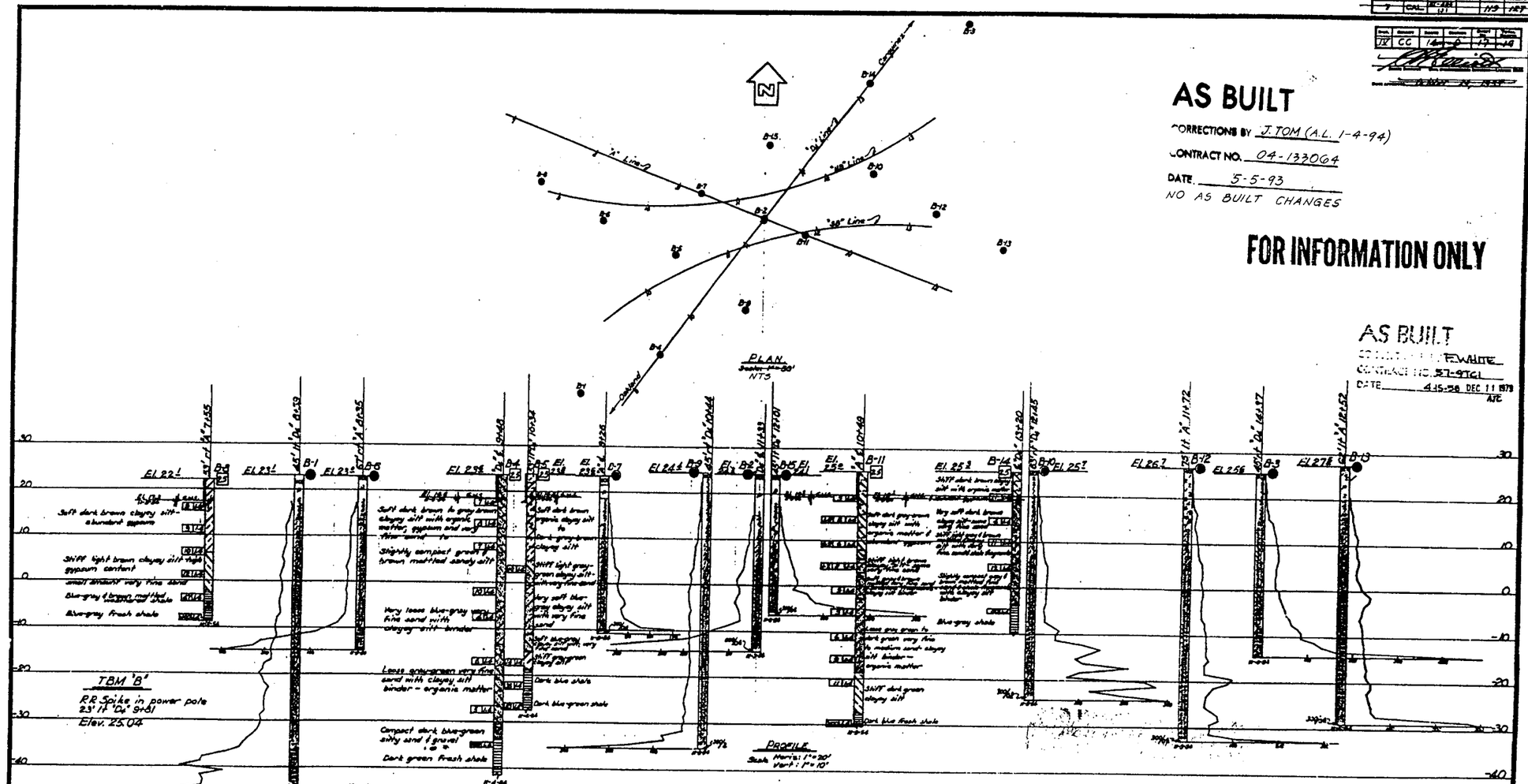
FOR INFORMATION ONLY

AS BUILT

CONTRACTOR F.E. WHITE

CONTRACT NO. 57-97GL

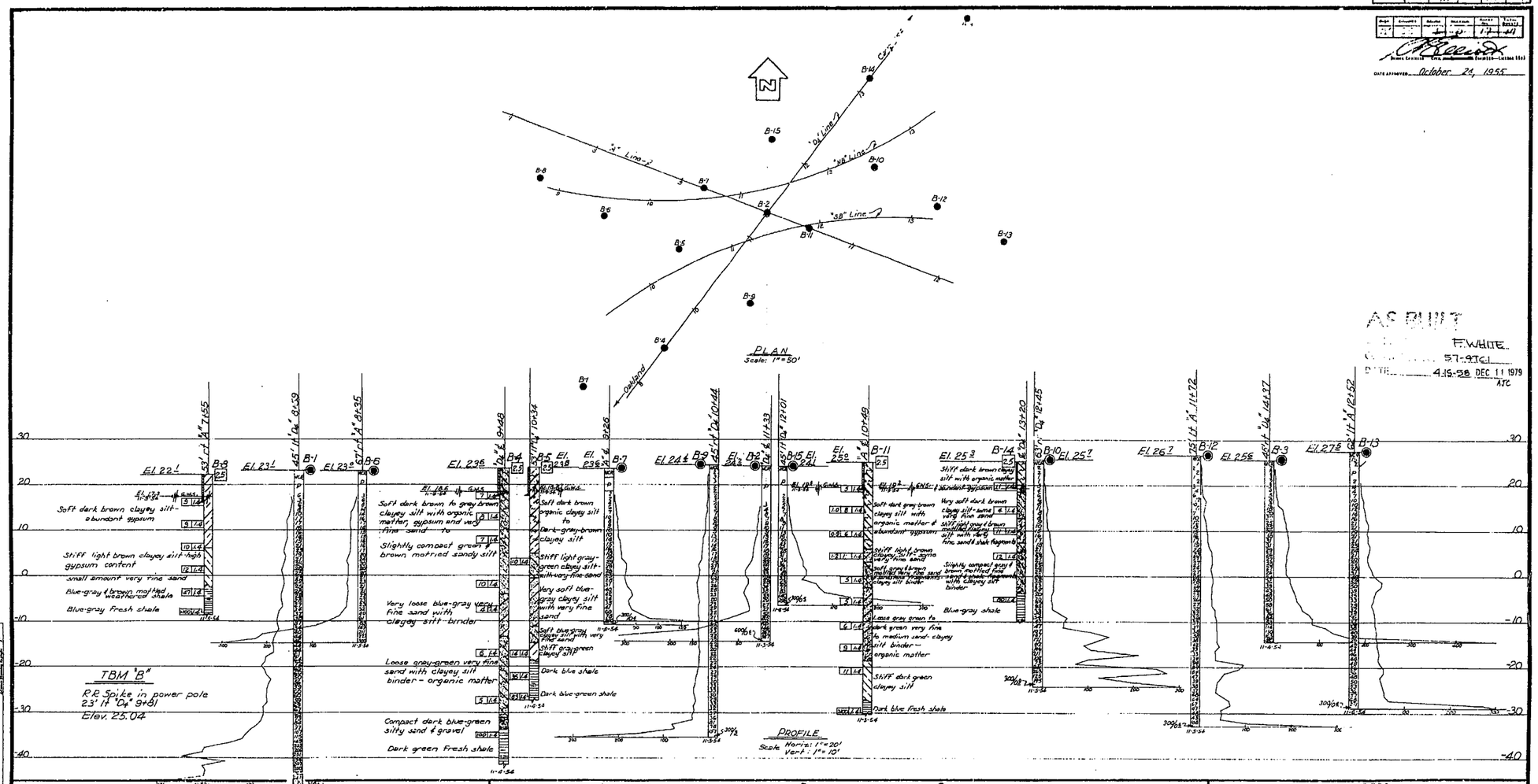
DATE 4-15-58 DEC 11 1978


PLAN
Scale: 1"=30'
NTS
"A" Line
"B" Line
"BB" Line
"BB" Line
Centerline
PROFILE
Scale: Horiz: 1"=20' Vert: 1"=10'
TBM 'B'
RR Spike in power pole 23' rt "Da" St-B1
Elev. 25.04
Stiff dark brown clayey silt - abundant gypsum
Stiff light brown clayey silt high gypsum content
Blue-gray fresh shale
Dark blue fresh shale
Dark green fresh shale
Compact dark blue-green silty sand & gravel
Dark blue-green shale
Very loose blue-gray very fine sand with clayey silt binder
Loose olive-green very fine sand with clayey silt binder - organic matter
Slightly compact green & brown mottled sandy silt
Soft dark brown to gray-brown clayey silt with organic matter, gypsum and sand
Soft dark brown clayey silt to dark gray-brown clayey silt
Stiff light gray-green clayey silt with very fine sand
Very soft blue-gray clayey silt with very fine sand
Stiff dark green clayey silt
Very soft dark brown clayey silt with organic matter
Dark green very fine to medium sandy clayey silt binder - organic matter
Blue-gray shale
Dark blue fresh shale
Dark blue-green shale
EL 22.1
EL 23.1
EL 23.6
EL 23.8
EL 24.4
EL 25.3
EL 25.7
EL 26.7
EL 25.6
EL 27.8
B-1
B-2
B-3
B-4
B-5
B-6
B-7
B-8
B-9
B-10
B-11
B-12
B-13
B-14
B-15
B-16
B-17
B-18
B-19
B-20
B-21
B-22
B-23
B-24
B-25
B-26
B-27
B-28
B-29
B-30
B-31
B-32
B-33
B-34
B-35
B-36
B-37
B-38
B-39
B-40

FED. ROAD DIST.	STATE	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CAL		119	121

DATE APPROVED October 24, 1955

BRIDGE DEPARTMENT



AS BUILT
F. WHITE
57-97C1
4.16-58 DEC 11 1979
ATC

CLASSIFICATION OF MATERIAL BASED ON STANDARD GRADE SIZE LIMITS

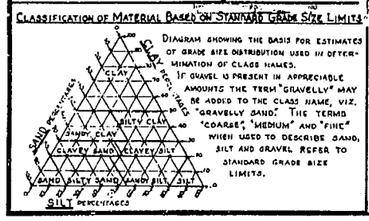


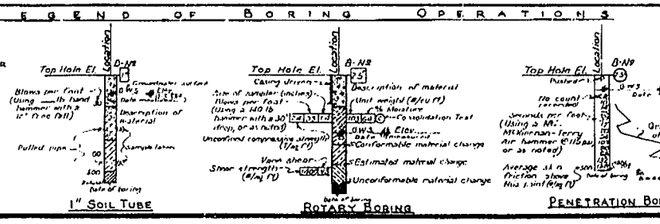
DIAGRAM SHOWING THE BASIS FOR ESTIMATES OF GRADE SIZE DISTRIBUTION USED IN DETERMINATION OF CLASS NAMES.
IF GRAVEL IS PRESENT IN APPRECIABLE AMOUNTS THE TERM "GRAVELLY" MAY BE ADDED TO THE CLASS NAME, VIZ. "GRAVELLY SAND". THE TERMS "COARSE", "MEDIUM" AND "FINE" WHEN USED TO DESCRIBE SAND, SILT AND GRAVEL REFER TO STANDARD GRADE SIZE LIMITS.

LEGEND OF EARTH MATERIALS

- GRAVEL
- SAND
- SILT
- CLAY
- SANDY CLAY OR CLAYEY SAND
- SANDY SILT OR SILTY SAND
- SILTY CLAY OR CLAYEY SILT
- PEAT AND/OR ORGANIC MATTER
- FILL MATERIAL
- IGNEOUS ROCK
- SEDIMENTARY ROCK
- METAMORPHIC ROCK

LEGEND OF BORING OPERATIONS

- PLAN OF ANY BORING
- PENETROMETER
- 2½" CONE PENETROMETER
- SAMPLER BORING (DRY)
- ROTARY BORING (WET)
- AUGER BORING (DRY)
- JET BORING
- CORE BORING
- TEST PIT



NOTES

The contractor's attention is directed to Section 2, Article (c) of the Standard Specifications and to the Special Provisions accompanying this set of plans.
Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

Rte. 14/108 Separation

LOG OF TEST BORINGS

SCALE As shown | BRIDGE 28-49 | FILE 1-4 | DRAWING C-4126-17

AS BUILT PLANS
Contract No. 57-4TC1
Date Completed
Document No. 40002337

I HEREBY CERTIFY THAT THIS IS A TRUE AND ACCURATE COPY OF THE ABOVE DOCUMENT TAKEN UNDER MY DIRECTION AND CONTROL ON THIS DATE IN SACRAMENTO, CALIFORNIA PURSUANT TO AUTHORIZATION BY THE DIRECTOR OF TRANSPORTATION.

DATE 1-28-80 | SIGNED | TITLE SUPERVISOR OF MICROFILM SERVICES

ClibPDF - www.fastio.com

APPENDIX B

APPENDIX B

LABORATORY TESTS

Classification Tests
The field classification of the samples was visually verified in the laboratory according to the Unified Soil Classification System. The results are presented in "Log of Test Borings", Appendix A.

Moisture-Density
The natural moisture contents and dry unit weights were determined for selected undisturbed samples of the soils in general accordance with ASTM Test Method D 2216-92. This information was used to classify and correlate the soils. The results are presented at the appropriate depths In "Log of Test Borings", Appendix A.

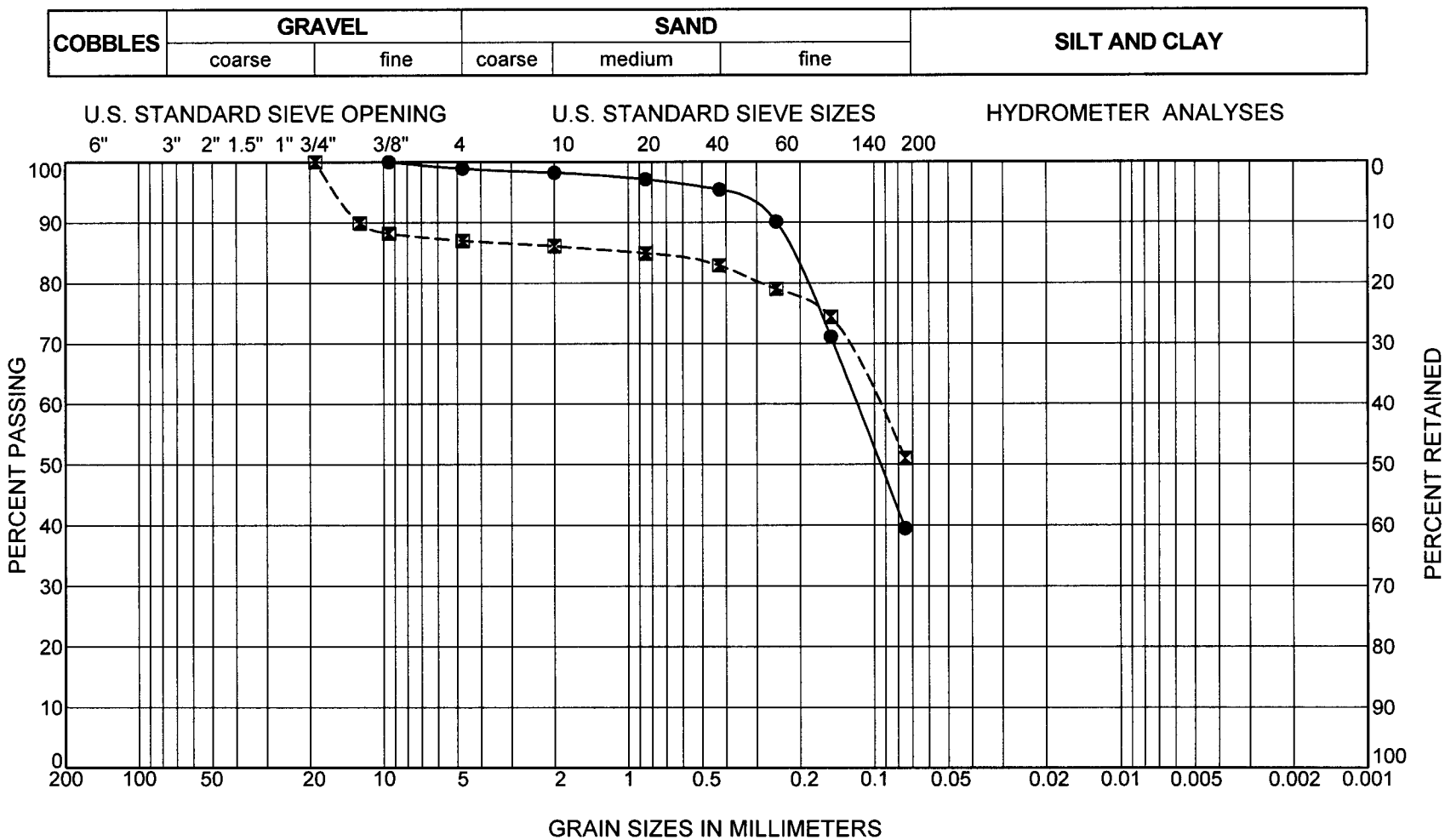
Grain Size Classification
Grain size classification tests (ASTM Test Method D422-63) were performed on selected samples of granular soil to aid in the classification. The results are presented on "Grain Size Distribution Curves", Plate B-2, Appendix B.

Unconfined Compression Tests
Strength tests were performed on selected undisturbed samples using unconfined compression machine. Unconfined compression tests were performed in general accordance with ASTM Test Method D 2166-91. The results are presented in "Log of Test Borings", Appendix A.

Corrosion Tests
Corrosion tests were performed on selected samples to determine the corrosion potential of the soils. The pH and minimum resistively tests were performed according to California Test Method 643. The tests were performed by Sunland Analytical. The test results are presented on Plate B-3A to Plate B-3B, Appendix B.

R-value Tests
R-value tests were performed on representative bulk samples for pavement design. The tests were performed by Cooper Testing Laboratory. The test results are presented in Plate B-4A to Plate B-4B, Appendix B.

GRAIN SIZE DISTRIBUTION CURVES



Boring Number	Sample Number	Depth (feet)	Symbol	LL	PI	Description
RW-2	MC-6	29.5	●			SILTY SAND (SM)
RW-3	SPT-5	19.5	⊠			SANDY SILT (ML)

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS ENGINEERING

JOB NO: 209102.JMP

JOHN MUIR PKWY AT RTE 80
CONTRA COSTA COUNTY, CALIFORNIA

PLATE NO: B-2

Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 06/10/2009
Date Submitted 06/05/2009

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 209102.JMP Site ID : R4 @0-5'.
Thank you for your business.

* For future reference to this analysis please use SUN # 55831-112565.

EVALUATION FOR SOIL CORROSION

Soil pH	7.20		
Minimum Resistivity	0.40 ohm-cm (x1000)		
Chloride	58.1 ppm	00.00581	%
Sulfate	434.0 ppm	00.04340	%

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

RECEIVED
JUN 12 2009
By

PLATE NO: B-3A

Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 06/10/2009
Date Submitted 06/05/2009

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 209102.JMP Site ID : R6 @0-5'.
Thank you for your business.

* For future reference to this analysis please use SUN # 55831-112564.

EVALUATION FOR SOIL CORROSION

Soil pH	7.48	
Minimum Resistivity	0.35 ohm-cm (x1000)	
Chloride	62.7 ppm	00.00627 %
Sulfate	526.2 ppm	00.05262 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

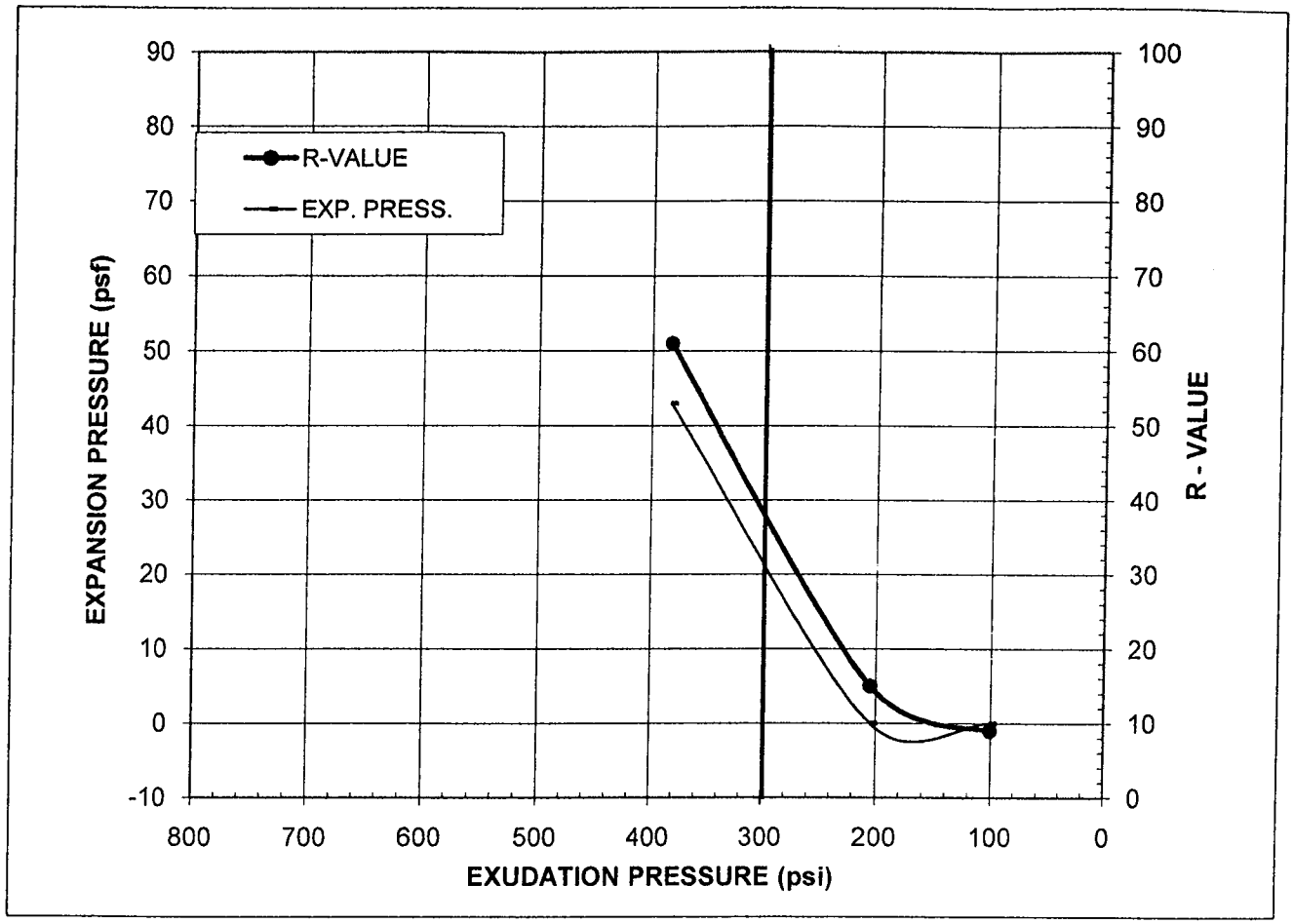
RECEIVED
JUN 12 2009

PLATE NO: B-3B

R-VALUE REPORT

Parikh Consultants, Inc. ASTM D2844 or CTM 301 (408) 452-9000

Project Name:	John Muir Parkway at Rte 80	Date:	6/8/09
Client:	Kimley - Horn & Associates, Inc	Project #:	209102. JMP
Sample #:	R-4 Depth: 0' - 5'	Lab #:	M752
Location / Source:	Onsite / Native	Sample Date:	
Material :	Silty Sand, yellowish brown	Sampled By:	



Specimen No.	A	B	C
Exudation Pressure, psi	101	205	383
Expansion Pressure, psf	0	0	43
R-Value	9	15	61
Moisture Content at Test, %	22.1	20.2	18.2
Dry Density at Test, pcf	99.9	102.1	102.9

R-Value @ 300 psi Exudation Pressure = 37

Expansion Pressure @300 psi Exudation, psf = **20**

Minimum R-Value Requirement:

Comments:

Report By: Prav Dayah

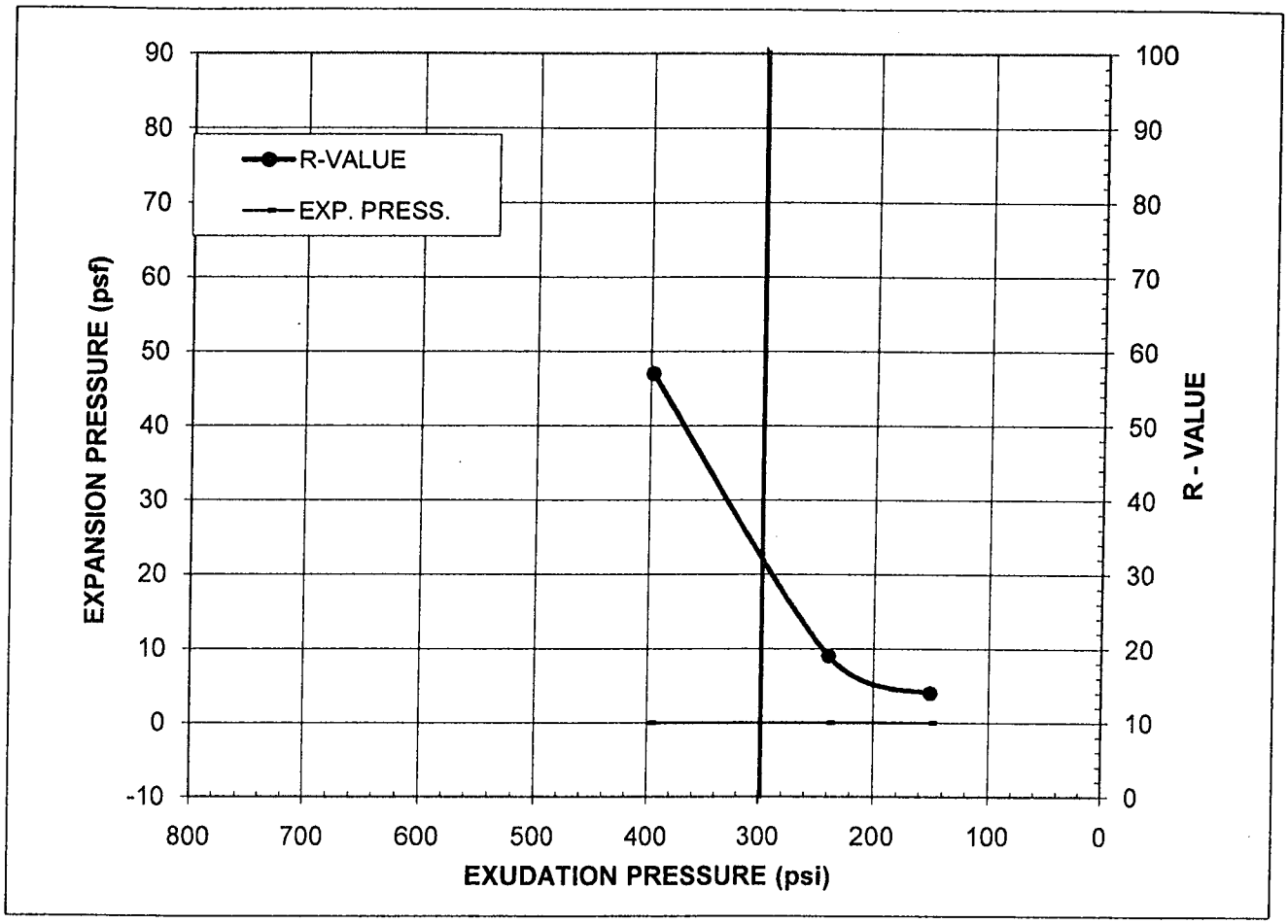
PLATE NO.: B-4A

RVALUE with calcs pdp

R-VALUE REPORT

Parikh Consultants, Inc. ASTM D2844 or CTM 301 (408) 452-9000

Project Name:	John Muir Parkway at Rte 80	Date:	6/8/09
Client:	Kimley - Horn & Associates, Inc	Project #:	209102. JMP
Sample #: R-6	Depth: 0' - 5'	Lab #:	M752
Location / Source:	Onsite / Native	Sample Date:	
Material :	Silty Sand, yellowish brown	Sampled By:	



Specimen No.	A	B	C
Exudation Pressure, psi	151	239	398
Expansion Pressure, psf	0	0	0
R-Value	14	19	57
Moisture Content at Test, %	21.0	20.0	19.1
Dry Density at Test, pcf	102.3	104.9	106.7

R-Value @ 300 psi Exudation Pressure = 32

Expansion Pressure @300 psi Exudation, psf = **0**

Minimum R-Value Requirement:

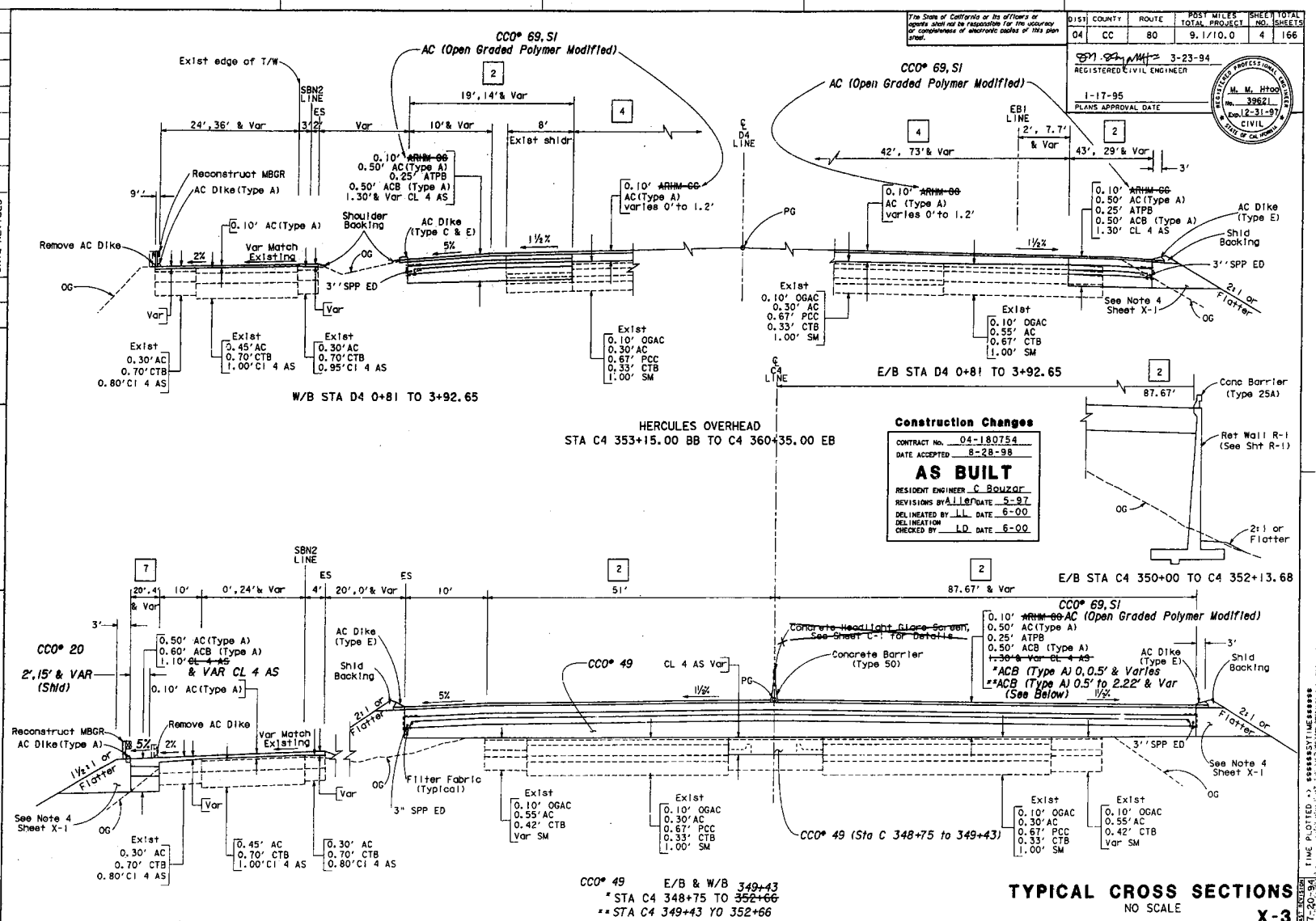
Comments:

Report By: Prav Dayah

PLATE NO.: B-4B

RVALUE with calcs pdp

APPENDIX C


The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.
DIST 04 | COUNTY CC | ROUTE 80 | POST MILES TOTAL PROJECT 9.1/10.0 | SHEET NO. 4 | TOTAL SHEETS 166
REGISTERED CIVIL ENGINEER 3-23-94
1-17-95 PLANS APPROVAL DATE
M. M. Htoo No. 39621 Exp. 12-31-97 CIVIL STATE OF CALIFORNIA
CCO* 69, SI
AC (Open Graded Polymer Modified)
Exist edge of T/W
SBN2 LINE
ES
24', 36' & Var
3'/2'
Var
19', 14' & Var
10' & Var
8'
Exist shldr
0.10' ~~ARHM-GG~~
0.50' AC (Type A)
0.25' ATPB
0.50' ACB (Type A)
1.30' & Var CL 4 AS
Reconstruct MBGR
AC Dike (Type A)
9'
Remove AC Dike
OG
2%
Var Match Existing
0.10' AC (Type A)
Shoulder Backing
AC Dike (Type C & E)
5%
3" SPP ED
Var
Exist 0.30' AC 0.70' CTB 0.80' Cl 4 AS
Exist 0.45' AC 0.70' CTB 1.00' Cl 4 AS
Exist 0.30' AC 0.70' CTB 0.95' Cl 4 AS
0.10' ~~ARHM-GG~~ AC (Type A) varies 0' to 1.2'
1½%
Exist 0.10' OGAC 0.30' AC 0.67' PCC 0.33' CTB 1.00' SM
W/B STA D4 0+81 TO 3+92.65
℄ D4 LINE
PG
HERCULES OVERHEAD
STA C4 353+15.00 BB TO C4 360+35.00 EB
℄ C4 LINE
EB1 LINE
2', 7.7' & Var
42', 73' & Var
43', 29' & Var
3'
0.10' ~~ARHM-GG~~ AC (Type A) varies 0' to 1.2'
0.10' ~~ARHM-GG~~ 0.50' AC (Type A) 0.25' ATPB 0.50' ACB (Type A) 1.30' CL 4 AS
AC Dike (Type E)
Shld Backing
3" SPP ED
2:1 or Flatter
See Note 4 Sheet X-1
Exist 0.10' OGAC 0.30' AC 0.67' PCC 0.33' CTB 1.00' SM
Exist 0.10' OGAC 0.55' AC 0.67' CTB 1.00' SM
E/B STA D4 0+81 TO 3+92.65
Construction Changes
CONTRACT No. 04-180754
DATE ACCEPTED 8-28-98
AS BUILT
RESIDENT ENGINEER C Bouzar
REVISIONS BY Allen DATE 5-97
DELINEATED BY LL DATE 6-00
DELINEATION CHECKED BY LD DATE 6-00
87.67'
Conc Barrier (Type 25A)
Ret Wall R-1 (See Sht R-1)
E/B STA C4 350+00 TO C4 352+13.68
20', 4' & Var
10'
0', 24' & Var
4'
20', 0' & Var
51'
87.67' & Var
CCO* 20
2', 15' & VAR (Shld)
0.50' AC (Type A)
0.60' ACB (Type A)
1.10' ~~CL 4 AS~~ & VAR CL 4 AS
0.10' AC (Type A)
Reconstruct MBGR
AC Dike (Type A)
Remove AC Dike
Var Match Existing
1½:1 or Flatter
See Note 4 Sheet X-1
Filter Fabric (Typical)
3" SPP ED
CCO* 49
CL 4 AS Var
Concrete Headlight Glare Screen, See Sheet C-1 for Details
Concrete Barrier (Type 50)
0.10' ~~ARHM-GG~~ AC (Open Graded Polymer Modified)
0.50' AC (Type A)
0.25' ATPB
0.50' ACB (Type A)
~~1.30' & Var CL 4 AS~~
*ACB (Type A) 0.0.5' & Varies
**ACB (Type A) 0.5' to 2.22' & Var (See Below)
Exist 0.10' OGAC 0.55' AC 0.42' CTB Var SM
Exist 0.10' OGAC 0.30' AC 0.67' PCC 0.33' CTB 1.00' SM
CCO* 49 (Sta C 348+75 to 349+43)
Exist 0.10' OGAC 0.30' AC 0.67' PCC 0.33' CTB 1.00' SM
Exist 0.10' OGAC 0.55' AC 0.42' CTB Var SM
CCO* 49 E/B & W/B
* STA C4 348+75 TO ~~352+66~~ 349+43
** STA C4 349+43 YO 352+66
TYPICAL CROSS SECTIONS
NO SCALE
X-3
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT
PROJECT ENGINEER M. HTOO
CALCULATED/DESIGNED BY
CHECKED BY
DATE REVISED BY
DATE REVISED
FORM OC-OE-92-PF (REV. 3/88)
FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3
USERNAME => $$$$$$USER$$$$$$
DGN FILE => $$$$$$$$$$DGNSPEC$$$$$$$$$$
CU 04227
EA 180751
LAST REVISION 07-20-94
TIME PLOTTED => $$$$$$$$TIME$$$$$$$$

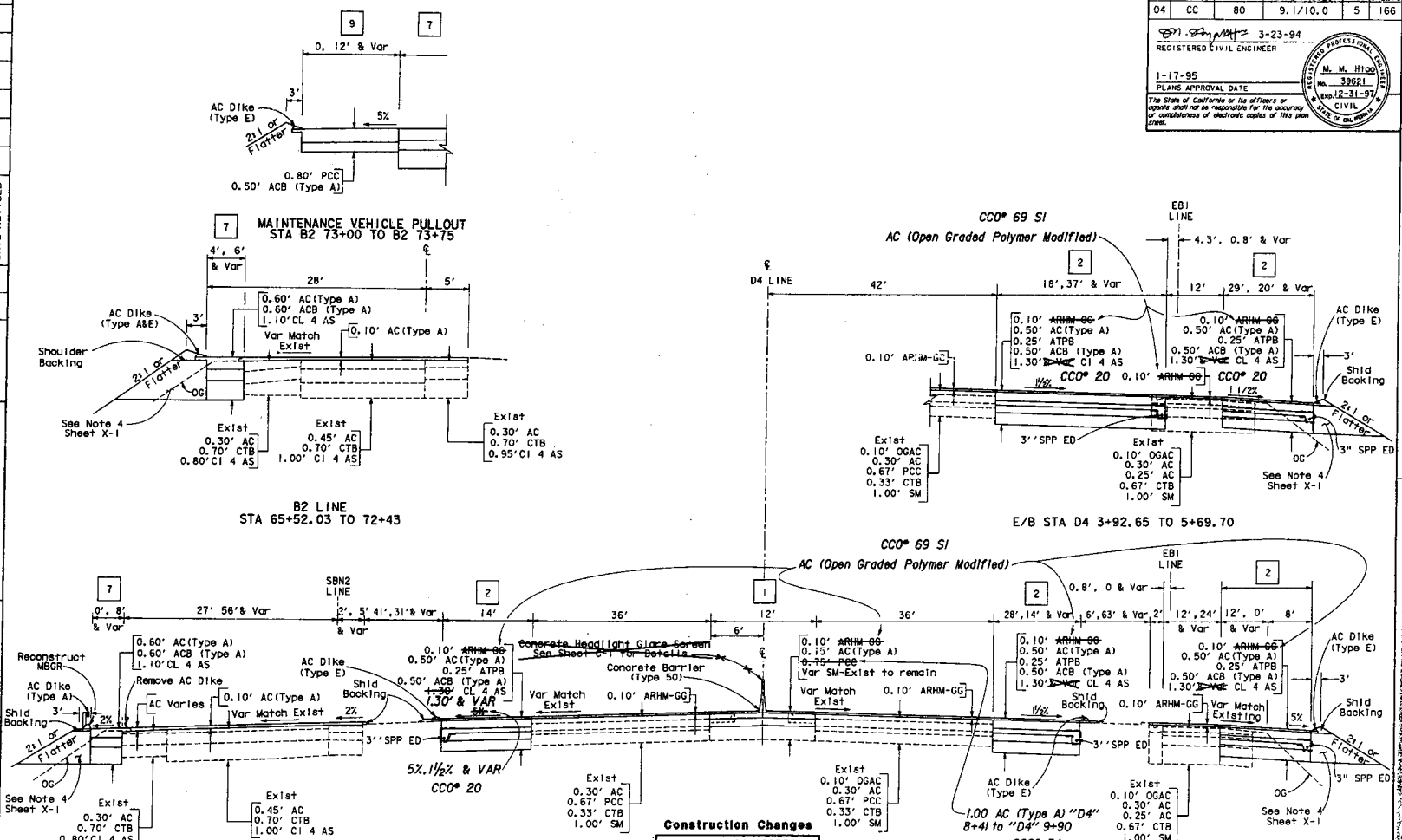
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC	80	9.1/10.0	5	166

REGISTERED CIVIL ENGINEER 3-23-94

1-17-95
PLANS APPROVAL DATE

M. M. Htoo No. 39621 Exp. 12-31-97 CIVIL STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT

PROJECT ENGINEER M. HTOO

CALCULATED/DESIGNED BY | CHECKED BY | DATE | REVISED BY | DATE REVISED

TYPICAL CROSS SECTIONS
NO SCALE

X-4

FORM DC-OE-92-PF (REV. 3/88)

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3

USERNAME => $$$$$$USER$$$$$$
DGN FILE => $$$$$$$$$$DGNSPEC$$$$$$$$$$

CU 04227 | EA 180751

PAVEMENT DESIGN (JOHN MUIR PARK WAY AT I-80 :RAMPS)

PER HIGHWAY DESIGN MANUAL, CHAP. 600

PROJECT NAME: JOHN MUIR PARK WAY AT I-80 IMPROVEMENTS
PROJECT NO.: 209102.JMP

Design Case: AC over AB

Design TI=	***9***	input
R_{BS}=	***25***	input
R_{AB}=	78	

$GE_{HMA+AB} = 0.0032*TI*(100-R_{BS}) =$ 2.16

$GE_{HMA} = 0.0032*TI*(100-R_{AB}) =$ 0.63

=> GE'_{HMA} = 0.83 (add 0.2 ft safety factor)

HMA Thickness = 0.44 ft

=> HMA Thickness = **0.45** ft (round up to the nearest 0.05 ft)

$G_{f,\,HMA}$ = 1.89

GE_{HMA} = 0.85

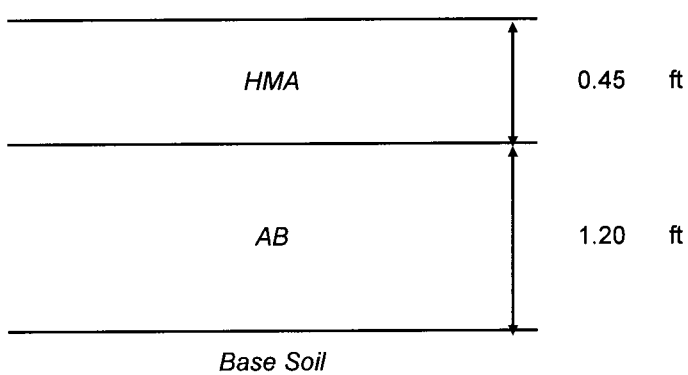
$GE_{AB} = GE_{HMA+AB} - GE_{HMA} =$ 1.31

AB thickness= 1.19 ft

=> AB Thickness= **1.20** ft (round up to the nearest 0.05 ft)

GE_{AB}= 1.32 $G_{f,\,AB}$=1.1

Design Section:



PAVEMENT DESIGN (JOHN MUIR PARK WAY AT I-80 :RAMPS)

PER HIGHWAY DESIGN MANUAL, CHAP. 600

PROJECT NAME: JOHN MUIR PARK WAY AT I-80 IMPROVEMENTS
PROJECT NO.: 209102.JMP

Design Case: AC over AB over AS

Design TI=	***9***	input
R_{BS}=	***25***	input
R_{AB}=	78	
R_{AS}=	50	check

$GE_{TOTAL} = 0..0032*TI*(100-R_{BS}) =$ 2.16

$GE_{HMA} = 0.0032*TI*(100-R_{AB}) =$ 0.63

=> GE'_{HMA} = 0.83 (add 0.2 ft safety factor)

HMA thickness = 0.44 ft

=> HMA Thickness= **0.45** ft (round up to the nearest 0.05 ft)

$G_{f,\ HMA}$= 1.89

GE_{HMA}= 0.85

$GE_{AB+HMA} = 0.0032*TI*(100-R_{AS}) =$ 1.44

=> GE_{HMA+AB}= 1.64 (add 0.2 ft safety factor)

$GE_{AB} = GE_{HMA+AB} - GE_{HMA} =$ 0.79

=> AB thickness= 0.72

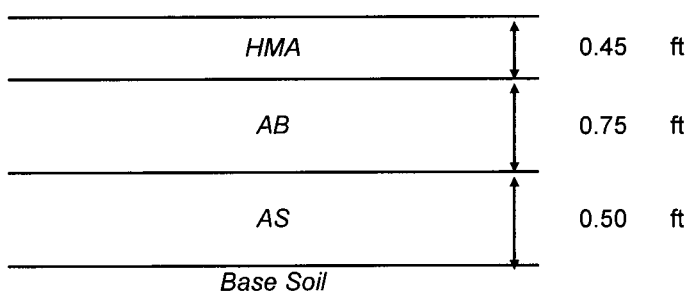
=> AB Thickness= **0.75** ft (round up to the nearest 0.05 ft)

GE_{AB}= 0.83 $G_{f,\ AB}$=1.1

$GE_{AS} = GE_{TOTAL} - GE_{AB} - GE_{HMA} =$ 0.48

=> AS Thickness= **0.50** ft (round up to the nearest 0.05 ft)

Design Section:



PAVEMENT DESIGN (JOHN MUIR PARK WAY AT I-80 :RAMPS)

PER HIGHWAY DESIGN MANUAL, CHAP. 600

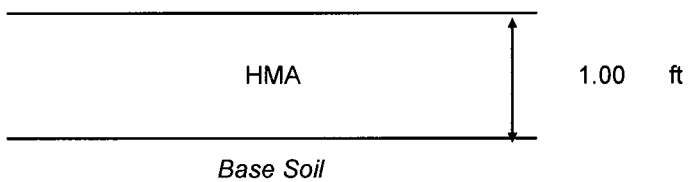
PROJECT NAME: JOHN MUIR PARK WAY AT I-80 IMPROVEMENTS
PROJECT NO.: 209102.JMP

Design Case: Full depth AC

Design TI=	***9***	input
R_{BS}=	***25***	input

$GE_{AC} = 0.0032*TI*(100-R_{BS}) =$		2.16	
=>	GE'_{HMA}=	2.26	(add 0.1 ft safety factor)
=>	HMA Thickness=	0.98	
=>	HMA Thickness=	**1.00**	ft (round up to the nearest 0.05 ft)

Design Section:



PAVEMENT DESIGN (JOHN MUIR PARK WAY AT I-80 : RAMPS)

PER HIGHWAY DESIGN MANUAL, CHAP. 600

PROJECT NAME: JOHN MUIR PARK WAY AT I-80 IMPROVEMENTS
PROJECT NO.: 209102.JMP

Design Case: AC over AB

Design TI=	***10***	input
R_{BS}=	***25***	input
R_{AB}=	78	

$GE_{HMA+AB} = 0.0032*TI*(100-R_{BS}) =$ 2.40

$GE_{HMA} = 0.0032*TI*(100-R_{AB}) =$ 0.70

=> GE'_{HMA} = 0.90 (add 0.2 ft safety factor)

HMA Thickness = 0.51 ft

=> HMA Thickness = **0.55** ft (round up to the nearest 0.05 ft)

$G_{f,\ HMA}$ = 1.81

GE_{HMA} = 1.00

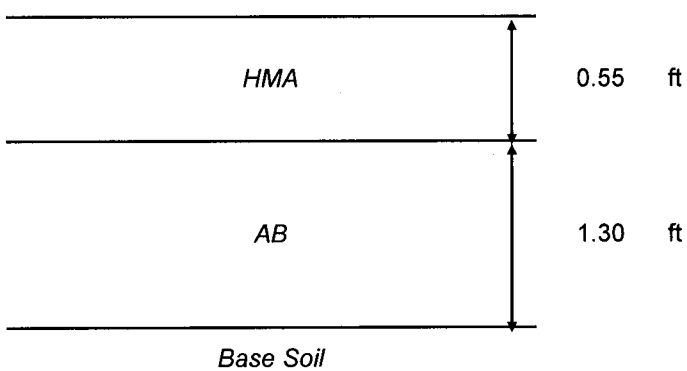
$GE_{AB} = GE_{HMA+AB} - GE_{HMA} =$ 1.40

AB thickness= 1.27 ft

=> AB Thickness= **1.30** ft (round up to the nearest 0.05 ft)

GE_{AB}= 1.43 $G_{f,\ AB}$=1.1

Design Section:



PAVEMENT DESIGN (JOHN MUIR PARK WAY AT I-80 : RAMPS)

PER HIGHWAY DESIGN MANUAL, CHAP. 600

PROJECT NAME: JOHN MUIR PARK WAY AT I-80 IMPROVEMENTS
PROJECT NO.: 209102.JMP

Design Case: AC over AB over AS

Design TI=	***10***	input
R_{BS}=	***25***	input
R_{AB}=	78	
R_{AS}=	50	check

$GE_{TOTAL} = 0..0032*TI*(100-R_{BS}) =$ 2.40

$GE_{HMA} = 0.0032*TI*(100-R_{AB}) =$ 0.70

=> GE'_{HMA} = 0.90 (add 0.2 ft safety factor)

HMA thickness = 0.51 ft

=> HMA Thickness= **0.55** ft (round up to the nearest 0.05 ft)

$G_{f,\ HMA}$= 1.81

GE_{HMA}= 1.00

$GE_{AB+HMA} = 0.0032*TI*(100-R_{AS}) =$ 1.60

=> GE_{HMA+AB}= 1.80 (add 0.2 ft safety factor)

$GE_{AB} = GE_{HMA+AB} - GE_{HMA} =$ 0.80

=> AB thickness= 0.73

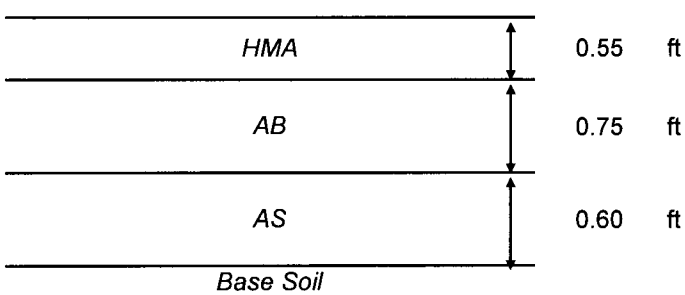
=> AB Thickness= **0.75** ft (round up to the nearest 0.05 ft)

GE_{AB}= 0.83 $G_{f,\ AB}$=1.1

$GE_{AS} = GE_{TOTAL} - GE_{AB} - GE_{HMA} =$ 0.58

=> AS Thickness= **0.60** ft (round up to the nearest 0.05 ft)

Design Section:



PAVEMENT DESIGN (JOHN MUIR PARK WAY AT I-80 : RAMPS)

PER HIGHWAY DESIGN MANUAL, CHAP. 600

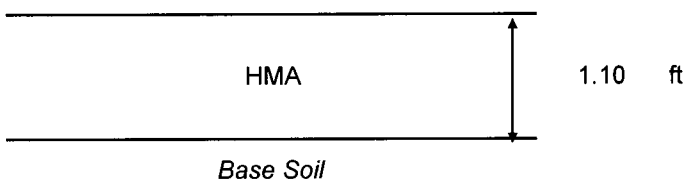
PROJECT NAME: JOHN MUIR PARK WAY AT I-80 IMPROVEMENTS
PROJECT NO.: 209102.JMP

Design Case: Full depth AC

Design TI=	***10***	input
R_{BS}=	***25***	input

$GE_{AC} = 0.0032*TI*(100-R_{BS}) =$		2.40	
=>	GE'_{HMA}=	2.50	(add 0.1 ft safety factor)
=>	HMA Thickness=	1.10	
=>	HMA Thickness=	**1.10**	ft (round up to the nearest 0.05 ft)

Design Section:



PAVEMENT DESIGN (JOHN MUIR PARK WAY AT I-80 : EMBANKMENT)

PER HIGHWAY DESIGN MANUAL, CHAP. 600

PROJECT NAME: JOHN MUIR PARK WAY AT I-80 IMPROVEMENTS
PROJECT NO.: 209102.JMP

Design Case: AC over AB

Design TI=	***10***	input
R_{BS}=	***15***	input
R_{AB}=	78	

$GE_{HMA+AB} = 0.0032*TI*(100-R_{BS}) =$ 2.72

$GE_{HMA} = 0.0032*TI*(100-R_{AB}) =$ 0.70

=> GE'_{HMA} = 0.90 (add 0.2 ft safety factor)

HMA Thickness = 0.51 ft

=> HMA Thickness = **0.55** ft (round up to the nearest 0.05 ft)

$G_{f,\ HMA}$ = 1.81

GE_{HMA} = 1.00

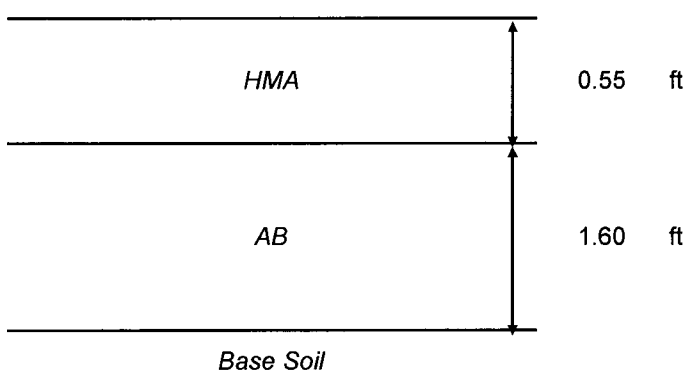
$GE_{AB} = GE_{HMA+AB} - GE_{HMA} =$ 1.72

AB thickness= 1.57 ft

=> AB Thickness= **1.60** ft (round up to the nearest 0.05 ft)

GE_{AB}= 1.76 $G_{f,\ AB}$=1.1

Design Section:



PAVEMENT DESIGN (JOHN MUIR PARK WAY AT I-80 : EMBANKMENT)

PER HIGHWAY DESIGN MANUAL, CHAP. 600

PROJECT NAME: JOHN MUIR PARK WAY AT I-80 IMPROVEMENTS
PROJECT NO.: 209102.JMP

Design Case: AC over AB over AS

Design TI=	***10***	input
R_{BS}=	***15***	input
R_{AB}=	78	
R_{AS}=	50	check

$GE_{TOTAL} = 0..0032*TI*(100-R_{BS}) =$ 2.72

$GE_{HMA} = 0.0032*TI*(100-R_{AB}) =$ 0.70

=> GE'_{HMA} = 0.90 (add 0.2 ft safety factor)

HMA thickness = 0.51 ft

=> HMA Thickness= **0.55** ft (round up to the nearest 0.05 ft)

$G_{f,\,HMA}$= 1.81

GE_{HMA}= 1.00

$GE_{AB+HMA} = 0.0032*TI*(100-R_{AS}) =$ 1.60

=> GE_{HMA+AB}= 1.80 (add 0.2 ft safety factor)

$GE_{AB} = GE_{HMA+AB} - GE_{HMA} =$ 0.80

=> AB thickness= 0.73

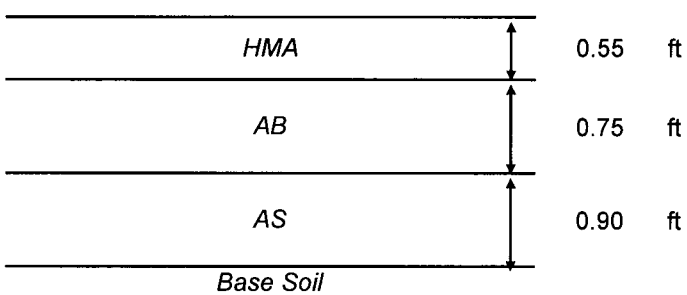
=> AB Thickness= **0.75** ft (round up to the nearest 0.05 ft)

GE_{AB}= 0.83 $G_{f,\,AB}$=1.1

$GE_{AS} = GE_{TOTAL} - GE_{AB} - GE_{HMA} =$ 0.90

=> AS Thickness= **0.90** ft (round up to the nearest 0.05 ft)

Design Section:



PAVEMENT DESIGN (JOHN MUIR PARK WAY AT I-80 : EMBANKMENT)

PER HIGHWAY DESIGN MANUAL, CHAP. 600

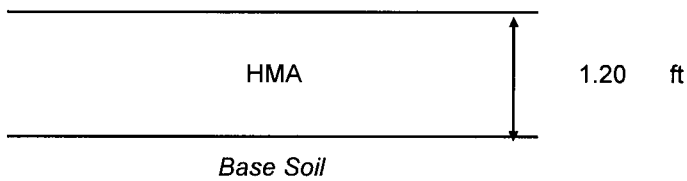
PROJECT NAME: JOHN MUIR PARK WAY AT I-80 IMPROVEMENTS
PROJECT NO.: 209102.JMP

Design Case: Full depth AC

Design TI=	***10***	input
R_{BS}=	***15***	input

$GE_{AC} = 0.0032*TI*(100-R_{BS}) =$		2.72	
=>	GE'_{HMA}=	2.82	(add 0.1 ft safety factor)
=>	HMA Thickness=	1.20	
=>	HMA Thickness=	**1.20**	ft (round up to the nearest 0.05 ft)

Design Section:



MATERIALS REPORT
UNIVERSITY AVENUE AT I-80 IMPROVEMENTS
ALAMEDA COUNTY, CA

For

Kimley-Horn & Associates, Inc.
555 12th Street Suite 1230
Oakland, California 94607

PARIKH CONSULTANTS, INC.
2360 Qume Drive, Suite A
San Jose, CA 95131
(408) 452-9000

August 31, 2009

Job No. 209102.UNI

Kimley-Horn & Associates, Inc.
555 12th Street, Suite 1230
Oakland, CA 94607

Job No.: 209102.UNI
August 31, 2009

Attn: Mr. Kenneth Chan

Sub: MATERIALS REPORT
UNIVERSITY AVENUE AT I-80 IMPROVEMENTS
ALAMEDA COUNTY, CALIFORNIA

Dear Mr. Chan:

Transmitted herewith is the Materials Report for the subject project. The report was prepared in accordance with the scope of work outlined in our proposal.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning our findings or conclusions, please feel free to contact this office at (408) 452-9000.

Very truly yours,
PARIKH Consultants, Inc.

Gary Parikh, P.E., G.E.
President

Attachment: Materials Report

"Approved as to impact on State facilities and conformance with applicable State standards and practices, and the technical oversight were performed as described in the California Department of Transportation A&E Consultant Services Manual."

Caltrans_____

Title_____

Date_____

Caltrans_____

Title_____

Date_____

TABLE OF CONTENTS **page**

1. INTRODUCTION 1
2. EXISTING FACILITIES AND PROPOSED IMPROVEMENTS 2
3. PERTINENT REPORTS AND INVESTIGATION 2
4. PHYSICAL SETTING 2
   4.1 Climate 2
   4.2 Topography and Drainage 2
   4.3 Man-Made and Natural Features of Engineering and Construction Significance 3
   4.4 Regional Geology and Seismicity 3
5. EXPLORATION 3
   5.1 Drilling and Sampling 3
   5.2 Geologic Mapping 4
   5.3 Geophysical Studies 4
   5.4 Instrumentation 4
   5.5 Exploration Notes 4
6. GEOTECHNICAL TESTING 4
   6.1 In-Situ Testing 4
   6.2 Laboratory Testing 5
7. GEOTECHNICAL CONDITIONS 5
   7.1 Site Geology 5
      7.1.1 Lithology 5
      7.1.2 *Structure* 5
   7.2 Subsurface Soil Conditions 6
   7.3 Water 6
      7.3.1 *Surface Water* 6
      7.3.1.1 *Scour* 6
      7.3.1.2 *Erosion* 7
      7.3.2 *Groundwater* 7
   7.4 Project Site Seismicity 7
      7.4.1 *Ground Motions* 7
      7.4.2 *Ground Rupture* 8
8. GEOTECHNICAL ANALYSIS AND DESIGN 8
   8.1 Dynamic Analysis 8
      8.1.1 *Parameter Selection* 8
      8.1.2 *Liquefaction Potential* 8
   8.2 Cuts and Excavations 8
      8.2.1 *Stability* 8
      8.2.2 *Rippability* 8
      8.2.3 *Grading* 8
   8.3 Culverts 8
      8.3.1 *Corrosion Investigation* 8
9. STRUCTURAL PAVEMENTS 9
10. MATERIAL SOURCES 11
11. MATERIAL DISPOSAL 11

12. CONSTRUCTION CONSIDERATIONS 11
12.1 Construction Advisories 11
12.2 Construction Consideration that Influence Specifications 12
12.3 Hazardous Waste Considerations 12
12.4 Differing Site Conditions 12
13. RECOMMENDATIONS AND SPECIFICATIONS 13
13.1 Summary of Recommendations 13
13.2 Recommended Materials Specifications 13
13.2.1 *Standard Specifications* 13
13.2.2 *Special Provisions* 14
14. INVESTIGATION LIMITATIONS 15
REFERENCES 17

Appendix A

Log of Test Borings
As Built LOTB

Appendix B

Laboratory Tests ..... Plate B-1
Gradation Analysis ..... Plates B-2
R-value Test Results ..... Plates B-3A and B-3B
Corrosion Test Results ..... Plate B-4

Appendix C

Pavement Design
As Built Pavement Section

LIST OF TABLES

1 Earthquake Data 07

2 Summary of Corrosion Test Results 09

3 Summary of R-Value Test Results 09

4 Recommended (Minimum) Structural Pavement Sections 10

5 Sources of Asphalt and Aggregate Material 11

LIST OF FIGURES

Location Map ..... Plate 1

Site Plan ..... Plate 2

Geologic Map ..... Plate 3

Fault Map ..... Plate 4

MATERIALS REPORT
UNIVERSITY AVENUE AT I-80 IMPROVEMENTS
ALAMEDA COUNTY, CALIFORNIA

1. INTRODUCTION

This report presents the results of our geotechnical investigation for the proposed improvements on the University Avenue South Bound On-Ramp in the City of Berkeley in Alameda County. The general location of the project site and its limits are shown in Plate 1, Project Location Map.

This report addresses the design of structural pavement sections, and corrosion investigation recommendations. The investigation included review of readily available soils and geologic literature pertaining to the site including as-built information and "Log of Test Borings" (LOTB) and pavement as-built data, site reconnaissance, obtaining representative samples and logging soil materials encountered in exploratory borings, laboratory testing of the representative samples, performing engineering analyses, and preparation of this report.

The purpose of this report is to document subsurface geotechnical conditions, provide analyses of anticipated site conditions as they pertain to the project described herein, and to recommend design and construction criteria for the project. This report also establishes a geotechnical baseline to be used in assessing the existence and scope of changed site conditions, if any.

The report is intended for use by the project roadway design engineer, construction personnel, bidders, and contractors for information and reference purposes only and should not be construed directly as project specifications.

Due to limitations inherent in geotechnical investigations, it is neither uncommon to encounter unforeseen variations in the soil conditions during construction nor is it practical to determine all such variations during an acceptable program of drilling and sampling for a project of this scope. Such variations, when encountered, generally require additional engineering services to attain a properly constructed project. We, therefore recommend that a contingency fund be provided to accommodate any additional charges resulting from technical services that may be required during construction.

2. EXISTING FACILITIES AND PROPOSED IMPROVEMENTS

The University Avenue South Bound On-Ramp is a two lane overcrossing merging on to Route 80. The proposed improvements include widening the on-ramp to accommodate a HOV lane. The general area is shown in the Project Location Map, Plate 1.

The Alameda County Congestion Management Agency (ACCMA), in cooperation with the California Department of Transportation (Caltrans), proposes to widen the ramp. The roadway improvements will include earthwork, and pavement sections.

3. PERTINENT REPORTS AND INVESTIGATION

Caltrans as-built information obtained from Kimley-Horn and Associates was reviewed for the project during this study.

4. PHYSICAL SETTING

4.1 Climate

The climate in the project area is characterized by moderate climatic conditions, which consists of mild winters, mild summers, small daily and seasonal temperature ranges. Based on the statistical data from "Western Regional Climate Center", the average total annual precipitation varies along the project vicinity and is approximately 17.7 inches to 23.38 inches. Most of the rainfall is recorded in January with an average total precipitation of 3.55 inches to 5.01 inches. July is the month with the least average rainfall precipitation of 0.03 to 0.04 inch. Extreme temperature ranges from location and the average minimum temperature is approximately 40.8° F to 42.7° F in January to average maximum temperature of 70.0° F to 78.7° F in September.

4.2 Topography and Drainage

The topography within the project site along University Avenue South Bound On-Ramp is relatively flat along Rte 80 with slight grade increase to the west. Some grade differences are noted due to roadway crossing and bridge embankment along the alignment. The site drainage is generally by sheet flow towards the southwest, or collected by local drainage systems.

The main drainage system within the project limits is Strawberry Creek to the NE direction of the University Avenue South Bound On-ramp.

4.3 Man-Made and Natural Features of Engineering and Construction Significance

The subject was considered and was determined to be not significant for the project.

4.4 Regional Geology and Seismicity

General geologic features pertaining to the site were evaluated by reference to the Quartenary Geology of Alameda County and Surrounding Areas, CA (E.J. Helley, and R.W. Graymer, 1997; Scale 1:100000; Plot derived from the digital database open-file 97-97). A geologic map of the general project area is shown on Plate 3.

The project is located in a seismically active area of California. Many faults existing in this area are capable of producing earthquakes that may cause strong ground shaking within the project limits. The attached Fault Map (Plate 4) presents the locations of the fault systems relative to the project site. Maximum Magnitudes (Mmax) for the major faults in the area are determined by Mualchin (California Seismic Hazard Map 1996). These maximum magnitudes represent the largest earthquakes that could occur on the given fault based on the current understanding of the regional tectonic structure. Faults in the vicinity of the site have a moderate to high potential to release seismic energy include the San Andreas Fault, Hayward Fault, and the Franklin Fault. Based on Caltrans updated map and readily available geological data, the governing fault for the structure is the Hayward Fault (a strike-slip fault, Mw = 7.5).

5. EXPLORATION

5.1 Drilling and Sampling

Based on the preliminary plans, discussions with the design team, and readily available geotechnical data in the area, two borings, namely B-1 and B-2 were drilled in the vicinity of University Avenue South Bound On-Ramp for the design of roadway. These borings were drilled to a depth of 15 ft. Bulk Samples were collected at shallow depth for pavement designs.

Borings B-1 and B-2 were drilled by Exploration Geoservice Inc. of San Jose on May 8th, 2009 under the supervision of our field engineer. The borings were advanced using a truck-mounted rig using 8" hollow stem auger. The boring locations are shown on Plate 2, Site Plan.

Selected samples were obtained from 2.5-inch I.D. (Modified California, MC) and 1.4-inch I.D. (Standard Penetration Test, SPT) samplers at various depths. The samplers were driven into subsurface soils under the impact of a 140-pound hammer having a free fall of 30 inches. The blow counts are presented on the Log of Test Boring (LOTB) in Appendix A. The samples were sealed and transported to our laboratory for further evaluation and testing. The field investigation was conducted under the supervision of our field engineer who logged the test borings and prepared the samples for subsequent laboratory testing and evaluation.

5.2 Geologic Mapping

The subject was considered and was determined to be not significant for the project.

5.3 Geophysical Studies

The subject was considered and was determined to be not applicable to the project.

5.4 Instrumentation

The subject was considered and was determined to be not applicable to the project.

5.5 Exploration Notes

The exploratory borings mainly encountered artificial fill. Drilling conditions using hollow stem augers were considered normal for this site.

6. GEOTECHNICAL TESTING

6.1 In-Situ Testing

In-situ testing consists of recording blow counts during sampling (using either Modified California sampler or Standard Penetration Test sampler) in the field. Based on our previous experience, when correlating standard penetration data in similar soils, the blow counts for the Modified California Sampler can be converted to equivalent Standard Penetration Test blow counts by

multiplying a factor of 0.65. Based on the average values of the SPT-N values for the soil materials encountered in the field exploration, the subsurface soils are classified generally as firm to very stiff lean clay and loose to medium dense sand and silty sand. The in-situ test results are presented on the LOTB sheets attached in Appendix A.

6.2 Laboratory Testing

Laboratory tests performed for the study include the following: Laboratory determination of Moisture-Density (California Test Method 226), Grain Size Analysis (California Test Method 202), R-value Test (California Test Method 301), and Corrosion Test (California Test Method 643). The laboratory test results are attached in Appendix B. Moisture-Density test and Unit Weight test results are summarized on the LOTB's attached in Appendix A.

7. GEOTECHNICAL CONDITIONS

7.1 Site Geology

General geologic features pertaining to the site were evaluated by reference to the Map of Quartenary Geology of Alameda County and Surrounding Areas, CA (E.J. Helley, and R.W. Graymer, 1997; Scale 1:100000; Plot derived from the digital database open-file 97-97). Based on the map, the site subsoil's consist of Artifical Fill (af). A geologic map of the project vicinity is shown on Plate 3.

af – Artificial Fill (Historic) – Man made deposit of various materials and ages. Some are compacted and quite firm, but fills made before 1965 are nearly everywhere not compacted and consist simply of dumped materials.

7.1.1 Lithology

The site consists of Artificial Fill. The subject was considered and was determined to be not applicable for the project. Detailed description of subsoil conditions are presented in Section 7.2.

7.1.2 *Structure*

The site consists of roadway fill, and artificial fill. The subject was considered and was determined

to be not applicable for the project

7.2 Subsurface Soil Conditions

Based on the boring data and the as-built LOTB, the subsurface soil conditions of the site generally consist of varying thickness of lean clay, sand and silty sand to the maximum depth explored (15 ft below existing grade).

The materials encountered in the borings generally vary from lean clay, sand and silty sand. These layers are generally firm to medium dense. Ground water was encountered in boring B-2 at approximate elevation of 7.5 feet.

Based on the typical SPT-N values for the soil materials encountered in the field exploration, the subsurface soils generally consist of firm to very stiff lean clays and loose to medium dense sands, silty sands. At the ground water level, the silty sand layer is loose. The SPT-N values were typically on the order of 4 to 18. The in-situ test results are presented on the LOTB in Appendix A.

Detailed descriptions of the materials encountered in the exploratory borings are presented in the LOTB in Appendix A "Log of Test Borings". It should be noted that these descriptions and related information depict subsurface conditions only at the locations indicated and on the particular date noted on the LOTB. Because of the variability from place to place within soil/rock in general, subsurface soil conditions at other locations may differ from conditions occurring at the locations explored. The abrupt stratum changes shown on the logs may be gradational and relatively minor changes in soil types within a stratum may not be noted due to field limitations. Also, the passage of time may result in a change in the soil conditions at the locations due to environmental changes.

7.3 Water

7.3.1 *Surface Water*

There is no surface water body at the site.

7.3.1.1 *Scour*

The subject was considered and was determined to be not applicable for the roadway project.

7.3.1.2 *Erosion*

The proposed project will primarily widen the pavement section, open faced slopes or surfaces are not planned. The subject was considered and was determined to be not applicable for the project.

7.3.2 *Groundwater*

Groundwater was encountered in boring B-2 during drilling at approximately 5 ft below the existing ground surface. Caltrans as-built LOTB indicated groundwater level at approximately 6 feet below existing University Avenue South Bound On-Ramp. It is anticipated that groundwater level will vary with the passage of time due to seasonal runoff, groundwater fluctuations, surface and subsurface flow, ground surface run-off, and other factors that were not existent at the time of investigation.

7.4 Project Site Seismicity

7.4.1 *Ground Motions*

The project is located in a seismically active part of northern California. Many faults exist in the Alameda County Area, which are capable of producing earthquakes, which may cause strong ground shaking at the site. The attached Fault Map (Plate 4) presents the locations of the fault systems relative to the project site.

Maximum Credible Earthquake (MCE) magnitudes for some of the major faults in the area determined by Mualchin (California Seismic Hazard Map 1996) are summarized below. These maximum credible earthquake magnitudes represent the largest earthquakes that could occur on the given fault based on the current understanding of the regional tectonic structure.

Based on the boring information the governing fault for the structure is the Hayward Fault, which is at a distance of 12 km (7.5 miles). A summary of the earth quake data is presented in Table 1.

TABLE 1 - EARTHQUAKE DATA

Fault	Estimated Closest Distance to the Project Area (km)	Maximum Credible Earthquake
Hayward Fault (strike - slip)	12	7.5
San Andreas Fault (strike – slip)	25.0	8.0
Franklin Fault (unknown type)	14.6	6.5

7.4.2 *Ground Rupture*

Since no active faults pass through the project site, the potential for fault rupture is low.

8. GEOTECHNICAL ANALYSIS AND DESIGN

8.1 Dynamic Analysis

8.1.1 *Parameter Selection*

The subject was considered and was determined to be not applicable for the project.

8.1.2 *Liquefaction Potential*

The subject was considered and was determined to be not applicable for the project.

8.2 Cuts and Excavations

It is expected that minor cuts and excavations will be for pavement construction only.

8.2.1 *Stability*

The subject was considered and was determined to be not applicable for the project.

8.2.2 *Rippability*

Based on the investigation, rippability does not appear to be a concern for construction.

8.2.3 *Grading*

Typical grading specifications should conform to Caltrans Standards.

8.3 Culverts

8.3.1 *Corrosion Investigation*

The corrosion investigation for this project was performed in general accordance with the provisions of California Test Method 643. Chemical test was performed on a representative soil sample of Boring B-1, to evaluate the corrosion potential of the subsurface soil. A summary of the

corrosion test results is presented in Table 2.

TABLE 2 - SUMMARY OF CORROSION TEST RESULTS

Boring No.	Depth (ft)	Resistivity (ohm-cm)	pH	Sulfate (ppm)	Chloride (ppm)
B-1	0' – 5'	1470	7.80	39.3	25.8

Based on the laboratory test results and as per an internal memo from Caltrans the subsoils are not considered to be corrosive. The test results are presented in Appendix B.

For selection of pipe material for culvert and storm drain applications, it is our understanding that AltPipe computer program is used by Caltrans to assist designers. AltPipe program is a web-based tool (http://dap1.dot.ca.gov//design/altpipe/) and updates and supersedes the previous CULVERT 4 program. The computations performed by AltPipe are based on the procedures and California Test Methods described in Chapter 850 of the Caltrans Highway Design Manual (HDM). AltPipe incorporates current requirements from the HDM supplemented by Caltrans Design Information Bulletin No. 83 (D.I.B. No. 83, June 30, 2003) for abrasion potential for material selection.

The AltPipe program is intended for final design by the civil or hydraulic designer. In addition to soil corrosivity data, the input requires data such as Abrasion Level, 2-5 year Flow Velocity, and height of cover that should be determined while finalizing the drainage design.

9. STRUCTURAL PAVEMENTS

R-value tests were conducted on representative samples collected at proposed subgrade level. The test results are summarized in Table 3.

TABLE 3 - SUMMARY OF R-VALUE TEST RESULTS

Boring No.	Description	R-value
B-1	Brown – Clayey Sand	40
B-2	Yellowish Brown – Poorly Graded sand with Silt	73

Based on these results a design R-value of 40 is considered reasonable for native soils.

According to available Caltrans as-built roadway plans, the existing pavement sections along the University Avenue South Bound On-Ramp consist of the following:

HOV Lane: 0.25' AC, 0.50' CTB, 0.33' AS
Widening: 1.2' AC (A)
CHP Enforcement Area: 0.60' AC

Based on the back calculations of these sections using a Traffic Index (TI) of 10.0 it appears that the previous designer had used an R-Value of 15 for subgrade soil. However the minimum tested R-Value for the project is 40. Therefore we have provided with the options using R-Values of 15 and 40. We recommend using R-Value of 40 for this project.

Based on discussion with the designer, the anticipated Traffic Index (TI) values are 9.0 for 10-year design life and 10.0 for 20-year design for University Avenue South Bound On-Ramp. We understand that it is preferred to use a pavement section consisting of HMA (A) for the project.

The following pavement sections are provided in accordance with anticipated 10-year and 20-year design TIs for the roadway:

TABLE 4 – RECOMMENDED (MINIMUM) STRUCTURAL PAVEMENT SECTIONS

Location	R-Value	TI	Structural Pavement Section		
			Option 1	Option 2	
			HMA (Full Depth)	HMA	AB
Ramp	15	10 (20 year)	1.20'	0.55'	1.60'
	40	9.0 (10 year)	0.85'	0.45'	0.80'
		10.0 (20 year)	0.95'	0.55'	0.85'

Design R-value = 40
HMA: Hot Mix Asphalt;
AC: Asphalt Concrete;
AB: Class 3 Aggregate Base with R-value equal to 78;
AS: Class 4 Aggregate Sub-base with the R-value equal to 50;
CTB: Cement Treated Base (Type A);
Design values are based on the Highway Design Manual Tables (empirical method).

10. MATERIAL SOURCES

There are several commercial sources of asphalt, concrete, and aggregate products in the area. Table 5 lists available commercial suppliers in the area.

TABLE 5 - SOURCES OF ASPHALT AND AGGREGATE MATERIAL

Source	Location	Approx. Haul Dist. (One way, miles)
O C Jones & Sons Inc.	1520 4th Street, Berkeley, CA 94710	0.7
Allied Concrete	3213 Wood Street, Oakland, CA, 94607	4.2
Muller Construction Supply	Oakland, CA 94601	11.4
American Aggregates & Slurry Inc.	851-81st Ave. Suite 227, Oakland, CA 94621	12.6

11. MATERIAL DISPOSAL

Based on our understanding, the project will require minimum disposal of the excess materials.

12. CONSTRUCTION CONSIDERATIONS

12.1 Construction Advisories

The sections are written primarily for the engineer responsible for the preparation of plans and specifications. Since these sections identify potential construction issues related to the project, it may also be of use to the Agency's representatives involved in monitoring of construction activity. The field investigation performed by us primarily addresses design issues and was not planned specifically to identify construction issues.

The project site is located along the existing US Route 80 and University Avenue Interchange. Therefore, traffic control is required to maintain traffic flow along Route 80 and the respective city streets. Several underground utilities exist at the University Avenue South Bound On-Ramp. The contractor should verify the utility lines, be aware of the existing conditions and plan the construction activities accordingly.

In our opinion, conventional equipment may be used to excavate the on-site soil materials. The materials to be excavated may consist of firm to very stiff lean clays and loose to medium dense

sands, silty sands. Localized subgrade pumping may be encountered during earthwork construction depending on the weather, moisture condition of the subsurface soils, and surface drainage conditions. Equipment mobility may also be difficult if the subgrade is wet. In which case, the subgrade soils may require reworking, aeration, or over-excavation and replacing with dry granular fill to facilitate earthwork construction. It is possible that unknown old buried utilities or abandoned structures, concrete rubble etc. are located along the alignment. It might require special equipment and additional efforts to remove these buried objects.

Prospective contractors for the project must evaluate construction-related issues on the basis of their own knowledge and experience in the local area, on the basis of similar projects in other localities, or on the basis of field investigation on the site performed by them, taking into account their proposed construction methods and procedures. In addition, construction activities related to excavation and lateral earth support must conform to safety requirements of OSHA and other applicable municipal and State regulatory agencies.

12.2 Construction Consideration that Influence Specifications

The contractor should verify the conditions of the existing utility lines. These locations should not be used for stockpiling of borrow materials. Any conflicts with proposed construction should also be reviewed prior to construction.

12.3 Hazardous Waste Considerations

The project environmental study report should be referred to for further details about any potential hazardous materials within the project site.

12.4 Differing Site Conditions

The soil conditions described in this report are based on available boring data. It should be noted that these borings depict subsurface conditions only at the locations drilled. Because of the variability from place to place within soils in general, and the nature of geologic depositions, subsurface conditions could change between the explored locations.

Early communication should be made between the Resident Engineer, the Contractor, and the Geotechnical Engineer as soon as conditions that differ from those established in this report are recognized by any of the parties. Additional recommendations could be provided if such

conditions arise.

13. RECOMMENDATIONS AND SPECIFICATIONS

13.1 Summary of Recommendations

If the designer has questions or concerns with any of these recommendations, or, if conditions are found to be different during construction, the Geotechnical Engineer who prepared this report should be contacted. Additional fieldwork, analysis or changes in recommendations may be required. These services may be provided under a separate authorization, as necessary. A concise summary of the geotechnical recommendations is presented below:

- The subsoil's consist of firm to very stiff lean clays and loose to medium dense sands, silty sands.
- Groundwater was encountered at approximately 5 ft below the existing ground surface, whereas as-built LOTB (Caltrans 1954) indicated groundwater level at approximately 6 feet depth at the general vicinity of University Avenue South Bound On-Ramp.
- Based on discussion with the designer it is preferred to use a pavement section consisting of HMA (A).

Location	R-Value	TI	Structural Pavement Section		
			Option 1	Option 2	
			HMA (Full Depth)	HMA	AB
Ramp	15	10 (20 year)	1.20'	0.55'	1.60'
	40	9.0 (10 year)	0.85'	0.45'	0.80'
		10.0 (20 year)	0.95'	0.55'	0.85'

13.2 Recommended Materials Specifications

13.2.1 *Standard Specifications*

Unless otherwise stated in the special provisions, all materials specifications should conform to Caltrans Standard Specifications, May 2006 edition, including but not limited to the following: Earthwork, Structure Backfill, Pervious Backfill Material, Reinforcing Geofabric, Thermoplastic Pipes, Asphalt Concrete, Aggregate Base, Aggregate Subbase, Cement Treated Base, etc.

13.2.2 *Special Provisions*

Imported Borrow:

Imported material should be in accordance with the specifications set forth in Caltrans Section 19. In particular, for new embankment/roadway construction, the material placed within 4 ft of the finish pavement subgrade should meet the following requirements:

1. Free of organic or other deleterious materials.
2. An R-value of no less than 40.

Aggregate Base: Class 3 aggregate base shall conform to the provisions in Section 26 of the Standard Specifications and to these Special Provisions. It shall also be clean and free from organic matter and other deleterious substances. The percentage composition by weight of Class 3 aggregate base shall conform to the following grading as determined by California Test Method No. 202.

Gradation Requirement (Percent Passing)

Sieve Sizes	1-1/2 inch Maximum		¾ inch Maximum	
	Operating Range	Contract Compliance	Operating Range	Contract Compliance
2"	100	100		
1-1/2"	90 – 100	87 - 100		
1"	--	--	100	100
¾"	50 – 85	45 – 90	90 – 100	87 – 100
No. 4	24 - 45	20 – 50	35 – 60	30 – 65
No. 30	10 – 25	6 – 29	10 – 30	5 – 35
No. 200	2 -11	0 -14	2 -11	0 - 14

Quality requirements

California Test Method	Operating Range	Contract Compliance
Sand Equivalent (217)	25 Min.	22 Min.
Resistance (R-value) (301)	-	78 Min.
Durability Index	-	35 Min.

Aggregate Subbase: Aggregate Subbase shall be Class 4 and shall conform to the provisions in Section 25 of the Standard Specifications and to these Special Provisions. Class 4 aggregate subbase shall be clean and free from organic matter and other deleterious substances. The percentage composition by weight of Class 4 aggregate subbase shall conform to the following grading as determined by California Test Method No. 202.

Gradation Requirement (Percent Passing)

Sieve Sizes	Operating Range	Contract Compliance
2-1/2"	100	100
No. 4	30 – 65	25 – 70
No. 200	0 – 15	0 – 18

Class 4 aggregate subbase shall also conform to the quality requirements given on the following table:

Quality requirements

California Test Method	Operating Range	Contract Compliance
Sand Equivalent (217)	21 Min.	18 Min.
Resistance (R-value) (301)	50	50 Min.

14. INVESTIGATION LIMITATIONS

Our services consist of professional opinions and recommendations made in accordance with generally accepted geotechnical engineering principles and practices and are based on our field exploration and the assumption that the soil conditions do not deviate from observed conditions. No warranty, expressed or implied, of merchantability or fitness, is made or intended in connection with our work or by the furnishing of oral or written reports or findings. The scope of our services did not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in structures, soil, surface water, groundwater or air, below or around this site. Unanticipated soil conditions are commonly encountered and cannot be fully determined by taking soil samples and excavating test borings; different soil conditions may require that additional expenditures be made during construction to attain a properly constructed project. Some contingency fund is thus recommended to accommodate these possible extra costs.

This report has been prepared for the proposed project as described earlier, to assist the engineer in the design of this project. In the event any changes in the design or location of the facilities are planned, or if any variations or undesirable conditions are encountered during construction, our findings and recommendations shall not be considered valid unless the changes or variations are reviewed and our recommendations modified or approved by us in writing.
This report is issued with the understanding that it is the designer's responsibility to ensure that the information and recommendations contained herein are incorporated into the project and that necessary steps are also taken to see that the recommendations are carried out in the field.

The findings in this report are valid as of the present date. However, changes in the soil conditions

can occur with the passage of time, whether they are due to natural processes or to the works of man, on this or adjacent properties. In addition, changes in applicable or appropriate standards occur, whether they result from legislation or from the broadening of knowledge. Accordingly, the findings in this report might be invalidated, wholly or partially, by changes outside of our control.

Respectfully submitted,
PARIKH CONSULTANTS, INC.

Lakshmikanth Duddu
Staff Engineer

Gary Parikh, P.E., G.E. 666
Project Manager

REGISTERED PROFESSIONAL ENGINEER
GAURANG R. PARIKH
No. 666
EXP. 12-31-09
GEOTECHNICAL
STATE OF CALIFORNIA

S:/ONGOING PROJECTS/2009/209102.UNI

REFERENCES

1. Caltrans as-built Log of Test Borings for University Avenue Overcrossing (Br. No. 33-0023)

2. California Department of Transportation, May 2006, Standard Specifications, Sections 1 through 95.

3. California Department of Transportation, Highway Design Manual, July 2008.

4. Quartenary Geology of Alameda County and Surrounding Areas, CA (E.J. Helley, and R.W. Graymer, 1997; Scale 1:100000; Plot derived from the digital database open-file 97-97).

5. Highway Design Manual, Chapter 600, California Department of Transportation, July 2008.

6. Mualchin, L., A Technical Report To Accompany the Caltrans California Seismic Hazard Map (1996).

7. Mualchin, L.; 1996; Modified from "California Seismic Hazard Map".

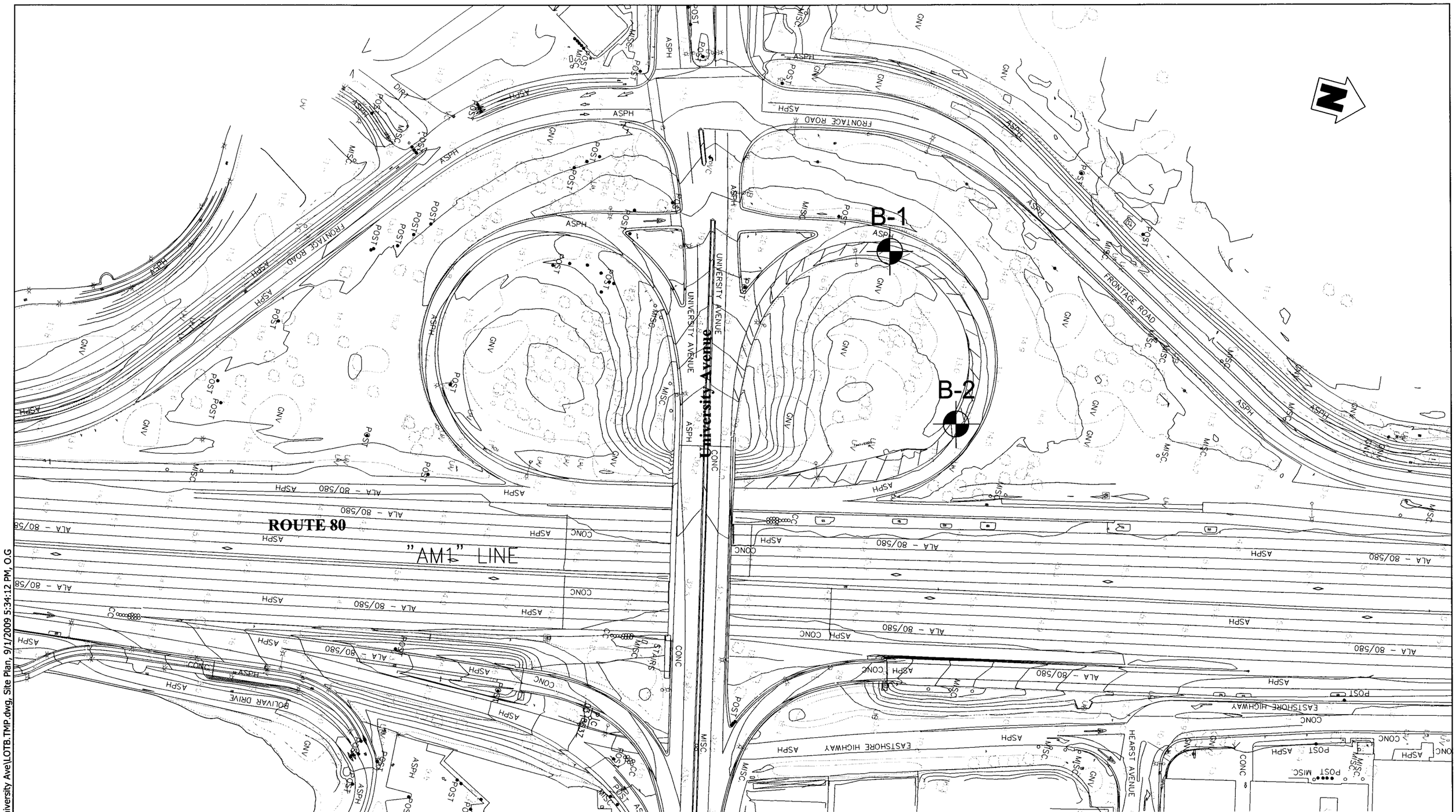
8. "Western Regional Climate Center".

PROJECT LOCATION

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

UNIVERSITY AVENUE AT I-80
CITY OF OAKLAND, CALIFORNIA

JOB NO.: 209102.UNI	PLATE NO.: 1



SITE PLAN

LEGEND

B-1 Approx. Boring Location

0 1 2

PLAN
1"=50'

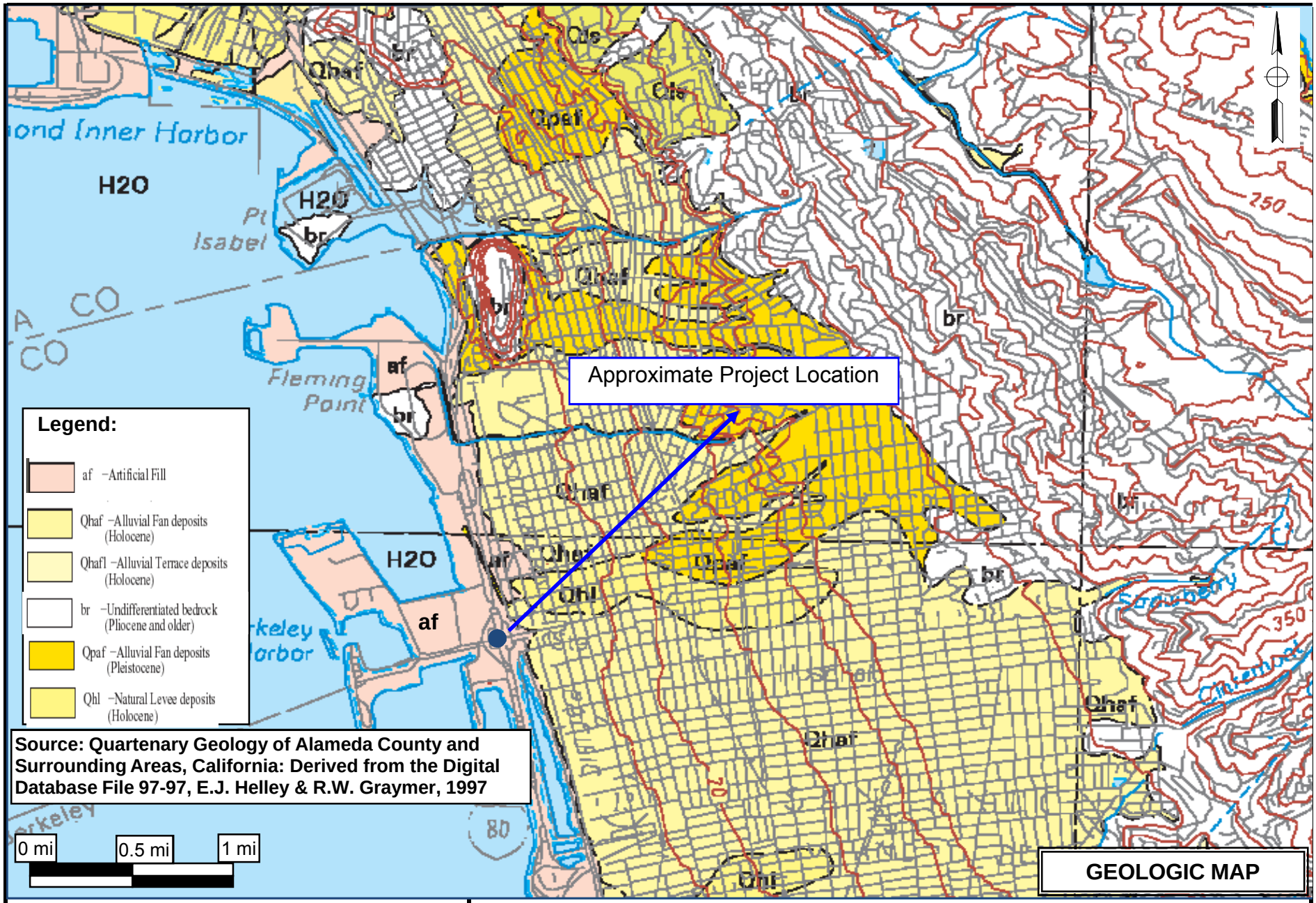
Note: All units are in feet unless otherwise specified
Reference Map was provided by Kimley-Horn and Associates, Inc.

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS ENGINEERING

UNIVERSITY AVENUE AT I-80
ALAMEDA COUNTY, CALIFORNIA

JOB NO.:209102.UNI | PLATE NO: 2

S:\ACAD\209102.GDR\University Ave\LOTB.TMP.dwg, Site Plan, 9/1/2009 5:34:12 PM, O.G

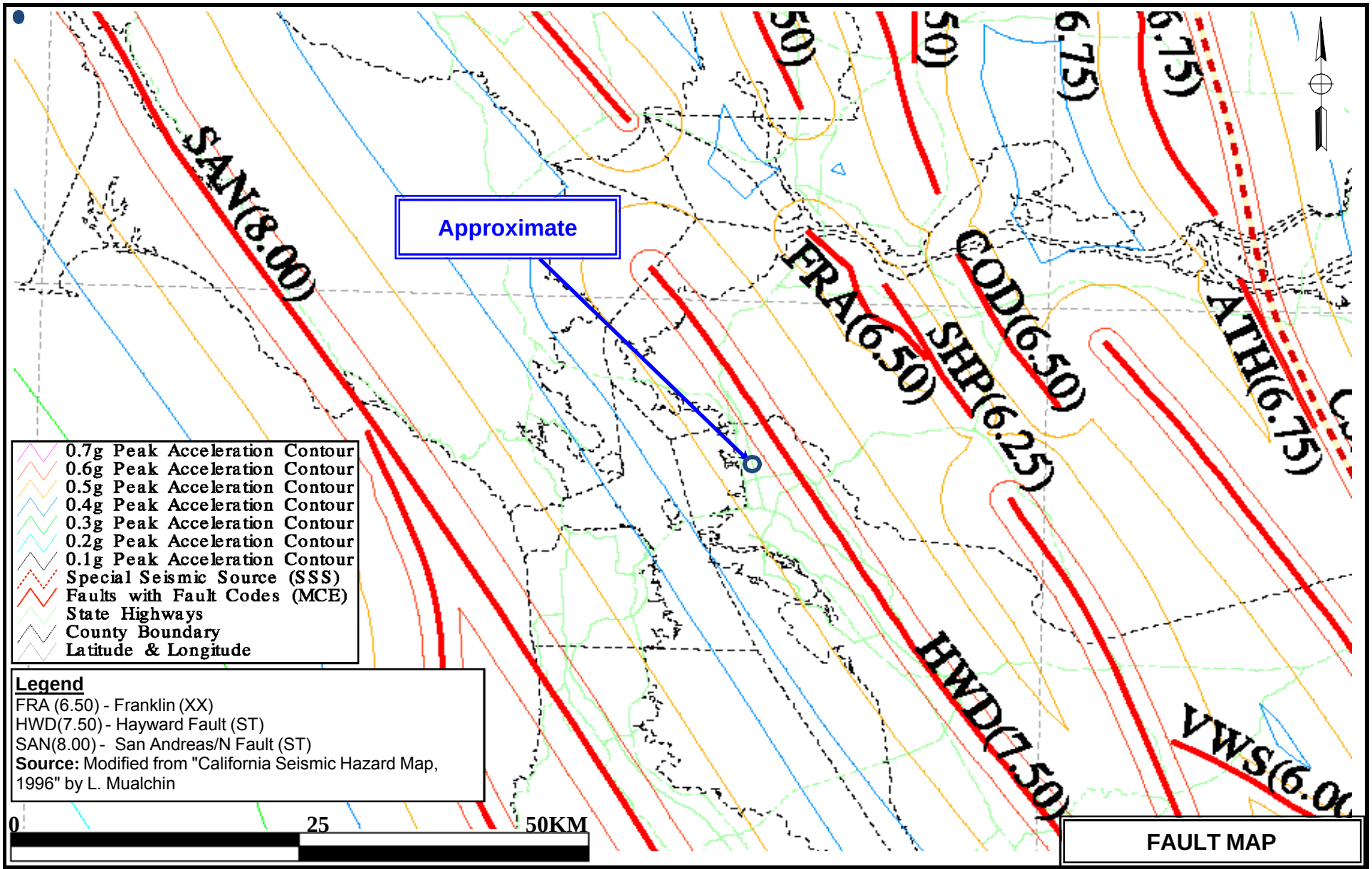


GEOLOGIC MAP

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

UNIVERSITY AVENUE AT I-80
ALAMEDA COUNTY, CALIFORNIA

JOB NO.: 209102.UNI	PLATE NO.: 3



FAULT MAP

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

UNIVERSITY AVE AT I-80
ALAMEDA COUNTY, CALIFORNIA

JOB NO.: 209102.UNI

PLATE NO.: 4

APPENDIX A

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (JUNE 2007)

GROUP SYMBOLS AND NAMES

Graphic/Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND
GP	Poorly graded GRAVEL Poorly graded GRAVEL with SAND
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)
GP-GM	Poorly graded GRAVEL with SILT Poorly graded GRAVEL with SILT and SAND
GP-GC	Poorly graded GRAVEL with CLAY (or SILTY CLAY) Poorly graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)
GM	SILTY GRAVEL SILTY GRAVEL with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL
SP	Poorly graded SAND Poorly graded SAND with GRAVEL
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)
SP-SM	Poorly graded SAND with SILT Poorly graded SAND with SILT and GRAVEL
SP-SC	Poorly graded SAND with CLAY (or SILTY CLAY) Poorly graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)
SM	SILTY SAND SILTY SAND with GRAVEL
SC	CLAYEY SAND CLAYEY SAND with GRAVEL
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL
PT	PEAT
	COBBLES COBBLES and BOULDERS BOULDERS

Graphic/Symbol	Group Names
CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY ORGANIC elastic SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND

FIELD AND LABORATORY TESTING

- (C) Consolidation (ASTM D 2435)
- (CL) Collapse Potential (ASTM D 5333)
- (CP) Compaction Curve (CTM 216)
- (CR) Corrosivity Testing (CTM 643, CTM 422, CTM 417)
- (CU) Consolidated Undrained Triaxial (ASTM D 4767)
- (DS) Direct Shear (ASTM D 3080)
- (EI) Expansion Index (ASTM D 4829)
- (M) Moisture Content (ASTM D 2216)
- (OC) Organic Content-% (ASTM D 2974)
- (P) Permeability (CTM 220)
- (PA) Particle Size Analysis (ASTM D 422)
- (PI) Plasticity Index (AASHTO T 90) Liquid Limit (AASHTO T 89)
- (PL) Point Load Index (ASTM D 5731)
- (PM) Pressure Meter
- (PP) Pocket Penetrometer
- (R) R-Value (CTM 301)
- (SE) Sand Equivalent (CTM 217)
- (SG) Specific Gravity (AASHTO T 100)
- (SL) Shrinkage Limit (ASTM D 427)
- (SW) Swell Potential (ASTM D 4546)
- (TV) Pocket Torvane
- (UC) Unconfined Compression-Soil (ASTM D 2166) Unconfined Compression-Rock (ASTM D 2938)
- (UU) Unconsolidated Undrained Triaxial (ASTM D 2850)
- (UW) Unit Weight (ASTM D 4767)
- (VS) Vane Shear (AASHTO T 223)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	ALA	80			

REGISTERED ENGINEER-GEOTECHNICAL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER GARY PARIKH No. G.E. 666 Exp. 12/31/09 GEOTECHNICAL STATE OF CALIFORNIA

ACCMA
1330 BROADWAY
OAKLAND, CALIFORNIA

PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

APPARENT DENSITY OF COHESIONLESS SOILS

Description	SPT N_{60} (Blows / 12 inches)
Very loose	0 - 4
Loose	5 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	> 50

MOISTURE

Description	Criteria
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

PERCENT OR PROPORTION OF SOILS

Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5 to 10%
Little	15 to 25%
Some	30 to 45%
Mostly	50 to 100%

PARTICLE SIZE

Description		Size
Boulder		> 12"
Cobble		3" to 12"
Gravel	Coarse	3/4" to 3"
	Fine	No. 4 to 3/4"
Sand	Coarse	No. 10 to No. 4
	Medium	No. 40 to No. 10
	Fine	No. 200 to No. 40

ENGINEERING SERVICES	GEOTECHNICAL SERVICES
PREPARED BY	L. Duddu
CHECKED BY	D. WANG

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH

BRIDGE NO.
POST MILE

SOIL LEGEND
LOG OF TEST BORINGS

CU 04264
EA 0A5351

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES

SHEET OF

S:\ACAD\209102.GDR\University Ave\Legend (Sheet 1).dwg, Layout1, 9/1/2009 5:34:53 PM, O.G

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (JUNE 2007)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	ALA	80			

REGISTERED ENGINEER-GEOTECHNICAL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER GARY PARIKH No. G.E. 666 Exp. 12/31/09 GEOTECHNICAL STATE OF CALIFORNIA

ACCMA
1330 BROADWAY
OAKLAND, CALIFORNIA

PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

CEMENTATION

Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

BOREHOLE IDENTIFICATION

Symbol	Hole Type	Description
Size	A	Auger Boring
Size	R P	Rotary drilled boring Rotary percussion boring (air)
Size	R	Rotary drilled diamond core
Size	HD HA	Hand driven (1-inch soil tube) Hand Auger
●	D	Dynamic Cone Penetration Boring
▲	CPT	Cone Penetration Test (ASTM D 5778-95)
□	O	Other

Note: Size in inches.

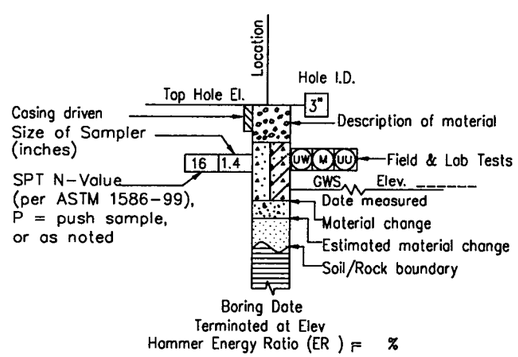
Notes:
Standard Penetration Test Sampler: I.D. = 1.4"; O.D. = 2"
Modified California Sampler: I.D. = 2.5"; O.D. = 3"

CONSISTENCY OF COHESIVE SOILS

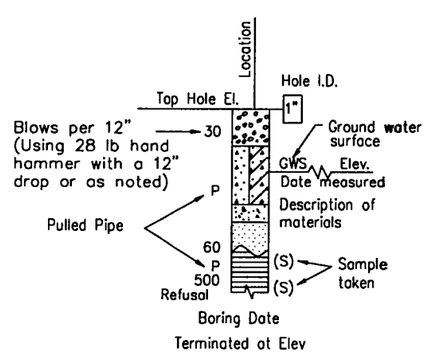
Description	Unconfined Compressive Strength (tsf)	Pocket Penetrometer Measurement (tsf)	Torvane Measurement (tsf)	Field Approximation
Very Soft	< 0.25	< 0.25	< 0.12	Easily penetrated several inches by fist
Soft	0.25 to 0.50	0.25 to 0.50	0.12 to 0.25	Easily penetrated several inches by thumb
Medium Stiff	0.50 to 1.0	0.50 to 1.0	0.25 to 0.50	Penetrated several inches by thumb with moderate effort
Stiff	1 to 2	1 to 2	0.50 to 1.0	Readily indented by thumb but penetrated only with great effort
Very Stiff	2 to 4	2 to 4	1.0 to 2.0	Readily indented by thumbnail
Hard	> 4.0	> 4.0	> 2.0	Indented by thumbnail with difficulty

PLASTICITY OF FINE-GRAINED SOILS

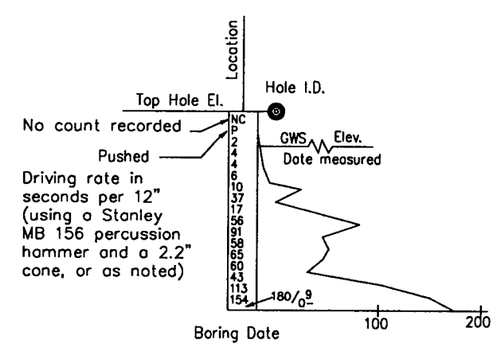
Description	Criteria
Nonplastic	A 1/8-inch thread cannot be rolled at any water content.
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.



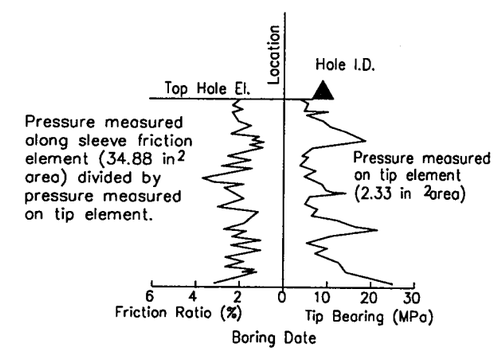
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) SOUNDING

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN	BRIDGE NO.	SOIL LEGEND
PREPARED BY	L. Duddu			POST MILE	LOG OF TEST BORINGS
CHECKED BY	D. WANG		DESIGN BRANCH		

CS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04264
EA 0A5351

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES SHEET OF

S:\ACAD\209102.GDR\University Ave\Legend (Sheet 2).dwg, Layout1, 9/1/2009 5:35:05 PM, O.G

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	ALA	80			

REGISTERED ENGINEER-GEOTECHNICAL

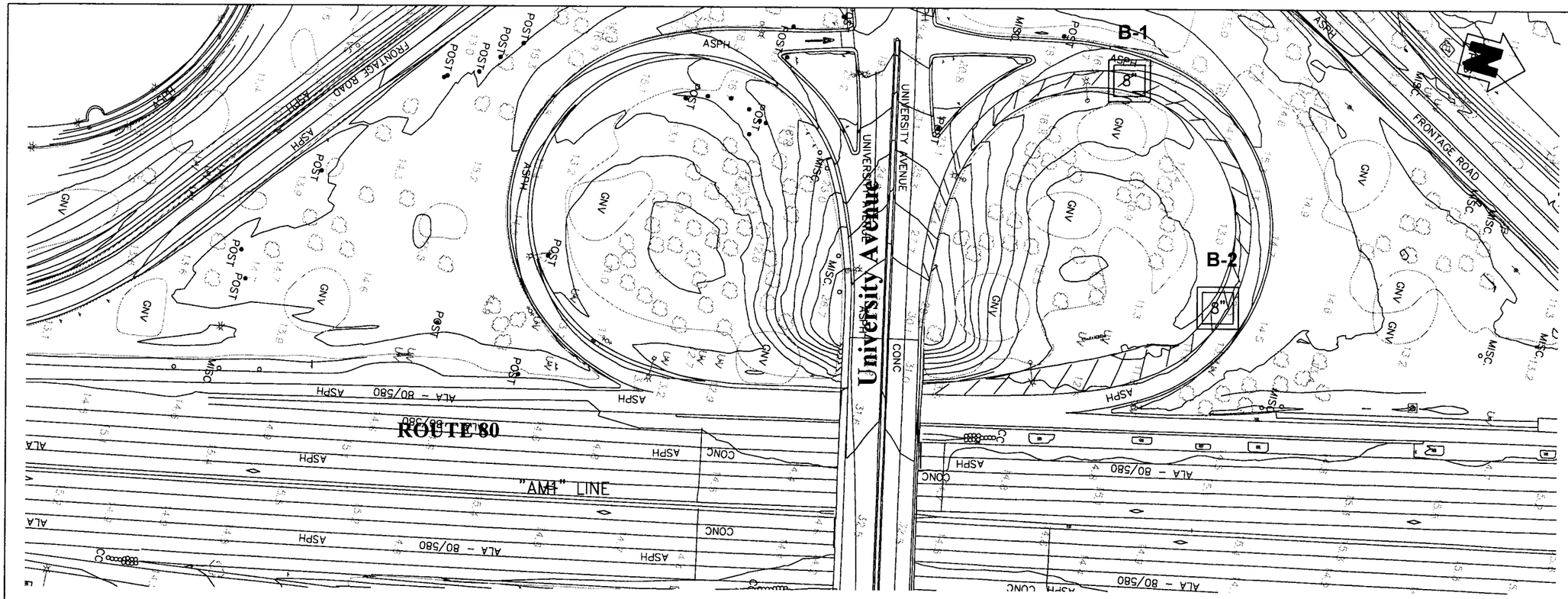
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER GARY PARIKH No. G.E. 666 Exp. 12/31/09 GEOTECHNICAL STATE OF CALIFORNIA

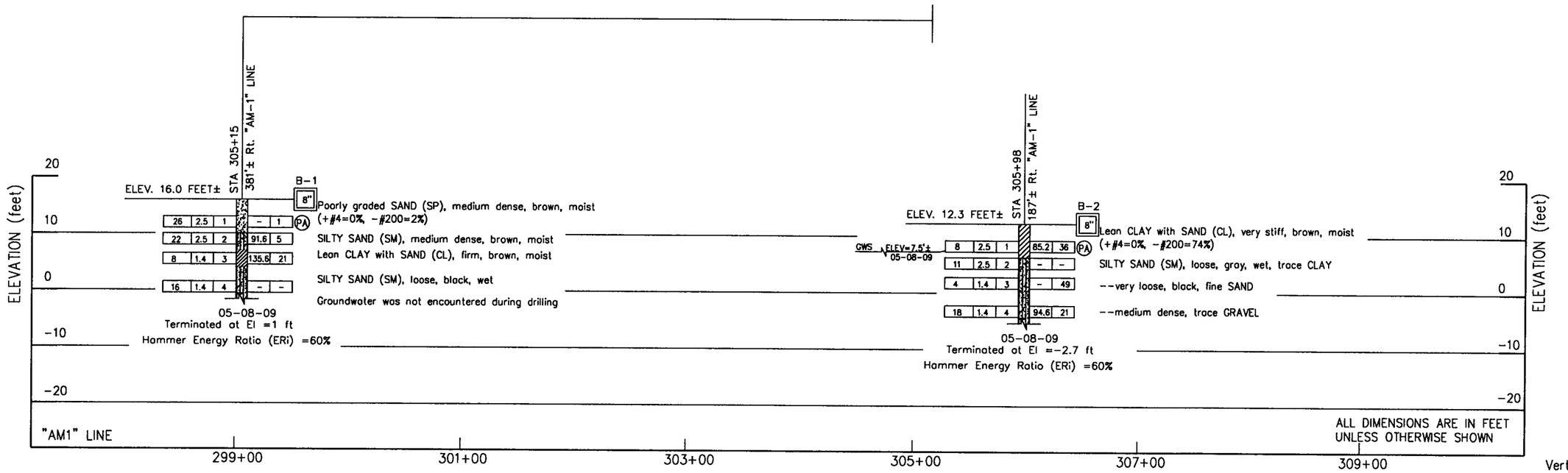
ACCMA
1330 BROADWAY
OAKLAND, CALIFORNIA

PARIKH CONSULTANTS, INC.
2360 QUME DRIVE, SUITE A
SAN JOSE, CA 95131

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



PLAN
1"=50'



PROFILE
Vert. : 1" = 10'
Hor. : 1" = 50'

G.PARIKH DESIGN OVERSIGHT	DRAWN BY	L. Duddu	L. Bhangoo FIELD INVESTIGATION BY:	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	G. Parikh PROJECT ENGINEER	BRIDGE NO. --------
SIGN OFF DATE	CHECKED BY	D. Wong	DATE: MAY 2009			POST MILES -----

UNIVERSITY AVENUE AT I 80

LOG OF TEST BORINGS

CU 04264
EA 0A5351

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES | SHEET | OF

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

005 GEOTECHNICAL LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 06-01-09)

S:\ACAD\209102.GDR\University Ave\LOTB.TMP.dwg, plan, 9/1/2009 5:33:57 PM, O.G

103 117

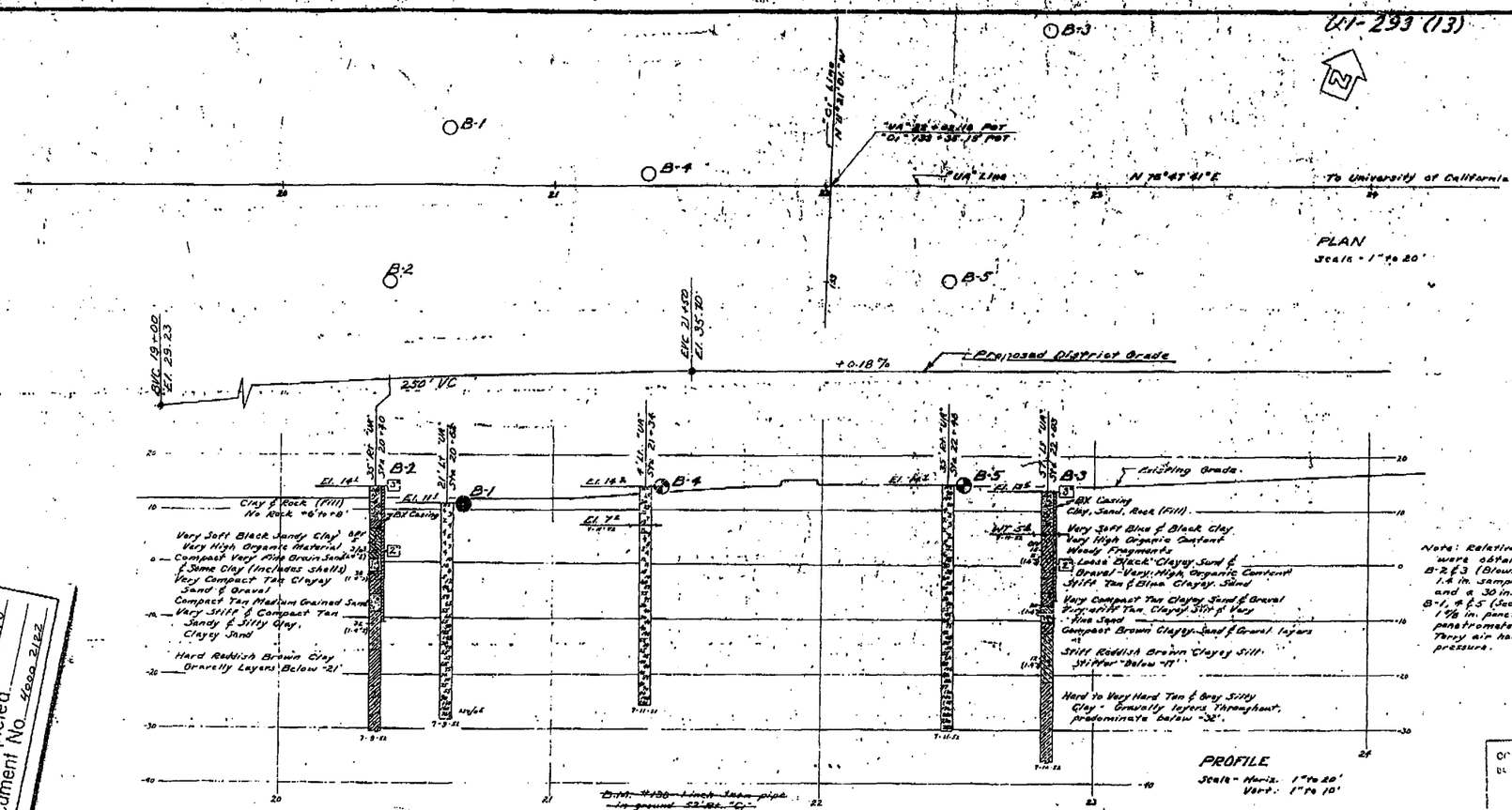
Ur-293 (13)

IV Na ~~Bridge~~ 32-32

80

BRIDGE ENGINEER CIVIL ENGINEER—LICENSE

September 20, 1964



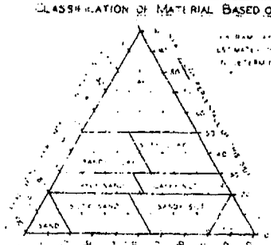
Note: Relative rates of penetration were obtained as follows:
B-2 & 3 (Blows per foot) driving 1.4 in. sampler with a 140 lb hammer and a 30 in. free fall.
B-1, 4 & 5 (Seconds per foot) driving 1 7/8 in. penetrometer or 2 1/4 in. cone penetrometer with a No. 2 McKiernan-Terry air hammer at 115 psi gauge pressure.

AS BUILT PLANS
Contract No. 55-91240
Date Completed
Document No. 4600 2182

South of Univ. Ave.
to Ft. Cronkite Off.
EV Alm-09-Bor. Alb
Contract 55-91240-F
1-27-1965

L. A. Cudworth
2-20-65

CLASSIFICATION OF MATERIAL BASED ON STANDARD GRADE SIZE LIMITS



LEGEND OF BORING OPERATIONS

- Plain Auger Boring
- Sampler Boring
- Rotary Wash Boring
- 1" Closed Sampler Driven
- Core Boring
- 2 1/2" Penetrometer Driven
- 1 3/8" Sampler Boring
- 3" OD Auger Boring
- 6" OD Auger Boring
- Casing Driven
- Jet Boring
- Sample Taken
- 1 3/8" A-R30 Driven
- 2 1/4" Cone Penetrometer

The appropriate boring symbols designating the method of operation are shown at the upper right-hand corner of the respective boring. Where tool changes were made during the boring operation symbols are shown at the point of change.

LEGEND OF EARTH MATERIALS

- Gravel—G
- Sand—S
- Silt—Si
- Clay—C
- Silty Sand—S Si
- Clayey Sand—C S
- Sandy Silt—S Si
- Clayey Silt—C Si
- Sandy Clay—SC
- Silty Clay—Si C
- Peat & Organic Clay—O
- Sandstone—SS
- Shale—Sh
- Broken Rock (Fragments)—Br
- Rock—R
- Fill Material

ABBREVIATIONS

El. 69.4	Elevation of ground at test hole
bpf	Blows per foot—(See note above)
P	Pulled pipe
M	Moisture as % dry weight
El. 9.5 9-11-64	Elevation of ground water and date

NOTES

The contractor's attention is directed to Section 2, Article (c) of the Standard Specifications and to the special provisions accompanying this set of plans.

Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

Alinement & Profile data obtained from District IV Site Plan Dwg. # PR 2920-1 NEW 8-24-56

FOR PRELIMINARY REPORT

UNIVERSITY AVENUE OVERCROSSING

LOG OF TEST BORINGS

Scale as noted | Date E-33

Bridge No. 33-23 | Drawing No. D-2920-32

PREL. DRAWING NO. P-2920/12

ClibPDF - www.fastio.com

APPENDIX B

APPENDIX B

LABORATORY TESTS

Classification Tests
The field classification of the samples was visually verified in the laboratory according to the Unified Soil Classification System. The results are presented in "Log of Test Borings", Appendix A.

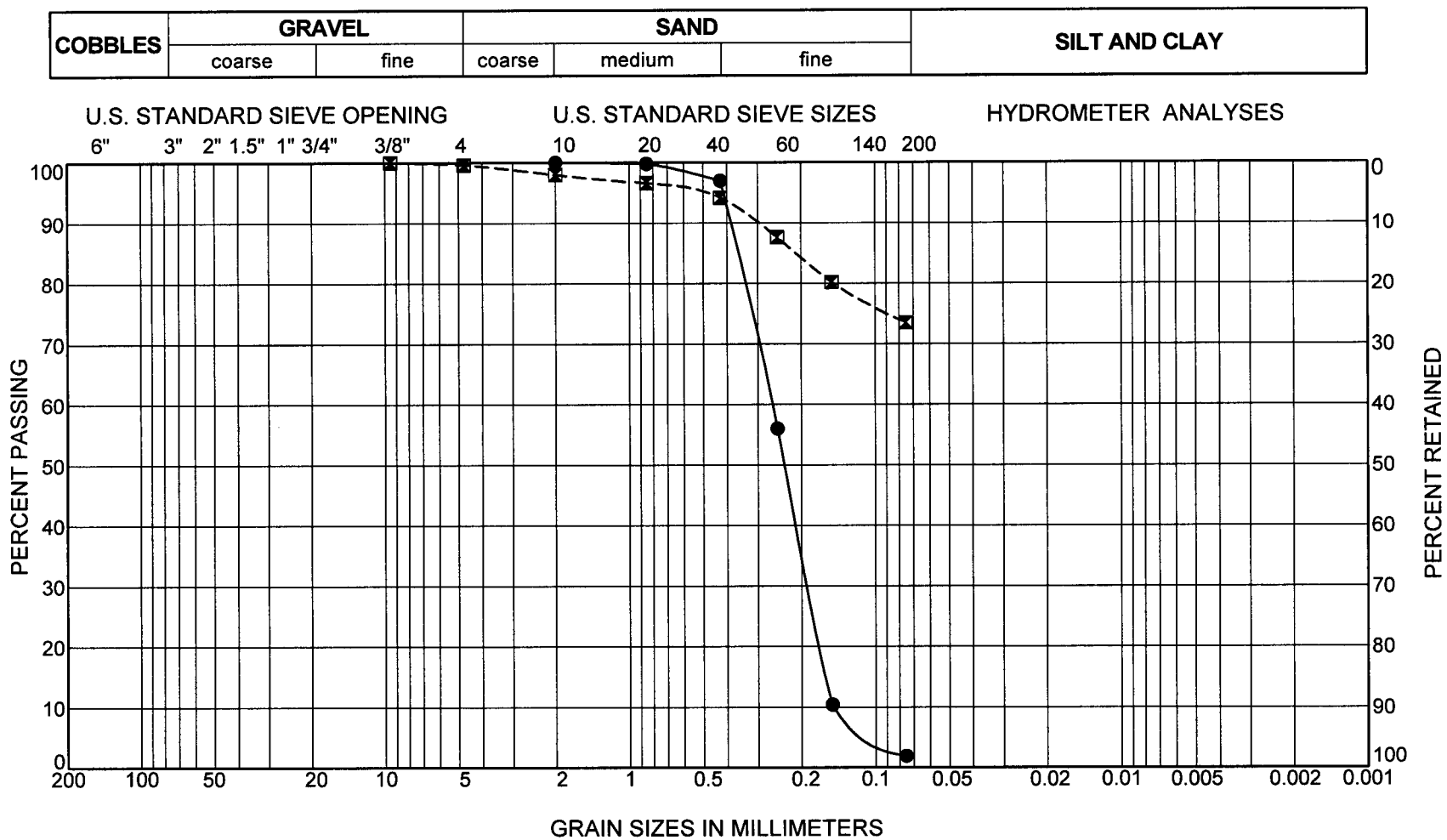
Moisture-Density
The natural moisture contents and dry unit weights were determined for selected undisturbed samples of the soils in general accordance with ASTM Test Method D 2216-92. This information was used to classify and correlate the soils. The results are presented at the appropriate depths In "Log of Test Borings", Appendix A.

Grain Size Classification
Grain size classification tests (ASTM Test Method D422-63) were performed on selected samples of granular soil to aid in the classification. The results are presented on "Grain Size Distribution Curves", Plate B-2, Appendix B.

R-value Tests
R-value tests were performed on representative bulk samples for pavement design. The tests were performed by Cooper Testing Laboratory. The test results are presented in Plate B-3A to Plate B-3B, Appendix B.

Corrosion Tests
Corrosion tests were performed on selected samples to determine the corrosion potential of the soils. The pH and minimum resistively tests were performed according to California Test Method 643. The tests were performed by Sunland Analytical. The test results are presented on Plate B-4, Appendix B.

GRAIN SIZE DISTRIBUTION CURVES



Boring Number	Sample Number	Depth (feet)	Symbol	LL	PI	Description
B-1	MC-1	3.0	●			POORLY GRADED SAND (SP)
B-2	MC-1	3.0	⊠			LEAN CLAY WITH SAND (CL)

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS ENGINEERING

JOB NO: 209102.UNI

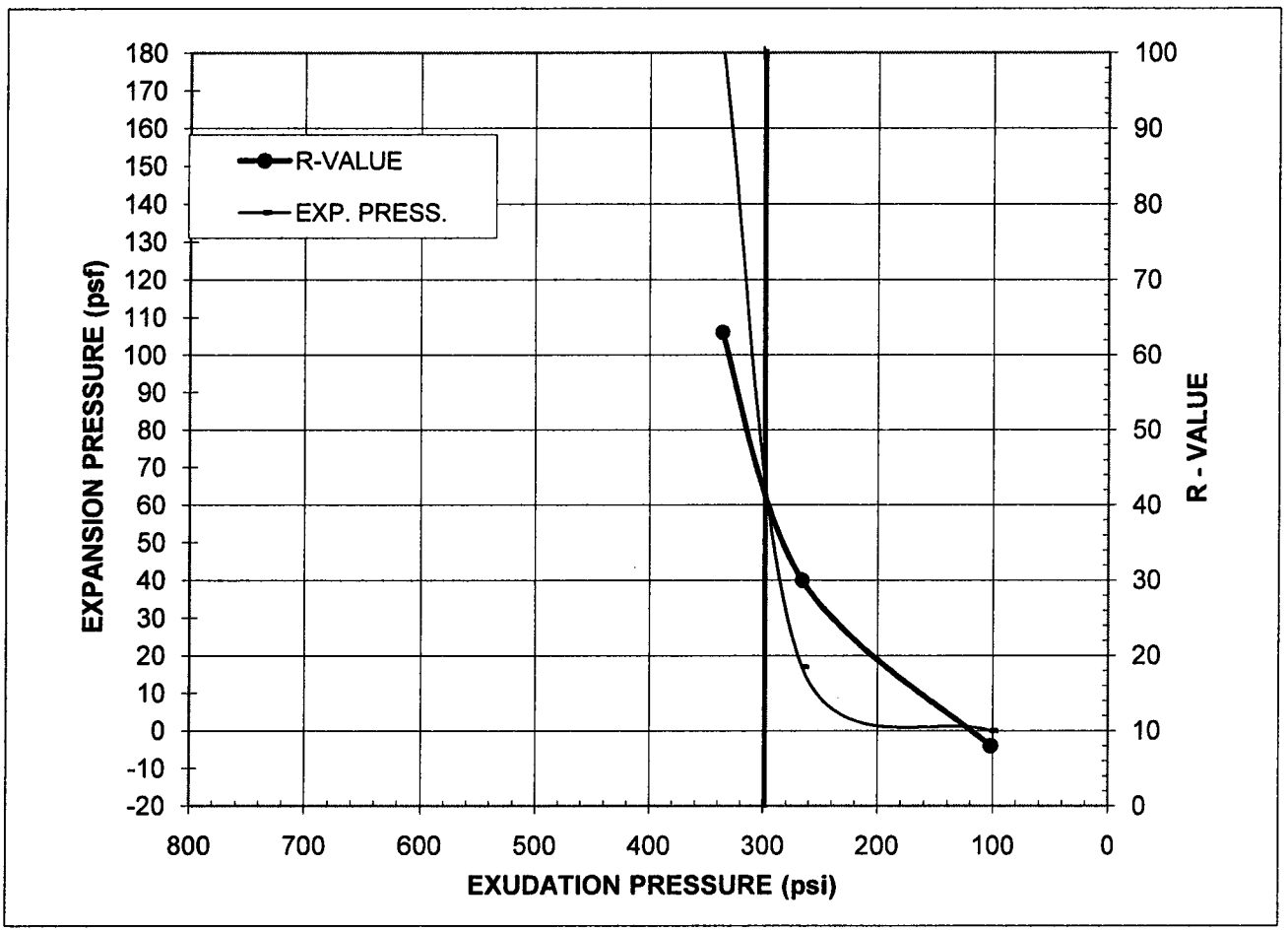
UNIVERSITY AVE AT RTE 80
BERKELEY, CALIFORNIA

PLATE NO: B-2

R-VALUE REPORT

Parikh Consultants, Inc. **ASTM D2844 or CTM 301** (408) 452-9000

Project Name:	University Ave at Rte 80, Berkeley	Date:	6/8/09
Client:	Kimbley Horn & Associates	Project #:	209102.UNV
Sample #: R-1	Depth: 0' - 5'	Lab #:	M752
Location / Source:	Onsite / Native	Sample Date:	
Material :	Clayey Sand, brown	Sampled By:	



Specimen No.	A	B	C
Exudation Pressure, psi	102	266	336
Expansion Pressure, psf	0	17	182
R-Value	8	30	63
Moisture Content at Test, %	19.3	16.3	14.3
Dry Density at Test, pcf	104.8	116.8	117.2

R-Value @ 300 psi Exudation Pressure = 40

Expansion Pressure @300 psi Exudation, psf = **60**

Minimum R-Value Requirement:

Comments:

PLATE NO: B-3A

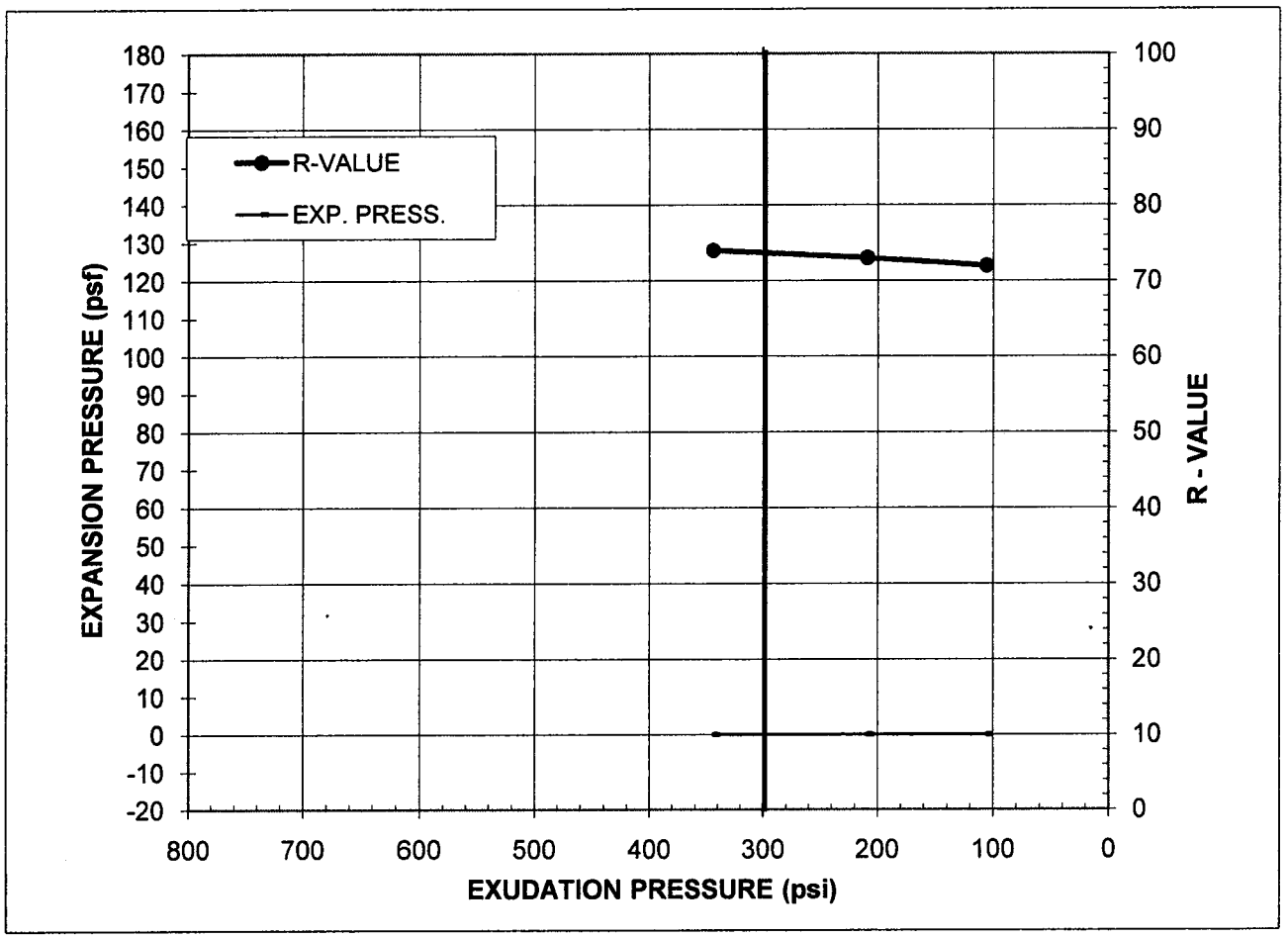
Report By: Prav Dayah

RVALUE with calcs pdp

R-VALUE REPORT

Parikh Consultants, Inc. ASTM D2844 or CTM 301 (408) 452-9000

Project Name:	University Ave at Rte 80, Berkeley	Date:	6/8/09
Client:	Kimbley Horn & Associates	Project #:	209102.UNV
Sample #: R-2	Depth: 0' - 5'	Lab #:	M752
Location / Source:	Onsite / Native	Sample Date:	
Material :	Sand with some Silt, yellowish brown	Sampled By:	



Specimen No.	A	B	C
Exudation Pressure, psi	106	209	344
Expansion Pressure, psf	0	0	0
R-Value	72	73	74
Moisture Content at Test, %	15.6	15.1	14.2
Dry Density at Test, pcf	104.1	104.8	106.1

R-Value @ 300 psi Exudation Pressure = 73

Expansion Pressure @300 psi Exudation, psf = **0**

Minimum R-Value Requirement:

Comments:

PLATE NO: B-3B

Report By: Prav Dayah

RVALUE with calcs pdp

Sunland Analytical
11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 06/10/2009
Date Submitted 06/05/2009

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 209102.UNV UNIVERSIT Site ID : R-1 @0-5'.
Thank you for your business.

* For future reference to this analysis please use SUN # 55830-112563.

EVALUATION FOR SOIL CORROSION

Soil pH	7.80	
Minimum Resistivity	1.47 ohm-cm (x1000)	
Chloride	25.8 ppm	00.00258 %
Sulfate	39.3 ppm	00.00393 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

APPENDIX C

DIST	COUNTY	ROUTE	POST MILE TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	80	3.2/7.2	1	45

STATE OF CALIFORNIA

DEPARTMENT OF TRANSPORTATION

IR-080-1(992)12

PROJECT PLANS FOR CONSTRUCTION ON STATE HIGHWAY

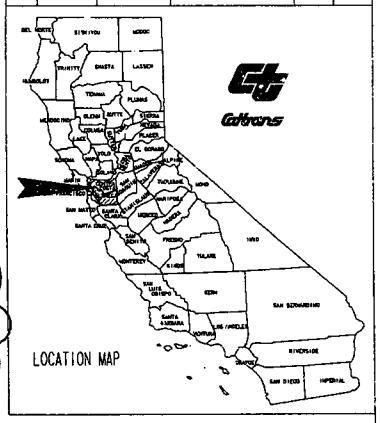
IN ALAMEDA COUNTY

AT VARIOUS LOCATIONS IN OAKLAND, EMERYVILLE, BERKELEY AND ALBANY FROM 0.4 MILE SOUTH OF POWELL STREET UNDERCROSSING TO EL CERRITO OVERHEAD

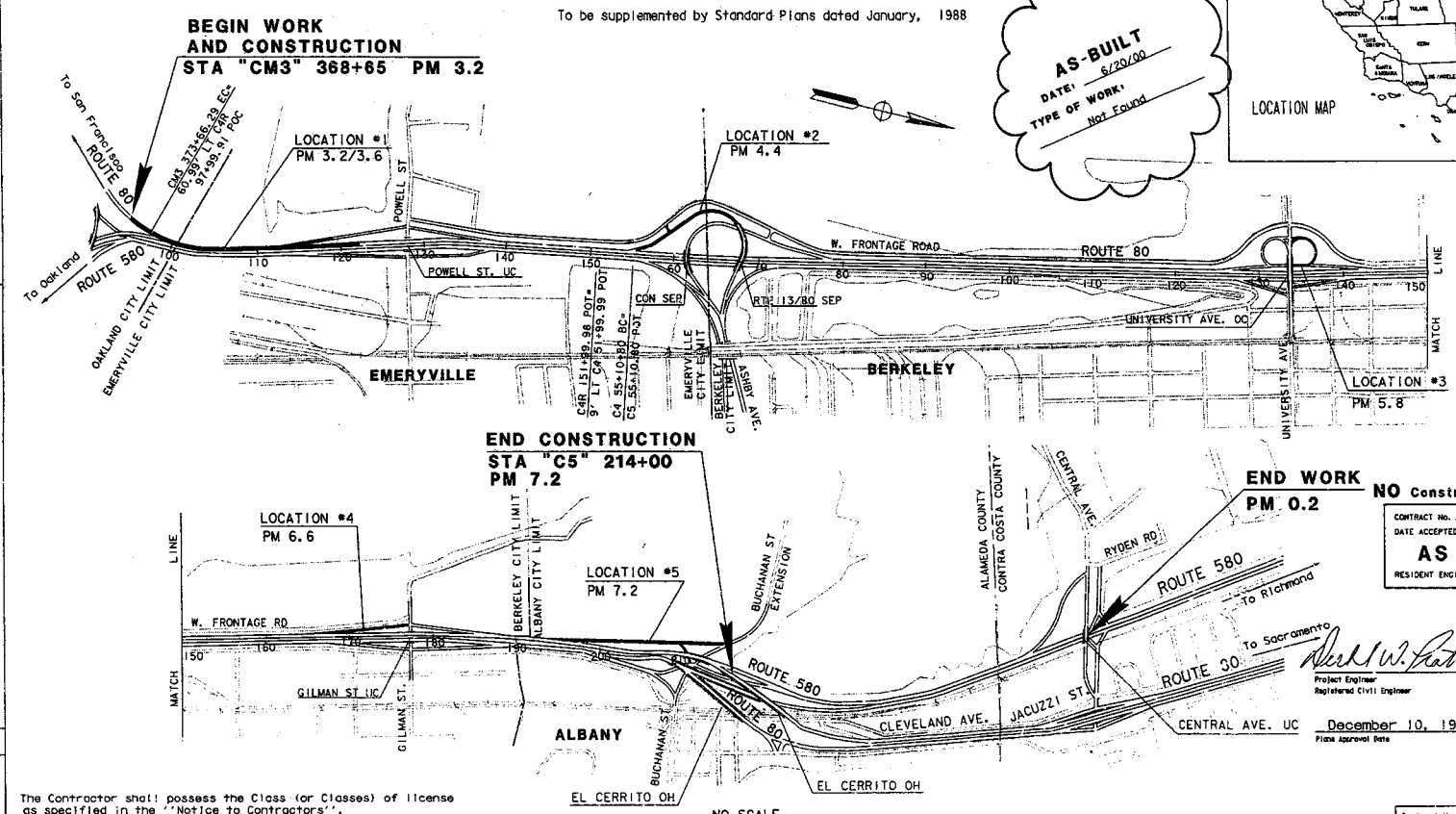
To be supplemented by Standard Plans dated January, 1988

INDEX OF SHEETS

Sheet No.	1	Title and Location Map
" "	2	Typical Cross Sections
" "	3	Standard Plans List
" "	4-8	Layouts
" "	9	Construction Details
" "	10-15	Drainage and Utility Plans
" "	16-17	Detour Plans
" "	18	Construction Area Signs
" "	19-23	Pavement Delineation Plans
" "	24-25	Summary of Quantities
" "	26-32	Sign Plans
" "	33-37	Irrigation Plans
" "	38-45	Electrical Plans



AS-BUILT
DATE: 6/29/00
TYPE OF WORK: Not Found



NO Construction Changes

CONTRACT No. 04-191614
DATE ACCEPTED 3/02/92
AS BUILT
RESIDENT ENGINEER M El Hage

D.W. PRATT
Project Engineer
Registered Civil Engineer

December 10, 1990
Plans Approval Date

REGISTERED PROFESSIONAL ENGINEER D.W. PRATT No. 46114 Exp. 12-31-90 CIVIL STATE OF CALIFORNIA

The Contractor shall possess the Class (or Classes) of license as specified in the "Notice to Contractors".

PROJECT ENGINEER D.W. PRATT DATE

Contract No. 04-191614

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3

CU 04194 EA 191611

FORM DC-DE-93-PF (REV. 3/88)

LAST REVISION 10-26-90

DATE: Wed Jun 21 2000 TIME: 08:38

FILE: /prolan/ "C:\191614\191611.dgn"

USER ID: TASLIM MOHAMMADE

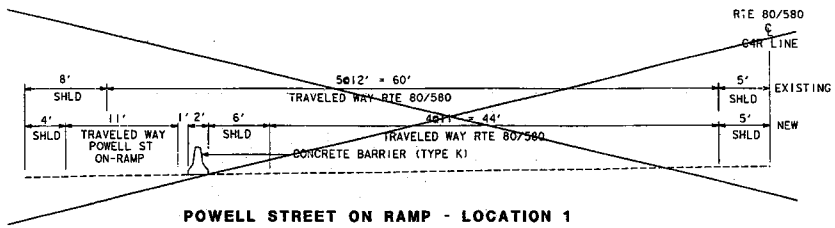
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	ALA	80	3.2/7.2	2	45

REGISTERED CIVIL ENGINEER 10-30-90

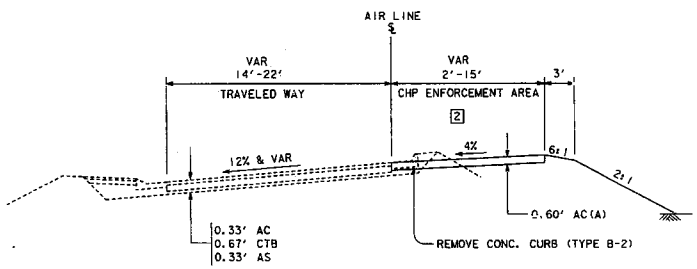
12-10-90
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER D.W. PRATT No. 46114 Exp. 12-31-90 CIVIL STATE OF CALIFORNIA

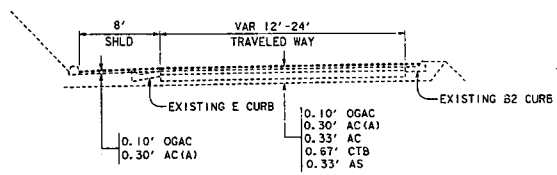
NOTES:
1. DIMENSIONS OF THE STRUCTURAL SECTIONS ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
2. SUPERELEVATION AS SHOWN OR AS DIRECTED BY THE ENGINEER.



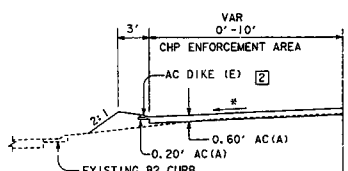
POWELL STREET ON RAMP - LOCATION 1

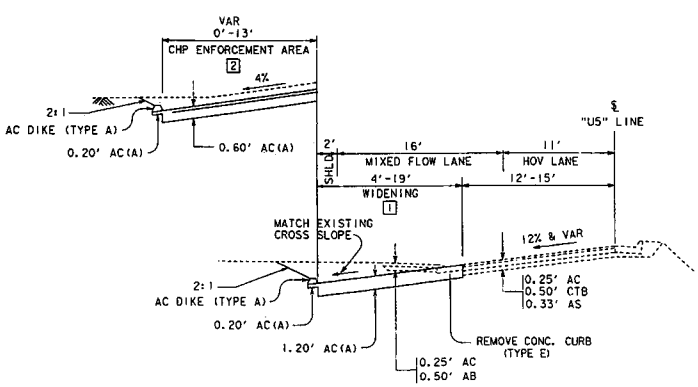


ASHBY AVENUE - LOCATION 2

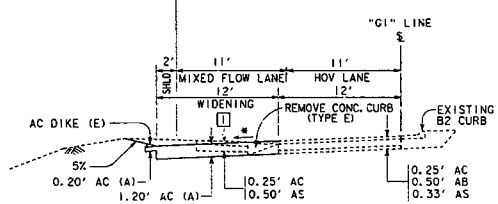


BUCHANAN STREET ON RAMP - LOCATION 5





UNIVERSITY AVENUE ON RAMP - LOCATION 3



Construction Changes

CONTRACT No. 04-191614
DATE ACCEPTED 3/02/92

AS BUILT

RESIDENT ENGINEER M E I Hoge
REVISIONS BY TP DATE 6/9/93
DELINEATED BY CT DATE 6/00
DELINEATION CHECKED BY LD DATE 6/00

* EXTEND EXISTING CROSS SLOPE "G1" 165+65 TO 172+00
CROSS SLOPE SHALL BE 2% "G1" 172+00 TO 176+30

GILMAN STREET ON RAMP - LOCATION 4

TYPICAL CROSS SECTION

NO SCALE

X-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	PROJECT ENGINEER	CALCULATED/DESIGNED BY	DATE
Caltrans CENTRAL DESIGN	DERHL W. PRATT	CHECKED BY	REVISED BY
			DATE REVISED

FORM DC-OE-92-PP (REV. 3/88)

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3

CU 04194 | EA 191611

PAVEMENT DESIGN (UNIVERSITY AVENUE AT I-80)

PER HIGHWAY DESIGN MANUAL, CHAP. 600

PROJECT NAME:UNIVERSITY AVENUE AT I-80 IMPROVEMENTS
PROJECT NO.: 209102.UNI

Design Case: AC over AB

Design TI=	***10***	input
R_{BS}=	***15***	input
R_{AB}=	78	

$GE_{HMA+AB} = 0.0032*TI*(100-R_{BS}) =$ 2.72

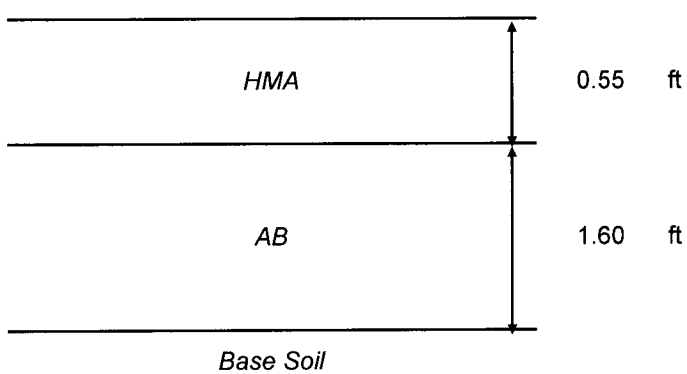
$GE_{HMA} = 0.0032*TI*(100-R_{AB}) =$ 0.70

=>	GE'_{HMA} =	0.90	(add 0.2 ft safety factor)
	HMA Thickness =	0.51	ft
=>	HMA Thickness =	**0.55**	ft (round up to the nearest 0.05 ft)
	$G_{f,\ HMA}$ =	1.81	
	GE_{HMA} =	1.00	

$GE_{AB} = GE_{HMA+AB} - GE_{HMA} =$ 1.72

	AB thickness=	1.57	ft
=>	AB Thickness=	**1.60**	ft (round up to the nearest 0.05 ft)
	GE_{AB}=	1.76	$G_{f,\ AB}$=1.1

Design Section:



PAVEMENT DESIGN (UNIVERSITY AVENUE AT I-80)

PER HIGHWAY DESIGN MANUAL, CHAP. 600

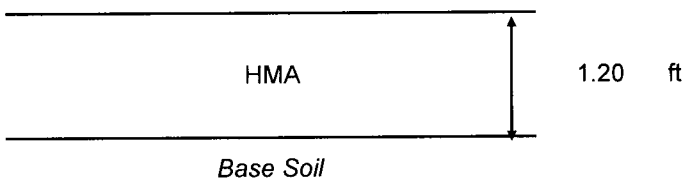
PROJECT NAME:UNIVERSITY AVENUE AT I-80 IMPROVEMENTS
PROJECT NO.: 209102.UNI

Design Case: Full depth AC

Design TI=	***10***	input
R_{BS}=	***15***	input

$GE_{AC} = 0.0032*TI*(100-R_{BS}) =$		2.72	
=>	GE'_{HMA}=	2.82	(add 0.1 ft safety factor)
=>	HMA Thickness=	1.20	
=>	HMA Thickness=	**1.20**	ft (round up to the nearest 0.05 ft)

Design Section:



PAVEMENT DESIGN (UNIVERSITY AVENUE AT I-80)

PER HIGHWAY DESIGN MANUAL, CHAP. 600

PROJECT NAME: UNIVERSITY AVENUE AT I-80 IMPROVEMENTS
PROJECT NO.: 209102.UNI

Design Case: AC over AB

Design TI=	***9***	input
R_{BS}=	***40***	input
R_{AB}=	78	

$GE_{HMA+AB} = 0.0032*TI*(100-R_{BS}) =$ 1.73

$GE_{HMA} = 0.0032*TI*(100-R_{AB}) =$ 0.63

=> GE'_{HMA} = 0.83 (add 0.2 ft safety factor)

HMA Thickness = 0.44 ft

=> HMA Thickness = **0.45** ft (round up to the nearest 0.05 ft)

$G_{f,\ HMA}$ = 1.89

GE_{HMA} = 0.85

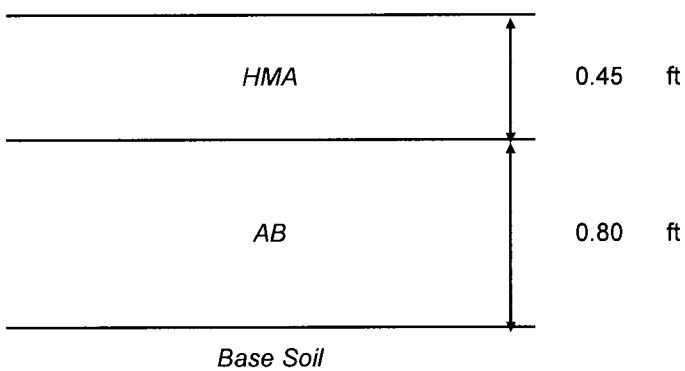
$GE_{AB} = GE_{HMA+AB} - GE_{HMA} =$ 0.88

AB thickness= 0.80 ft

=> AB Thickness= **0.80** ft (round up to the nearest 0.05 ft)

GE_{AB}= 0.88 $G_{f,\ AB}$=1.1

Design Section:



PAVEMENT DESIGN (UNIVERSITY AVENUE AT I-80)

PER HIGHWAY DESIGN MANUAL, CHAP. 600

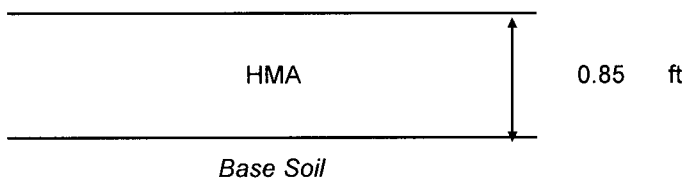
PROJECT NAME: UNIVERSITY AVENUE AT I-80 IMPROVEMENTS
PROJECT NO.: 209102.UNI

Design Case: Full depth AC

Design TI=	***9***	input
R_{BS}=	***40***	input

$GE_{AC} = 0.0032*TI*(100-R_{BS}) =$		1.73	
=>	GE'_{HMA}=	1.83	(add 0.1 ft safety factor)
=>	HMA Thickness=	0.83	
=>	HMA Thickness=	**0.85**	ft (round up to the nearest 0.05 ft)

Design Section:



PAVEMENT DESIGN (UNIVERSITY AVENUE AT I-80)

PER HIGHWAY DESIGN MANUAL, CHAP. 600

PROJECT NAME:UNIVERSITY AVENUE AT I-80 IMPROVEMENTS
PROJECT NO.: 209102.UNI

Design Case: AC over AB

Design TI=	***10***	input
R_{BS}=	***40***	input
R_{AB}=	78	

$GE_{HMA+AB} = 0.0032*TI*(100-R_{BS}) =$ 1.92

$GE_{HMA} = 0.0032*TI*(100-R_{AB}) =$ 0.70

=> GE'_{HMA} = 0.90 (add 0.2 ft safety factor)

HMA Thickness = 0.51 ft

=> HMA Thickness = **0.55** ft (round up to the nearest 0.05 ft)

$G_{f,\ HMA}$ = 1.81

GE_{HMA} = 1.00

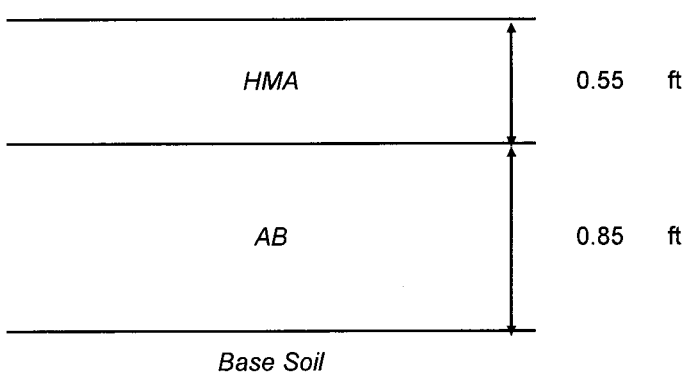
$GE_{AB} = GE_{HMA+AB} - GE_{HMA} =$ 0.92

AB thickness= 0.84 ft

=> AB Thickness= **0.85** ft (round up to the nearest 0.05 ft)

GE_{AB}= 0.94 $G_{f,\ AB}$=1.1

Design Section:



PAVEMENT DESIGN (UNIVERSITY AVENUE AT I-80)

PER HIGHWAY DESIGN MANUAL, CHAP. 600

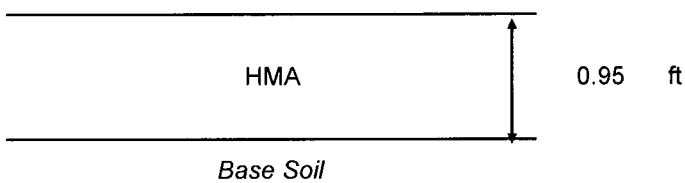
PROJECT NAME:UNIVERSITY AVENUE AT I-80 IMPROVEMENTS
PROJECT NO.: 209102.UNI

Design Case: Full depth AC

Design TI=	***10***	input
R_{BS}=	***40***	input

$GE_{AC} = 0.0032*TI*(100-R_{BS}) =$		1.92	
=>	GE'_{HMA}=	2.02	(add 0.1 ft safety factor)
=>	HMA Thickness=	0.93	
=>	HMA Thickness=	**0.95**	ft (round up to the nearest 0.05 ft)

Design Section:



PRELIMINARY SITE INVESTIGATION REPORT

I-80 MOBILITY PROJECT, ADAPTIVE RAMP METERING
ALAMEDA AND CONTRA COSTA COUNTIES, CALIFORNIA

PREPARED FOR:
KIMLEY-HORN AND ASSOCIATES. INC.
555 12TH STREET, SUITE 1230
OAKLAND, CA 94607

PREPARED BY:
GEOCON CONSULTANTS, INC.
6671 BRISA STREET
LIVERMORE, CA 94550

GEOCON

GEOCON PROJECT NO. E8583-06-01

August 2011

GEOCON
CONSULTANTS, INC.
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. E8583-06-01
August 23, 2011

Randy Durrenberger
Kimley-Horn and Associates, Inc.
555 12th Street, Suite 1230
Oakland, California 94607

Subject: I-80 MOBILITY PROJECT - ADAPTIVE RAMP METERING
ALAMEDA AND CONTRA COSTA COUNTIES, CALIFORNIA
LIMITED SITE INVESTIGATION REPORT

Dear Mr. Durrenberger:

Geocon has performed environmental engineering services at the subject site in general accordance with the scope of work outlined in our *Limited Site Investigation Workplan* dated June 17, 2011. The limited site investigation was performed along the I-80 Mobility Project corridor in Alameda and Contra Costa Counties, California from 0.8 mile east of the San Francisco Bay Bridge and 0.1 mile west of the Carquinez Bridge. The proposed improvement project includes the installation of an adaptive ramp metering (ARM) system within the project limits. The subject limited investigation was performed at three westbound on-ramps (Ashby Avenue, University Avenue, and John Muir Parkway) where roadway widening is proposed in association with the installation of the ARM systems.

The accompanying report summarizes the services performed including limited soil sample collection and laboratory analysis. If there are any questions concerning the contents of this report, or if Geocon may be of further service, please contact the undersigned at 925-371-5900.

Sincerely,

GEOCON CONSULTANTS, INC.

PROFESSIONAL GEOLOGIST
RICHARD W. DAY
No. 5479
Exp. 09-30-11
STATE OF CALIFORNIA

Richard Day, CEG, CHG
Vice President / Senior Geologist

(1) Addressee (pdf)

TABLE OF CONTENTS

LIMITED SITE INVESTIGATION REPORT Page

1.0 INTRODUCTION 1
1.1 Project Description and Proposed Improvements 1
1.2 Purpose 1

2.0 BACKGROUND 1
2.1 Hazardous Waste Determination Criteria 1
2.2 DTSC Variance 2
2.3 Environmental Screening Levels 3

3.0 SCOPE OF SERVICES 4
3.1 Pre-field Activities 4
3.2 Field Activities 4

4.0 INVESTIGATIVE METHODS 4
4.1 Sampling Procedures 4
4.2 Laboratory Analyses 5
4.3 Laboratory QA/QC 5

5.0 INVESTIGATIVE RESULTS 6
5.1 Laboratory Analytical Results 6
5.1.1 Ashby Avenue Borings 6
5.1.2 John Muir Parkway 6
5.1.3 University Avenue Borings 7
5.2 Laboratory Quality Assurance/Quality Control 7
5.3 Statistical Evaluation for Lead Detected in Soil Samples 8
5.3.1 Calculating the UCLs for the Arithmetic Mean 8
5.3.2 Correlation of Total and WET Lead 9

6.0 CONCLUSIONS 11
6.1 Lead 11
6.1.1 Ashby Avenue WB Onramp 11
6.1.2 John Muir Parkway WB Onramp 11
6.1.3 University Avenue WB Onramp 12
6.2 Other CAM 17 Metals 13
6.3 Petroleum Hydrocarbons 14
6.4 Pesticides 14
6.5 Worker Protection 14

7.0 REPORT LIMITATIONS 15

TABLE OF CONTENTS (cont.)

FIGURES

1. Vicinity Map
2 Site Plan

TABLES

1. Boring Coordinates
2. Summary of Lead and pH Results
3. Summary of CAM 17 Metals Results
4. Summary of Petroleum Hydrocarbon Results
5. Summary of Pesticides Results
6a. Summary of Lead Statistical Analysis – Ashby Avenue
6b. Summary of Lead Statistical Analysis – John Muir Parkway
6c. Summary of Lead Statistical Analysis – University Avenue

APPENDICES

A. DTSC Variance
B. Laboratory Reports and Chain-of-custody Documentation
C. Lead Regression Analysis and Metals UCLs

LIMITED SITE INVESTIGATION REPORT

1.0 INTRODUCTION

This *Limited Site Investigation Report* for the Interstate 80 (I-80) Integrated Corridor Mobility Project, Adaptive Ramp Metering (ARM) was prepared by Geocon Consultants, Inc. at the request of Kimley-Horn and Associates, Inc., and in general accordance with our *Limited Site Investigation Workplan* dated June 17, 2011.

1.1 Project Description and Proposed Improvements

The proposed construction activities will be conducted within existing California Department of Transportation (Caltrans) right-of-way (ROW). Improvement activities include the installation of an adaptive ramp metering (ARM) system within the project limits between 0.8 mile east of the San Francisco Bay Bridge to 0.1 mile west of the Carquinez Bridge. The construction project will include roadway widening at three westbound I-80 on-ramps (Ashby Avenue, University Avenue, and John Muir Parkway). The site location is depicted on the Vicinity Map, Figure 1.

1.2 Purpose

The purpose of the site investigation was to evaluate whether impacts due to metals, including aerially deposited lead (ADL), petroleum hydrocarbon compounds, or pesticides exist in the surface and near surface unpaved soil due to historic leaded fuel emissions from automobile exhausts. The information obtained from this investigation will be used by Kimley-Horn and Associates to coordinate project activities and worker health and safety.

2.0 BACKGROUND

2.1 Hazardous Waste Determination Criteria

Regulatory criteria to classify a waste as California hazardous for handling and disposal purposes are contained in the CCR, Title 22, Division 4.5, Chapter 11, Article 3, §66261.24. Criteria to classify a waste as Resource, Conservation, and Recovery Act (RCRA) hazardous are contained in Chapter 40 of the Code of Federal Regulations (40 CFR), Section 261.

For waste containing metals, the waste is classified as California hazardous when: 1) the total metal content exceeds the respective Total Threshold Limit Concentration (TTLC); or 2) the soluble metal content exceeds the respective Soluble Threshold Limit Concentration (STLC) based on the standard Waste Extraction Test (WET). A waste has the potential of exceeding the STLC when the waste's total metal content is greater than or equal to ten times the respective STLC value since the WET uses a 1:10 dilution ratio. Hence, when a total metal is detected at a concentration greater than or equal to ten

times the respective STLC, and assuming that 100 percent of the total metals are soluble, soluble metal analysis is required. A material is classified as RCRA hazardous, or Federal hazardous, when the soluble metal content exceeds the Federal regulatory level based on the Toxicity Characteristic Leaching Procedure (TCLP).

The above regulatory criteria are based on chemical concentrations. Wastes may also be classified as hazardous based on other criteria such as ignitability and corrosivity; however, for the purposes of this investigation, toxicity (i.e., lead concentrations) is the primary factor considered for waste classification since waste generated during the construction activities would not likely warrant testing for ignitability or other criteria. Waste that is classified as either California hazardous or RCRA hazardous requires management as a hazardous waste.

2.2 DTSC Variance

The DTSC issued a statewide Variance effective July 1, 2009, regarding the reuse of ADL-impacted soils within Caltrans right-of-way. Under the Variance, soil that is classified as a non-RCRA hazardous waste, based primarily on ADL content, may be suitable for reuse within Caltrans right-of-way. ADL soil that is classified as a RCRA hazardous waste is not eligible for reuse under the Variance and must be disposed of as a RCRA hazardous waste (Caltrans Type Z-3).

ADL soil reused under the Variance must always be at least 5 feet above the highest groundwater elevation and, depending on lead concentrations, must be covered with at least one foot of non-hazardous soil or a pavement structure. The ADL soil may not be placed in areas where it might contact groundwater or surface water (such as streams and rivers), and must be buried in locations that are protected from erosion that may result from storm water run-on and run-off.

Review of the statewide Variance indicates the following conditions regarding the reuse and management of ADL-impacted soil as fill material for construction and maintenance operations. If ADL soil meets the Variance criteria but is not intended to be reused within Caltrans right-of-way, then the excavated soil must be disposed of as a California hazardous waste (Caltrans Type Z-2). A copy of the Variance is presented as Appendix A.

Caltrans Type Y-1: ADL soil exhibiting a total lead concentration less than or equal to 1,411 milligrams per kilogram (mg/kg), a DI-WET (WET using deionized water as extractant) soluble lead concentration less than or equal to 1.5 milligrams per liter (mg/l), and a pH value greater than or equal to 5.5 may be reused within the same Caltrans corridor and must be covered with at least one foot of non-hazardous soil.

Caltrans Type Y-2: ADL soil exhibiting a total lead concentration less than or equal to 1,411 mg/kg, a DI-WET lead concentration less than or equal to 1.5 mg/l, and a pH value greater than 5 and less than 5.5 may be reused within the same Caltrans corridor and must be covered and protected from infiltration by a pavement structure.

ADL soil exhibiting a total lead concentration less than or equal to 1,411 mg/kg, a DI-WET lead concentration greater than 1.5 mg/l and less than or equal to 150 mg/l, and a pH value greater than 5 may be reused within the same Caltrans corridor and must be covered and protected from infiltration by a pavement structure.

ADL soil exhibiting a total lead concentration greater than 1,411 mg/kg and less than or equal to 3,397 mg/kg, a DI-WET lead concentration less than or equal to 150 mg/l, and a pH value greater than 5 may be reused within the same Caltrans corridor and must be covered and protected from infiltration by a pavement structure.

Caltrans Type Z-2: ADL soil exhibiting a total lead concentration greater than 3,397 mg/kg, a DI-WET lead concentration greater than 150 mg/l, or a pH value less than or equal to 5 is not eligible for reuse under the Variance and must be disposed of as a California hazardous waste.

Caltrans Type Z-3: ADL soil exhibiting a TCLP lead concentration greater than or equal to 5 mg/l is not eligible for reuse under the Variance and must be disposed of as a RCRA hazardous waste.

2.3 Environmental Screening Levels

The San Francisco Bay Regional Water Quality Control Board (SFRWQCB) has prepared a technical report entitled *Screening For Environmental Concerns At Sites With Contaminated Soil and Groundwater, Interim Final* (May 2008), which presents Environmental Screening Levels (ESLs) for soil, groundwater, soil gas, and surface water, to assist in evaluating sites impacted by releases of hazardous chemicals. The ESLs are conservative values for more than 100 commonly detected contaminants, which may be used to compare with environmental data collected at a site. ESLs are strictly risk assessment tools and "not regulatory clean up standards." The presence of a chemical at concentrations in excess of an ESL does not necessarily indicate that adverse impacts to human health or the environment are occurring; this simply indicates that a potential for adverse risk may exist and that additional evaluation is or "may be" warranted (SFRWQCB, 2008).

The following ESL tables were used for comparison: Table A – Shallow Soil (≤3 meters below ground surface; bgs) – Groundwater is a Current or Potential Source of Drinking Water, and Table F – Surface Water. The respective ESLs are listed in Tables 3 through 5 for comparative purposes.

3.0 SCOPE OF SERVICES

The following sections present the scope of services performed by Geocon.

3.1 Pre-field Activities

- Prepared the *Limited Site Investigation Workplan, I-80 Mobility Project, Alameda Contra Costa Counties, California,* dated June 17, 2011. Caltrans concurred with the workplan and proposed scope of service on June 20, 2011
- Prepared a site-specific health and safety plan (HSP) for the project that provided guidelines on the use of personal protective equipment and the health and safety procedures implemented during the field activities.
- Retained the services of Advanced Technology Laboratories (ATL) to perform the analyses of the soil samples.

3.2 Field Activities

Geocon performed the site investigation on June 29 and 30, 2011. Twenty-two soil borings were advanced at proposed onramp widening locations along the I-80 westbound onramps at Ashby Avenue (borings A1 to A6), John Muir Parkway (boring JM1 to JM9), and University Avenue (borings U1 to U7) using hand-auger drilling methods. Geocon collected soil samples at depth intervals of 0 to 0.5 feet, 1.0 to 1.5 feet, and 2.0 to 2.5 feet at each boring location. Samples were transported to California-certified environmental laboratories for analysis under standard chain-of-custody documentation.

The boring locations were recorded in the field using global positioning system equipment. The boring coordinates are summarized on Table 1 and boring locations are depicted on the Site Plans, Figures 2a to 2c.

4.0 INVESTIGATIVE METHODS

4.1 Sampling Procedures

Soil samples were collected from the 22 borings at depth intervals of 0 to 0.5 foot, 1.0 to 1.5 feet, and 2.0 to 2.5 feet using hand-auger methods. Soil samples were collected in new stainless steel tubes sealed with Teflon tape and plastic end-caps. Sample containers were labeled and transported to ATL using standard chain-of-custody (COC) documentation. Shallow soil borings were backfilled to the surface with soil cuttings.

Geocon provided QA/QC procedures during the field activities. These procedures included washing the sampling equipment with a Liqui-Nox® solution followed by a double rinse with deionized water. Decontamination water was disposed of to the ground surface within Caltrans right-of-way in a manner not to create runoff, away from drain inlets or potential water bodies.

4.2 Laboratory Analyses

The soil samples were analyzed as follows:

- 51 samples for total lead using Environmental Protection Agency (EPA) Method 6010 ICAP.
- 15 samples for CAM 17 metals according to Title 22 CCR, EPA Test Methods 6010 ICAP and 7471A.
- 28 samples with total lead concentrations greater than 50 mg/kg (i.e. ten times the STLC of 5.0 mg/l) were further analyzed for WET lead.
- 15 samples with WET lead concentrations greater than 5.0 mg/l were further analyzed for DI-WET lead.
- 7 samples with total and WET lead concentrations exceeding 100 mg/kg and 5 mg/l, respectively, were analyzed for TCLP lead using EPA Method 1311/7420.
- 1 sample with total a chromium concentration greater than 50 mg/kg (i.e. ten times the STLC of 5.0 mg/l) were further analyzed for WET chromium.
- 19 samples for TPH as gasoline (TPHg) using EPA Test Method 8015B.
- 22 samples for TPHd and TPHmo using EPA Test Method 8015B.
- 22 samples for BTEX using EPA Test Method 8021B.
- 22 samples for organochlorine pesticides using EPA Test Method 8081A.
- 14 soil samples for pH using EPA Method 9045.

4.3 Laboratory QA/QC

QA/QC procedures were performed for each method of analysis with specificity for each analyte listed in the test method's QA/QC. The laboratory QA/QC procedures included the following:

- One method blank for every ten samples, batch of samples or type of matrix, whichever was more frequent.
- One sample analyzed in duplicate for every ten samples, batch of samples or type of matrix, whichever was more frequent.
- One spiked sample for every ten samples, batch of samples or type of matrix; whichever was more frequent, with spike made at ten times the detection limit or at the analyte level.

Prior to submitting the samples to the laboratory, the COC documentation was reviewed for accuracy and completeness (Appendix B).

5.0 INVESTIGATIVE RESULTS

5.1 Laboratory Analytical Results

The analytical results are summarized in Tables 2 to 5. The analytical laboratory reports and chain-of-custody documentation are included as Appendix B.

5.1.1 Ashby Avenue Borings

- The following metals were not detected above their respective laboratory reporting limits in the soil samples: antimony, arsenic, beryllium, molybdenum, selenium, silver, and thallium.
- Total lead was reported in the samples at concentrations ranging from 1.4 to 1,100 mg/kg.
- WET lead was reported at a concentrations ranging from 1.2 to 94 mg/l.
- DI-WET lead was reported at concentrations ranging from 0.20 to 0.56 mg/l.
- TCLP lead was reported in was reported at concentrations ranging from 0.14 to 0.39 mg/l.
- Remaining CAM 17 metals were reported in the samples at concentrations less than ten times their respective STLCs.
- TPHg or BTEX were not detected at or above their respective laboratory reporting limits.
- TPHd was reported at concentrations ranging from 17 to 140 mg/kg.
- TPHmo was reported at concentrations ranging from 66 to 680 mg/kg.
- Organochlorine pesticides were reported at concentrations ranging from 2.0 to 240 µg/kg.

5.1.2 John Muir Parkway

- The following metals were not detected above their respective laboratory reporting limits in the soil samples: antimony, beryllium, selenium, silver, and thallium.
- Total lead was reported at concentrations ranging from 6.2 to 72 mg/kg.
- WET lead was reported at concentrations of 0.82 and 2.3 mg/l.
- Remaining CAM 17 metals were reported in the samples at concentrations less than ten times their respective STLCs.
- TPHg or BTEX were not detected at or above their respective laboratory reporting limits.
- TPHd was reported at concentrations ranging from 1.6 to 86 mg/kg.
- TPHmo was reported at concentrations ranging from 5.1 to 490 mg/kg.
- Organochlorine pesticides were not detected at or above the laboratory reporting limits.

5.1.3 University Avenue Borings

- The following metals were not detected at or above their respective laboratory reporting limits in the soil samples: beryllium, cadmium, molybdenum, selenium, silver, and thallium.
- Total lead was reported at concentrations ranging from 1.2 to 710 mg/kg.
- WET lead was reported at concentrations ranging from 2.3 to 65 mg/l.
- DI-WET lead was reported at concentrations ranging from 0.10 to 0.17 mg/l.
- TCLP lead was reported at a concentration of 0.52 mg/l.
- Total chromium was reported in the samples at concentrations ranging from 28 to 60 mg/kg.
- WET chromium was not detected at or above the laboratory reporting limit of 1.0.
- Remaining CAM 17 metals were reported in the samples at concentrations less than ten times their respective STLCs.
- TPHg or BTEX were not detected at or above their respective laboratory reporting limits.
- TPHd was reported at concentrations ranging from 42 to 410 mg/kg.
- TPHmo was reported at concentrations ranging from 180 to 1,800 mg/kg.

5.2 Laboratory Quality Assurance/Quality Control

We reviewed the QA/QC results provided with the laboratory analytical reports. The relative percent differences (RPDs) for several of the matrix spike duplicate samples for the analyses were outside criteria. The data indicate non-detect results for the method blanks. The RPDs of the duplicate samples for several of the analyses were outside criteria. Surrogate recovery was diluted out for several samples. Surrogate recoveries were biased high for six analyses, possibly due to sample matrix. The Matrix Spike/matrix spike duplicate (MS/MSD) was outside of the recovery criteria for one of the laboratory QA/QC samples.

The Case Narratives in the laboratory reports state that each analytical batch was validated by the laboratory control sample (LCS). The data showed acceptable recoveries and RPDs for the remainder of the duplicates and matrix spikes. Dilution was necessary for several analyses due to sample matrix.

Based on this limited data review, no additional qualifications of the soil data are necessary, and the data are of sufficient quality for the purposes of this report.

5.3 Statistical Evaluation for Lead Detected in Soil Samples

Statistical methods were applied to the total lead data from each area to evaluate: 1) the upper confidence limits (UCLs) of the arithmetic means of the total lead concentrations for each sampling depth; and 2) if an acceptable correlation between total and soluble lead concentrations exists that would allow the prediction of WET lead concentrations based on calculated UCLs.

The lead data for the Site were treated as three sample populations for statistical evaluation, which consisted of the following:

Ashby Avenue WB onramp – borings A1 to A6

John Muir Parkway WB onramp – borings JM1 to JM9

University Avenue WB onramp – borings U1 to U7

5.3.1 Calculating the UCLs for the Arithmetic Mean

The upper one-sided 90% and 95% UCLs of the arithmetic mean are defined as the values that, when calculated repeatedly for randomly drawn subsets of site data, equal or exceed the true mean 90% and 95% of the time, respectively. Statistical confidence limits are the classical tool for addressing uncertainties of a distribution mean. The UCLs of the arithmetic mean concentration are used as the mean concentrations because it is not possible to know the true mean due to the essentially infinite number of soil samples that could be collected from a site. The UCLs therefore account for uncertainties due to limited sampling data. As data become less limited at a site, uncertainties decrease, and the UCLs move closer to the true mean.

Non-parametric standard bootstrap techniques were used to calculate the UCLs. For those samples in which total lead was not detected at concentrations exceeding the laboratory reporting limit, a value equal to one-half of the detection limit was used in the UCL calculation. The bootstrap test results are included in Appendix C. The following tables present the calculated UCLs and statistics for the data set of each area.

Ashby Avenue WB Onramp - Borings A1 to A6

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)
0.0 to 0.5	662.4	701.9	524.3	86	980
1.0 to 1.5	505.5	572.4	297.4	2.5	1,100
2.0 to 2.5	213.6	246.8	102	1.4	590

John Muir Parkway WB Onramp - Borings JM1 to JM9

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)
0.0 to 0.5	32.35	35.09	23.81	8.2	72
1.0 to 1.5	13.92	14.51	11.79	6.2	23
2.0 to 2.5	24.24	26.28	17.03	2.5	56

University Avenue WB Onramp - Borings U1 to U7

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)
0.0 to 0.5	360.9	389.8	248.9	52	710
1.0 to 1.5	133.2	144.1	97.26	8.8	260
2.0 to 2.5	45.92	49.86	32.53	1.2	82

5.3.2 Correlation of Total and WET Lead

Total and corresponding WET lead concentrations are bivariate data with a linear structure. This linear structure should allow for the prediction of WET lead concentrations based on the UCLs calculated above in Section 5.3.1.

To estimate the degree of interrelation between total and corresponding WET lead values (x and y, respectively), the *correlation coefficient [r]* is used. The correlation coefficient is a ratio that ranges from +1 to –1. A *correlation coefficient* of +1 indicates a perfect direct relationship between two variables; a *correlation coefficient* of –1 indicates that one variable changes inversely with relation to the other. Between the two extremes is a spectrum of less-than-perfect relationships, including zero, which indicates the lack of any sort of linear relationship at all. The *correlation coefficient* was calculated for the 28 (x, y) data points (i.e., soil samples analyzed for both total lead [x] and WET lead [y]). The resulting *coefficient of determination* (r^2) equaled 0.9493, which yields a corresponding *correlation coefficient* (r) of 0.9743.

For the *correlation coefficient* that indicates a linear relationship between total and WET lead concentrations, it is possible to compute the line of dependence or a best-fit line between the two variables. A least squares method was used to find the equation of a best-fit line (regression line) by forcing the y-intercept equal to zero since that is a known point. The equation of the regression line was determined to be $y = 0.0723(x)$, where x represents total lead concentrations and y represents predicted WET lead concentrations.

This equation was used to estimate the expected WET lead concentrations for the UCLs calculated in for samples collected from the Site (see Section 5.3.1). Regression analysis results and a scatter plot depicting the (x, y) data points along with the regression line are included in Appendix C. The predicted WET lead concentrations are summarized in Tables 6a to 6c.

6.0 CONCLUSIONS

Waste classifications are evaluated based on the 90% UCL of the lead content for the relevant excavation depths; this has historically been considered sufficient to satisfy a good faith effort by the EPA as discussed in SW-846. Risk assessment characterization is based on the 95% UCL of the lead content in the waste for the relevant depths; this is in accordance with the Risk Assessment Guidance for Superfund (RAGS) Volume 1 Documentation for Exposure Assessment.

6.1 Lead

6.1.1 Ashby Avenue WB Onramp

The following table summarizes the predicted waste classification for excavated soil based on the calculated weighted averages of the total lead UCLs for data collected from this portion of the Site. The total and WET lead calculations are summarized in Table 5a.

Excavation Depth	90% UCL Total Lead (mg/kg)	90% UCL Predicted WET Lead (mg/l)	95% UCL Total Lead (mg/kg)	Waste Classification
0 to 1.0 ft	662	**47.9**	702	**Hazardous**
Underlying soil (1.0 to 2.5 ft)	*408*	***29.5***	*464*	**Hazardous**
0 to 2.0 ft	584	**42.2**	637	**Hazardous**
Underlying soil (2.0 to 2.5 ft)	*214*	***15.4***	*247*	**Hazardous**
0 to 2.5 ft	510	**36.9**	592	**Hazardous**

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

Based on the data presented in the above table, soil excavated to a depth of 2.5 feet would be classified as a California hazardous waste since the 90% UCL-predicted WET lead concentration is greater than the lead STLC of 5.0 mg/l. Based on the TCLP lead results, excavated soil would not be a RCRA hazardous waste. Based on the reported DI-WET results, excavated soil may be reused onsite in accordance with the DTSC Variance (as Type Y-1) by placing the excavated soil under clean fill or pavement.

6.1.2 John Muir Parkway WB Onramp

The following table summarizes the predicted waste classification for excavated soil based on the calculated weighted averages of the total lead UCLs for data collected from this portion of the Site. The total and WET lead calculations are summarized in Table 6.

Excavation Depth	90% UCL Total Lead (mg/kg)	90% UCL Predicted WET Lead (mg/l)	95% UCL Total Lead (mg/kg)	Waste Classification
0 to 1.0 ft	32	3.2	35	Non-hazardous
Underlying soil (1.0 to 2.5 ft)	*17*	*1.3*	*18*	*Non-hazardous*
0 to 2.0 ft	23	1.7	25	Non-hazardous
Underlying soil (2.0 to 2.5 ft)	*24*	*1.8*	*26*	*Non-hazardous*
0 to 2.5 ft	23	1.7	29	Non-hazardous

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

Based on the data presented in the above table excavated soil would not be a hazardous waste since the 90% UCL-predicted WET lead concentrations are less than the lead STLC of 5.0 mg/l.

6.1.3 University Avenue WB Onramp

The following table summarizes the predicted waste classification for excavated soil based on the calculated weighted averages of the total lead UCLs for data collected from this portion of the Site. The total and WET lead calculations are summarized in Table 5a.

Excavation Depth	90% UCL Total Lead (mg/kg)	90% UCL Predicted WET Lead (mg/l)	95% UCL Total Lead (mg/kg)	Waste Classification
0 to 1.0 ft	3601	**26.1**	390	**Hazardous**
Underlying soil (1.0 to 2.5 ft)	*104*	***7.5***	*113*	***Hazardous***
0 to 2.0 ft	247	**17.9**	267	**Hazardous**
Underlying soil (2.0 to 2.5 ft)	*46*	*3.3*	*50*	*Non-hazardous*
0 to 2.5 ft	207	**15**	230	**Hazardous**

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

Based on the data presented in the above table, soil excavated to a depth of 2.0 feet would be classified as a California hazardous waste since the 90% UCL-predicted WET lead concentration is greater than the lead STLC of 5.0 mg/l. Underlying soil below a depth of 2.0 feet would be classified as non-hazardous and may be reused onsite. Based on the TCLP lead results, excavated soil would not be a RCRA hazardous waste. Based on the reported DI-WET results, excavated soil from the surface to a depth of 2.0 feet may be reused onsite in accordance with the DTSC Variance (as Type Y-1) by placing the excavated soil under clean fill or pavement.

6.2 Other CAM 17 Metals

The CAM 17 metals concentrations in site soil (other than lead) were compared to ESLs (Table A, SFRWQCB, May 2008). Arsenic, cadmium and vanadium were reported at concentrations greater than their respective ESL values in the soil samples collected at the project location. Arsenic was reported at concentrations up to 11 mg/kg, exceeding the residential land use ESL of 0.39 mg/kg and the commercial/industrial land use ESL of 1.6 mg/kg. Cadmium was reported at concentrations up to 3.6 mg/kg, exceeding its residential ESL of 1.7 mg/kg. Vanadium was reported at concentrations up to 52 mg/kg, also exceeding its residential land use ESL of 16 mg/kg.

Upper one-sided 95% UCLs were calculated for the full set of arsenic, cadmium and vanadium concentrations. The UCLs were compared with the residential and commercial/industrial land use ESLs and with published background levels typically present in California soils as presented in *Background Concentrations of Trace and Major Elements in California Soils* (Kearney Foundation of Soil Science, Division of Agriculture and Natural Resources, University of California, March 1996). The bootstrap results are included in Appendix C. The calculated standard bootstrap UCLs, ESLs and published background concentrations are summarized in the table below:

Metal	95% UCL	RESIDENTIAL ESL	COMMERCIAL/ INDUSTRIAL ESL	PUBLISHED BACKGROUND MEAN[1]	PUBLISHED BACKGROUND RANGE [1]
Arsenic	3.4	0.39	1.6	3.5	0.6 to 11.0
Cadmium	1.3	1.7	7.4	0.36	0.05 to 1.7
Vanadium	30	16	200	112	39 to 288

Concentrations reported in milligrams per kilogram (mg/kg)

[1] Kearney Foundation of Soil Science, March 1996

The 95% UCL value for arsenic in the soil samples is within the published background range. The SFRWQCB *November 2007 Update to Environmental Screening Levels (ESLs) Technical Document* states that ambient background concentrations of arsenic typically exceed risk-based screening levels. In such instances, it may be more appropriate to compare site data to regionally specific established background levels. Additionally, the 95% UCLs for cadmium and vanadium are within or less than published background ranges.

Based on arsenic, cadmium, or vanadium content, offsite reuse or disposal of excavated soil may be restricted.

6.3 Petroleum Hydrocarbons

TPHg or BTEX were not reported at or above laboratory reporting limits. TPHd (up to 410 mg/kg) and TPHmo (up to 1,800 mg/kg) were reported at concentrations exceeding their respective residential and commercial/industrial land use ESLs for shallow soil but below their respective construction exposure ESLs. Accordingly, offsite disposal or reuse of excavated soil excavated may be restricted based on petroleum hydrocarbon content.

6.4 Pesticides

Pesticides were not detected in the soil samples collected from the John Muir Parkway area. DDT, DDD, DDE, dieldrin, and chlordane were reported in samples collected from the Ashby Avenue and University Avenue areas of the site. The reported dieldrin concentrations from both areas exceed the residential and commercial/industrial ESLs of 2.3 ug/kg, but are below the construction exposure ESL of 1,600 µg/kg. Remaining organochlorine pesticides were not detected at or above the laboratory reporting limits. Accordingly, offsite disposal or reuse of excavated soil from the Ashby Avenue and University Avenue areas may be restricted based on pesticide concentrations.

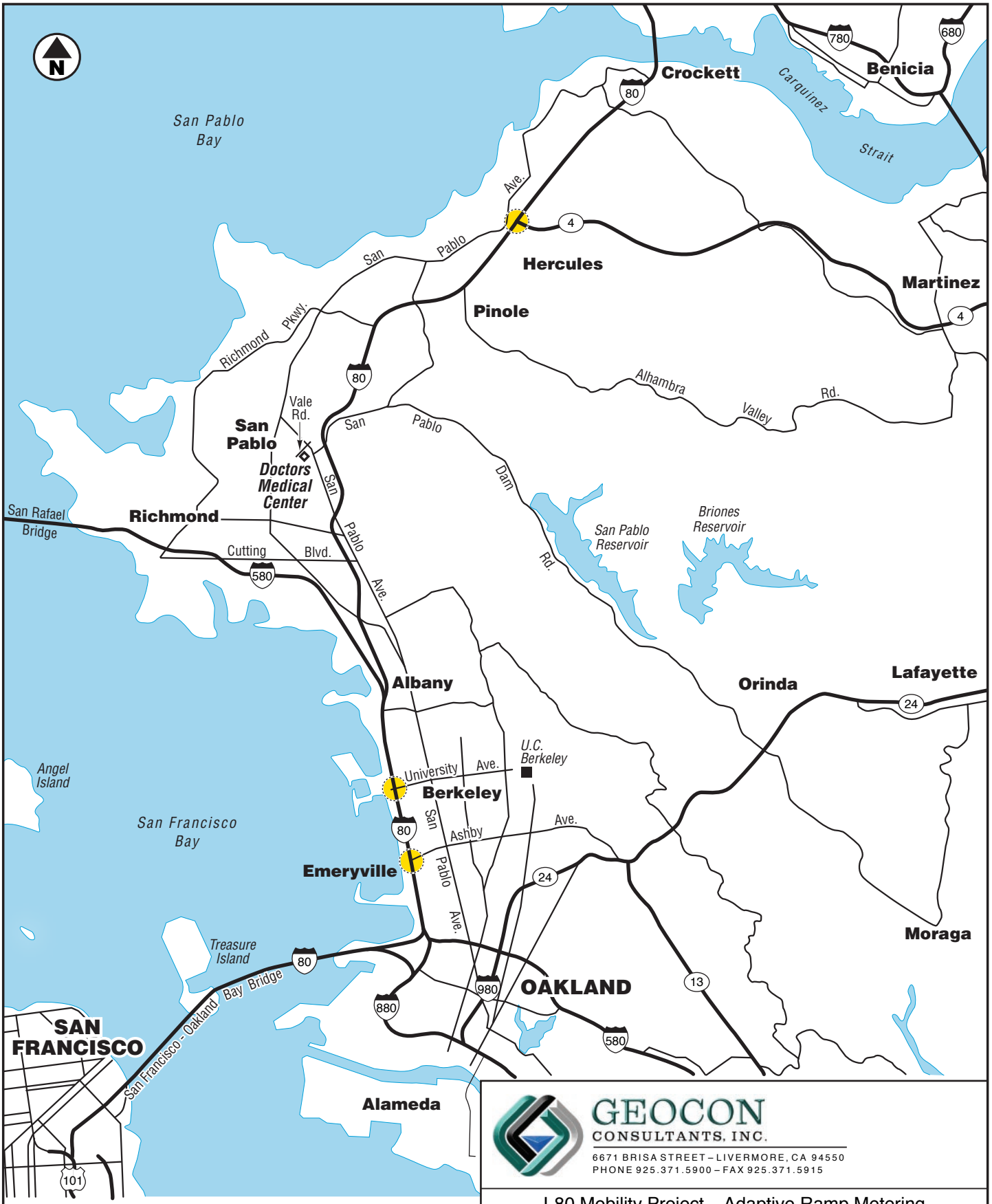
6.5 Worker Protection

Per Caltrans' requirements, the contractor(s) should prepare a project-specific health and safety plan to prevent or minimize worker exposure to impacted soil. The plan should include protocols for environmental and personnel monitoring, requirements for personal protective equipment, and other health and safety protocols and procedures for the handling of impacted soil.

7.0 REPORT LIMITATIONS

This report has been prepared exclusively for Kimley-Horn and Associates, Inc. The information contained herein is only valid as of the date of the field sampling, and will require an update to reflect additional information obtained.

This report is not a comprehensive site characterization and should not be construed as such. The findings as presented in this report are predicated on the results of the limited sampling and laboratory testing performed. In addition, the information obtained is not intended to address potential impacts related to sources other than those specified herein. Therefore, the report should be deemed conclusive with respect to only the information obtained. We make no warranty, express or implied, with respect to the content of this report or any subsequent reports, correspondence or consultation. Geocon strived to perform the services summarized herein in accordance with the local standard of care in the geographic region at the time the services were rendered.



RAMP LOCATION

0 3

Scale in Miles

GEOCON CONSULTANTS, INC.

6671 BRISA STREET – LIVERMORE, CA 94550
PHONE 925.371.5900 – FAX 925.371.5915

I-80 Mobility Project – Adaptive Ramp Metering

Alameda & Contra Costa Counties, California

GEOCON Proj. No. E8583-06-01

VICINITY MAP

August 2011

Figure 1

GEOCON CONSULTANTS, INC.

6671 BRISA STREET, LIVERMORE, CA 94550; PHONE 925 371-5900 - FAX 925 371-5915

I-80 Mobility Project

Alameda and Contra Costa Counties, California

SITE PLAN - ARM

GEOCON Proj. No. E8583-06-01 | August 2011 | Figure 2a

SITE0811a.DWG

GEOCON CONSULTANTS, INC.

6671 BRISA STREET, LIVERMORE, CA 94550; PHONE 925 371-5900 - FAX 925 371-5915

I-80 Mobility Project

Alameda and Contra Costa Counties, California

SITE PLAN - ARM

GEOCON Proj. No. E8583-06-01 | August 2011 | Figure 2b

SITE0811a.DWG

GEOCON CONSULTANTS. INC.

6671 BRISA STREET, LIVERMORE, CA 94550; PHONE 925 371-5900 - FAX 925 371-5915

I-80 Mobility Project

Alameda and Contra Costa Counties, California

SITE PLAN - ARM

GEOCON Proj. No. E8583-06-01 | August 2011 | Figure 2c

SITE0811a.DWG

TABLE 1
Boring Coordinates
I-80 Mobility Project
Alameda and Contra Costa Counties, California

Boring	Northing	Easting	Latitude	Longitude
A1	2,135,452.460	6,042,398.189	37.84585877	-122.2985116
A2	2,135,547.918	6,042,351.837	37.84611843	-122.2986785
A3	2,135,682.699	6,042,225.384	37.84648183	-122.2991253
A4	2,135,826.904	6,042,042.548	37.84686814	-122.2997680
A5	2,135,993.645	6,041,887.872	37.84731780	-122.3003147
A6	2,136,099.977	6,041,846.799	37.84760760	-122.3004640
JM1	2,196,672.600	6,051,706.722	38.01444116	-122.2702900
JM2	2,196,498.188	6,051,569.158	38.01395514	-122.2707560
JM3	2,196,306.234	6,051,423.081	38.01342049	-122.2712503
JM4	2,196,225.146	6,051,364.260	38.01319480	-122.2714492
JM5	2,196,244.881	6,051,318.928	38.01324662	-122.2716078
JM6	2,196,317.740	6,051,377.797	38.01344973	-122.2714083
JM7	2,196,393.707	6,051,434.105	38.01366124	-122.2712178
JM8	2,196,562.157	6,051,553.013	38.01412994	-122.2708162
JM9	2,196,792.215	6,051,634.957	38.01476586	-122.2705469
U1	2,143,068.488	6,040,614.806	37.86667642	-122.3051955
U2	2,143,200.441	6,040,598.924	37.86703789	-122.3052593
U3	2,143,281.447	6,040,621.930	37.86726154	-122.3051851
U4	2,143,297.374	6,040,687.973	37.86730877	-122.3049574
U5	2,143,315.476	6,040,739.533	37.86736120	-122.3047800
U6	2,143,307.356	6,040,798.626	37.86734203	-122.3045748
U7	2,143,288.139	6,040,876.892	37.86729341	-122.3043024

Northing and easting shown in feet, NAD 83, Zone 3

TABLE 2
Summary of Lead and pH Results
I-80 Mobility Project
Alameda and Contra Costa Counties, California

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	DI-WET Lead (mg/l)	TCLP Lead (mg/l)	pH
Ashby Avenue						
A1-0	0	86	4.0	---	---	---
A1-1	1	<5.0	---	---	---	8.0
A1-2	2	1.4	---	---	---	---
A2-0	0	520	31	0.32	0.19	---
A2-1	1	54	1.4	---	---	---
A2-2	2	2.1	---	---	---	---
A3-0	0	980	62	<0.10	0.21	7.0
A3-1	1	1,100	94	0.56	0.39	---
A3-2	2	14	---	---	---	---
A4-0	0	620	43	<0.10	0.37	7.0
A4-1	1	520	33	0.20	---	---
A4-2	2	590	39	<0.10	---	7.7
A5-0	0	490	35	<0.10	0.14	---
A5-1	1	43	---	---	---	---
A5-2	2	<5.0	---	---	---	---
A6-0	0	450	33	<0.20	0.29	6.8
A6-1	1	65	1.2	---	---	---
A6-2	2	2.0	---	---	---	---
John Muir Parkway						
JM1-0	0	8.7	---	---	---	---
JM1-1	1	9.9	---	---	---	7.6
JM1-2	2	16	---	---	---	---
JM2-0	0	12	---	---	---	---
JM2-1	1	10	---	---	---	---
JM2-2	2	18	---	---	---	---
JM3-0	0	72	2.3	---	---	---
JM3-1	1	7.1	---	---	---	---
JM3-2	2	56	0.82	---	---	---

TABLE 2
Summary of Lead and pH Results
I-80 Mobility Project
Alameda and Contra Costa Counties, California

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	DI-WET Lead (mg/l)	TCLP Lead (mg/l)	pH
JM4-0	0	47	---	---	---	---
JM4-1	1	19	---	---	---	7.9
JM4-2	2	7.4	---	---	---	---
JM5-0	0	23	---	---	---	---
JM5-1	1	7.2	---	---	---	---
JM5-2	2	<5.0	---	---	---	---
JM6-0	0	24	---	---	---	---
JM6-1	1	6.2	---	---	---	---
JM6-2	2	6.3	---	---	---	---
JM7-0	0	9.6	---	---	---	---
JM7-1	1	23	---	---	---	---
JM7-2	2	13	---	---	---	---
JM8-0	0	8.2	---	---	---	---
JM8-1	1	9.5	---	---	---	8.5
JM8-1.5	1.5	12	---	---	---	---
JM9-0	0	9.8	---	---	---	---
JM9-1	1	14	---	---	---	---
JM9-2	2	17	---	---	---	---
University Avenue						
U1-0	0	130	5.6	<0.10	---	6.1
U1-1	1	120	4.5	---	---	---
U1-2	2	61	2.6	---	---	---
U2-0	0	150	6.5	0.16	---	---
U2-1	1	8.8	---	---	---	7.2
U2-2	2	1.2	---	---	---	---
U3-0	0	470	26	<0.10	---	6.4
U3-1	1	260	19	0.17	---	---
U3-2	2	19	---	---	---	---

TABLE 2
Summary of Lead and pH Results
I-80 Mobility Project
Alameda and Contra Costa Counties, California

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	DI-WET Lead (mg/l)	TCLP Lead (mg/l)	pH
U4-0	0	110	5.8	0.10	---	6.6
U4-1	1	97	12	<0.10	---	---
U4-2	2	23	---	---	---	---
U5-0	0	120	4.9	---	---	---
U5-1	1	64	3.6	---	---	8.0
U5-2	2	82	4.4	---	---	---
U6-0	0	52	3.1	---	---	---
U6-1	1	81	3.5	---	---	---
U6-2	2	38	---	---	---	---
U7-0	0	710	65	<0.10	0.52	6.4
U7-1	1	50	2.3	---	---	---
U7-2	2	3.5	---	---	---	---
Hazardous Waste Criteria						
TTLC (mg/kg)		1,000		---	---	
STLC (mg/l)		---	5.0	---	---	
TCLP (mg/l)		---	---	---	5.0	

Notes:
mg/kg = Milligrams per kilogram
mg/l = Milligrams per liter
--- = Not analyzed
<5.0 = Not detected above the laboratory reporting limit
WET = Waste Extraction Test using citric acid as the extraction fluid
DI-WET = Waste Extraction Test using deionized water as the extraction fluid
TCLP = Toxicity Characteristic Leaching Procedure
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration

TABLE 3
Summary of CAM17 Metals Results
I-80 Mobility Project
Alameda and Contra Costa Counties, California

Sample ID	Sample Depth (ft)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Ashby Avenue																		
A1-2	2	<2.0	<1.0	25	<1.0	<1.0	32	5.2	3.4	1.4	<0.10	<1.0	25	<1.0	<1.0	<1.0	25	15
A2-2	2	<2.0	<1.0	35	<1.0	<1.0	30	4.6	3.6	2.1	<0.10	<1.0	23	<1.0	<1.0	<1.0	23	16
A3-2	2	<2.0	<1.0	23	<1.0	<1.0	27	4.1	5.8	14	<0.10	<1.0	20	<1.0	<1.0	<1.0	20	17
A5-0	0	<2.0	<1.0	100	<1.0	1.5	40	8.5	72	490	0.23	<1.0	33	<1.0	<1.0	<1.0	27	250
A6-2	2	<2.0	<1.0	24	<1.0	<1.0	28	4.5	2.7	2.0	<0.10	<1.0	23	<1.0	<1.0	<1.0	21	20
John Muir Parkway																		
JM1-0	0	<2.0	<1.0	110	<1.0	<1.0	11	12	22	8.7	0.45	<1.0	16	<1.0	<1.0	<1.0	52	55
JM3-1	1	<2.0	<1.0	89	<1.0	<1.0	20	6.8	5.1	7.1	<0.10	<1.0	12	<1.0	<1.0	<1.0	27	32
JM4-1	1	<2.0	4.9	69	<1.0	2.4	19	6.3	9.7	19	<0.10	<1.0	14	<1.0	<1.0	<1.0	28	53
JM6-2	2	<2.0	11	79	<1.0	3.6	18	4.3	7.9	6.3	0.19	1.5	18	<1.0	<1.0	<1.0	17	41
JM8-1	1	<2.0	4.1	140	<1.0	1.0	9.5	8.4	19	9.5	0.66	<1.0	19	<1.0	<1.0	<1.0	19	47

TABLE 3
Summary of CAM17 Metals Results
I-80 Mobility Project
Alameda and Contra Costa Counties, California

Sample ID	Sample Depth (ft)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
University Avenue																		
U2-2	2	<2.0	<1.0	17	<1.0	<1.0	28	4.4	2.7	1.2	<0.10	<1.0	22	<1.0	<1.0	<1.0	21	14
U4-0	0	2.5	2.7	100	<1.0	<1.0	36	8.2	31	110	0.32	<1.0	34	<1.0	<1.0	<1.0	30	160
U5-2	2	3.3	3.3	90	<1.0	<1.0	60	11	29	82	0.25	<1.0	67	<1.0	<1.0	<1.0	34	100
							<1.0											
U6-2	2	<2.0	2.2	110	<1.0	<1.0	32	8.4	21	38	0.13	<1.0	33	<1.0	<1.0	<1.0	32	67
U7-2	2	<2.0	<1.0	23	<1.0	<1.0	29	4.7	5.6	3.5	<0.10	<1.0	23	<1.0	<1.0	<1.0	22	17
ESLs																		
Residential Land Use		6.3	0.39	750	4.0	1.7	750	40	230	200	1.3	40	150	10	20	1.3	16	600
Comm/Ind Land Use		40	1.6	1500	8.0	7.4	750	80	230	750	10	40	150	10	40	16	200	600
Construction Exposure		310	15	2,600	98	39	1,200,000	94	310,000	750	58	3,900	260	3,900	3,900	62	770	230,000
Hazardous Waste Criteria																		
TTLC		500	500	10,000	75	100	2,500	8,000	2,500	1,000	20	3,500	2,000	100	500	700	2,400	5,000
STLC		15	5.0	100	0.75	1.0	5.0	80	25	5.0	0.2	350	20	1.0	5.0	7.0	24	250
TCLP		---	5.0	100	---	1.0	6.0	---	---	5.0	0.2	---	---	1.0	5.0	---	---	---

Notes:

Total metal results are shown in milligrams per kilogram (mg/kg)

< = Analyte was not detected above the laboratory reporting limit.

ESLs = Environmental Screening Levels

ESL and Hazardous Waste Criteria Values listed for chromium are for Chromium III, as there is no standard for total chromium.

TTLC = total threshold limit concentration

STLC = soluble threshold limit concentration

TCLP = toxicity characteristic leaching procedure

--- = no standard

Soluble chromium result shown in italics in milligrams per liter (mg/l).

TABLE 4
Summary of Petroleum Hydrocarbon Results
I-80 Mobility Project
Alameda and Contra Costa Counties, California

Sample ID	Sample Depth (ft)	TPHg (mg/kg)	TPHd (mg/kg)	TPHmo (mg/kg)	BTEX (ug/kg)
Ashby Avenue					
A1-0	0	---	17	66	---
A1-1	1	<1.0	---	---	ND
A2-0	0	---	56	220	---
A2-1	1	<1.0	---	---	ND
A3-0	0	---	81	450	---
A3-1	1	<1.0	---	---	ND
A4-0	0	---	95	460	---
A4-1	1	<1.0	---	---	ND
A5-0	0	---	140	640	---
A5-1	1	<1.0	---	---	ND
A6-0	0	---	140	680	---
A6-1	1	<1.0	---	---	ND
John Muir Parkway					
JM1-0	0	---	20	100	---
JM1-1	1	<1.0	---	---	ND
JM2-0	0	---	35	180	---
JM2-1	1	<1.0	---	---	ND
JM3-0	0	---	42	280	---
JM3-1	1	<1.0	---	---	ND
JM4-0	0	---	26	120	---
JM4-1	1	<1.0	---	---	ND
JM5-0	0	---	86	490	---
JM5-1	1	<1.0	---	---	ND
JM6-0	0	---	35	290	---
JM6-1	1	<1.0	---	---	ND
JM7-0	0	---	22	130	---
JM7-1	1	<1.0	---	---	ND
JM8-0	0	---	1.6	5.1	---
JM8-1	1	<1.0	---	---	ND
JM9-0	0	---	3.6	18	---
JM9-1	1	<1.0	---	---	ND

TABLE 4
Summary of Petroleum Hydrocarbon Results
I-80 Mobility Project
Alameda and Contra Costa Counties, California

Sample ID	Sample Depth (ft)	TPHg (mg/kg)	TPHd (mg/kg)	TPHmo (mg/kg)	BTEX (ug/kg)
University Avenue					
U1-0	0	---	96	340	---
U1-1	1	---	---	---	ND
U2-0	0	---	74	390	---
U2-1	1	---	---	---	ND
U3-0	0	---	92	530	---
U3-1	1	---	---	---	ND
U4-0	0	---	78	300	---
U4-1	1	<1.0	---	---	ND
U5-0	0	---	86	360	---
U5-1	1	<1.0	---	---	ND
U6-0	0	---	42	180	---
U6-1	1	<1.0	---	---	ND
U7-0	0	---	410	1,800	---
U7-1	1	<1.0	---	---	ND
ESLs					
Residential		83	83	370	---
Commercial/Industrial		83	83	2,500	---
Construction Exposure		4,200	4,200	12,000	---

Notes:
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
TPHg = Total petroleum hydrocarbons as gasoline
TPHd = Total petroleum hydrocarbons as diesel
TPHmo = Total petroleum hydrocarbons as motor oil
BTEX = Benzene, toluene, ethylbenzene, and xylenes
MTBE = Methyl tert-butyl ether
--- = Not Analyzed
< = Not detected above the stated laboratory reporting limit
ND = None detected
ESLs = Environmental Screening Levels

TABLE 5
Summary of Pesticides Results
I-80 Mobility Project
Alameda and Contra Costa Counties, California

Sample ID	Sample Depth (ft)	4,4'-DDD	4,4'-DDE	4,4'-DDT	alpha-Chlordane	gamma-Chlordane	Chlordane	Dieldrin	Other Pesticides
Ashby Avenue									
A1-0	0	5.0	2.6	4.5	<1.0	<1.0	<8.5	<2.0	ND
A2-0	0	28	16	77	7.5	6.1	73	<2.0	ND
A3-0	0	64	32	240	8.7	6.6	93	16	ND
A4-0	0	<2.0	<2.0	88	2.0	3.0	38	<2.0	ND
A5-0	0	<2.0	<2.0	110	2.6	4.1	50	13	ND
A6-0	0	<2.0	<2.0	150	6.1	8.6	83	18	ND
John Muir Parkway									
JM1-0	0	<2.0	<2.0	<2.0	<1.0	<1.0	<8.5	<2.0	ND
JM2-0	0	<2.0	<2.0	<2.0	<1.0	<1.0	<8.5	<2.0	ND
JM3-0	0	<2.0	<2.0	<2.0	<1.0	<1.0	<8.5	<2.0	ND
JM4-0	0	<2.0	<2.0	<2.0	<1.0	<1.0	<8.5	<2.0	ND
JM5-0	0	<2.0	<2.0	<2.0	<1.0	<1.0	<8.5	<2.0	ND
JM6-0	0	<2.0	<2.0	<2.0	<1.0	<1.0	<8.5	<2.0	ND
JM7-0	0	<2.0	<2.0	<2.0	<1.0	<1.0	<8.5	<2.0	ND
JM8-0	0	<2.0	<2.0	<2.0	<1.0	<1.0	<8.5	<2.0	ND
JM9-0	0	<2.0	<2.0	<2.0	<1.0	<1.0	<8.5	<2.0	ND
University Avenue									
U1-0	0	<2.0	<2.0	23	<1.0	<1.0	<8.5	<2.0	ND
U2-0	0	<2.0	<2.0	43	<1.0	<1.0	<8.5	<2.0	ND
U3-0	0	13	5.0	91	6.4	9.8	89	7.6	ND
U4-0	0	2.4	<2.0	12	2.5	2.3	31	3.7	ND
U5-0	0	3.2	<2.0	20	2.3	1.3	25	3.5	ND
U6-0	0	<2.0	<2.0	7.2	<1.0	<1.0	<8.5	<2.0	ND
U7-0	0	39	<2.0	250	8.1	16	110	17	ND
ESLs									
Residential		2,400	1,700	1,700	---	---	440	2.3	---
Commercial/Industrial		10,000	4,000	4,000	---	---	1,700	2.3	---
Construction Exposure		120,000	87,000	87,000	---	---	21,000	1,600	---

Notes:

Results shown in micrograms per kilogram (ug/kg)

< = Not detected above the stated laboratory reporting limit

ND = None detected

ESLs = Environmental Screening Levels

TABLE 6a
Summary of Lead Statistical Analysis
I-80 Mobility Project
Alameda and Contra Costa Counties, California

Ashby Avenue WB Onramp (borings A1 to A6)

TOTAL LEAD UCLs

	Total Lead (mg/kg)	
	90% UCL	**95% UCL**
0 to 0.5 foot	662.4	701.9
1.0 to 1.5 feet	505.5	572.4
2.0 to 2.5 feet	213.6	246.8

EXCAVATION SCENARIOS

	Weighted Averages		
	90% UCL		95% UCL
Excavation Depth	**Total Lead (mg/kg)**	**WET Lead* (mg/l)**	**Total Lead (mg/kg)**
0 to 1.0 foot	662	48.0	702
Underlying Soil (1.0 to 2.5 feet)	*408*	*29.6*	*464*
0 to 2.0 feet	584	42.3	637
Underlying Soil (2.0 to 2.5 feet)	*214*	*15.5*	*247*
0 to 2.5 feet	510	37.0	592

Notes:

Weighted average values are based upon calculated UCLs for each depth interval.

UCL = Upper Confidence Limit (90% UCL is applicable for waste classification; 95% UCL applicable for risk assessment)

mg/kg = milligrams per kilogram

mg/l = milligrams per liter

* = Soluble (WET) lead concentrations are predicted using slope of regression line, where y = predicted soluble (WET) lead and x = total lead.

Regression Line Slope: y = 0.0725 x

TABLE 6b
Summary of Lead Statistical Analysis
I-80 Mobility Project
Alameda and Contra Costa Counties, California

John Muir Parkway WB Onramp (borings JM1 to JM9)

TOTAL LEAD UCLs

	Total Lead (mg/kg)	
	90% UCL	**95% UCL**
0 to 0.5 foot	32.4	35.1
1.0 to 1.5 feet	13.9	14.5
2.0 to 2.5 feet	24.2	26.3

EXCAVATION SCENARIOS

	Weighted Averages		
	90% UCL		95% UCL
Excavation Depth	**Total Lead (mg/kg)**	**WET Lead* (mg/l)**	**Total Lead (mg/kg)**
0 to 1.0 foot	32	2.3	35
Underlying Soil (1.0 to 2.5 feet)	*17*	*1.3*	*18*
0 to 2.0 feet	23	1.7	25
Underlying Soil (2.0 to 2.5 feet)	*24*	*1.8*	*26*
0 to 2.5 feet	23	1.7	29

Notes:

Weighted average values are based upon calculated UCLs for each depth interval.

UCL = Upper Confidence Limit (90% UCL is applicable for waste classification; 95% UCL applicable for risk assessment)

mg/kg = milligrams per kilogram

mg/l = milligrams per liter

* = Soluble (WET) lead concentrations are predicted using slope of regression line, where y = predicted soluble (WET) lead and x = total lead.

Regression Line Slope: y = 0.0725 x

TABLE 6c
Summary of Lead Statistical Analysis
I-80 Mobility Project
Alameda and Contra Costa Counties, California

University Avenue WB Onramp (borings U1 to U9)

TOTAL LEAD UCLs

	Total Lead (mg/kg)	
	90% UCL	**95% UCL**
0 to 0.5 foot	360.9	389.8
1.0 to 1.5 feet	133.2	144.1
2.0 to 2.5 feet	45.9	49.9

EXCAVATION SCENARIOS

	Weighted Averages		
	90% UCL		95% UCL
Excavation Depth	**Total Lead (mg/kg)**	**WET Lead* (mg/l)**	**Total Lead (mg/kg)**
0 to 1.0 foot	361	26.2	390
Underlying Soil (1.0 to 2.5 feet)	*104*	*7.5*	*113*
0 to 2.0 feet	247	17.9	267
Underlying Soil (2.0 to 2.5 feet)	*46*	*3.3*	*50*
0 to 2.5 feet	207	15.0	230

Notes:

Weighted average values are based upon calculated UCLs for each depth interval.

UCL = Upper Confidence Limit (90% UCL is applicable for waste classification; 95% UCL applicable for risk assessment)

mg/kg = milligrams per kilogram

mg/l = milligrams per liter

* = Soluble (WET) lead concentrations are predicted using slope of regression line, where y = predicted soluble (WET) lead and x = total lead.

Regression Line Slope: y = 0.0725 x

APPENDIX A

California Environmental Protection Agency
Department of Toxic Substances Control

VARIANCE

Applicant Names:

State of California
Department of Transportation
(Caltrans)
1120 N Street
Sacramento, California 95814

Variance No. V09HQSCD006

Effective Date: July 1, 2009

Expiration Date: July 1, 2014

Modification History:

Pursuant to California Health and Safety Code, Section 25143, the Department of Toxic Substances Control hereby issues the attached Variance consisting of 9 pages to the Department of Transportation.

Beverly Rikala
Team Leader, Operating Facilities Team
Department of Toxic Substances Control

Date: 6/30/09

1. INTRODUCTION.

a) Pursuant to Health and Safety Code, section 25143, the California Department of Toxic Substances Control (DTSC) grants this variance to the applicant below for waste considered to be hazardous solely because of its lead concentrations and as further specified herein.

b) DTSC hereby grants this variance only from the requirements specified herein and only in accordance with all terms and conditions specified herein.

2. IDENTIFYING INFORMATION.

APPLICANT/OWNER/OPERATOR

State of California
Department of Transportation, (Caltrans)
All Districts

3. TYPE OF VARIANCE.

Generation, Manifest, Transportation, Storage and Disposal.

4. ISSUANCE AND EXPIRATION DATES.

DATE ISSUED: July 1, 2009 EXPIRATION DATE: July 1, 2014

5. APPLICABLE STATUTES AND REGULATIONS. The hazardous waste that is the subject of this variance is fully regulated under Health and Safety Code, section 25100, et seq. and California Code of Regulations, title 22, division 4.5 except as specifically identified in Section 8 of this variance.

6. DEFINITION. For purposes of this variance, "lead-contaminated soil(s)" shall mean soil that meets the criteria for hazardous waste but contains less than 3397 mg/kg total lead and is hazardous primarily because of aerially-deposited lead contamination associated with exhaust emissions from the operation of motor vehicles.

7. FINDINGS/DETERMINATIONS. DTSC has determined that the variance applicant meets the requirements set forth in Health and Safety Code, section 25143 for a variance from specific regulatory requirements as outlined in Section 8 of this variance. The specific determinations and findings made by DTSC are as follows:

a) Caltrans intends to excavate, stockpile, transport, bury and cover large volumes of soil associated with highway construction projects. In the more urbanized highway corridors around the State this soil is contaminated with lead, primarily due to historic emissions from automobile exhausts. In situ sampling and laboratory testing has shown that some of the soil contains concentrations of lead in excess of State regulatory thresholds, and thus any generated waste from disturbance of the soil

would be regulated as hazardous waste. Such soil contains a Total Threshold Limit Concentration (TTLC) of 1000 milligrams per kilogram (mg/kg) or more lead and/or it meets or exceeds the Soluble Threshold Limit Concentration (STLC) for lead of 5 milligrams per liter (mg/l). A Human Health Risk Assessment prepared for this variance concludes that soil contaminated with elevated concentrations of lead can be managed in a way that presents no significant risk to human health.

b) The lead-contaminated soil will be placed only in Caltrans' right-of-way. Depending on concentration levels, the wastes will be covered with a minimum thickness of one (1) foot of non-hazardous soil or asphalt/concrete cover and will always be at least five (5) feet above the highest groundwater elevation. Caltrans will assure that proper health and safety procedures will be followed for workers, including any persons engaged in maintenance work in areas where the waste has been buried and covered.

c) DTSC finds and requires that the lead-contaminated soil excavated, stockpiled, transported, buried and covered pursuant to this variance is a non-RCRA hazardous waste, and that the waste management activity is insignificant as a potential hazard to human health and safety and the environment, when managed in accordance with the conditions, limitations and other requirements specified in this variance.

8. PROVISIONS WAIVED.

Provided Caltrans meets the terms and conditions of this variance, DTSC waives the hazardous waste management requirements of Health and Safety Code, Chapter 6.5 and California Code of Regulations, title 22 for the lead-contaminated soil that Caltrans reuses in projects that would require Caltrans to obtain a permit for a disposal facility and any other generator requirements that concern the transportation, manifesting, storage and land disposal of hazardous waste.

9. SPECIFIC CONDITIONS, LIMITATIONS AND OTHER REQUIREMENTS.

In order for the provisions discussed in section 8 to be waived, lead-contaminated soil must not exceed the contaminant concentrations discussed below and Caltrans management practices must meet all the following conditions:

a) Caltrans implementation of this variance shall comply with all applicable state laws and regulations for water quality control, water quality control plans, waste discharge requirements (including storm water permits), and others issued by the State Water Resources Control Board (SWRCB) and/or a California Regional Water Quality Control Board (RWQCB). Caltrans shall provide written notification to the appropriate RWQCB at least 30 days prior to advertisement for bids of projects that involve invocation of this variance, or as otherwise negotiated with the SWRCB or appropriate RWQCB.

b) The waivers in this variance shall only be applied to lead-contaminated soil that is not a RCRA hazardous waste and is hazardous primarily because of aerially-

deposited lead contamination associated with exhaust emissions from the operation of motor vehicles. The variance is not applicable to any other hazardous waste.

c) Soil containing 1.5 mg/l extractable lead or less (based on a modified waste extraction test using deionized water as the extractant) and 1411 mg/kg or less total lead may be used as fill provided that the lead-contaminated soil is placed a minimum of five (5) feet above the maximum historic water table elevation and covered with at least one (1) foot of nonhazardous soil that will be maintained by Caltrans to prevent future erosion.

d) Soil containing 150 mg/L extractable lead or less (based on a modified waste extraction test using deionized water as the extractant) and 3397 mg/kg or less total lead may be used as fill provided that the lead-contaminated soils are placed a minimum of five (5) feet above the maximum historic water table elevation and protected from infiltration by a pavement structure which will be maintained by Caltrans.

e) Lead-contaminated soil with a pH less than 5.5 but greater than 5.0 shall only be used as fill material under the paved portion of the roadway. Lead-contaminated soil with a pH at or less than 5.0 shall be managed as a hazardous waste.

f) For each project that has the potential to generate waste by disturbing lead-contaminated soil (as defined in 6), Caltrans shall conduct sampling and analysis to adequately characterize the soils containing aerially deposited lead in the areas of planned excavation along the project route. Such sampling and analysis shall include the Toxicity Characteristic Leaching Procedure (TCLP) as prescribed by the United States Environmental Protection Agency to determine whether concentrations of contaminants in soil exceed federal criteria for classification as a hazardous waste.

g) Lead-contaminated soil managed pursuant to this variance shall not be moved outside the designated corridor boundaries (see paragraph t) below. All lead-contaminated soil not buried and covered within the same Caltrans corridor where it originated is not eligible for management under this variance and shall be managed as a hazardous waste.

h) Lead-contaminated soil managed pursuant to this variance shall not be placed in areas where it would become in contact with groundwater or surface water (such as streams and rivers).

i) Lead-contaminated soil managed pursuant to this variance shall be buried and covered only in locations that are protected from erosion that may result from storm water run-on and run-off.

j) The lead-contaminated soil shall be buried and covered in a manner that will prevent accidental or deliberate breach of the asphalt, concrete, and/or cover soil.

k) The presence of lead-contaminated soil shall be incorporated into the projects' as-built drawings. The as-built drawings shall be annotated with the location, representative analytical data, and volume of lead-contaminated soil. The as-built drawings shall also state the depth of the cover. These as-built drawings shall be retained by Caltrans.

l) Caltrans shall ensure that no other hazardous wastes, other than the lead-contaminated hazardous waste soil, are placed in the burial areas.

m) Lead-contaminated soil shall not be buried within ten (10) feet of culverts or locations subject to frequent worker exposure.

n) Excavated lead-contaminated soil not placed into the designated area (fill area, roadbed area) by the end of the working day shall be stockpiled and covered with sheets of polyethylene or at least one foot of non-hazardous soil. The lead-contaminated soil, while stockpiled or under transport, shall be protected from contacting surface water and from being dislodged or transported by wind or storm water. The stockpile covers shall be inspected at least once a week and within 24 hours after rainstorms. If the lead-contaminated soil is stockpiled for more than 4 days from the time of excavation, Caltrans shall restrict public access to the stockpile by using barriers that meet the safety requirements of the construction zone. The lead-contaminated soil shall be stockpiled for no more than 90 days from the time the soil is first excavated. If the contaminated soil is stockpiled beyond the 90 day limit Caltrans shall:

1. notify DTSC in writing of the 90 day exceedance and expected date of removal;
2. perform weekly inspections of the stockpiled material to ensure that there is adequate protection from run-on, runoff, public access, and wind dispersion; and
3. notify DTSC on weekly basis of the stockpile status until the stockpile is removed.

The lead-contaminated soil shall be stockpiled for no more than 180 days from the time the soil is first excavated.

o) Caltrans shall ensure that all stockpiling of lead-contaminated soil remains within the project area of the specified corridor. Stockpiling of lead-contaminated soil within the specified corridor, but outside the project area, is prohibited.

p) Caltrans shall conduct confirmatory sampling of any stockpile area in areas not known or expected to contain lead-contaminated soil after removal of the lead-contaminated soil to ensure that contamination has not been left behind or has not migrated from the stockpiled material to the surrounding soils.

q) Caltrans shall stockpile lead-contaminated soil only on high ground (i.e. no sump areas or low points) so that stockpiled soil will not come in contact with surface

water run-on or run-off.

r) Caltrans shall not stockpile lead-contaminated soil in environmentally and ecologically sensitive areas.

s) Caltrans shall ensure that storm/rain run-off that has come into contact with stockpiled lead-contaminated soil will not flow to storm drains, inlets, or waters of the State.

t) Caltrans may dispose of the lead-contaminated soil only within the operating right-of-way of an existing highway, as defined in Streets and Highways Code, section 23. Caltrans may move lead-contaminated soil from one Caltrans project to another Caltrans project only if the lead-contaminated soil remains within the same designated corridor.

Caltrans shall record any movement of lead-contaminated soil by using a bill of lading. The bill of lading must contain: 1) the US DOT description including shipping name, hazard class and ID number; 2) handling codes; 3) quantity of material; 4) volume of material; 5) date of shipment; 6) origin and destination of shipment; and 7) any specific handling instructions. The bill of lading shall be referenced in and kept on file with the project's as-built drawings. The lead-contaminated soil must be kept covered during transportation.

u) For each specific corridor where this variance is to be implemented, all of the following information shall be submitted in writing to DTSC at least five (5) days before construction of any project begins:

1. plan drawing designating the boundaries of the corridor where lead-contaminated soils will be excavated, stockpiled, buried and covered;

2. a list of the Caltrans projects that the corridor encompasses;

3. a list of Caltrans contractors that will be conducting any phase of work on any project affected by this variance;

4. duration of corridor construction;

5. location where sampling and analytical data used to make lead concentration level determinations are kept (e.g. a particular Caltrans project file);

6. name and phone number (including area code) of project resident engineer and project manager;

7. location where Caltrans and contractor health and safety plan and records are kept;

8. location of project special provisions (including page or section number) for soil excavation, transportation, stockpile, burial and placement of cover material;

9. location of project drawings (including drawing page number) for soil excavation, burial and placement of cover in plan and cross section (for example, "The project plans are located at the resident engineer's office located at 5th and Main Streets, City of Fresno, See pages xxxxx of contract xxxx");

10. updated information if a Caltrans project within the corridor is added, changed or deleted; and

11. type of environmental document prepared for each project, date of adoption, document title, Clearing House number and where the document is available for review. A copy of the Caltrans Categorical Exemption, Categorical Exclusion Form, or if filed, the Notice of Exemption for any project shall be submitted to the DTSC Headquarters Project Manager.

v) Changes in location of lead-contaminated soil placement, quantities or protection measures (field changes) shall be noted in the resident engineer's project log within five (5) days of the field change.

w) Caltrans shall ensure that field changes are in compliance with the requirements of this variance.

x) Operational procedures described in the California Environmental Quality Act (CEQA) Special Initial Study shall be followed by Caltrans for activities conducted under this variance.

y) Caltrans shall implement appropriate health and safety procedures to protect its employees and the public, and to prevent or minimize exposure to potentially hazardous wastes. A project-specific health and safety plan must be prepared and implemented. The monitoring and exposure standards shall be based on construction standards for exposure to lead in California Code of Regulations, title 8, section 1532.1.

z) Caltrans shall provide a district Coordinator for this variance. This Coordinator will be the primary point of contact for information flowing to, or received from, DTSC regarding any matter or submission under this variance. Caltrans shall promptly notify DTSC of the name of Coordinator and any change in the Coordinator.

aa) Caltrans shall conduct regular inspections, consistent with Caltrans' Maintenance Division's current Pavement Inspection and Slope Inspection programs, of the locations where lead-contaminated soil has been buried and/or covered pursuant to this variance. If site inspection reveals deterioration of cover so that conditions in the variance are not met, Caltrans shall repair or replace the cover.

bb) Caltrans shall develop and implement a record keeping mechanisms to record and retain permanent records of all locations where lead-contaminated soil has been buried per this variance. The records shall be made available to DTSC.

cc) If areas subject to the terms of this variance are sold, relinquished or abandoned (including roadways), all future property owners shall be notified in writing in advance by Caltrans of the requirements of this variance, and Caltrans shall provide the owner with a copy of the variance. A copy of such a notice shall be sent to DTSC and contain the corridor location and project. Caltrans shall also disclose to DTSC and the new owner the location of areas where lead-contaminated soil has been buried. Future property owners shall be subject to the same requirements as Caltrans.

dd) For the purposes of informing the public about instances where the variance is implemented, Caltrans shall:

1. maintain current fact sheets at all Caltrans resident engineer offices and the Caltrans District office. Caltrans shall make the fact sheets available to anyone expressing an interest in variance-related work.

2. maintain a binder(s) containing copies of all reports submitted to DTSC at the District office. Caltrans shall ensure that the binders are readily accessible to the public.

3. carry out the following actions when it identifies additional projects:

(A) notify the public via a display advertisement in a newspaper of general circulation in that area.

(B) update and distribute the fact sheet to the mailing list and repository locations.

ee) Lead-contaminated soil may be buried only in areas where access is limited or where lead-contaminated soil is covered and contained by a pavement structure.

ff) Dust containing lead-contaminated soil must be controlled. Water or dust palliative may be applied to control dust. If visible dust migration occurs, all excavation, stockpiling and truck loading and burying must be stopped. The granting of this variance confers no relief on Caltrans from compliance with the laws, regulations and requirements enforced by any local air district or the California Air Resources Board.

gg) Sampling and analysis is required to show the lead-contaminated soil meets the variance criteria. All sampling and analysis must be conducted in accordance with the appropriate methods specified in U.S. EPA SW-846.

hh) DTSC retains the right to require Caltrans or any future owner to remove, and properly dispose of, lead-contaminated soil in the event DTSC determines it is necessary for protection of public health, safety or the environment.

ii) DTSC finds that some projects involving lead-contaminated soil are joint projects between Caltrans and other government entities. In these joint projects, Caltrans may not be the lead agency implementing the project although Caltrans is still involved if the project occurs on its right-of-way.

Caltrans may invoke this variance for joint projects where Caltrans and local government entity are involved provided that 1) the project is within the Caltrans Right-of-Way; 2) Caltrans reviews/ oversees all phases of the project including design, contracting, environmental assessment, construction, operation, and maintenance; and 3) Caltrans oversees the project to verify all variance conditions are complied with. Caltrans will be fully responsible for the variance notification and implementation in these joint projects.

jj) All correspondence shall be directed to the following office:

Hazardous Waste Permitting
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, CA 95826

Attn: Caltrans Lead Variance Notification Unit

10. DISCLAIMER.

a) The issuance of this variance does not relieve Caltrans of the responsibility for compliance with Health and Safety Code, chapter 6.5, or the regulations adopted thereunder, and any other laws and regulations other than those specifically identified in Section 8 of this variance. Caltrans is subject to all terms and conditions herein. The granting of this variance confers no relief from compliance with any federal, State or local requirements other than those specifically provided herein.

b) The issuance of this variance does not release Caltrans from any liability associated with the handling of hazardous waste, except as specifically provided herein and subject to all terms and conditions of this variance.

11. VARIANCE MODIFICATION OR REVOCATION. This variance is subject to review at the discretion of DTSC and may be modified or revoked by DTSC upon change of ownership and at any other time pursuant to Health and Safety Code, section 25143.

12. CEQA DETERMINATION. DTSC adopted a Negative Declaration on June 30, 2009.

Approved:

6/30/09
Date

Beverly Rikala
Operating Facilities Team
Department of Toxic Substances Control

APPENDIX B

July 13, 2011

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

Workorder No.: 118770

R. Day, C. Merritt
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

TEL: (925) 371-5900
FAX: (925) 371-5915

RE: I-80 Mobility Project (Kimley-Horn), E8583-06-

Attention: R. Day, C. Merritt

Enclosed are the results for sample(s) received on July 01, 2011 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Eddie F. Rodriguez
Laboratory Director

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

Advanced Technology Laboratories
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

Analytical Comments for Method 6010

Matrix Spike (MS) and /or Matrix Spike Duplicate (MSD) are/is outside recovery criteria for sample 118770-026AMSD; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

RPD for Duplicate (DUP) is outside criteria for samples 118770-026ADUP, 118770-039ADUP, 118770-041ADUP, 118770-062ADUP and 118770-066ADUP; however, the Laboratory Control Sample (LCS) validated the analytical batch.

Analytical Comments for Method 8015 (DRO/ORO)

Dilution was necessary for samples 118770-004A, 118770-007A, 118770-019A, 118770-028A, 118770-031A, 118770-034A, 118770-037A, 118770-046A, 118770-052A and 118770-055A, due to sample matrix.

Surrogate recovery was diluted out for samples 118770-004A, 118770-007A, 118770-019A, 118770-028A, 118770-031A, 118770-034A, 118770-037A, 118770-046A, 118770-052A, 118770-055A and 118770-055ADUP.

Matrix Spike (MS) and /or Matrix Spike Duplicate (MSD) are/is outside recovery criteria for sample 118770-040AMSD; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

RPD for Duplicate (DUP) and/or Matrix Spike (MS)/Matrix Spike Duplicate (MSD) is outside criteria for samples 118770-022AMSD, 118770-040AMSD, 118770-055ADUP and 118770-064ADUP; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

Analytical Comments for Method 8015 (GRO)

Surrogate recovery biased high for sample 118770-050AMS, possibly due to matrix interferences.

Analytical Comments for Method 8021

RPD for Matrix Spike (MS)/Matrix Spike Duplicate (MSD) is outside criteria for sample 118770-050AMSD; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 *Tel: 562. 989.4045* *Fax: 562.989.4040*

CASE NARRATIVE

Analytical Comments for Method 8081

Dilution was necessary for samples 118770-007A, 118770-019A, 118770-025A, 118770-028A, 118770-031A, 118770-034A and 118770-037A, due to sample matrix.

Surrogate recovery was diluted out for samples 118694-021AMS, 118694-021AMSD and biased high for samples 118770-004A, 118770-007A, 118770-019A, 118770-028A and 118770-037A, possibly due to matrix interferences.

Matrix Spike (MS) and /or Matrix Spike Duplicate (MSD) are/is outside recovery criteria for samples 119694-021AMS and 118694-021AMSD; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

Date: 7/13/2011

ANALYTICAL RESULTS

LEAD BY ICP
EPA 6010B

CLIENT:	Geocon Consultants, Inc.	**Lab Order:**	118770
Project:	I-80 Mobility Project (Kimley-Horn), E8583-06-	**Date Received**	7/1/2011 8:56:00 AM
Project No:		**Matrix:**	Soil
Analyte:	Lead	**Analyst:**	SRB

Laboratory ID	Client Sample ID	Results	Units	QC Batch	PQL	DF	Date Collected	Date Analyzed
118770-001A	U1-0	130	mg/Kg	74118	5.0	1	6/29/2011	7/8/2011
118770-002A	U1-1	120	mg/Kg	74118	5.0	1	6/29/2011	7/8/2011
118770-003A	U1-2	61	mg/Kg	74118	5.0	1	6/29/2011	7/8/2011
118770-004A	U2-0	150	mg/Kg	74118	5.0	1	6/29/2011	7/8/2011
118770-005A	U2-1	8.8	mg/Kg	74118	5.0	1	6/29/2011	7/8/2011
118770-007A	U3-0	470	mg/Kg	74118	5.0	1	6/29/2011	7/8/2011
118770-008A	U3-1	260	mg/Kg	74118	5.0	1	6/29/2011	7/8/2011
118770-009A	U3-2	19	mg/Kg	74118	5.0	1	6/29/2011	7/8/2011
118770-011A	U4-1	97	mg/Kg	74118	5.0	1	6/29/2011	7/8/2011
118770-012A	U4-2	23	mg/Kg	74118	5.0	1	6/29/2011	7/8/2011
118770-013A	U5-0	120	mg/Kg	74118	5.0	1	6/29/2011	7/8/2011
118770-014A	U5-1	64	mg/Kg	74118	5.0	1	6/29/2011	7/8/2011
118770-016A	U6-0	52	mg/Kg	74118	5.0	1	6/29/2011	7/8/2011
118770-017A	U6-1	81	mg/Kg	74118	5.0	1	6/29/2011	7/8/2011
118770-019A	U7-0	710	mg/Kg	74118	5.0	1	6/29/2011	7/8/2011
118770-020A	U7-1	50	mg/Kg	74118	5.0	1	6/29/2011	7/8/2011
118770-022A	A1-0	86	mg/Kg	74118	5.0	1	6/29/2011	7/8/2011
118770-023A	A1-1	ND	mg/Kg	74118	5.0	1	6/29/2011	7/8/2011

Qualifiers:

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

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

Date: 7/13/2011

ANALYTICAL RESULTS

LEAD BY ICP
EPA 6010B

CLIENT:	Geocon Consultants, Inc.	**Lab Order:**	118770
Project:	I-80 Mobility Project (Kimley-Horn), E8583-06-	**Date Received**	7/1/2011 8:56:00 AM
Project No:		**Matrix:**	Soil
Analyte:	Lead	**Analyst:**	SRB

Laboratory ID	Client Sample ID	Results	Units	QC Batch	PQL	DF	Date Collected	Date Analyzed
118770-025A	A2-0	520	mg/Kg	74118	5.0	1	6/29/2011	7/8/2011
118770-026A	A2-1	54	mg/Kg	74118	5.0	1	6/29/2011	7/8/2011
118770-028A	A3-0	980	mg/Kg	74119	5.0	1	6/29/2011	7/8/2011
118770-029A	A3-1	1100	mg/Kg	74119	5.0	1	6/29/2011	7/8/2011
118770-031A	A4-0	620	mg/Kg	74119	5.0	1	6/29/2011	7/8/2011
118770-032A	A4-1	520	mg/Kg	74119	5.0	1	6/29/2011	7/8/2011
118770-033A	A4-2	590	mg/Kg	74119	5.0	1	6/29/2011	7/8/2011
118770-035A	A5-1	43	mg/Kg	74119	5.0	1	6/29/2011	7/8/2011
118770-036A	A5-2	ND	mg/Kg	74119	5.0	1	6/29/2011	7/8/2011
118770-037A	A6-0	450	mg/Kg	74119	5.0	1	6/29/2011	7/8/2011
118770-038A	A6-1	65	mg/Kg	74119	5.0	1	6/29/2011	7/8/2011
118770-041A	JM1-1	9.9	mg/Kg	74119	5.0	1	6/30/2011	7/8/2011
118770-042A	JM1-2	16	mg/Kg	74119	5.0	1	6/30/2011	7/8/2011
118770-043A	JM2-0	12	mg/Kg	74119	5.0	1	6/30/2011	7/8/2011
118770-044A	JM2-1	10	mg/Kg	74119	5.0	1	6/30/2011	7/8/2011
118770-045A	JM2-2	18	mg/Kg	74119	5.0	1	6/30/2011	7/8/2011
118770-046A	JM3-0	72	mg/Kg	74119	5.0	1	6/30/2011	7/8/2011
118770-048A	JM3-2	56	mg/Kg	74119	5.0	1	6/30/2011	7/8/2011

Qualifiers:

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

Advanced Technology Laboratories

Date: 7/13/2011

ANALYTICAL RESULTS

LEAD BY ICP
EPA 6010B

CLIENT:	Geocon Consultants, Inc.	**Lab Order:**	118770
Project:	I-80 Mobility Project (Kimley-Horn), E8583-06-	**Date Received**	7/1/2011 8:56:00 AM
Project No:		**Matrix:**	Soil
Analyte:	Lead	**Analyst:**	SRB

Laboratory ID	Client Sample ID	Results	Units	QC Batch	PQL	DF	Date Collected	Date Analyzed
118770-049A	JM4-0	47	mg/Kg	74119	5.0	1	6/30/2011	7/8/2011
118770-051A	JM4-2	7.4	mg/Kg	74119	5.0	1	6/30/2011	7/8/2011
118770-052A	JM5-0	23	mg/Kg	74119	5.0	1	6/30/2011	7/8/2011
118770-053A	JM5-1	7.2	mg/Kg	74119	5.0	1	6/30/2011	7/8/2011
118770-054A	JM5-2	ND	mg/Kg	74120	5.0	1	6/30/2011	7/8/2011
118770-055A	JM6-0	24	mg/Kg	74120	5.0	1	6/30/2011	7/8/2011
118770-056A	JM6-1	6.2	mg/Kg	74120	5.0	1	6/30/2011	7/8/2011
118770-058A	JM7-0	9.6	mg/Kg	74120	5.0	1	6/30/2011	7/8/2011
118770-059A	JM7-1	23	mg/Kg	74120	5.0	1	6/30/2011	7/8/2011
118770-060A	JM7-2	13	mg/Kg	74120	5.0	1	6/30/2011	7/8/2011
118770-061A	JM8-0	8.2	mg/Kg	74120	5.0	1	6/30/2011	7/8/2011
118770-063A	JM8-1.5	12	mg/Kg	74120	5.0	1	6/30/2011	7/8/2011
118770-064A	JM9-0	9.8	mg/Kg	74120	5.0	1	6/30/2011	7/8/2011
118770-065A	JM9-1	14	mg/Kg	74120	5.0	1	6/30/2011	7/8/2011
118770-066A	JM9-2	17	mg/Kg	74120	5.0	1	6/30/2011	7/8/2011

Qualifiers:

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

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

Date: 7/13/2011

ANALYTICAL RESULTS

pH
EPA 9045C

CLIENT:	Geocon Consultants, Inc.	**Lab Order:**	118770
Project:	I-80 Mobility Project (Kimley-Horn), E8583-06-	**Date Received**	7/1/2011 8:56:00 AM
Project No:		**Matrix:**	Soil
Analyte:	pH	**Analyst:**	PT

Laboratory ID	Client Sample ID	Results	Units	QC Batch	PQL	DF	Date Collected	Date Analyzed
118770-005A	U2-1	7.2	pH Units	R134779	0.10	1	6/29/2011	7/7/2011
118770-014A	U5-1	8.0	pH Units	R134779	0.10	1	6/29/2011	7/7/2011
118770-023A	A1-1	8.0	pH Units	R134779	0.10	1	6/29/2011	7/7/2011
118770-033A	A4-2	7.7	pH Units	R134779	0.10	1	6/29/2011	7/7/2011
118770-041A	JM1-1	7.6	pH Units	R134779	0.10	1	6/30/2011	7/7/2011
118770-050A	JM4-1	7.9	pH Units	R134779	0.10	1	6/30/2011	7/7/2011
118770-062A	JM8-1	8.5	pH Units	R134779	0.10	1	6/30/2011	7/7/2011

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	U1-0
Lab Order:	118770	**Collection Date:**	6/29/2011 1:30:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-001A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B				**EPA 8015B(M)**		
RunID: GC16_110706G	QC Batch: 74085			PrepDate:	7/6/2011	Analyst: **CBR**
DRO	96	4.0		mg/Kg	1	7/7/2011 07:04 AM
ORO	340	4.0		mg/Kg	1	7/7/2011 07:04 AM
Surr: p-Terphenyl	64.2	30-128		%REC	1	7/7/2011 07:04 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC10_110706A	QC Batch: 74062			PrepDate:	7/5/2011	Analyst: **HL**
4,4´-DDD	ND	2.0		µg/Kg	1	7/6/2011 07:15 PM
4,4´-DDE	ND	2.0		µg/Kg	1	7/6/2011 07:15 PM
4,4´-DDT	23	2.0		µg/Kg	1	7/6/2011 07:15 PM
Aldrin	ND	1.0		µg/Kg	1	7/6/2011 07:15 PM
alpha-BHC	ND	1.0		µg/Kg	1	7/6/2011 07:15 PM
alpha-Chlordane	ND	1.0		µg/Kg	1	7/6/2011 07:15 PM
beta-BHC	ND	1.0		µg/Kg	1	7/6/2011 07:15 PM
Chlordane	ND	8.5		µg/Kg	1	7/6/2011 07:15 PM
delta-BHC	ND	1.0		µg/Kg	1	7/6/2011 07:15 PM
Dieldrin	ND	2.0		µg/Kg	1	7/6/2011 07:15 PM
Endosulfan I	ND	1.0		µg/Kg	1	7/6/2011 07:15 PM
Endosulfan II	ND	2.0		µg/Kg	1	7/6/2011 07:15 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	7/6/2011 07:15 PM
Endrin	ND	2.0		µg/Kg	1	7/6/2011 07:15 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	7/6/2011 07:15 PM
Endrin ketone	ND	2.0		µg/Kg	1	7/6/2011 07:15 PM
gamma-BHC	ND	1.0		µg/Kg	1	7/6/2011 07:15 PM
gamma-Chlordane	ND	1.0		µg/Kg	1	7/6/2011 07:15 PM
Heptachlor	ND	1.0		µg/Kg	1	7/6/2011 07:15 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	7/6/2011 07:15 PM
Methoxychlor	ND	5.0		µg/Kg	1	7/6/2011 07:15 PM
Toxaphene	ND	50		µg/Kg	1	7/6/2011 07:15 PM
Surr: Decachlorobiphenyl	93.9	31-107		%REC	1	7/6/2011 07:15 PM
Surr: Tetrachloro-m-xylene	58.5	35-108		%REC	1	7/6/2011 07:15 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	U1-1
Lab Order:	118770	**Collection Date:**	6/29/2011 1:32:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-002A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
			EPA 8021B			
RunID: GC2_110705A	QC Batch:	E11VS247		PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	7/5/2011 03:26 PM
Ethylbenzene	ND	5.0		µg/Kg	1	7/5/2011 03:26 PM
m,p-Xylene	ND	10		µg/Kg	1	7/5/2011 03:26 PM
o-Xylene	ND	5.0		µg/Kg	1	7/5/2011 03:26 PM
Toluene	ND	5.0		µg/Kg	1	7/5/2011 03:26 PM
Surr: Bromofluorobenzene (PID)	92.4	65-140		%REC	1	7/5/2011 03:26 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	U2-0
Lab Order:	118770	**Collection Date:**	6/29/2011 1:30:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-004A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110706G	QC Batch: 74085			PrepDate:	7/6/2011	Analyst: **CBR**
DRO	74	40		mg/Kg	10	7/7/2011 04:43 AM
ORO	390	40		mg/Kg	10	7/7/2011 04:43 AM
Surr: p-Terphenyl	0	30-128	SDO	%REC	10	7/7/2011 04:43 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC10_110706A	QC Batch: 74062			PrepDate:	7/5/2011	Analyst: **HL**
4,4´-DDD	ND	2.0		µg/Kg	1	7/6/2011 07:42 PM
4,4´-DDE	ND	2.0		µg/Kg	1	7/6/2011 07:42 PM
4,4´-DDT	43	2.0		µg/Kg	1	7/6/2011 07:42 PM
Aldrin	ND	1.0		µg/Kg	1	7/6/2011 07:42 PM
alpha-BHC	ND	1.0		µg/Kg	1	7/6/2011 07:42 PM
alpha-Chlordane	ND	1.0		µg/Kg	1	7/6/2011 07:42 PM
beta-BHC	ND	1.0		µg/Kg	1	7/6/2011 07:42 PM
Chlordane	ND	8.5		µg/Kg	1	7/6/2011 07:42 PM
delta-BHC	ND	1.0		µg/Kg	1	7/6/2011 07:42 PM
Dieldrin	ND	2.0		µg/Kg	1	7/6/2011 07:42 PM
Endosulfan I	ND	1.0		µg/Kg	1	7/6/2011 07:42 PM
Endosulfan II	ND	2.0		µg/Kg	1	7/6/2011 07:42 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	7/6/2011 07:42 PM
Endrin	ND	2.0		µg/Kg	1	7/6/2011 07:42 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	7/6/2011 07:42 PM
Endrin ketone	ND	2.0		µg/Kg	1	7/6/2011 07:42 PM
gamma-BHC	ND	1.0		µg/Kg	1	7/6/2011 07:42 PM
gamma-Chlordane	ND	1.0		µg/Kg	1	7/6/2011 07:42 PM
Heptachlor	ND	1.0		µg/Kg	1	7/6/2011 07:42 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	7/6/2011 07:42 PM
Methoxychlor	ND	5.0		µg/Kg	1	7/6/2011 07:42 PM
Toxaphene	ND	50		µg/Kg	1	7/6/2011 07:42 PM
Surr: Decachlorobiphenyl	107	31-107	S	%REC	1	7/6/2011 07:42 PM
Surr: Tetrachloro-m-xylene	69.0	35-108		%REC	1	7/6/2011 07:42 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	U2-1
Lab Order:	118770	**Collection Date:**	6/29/2011 1:31:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-005A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
			EPA 8021B			
RunID: GC2_110705A	QC Batch: E11VS247			PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	7/5/2011 03:58 PM
Ethylbenzene	ND	5.0		µg/Kg	1	7/5/2011 03:58 PM
m,p-Xylene	ND	10		µg/Kg	1	7/5/2011 03:58 PM
o-Xylene	ND	5.0		µg/Kg	1	7/5/2011 03:58 PM
Toluene	ND	5.0		µg/Kg	1	7/5/2011 03:58 PM
Surr: Bromofluorobenzene (PID)	104	65-140		%REC	1	7/5/2011 03:58 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	U2-2
Lab Order:	118770	**Collection Date:**	6/29/2011 1:33:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-006A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_110707D	QC Batch: 74076			PrepDate:	7/6/2011	Analyst: **CBB**
Antimony	ND	2.0		mg/Kg	1	7/7/2011 03:56 PM
Arsenic	ND	1.0		mg/Kg	1	7/7/2011 03:56 PM
Barium	17	1.0		mg/Kg	1	7/7/2011 03:56 PM
Beryllium	ND	1.0		mg/Kg	1	7/7/2011 03:56 PM
Cadmium	ND	1.0		mg/Kg	1	7/7/2011 03:56 PM
Chromium	28	1.0		mg/Kg	1	7/7/2011 03:56 PM
Cobalt	4.4	1.0		mg/Kg	1	7/7/2011 03:56 PM
Copper	2.7	2.0		mg/Kg	1	7/7/2011 03:56 PM
Lead	1.2	1.0		mg/Kg	1	7/7/2011 03:56 PM
Molybdenum	ND	1.0		mg/Kg	1	7/7/2011 03:56 PM
Nickel	22	1.0		mg/Kg	1	7/7/2011 03:56 PM
Selenium	ND	1.0		mg/Kg	1	7/7/2011 03:56 PM
Silver	ND	1.0		mg/Kg	1	7/7/2011 03:56 PM
Thallium	ND	1.0		mg/Kg	1	7/7/2011 03:56 PM
Vanadium	21	1.0		mg/Kg	1	7/7/2011 03:56 PM
Zinc	14	1.0		mg/Kg	1	7/7/2011 03:56 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA1_110706C	QC Batch: 74080			PrepDate:	7/6/2011	Analyst: **IL**
Mercury	ND	0.10		mg/Kg	1	7/6/2011 02:07 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	U3-0
Lab Order:	118770	**Collection Date:**	6/29/2011 1:42:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-007A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110706G	QC Batch: 74085			PrepDate:	7/6/2011	Analyst: **CBR**
DRO	92	40		mg/Kg	10	7/7/2011 04:23 AM
ORO	530	40		mg/Kg	10	7/7/2011 04:23 AM
Surr: p-Terphenyl	0	30-128	SDO	%REC	10	7/7/2011 04:23 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC10_110706A	QC Batch: 74062			PrepDate:	7/5/2011	Analyst: **HL**
4,4´-DDD	13	2.0		µg/Kg	1	7/6/2011 08:09 PM
4,4´-DDE	5.0	2.0		µg/Kg	1	7/6/2011 08:09 PM
4,4´-DDT	91	20		µg/Kg	10	7/7/2011 12:28 AM
Aldrin	ND	1.0		µg/Kg	1	7/6/2011 08:09 PM
alpha-BHC	ND	1.0		µg/Kg	1	7/6/2011 08:09 PM
alpha-Chlordane	6.4	1.0		µg/Kg	1	7/6/2011 08:09 PM
beta-BHC	ND	1.0		µg/Kg	1	7/6/2011 08:09 PM
Chlordane	89	8.5		µg/Kg	1	7/6/2011 08:09 PM
delta-BHC	ND	1.0		µg/Kg	1	7/6/2011 08:09 PM
Dieldrin	7.6	2.0		µg/Kg	1	7/6/2011 08:09 PM
Endosulfan I	ND	1.0		µg/Kg	1	7/6/2011 08:09 PM
Endosulfan II	ND	2.0		µg/Kg	1	7/6/2011 08:09 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	7/6/2011 08:09 PM
Endrin	ND	2.0		µg/Kg	1	7/6/2011 08:09 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	7/6/2011 08:09 PM
Endrin ketone	ND	2.0		µg/Kg	1	7/6/2011 08:09 PM
gamma-BHC	ND	1.0		µg/Kg	1	7/6/2011 08:09 PM
gamma-Chlordane	9.8	1.0		µg/Kg	1	7/6/2011 08:09 PM
Heptachlor	ND	1.0		µg/Kg	1	7/6/2011 08:09 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	7/6/2011 08:09 PM
Methoxychlor	ND	5.0		µg/Kg	1	7/6/2011 08:09 PM
Toxaphene	ND	50		µg/Kg	1	7/6/2011 08:09 PM
Surr: Decachlorobiphenyl	143	31-107	S	%REC	1	7/6/2011 08:09 PM
Surr: Decachlorobiphenyl	108	31-107	S	%REC	10	7/7/2011 12:28 AM
Surr: Tetrachloro-m-xylene	89.1	35-108		%REC	10	7/7/2011 12:28 AM
Surr: Tetrachloro-m-xylene	76.9	35-108		%REC	1	7/6/2011 08:09 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	U3-1
Lab Order:	118770	**Collection Date:**	6/29/2011 1:44:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-008A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
			EPA 8021B			
RunID: GC2_110705A	QC Batch:	E11VS247		PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	7/5/2011 06:01 PM
Ethylbenzene	ND	5.0		µg/Kg	1	7/5/2011 06:01 PM
m,p-Xylene	ND	10		µg/Kg	1	7/5/2011 06:01 PM
o-Xylene	ND	5.0		µg/Kg	1	7/5/2011 06:01 PM
Toluene	ND	5.0		µg/Kg	1	7/5/2011 06:01 PM
Surr: Bromofluorobenzene (PID)	100	65-140		%REC	1	7/5/2011 06:01 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT: Geocon Consultants, Inc.
Lab Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-
Lab ID: 118770-010A

Client Sample ID: U4-0
Collection Date: 6/29/2011 1:45:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B			**EPA 6010B**			
RunID: ICP8_110707D	QC Batch: 74076			PrepDate:	7/6/2011	Analyst: **CBB**
Antimony	2.5	2.0		mg/Kg	1	7/7/2011 03:59 PM
Arsenic	2.7	1.0		mg/Kg	1	7/7/2011 03:59 PM
Barium	100	1.0		mg/Kg	1	7/7/2011 03:59 PM
Beryllium	ND	1.0		mg/Kg	1	7/7/2011 03:59 PM
Cadmium	ND	1.0		mg/Kg	1	7/7/2011 03:59 PM
Chromium	36	1.0		mg/Kg	1	7/7/2011 03:59 PM
Cobalt	8.2	1.0		mg/Kg	1	7/7/2011 03:59 PM
Copper	31	2.0		mg/Kg	1	7/7/2011 03:59 PM
Lead	110	1.0		mg/Kg	1	7/7/2011 03:59 PM
Molybdenum	ND	1.0		mg/Kg	1	7/7/2011 03:59 PM
Nickel	34	1.0		mg/Kg	1	7/7/2011 03:59 PM
Selenium	ND	1.0		mg/Kg	1	7/7/2011 03:59 PM
Silver	ND	1.0		mg/Kg	1	7/7/2011 03:59 PM
Thallium	ND	1.0		mg/Kg	1	7/7/2011 03:59 PM
Vanadium	30	1.0		mg/Kg	1	7/7/2011 03:59 PM
Zinc	160	1.0		mg/Kg	1	7/7/2011 03:59 PM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110706G	QC Batch: 74085			PrepDate:	7/6/2011	Analyst: **CBR**
DRO	78	4.0		mg/Kg	1	7/7/2011 08:15 AM
ORO	300	4.0		mg/Kg	1	7/7/2011 08:15 AM
Surr: p-Terphenyl	61.1	30-128		%REC	1	7/7/2011 08:15 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC10_110706A	QC Batch: 74062			PrepDate:	7/5/2011	Analyst: **HL**
4,4´-DDD	2.4	2.0		µg/Kg	1	7/6/2011 08:37 PM
4,4´-DDE	ND	2.0		µg/Kg	1	7/6/2011 08:37 PM
4,4´-DDT	12	2.0		µg/Kg	1	7/6/2011 08:37 PM
Aldrin	ND	1.0		µg/Kg	1	7/6/2011 08:37 PM
alpha-BHC	ND	1.0		µg/Kg	1	7/6/2011 08:37 PM
alpha-Chlordane	2.5	1.0		µg/Kg	1	7/6/2011 08:37 PM
beta-BHC	ND	1.0		µg/Kg	1	7/6/2011 08:37 PM
Chlordane	31	8.5		µg/Kg	1	7/6/2011 08:37 PM
delta-BHC	ND	1.0		µg/Kg	1	7/6/2011 08:37 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	U4-0
Lab Order:	118770	**Collection Date:**	6/29/2011 1:45:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-010A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC10_110706A	QC Batch: 74062			PrepDate:	7/5/2011	Analyst: **HL**
Dieldrin	3.7	2.0		µg/Kg	1	7/6/2011 08:37 PM
Endosulfan I	ND	1.0		µg/Kg	1	7/6/2011 08:37 PM
Endosulfan II	ND	2.0		µg/Kg	1	7/6/2011 08:37 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	7/6/2011 08:37 PM
Endrin	ND	2.0		µg/Kg	1	7/6/2011 08:37 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	7/6/2011 08:37 PM
Endrin ketone	ND	2.0		µg/Kg	1	7/6/2011 08:37 PM
gamma-BHC	ND	1.0		µg/Kg	1	7/6/2011 08:37 PM
gamma-Chlordane	2.3	1.0		µg/Kg	1	7/6/2011 08:37 PM
Heptachlor	ND	1.0		µg/Kg	1	7/6/2011 08:37 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	7/6/2011 08:37 PM
Methoxychlor	ND	5.0		µg/Kg	1	7/6/2011 08:37 PM
Toxaphene	ND	50		µg/Kg	1	7/6/2011 08:37 PM
Surr: Decachlorobiphenyl	82.5	31-107		%REC	1	7/6/2011 08:37 PM
Surr: Tetrachloro-m-xylene	73.8	35-108		%REC	1	7/6/2011 08:37 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA1_110706C	QC Batch: 74080			PrepDate:	7/6/2011	Analyst: **IL**
Mercury	0.32	0.10		mg/Kg	1	7/6/2011 02:09 PM

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	U4-1
Lab Order:	118770	**Collection Date:**	6/29/2011 1:48:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-011A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID						
			EPA 8015B(M)			
RunID: GC2_110705A	QC Batch:	E11VS247		PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	7/5/2011 06:16 PM
Surr: Bromofluorobenzene (FID)	133	62-153		%REC	1	7/5/2011 06:16 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
			EPA 8021B			
RunID: GC2_110705A	QC Batch:	E11VS247		PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	7/5/2011 06:16 PM
Ethylbenzene	ND	5.0		µg/Kg	1	7/5/2011 06:16 PM
m,p-Xylene	ND	10		µg/Kg	1	7/5/2011 06:16 PM
o-Xylene	ND	5.0		µg/Kg	1	7/5/2011 06:16 PM
Toluene	ND	5.0		µg/Kg	1	7/5/2011 06:16 PM
Surr: Bromofluorobenzene (PID)	103	65-140		%REC	1	7/5/2011 06:16 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	U5-0
Lab Order:	118770	**Collection Date:**	6/29/2011 1:56:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-013A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B				**EPA 8015B(M)**		
RunID: GC16_110706G	QC Batch: 74085			PrepDate:	7/6/2011	Analyst: **CBR**
DRO	86	4.0		mg/Kg	1	7/7/2011 06:53 AM
ORO	360	4.0		mg/Kg	1	7/7/2011 06:53 AM
Surr: p-Terphenyl	112	30-128		%REC	1	7/7/2011 06:53 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC10_110706A	QC Batch: 74062			PrepDate:	7/5/2011	Analyst: **HL**
4,4´-DDD	3.2	2.0		µg/Kg	1	7/6/2011 09:04 PM
4,4´-DDE	ND	2.0		µg/Kg	1	7/6/2011 09:04 PM
4,4´-DDT	20	2.0		µg/Kg	1	7/6/2011 09:04 PM
Aldrin	ND	1.0		µg/Kg	1	7/6/2011 09:04 PM
alpha-BHC	ND	1.0		µg/Kg	1	7/6/2011 09:04 PM
alpha-Chlordane	2.3	1.0		µg/Kg	1	7/6/2011 09:04 PM
beta-BHC	ND	1.0		µg/Kg	1	7/6/2011 09:04 PM
Chlordane	25	8.5		µg/Kg	1	7/6/2011 09:04 PM
delta-BHC	ND	1.0		µg/Kg	1	7/6/2011 09:04 PM
Dieldrin	3.5	2.0		µg/Kg	1	7/6/2011 09:04 PM
Endosulfan I	ND	1.0		µg/Kg	1	7/6/2011 09:04 PM
Endosulfan II	ND	2.0		µg/Kg	1	7/6/2011 09:04 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	7/6/2011 09:04 PM
Endrin	ND	2.0		µg/Kg	1	7/6/2011 09:04 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	7/6/2011 09:04 PM
Endrin ketone	ND	2.0		µg/Kg	1	7/6/2011 09:04 PM
gamma-BHC	ND	1.0		µg/Kg	1	7/6/2011 09:04 PM
gamma-Chlordane	1.3	1.0		µg/Kg	1	7/6/2011 09:04 PM
Heptachlor	ND	1.0		µg/Kg	1	7/6/2011 09:04 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	7/6/2011 09:04 PM
Methoxychlor	ND	5.0		µg/Kg	1	7/6/2011 09:04 PM
Toxaphene	ND	50		µg/Kg	1	7/6/2011 09:04 PM
Surr: Decachlorobiphenyl	86.4	31-107		%REC	1	7/6/2011 09:04 PM
Surr: Tetrachloro-m-xylene	75.2	35-108		%REC	1	7/6/2011 09:04 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	U5-1
Lab Order:	118770	**Collection Date:**	6/29/2011 2:03:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-014A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110705A	QC Batch:	E11VS247		PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	7/5/2011 06:32 PM
Surr: Bromofluorobenzene (FID)	128	62-153		%REC	1	7/5/2011 06:32 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110705A	QC Batch:	E11VS247		PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	7/5/2011 06:32 PM
Ethylbenzene	ND	5.0		µg/Kg	1	7/5/2011 06:32 PM
m,p-Xylene	ND	10		µg/Kg	1	7/5/2011 06:32 PM
o-Xylene	ND	5.0		µg/Kg	1	7/5/2011 06:32 PM
Toluene	ND	5.0		µg/Kg	1	7/5/2011 06:32 PM
Surr: Bromofluorobenzene (PID)	99.9	65-140		%REC	1	7/5/2011 06:32 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	U5-2
Lab Order:	118770	**Collection Date:**	6/29/2011 2:14:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-015A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_110707D	QC Batch: 74076			PrepDate:	7/6/2011	Analyst: **CBB**
Antimony	3.3	2.0		mg/Kg	1	7/7/2011 04:02 PM
Arsenic	3.3	1.0		mg/Kg	1	7/7/2011 04:02 PM
Barium	90	1.0		mg/Kg	1	7/7/2011 04:02 PM
Beryllium	ND	1.0		mg/Kg	1	7/7/2011 04:02 PM
Cadmium	ND	1.0		mg/Kg	1	7/7/2011 04:02 PM
Chromium	60	1.0		mg/Kg	1	7/7/2011 04:02 PM
Cobalt	11	1.0		mg/Kg	1	7/7/2011 04:02 PM
Copper	29	2.0		mg/Kg	1	7/7/2011 04:02 PM
Lead	82	1.0		mg/Kg	1	7/7/2011 04:02 PM
Molybdenum	ND	1.0		mg/Kg	1	7/7/2011 04:02 PM
Nickel	67	1.0		mg/Kg	1	7/7/2011 04:02 PM
Selenium	ND	1.0		mg/Kg	1	7/7/2011 04:02 PM
Silver	ND	1.0		mg/Kg	1	7/7/2011 04:02 PM
Thallium	ND	1.0		mg/Kg	1	7/7/2011 04:02 PM
Vanadium	34	1.0		mg/Kg	1	7/7/2011 04:02 PM
Zinc	100	1.0		mg/Kg	1	7/7/2011 04:02 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA1_110706C	QC Batch: 74080			PrepDate:	7/6/2011	Analyst: **IL**
Mercury	0.25	0.10		mg/Kg	1	7/6/2011 02:11 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	U6-0
Lab Order:	118770	**Collection Date:**	6/29/2011 2:18:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-016A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B				**EPA 8015B(M)**		
RunID: GC16_110706G	QC Batch: 74085			PrepDate:	7/6/2011	Analyst: **CBR**
DRO	42	4.0		mg/Kg	1	7/7/2011 06:33 AM
ORO	180	4.0		mg/Kg	1	7/7/2011 06:33 AM
Surr: p-Terphenyl	103	30-128		%REC	1	7/7/2011 06:33 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC10_110706A	QC Batch: 74062			PrepDate:	7/5/2011	Analyst: **HL**
4,4´-DDD	ND	2.0		µg/Kg	1	7/6/2011 09:31 PM
4,4´-DDE	ND	2.0		µg/Kg	1	7/6/2011 09:31 PM
4,4´-DDT	7.2	2.0		µg/Kg	1	7/6/2011 09:31 PM
Aldrin	ND	1.0		µg/Kg	1	7/6/2011 09:31 PM
alpha-BHC	ND	1.0		µg/Kg	1	7/6/2011 09:31 PM
alpha-Chlordane	ND	1.0		µg/Kg	1	7/6/2011 09:31 PM
beta-BHC	ND	1.0		µg/Kg	1	7/6/2011 09:31 PM
Chlordane	ND	8.5		µg/Kg	1	7/6/2011 09:31 PM
delta-BHC	ND	1.0		µg/Kg	1	7/6/2011 09:31 PM
Dieldrin	ND	2.0		µg/Kg	1	7/6/2011 09:31 PM
Endosulfan I	ND	1.0		µg/Kg	1	7/6/2011 09:31 PM
Endosulfan II	ND	2.0		µg/Kg	1	7/6/2011 09:31 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	7/6/2011 09:31 PM
Endrin	ND	2.0		µg/Kg	1	7/6/2011 09:31 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	7/6/2011 09:31 PM
Endrin ketone	ND	2.0		µg/Kg	1	7/6/2011 09:31 PM
gamma-BHC	ND	1.0		µg/Kg	1	7/6/2011 09:31 PM
gamma-Chlordane	ND	1.0		µg/Kg	1	7/6/2011 09:31 PM
Heptachlor	ND	1.0		µg/Kg	1	7/6/2011 09:31 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	7/6/2011 09:31 PM
Methoxychlor	ND	5.0		µg/Kg	1	7/6/2011 09:31 PM
Toxaphene	ND	50		µg/Kg	1	7/6/2011 09:31 PM
Surr: Decachlorobiphenyl	80.3	31-107		%REC	1	7/6/2011 09:31 PM
Surr: Tetrachloro-m-xylene	87.7	35-108		%REC	1	7/6/2011 09:31 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	U6-1
Lab Order:	118770	**Collection Date:**	6/29/2011 2:22:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-017A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110705A	QC Batch:	E11VS247		PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	7/5/2011 04:37 PM
Surr: Bromofluorobenzene (FID)	128	62-153		%REC	1	7/5/2011 04:37 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110705A	QC Batch:	E11VS247		PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	7/5/2011 04:37 PM
Ethylbenzene	ND	5.0		µg/Kg	1	7/5/2011 04:37 PM
m,p-Xylene	ND	10		µg/Kg	1	7/5/2011 04:37 PM
o-Xylene	ND	5.0		µg/Kg	1	7/5/2011 04:37 PM
Toluene	ND	5.0		µg/Kg	1	7/5/2011 04:37 PM
Surr: Bromofluorobenzene (PID)	99.7	65-140		%REC	1	7/5/2011 04:37 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	U6-2
Lab Order:	118770	**Collection Date:**	6/29/2011 2:27:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-018A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_110707D	QC Batch: 74076			PrepDate:	7/6/2011	Analyst: **CBB**
Antimony	ND	2.0		mg/Kg	1	7/7/2011 04:05 PM
Arsenic	2.2	1.0		mg/Kg	1	7/7/2011 04:05 PM
Barium	110	1.0		mg/Kg	1	7/7/2011 04:05 PM
Beryllium	ND	1.0		mg/Kg	1	7/7/2011 04:05 PM
Cadmium	ND	1.0		mg/Kg	1	7/7/2011 04:05 PM
Chromium	32	1.0		mg/Kg	1	7/7/2011 04:05 PM
Cobalt	8.4	1.0		mg/Kg	1	7/7/2011 04:05 PM
Copper	21	2.0		mg/Kg	1	7/7/2011 04:05 PM
Lead	38	1.0		mg/Kg	1	7/7/2011 04:05 PM
Molybdenum	ND	1.0		mg/Kg	1	7/7/2011 04:05 PM
Nickel	33	1.0		mg/Kg	1	7/7/2011 04:05 PM
Selenium	ND	1.0		mg/Kg	1	7/7/2011 04:05 PM
Silver	ND	1.0		mg/Kg	1	7/7/2011 04:05 PM
Thallium	ND	1.0		mg/Kg	1	7/7/2011 04:05 PM
Vanadium	32	1.0		mg/Kg	1	7/7/2011 04:05 PM
Zinc	67	1.0		mg/Kg	1	7/7/2011 04:05 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA1_110706C	QC Batch: 74080			PrepDate:	7/6/2011	Analyst: **IL**
Mercury	0.13	0.10		mg/Kg	1	7/6/2011 02:13 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	U7-0
Lab Order:	118770	**Collection Date:**	6/29/2011 2:05:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-019A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110706G	QC Batch: 74085			PrepDate:	7/6/2011	Analyst: **CBR**
DRO	410	40		mg/Kg	10	7/7/2011 05:03 AM
ORO	1800	40		mg/Kg	10	7/7/2011 05:03 AM
Surr: p-Terphenyl	0	30-128	SDO	%REC	10	7/7/2011 05:03 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC10_110706A	QC Batch: 74062			PrepDate:	7/5/2011	Analyst: **HL**
4,4´-DDD	39	2.0		µg/Kg	1	7/6/2011 09:58 PM
4,4´-DDE	ND	2.0		µg/Kg	1	7/6/2011 09:58 PM
4,4´-DDT	250	20		µg/Kg	10	7/7/2011 11:21 AM
Aldrin	ND	1.0		µg/Kg	1	7/6/2011 09:58 PM
alpha-BHC	ND	1.0		µg/Kg	1	7/6/2011 09:58 PM
alpha-Chlordane	8.1	1.0		µg/Kg	1	7/6/2011 09:58 PM
beta-BHC	ND	1.0		µg/Kg	1	7/6/2011 09:58 PM
Chlordane	110	8.5		µg/Kg	1	7/6/2011 09:58 PM
delta-BHC	ND	1.0		µg/Kg	1	7/6/2011 09:58 PM
Dieldrin	17	2.0		µg/Kg	1	7/6/2011 09:58 PM
Endosulfan I	ND	1.0		µg/Kg	1	7/6/2011 09:58 PM
Endosulfan II	ND	2.0		µg/Kg	1	7/6/2011 09:58 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	7/6/2011 09:58 PM
Endrin	ND	2.0		µg/Kg	1	7/6/2011 09:58 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	7/6/2011 09:58 PM
Endrin ketone	ND	2.0		µg/Kg	1	7/6/2011 09:58 PM
gamma-BHC	ND	1.0		µg/Kg	1	7/6/2011 09:58 PM
gamma-Chlordane	16	1.0		µg/Kg	1	7/6/2011 09:58 PM
Heptachlor	ND	1.0		µg/Kg	1	7/6/2011 09:58 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	7/6/2011 09:58 PM
Methoxychlor	ND	5.0		µg/Kg	1	7/6/2011 09:58 PM
Toxaphene	ND	50		µg/Kg	1	7/6/2011 09:58 PM
Surr: Decachlorobiphenyl	102	31-107		%REC	1	7/6/2011 09:58 PM
Surr: Decachlorobiphenyl	153	31-107	S	%REC	10	7/7/2011 11:21 AM
Surr: Tetrachloro-m-xylene	82.4	35-108		%REC	10	7/7/2011 11:21 AM
Surr: Tetrachloro-m-xylene	69.3	35-108		%REC	1	7/6/2011 09:58 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	U7-1
Lab Order:	118770	**Collection Date:**	6/29/2011 2:08:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-020A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110705A	QC Batch:	E11VS247		PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	7/5/2011 04:53 PM
Surr: Bromofluorobenzene (FID)	135	62-153		%REC	1	7/5/2011 04:53 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110705A	QC Batch:	E11VS247		PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	7/5/2011 04:53 PM
Ethylbenzene	ND	5.0		µg/Kg	1	7/5/2011 04:53 PM
m,p-Xylene	ND	10		µg/Kg	1	7/5/2011 04:53 PM
o-Xylene	ND	5.0		µg/Kg	1	7/5/2011 04:53 PM
Toluene	ND	5.0		µg/Kg	1	7/5/2011 04:53 PM
Surr: Bromofluorobenzene (PID)	105	65-140		%REC	1	7/5/2011 04:53 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	U7-2
Lab Order:	118770	**Collection Date:**	6/29/2011 2:10:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-021A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_110707D	QC Batch: 74076			PrepDate:	7/6/2011	Analyst: **CBB**
Antimony	ND	2.0		mg/Kg	1	7/7/2011 04:09 PM
Arsenic	ND	1.0		mg/Kg	1	7/7/2011 04:09 PM
Barium	23	1.0		mg/Kg	1	7/7/2011 04:09 PM
Beryllium	ND	1.0		mg/Kg	1	7/7/2011 04:09 PM
Cadmium	ND	1.0		mg/Kg	1	7/7/2011 04:09 PM
Chromium	29	1.0		mg/Kg	1	7/7/2011 04:09 PM
Cobalt	4.7	1.0		mg/Kg	1	7/7/2011 04:09 PM
Copper	5.6	2.0		mg/Kg	1	7/7/2011 04:09 PM
Lead	3.5	1.0		mg/Kg	1	7/7/2011 04:09 PM
Molybdenum	ND	1.0		mg/Kg	1	7/7/2011 04:09 PM
Nickel	23	1.0		mg/Kg	1	7/7/2011 04:09 PM
Selenium	ND	1.0		mg/Kg	1	7/7/2011 04:09 PM
Silver	ND	1.0		mg/Kg	1	7/7/2011 04:09 PM
Thallium	ND	1.0		mg/Kg	1	7/7/2011 04:09 PM
Vanadium	22	1.0		mg/Kg	1	7/7/2011 04:09 PM
Zinc	17	1.0		mg/Kg	1	7/7/2011 04:09 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA1_110706C	QC Batch: 74080			PrepDate:	7/6/2011	Analyst: **IL**
Mercury	ND	0.10		mg/Kg	1	7/6/2011 02:20 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A1-0
Lab Order:	118770	**Collection Date:**	6/29/2011 2:48:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-022A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B				**EPA 8015B(M)**		
RunID: GC16_110706G	QC Batch: 74085			PrepDate:	7/6/2011	Analyst: **CBR**
DRO	17	2.0		mg/Kg	1	7/7/2011 07:14 AM
ORO	66	2.0		mg/Kg	1	7/7/2011 07:14 AM
Surr: p-Terphenyl	109	30-128		%REC	1	7/7/2011 07:14 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC10_110706A	QC Batch: 74062			PrepDate:	7/5/2011	Analyst: **HL**
4,4´-DDD	5.0	2.0		µg/Kg	1	7/6/2011 10:26 PM
4,4´-DDE	2.6	2.0		µg/Kg	1	7/6/2011 10:26 PM
4,4´-DDT	4.5	2.0		µg/Kg	1	7/6/2011 10:26 PM
Aldrin	ND	1.0		µg/Kg	1	7/6/2011 10:26 PM
alpha-BHC	ND	1.0		µg/Kg	1	7/6/2011 10:26 PM
alpha-Chlordane	ND	1.0		µg/Kg	1	7/6/2011 10:26 PM
beta-BHC	ND	1.0		µg/Kg	1	7/6/2011 10:26 PM
Chlordane	ND	8.5		µg/Kg	1	7/6/2011 10:26 PM
delta-BHC	ND	1.0		µg/Kg	1	7/6/2011 10:26 PM
Dieldrin	ND	2.0		µg/Kg	1	7/6/2011 10:26 PM
Endosulfan I	ND	1.0		µg/Kg	1	7/6/2011 10:26 PM
Endosulfan II	ND	2.0		µg/Kg	1	7/6/2011 10:26 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	7/6/2011 10:26 PM
Endrin	ND	2.0		µg/Kg	1	7/6/2011 10:26 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	7/6/2011 10:26 PM
Endrin ketone	ND	2.0		µg/Kg	1	7/6/2011 10:26 PM
gamma-BHC	ND	1.0		µg/Kg	1	7/6/2011 10:26 PM
gamma-Chlordane	ND	1.0		µg/Kg	1	7/6/2011 10:26 PM
Heptachlor	ND	1.0		µg/Kg	1	7/6/2011 10:26 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	7/6/2011 10:26 PM
Methoxychlor	ND	5.0		µg/Kg	1	7/6/2011 10:26 PM
Toxaphene	ND	50		µg/Kg	1	7/6/2011 10:26 PM
Surr: Decachlorobiphenyl	75.2	31-107		%REC	1	7/6/2011 10:26 PM
Surr: Tetrachloro-m-xylene	86.0	35-108		%REC	1	7/6/2011 10:26 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A1-1
Lab Order:	118770	**Collection Date:**	6/29/2011 2:51:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-023A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110705A	QC Batch:	E11VS247		PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	7/5/2011 05:08 PM
Surr: Bromofluorobenzene (FID)	132	62-153		%REC	1	7/5/2011 05:08 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110705A	QC Batch:	E11VS247		PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	7/5/2011 05:08 PM
Ethylbenzene	ND	5.0		µg/Kg	1	7/5/2011 05:08 PM
m,p-Xylene	ND	10		µg/Kg	1	7/5/2011 05:08 PM
o-Xylene	ND	5.0		µg/Kg	1	7/5/2011 05:08 PM
Toluene	ND	5.0		µg/Kg	1	7/5/2011 05:08 PM
Surr: Bromofluorobenzene (PID)	103	65-140		%REC	1	7/5/2011 05:08 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A1-2
Lab Order:	118770	**Collection Date:**	6/29/2011 2:54:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-024A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_110707D	QC Batch: 74076			PrepDate:	7/6/2011	Analyst: **CBB**
Antimony	ND	2.0		mg/Kg	1	7/7/2011 04:13 PM
Arsenic	ND	1.0		mg/Kg	1	7/7/2011 04:13 PM
Barium	25	1.0		mg/Kg	1	7/7/2011 04:13 PM
Beryllium	ND	1.0		mg/Kg	1	7/7/2011 04:13 PM
Cadmium	ND	1.0		mg/Kg	1	7/7/2011 04:13 PM
Chromium	32	1.0		mg/Kg	1	7/7/2011 04:13 PM
Cobalt	5.2	1.0		mg/Kg	1	7/7/2011 04:13 PM
Copper	3.4	2.0		mg/Kg	1	7/7/2011 04:13 PM
Lead	1.4	1.0		mg/Kg	1	7/7/2011 04:13 PM
Molybdenum	ND	1.0		mg/Kg	1	7/7/2011 04:13 PM
Nickel	25	1.0		mg/Kg	1	7/7/2011 04:13 PM
Selenium	ND	1.0		mg/Kg	1	7/7/2011 04:13 PM
Silver	ND	1.0		mg/Kg	1	7/7/2011 04:13 PM
Thallium	ND	1.0		mg/Kg	1	7/7/2011 04:13 PM
Vanadium	25	1.0		mg/Kg	1	7/7/2011 04:13 PM
Zinc	15	1.0		mg/Kg	1	7/7/2011 04:13 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA1_110706C	QC Batch: 74080			PrepDate:	7/6/2011	Analyst: **IL**
Mercury	ND	0.10		mg/Kg	1	7/6/2011 02:22 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A2-0
Lab Order:	118770	**Collection Date:**	6/29/2011 2:59:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-025A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B				**EPA 8015B(M)**		
RunID: GC16_110706G	QC Batch: 74085			PrepDate:	7/6/2011	Analyst: **CBR**
DRO	56	4.0		mg/Kg	1	7/7/2011 06:43 AM
ORO	220	4.0		mg/Kg	1	7/7/2011 06:43 AM
Surr: p-Terphenyl	103	30-128		%REC	1	7/7/2011 06:43 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC10_110706A	QC Batch: 74062			PrepDate:	7/5/2011	Analyst: **HL**
4,4´-DDD	28	2.0		µg/Kg	1	7/6/2011 11:20 PM
4,4´-DDE	16	2.0		µg/Kg	1	7/6/2011 11:20 PM
4,4´-DDT	77	20		µg/Kg	10	7/7/2011 11:35 AM
Aldrin	ND	1.0		µg/Kg	1	7/6/2011 11:20 PM
alpha-BHC	ND	1.0		µg/Kg	1	7/6/2011 11:20 PM
alpha-Chlordane	7.5	1.0		µg/Kg	1	7/6/2011 11:20 PM
beta-BHC	ND	1.0		µg/Kg	1	7/6/2011 11:20 PM
Chlordane	73	8.5		µg/Kg	1	7/6/2011 11:20 PM
delta-BHC	ND	1.0		µg/Kg	1	7/6/2011 11:20 PM
Dieldrin	ND	2.0		µg/Kg	1	7/6/2011 11:20 PM
Endosulfan I	ND	1.0		µg/Kg	1	7/6/2011 11:20 PM
Endosulfan II	ND	2.0		µg/Kg	1	7/6/2011 11:20 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	7/6/2011 11:20 PM
Endrin	ND	2.0		µg/Kg	1	7/6/2011 11:20 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	7/6/2011 11:20 PM
Endrin ketone	ND	2.0		µg/Kg	1	7/6/2011 11:20 PM
gamma-BHC	ND	1.0		µg/Kg	1	7/6/2011 11:20 PM
gamma-Chlordane	6.1	1.0		µg/Kg	1	7/6/2011 11:20 PM
Heptachlor	ND	1.0		µg/Kg	1	7/6/2011 11:20 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	7/6/2011 11:20 PM
Methoxychlor	ND	5.0		µg/Kg	1	7/6/2011 11:20 PM
Toxaphene	ND	50		µg/Kg	1	7/6/2011 11:20 PM
Surr: Decachlorobiphenyl	75.9	31-107		%REC	1	7/6/2011 11:20 PM
Surr: Decachlorobiphenyl	65.7	31-107		%REC	10	7/7/2011 11:35 AM
Surr: Tetrachloro-m-xylene	80.4	35-108		%REC	10	7/7/2011 11:35 AM
Surr: Tetrachloro-m-xylene	78.3	35-108		%REC	1	7/6/2011 11:20 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A2-1
Lab Order:	118770	**Collection Date:**	6/29/2011 3:02:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-026A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID						
			EPA 8015B(M)			
RunID: GC2_110705A	QC Batch:	E11VS247		PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	7/5/2011 05:24 PM
Surr: Bromofluorobenzene (FID)	128	62-153		%REC	1	7/5/2011 05:24 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
			EPA 8021B			
RunID: GC2_110705A	QC Batch:	E11VS247		PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	7/5/2011 05:24 PM
Ethylbenzene	ND	5.0		µg/Kg	1	7/5/2011 05:24 PM
m,p-Xylene	ND	10		µg/Kg	1	7/5/2011 05:24 PM
o-Xylene	ND	5.0		µg/Kg	1	7/5/2011 05:24 PM
Toluene	ND	5.0		µg/Kg	1	7/5/2011 05:24 PM
Surr: Bromofluorobenzene (PID)	99.1	65-140		%REC	1	7/5/2011 05:24 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A2-2
Lab Order:	118770	**Collection Date:**	6/29/2011 3:06:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-027A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_110707D	QC Batch: 74076			PrepDate:	7/6/2011	Analyst: **CBB**
Antimony	ND	2.0		mg/Kg	1	7/7/2011 04:16 PM
Arsenic	ND	1.0		mg/Kg	1	7/7/2011 04:16 PM
Barium	35	1.0		mg/Kg	1	7/7/2011 04:16 PM
Beryllium	ND	1.0		mg/Kg	1	7/7/2011 04:16 PM
Cadmium	ND	1.0		mg/Kg	1	7/7/2011 04:16 PM
Chromium	30	1.0		mg/Kg	1	7/7/2011 04:16 PM
Cobalt	4.6	1.0		mg/Kg	1	7/7/2011 04:16 PM
Copper	3.6	2.0		mg/Kg	1	7/7/2011 04:16 PM
Lead	2.1	1.0		mg/Kg	1	7/7/2011 04:16 PM
Molybdenum	ND	1.0		mg/Kg	1	7/7/2011 04:16 PM
Nickel	23	1.0		mg/Kg	1	7/7/2011 04:16 PM
Selenium	ND	1.0		mg/Kg	1	7/7/2011 04:16 PM
Silver	ND	1.0		mg/Kg	1	7/7/2011 04:16 PM
Thallium	ND	1.0		mg/Kg	1	7/7/2011 04:16 PM
Vanadium	23	1.0		mg/Kg	1	7/7/2011 04:16 PM
Zinc	16	1.0		mg/Kg	1	7/7/2011 04:16 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA1_110706C	QC Batch: 74080			PrepDate:	7/6/2011	Analyst: **IL**
Mercury	ND	0.10		mg/Kg	1	7/6/2011 02:24 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT: Geocon Consultants, Inc. **Client Sample ID:** A3-0
Lab Order: 118770 **Collection Date:** 6/29/2011
Project: I-80 Mobility Project (Kimley-Horn), E8583- **Matrix:** SOIL
Lab ID: 118770-028A

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110706G QC Batch: 74085				PrepDate:	7/6/2011	Analyst: **CBR**
DRO	81	40		mg/Kg	10	7/7/2011 04:33 AM
ORO	450	40		mg/Kg	10	7/7/2011 04:33 AM
Surr: p-Terphenyl	0	30-128	SDO	%REC	10	7/7/2011 04:33 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC10_110706A QC Batch: 74062				PrepDate:	7/5/2011	Analyst: **HL**
4,4´-DDD	64	2.0		µg/Kg	1	7/6/2011 11:47 PM
4,4´-DDE	32	2.0		µg/Kg	1	7/6/2011 11:47 PM
4,4´-DDT	240	20		µg/Kg	10	7/7/2011 11:48 AM
Aldrin	ND	1.0		µg/Kg	1	7/6/2011 11:47 PM
alpha-BHC	ND	1.0		µg/Kg	1	7/6/2011 11:47 PM
alpha-Chlordane	8.7	1.0		µg/Kg	1	7/6/2011 11:47 PM
beta-BHC	ND	1.0		µg/Kg	1	7/6/2011 11:47 PM
Chlordane	93	8.5		µg/Kg	1	7/6/2011 11:47 PM
delta-BHC	ND	1.0		µg/Kg	1	7/6/2011 11:47 PM
Dieldrin	16	2.0		µg/Kg	1	7/6/2011 11:47 PM
Endosulfan I	ND	1.0		µg/Kg	1	7/6/2011 11:47 PM
Endosulfan II	ND	2.0		µg/Kg	1	7/6/2011 11:47 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	7/6/2011 11:47 PM
Endrin	ND	2.0		µg/Kg	1	7/6/2011 11:47 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	7/6/2011 11:47 PM
Endrin ketone	ND	2.0		µg/Kg	1	7/6/2011 11:47 PM
gamma-BHC	ND	1.0		µg/Kg	1	7/6/2011 11:47 PM
gamma-Chlordane	6.6	1.0		µg/Kg	1	7/6/2011 11:47 PM
Heptachlor	ND	1.0		µg/Kg	1	7/6/2011 11:47 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	7/6/2011 11:47 PM
Methoxychlor	ND	5.0		µg/Kg	1	7/6/2011 11:47 PM
Toxaphene	ND	50		µg/Kg	1	7/6/2011 11:47 PM
Surr: Decachlorobiphenyl	99.4	31-107		%REC	1	7/6/2011 11:47 PM
Surr: Decachlorobiphenyl	112	31-107	S	%REC	10	7/7/2011 11:48 AM
Surr: Tetrachloro-m-xylene	89.1	35-108		%REC	10	7/7/2011 11:48 AM
Surr: Tetrachloro-m-xylene	76.5	35-108		%REC	1	7/6/2011 11:47 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A3-1
Lab Order:	118770	**Collection Date:**	6/29/2011
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-029A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110705A	QC Batch:	E11VS247		PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	7/5/2011 05:40 PM
Surr: Bromofluorobenzene (FID)	114	62-153		%REC	1	7/5/2011 05:40 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110705A	QC Batch:	E11VS247		PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	7/5/2011 05:40 PM
Ethylbenzene	ND	5.0		µg/Kg	1	7/5/2011 05:40 PM
m,p-Xylene	ND	10		µg/Kg	1	7/5/2011 05:40 PM
o-Xylene	ND	5.0		µg/Kg	1	7/5/2011 05:40 PM
Toluene	ND	5.0		µg/Kg	1	7/5/2011 05:40 PM
Surr: Bromofluorobenzene (PID)	87.9	65-140		%REC	1	7/5/2011 05:40 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A3-2
Lab Order:	118770	**Collection Date:**	6/29/2011
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-030A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_110707D	QC Batch: 74076			PrepDate:	7/6/2011	Analyst: **CBB**
Antimony	ND	2.0		mg/Kg	1	7/7/2011 04:26 PM
Arsenic	ND	1.0		mg/Kg	1	7/7/2011 04:26 PM
Barium	23	1.0		mg/Kg	1	7/7/2011 04:26 PM
Beryllium	ND	1.0		mg/Kg	1	7/7/2011 04:26 PM
Cadmium	ND	1.0		mg/Kg	1	7/7/2011 04:26 PM
Chromium	27	1.0		mg/Kg	1	7/7/2011 04:26 PM
Cobalt	4.1	1.0		mg/Kg	1	7/7/2011 04:26 PM
Copper	5.8	2.0		mg/Kg	1	7/7/2011 04:26 PM
Lead	14	1.0		mg/Kg	1	7/7/2011 04:26 PM
Molybdenum	ND	1.0		mg/Kg	1	7/7/2011 04:26 PM
Nickel	20	1.0		mg/Kg	1	7/7/2011 04:26 PM
Selenium	ND	1.0		mg/Kg	1	7/7/2011 04:26 PM
Silver	ND	1.0		mg/Kg	1	7/7/2011 04:26 PM
Thallium	ND	1.0		mg/Kg	1	7/7/2011 04:26 PM
Vanadium	20	1.0		mg/Kg	1	7/7/2011 04:26 PM
Zinc	17	1.0		mg/Kg	1	7/7/2011 04:26 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA1_110706C	QC Batch: 74080			PrepDate:	7/6/2011	Analyst: **IL**
Mercury	ND	0.10		mg/Kg	1	7/6/2011 02:26 PM

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A4-0
Lab Order:	118770	**Collection Date:**	6/29/2011 3:25:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-031A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110711C	QC Batch: 74109			PrepDate:	7/7/2011	Analyst: **CBR**
DRO	95	8.0		mg/Kg	2	7/12/2011 01:54 AM
ORO	460	8.0		mg/Kg	2	7/12/2011 01:54 AM
Surr: p-Terphenyl	0	30-128	SDO	%REC	2	7/12/2011 01:54 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC10_110707A	QC Batch: 74126			PrepDate:	7/7/2011	Analyst: **HL**
4,4´-DDD	ND	2.0		µg/Kg	1	7/7/2011 10:33 PM
4,4´-DDE	ND	2.0		µg/Kg	1	7/7/2011 10:33 PM
4,4´-DDT	88	20		µg/Kg	10	7/8/2011 10:58 AM
Aldrin	ND	1.0		µg/Kg	1	7/7/2011 10:33 PM
alpha-BHC	ND	1.0		µg/Kg	1	7/7/2011 10:33 PM
alpha-Chlordane	2.0	1.0		µg/Kg	1	7/7/2011 10:33 PM
beta-BHC	ND	1.0		µg/Kg	1	7/7/2011 10:33 PM
Chlordane	38	8.5		µg/Kg	1	7/7/2011 10:33 PM
delta-BHC	ND	1.0		µg/Kg	1	7/7/2011 10:33 PM
Dieldrin	ND	2.0		µg/Kg	1	7/7/2011 10:33 PM
Endosulfan I	ND	1.0		µg/Kg	1	7/7/2011 10:33 PM
Endosulfan II	ND	2.0		µg/Kg	1	7/7/2011 10:33 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	7/7/2011 10:33 PM
Endrin	ND	2.0		µg/Kg	1	7/7/2011 10:33 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	7/7/2011 10:33 PM
Endrin ketone	ND	2.0		µg/Kg	1	7/7/2011 10:33 PM
gamma-BHC	ND	1.0		µg/Kg	1	7/7/2011 10:33 PM
gamma-Chlordane	3.0	1.0		µg/Kg	1	7/7/2011 10:33 PM
Heptachlor	ND	1.0		µg/Kg	1	7/7/2011 10:33 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	7/7/2011 10:33 PM
Methoxychlor	ND	5.0		µg/Kg	1	7/7/2011 10:33 PM
Toxaphene	ND	50		µg/Kg	1	7/7/2011 10:33 PM
Surr: Decachlorobiphenyl	92.3	31-107		%REC	1	7/7/2011 10:33 PM
Surr: Decachlorobiphenyl	99.6	31-107		%REC	10	7/8/2011 10:58 AM
Surr: Tetrachloro-m-xylene	78.0	35-108		%REC	10	7/8/2011 10:58 AM
Surr: Tetrachloro-m-xylene	57.5	35-108		%REC	1	7/7/2011 10:33 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A4-1
Lab Order:	118770	**Collection Date:**	6/29/2011 3:27:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-032A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID						
			EPA 8015B(M)			
RunID: GC2_110705B	QC Batch:	E11VS248		PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	7/5/2011 10:45 PM
Surr: Bromofluorobenzene (FID)	126	62-153		%REC	1	7/5/2011 10:45 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
			EPA 8021B			
RunID: GC2_110705B	QC Batch:	E11VS248		PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	7/5/2011 10:45 PM
Ethylbenzene	ND	5.0		µg/Kg	1	7/5/2011 10:45 PM
m,p-Xylene	ND	10		µg/Kg	1	7/5/2011 10:45 PM
o-Xylene	ND	5.0		µg/Kg	1	7/5/2011 10:45 PM
Toluene	ND	5.0		µg/Kg	1	7/5/2011 10:45 PM
Surr: Bromofluorobenzene (PID)	98.6	65-140		%REC	1	7/5/2011 10:45 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT: Geocon Consultants, Inc. **Client Sample ID:** A5-0
Lab Order: 118770 **Collection Date:** 6/29/2011 3:25:00 PM
Project: I-80 Mobility Project (Kimley-Horn), E8583- **Matrix:** SOIL
Lab ID: 118770-034A

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B			**EPA 6010B**			
RunID: ICP8_110707D	QC Batch: 74076			PrepDate:	7/6/2011	Analyst: **CBB**
Antimony	ND	2.0		mg/Kg	1	7/7/2011 04:29 PM
Arsenic	ND	1.0		mg/Kg	1	7/7/2011 04:29 PM
Barium	100	1.0		mg/Kg	1	7/7/2011 04:29 PM
Beryllium	ND	1.0		mg/Kg	1	7/7/2011 04:29 PM
Cadmium	1.5	1.0		mg/Kg	1	7/7/2011 04:29 PM
Chromium	40	1.0		mg/Kg	1	7/7/2011 04:29 PM
Cobalt	8.5	1.0		mg/Kg	1	7/7/2011 04:29 PM
Copper	72	2.0		mg/Kg	1	7/7/2011 04:29 PM
Lead	490	1.0		mg/Kg	1	7/7/2011 04:29 PM
Molybdenum	ND	1.0		mg/Kg	1	7/7/2011 04:29 PM
Nickel	33	1.0		mg/Kg	1	7/7/2011 04:29 PM
Selenium	ND	1.0		mg/Kg	1	7/7/2011 04:29 PM
Silver	ND	1.0		mg/Kg	1	7/7/2011 04:29 PM
Thallium	ND	1.0		mg/Kg	1	7/7/2011 04:29 PM
Vanadium	27	1.0		mg/Kg	1	7/7/2011 04:29 PM
Zinc	250	1.0		mg/Kg	1	7/7/2011 04:29 PM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110711C	QC Batch: 74109			PrepDate:	7/7/2011	Analyst: **CBR**
DRO	140	8.0		mg/Kg	2	7/12/2011 01:35 AM
ORO	640	8.0		mg/Kg	2	7/12/2011 01:35 AM
Surr: p-Terphenyl	0	30-128	SDO	%REC	2	7/12/2011 01:35 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC10_110707A	QC Batch: 74126			PrepDate:	7/7/2011	Analyst: **HL**
4,4´-DDD	ND	2.0		µg/Kg	1	7/7/2011 11:00 PM
4,4´-DDE	ND	2.0		µg/Kg	1	7/7/2011 11:00 PM
4,4´-DDT	110	20		µg/Kg	10	7/8/2011 11:12 AM
Aldrin	ND	1.0		µg/Kg	1	7/7/2011 11:00 PM
alpha-BHC	ND	1.0		µg/Kg	1	7/7/2011 11:00 PM
alpha-Chlordane	2.6	1.0		µg/Kg	1	7/7/2011 11:00 PM
beta-BHC	ND	1.0		µg/Kg	1	7/7/2011 11:00 PM
Chlordane	50	8.5		µg/Kg	1	7/7/2011 11:00 PM
delta-BHC	ND	1.0		µg/Kg	1	7/7/2011 11:00 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A5-0
Lab Order:	118770	**Collection Date:**	6/29/2011 3:25:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-034A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC10_110707A	QC Batch: 74126			PrepDate:	7/7/2011	Analyst: **HL**
Dieldrin	13	2.0		µg/Kg	1	7/7/2011 11:00 PM
Endosulfan I	ND	1.0		µg/Kg	1	7/7/2011 11:00 PM
Endosulfan II	ND	2.0		µg/Kg	1	7/7/2011 11:00 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	7/7/2011 11:00 PM
Endrin	ND	2.0		µg/Kg	1	7/7/2011 11:00 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	7/7/2011 11:00 PM
Endrin ketone	ND	2.0		µg/Kg	1	7/7/2011 11:00 PM
gamma-BHC	ND	1.0		µg/Kg	1	7/7/2011 11:00 PM
gamma-Chlordane	4.1	1.0		µg/Kg	1	7/7/2011 11:00 PM
Heptachlor	ND	1.0		µg/Kg	1	7/7/2011 11:00 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	7/7/2011 11:00 PM
Methoxychlor	ND	5.0		µg/Kg	1	7/7/2011 11:00 PM
Toxaphene	ND	50		µg/Kg	1	7/7/2011 11:00 PM
Surr: Decachlorobiphenyl	93.1	31-107		%REC	1	7/7/2011 11:00 PM
Surr: Decachlorobiphenyl	75.9	31-107		%REC	10	7/8/2011 11:12 AM
Surr: Tetrachloro-m-xylene	50.3	35-108		%REC	10	7/8/2011 11:12 AM
Surr: Tetrachloro-m-xylene	37.4	35-108		%REC	1	7/7/2011 11:00 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA1_110706C	QC Batch: 74080			PrepDate:	7/6/2011	Analyst: **IL**
Mercury	0.23	0.10		mg/Kg	1	7/6/2011 02:28 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A5-1
Lab Order:	118770	**Collection Date:**	6/29/2011 3:27:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-035A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110705B	QC Batch:	E11VS248		PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	7/5/2011 11:01 PM
Surr: Bromofluorobenzene (FID)	134	62-153		%REC	1	7/5/2011 11:01 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110705B	QC Batch:	E11VS248		PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	7/5/2011 11:01 PM
Ethylbenzene	ND	5.0		µg/Kg	1	7/5/2011 11:01 PM
m,p-Xylene	ND	10		µg/Kg	1	7/5/2011 11:01 PM
o-Xylene	ND	5.0		µg/Kg	1	7/5/2011 11:01 PM
Toluene	ND	5.0		µg/Kg	1	7/5/2011 11:01 PM
Surr: Bromofluorobenzene (PID)	105	65-140		%REC	1	7/5/2011 11:01 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A6-0
Lab Order:	118770	**Collection Date:**	6/29/2011 2:55:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-037A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110711C	QC Batch: 74109			PrepDate:	7/7/2011	Analyst: **CBR**
DRO	140	8.0		mg/Kg	2	7/12/2011 02:14 AM
ORO	680	8.0		mg/Kg	2	7/12/2011 02:14 AM
Surr: p-Terphenyl	0	30-128	SDO	%REC	2	7/12/2011 02:14 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC10_110707A	QC Batch: 74126			PrepDate:	7/7/2011	Analyst: **HL**
4,4´-DDD	ND	2.0		µg/Kg	1	7/7/2011 11:27 PM
4,4´-DDE	ND	2.0		µg/Kg	1	7/7/2011 11:27 PM
4,4´-DDT	150	20		µg/Kg	10	7/8/2011 11:25 AM
Aldrin	ND	1.0		µg/Kg	1	7/7/2011 11:27 PM
alpha-BHC	ND	1.0		µg/Kg	1	7/7/2011 11:27 PM
alpha-Chlordane	6.1	1.0		µg/Kg	1	7/7/2011 11:27 PM
beta-BHC	ND	1.0		µg/Kg	1	7/7/2011 11:27 PM
Chlordane	83	8.5		µg/Kg	1	7/7/2011 11:27 PM
delta-BHC	ND	1.0		µg/Kg	1	7/7/2011 11:27 PM
Dieldrin	18	2.0		µg/Kg	1	7/7/2011 11:27 PM
Endosulfan I	ND	1.0		µg/Kg	1	7/7/2011 11:27 PM
Endosulfan II	ND	2.0		µg/Kg	1	7/7/2011 11:27 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	7/7/2011 11:27 PM
Endrin	ND	2.0		µg/Kg	1	7/7/2011 11:27 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	7/7/2011 11:27 PM
Endrin ketone	ND	2.0		µg/Kg	1	7/7/2011 11:27 PM
gamma-BHC	ND	1.0		µg/Kg	1	7/7/2011 11:27 PM
gamma-Chlordane	8.6	1.0		µg/Kg	1	7/7/2011 11:27 PM
Heptachlor	ND	1.0		µg/Kg	1	7/7/2011 11:27 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	7/7/2011 11:27 PM
Methoxychlor	ND	5.0		µg/Kg	1	7/7/2011 11:27 PM
Toxaphene	ND	50		µg/Kg	1	7/7/2011 11:27 PM
Surr: Decachlorobiphenyl	134	31-107	S	%REC	1	7/7/2011 11:27 PM
Surr: Decachlorobiphenyl	113	31-107	S	%REC	10	7/8/2011 11:25 AM
Surr: Tetrachloro-m-xylene	65.5	35-108		%REC	10	7/8/2011 11:25 AM
Surr: Tetrachloro-m-xylene	48.0	35-108		%REC	1	7/7/2011 11:27 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A6-1
Lab Order:	118770	**Collection Date:**	6/29/2011 3:00:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-038A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110705B QC Batch: E11VS248				PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	7/5/2011 11:17 PM
Surr: Bromofluorobenzene (FID)	132	62-153		%REC	1	7/5/2011 11:17 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110705B QC Batch: E11VS248				PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	7/5/2011 11:17 PM
Ethylbenzene	ND	5.0		µg/Kg	1	7/5/2011 11:17 PM
m,p-Xylene	ND	10		µg/Kg	1	7/5/2011 11:17 PM
o-Xylene	ND	5.0		µg/Kg	1	7/5/2011 11:17 PM
Toluene	ND	5.0		µg/Kg	1	7/5/2011 11:17 PM
Surr: Bromofluorobenzene (PID)	103	65-140		%REC	1	7/5/2011 11:17 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	A6-2
Lab Order:	118770	**Collection Date:**	6/29/2011 3:05:00 PM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-039A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_110707D	QC Batch: 74076			PrepDate:	7/6/2011	Analyst: **CBB**
Antimony	ND	2.0		mg/Kg	1	7/7/2011 04:33 PM
Arsenic	ND	1.0		mg/Kg	1	7/7/2011 04:33 PM
Barium	24	1.0		mg/Kg	1	7/7/2011 04:33 PM
Beryllium	ND	1.0		mg/Kg	1	7/7/2011 04:33 PM
Cadmium	ND	1.0		mg/Kg	1	7/7/2011 04:33 PM
Chromium	28	1.0		mg/Kg	1	7/7/2011 04:33 PM
Cobalt	4.5	1.0		mg/Kg	1	7/7/2011 04:33 PM
Copper	2.7	2.0		mg/Kg	1	7/7/2011 04:33 PM
Lead	2.0	1.0		mg/Kg	1	7/7/2011 04:33 PM
Molybdenum	ND	1.0		mg/Kg	1	7/7/2011 04:33 PM
Nickel	23	1.0		mg/Kg	1	7/7/2011 04:33 PM
Selenium	ND	1.0		mg/Kg	1	7/7/2011 04:33 PM
Silver	ND	1.0		mg/Kg	1	7/7/2011 04:33 PM
Thallium	ND	1.0		mg/Kg	1	7/7/2011 04:33 PM
Vanadium	21	1.0		mg/Kg	1	7/7/2011 04:33 PM
Zinc	20	1.0		mg/Kg	1	7/7/2011 04:33 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA1_110706C	QC Batch: 74080			PrepDate:	7/6/2011	Analyst: **IL**
Mercury	ND	0.10		mg/Kg	1	7/6/2011 02:05 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	JM1-0
Lab Order:	118770	**Collection Date:**	6/30/2011 11:28:00 AM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-040A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B			**EPA 6010B**			
RunID: ICP8_110707E	QC Batch: 74077			PrepDate:	7/6/2011	Analyst: **CBB**
Antimony	ND	2.0		mg/Kg	1	7/7/2011 04:53 PM
Arsenic	ND	1.0		mg/Kg	1	7/7/2011 04:53 PM
Barium	110	1.0		mg/Kg	1	7/7/2011 04:53 PM
Beryllium	ND	1.0		mg/Kg	1	7/7/2011 04:53 PM
Cadmium	ND	1.0		mg/Kg	1	7/7/2011 04:53 PM
Chromium	11	1.0		mg/Kg	1	7/7/2011 04:53 PM
Cobalt	12	1.0		mg/Kg	1	7/7/2011 04:53 PM
Copper	22	2.0		mg/Kg	1	7/7/2011 04:53 PM
Lead	8.7	1.0		mg/Kg	1	7/7/2011 04:53 PM
Molybdenum	ND	1.0		mg/Kg	1	7/7/2011 04:53 PM
Nickel	16	1.0		mg/Kg	1	7/7/2011 04:53 PM
Selenium	ND	1.0		mg/Kg	1	7/7/2011 04:53 PM
Silver	ND	1.0		mg/Kg	1	7/7/2011 04:53 PM
Thallium	ND	1.0		mg/Kg	1	7/7/2011 04:53 PM
Vanadium	52	1.0		mg/Kg	1	7/7/2011 04:53 PM
Zinc	55	1.0		mg/Kg	1	7/7/2011 04:53 PM
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110711C	QC Batch: 74109			PrepDate:	7/7/2011	Analyst: **CBR**
DRO	20	2.0		mg/Kg	1	7/12/2011 12:28 AM
ORO	100	2.0		mg/Kg	1	7/12/2011 12:28 AM
Surr: p-Terphenyl	56.7	30-128		%REC	1	7/12/2011 12:28 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC10_110707A	QC Batch: 74126			PrepDate:	7/7/2011	Analyst: **HL**
4,4´-DDD	ND	2.0		µg/Kg	1	7/7/2011 11:54 PM
4,4´-DDE	ND	2.0		µg/Kg	1	7/7/2011 11:54 PM
4,4´-DDT	ND	2.0		µg/Kg	1	7/7/2011 11:54 PM
Aldrin	ND	1.0		µg/Kg	1	7/7/2011 11:54 PM
alpha-BHC	ND	1.0		µg/Kg	1	7/7/2011 11:54 PM
alpha-Chlordane	ND	1.0		µg/Kg	1	7/7/2011 11:54 PM
beta-BHC	ND	1.0		µg/Kg	1	7/7/2011 11:54 PM
Chlordane	ND	8.5		µg/Kg	1	7/7/2011 11:54 PM
delta-BHC	ND	1.0		µg/Kg	1	7/7/2011 11:54 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	JM1-0
Lab Order:	118770	**Collection Date:**	6/30/2011 11:28:00 AM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-040A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC10_110707A	QC Batch: 74126			PrepDate:	7/7/2011	Analyst: **HL**
Dieldrin	ND	2.0		µg/Kg	1	7/7/2011 11:54 PM
Endosulfan I	ND	1.0		µg/Kg	1	7/7/2011 11:54 PM
Endosulfan II	ND	2.0		µg/Kg	1	7/7/2011 11:54 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	7/7/2011 11:54 PM
Endrin	ND	2.0		µg/Kg	1	7/7/2011 11:54 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	7/7/2011 11:54 PM
Endrin ketone	ND	2.0		µg/Kg	1	7/7/2011 11:54 PM
gamma-BHC	ND	1.0		µg/Kg	1	7/7/2011 11:54 PM
gamma-Chlordane	ND	1.0		µg/Kg	1	7/7/2011 11:54 PM
Heptachlor	ND	1.0		µg/Kg	1	7/7/2011 11:54 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	7/7/2011 11:54 PM
Methoxychlor	ND	5.0		µg/Kg	1	7/7/2011 11:54 PM
Toxaphene	ND	50		µg/Kg	1	7/7/2011 11:54 PM
Surr: Decachlorobiphenyl	72.6	31-107		%REC	1	7/7/2011 11:54 PM
Surr: Tetrachloro-m-xylene	55.1	35-108		%REC	1	7/7/2011 11:54 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA1_110706D	QC Batch: 74081			PrepDate:	7/6/2011	Analyst: **IL**
Mercury	0.45	0.10		mg/Kg	1	7/6/2011 02:49 PM

Qualifiers:

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

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	JM1-1
Lab Order:	118770	**Collection Date:**	6/30/2011 11:37:00 AM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-041A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID						
			EPA 8015B(M)			
RunID: GC2_110705B QC Batch: E11VS248				PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	7/5/2011 11:33 PM
Surr: Bromofluorobenzene (FID)	140	62-153		%REC	1	7/5/2011 11:33 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
			EPA 8021B			
RunID: GC2_110705B QC Batch: E11VS248				PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	7/5/2011 11:33 PM
Ethylbenzene	ND	5.0		µg/Kg	1	7/5/2011 11:33 PM
m,p-Xylene	ND	10		µg/Kg	1	7/5/2011 11:33 PM
o-Xylene	ND	5.0		µg/Kg	1	7/5/2011 11:33 PM
Toluene	ND	5.0		µg/Kg	1	7/5/2011 11:33 PM
Surr: Bromofluorobenzene (PID)	109	65-140		%REC	1	7/5/2011 11:33 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	JM2-0
Lab Order:	118770	**Collection Date:**	6/30/2011 11:53:00 AM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-043A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B				**EPA 8015B(M)**		
RunID: GC16_110711C	QC Batch: 74109			PrepDate:	7/7/2011	Analyst: **CBR**
DRO	35	2.0		mg/Kg	1	7/12/2011 12:47 AM
ORO	180	2.0		mg/Kg	1	7/12/2011 12:47 AM
Surr: p-Terphenyl	71.5	30-128		%REC	1	7/12/2011 12:47 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC10_110707A	QC Batch: 74126			PrepDate:	7/7/2011	Analyst: **HL**
4,4´-DDD	ND	2.0		µg/Kg	1	7/8/2011 12:21 AM
4,4´-DDE	ND	2.0		µg/Kg	1	7/8/2011 12:21 AM
4,4´-DDT	ND	2.0		µg/Kg	1	7/8/2011 12:21 AM
Aldrin	ND	1.0		µg/Kg	1	7/8/2011 12:21 AM
alpha-BHC	ND	1.0		µg/Kg	1	7/8/2011 12:21 AM
alpha-Chlordane	ND	1.0		µg/Kg	1	7/8/2011 12:21 AM
beta-BHC	ND	1.0		µg/Kg	1	7/8/2011 12:21 AM
Chlordane	ND	8.5		µg/Kg	1	7/8/2011 12:21 AM
delta-BHC	ND	1.0		µg/Kg	1	7/8/2011 12:21 AM
Dieldrin	ND	2.0		µg/Kg	1	7/8/2011 12:21 AM
Endosulfan I	ND	1.0		µg/Kg	1	7/8/2011 12:21 AM
Endosulfan II	ND	2.0		µg/Kg	1	7/8/2011 12:21 AM
Endosulfan sulfate	ND	2.0		µg/Kg	1	7/8/2011 12:21 AM
Endrin	ND	2.0		µg/Kg	1	7/8/2011 12:21 AM
Endrin aldehyde	ND	2.0		µg/Kg	1	7/8/2011 12:21 AM
Endrin ketone	ND	2.0		µg/Kg	1	7/8/2011 12:21 AM
gamma-BHC	ND	1.0		µg/Kg	1	7/8/2011 12:21 AM
gamma-Chlordane	ND	1.0		µg/Kg	1	7/8/2011 12:21 AM
Heptachlor	ND	1.0		µg/Kg	1	7/8/2011 12:21 AM
Heptachlor epoxide	ND	1.0		µg/Kg	1	7/8/2011 12:21 AM
Methoxychlor	ND	5.0		µg/Kg	1	7/8/2011 12:21 AM
Toxaphene	ND	50		µg/Kg	1	7/8/2011 12:21 AM
Surr: Decachlorobiphenyl	78.7	31-107		%REC	1	7/8/2011 12:21 AM
Surr: Tetrachloro-m-xylene	59.6	35-108		%REC	1	7/8/2011 12:21 AM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	JM2-1
Lab Order:	118770	**Collection Date:**	6/30/2011 11:57:00 AM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-044A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110705B QC Batch: E11VS248 PrepDate: Analyst: **TP**						
GRO	ND	1.0		mg/Kg	1	7/5/2011 11:48 PM
Surr: Bromofluorobenzene (FID)	129	62-153		%REC	1	7/5/2011 11:48 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110705B QC Batch: E11VS248 PrepDate: Analyst: **TP**						
Benzene	ND	5.0		µg/Kg	1	7/5/2011 11:48 PM
Ethylbenzene	ND	5.0		µg/Kg	1	7/5/2011 11:48 PM
m,p-Xylene	ND	10		µg/Kg	1	7/5/2011 11:48 PM
o-Xylene	ND	5.0		µg/Kg	1	7/5/2011 11:48 PM
Toluene	ND	5.0		µg/Kg	1	7/5/2011 11:48 PM
Surr: Bromofluorobenzene (PID)	101	65-140		%REC	1	7/5/2011 11:48 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	JM3-0
Lab Order:	118770	**Collection Date:**	6/30/2011 12:05:00 AM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-046A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110711C QC Batch: 74109				PrepDate:	7/7/2011	Analyst: **CBR**
DRO	42	8.0		mg/Kg	2	7/12/2011 01:44 AM
ORO	280	8.0		mg/Kg	2	7/12/2011 01:44 AM
Surr: p-Terphenyl	0	30-128	SDO	%REC	2	7/12/2011 01:44 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC10_110707A QC Batch: 74126				PrepDate:	7/7/2011	Analyst: **HL**
4,4´-DDD	ND	2.0		µg/Kg	1	7/8/2011 12:49 AM
4,4´-DDE	ND	2.0		µg/Kg	1	7/8/2011 12:49 AM
4,4´-DDT	ND	2.0		µg/Kg	1	7/8/2011 12:49 AM
Aldrin	ND	1.0		µg/Kg	1	7/8/2011 12:49 AM
alpha-BHC	ND	1.0		µg/Kg	1	7/8/2011 12:49 AM
alpha-Chlordane	ND	1.0		µg/Kg	1	7/8/2011 12:49 AM
beta-BHC	ND	1.0		µg/Kg	1	7/8/2011 12:49 AM
Chlordane	ND	8.5		µg/Kg	1	7/8/2011 12:49 AM
delta-BHC	ND	1.0		µg/Kg	1	7/8/2011 12:49 AM
Dieldrin	ND	2.0		µg/Kg	1	7/8/2011 12:49 AM
Endosulfan I	ND	1.0		µg/Kg	1	7/8/2011 12:49 AM
Endosulfan II	ND	2.0		µg/Kg	1	7/8/2011 12:49 AM
Endosulfan sulfate	ND	2.0		µg/Kg	1	7/8/2011 12:49 AM
Endrin	ND	2.0		µg/Kg	1	7/8/2011 12:49 AM
Endrin aldehyde	ND	2.0		µg/Kg	1	7/8/2011 12:49 AM
Endrin ketone	ND	2.0		µg/Kg	1	7/8/2011 12:49 AM
gamma-BHC	ND	1.0		µg/Kg	1	7/8/2011 12:49 AM
gamma-Chlordane	ND	1.0		µg/Kg	1	7/8/2011 12:49 AM
Heptachlor	ND	1.0		µg/Kg	1	7/8/2011 12:49 AM
Heptachlor epoxide	ND	1.0		µg/Kg	1	7/8/2011 12:49 AM
Methoxychlor	ND	5.0		µg/Kg	1	7/8/2011 12:49 AM
Toxaphene	ND	50		µg/Kg	1	7/8/2011 12:49 AM
Surr: Decachlorobiphenyl	61.3	31-107		%REC	1	7/8/2011 12:49 AM
Surr: Tetrachloro-m-xylene	44.1	35-108		%REC	1	7/8/2011 12:49 AM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	JM3-1
Lab Order:	118770	**Collection Date:**	6/30/2011 12:07:00 AM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-047A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B			**EPA 6010B**			
RunID: ICP8_110707E	QC Batch: 74077			PrepDate: 7/6/2011		Analyst: **CBB**
Antimony	ND	2.0		mg/Kg	1	7/7/2011 04:56 PM
Arsenic	ND	1.0		mg/Kg	1	7/7/2011 04:56 PM
Barium	89	1.0		mg/Kg	1	7/7/2011 04:56 PM
Beryllium	ND	1.0		mg/Kg	1	7/7/2011 04:56 PM
Cadmium	ND	1.0		mg/Kg	1	7/7/2011 04:56 PM
Chromium	20	1.0		mg/Kg	1	7/7/2011 04:56 PM
Cobalt	6.8	1.0		mg/Kg	1	7/7/2011 04:56 PM
Copper	5.1	2.0		mg/Kg	1	7/7/2011 04:56 PM
Lead	7.1	1.0		mg/Kg	1	7/7/2011 04:56 PM
Molybdenum	ND	1.0		mg/Kg	1	7/7/2011 04:56 PM
Nickel	12	1.0		mg/Kg	1	7/7/2011 04:56 PM
Selenium	ND	1.0		mg/Kg	1	7/7/2011 04:56 PM
Silver	ND	1.0		mg/Kg	1	7/7/2011 04:56 PM
Thallium	ND	1.0		mg/Kg	1	7/7/2011 04:56 PM
Vanadium	27	1.0		mg/Kg	1	7/7/2011 04:56 PM
Zinc	32	1.0		mg/Kg	1	7/7/2011 04:56 PM
GASOLINE RANGE ORGANICS BY GC/FID						
			EPA 8015B(M)			
RunID: GC2_110705B	QC Batch: E11VS248			PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	7/6/2011 12:04 AM
Surr: Bromofluorobenzene (FID)	133	62-153		%REC	1	7/6/2011 12:04 AM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
			EPA 8021B			
RunID: GC2_110705B	QC Batch: E11VS248			PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	7/6/2011 12:04 AM
Ethylbenzene	ND	5.0		µg/Kg	1	7/6/2011 12:04 AM
m,p-Xylene	ND	10		µg/Kg	1	7/6/2011 12:04 AM
o-Xylene	ND	5.0		µg/Kg	1	7/6/2011 12:04 AM
Toluene	ND	5.0		µg/Kg	1	7/6/2011 12:04 AM
Surr: Bromofluorobenzene (PID)	104	65-140		%REC	1	7/6/2011 12:04 AM
MERCURY BY COLD VAPOR TECHNIQUE						
			EPA 7471A			
RunID: AA1_110706D	QC Batch: 74081			PrepDate: 7/6/2011		Analyst: **IL**

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	JM3-1
Lab Order:	118770	**Collection Date:**	6/30/2011 12:07:00 AM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-047A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY BY COLD VAPOR TECHNIQUE						
			EPA 7471A			
RunID: AA1_110706D	QC Batch: 74081			PrepDate:	7/6/2011	Analyst: **IL**
Mercury	ND	0.10		mg/Kg	1	7/6/2011 02:51 PM

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT: Geocon Consultants, Inc.
Client Sample ID: JM4-0
Lab Order: 118770
Collection Date: 6/30/2011 12:23:00 AM
Project: I-80 Mobility Project (Kimley-Horn), E8583-
Matrix: SOIL
Lab ID: 118770-049A

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B				**EPA 8015B(M)**		
RunID: GC16_110711C	QC Batch: 74109			PrepDate:	7/7/2011	Analyst: **CBR**
DRO	26	2.0		mg/Kg	1	7/12/2011 12:38 AM
ORO	120	2.0		mg/Kg	1	7/12/2011 12:38 AM
Surr: p-Terphenyl	49.0	30-128		%REC	1	7/12/2011 12:38 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC10_110707A	QC Batch: 74126			PrepDate:	7/7/2011	Analyst: **HL**
4,4´-DDD	ND	2.0		µg/Kg	1	7/8/2011 01:16 AM
4,4´-DDE	ND	2.0		µg/Kg	1	7/8/2011 01:16 AM
4,4´-DDT	ND	2.0		µg/Kg	1	7/8/2011 01:16 AM
Aldrin	ND	1.0		µg/Kg	1	7/8/2011 01:16 AM
alpha-BHC	ND	1.0		µg/Kg	1	7/8/2011 01:16 AM
alpha-Chlordane	ND	1.0		µg/Kg	1	7/8/2011 01:16 AM
beta-BHC	ND	1.0		µg/Kg	1	7/8/2011 01:16 AM
Chlordane	ND	8.5		µg/Kg	1	7/8/2011 01:16 AM
delta-BHC	ND	1.0		µg/Kg	1	7/8/2011 01:16 AM
Dieldrin	ND	2.0		µg/Kg	1	7/8/2011 01:16 AM
Endosulfan I	ND	1.0		µg/Kg	1	7/8/2011 01:16 AM
Endosulfan II	ND	2.0		µg/Kg	1	7/8/2011 01:16 AM
Endosulfan sulfate	ND	2.0		µg/Kg	1	7/8/2011 01:16 AM
Endrin	ND	2.0		µg/Kg	1	7/8/2011 01:16 AM
Endrin aldehyde	ND	2.0		µg/Kg	1	7/8/2011 01:16 AM
Endrin ketone	ND	2.0		µg/Kg	1	7/8/2011 01:16 AM
gamma-BHC	ND	1.0		µg/Kg	1	7/8/2011 01:16 AM
gamma-Chlordane	ND	1.0		µg/Kg	1	7/8/2011 01:16 AM
Heptachlor	ND	1.0		µg/Kg	1	7/8/2011 01:16 AM
Heptachlor epoxide	ND	1.0		µg/Kg	1	7/8/2011 01:16 AM
Methoxychlor	ND	5.0		µg/Kg	1	7/8/2011 01:16 AM
Toxaphene	ND	50		µg/Kg	1	7/8/2011 01:16 AM
Surr: Decachlorobiphenyl	70.6	31-107		%REC	1	7/8/2011 01:16 AM
Surr: Tetrachloro-m-xylene	44.3	35-108		%REC	1	7/8/2011 01:16 AM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	JM4-1
Lab Order:	118770	**Collection Date:**	6/30/2011 12:27:00 AM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-050A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B				**EPA 6010B**		
RunID: ICP8_110707E	QC Batch: 74077			PrepDate: 7/6/2011		Analyst: **CBB**
Antimony	ND	2.0		mg/Kg	1	7/7/2011 05:06 PM
Arsenic	4.9	1.0		mg/Kg	1	7/7/2011 05:06 PM
Barium	69	1.0		mg/Kg	1	7/7/2011 05:06 PM
Beryllium	ND	1.0		mg/Kg	1	7/7/2011 05:06 PM
Cadmium	2.4	1.0		mg/Kg	1	7/7/2011 05:06 PM
Chromium	19	1.0		mg/Kg	1	7/7/2011 05:06 PM
Cobalt	6.3	1.0		mg/Kg	1	7/7/2011 05:06 PM
Copper	9.7	2.0		mg/Kg	1	7/7/2011 05:06 PM
Lead	19	1.0		mg/Kg	1	7/7/2011 05:06 PM
Molybdenum	ND	1.0		mg/Kg	1	7/7/2011 05:06 PM
Nickel	14	1.0		mg/Kg	1	7/7/2011 05:06 PM
Selenium	ND	1.0		mg/Kg	1	7/7/2011 05:06 PM
Silver	ND	1.0		mg/Kg	1	7/7/2011 05:06 PM
Thallium	ND	1.0		mg/Kg	1	7/7/2011 05:06 PM
Vanadium	28	1.0		mg/Kg	1	7/7/2011 05:06 PM
Zinc	53	1.0		mg/Kg	1	7/7/2011 05:06 PM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110705B	QC Batch: E11VS248			PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	7/6/2011 12:20 AM
Surr: Bromofluorobenzene (FID)	135	62-153		%REC	1	7/6/2011 12:20 AM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110705B	QC Batch: E11VS248			PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	7/6/2011 12:20 AM
Ethylbenzene	ND	5.0		µg/Kg	1	7/6/2011 12:20 AM
m,p-Xylene	ND	10		µg/Kg	1	7/6/2011 12:20 AM
o-Xylene	ND	5.0		µg/Kg	1	7/6/2011 12:20 AM
Toluene	ND	5.0		µg/Kg	1	7/6/2011 12:20 AM
Surr: Bromofluorobenzene (PID)	105	65-140		%REC	1	7/6/2011 12:20 AM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA1_110706D	QC Batch: 74081			PrepDate: 7/6/2011		Analyst: **IL**

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	JM4-1
Lab Order:	118770	**Collection Date:**	6/30/2011 12:27:00 AM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-050A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY BY COLD VAPOR TECHNIQUE						
			EPA 7471A			
RunID: AA1_110706D	QC Batch: 74081			PrepDate:	7/6/2011	Analyst: **IL**
Mercury	ND	0.10		mg/Kg	1	7/6/2011 02:53 PM

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	JM5-0
Lab Order:	118770	**Collection Date:**	6/30/2011 10:20:00 AM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-052A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B				**EPA 8015B(M)**		
RunID: GC16_110711C	QC Batch: 74109			PrepDate:	7/7/2011	Analyst: **CBR**
DRO	86	40		mg/Kg	10	7/12/2011 02:04 AM
ORO	490	40		mg/Kg	10	7/12/2011 02:04 AM
Surr: p-Terphenyl	0	30-128	SDO	%REC	10	7/12/2011 02:04 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC10_110707A	QC Batch: 74126			PrepDate:	7/7/2011	Analyst: **HL**
4,4´-DDD	ND	2.0		µg/Kg	1	7/8/2011 01:43 AM
4,4´-DDE	ND	2.0		µg/Kg	1	7/8/2011 01:43 AM
4,4´-DDT	ND	2.0		µg/Kg	1	7/8/2011 01:43 AM
Aldrin	ND	1.0		µg/Kg	1	7/8/2011 01:43 AM
alpha-BHC	ND	1.0		µg/Kg	1	7/8/2011 01:43 AM
alpha-Chlordane	ND	1.0		µg/Kg	1	7/8/2011 01:43 AM
beta-BHC	ND	1.0		µg/Kg	1	7/8/2011 01:43 AM
Chlordane	ND	8.5		µg/Kg	1	7/8/2011 01:43 AM
delta-BHC	ND	1.0		µg/Kg	1	7/8/2011 01:43 AM
Dieldrin	ND	2.0		µg/Kg	1	7/8/2011 01:43 AM
Endosulfan I	ND	1.0		µg/Kg	1	7/8/2011 01:43 AM
Endosulfan II	ND	2.0		µg/Kg	1	7/8/2011 01:43 AM
Endosulfan sulfate	ND	2.0		µg/Kg	1	7/8/2011 01:43 AM
Endrin	ND	2.0		µg/Kg	1	7/8/2011 01:43 AM
Endrin aldehyde	ND	2.0		µg/Kg	1	7/8/2011 01:43 AM
Endrin ketone	ND	2.0		µg/Kg	1	7/8/2011 01:43 AM
gamma-BHC	ND	1.0		µg/Kg	1	7/8/2011 01:43 AM
gamma-Chlordane	ND	1.0		µg/Kg	1	7/8/2011 01:43 AM
Heptachlor	ND	1.0		µg/Kg	1	7/8/2011 01:43 AM
Heptachlor epoxide	ND	1.0		µg/Kg	1	7/8/2011 01:43 AM
Methoxychlor	ND	5.0		µg/Kg	1	7/8/2011 01:43 AM
Toxaphene	ND	50		µg/Kg	1	7/8/2011 01:43 AM
Surr: Decachlorobiphenyl	66.1	31-107		%REC	1	7/8/2011 01:43 AM
Surr: Tetrachloro-m-xylene	46.7	35-108		%REC	1	7/8/2011 01:43 AM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	JM5-1
Lab Order:	118770	**Collection Date:**	6/30/2011 10:25:00 AM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-053A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID						
			EPA 8015B(M)			
RunID: GC2_110705B QC Batch: E11VS248				PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	7/6/2011 12:51 AM
Surr: Bromofluorobenzene (FID)	135	62-153		%REC	1	7/6/2011 12:51 AM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
			EPA 8021B			
RunID: GC2_110705B QC Batch: E11VS248				PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	7/6/2011 12:51 AM
Ethylbenzene	ND	5.0		µg/Kg	1	7/6/2011 12:51 AM
m,p-Xylene	ND	10		µg/Kg	1	7/6/2011 12:51 AM
o-Xylene	ND	5.0		µg/Kg	1	7/6/2011 12:51 AM
Toluene	ND	5.0		µg/Kg	1	7/6/2011 12:51 AM
Surr: Bromofluorobenzene (PID)	106	65-140		%REC	1	7/6/2011 12:51 AM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	JM6-0
Lab Order:	118770	**Collection Date:**	6/30/2011 10:30:00 AM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-055A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B			**EPA 8015B(M)**			
RunID: GC16_110711C	QC Batch: 74109			PrepDate:	7/7/2011	Analyst: **CBR**
DRO	35	20		mg/Kg	5	7/12/2011 01:25 AM
ORO	290	20		mg/Kg	5	7/12/2011 01:25 AM
Surr: p-Terphenyl	0	30-128	SDO	%REC	5	7/12/2011 01:25 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B			**EPA 8081A**			
RunID: GC10_110707A	QC Batch: 74126			PrepDate:	7/7/2011	Analyst: **HL**
4,4´-DDD	ND	2.0		µg/Kg	1	7/8/2011 02:10 AM
4,4´-DDE	ND	2.0		µg/Kg	1	7/8/2011 02:10 AM
4,4´-DDT	ND	2.0		µg/Kg	1	7/8/2011 02:10 AM
Aldrin	ND	1.0		µg/Kg	1	7/8/2011 02:10 AM
alpha-BHC	ND	1.0		µg/Kg	1	7/8/2011 02:10 AM
alpha-Chlordane	ND	1.0		µg/Kg	1	7/8/2011 02:10 AM
beta-BHC	ND	1.0		µg/Kg	1	7/8/2011 02:10 AM
Chlordane	ND	8.5		µg/Kg	1	7/8/2011 02:10 AM
delta-BHC	ND	1.0		µg/Kg	1	7/8/2011 02:10 AM
Dieldrin	ND	2.0		µg/Kg	1	7/8/2011 02:10 AM
Endosulfan I	ND	1.0		µg/Kg	1	7/8/2011 02:10 AM
Endosulfan II	ND	2.0		µg/Kg	1	7/8/2011 02:10 AM
Endosulfan sulfate	ND	2.0		µg/Kg	1	7/8/2011 02:10 AM
Endrin	ND	2.0		µg/Kg	1	7/8/2011 02:10 AM
Endrin aldehyde	ND	2.0		µg/Kg	1	7/8/2011 02:10 AM
Endrin ketone	ND	2.0		µg/Kg	1	7/8/2011 02:10 AM
gamma-BHC	ND	1.0		µg/Kg	1	7/8/2011 02:10 AM
gamma-Chlordane	ND	1.0		µg/Kg	1	7/8/2011 02:10 AM
Heptachlor	ND	1.0		µg/Kg	1	7/8/2011 02:10 AM
Heptachlor epoxide	ND	1.0		µg/Kg	1	7/8/2011 02:10 AM
Methoxychlor	ND	5.0		µg/Kg	1	7/8/2011 02:10 AM
Toxaphene	ND	50		µg/Kg	1	7/8/2011 02:10 AM
Surr: Decachlorobiphenyl	45.8	31-107		%REC	1	7/8/2011 02:10 AM
Surr: Tetrachloro-m-xylene	38.0	35-108		%REC	1	7/8/2011 02:10 AM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	JM6-1
Lab Order:	118770	**Collection Date:**	6/30/2011 10:35:00 AM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-056A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID						
			EPA 8015B(M)			
RunID: GC2_110705B	QC Batch:	E11VS248		PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	7/6/2011 01:07 AM
Surr: Bromofluorobenzene (FID)	133	62-153		%REC	1	7/6/2011 01:07 AM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
			EPA 8021B			
RunID: GC2_110705B	QC Batch:	E11VS248		PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	7/6/2011 01:07 AM
Ethylbenzene	ND	5.0		µg/Kg	1	7/6/2011 01:07 AM
m,p-Xylene	ND	10		µg/Kg	1	7/6/2011 01:07 AM
o-Xylene	ND	5.0		µg/Kg	1	7/6/2011 01:07 AM
Toluene	ND	5.0		µg/Kg	1	7/6/2011 01:07 AM
Surr: Bromofluorobenzene (PID)	104	65-140		%REC	1	7/6/2011 01:07 AM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	JM6-2
Lab Order:	118770	**Collection Date:**	6/30/2011 10:40:00 AM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-057A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
	EPA 3050B			**EPA 6010B**		
RunID: ICP8_110707E	QC Batch: 74077			PrepDate:	7/6/2011	Analyst: **CBB**
Antimony	ND	2.0		mg/Kg	1	7/7/2011 05:09 PM
Arsenic	11	1.0		mg/Kg	1	7/7/2011 05:09 PM
Barium	79	1.0		mg/Kg	1	7/7/2011 05:09 PM
Beryllium	ND	1.0		mg/Kg	1	7/7/2011 05:09 PM
Cadmium	3.6	1.0		mg/Kg	1	7/7/2011 05:09 PM
Chromium	18	1.0		mg/Kg	1	7/7/2011 05:09 PM
Cobalt	4.3	1.0		mg/Kg	1	7/7/2011 05:09 PM
Copper	7.9	2.0		mg/Kg	1	7/7/2011 05:09 PM
Lead	6.3	1.0		mg/Kg	1	7/7/2011 05:09 PM
Molybdenum	1.5	1.0		mg/Kg	1	7/7/2011 05:09 PM
Nickel	18	1.0		mg/Kg	1	7/7/2011 05:09 PM
Selenium	ND	1.0		mg/Kg	1	7/7/2011 05:09 PM
Silver	ND	1.0		mg/Kg	1	7/7/2011 05:09 PM
Thallium	ND	1.0		mg/Kg	1	7/7/2011 05:09 PM
Vanadium	17	1.0		mg/Kg	1	7/7/2011 05:09 PM
Zinc	41	1.0		mg/Kg	1	7/7/2011 05:09 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA1_110706D	QC Batch: 74081			PrepDate:	7/6/2011	Analyst: **IL**
Mercury	0.19	0.10		mg/Kg	1	7/6/2011 02:55 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	JM7-0
Lab Order:	118770	**Collection Date:**	6/30/2011 10:45:00 AM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-058A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B				**EPA 8015B(M)**		
RunID: GC16_110711C	QC Batch: 74109			PrepDate:	7/7/2011	Analyst: **CBR**
DRO	22	2.0		mg/Kg	1	7/12/2011 12:56 AM
ORO	130	2.0		mg/Kg	1	7/12/2011 12:56 AM
Surr: p-Terphenyl	58.3	30-128		%REC	1	7/12/2011 12:56 AM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC10_110707A	QC Batch: 74126			PrepDate:	7/7/2011	Analyst: **HL**
4,4´-DDD	ND	2.0		µg/Kg	1	7/8/2011 02:37 AM
4,4´-DDE	ND	2.0		µg/Kg	1	7/8/2011 02:37 AM
4,4´-DDT	ND	2.0		µg/Kg	1	7/8/2011 02:37 AM
Aldrin	ND	1.0		µg/Kg	1	7/8/2011 02:37 AM
alpha-BHC	ND	1.0		µg/Kg	1	7/8/2011 02:37 AM
alpha-Chlordane	ND	1.0		µg/Kg	1	7/8/2011 02:37 AM
beta-BHC	ND	1.0		µg/Kg	1	7/8/2011 02:37 AM
Chlordane	ND	8.5		µg/Kg	1	7/8/2011 02:37 AM
delta-BHC	ND	1.0		µg/Kg	1	7/8/2011 02:37 AM
Dieldrin	ND	2.0		µg/Kg	1	7/8/2011 02:37 AM
Endosulfan I	ND	1.0		µg/Kg	1	7/8/2011 02:37 AM
Endosulfan II	ND	2.0		µg/Kg	1	7/8/2011 02:37 AM
Endosulfan sulfate	ND	2.0		µg/Kg	1	7/8/2011 02:37 AM
Endrin	ND	2.0		µg/Kg	1	7/8/2011 02:37 AM
Endrin aldehyde	ND	2.0		µg/Kg	1	7/8/2011 02:37 AM
Endrin ketone	ND	2.0		µg/Kg	1	7/8/2011 02:37 AM
gamma-BHC	ND	1.0		µg/Kg	1	7/8/2011 02:37 AM
gamma-Chlordane	ND	1.0		µg/Kg	1	7/8/2011 02:37 AM
Heptachlor	ND	1.0		µg/Kg	1	7/8/2011 02:37 AM
Heptachlor epoxide	ND	1.0		µg/Kg	1	7/8/2011 02:37 AM
Methoxychlor	ND	5.0		µg/Kg	1	7/8/2011 02:37 AM
Toxaphene	ND	50		µg/Kg	1	7/8/2011 02:37 AM
Surr: Decachlorobiphenyl	40.7	31-107		%REC	1	7/8/2011 02:37 AM
Surr: Tetrachloro-m-xylene	40.7	35-108		%REC	1	7/8/2011 02:37 AM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	JM7-1
Lab Order:	118770	**Collection Date:**	6/30/2011 10:50:00 AM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-059A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID						
			EPA 8015B(M)			
RunID: GC2_110705B	QC Batch:	E11VS248		PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	7/6/2011 01:23 AM
Surr: Bromofluorobenzene (FID)	132	62-153		%REC	1	7/6/2011 01:23 AM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
			EPA 8021B			
RunID: GC2_110705B	QC Batch:	E11VS248		PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	7/6/2011 01:23 AM
Ethylbenzene	ND	5.0		µg/Kg	1	7/6/2011 01:23 AM
m,p-Xylene	ND	10		µg/Kg	1	7/6/2011 01:23 AM
o-Xylene	ND	5.0		µg/Kg	1	7/6/2011 01:23 AM
Toluene	ND	5.0		µg/Kg	1	7/6/2011 01:23 AM
Surr: Bromofluorobenzene (PID)	103	65-140		%REC	1	7/6/2011 01:23 AM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	JM8-0
Lab Order:	118770	**Collection Date:**	6/30/2011 11:00:00 AM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-061A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B				**EPA 8015B(M)**		
RunID: GC16_110711G	QC Batch: 74138			PrepDate:	7/8/2011	Analyst: **CBR**
DRO	1.6	1.0		mg/Kg	1	7/11/2011 07:35 PM
ORO	5.1	1.0		mg/Kg	1	7/11/2011 07:35 PM
Surr: p-Terphenyl	80.4	30-128		%REC	1	7/11/2011 07:35 PM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC10_110711A	QC Batch: 74141			PrepDate:	7/8/2011	Analyst: **HL**
4,4´-DDD	ND	2.0		µg/Kg	1	7/11/2011 04:37 PM
4,4´-DDE	ND	2.0		µg/Kg	1	7/11/2011 04:37 PM
4,4´-DDT	ND	2.0		µg/Kg	1	7/11/2011 04:37 PM
Aldrin	ND	1.0		µg/Kg	1	7/11/2011 04:37 PM
alpha-BHC	ND	1.0		µg/Kg	1	7/11/2011 04:37 PM
alpha-Chlordane	ND	1.0		µg/Kg	1	7/11/2011 04:37 PM
beta-BHC	ND	1.0		µg/Kg	1	7/11/2011 04:37 PM
Chlordane	ND	8.5		µg/Kg	1	7/11/2011 04:37 PM
delta-BHC	ND	1.0		µg/Kg	1	7/11/2011 04:37 PM
Dieldrin	ND	2.0		µg/Kg	1	7/11/2011 04:37 PM
Endosulfan I	ND	1.0		µg/Kg	1	7/11/2011 04:37 PM
Endosulfan II	ND	2.0		µg/Kg	1	7/11/2011 04:37 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	7/11/2011 04:37 PM
Endrin	ND	2.0		µg/Kg	1	7/11/2011 04:37 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	7/11/2011 04:37 PM
Endrin ketone	ND	2.0		µg/Kg	1	7/11/2011 04:37 PM
gamma-BHC	ND	1.0		µg/Kg	1	7/11/2011 04:37 PM
gamma-Chlordane	ND	1.0		µg/Kg	1	7/11/2011 04:37 PM
Heptachlor	ND	1.0		µg/Kg	1	7/11/2011 04:37 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	7/11/2011 04:37 PM
Methoxychlor	ND	5.0		µg/Kg	1	7/11/2011 04:37 PM
Toxaphene	ND	50		µg/Kg	1	7/11/2011 04:37 PM
Surr: Decachlorobiphenyl	65.1	31-107		%REC	1	7/11/2011 04:37 PM
Surr: Tetrachloro-m-xylene	63.4	35-108		%REC	1	7/11/2011 04:37 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	JM8-1
Lab Order:	118770	**Collection Date:**	6/30/2011 11:05:00 AM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-062A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS						
EPA 3050B				**EPA 6010B**		
RunID: ICP8_110707E	QC Batch: 74077			PrepDate: 7/6/2011		Analyst: **CBB**
Antimony	ND	2.0		mg/Kg	1	7/7/2011 05:12 PM
Arsenic	4.1	1.0		mg/Kg	1	7/7/2011 05:12 PM
Barium	140	1.0		mg/Kg	1	7/7/2011 05:12 PM
Beryllium	ND	1.0		mg/Kg	1	7/7/2011 05:12 PM
Cadmium	1.0	1.0		mg/Kg	1	7/7/2011 05:12 PM
Chromium	9.5	1.0		mg/Kg	1	7/7/2011 05:12 PM
Cobalt	8.4	1.0		mg/Kg	1	7/7/2011 05:12 PM
Copper	19	2.0		mg/Kg	1	7/7/2011 05:12 PM
Lead	9.5	1.0		mg/Kg	1	7/7/2011 05:12 PM
Molybdenum	ND	1.0		mg/Kg	1	7/7/2011 05:12 PM
Nickel	19	1.0		mg/Kg	1	7/7/2011 05:12 PM
Selenium	ND	1.0		mg/Kg	1	7/7/2011 05:12 PM
Silver	ND	1.0		mg/Kg	1	7/7/2011 05:12 PM
Thallium	ND	1.0		mg/Kg	1	7/7/2011 05:12 PM
Vanadium	19	1.0		mg/Kg	1	7/7/2011 05:12 PM
Zinc	47	1.0		mg/Kg	1	7/7/2011 05:12 PM
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110706A	QC Batch: E11VS249			PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	7/6/2011 02:00 PM
Surr: Bromofluorobenzene (FID)	126	62-153		%REC	1	7/6/2011 02:00 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110706A	QC Batch: E11VS249			PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	7/6/2011 02:00 PM
Ethylbenzene	ND	5.0		µg/Kg	1	7/6/2011 02:00 PM
m,p-Xylene	ND	10		µg/Kg	1	7/6/2011 02:00 PM
o-Xylene	ND	5.0		µg/Kg	1	7/6/2011 02:00 PM
Toluene	ND	5.0		µg/Kg	1	7/6/2011 02:00 PM
Surr: Bromofluorobenzene (PID)	98.3	65-140		%REC	1	7/6/2011 02:00 PM
MERCURY BY COLD VAPOR TECHNIQUE						
				EPA 7471A		
RunID: AA1_110706D	QC Batch: 74081			PrepDate: 7/6/2011		Analyst: **IL**

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	JM8-1
Lab Order:	118770	**Collection Date:**	6/30/2011 11:05:00 AM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-062A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY BY COLD VAPOR TECHNIQUE						
			EPA 7471A			
RunID: AA1_110706D	QC Batch: 74081			PrepDate:	7/6/2011	Analyst: **IL**
Mercury	0.66	0.10		mg/Kg	1	7/6/2011 02:46 PM

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

Advanced Technology Laboratories

ANALYTICAL RESULTS
Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	JM9-0
Lab Order:	118770	**Collection Date:**	6/30/2011 11:15:00 AM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-064A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID						
EPA 3550B				**EPA 8015B(M)**		
RunID: GC16_110711G	QC Batch: 74138			PrepDate:	7/8/2011	Analyst: **CBR**
DRO	3.6	1.0		mg/Kg	1	7/11/2011 08:04 PM
ORO	18	1.0		mg/Kg	1	7/11/2011 08:04 PM
Surr: p-Terphenyl	72.3	30-128		%REC	1	7/11/2011 08:04 PM
ORGANOCHLORINE PESTICIDES BY GC/ECD						
EPA 3550B				**EPA 8081A**		
RunID: GC10_110711A	QC Batch: 74141			PrepDate:	7/8/2011	Analyst: **HL**
4,4´-DDD	ND	2.0		µg/Kg	1	7/11/2011 05:04 PM
4,4´-DDE	ND	2.0		µg/Kg	1	7/11/2011 05:04 PM
4,4´-DDT	ND	2.0		µg/Kg	1	7/11/2011 05:04 PM
Aldrin	ND	1.0		µg/Kg	1	7/11/2011 05:04 PM
alpha-BHC	ND	1.0		µg/Kg	1	7/11/2011 05:04 PM
alpha-Chlordane	ND	1.0		µg/Kg	1	7/11/2011 05:04 PM
beta-BHC	ND	1.0		µg/Kg	1	7/11/2011 05:04 PM
Chlordane	ND	8.5		µg/Kg	1	7/11/2011 05:04 PM
delta-BHC	ND	1.0		µg/Kg	1	7/11/2011 05:04 PM
Dieldrin	ND	2.0		µg/Kg	1	7/11/2011 05:04 PM
Endosulfan I	ND	1.0		µg/Kg	1	7/11/2011 05:04 PM
Endosulfan II	ND	2.0		µg/Kg	1	7/11/2011 05:04 PM
Endosulfan sulfate	ND	2.0		µg/Kg	1	7/11/2011 05:04 PM
Endrin	ND	2.0		µg/Kg	1	7/11/2011 05:04 PM
Endrin aldehyde	ND	2.0		µg/Kg	1	7/11/2011 05:04 PM
Endrin ketone	ND	2.0		µg/Kg	1	7/11/2011 05:04 PM
gamma-BHC	ND	1.0		µg/Kg	1	7/11/2011 05:04 PM
gamma-Chlordane	ND	1.0		µg/Kg	1	7/11/2011 05:04 PM
Heptachlor	ND	1.0		µg/Kg	1	7/11/2011 05:04 PM
Heptachlor epoxide	ND	1.0		µg/Kg	1	7/11/2011 05:04 PM
Methoxychlor	ND	5.0		µg/Kg	1	7/11/2011 05:04 PM
Toxaphene	ND	50		µg/Kg	1	7/11/2011 05:04 PM
Surr: Decachlorobiphenyl	68.0	31-107		%REC	1	7/11/2011 05:04 PM
Surr: Tetrachloro-m-xylene	60.7	35-108		%REC	1	7/11/2011 05:04 PM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *13-Jul-11*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	JM9-1
Lab Order:	118770	**Collection Date:**	6/30/2011 11:25:00 AM
Project:	I-80 Mobility Project (Kimley-Horn), E8583-	**Matrix:**	SOIL
Lab ID:	118770-065A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
GASOLINE RANGE ORGANICS BY GC/FID						
				EPA 8015B(M)		
RunID: GC2_110706A	QC Batch:	E11VS249		PrepDate:		Analyst: **TP**
GRO	ND	1.0		mg/Kg	1	7/6/2011 02:16 PM
Surr: Bromofluorobenzene (FID)	93.5	62-153		%REC	1	7/6/2011 02:16 PM
VOLATILE ORGANIC COMPOUNDS BY GC/PID						
				EPA 8021B		
RunID: GC2_110706A	QC Batch:	E11VS249		PrepDate:		Analyst: **TP**
Benzene	ND	5.0		µg/Kg	1	7/6/2011 02:16 PM
Ethylbenzene	ND	5.0		µg/Kg	1	7/6/2011 02:16 PM
m,p-Xylene	ND	10		µg/Kg	1	7/6/2011 02:16 PM
o-Xylene	ND	5.0		µg/Kg	1	7/6/2011 02:16 PM
Toluene	ND	5.0		µg/Kg	1	7/6/2011 02:16 PM
Surr: Bromofluorobenzene (PID)	72.6	65-140		%REC	1	7/6/2011 02:16 PM

Qualifiers:

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

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **MB-74076** SampType: **MBLK** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134790**
Client ID: **PBS** Batch ID: **74076** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **7/7/2011** SeqNo: **2205036**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.224	2.0									
Arsenic	ND	1.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Chromium	ND	1.0									
Cobalt	ND	1.0									
Copper	ND	2.0									
Lead	0.145	1.0									
Molybdenum	ND	1.0									
Nickel	ND	1.0									
Selenium	ND	1.0									
Silver	0.056	1.0									
Thallium	ND	1.0									
Vanadium	ND	1.0									
Zinc	0.221	1.0									

Sample ID: **LCS-74076** SampType: **LCS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134790**
Client ID: **LCSS** Batch ID: **74076** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **7/7/2011** SeqNo: **2205037**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	45.166	2.0	50.00	0.2238	89.9	80	120				
Arsenic	44.458	1.0	50.00	0	88.9	80	120				
Barium	47.782	1.0	50.00	0	95.6	80	120				
Beryllium	46.736	1.0	50.00	0	93.5	80	120				
Cadmium	44.922	1.0	50.00	0	89.8	80	120				
Chromium	43.615	1.0	50.00	0	87.2	80	120				
Cobalt	46.798	1.0	50.00	0	93.6	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **LCS-74076** SampType: **LCS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134790**
Client ID: **LCSS** Batch ID: **74076** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **7/7/2011** SeqNo: **2205037**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	47.465	2.0	50.00	0	94.9	80	120				
Lead	45.617	1.0	50.00	0.1450	90.9	80	120				
Molybdenum	48.128	1.0	50.00	0	96.3	80	120				
Nickel	44.985	1.0	50.00	0	90.0	80	120				
Selenium	41.030	1.0	50.00	0	82.1	80	120				
Silver	44.622	1.0	50.00	0.05602	89.1	80	120				
Thallium	44.353	1.0	50.00	0	88.7	80	120				
Vanadium	46.838	1.0	50.00	0	93.7	80	120				
Zinc	45.165	1.0	50.00	0.2211	89.9	80	120				

Sample ID: **118770-039A-DUP** SampType: **DUP** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134790**
Client ID: **A6-2** Batch ID: **74076** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **7/7/2011** SeqNo: **2205048**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.565	2.0						0.5286	0	20	
Arsenic	ND	1.0						0	0	20	
Barium	17.989	1.0						23.67	27.3	20	R
Beryllium	ND	1.0						0	0	20	
Cadmium	0.190	1.0						0.2574	0	20	
Chromium	25.495	1.0						28.18	10.0	20	
Cobalt	4.286	1.0						4.543	5.81	20	
Copper	2.779	2.0						2.676	3.76	20	
Lead	1.643	1.0						2.042	21.6	20	R
Molybdenum	ND	1.0						0	0	20	
Nickel	22.450	1.0						23.46	4.40	20	
Selenium	ND	1.0						0	0	20	
Silver	ND	1.0						0	0	20	
Thallium	ND	1.0						0	0	20	
Vanadium	19.596	1.0						20.96	6.74	20	
Zinc	13.809	1.0						19.55	34.4	20	R

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **118770-039A-MS** SampType: **MS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134790**
Client ID: **A6-2** Batch ID: **74076** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **7/7/2011** SeqNo: **2205049**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	103.396	2.0	125.0	0.5286	82.3	32	105				
Arsenic	100.805	1.0	125.0	0	80.6	49	106				
Barium	125.703	1.0	125.0	23.67	81.6	31	133				
Beryllium	105.305	1.0	125.0	0	84.2	56	106				
Cadmium	102.521	1.0	125.0	0.2574	81.8	51	103				
Chromium	135.634	1.0	125.0	28.18	86.0	45	114				
Cobalt	111.502	1.0	125.0	4.543	85.6	52	106				
Copper	116.950	2.0	125.0	2.676	91.4	54	125				
Lead	104.857	1.0	125.0	2.042	82.3	34	126				
Molybdenum	108.888	1.0	125.0	0	87.1	54	106				
Nickel	124.384	1.0	125.0	23.46	80.7	45	111				
Selenium	96.354	1.0	125.0	0	77.1	47	104				
Silver	109.656	1.0	125.0	0	87.7	56	112				
Thallium	96.466	1.0	125.0	0	77.2	46	101				
Vanadium	129.767	1.0	125.0	20.96	87.0	54	114				
Zinc	116.307	1.0	125.0	19.55	77.4	28	125				

Sample ID: **118770-039A-MSD** SampType: **MSD** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134790**
Client ID: **A6-2** Batch ID: **74076** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **7/7/2011** SeqNo: **2205050**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	100.384	2.0	125.0	0.5286	79.9	32	105	103.4	2.96	20	
Arsenic	97.778	1.0	125.0	0	78.2	49	106	100.8	3.05	20	
Barium	125.459	1.0	125.0	23.67	81.4	31	133	125.7	0.195	20	
Beryllium	103.500	1.0	125.0	0	82.8	56	106	105.3	1.73	20	
Cadmium	99.550	1.0	125.0	0.2574	79.4	51	103	102.5	2.94	20	
Chromium	128.195	1.0	125.0	28.18	80.0	45	114	135.6	5.64	20	
Cobalt	108.590	1.0	125.0	4.543	83.2	52	106	111.5	2.65	20	
Copper	114.279	2.0	125.0	2.676	89.3	54	125	117.0	2.31	20	
Lead	102.148	1.0	125.0	2.042	80.1	34	126	104.9	2.62	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **118770-039A-MSD** SampType: **MSD** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134790**
Client ID: **A6-2** Batch ID: **74076** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **7/7/2011** SeqNo: **2205050**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	105.997	1.0	125.0	0	84.8	54	106	108.9	2.69	20	
Nickel	122.825	1.0	125.0	23.46	79.5	45	111	124.4	1.26	20	
Selenium	93.256	1.0	125.0	0	74.6	47	104	96.35	3.27	20	
Silver	106.797	1.0	125.0	0	85.4	56	112	109.7	2.64	20	
Thallium	93.208	1.0	125.0	0	74.6	46	101	96.47	3.44	20	
Vanadium	127.260	1.0	125.0	20.96	85.0	54	114	129.8	1.95	20	
Zinc	114.433	1.0	125.0	19.55	75.9	28	125	116.3	1.62	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 *Tel: 562. 989.4045* *Fax: 562.989.4040*

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **MB-74077** SampType: **MBLK** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134792**
Client ID: **PBS** Batch ID: **74077** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **7/7/2011** SeqNo: **2205051**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.248	2.0									
Arsenic	ND	1.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Chromium	ND	1.0									
Cobalt	ND	1.0									
Copper	ND	2.0									
Lead	0.239	1.0									
Molybdenum	ND	1.0									
Nickel	ND	1.0									
Selenium	ND	1.0									
Silver	0.045	1.0									
Thallium	ND	1.0									
Vanadium	ND	1.0									
Zinc	0.141	1.0									

Sample ID: **LCS-74077** SampType: **LCS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134792**
Client ID: **LCSS** Batch ID: **74077** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **7/7/2011** SeqNo: **2205052**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	48.583	2.0	50.00	0.2479	96.7	80	120				
Arsenic	47.428	1.0	50.00	0	94.9	80	120				
Barium	51.116	1.0	50.00	0	102	80	120				
Beryllium	49.445	1.0	50.00	0	98.9	80	120				
Cadmium	48.012	1.0	50.00	0	96.0	80	120				
Chromium	46.627	1.0	50.00	0	93.3	80	120				
Cobalt	49.882	1.0	50.00	0	99.8	80	120				
Copper	50.863	2.0	50.00	0	102	80	120				
Lead	48.720	1.0	50.00	0.2385	97.0	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **LCS-74077** SampType: **LCS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134792**
Client ID: **LCSS** Batch ID: **74077** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **7/7/2011** SeqNo: **2205052**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	51.284	1.0	50.00	0	103	80	120				
Nickel	47.573	1.0	50.00	0	95.1	80	120				
Selenium	43.942	1.0	50.00	0	87.9	80	120				
Silver	47.651	1.0	50.00	0.04470	95.2	80	120				
Thallium	47.387	1.0	50.00	0	94.8	80	120				
Vanadium	49.853	1.0	50.00	0	99.7	80	120				
Zinc	48.153	1.0	50.00	0.1415	96.0	80	120				

Sample ID: **118770-062A-DUP** SampType: **DUP** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134792**
Client ID: **JM8-1** Batch ID: **74077** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **7/7/2011** SeqNo: **2205058**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.515	2.0						0.3499	0	20	
Arsenic	4.190	1.0						4.083	2.58	20	
Barium	138.636	1.0						142.0	2.40	20	
Beryllium	0.473	1.0						0.4979	0	20	
Cadmium	0.839	1.0						1.004	0	20	
Chromium	8.731	1.0						9.545	8.91	20	
Cobalt	7.377	1.0						8.368	12.6	20	
Copper	16.015	2.0						19.40	19.1	20	
Lead	8.985	1.0						9.459	5.14	20	
Molybdenum	ND	1.0						0	0	20	
Nickel	17.909	1.0						18.60	3.78	20	
Selenium	ND	1.0						0	0	20	
Silver	ND	1.0						0	0	20	
Thallium	ND	1.0						0	0	20	
Vanadium	15.141	1.0						19.29	24.1	20	R
Zinc	50.544	1.0						47.35	6.53	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **118770-062A-MS** SampType: **MS** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134792**
Client ID: **JM8-1** Batch ID: **74077** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **7/7/2011** SeqNo: **2205059**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	83.757	2.0	125.0	0.3499	66.7	32	105				
Arsenic	90.415	1.0	125.0	4.083	69.1	49	106				
Barium	250.549	1.0	125.0	142.0	86.8	31	133				
Beryllium	87.765	1.0	125.0	0.4979	69.8	56	106				
Cadmium	80.399	1.0	125.0	1.004	63.5	51	103				
Chromium	93.523	1.0	125.0	9.545	67.2	45	114				
Cobalt	93.267	1.0	125.0	8.368	67.9	52	106				
Copper	118.004	2.0	125.0	19.40	78.9	54	125				
Lead	90.972	1.0	125.0	9.459	65.2	34	126				
Molybdenum	87.028	1.0	125.0	0	69.6	54	106				
Nickel	99.566	1.0	125.0	18.60	64.8	45	111				
Selenium	78.886	1.0	125.0	0	63.1	47	104				
Silver	92.078	1.0	125.0	0	73.7	56	112				
Thallium	77.941	1.0	125.0	0	62.4	46	101				
Vanadium	108.499	1.0	125.0	19.29	71.4	54	114				
Zinc	130.176	1.0	125.0	47.35	66.3	28	125				

Sample ID: **118770-062A-MSD** SampType: **MSD** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134792**
Client ID: **JM8-1** Batch ID: **74077** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **7/7/2011** SeqNo: **2205060**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	87.170	2.0	125.0	0.3499	69.5	32	105	83.76	3.99	20	
Arsenic	90.829	1.0	125.0	4.083	69.4	49	106	90.42	0.457	20	
Barium	211.708	1.0	125.0	142.0	55.8	31	133	250.5	16.8	20	
Beryllium	88.287	1.0	125.0	0.4979	70.2	56	106	87.76	0.594	20	
Cadmium	82.677	1.0	125.0	1.004	65.3	51	103	80.40	2.79	20	
Chromium	92.911	1.0	125.0	9.545	66.7	45	114	93.52	0.657	20	
Cobalt	93.488	1.0	125.0	8.368	68.1	52	106	93.27	0.237	20	
Copper	112.634	2.0	125.0	19.40	74.6	54	125	118.0	4.66	20	
Lead	91.687	1.0	125.0	9.459	65.8	34	126	90.97	0.782	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_S

Sample ID: **118770-062A-MSD** SampType: **MSD** TestCode: **6010_S** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134792**
Client ID: **JM8-1** Batch ID: **74077** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **7/7/2011** SeqNo: **2205060**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	89.635	1.0	125.0	0	71.7	54	106	87.03	2.95	20	
Nickel	99.242	1.0	125.0	18.60	64.5	45	111	99.57	0.326	20	
Selenium	80.628	1.0	125.0	0	64.5	47	104	78.89	2.18	20	
Silver	93.403	1.0	125.0	0	74.7	56	112	92.08	1.43	20	
Thallium	81.120	1.0	125.0	0	64.9	46	101	77.94	4.00	20	
Vanadium	106.444	1.0	125.0	19.29	69.7	54	114	108.5	1.91	20	
Zinc	124.473	1.0	125.0	47.35	61.7	28	125	130.2	4.48	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPB

Sample ID: **MB-74118A** SampType: **MBLK** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134821**
Client ID: **PBS** Batch ID: **74118** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **7/8/2011** SeqNo: **2205555**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.443	5.0									

Sample ID: **LCS-74118** SampType: **LCS** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134821**
Client ID: **LCSS** Batch ID: **74118** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **7/8/2011** SeqNo: **2205556**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	275.343	5.0	250.0	0.4429	110	80	120				

Sample ID: **118770-012A-DUP** SampType: **DUP** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134821**
Client ID: **U4-2** Batch ID: **74118** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **7/8/2011** SeqNo: **2205567**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	19.147	5.0						23.11	18.8	20	

Sample ID: **118770-012A-MS** SampType: **MS** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134821**
Client ID: **U4-2** Batch ID: **74118** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **7/8/2011** SeqNo: **2205568**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	265.131	5.0	250.0	23.11	96.8	34	126				

Sample ID: **MB-74118B** SampType: **MBLK** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134821**
Client ID: **PBS** Batch ID: **74118** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **7/8/2011** SeqNo: **2205569**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.432	5.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPB

Sample ID: **118770-026A-DUP** SampType: **DUP** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134821**
Client ID: **A2-1** Batch ID: **74118** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **7/8/2011** SeqNo: **2205580**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	39.540	5.0						54.20	31.3	20	R

Sample ID: **118770-026A-MS** SampType: **MS** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134821**
Client ID: **A2-1** Batch ID: **74118** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **7/8/2011** SeqNo: **2205581**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	337.623	5.0	250.0	54.20	113	34	126				

Sample ID: **118770-026A-MSD** SampType: **MSD** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134821**
Client ID: **A2-1** Batch ID: **74118** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **7/8/2011** SeqNo: **2205582**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	377.312	5.0	250.0	54.20	129	34	126	337.6	11.1	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPB

Sample ID: **MB-74119A** SampType: **MBLK** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134822**
Client ID: **PBS** Batch ID: **74119** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **7/8/2011** SeqNo: **2205583**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.243	5.0									

Sample ID: **LCS-74119** SampType: **LCS** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134822**
Client ID: **LCSS** Batch ID: **74119** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **7/8/2011** SeqNo: **2205584**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	274.961	5.0	250.0	0.2426	110	80	120				

Sample ID: **118770-041A-DUP** SampType: **DUP** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134822**
Client ID: **JM1-1** Batch ID: **74119** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **7/8/2011** SeqNo: **2205595**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	5.755	5.0						9.944	53.4	20	R

Sample ID: **118770-041A-MS** SampType: **MS** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134822**
Client ID: **JM1-1** Batch ID: **74119** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **7/8/2011** SeqNo: **2205596**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	234.460	5.0	250.0	9.944	89.8	34	126				

Sample ID: **MB-74119B** SampType: **MBLK** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134822**
Client ID: **PBS** Batch ID: **74119** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **7/8/2011** SeqNo: **2205597**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.202	5.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPB

Sample ID: **118770-053A-DUP** SampType: **DUP** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134822**
Client ID: **JM5-1** Batch ID: **74119** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **7/8/2011** SeqNo: **2205608**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	6.843	5.0						7.180	4.81	20	

Sample ID: **118770-053A-MS** SampType: **MS** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134822**
Client ID: **JM5-1** Batch ID: **74119** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **7/8/2011** SeqNo: **2205609**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	234.882	5.0	250.0	7.180	91.1	34	126				

Sample ID: **118770-053A-MSD** SampType: **MSD** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134822**
Client ID: **JM5-1** Batch ID: **74119** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **7/8/2011** SeqNo: **2205610**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	235.770	5.0	250.0	7.180	91.4	34	126	234.9	0.377	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPB

Sample ID: **MB-74120A** SampType: **MBLK** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134823**
Client ID: **PBS** Batch ID: **74120** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **7/8/2011** SeqNo: **2205611**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.316	5.0									

Sample ID: **LCS-74120** SampType: **LCS** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134823**
Client ID: **LCSS** Batch ID: **74120** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **7/8/2011** SeqNo: **2205612**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	282.744	5.0	250.0	0.3162	113	80	120				

Sample ID: **118770-065A-DUP** SampType: **DUP** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134823**
Client ID: **JM9-1** Batch ID: **74120** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **7/8/2011** SeqNo: **2205623**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	11.554	5.0						13.93	18.6	20	

Sample ID: **118770-065A-MS** SampType: **MS** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134823**
Client ID: **JM9-1** Batch ID: **74120** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **7/8/2011** SeqNo: **2205624**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	225.476	5.0	250.0	13.93	84.6	34	126				

Sample ID: **MB-74120B** SampType: **MBLK** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134823**
Client ID: **PBS** Batch ID: **74120** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **7/8/2011** SeqNo: **2205625**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.226	5.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPB

Sample ID: **118770-066A-DUP** SampType: **DUP** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134823**
Client ID: **JM9-2** Batch ID: **74120** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **7/8/2011** SeqNo: **2205627**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	21.029	5.0						17.16	20.3	20	R

Sample ID: **118770-066A-MS** SampType: **MS** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134823**
Client ID: **JM9-2** Batch ID: **74120** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **7/8/2011** SeqNo: **2205628**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	252.477	5.0	250.0	17.16	94.1	34	126				

Sample ID: **118770-066A-MSD** SampType: **MSD** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134823**
Client ID: **JM9-2** Batch ID: **74120** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **7/8/2011** SeqNo: **2205629**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	253.100	5.0	250.0	17.16	94.4	34	126	252.5	0.247	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 7471_S

Sample ID: **MB-74080** SampType: **MBLK** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134719**
Client ID: **PBS** Batch ID: **74080** TestNo: **EPA 7471A** Analysis Date: **7/6/2011** SeqNo: **2203551**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.10									

Sample ID: **LCS-74080** SampType: **LCS** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134719**
Client ID: **LCSS** Batch ID: **74080** TestNo: **EPA 7471A** Analysis Date: **7/6/2011** SeqNo: **2203552**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.886	0.10	0.8300	0	107	80	120				

Sample ID: **118770-039A-MS** SampType: **MS** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134719**
Client ID: **A6-2** Batch ID: **74080** TestNo: **EPA 7471A** Analysis Date: **7/6/2011** SeqNo: **2203553**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.884	0.10	0.8300	0	106	70	130				

Sample ID: **118770-039A-MSD** SampType: **MSD** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134719**
Client ID: **A6-2** Batch ID: **74080** TestNo: **EPA 7471A** Analysis Date: **7/6/2011** SeqNo: **2203554**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.883	0.10	0.8300	0	106	70	130	0.8839	0.0910	20	

Sample ID: **118770-039A-DUP** SampType: **DUP** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134719**
Client ID: **A6-2** Batch ID: **74080** TestNo: **EPA 7471A** Analysis Date: **7/6/2011** SeqNo: **2203555**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.10						0	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 7471_S

Sample ID: **MB-74081** SampType: **MBLK** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134723**
Client ID: **PBS** Batch ID: **74081** TestNo: **EPA 7471A** Analysis Date: **7/6/2011** SeqNo: **2203597**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.10									

Sample ID: **LCS-74081** SampType: **LCS** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134723**
Client ID: **LCSS** Batch ID: **74081** TestNo: **EPA 7471A** Analysis Date: **7/6/2011** SeqNo: **2203598**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.871	0.10	0.8300	0	105	80	120				

Sample ID: **118770-062A-MS** SampType: **MS** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134723**
Client ID: **JM8-1** Batch ID: **74081** TestNo: **EPA 7471A** Analysis Date: **7/6/2011** SeqNo: **2203599**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.518	0.10	0.8300	0.6628	103	70	130				

Sample ID: **118770-062A-MSD** SampType: **MSD** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134723**
Client ID: **JM8-1** Batch ID: **74081** TestNo: **EPA 7471A** Analysis Date: **7/6/2011** SeqNo: **2203600**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.517	0.10	0.8300	0.6628	103	70	130	1.518	0.0276	20	

Sample ID: **118770-062A-DUP** SampType: **DUP** TestCode: **7471_S** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134723**
Client ID: **JM8-1** Batch ID: **74081** TestNo: **EPA 7471A** Analysis Date: **7/6/2011** SeqNo: **2203601**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.653	0.10						0.6628	1.54	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 *Tel: 562. 989.4045* *Fax: 562.989.4040*

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_DM LL

Sample ID: **MB-74085** SampType: **MBLK** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134888**
Client ID: **PBS** Batch ID: **74085** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **7/7/2011** SeqNo: **2207120**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	ND	1.0									
ORO	ND	1.0									
Surr: p-Terphenyl	2.683		2.670		100	30	128				

Sample ID: **LCS-74085** SampType: **LCS** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134888**
Client ID: **LCSS** Batch ID: **74085** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **7/7/2011** SeqNo: **2207121**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	28.992	1.0	33.00	0	87.9	35	118				
Surr: p-Terphenyl	2.782		2.670		104	30	128				

Sample ID: **118770-016ADUP** SampType: **DUP** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134888**
Client ID: **U6-0** Batch ID: **74085** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **7/7/2011** SeqNo: **2207135**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	36.235	4.0						41.75	14.1	20	
ORO	153.671	4.0						180.0	15.8	20	
Surr: p-Terphenyl	2.376		2.670		89.0	30	128		0	0	

Sample ID: **118770-022AMS** SampType: **MS** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134888**
Client ID: **A1-0** Batch ID: **74085** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **7/7/2011** SeqNo: **2207141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	35.119	2.0	33.00	16.60	56.1	25	129				
Surr: p-Terphenyl	2.904		2.670		109	30	128				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_DM LL

Sample ID: **118770-022AMSD** SampType: **MSD** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **7/6/2011** RunNo: **134888**
Client ID: **A1-0** Batch ID: **74085** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **7/7/2011** SeqNo: **2207142**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	27.453	2.0	33.00	16.60	32.9	25	129	35.12	24.5	20	R
Surr: p-Terphenyl	2.279		2.670		85.3	30	128		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_DM LL

Sample ID: **MB-74109** SampType: **MBLK** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **7/7/2011** RunNo: **134872**
Client ID: **PBS** Batch ID: **74109** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **7/12/2011** SeqNo: **2206849**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	ND	1.0									
ORO	ND	1.0									
Surr: p-Terphenyl	1.605		2.670		60.1	30	128				

Sample ID: **LCS-74109** SampType: **LCS** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **7/7/2011** RunNo: **134872**
Client ID: **LCSS** Batch ID: **74109** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **7/12/2011** SeqNo: **2206850**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	20.148	1.0	33.00	0	61.1	35	118				
Surr: p-Terphenyl	2.120		2.670		79.4	30	128				

Sample ID: **118770-040AMS** SampType: **MS** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **7/7/2011** RunNo: **134872**
Client ID: **JM1-0** Batch ID: **74109** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **7/12/2011** SeqNo: **2206855**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	28.406	2.0	33.00	20.00	25.5	25	129				
Surr: p-Terphenyl	1.643		2.670		61.5	30	128				

Sample ID: **118770-040AMSD** SampType: **MSD** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **7/7/2011** RunNo: **134872**
Client ID: **JM1-0** Batch ID: **74109** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **7/12/2011** SeqNo: **2206856**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	14.274	2.0	33.00	20.00	-17.4	25	129	28.41	66.2	20	SR
Surr: p-Terphenyl	1.855		2.670		69.5	30	128		0	0	

Sample ID: **118770-055ADUP** SampType: **DUP** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **7/7/2011** RunNo: **134872**
Client ID: **JM6-0** Batch ID: **74109** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **7/12/2011** SeqNo: **2206863**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_DM LL

Sample ID: **118770-055ADUP** SampType: **DUP** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **7/7/2011** RunNo: **134872**
Client ID: **JM6-0** Batch ID: **74109** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **7/12/2011** SeqNo: **2206863**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	108.767	20						35.32	102	20	R
ORO	592.080	20						287.7	69.2	20	R
Surr: p-Terphenyl	0		2.670		0	30	128		0	0	SDO

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_DM LL

Sample ID: **MB-74138** SampType: **MBLK** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134892**
Client ID: **PBS** Batch ID: **74138** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **7/11/2011** SeqNo: **2207208**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	ND	1.0									
ORO	ND	1.0									
Surr: p-Terphenyl	2.041		2.670		76.5	30	128				

Sample ID: **LCS-74138** SampType: **LCS** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134892**
Client ID: **LCSS** Batch ID: **74138** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **7/11/2011** SeqNo: **2207209**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	24.307	1.0	33.00	0	73.7	35	118				
Surr: p-Terphenyl	2.053		2.670		76.9	30	128				

Sample ID: **118770-061AMS** SampType: **MS** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134892**
Client ID: **JM8-0** Batch ID: **74138** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **7/11/2011** SeqNo: **2207213**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	28.984	1.0	33.00	1.607	83.0	25	129				
Surr: p-Terphenyl	2.488		2.670		93.2	30	128				

Sample ID: **118770-061AMSD** SampType: **MSD** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134892**
Client ID: **JM8-0** Batch ID: **74138** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **7/11/2011** SeqNo: **2207214**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	29.080	1.0	33.00	1.607	83.3	25	129	28.98	0.330	20	
Surr: p-Terphenyl	2.125		2.670		79.6	30	128		0	0	

Sample ID: **118770-064ADUP** SampType: **DUP** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134892**
Client ID: **JM9-0** Batch ID: **74138** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **7/11/2011** SeqNo: **2207216**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_DM LL

Sample ID: **118770-064ADUP** SampType: **DUP** TestCode: **8015_S_DM L** Units: **mg/Kg** Prep Date: **7/8/2011** RunNo: **134892**
Client ID: **JM9-0** Batch ID: **74138** TestNo: **EPA 8015B(M EPA 3550B** Analysis Date: **7/11/2011** SeqNo: **2207216**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	2.850	1.0						3.574	22.6	20	R
ORO	14.769	1.0						18.25	21.1	20	R
Surr: p-Terphenyl	2.283		2.670		85.5	30	128		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_GAS

Sample ID: **E110705LC1** SampType: **LCS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **134668**
Client ID: **LCSS** Batch ID: **E11VS247** TestNo: **EPA 8015B(M** Analysis Date: **7/5/2011** SeqNo: **2202437**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	5.202	1.0	5.000	0	104	70	130				
Surr: Bromofluorobenzene (FID)	114.653		100.0		115	62	153				

Sample ID: **E110705MB1MS** SampType: **MS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **134668**
Client ID: **ZZZZZZ** Batch ID: **E11VS247** TestNo: **EPA 8015B(M** Analysis Date: **7/5/2011** SeqNo: **2202438**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	5.243	1.0	5.000	0	105	49	131				
Surr: Bromofluorobenzene (FID)	117.965		100.0		118	62	153				

Sample ID: **E110705MB1MSD** SampType: **MSD** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **134668**
Client ID: **ZZZZZZ** Batch ID: **E11VS247** TestNo: **EPA 8015B(M** Analysis Date: **7/5/2011** SeqNo: **2202439**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	5.160	1.0	5.000	0	103	49	131	5.243	1.60	20	
Surr: Bromofluorobenzene (FID)	118.046		100.0		118	62	153		0	0	

Sample ID: **E110705MB1** SampType: **MBLK** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **134668**
Client ID: **PBS** Batch ID: **E11VS247** TestNo: **EPA 8015B(M** Analysis Date: **7/5/2011** SeqNo: **2202440**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	1.0									
Surr: Bromofluorobenzene (FID)	110.432		100.0		110	62	153				

Sample ID: **118770-002AMS** SampType: **MS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **134668**
Client ID: **U1-1** Batch ID: **E11VS247** TestNo: **EPA 8015B(M** Analysis Date: **7/5/2011** SeqNo: **2203172**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.654	1.0	5.000	0	93.1	49	131				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_GAS

Sample ID: **118770-002AMS** SampType: **MS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **134668**
Client ID: **U1-1** Batch ID: **E11VS247** TestNo: **EPA 8015B(M** Analysis Date: **7/5/2011** SeqNo: **2203172**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (FID)	129.599		100.0		130	62	153				

Sample ID: **118770-002AMSD** SampType: **MSD** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **134668**
Client ID: **U1-1** Batch ID: **E11VS247** TestNo: **EPA 8015B(M** Analysis Date: **7/5/2011** SeqNo: **2203173**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.497	1.0	5.000	0	89.9	49	131	4.654	3.43	20	
Surr: Bromofluorobenzene (FID)	129.993		100.0		130	62	153		0	0	

Sample ID: **118770-002ADUP** SampType: **DUP** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **134668**
Client ID: **U1-1** Batch ID: **E11VS247** TestNo: **EPA 8015B(M** Analysis Date: **7/5/2011** SeqNo: **2203198**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	1.0						0	0	20	
Surr: Bromofluorobenzene (FID)	125.760		100.0		126	62	153		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_GAS

Sample ID: **E110705LC3** SampType: **LCS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **134703**
Client ID: **LCSS** Batch ID: **E11VS248** TestNo: **EPA 8015B(M** Analysis Date: **7/5/2011** SeqNo: **2203226**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.752	1.0	5.000	0	95.0	70	130				
Surr: Bromofluorobenzene (FID)	121.880		100.0		122	62	153				

Sample ID: **E110705MB2MS** SampType: **MS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **134703**
Client ID: **ZZZZZZ** Batch ID: **E11VS248** TestNo: **EPA 8015B(M** Analysis Date: **7/5/2011** SeqNo: **2203227**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.616	1.0	5.000	0	92.3	49	131				
Surr: Bromofluorobenzene (FID)	119.469		100.0		119	62	153				

Sample ID: **E110705MB2MSD** SampType: **MSD** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **134703**
Client ID: **ZZZZZZ** Batch ID: **E11VS248** TestNo: **EPA 8015B(M** Analysis Date: **7/5/2011** SeqNo: **2203228**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.026	1.0	5.000	0	80.5	49	131	4.616	13.7	20	
Surr: Bromofluorobenzene (FID)	116.768		100.0		117	62	153		0	0	

Sample ID: **E110705MB2** SampType: **MBLK** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **134703**
Client ID: **PBS** Batch ID: **E11VS248** TestNo: **EPA 8015B(M** Analysis Date: **7/5/2011** SeqNo: **2203229**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	1.0									
Surr: Bromofluorobenzene (FID)	112.787		100.0		113	62	153				

Sample ID: **118770-050ADUP** SampType: **DUP** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **134703**
Client ID: **JM4-1** Batch ID: **E11VS248** TestNo: **EPA 8015B(M** Analysis Date: **7/6/2011** SeqNo: **2203237**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	1.0						0	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 *Tel: 562. 989.4045* *Fax: 562.989.4040*

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_GAS

Sample ID: **118770-050ADUP** SampType: **DUP** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **134703**
Client ID: **JM4-1** Batch ID: **E11VS248** TestNo: **EPA 8015B(M** Analysis Date: **7/6/2011** SeqNo: **2203237**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (FID)	131.041		100.0		131	62	153		0	0	

Sample ID: **118770-050AMS** SampType: **MS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **134703**
Client ID: **JM4-1** Batch ID: **E11VS248** TestNo: **EPA 8015B(M** Analysis Date: **7/6/2011** SeqNo: **2203241**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.037	1.0	5.000	0	80.7	49	131				
Surr: Bromofluorobenzene (FID)	154.850		100.0		155	62	153				S

Sample ID: **118770-050AMSD** SampType: **MSD** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **134703**
Client ID: **JM4-1** Batch ID: **E11VS248** TestNo: **EPA 8015B(M** Analysis Date: **7/6/2011** SeqNo: **2203242**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	3.387	1.0	5.000	0	67.7	49	131	4.037	17.5	20	
Surr: Bromofluorobenzene (FID)	147.486		100.0		147	62	153		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_GAS

Sample ID: **E110706LC1** SampType: **LCS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **134714**
Client ID: **LCSS** Batch ID: **E11VS249** TestNo: **EPA 8015B(M** Analysis Date: **7/6/2011** SeqNo: **2204292**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.723	1.0	5.000	0	94.5	70	130				
Surr: Bromofluorobenzene (FID)	121.594		100.0		122	62	153				

Sample ID: **E110706MB1MS** SampType: **MS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **134714**
Client ID: **ZZZZZZ** Batch ID: **E11VS249** TestNo: **EPA 8015B(M** Analysis Date: **7/6/2011** SeqNo: **2204293**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.773	1.0	5.000	0	95.5	49	131				
Surr: Bromofluorobenzene (FID)	118.386		100.0		118	62	153				

Sample ID: **E110706MB1MSD** SampType: **MSD** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **134714**
Client ID: **ZZZZZZ** Batch ID: **E11VS249** TestNo: **EPA 8015B(M** Analysis Date: **7/6/2011** SeqNo: **2204294**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.914	1.0	5.000	0	98.3	49	131	4.773	2.91	20	
Surr: Bromofluorobenzene (FID)	124.691		100.0		125	62	153		0	0	

Sample ID: **E110706MB1** SampType: **MBLK** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **134714**
Client ID: **PBS** Batch ID: **E11VS249** TestNo: **EPA 8015B(M** Analysis Date: **7/6/2011** SeqNo: **2204295**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	1.0									
Surr: Bromofluorobenzene (FID)	104.160		100.0		104	62	153				

Sample ID: **118770-065ADUP** SampType: **DUP** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **134714**
Client ID: **JM9-1** Batch ID: **E11VS249** TestNo: **EPA 8015B(M** Analysis Date: **7/6/2011** SeqNo: **2204299**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	ND	1.0						0	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_S_GAS

Sample ID: **118770-065ADUP** SampType: **DUP** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **134714**
Client ID: **JM9-1** Batch ID: **E11VS249** TestNo: **EPA 8015B(M** Analysis Date: **7/6/2011** SeqNo: **2204299**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Bromofluorobenzene (FID)	123.885		100.0		124	62	153		0	0	

Sample ID: **118793-001AMS** SampType: **MS** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **134714**
Client ID: **ZZZZZZ** Batch ID: **E11VS249** TestNo: **EPA 8015B(M** Analysis Date: **7/6/2011** SeqNo: **2204300**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.378	1.0	5.000	0	87.6	49	131				
Surr: Bromofluorobenzene (FID)	151.197		100.0		151	62	153				

Sample ID: **118793-001AMSD** SampType: **MSD** TestCode: **8015_S_GAS** Units: **mg/Kg** Prep Date: RunNo: **134714**
Client ID: **ZZZZZZ** Batch ID: **E11VS249** TestNo: **EPA 8015B(M** Analysis Date: **7/6/2011** SeqNo: **2204301**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
GRO	4.319	1.0	5.000	0	86.4	49	131	4.378	1.36	20	
Surr: Bromofluorobenzene (FID)	151.512		100.0		152	62	153		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **E110705LC2** SampType: **LCS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **134668**
Client ID: **LCSS** Batch ID: **E11VS247** TestNo: **EPA 8021B** Analysis Date: **7/5/2011** SeqNo: **2203199**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	85.763	5.0	100.0	0	85.8	70	130				
Ethylbenzene	89.046	5.0	100.0	0	89.0	70	130				
m,p-Xylene	179.720	10	200.0	0	89.9	70	130				
o-Xylene	91.075	5.0	100.0	0	91.1	70	130				
Toluene	88.695	5.0	100.0	0	88.7	70	130				
Surr: Bromofluorobenzene (PID)	90.648		100.0		90.6	65	140				

Sample ID: **E110705LC2** SampType: **LCSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **134668**
Client ID: **LCSS02** Batch ID: **E11VS247** TestNo: **EPA 8021B** Analysis Date: **7/5/2011** SeqNo: **2203200**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	82.352	5.0	100.0	0	82.4	70	130	85.76	4.06	20	
Ethylbenzene	85.543	5.0	100.0	0	85.5	70	130	89.05	4.01	20	
m,p-Xylene	172.093	10	200.0	0	86.0	70	130	179.7	4.34	20	
o-Xylene	87.542	5.0	100.0	0	87.5	70	130	91.08	3.96	20	
Toluene	85.118	5.0	100.0	0	85.1	70	130	88.70	4.12	20	
Surr: Bromofluorobenzene (PID)	86.420		100.0		86.4	65	140		0	0	

Sample ID: **E110705MB1MS** SampType: **MS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **134668**
Client ID: **ZZZZZZ** Batch ID: **E11VS247** TestNo: **EPA 8021B** Analysis Date: **7/5/2011** SeqNo: **2203201**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	29.915	5.0	22.15	0	135	69	264				
Ethylbenzene	48.075	5.0	42.30	0	114	37	161				
m,p-Xylene	163.180	10	180.2	0	90.6	30	149				
o-Xylene	61.895	5.0	64.80	0	95.5	31	166				
Toluene	150.218	5.0	172.6	0	87.0	44	150				
Surr: Bromofluorobenzene (PID)	92.713		100.0		92.7	65	140				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **E110705MB1MSD** SampType: **MSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **134668**
Client ID: **ZZZZZZ** Batch ID: **E11VS247** TestNo: **EPA 8021B** Analysis Date: **7/5/2011** SeqNo: **2203202**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	29.850	5.0	22.15	0	135	69	264	29.92	0.218	20	
Ethylbenzene	47.929	5.0	42.30	0	113	37	161	48.08	0.304	20	
m,p-Xylene	163.050	10	180.2	0	90.5	30	149	163.2	0.0797	20	
o-Xylene	62.012	5.0	64.80	0	95.7	31	166	61.90	0.189	20	
Toluene	150.138	5.0	172.6	0	87.0	44	150	150.2	0.0533	20	
Surr: Bromofluorobenzene (PID)	93.126		100.0		93.1	65	140		0	20	

Sample ID: **E110705MB1** SampType: **MBLK** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **134668**
Client ID: **PBS** Batch ID: **E11VS247** TestNo: **EPA 8021B** Analysis Date: **7/5/2011** SeqNo: **2203203**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	5.0									
Ethylbenzene	ND	5.0									
m,p-Xylene	ND	10									
o-Xylene	ND	5.0									
Toluene	ND	5.0									
Surr: Bromofluorobenzene (PID)	84.865		100.0		84.9	65	140				

Sample ID: **118770-002ADUP** SampType: **DUP** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **134668**
Client ID: **U1-1** Batch ID: **E11VS247** TestNo: **EPA 8021B** Analysis Date: **7/5/2011** SeqNo: **2203206**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	5.0						0	0	20	
Ethylbenzene	ND	5.0						0	0	20	
m,p-Xylene	ND	10						0	0	20	
o-Xylene	ND	5.0						0	0	20	
Toluene	ND	5.0						0	0	20	
Surr: Bromofluorobenzene (PID)	97.685		100.0		97.7	65	140		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **118770-002AMS** SampType: **MS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **134668**
Client ID: **U1-1** Batch ID: **E11VS247** TestNo: **EPA 8021B** Analysis Date: **7/5/2011** SeqNo: **2203207**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	29.938	5.0	22.15	0	135	69	264				
Ethylbenzene	41.519	5.0	42.30	0	98.2	37	161				
m,p-Xylene	138.928	10	180.2	0	77.1	30	149				
Methyl tert-butyl ether	375.655	5.0	578.9	0	64.9	39	121				
o-Xylene	52.310	5.0	64.80	0	80.7	31	166				
Toluene	140.123	5.0	172.6	0	81.2	44	150				
Xylenes, Total	191.238	15	245.0	0	78.1	30	149				
Surr: Bromofluorobenzene (PID)	104.898		100.0		105	65	140				

Sample ID: **118770-002AMSD** SampType: **MSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **134668**
Client ID: **U1-1** Batch ID: **E11VS247** TestNo: **EPA 8021B** Analysis Date: **7/5/2011** SeqNo: **2203208**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	29.408	5.0	22.15	0	133	69	264	29.94	1.79	20	
Ethylbenzene	40.802	5.0	42.30	0	96.5	37	161	41.52	1.74	20	
m,p-Xylene	137.211	10	180.2	0	76.1	30	149	138.9	1.24	20	
Methyl tert-butyl ether	370.315	5.0	578.9	0	64.0	39	121	375.7	1.43	20	
o-Xylene	51.774	5.0	64.80	0	79.9	31	166	52.31	1.03	20	
Toluene	137.990	5.0	172.6	0	79.9	44	150	140.1	1.53	20	
Xylenes, Total	188.985	15	245.0	0	77.1	30	149	191.2	1.19	20	
Surr: Bromofluorobenzene (PID)	104.422		100.0		104	65	140		0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **E110705LC4** SampType: **LCS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **134703**
Client ID: **LCSS** Batch ID: **E11VS248** TestNo: **EPA 8021B** Analysis Date: **7/5/2011** SeqNo: **2203243**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	85.524	5.0	100.0	0	85.5	70	130				
Ethylbenzene	88.878	5.0	100.0	0	88.9	70	130				
m,p-Xylene	179.605	10	200.0	0	89.8	70	130				
o-Xylene	92.641	5.0	100.0	0	92.6	70	130				
Toluene	88.799	5.0	100.0	0	88.8	70	130				
Surr: Bromofluorobenzene (PID)	94.313		100.0		94.3	65	140				

Sample ID: **E110705LC4** SampType: **LCSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **134703**
Client ID: **LCSS02** Batch ID: **E11VS248** TestNo: **EPA 8021B** Analysis Date: **7/5/2011** SeqNo: **2203244**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	88.924	5.0	100.0	0	88.9	70	130	85.52	3.90	20	
Ethylbenzene	92.203	5.0	100.0	0	92.2	70	130	88.88	3.67	20	
m,p-Xylene	185.935	10	200.0	0	93.0	70	130	179.6	3.46	20	
o-Xylene	95.616	5.0	100.0	0	95.6	70	130	92.64	3.16	20	
Toluene	91.951	5.0	100.0	0	92.0	70	130	88.80	3.49	20	
Surr: Bromofluorobenzene (PID)	92.927		100.0		92.9	65	140		0	0	

Sample ID: **E110705MB2MS** SampType: **MS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **134703**
Client ID: **ZZZZZZ** Batch ID: **E11VS248** TestNo: **EPA 8021B** Analysis Date: **7/5/2011** SeqNo: **2203245**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	27.659	5.0	22.15	0	125	69	264				
Ethylbenzene	43.913	5.0	42.30	0	104	37	161				
m,p-Xylene	149.431	10	180.2	0	82.9	30	149				
o-Xylene	57.541	5.0	64.80	0	88.8	31	166				
Toluene	138.191	5.0	172.6	0	80.0	44	150				
Surr: Bromofluorobenzene (PID)	95.392		100.0		95.4	65	140				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **E110705MB2MSD** SampType: **MSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **134703**
Client ID: **ZZZZZZ** Batch ID: **E11VS248** TestNo: **EPA 8021B** Analysis Date: **7/5/2011** SeqNo: **2203246**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	23.634	5.0	22.15	0	107	69	264	27.66	15.7	20	
Ethylbenzene	37.907	5.0	42.30	0	89.6	37	161	43.91	14.7	20	
m,p-Xylene	129.020	10	180.2	0	71.6	30	149	149.4	14.7	20	
o-Xylene	49.230	5.0	64.80	0	76.0	31	166	57.54	15.6	20	
Toluene	118.854	5.0	172.6	0	68.8	44	150	138.2	15.0	20	
Surr: Bromofluorobenzene (PID)	93.115		100.0		93.1	65	140		0	20	

Sample ID: **E110705MB2** SampType: **MBLK** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **134703**
Client ID: **PBS** Batch ID: **E11VS248** TestNo: **EPA 8021B** Analysis Date: **7/5/2011** SeqNo: **2203247**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	5.0									
Ethylbenzene	ND	5.0									
m,p-Xylene	ND	10									
o-Xylene	ND	5.0									
Toluene	ND	5.0									
Surr: Bromofluorobenzene (PID)	88.306		100.0		88.3	65	140				

Sample ID: **118770-050ADUP** SampType: **DUP** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **134703**
Client ID: **JM4-1** Batch ID: **E11VS248** TestNo: **EPA 8021B** Analysis Date: **7/6/2011** SeqNo: **2203255**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	5.0						0	0	20	
Ethylbenzene	ND	5.0						0	0	20	
m,p-Xylene	ND	10						0	0	20	
o-Xylene	ND	5.0						0	0	20	
Toluene	ND	5.0						0	0	20	
Surr: Bromofluorobenzene (PID)	102.217		100.0		102	65	140		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **118770-050AMS** SampType: **MS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **134703**
Client ID: **JM4-1** Batch ID: **E11VS248** TestNo: **EPA 8021B** Analysis Date: **7/6/2011** SeqNo: **2203259**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	27.601	5.0	22.15	0	125	69	264				
Ethylbenzene	38.573	5.0	42.30	0	91.2	37	161				
m,p-Xylene	132.152	10	180.2	0	73.3	30	149				
Methyl tert-butyl ether	313.789	5.0	578.9	0	54.2	39	121				
o-Xylene	50.706	5.0	64.80	0	78.3	31	166				
Toluene	132.958	5.0	172.6	0	77.0	44	150				
Xylenes, Total	182.858	15	245.0	0	74.6	30	149				
Surr: Bromofluorobenzene (PID)	110.875		100.0		111	65	140				

Sample ID: **118770-050AMSD** SampType: **MSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **134703**
Client ID: **JM4-1** Batch ID: **E11VS248** TestNo: **EPA 8021B** Analysis Date: **7/6/2011** SeqNo: **2203260**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	22.386	5.0	22.15	0	101	69	264	27.60	20.9	20	R
Ethylbenzene	30.429	5.0	42.30	0	71.9	37	161	38.57	23.6	20	R
m,p-Xylene	103.096	10	180.2	0	57.2	30	149	132.2	24.7	20	R
Methyl tert-butyl ether	258.124	5.0	578.9	0	44.6	39	121	313.8	19.5	20	
o-Xylene	39.631	5.0	64.80	0	61.2	31	166	50.71	24.5	20	R
Toluene	106.031	5.0	172.6	0	61.4	44	150	133.0	22.5	20	R
Xylenes, Total	142.727	15	245.0	0	58.3	30	149	182.9	24.7	20	R
Surr: Bromofluorobenzene (PID)	111.105		100.0		111	65	140		0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **E110706LC2** SampType: **LCS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **134714**
Client ID: **LCSS** Batch ID: **E11VS249** TestNo: **EPA 8021B** Analysis Date: **7/6/2011** SeqNo: **2204302**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	80.731	5.0	100.0	0	80.7	70	130				
Ethylbenzene	84.936	5.0	100.0	0	84.9	70	130				
m,p-Xylene	171.528	10	200.0	0	85.8	70	130				
o-Xylene	87.603	5.0	100.0	0	87.6	70	130				
Toluene	84.065	5.0	100.0	0	84.1	70	130				
Surr: Bromofluorobenzene (PID)	90.654		100.0		90.7	65	140				

Sample ID: **E110706LC2** SampType: **LCSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **134714**
Client ID: **LCSS02** Batch ID: **E11VS249** TestNo: **EPA 8021B** Analysis Date: **7/6/2011** SeqNo: **2204303**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	83.655	5.0	100.0	0	83.7	70	130	80.73	3.56	20	
Ethylbenzene	86.916	5.0	100.0	0	86.9	70	130	84.94	2.30	20	
m,p-Xylene	175.434	10	200.0	0	87.7	70	130	171.5	2.25	20	
o-Xylene	89.158	5.0	100.0	0	89.2	70	130	87.60	1.76	20	
Toluene	86.585	5.0	100.0	0	86.6	70	130	84.06	2.95	20	
Surr: Bromofluorobenzene (PID)	85.900		100.0		85.9	65	140		0	0	

Sample ID: **E110706MB1MS** SampType: **MS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **134714**
Client ID: **ZZZZZZ** Batch ID: **E11VS249** TestNo: **EPA 8021B** Analysis Date: **7/6/2011** SeqNo: **2204304**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	27.298	5.0	22.15	0	123	69	264				
Ethylbenzene	43.688	5.0	42.30	0	103	37	161				
m,p-Xylene	149.033	10	180.2	0	82.7	30	149				
o-Xylene	56.647	5.0	64.80	0	87.4	31	166				
Toluene	137.184	5.0	172.6	0	79.5	44	150				
Surr: Bromofluorobenzene (PID)	91.626		100.0		91.6	65	140				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **E110706MB1MSD** SampType: **MSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **134714**
Client ID: **ZZZZZZ** Batch ID: **E11VS249** TestNo: **EPA 8021B** Analysis Date: **7/6/2011** SeqNo: **2204305**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	28.162	5.0	22.15	0	127	69	264	27.30	3.12	20	
Ethylbenzene	45.027	5.0	42.30	0	106	37	161	43.69	3.02	20	
m,p-Xylene	153.146	10	180.2	0	85.0	30	149	149.0	2.72	20	
o-Xylene	58.445	5.0	64.80	0	90.2	31	166	56.65	3.12	20	
Toluene	140.896	5.0	172.6	0	81.6	44	150	137.2	2.67	20	
Surr: Bromofluorobenzene (PID)	94.321		100.0		94.3	65	140		0	20	

Sample ID: **E110706MB1** SampType: **MBLK** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **134714**
Client ID: **PBS** Batch ID: **E11VS249** TestNo: **EPA 8021B** Analysis Date: **7/6/2011** SeqNo: **2204306**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	5.0									
Ethylbenzene	ND	5.0									
m,p-Xylene	ND	10									
o-Xylene	ND	5.0									
Toluene	ND	5.0									
Surr: Bromofluorobenzene (PID)	80.539		100.0		80.5	65	140				

Sample ID: **118770-065ADUP** SampType: **DUP** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **134714**
Client ID: **JM9-1** Batch ID: **E11VS249** TestNo: **EPA 8021B** Analysis Date: **7/6/2011** SeqNo: **2204310**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	5.0						0	0	20	
Ethylbenzene	ND	5.0						0	0	20	
m,p-Xylene	ND	10						0	0	20	
o-Xylene	ND	5.0						0	0	20	
Toluene	ND	5.0						0	0	20	
Surr: Bromofluorobenzene (PID)	96.805		100.0		96.8	65	140		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021_S_BTEX

Sample ID: **118793-001AMS** SampType: **MS** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **134714**
Client ID: **ZZZZZZ** Batch ID: **E11VS249** TestNo: **EPA 8021B** Analysis Date: **7/6/2011** SeqNo: **2204311**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	31.626	5.0	22.15	0	143	69	264				
Ethylbenzene	45.130	5.0	42.30	0	107	37	161				
m,p-Xylene	156.506	10	180.2	0	86.9	30	149				
o-Xylene	60.700	5.0	64.80	0	93.7	31	166				
Toluene	154.430	5.0	172.6	0	89.4	44	150				
Surr: Bromofluorobenzene (PID)	111.455		100.0		111	65	140				

Sample ID: **118793-001AMSD** SampType: **MSD** TestCode: **8021_S_BTE** Units: **µg/Kg** Prep Date: RunNo: **134714**
Client ID: **ZZZZZZ** Batch ID: **E11VS249** TestNo: **EPA 8021B** Analysis Date: **7/6/2011** SeqNo: **2204312**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	31.943	5.0	22.15	0	144	69	264	31.63	0.997	20	
Ethylbenzene	45.264	5.0	42.30	0	107	37	161	45.13	0.296	20	
m,p-Xylene	157.741	10	180.2	0	87.5	30	149	156.5	0.786	20	
o-Xylene	61.179	5.0	64.80	0	94.4	31	166	60.70	0.786	20	
Toluene	156.099	5.0	172.6	0	90.4	44	150	154.4	1.07	20	
Surr: Bromofluorobenzene (PID)	112.382		100.0		112	65	140		0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **MB-74062** SampType: **MBLK** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/5/2011** RunNo: **134756**
Client ID: **PBS** Batch ID: **74062** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/6/2011** SeqNo: **2204520**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	ND	2.0									
4,4´-DDE	ND	2.0									
4,4´-DDT	ND	2.0									
Aldrin	ND	1.0									
alpha-BHC	ND	1.0									
alpha-Chlordane	ND	1.0									
beta-BHC	ND	1.0									
Chlordane	ND	8.5									
delta-BHC	ND	1.0									
Dieldrin	ND	2.0									
Endosulfan I	ND	1.0									
Endosulfan II	ND	2.0									
Endosulfan sulfate	ND	2.0									
Endrin	ND	2.0									
Endrin aldehyde	ND	2.0									
Endrin ketone	ND	2.0									
gamma-BHC	ND	1.0									
gamma-Chlordane	ND	1.0									
Heptachlor	ND	1.0									
Heptachlor epoxide	ND	1.0									
Methoxychlor	ND	5.0									
Toxaphene	ND	50									
Surr: Tetrachloro-m-xylene	14.198		16.67		85.2	35	108				
Surr: Decachlorobiphenyl	14.833		16.67		89.0	31	107				

Sample ID: **LCS-74062** SampType: **LCS** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/5/2011** RunNo: **134756**
Client ID: **LCSS** Batch ID: **74062** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/6/2011** SeqNo: **2204521**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aldrin	13.663	1.0	16.67	0	82.0	59	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 *Tel: 562. 989.4045* *Fax: 562.989.4040*

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **LCS-74062** SampType: **LCS** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/5/2011** RunNo: **134756**
Client ID: **LCSS** Batch ID: **74062** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/6/2011** SeqNo: **2204521**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dieldrin	14.048	2.0	16.67	0	84.3	56	112				
Endrin	14.673	2.0	16.67	0	88.0	53	116				
gamma-BHC	13.923	1.0	16.67	0	83.5	59	110				
Heptachlor	13.729	1.0	16.67	0	82.4	53	118				
Surr: Tetrachloro-m-xylene	14.367		16.67		86.2	35	108				
Surr: Decachlorobiphenyl	14.713		16.67		88.3	31	107				

Sample ID: **118737-007AMS** SampType: **MS** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/5/2011** RunNo: **134756**
Client ID: **ZZZZZZ** Batch ID: **74062** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/6/2011** SeqNo: **2204522**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	16.187	2.0	16.67	0.9205	91.6	38	130				
Aldrin	14.446	1.0	16.67	0	86.7	35	122				
Dieldrin	15.422	2.0	16.67	0	92.5	31	138				
Endrin	16.434	2.0	16.67	0	98.6	39	132				
gamma-BHC	14.721	1.0	16.67	0	88.3	36	126				
Heptachlor	14.589	1.0	16.67	0	87.5	34	131				
Surr: Tetrachloro-m-xylene	13.937		16.67		83.6	35	108				
Surr: Decachlorobiphenyl	16.522		16.67		99.1	31	107				

Sample ID: **118737-007AMSD** SampType: **MSD** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/5/2011** RunNo: **134756**
Client ID: **ZZZZZZ** Batch ID: **74062** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/6/2011** SeqNo: **2204523**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	17.052	2.0	16.67	0.9205	96.8	38	130	16.19	5.20	20	
Aldrin	15.224	1.0	16.67	0	91.3	35	122	14.45	5.24	20	
Dieldrin	16.078	2.0	16.67	0	96.5	31	138	15.42	4.17	20	
Endrin	17.220	2.0	16.67	0	103	39	132	16.43	4.67	20	
gamma-BHC	15.461	1.0	16.67	0	92.7	36	126	14.72	4.90	20	
Heptachlor	15.369	1.0	16.67	0	92.2	34	131	14.59	5.21	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **118737-007AMSD** SampType: **MSD** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/5/2011** RunNo: **134756**
Client ID: **ZZZZZZ** Batch ID: **74062** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/6/2011** SeqNo: **2204523**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Tetrachloro-m-xylene	15.138		16.67		90.8	35	108		0	0	
Surr: Decachlorobiphenyl	17.229		16.67		103	31	107		0	0	

Sample ID: **118770-022ADUP** SampType: **DUP** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/5/2011** RunNo: **134756**
Client ID: **A1-0** Batch ID: **74062** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/6/2011** SeqNo: **2204540**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	4.956	2.0						5.044	1.76	20	
4,4´-DDE	2.644	2.0						2.622	0.816	20	
4,4´-DDT	4.195	2.0						4.524	7.55	20	
Aldrin	ND	1.0						0	0	20	
alpha-BHC	ND	1.0						0	0	20	
alpha-Chlordane	ND	1.0						0	0	20	
beta-BHC	ND	1.0						0	0	20	
Chlordane	ND	8.5						0	0	20	
delta-BHC	ND	1.0						0	0	20	
Dieldrin	ND	2.0						0	0	20	
Endosulfan I	ND	1.0						0	0	20	
Endosulfan II	ND	2.0						0	0	20	
Endosulfan sulfate	ND	2.0						0	0	20	
Endrin	ND	2.0						0	0	20	
Endrin aldehyde	ND	2.0						0	0	20	
Endrin ketone	ND	2.0						0	0	20	
gamma-BHC	ND	1.0						0	0	20	
gamma-Chlordane	ND	1.0						0	0	20	
Heptachlor	ND	1.0						0	0	20	
Heptachlor epoxide	ND	1.0						0	0	20	
Methoxychlor	ND	5.0						0	0	20	
Toxaphene	ND	50						0	0	20	
Surr: Tetrachloro-m-xylene	13.995		16.67		84.0	35	108		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **118770-022ADUP** SampType: **DUP** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/5/2011** RunNo: **134756**
Client ID: **A1-0** Batch ID: **74062** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/6/2011** SeqNo: **2204540**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	11.667		16.67		70.0	31	107		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **MB-74126** SampType: **MBLK** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/7/2011** RunNo: **134800**
Client ID: **PBS** Batch ID: **74126** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/7/2011** SeqNo: **2205226**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	ND	2.0									
4,4´-DDE	ND	2.0									
4,4´-DDT	ND	2.0									
Aldrin	ND	1.0									
alpha-BHC	ND	1.0									
alpha-Chlordane	ND	1.0									
beta-BHC	ND	1.0									
Chlordane	ND	8.5									
delta-BHC	ND	1.0									
Dieldrin	ND	2.0									
Endosulfan I	ND	1.0									
Endosulfan II	ND	2.0									
Endosulfan sulfate	ND	2.0									
Endrin	ND	2.0									
Endrin aldehyde	ND	2.0									
Endrin ketone	ND	2.0									
gamma-BHC	ND	1.0									
gamma-Chlordane	ND	1.0									
Heptachlor	ND	1.0									
Heptachlor epoxide	ND	1.0									
Methoxychlor	ND	5.0									
Toxaphene	ND	50									
Surr: Tetrachloro-m-xylene	14.113		16.67		84.7	35	108				
Surr: Decachlorobiphenyl	13.683		16.67		82.1	31	107				

Sample ID: **LCS-74126** SampType: **LCS** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/7/2011** RunNo: **134800**
Client ID: **LCSS** Batch ID: **74126** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/7/2011** SeqNo: **2205227**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aldrin	13.906	1.0	16.67	0	83.4	59	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 *Tel: 562. 989.4045* *Fax: 562.989.4040*

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **LCS-74126** SampType: **LCS** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/7/2011** RunNo: **134800**
Client ID: **LCSS** Batch ID: **74126** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/7/2011** SeqNo: **2205227**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dieldrin	14.351	2.0	16.67	0	86.1	56	112				
Endrin	15.188	2.0	16.67	0	91.1	53	116				
gamma-BHC	14.055	1.0	16.67	0	84.3	59	110				
Heptachlor	13.987	1.0	16.67	0	83.9	53	118				
Surr: Tetrachloro-m-xylene	14.112		16.67		84.7	35	108				
Surr: Decachlorobiphenyl	13.673		16.67		82.0	31	107				

Sample ID: **118694-021AMS** SampType: **MS** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/7/2011** RunNo: **134800**
Client ID: **ZZZZZZ** Batch ID: **74126** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/7/2011** SeqNo: **2205228**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aldrin	12.704	1.0	16.67	0	76.2	35	122				
Dieldrin	24.088	2.0	16.67	12.68	68.4	31	138				
Endrin	15.135	2.0	16.67	0	90.8	39	132				
gamma-BHC	12.016	1.0	16.67	0	72.1	36	126				
Heptachlor	12.047	1.0	16.67	0	72.3	34	131				
Surr: Tetrachloro-m-xylene	11.012		16.67		66.1	35	108				
Surr: Decachlorobiphenyl	9.753		16.67		58.5	31	107				

Sample ID: **118694-021AMSD** SampType: **MSD** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/7/2011** RunNo: **134800**
Client ID: **ZZZZZZ** Batch ID: **74126** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/7/2011** SeqNo: **2205229**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aldrin	11.539	1.0	16.67	0	69.2	35	122	12.70	9.61	20	
Dieldrin	21.821	2.0	16.67	12.68	54.8	31	138	24.09	9.88	20	
Endrin	13.547	2.0	16.67	0	81.3	39	132	15.14	11.1	20	
gamma-BHC	10.814	1.0	16.67	0	64.9	36	126	12.02	10.5	20	
Heptachlor	11.104	1.0	16.67	0	66.6	34	131	12.05	8.15	20	
Surr: Tetrachloro-m-xylene	9.988		16.67		59.9	35	108		0	0	
Surr: Decachlorobiphenyl	8.762		16.67		52.6	31	107		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **118694-012ADUP** SampType: **DUP** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/7/2011** RunNo: **134800**
Client ID: **ZZZZZZ** Batch ID: **74126** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/7/2011** SeqNo: **2205232**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	ND	2.0						0	0	20	
Aldrin	ND	1.0						0	0	20	
alpha-BHC	ND	1.0						0	0	20	
beta-BHC	ND	1.0						0	0	20	
delta-BHC	ND	1.0						0	0	20	
Dieldrin	8.103	2.0						8.313	2.57	20	
Endosulfan I	ND	1.0						0	0	20	
Endosulfan II	ND	2.0						0	0	20	
Endosulfan sulfate	ND	2.0						0	0	20	
Endrin	ND	2.0						0	0	20	
Endrin aldehyde	ND	2.0						0	0	20	
Endrin ketone	ND	2.0						0	0	20	
gamma-BHC	ND	1.0						0	0	20	
gamma-Chlordane	30.124	1.0						31.16	3.38	20	
Heptachlor	ND	1.0						0	0	20	
Heptachlor epoxide	3.740	1.0						3.911	4.47	20	
Methoxychlor	ND	5.0						0	0	20	
Toxaphene	ND	50						0	0	20	
Surr: Tetrachloro-m-xylene	7.580		16.67		45.5	35	108		0	0	
Surr: Decachlorobiphenyl	9.113		16.67		54.7	31	107		0	0	

Sample ID: **118694-021AMS** SampType: **MS** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/7/2011** RunNo: **134800**
Client ID: **ZZZZZZ** Batch ID: **74126** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/7/2011** SeqNo: **2205233**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	819.925	100	16.67	788.1	191	38	130				S
Surr: Tetrachloro-m-xylene	0		16.67		0	35	108				SDO
Surr: Decachlorobiphenyl	0		16.67		0	31	107				SDO

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **118694-021AMSD** SampType: **MSD** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/7/2011** RunNo: **134800**
Client ID: **ZZZZZZ** Batch ID: **74126** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/7/2011** SeqNo: **2205234**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	786.742	100	16.67	788.1	-8.40	38	130	819.9	4.13	20	S
Surr: Tetrachloro-m-xylene	0		16.67		0	35	108		0	0	SDO
Surr: Decachlorobiphenyl	0		16.67		0	31	107		0	0	SDO

Sample ID: **118694-012ADUP** SampType: **DUP** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/7/2011** RunNo: **134800**
Client ID: **ZZZZZZ** Batch ID: **74126** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/7/2011** SeqNo: **2205237**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDE	1015.643	40						986.5	2.92	20	
4,4´-DDT	403.887	40						392.1	2.95	20	
alpha-Chlordane	61.770	20						63.44	2.66	20	
Chlordane	382.780	170						373.1	2.57	20	
Surr: Tetrachloro-m-xylene	13.687		16.67		82.1	35	108		0	0	
Surr: Decachlorobiphenyl	14.287		16.67		85.7	31	107		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **MB-74141** SampType: **MBLK** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/8/2011** RunNo: **134868**
Client ID: **PBS** Batch ID: **74141** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/11/2011** SeqNo: **2206580**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	ND	2.0									
4,4´-DDE	ND	2.0									
4,4´-DDT	ND	2.0									
Aldrin	ND	1.0									
alpha-BHC	ND	1.0									
alpha-Chlordane	ND	1.0									
beta-BHC	ND	1.0									
Chlordane	ND	8.5									
delta-BHC	ND	1.0									
Dieldrin	ND	2.0									
Endosulfan I	ND	1.0									
Endosulfan II	ND	2.0									
Endosulfan sulfate	ND	2.0									
Endrin	ND	2.0									
Endrin aldehyde	ND	2.0									
Endrin ketone	ND	2.0									
gamma-BHC	ND	1.0									
gamma-Chlordane	ND	1.0									
Heptachlor	ND	1.0									
Heptachlor epoxide	ND	1.0									
Methoxychlor	ND	5.0									
Toxaphene	ND	50									
Surr: Tetrachloro-m-xylene	13.735		16.67		82.4	35	108				
Surr: Decachlorobiphenyl	11.564		16.67		69.4	31	107				

Sample ID: **LCS-74141** SampType: **LCS** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/8/2011** RunNo: **134868**
Client ID: **LCSS** Batch ID: **74141** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/11/2011** SeqNo: **2206581**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aldrin	13.688	1.0	16.67	0	82.1	59	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 *Tel: 562. 989.4045* *Fax: 562.989.4040*

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **LCS-74141** SampType: **LCS** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/8/2011** RunNo: **134868**
Client ID: **LCSS** Batch ID: **74141** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/11/2011** SeqNo: **2206581**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dieldrin	13.955	2.0	16.67	0	83.7	56	112				
Endrin	14.592	2.0	16.67	0	87.5	53	116				
gamma-BHC	13.863	1.0	16.67	0	83.2	59	110				
Heptachlor	13.741	1.0	16.67	0	82.4	53	118				
Surr: Tetrachloro-m-xylene	14.081		16.67		84.5	35	108				
Surr: Decachlorobiphenyl	11.622		16.67		69.7	31	107				

Sample ID: **118657-046AMS** SampType: **MS** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/8/2011** RunNo: **134868**
Client ID: **ZZZZZZ** Batch ID: **74141** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/11/2011** SeqNo: **2206582**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	13.636	2.0	16.67	0	81.8	38	130				
Aldrin	12.785	1.0	16.67	0	76.7	35	122				
Dieldrin	14.002	2.0	16.67	0	84.0	31	138				
Endrin	14.607	2.0	16.67	0	87.6	39	132				
gamma-BHC	13.448	1.0	16.67	0	80.7	36	126				
Heptachlor	12.744	1.0	16.67	0	76.4	34	131				
Surr: Tetrachloro-m-xylene	12.108		16.67		72.6	35	108				
Surr: Decachlorobiphenyl	12.044		16.67		72.2	31	107				

Sample ID: **118657-046AMSD** SampType: **MSD** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/8/2011** RunNo: **134868**
Client ID: **ZZZZZZ** Batch ID: **74141** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/11/2011** SeqNo: **2206583**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDT	14.459	2.0	16.67	0	86.7	38	130	13.64	5.86	20	
Aldrin	13.618	1.0	16.67	0	81.7	35	122	12.78	6.32	20	
Dieldrin	14.619	2.0	16.67	0	87.7	31	138	14.00	4.31	20	
Endrin	15.367	2.0	16.67	0	92.2	39	132	14.61	5.07	20	
gamma-BHC	14.150	1.0	16.67	0	84.9	36	126	13.45	5.09	20	
Heptachlor	13.680	1.0	16.67	0	82.1	34	131	12.74	7.08	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **118657-046AMSD** SampType: **MSD** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/8/2011** RunNo: **134868**
Client ID: **ZZZZZZ** Batch ID: **74141** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/11/2011** SeqNo: **2206583**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Tetrachloro-m-xylene	12.320		16.67		73.9	35	108		0	0	
Surr: Decachlorobiphenyl	13.156		16.67		78.9	31	107		0	0	

Sample ID: **118657-037ADUP** SampType: **DUP** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/8/2011** RunNo: **134868**
Client ID: **ZZZZZZ** Batch ID: **74141** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/11/2011** SeqNo: **2206587**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4,4´-DDD	ND	2.0						0	0	20	
4,4´-DDE	ND	2.0						0	0	20	
4,4´-DDT	ND	2.0						0	0	20	
Aldrin	ND	1.0						0	0	20	
alpha-BHC	ND	1.0						0	0	20	
alpha-Chlordane	0.903	1.0						0.9250	0	20	
beta-BHC	ND	1.0						0	0	20	
Chlordane	12.186	8.5						11.34	7.22	20	
delta-BHC	ND	1.0						0	0	20	
Dieldrin	ND	2.0						0	0	20	
Endosulfan I	ND	1.0						0	0	20	
Endosulfan II	ND	2.0						0	0	20	
Endosulfan sulfate	ND	2.0						0	0	20	
Endrin	ND	2.0						0	0	20	
Endrin aldehyde	ND	2.0						0	0	20	
Endrin ketone	ND	2.0						0	0	20	
gamma-BHC	ND	1.0						0	0	20	
gamma-Chlordane	0.841	1.0						1.036	0	20	
Heptachlor	ND	1.0						0	0	20	
Heptachlor epoxide	ND	1.0						0	0	20	
Methoxychlor	ND	5.0						0	0	20	
Toxaphene	ND	50						0	0	20	
Surr: Tetrachloro-m-xylene	12.864		16.67		77.2	35	108		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 8081_S

Sample ID: **118657-037ADUP** SampType: **DUP** TestCode: **8081_S** Units: **µg/Kg** Prep Date: **7/8/2011** RunNo: **134868**
Client ID: **ZZZZZZ** Batch ID: **74141** TestNo: **EPA 8081A** **EPA 3550B** Analysis Date: **7/11/2011** SeqNo: **2206587**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	13.504		16.67		81.0	31	107		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 9045_S

Sample ID: **118770-005ADUP** SampType: **DUP** TestCode: **9045_S** Units: **pH Units** Prep Date: RunNo: **134779**
Client ID: **U2-1** Batch ID: **R134779** TestNo: **EPA 9045C** Analysis Date: **7/7/2011** SeqNo: **2204897**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.370	0.10						7.190	2.47	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CHAIN OF CUSTODY RECORD

P1 of 7

Advanced Technology Laboratories

3275 Walnut Avenue
Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

FOR LABORATORY USE ONLY

P.O. #: _____

Logged By: _____ Date: 7/1/11

Method of Transport: Client ☐ ATL ☐ CA OverN ☐ FedEx ☐ Other: G50

Sample Condition Upon Receipt:
1. CHILLED 5.4 Y ☑ N ☐
2. HEADSPACE (VOA) Y ☐ N ☐
3. CONTAINER INTACT Y ☑ N ☐
4. SEALED Y ☐ N ☑
5. # OF SPLS MATCH COC Y ☑ N ☐
6. PRESERVED Y ☐ N ☑

Client: Geocon
Attention: R. Day, C. Merritt, Livermore
Address: 6671 Brisa Street
City: Livermore State: CA Zip Code: 94550
Tel: 925-371-5900
Fax: 925-371-5915

Project Name: I-80 Mobility Project (Kimley-Horn)
Project #: E8583-06-01
Sampler: (Printed Name) CM/LC (Signature) CHRIS MERRITT

Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
CHRIS MERRITT	6-30-11	1700	[illegible]	7/1/11	8:56

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter: C. Merritt 6/30/2011
Print Name Date
CM
Signature

Send Report To: Attn: _____ Co: A/A Addr: _____ City: State: Zip:

Bill To: Attn: _____ Co: A/A Addr: _____ City: State: Zip:

Special Instructions/Comments: TPHd / mo SAME RUN ALL SHEETS

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

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

Circle or Add Analysis(es) Requested

SPECIFY APPROPRIATE MATRIX

QA/QC: RTNE ☐ CT ☑ SWRCB ☐ Logcode_____ OTHER _____

ITEM	LAB USE ONLY: Batch #: / Lab No.	Sample ID / Location	Date	Time	8081A (Pesticides)	8082 (PCB)	8260B (Volatiles)	8270C (BNA)	6010B (Total Metal)	8015B (GRO) / 8020 (BTEX)	8015B (DRO)	8021 (BTEX)	TITLE 22 / CAM 17 (6010 / 7000)	Total Pb	pH EPA 9045	8015B (Motor Oil)			SOIL	WATER	GROUND WATER	WASTEWATER			TAT	Container(s) #	Container(s) Type	PRESERVATION	REMARKS
	118770-1	U1-0	6/29/2011	13:30:00	X						X			X		X			1						E	1	T M	C	
	-2	U1-1	6/29/2011	13:32:00								X		X					1						E	1	T M	C	
	-3	U1-2	6/29/2011	13:35:00										X					1						E	1	T M	C	
	-4	U2-0	6/29/2011	13:30:00	X						X			X		X			1						E	1	T M	C	
	-5	U2-1	6/29/2011	13:31:00								X		X	X				1						E	1	T M	C	
	-6	U2-2	6/29/2011	13:33:00									X						1						E	1	T M	C	
	-7	U3-0	6/29/2011	13:42:00	X						X			X		X			1						E	1	T M	C	
	-8	U3-1	6/29/2011	13:44:00								X		X					1						E	1	T M	C	
	-9	U3-2	6/29/2011	13:48:00										X					1						E	1	T M	C	
	-10	U4-0	6/29/2011	13:45:00	X						X		X			X			1						E	1	T M	C	

- TAT starts 8AM the following day if samples received after 3 PM

TAT: A = Overnight ≤ 24 hrs; B = Emergency Next Workday; C = Critical 2 Workdays; D = Urgent 3 Workdays; E = Routine 7 Workdays

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

Preservatives: H=HCl N=HNO_3 S=H_2SO_4 C=4°C Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

CHAIN OF CUSTODY RECORD

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

FOR LABORATORY USE ONLY

P.O. #: _____
Logged By: _____ Date: _____

Method of Transport: Client ☐ ATL ☐ CA OverN ☐ FedEx ☐ Other: _____

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

Client: Geocon
Attention: R. Day, C. Merritt, Livermore
Address: 6671 Brisa Street
City: Livermore State: CA Zip Code: 94550
Tel: 925-371-5900
Fax: 925-371-5915

Project Name: I-80 Mobility Project (Kimley-Horn)
Project #: E8583-06-01
Sampler: (Printed Name) CM/LC (Signature) CHRIS MERRITT

Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
CHRIS MERRITT	6-30-11	1700	[illegible]	7/1/11	856

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter: C. Merritt 6/30/2011
Print Name Date
CM
Signature

Send Report To: Attn: _____ Co: A/A Addr: _____ City: State: Zip:

Bill To: Attn: _____ Co: A/A Addr: _____ City: State: Zip:

Special Instructions/Comments:

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

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

Circle or Add Analysis(es) Requested

SPECIFY APPROPRIATE MATRIX

QA/QC: RTNE ☐ CT ☑ SWRCB ☐ Logcode_____ OTHER _____

ITEM	LAB USE ONLY: Batch #: Lab No.	Sample Description: Sample ID / Location	Date	Time	8081A (Pesticides)	8082 (PCB)	8260B (Volatiles)	8270C (BNA)	6010B (Total Metal)	8015B (GRO) / 8020 (BTEX)	8015B (DRO)	8021 (BTEX)	TITLE 22 / CAM 17 (6010 / 7000)	Total Pb	pH EPA 9045	8015B (Motor Oil)			SOIL	WATER	GROUND WATER	WASTEWATER				TAT	Container(s) #	Type	PRESERVATION	REMARKS
	118770-11	U4-1	6/29/2011	13:48						X				X					1							E	1	T M	C	
	-12	U4-2	6/29/2011	1350										X					1							E	1	T M	C	
	-13	U5-0	6/29/2011	1356	X						X			X		X			1							E	1	T M	C	
	-14	U5-1	6/29/2011	1403						X				X	X				1							E	1	T M	C	
	-15	U5-2	6/29/2011	1414									X						1							E	1	T M	C	
	-16	U6-0	6/29/2011	1418	X						X			X		X			1							E	1	T M	C	
	-17	U6-1	6/29/2011	1422						X				X					1							E	1	T M	C	
	-18	U6-2	6/29/2011	1427									X						1							E	1	T M	C	
	-19	U7-0	6/29/2011	1405	X						X			X		X			1							E	1	T M	C	
	-20	U7-1	6/29/2011	1408						X				X					1							E	1	T M	C	

- TAT starts 8AM the following day if samples received after 3 PM

TAT: A = Overnight ≤ 24 hrs; B = Emergency Next Workday; C = Critical 2 Workdays; D = Urgent 3 Workdays; E = Routine 7 Workdays

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

Preservatives: H=HCl N=HNO_3 S=H_2SO_4 C=4°C Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

CHAIN OF CUSTODY RECORD

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

FOR LABORATORY USE ONLY

P.O. #: _____
Logged By: _____ Date: _____

Method of Transport: Client ☐ ATL ☐ CA OverN ☐ FedEx ☐ Other: _____

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

Client: Geocon
Attention: R. Day, C. Merritt, Livermore
Address: 6671 Brisa Street
City: Livermore State: CA Zip Code: 94550
Tel: 925-371-5900
Fax: 925-371-5915

Project Name: I-80 Mobility Project (Kimley-Horn)
Project #: E8583-06-01
Sampler: (Printed Name) CM/LC (Signature) CHRIS MERRITT

Relinquished by: (Signature and Printed Name) CHRIS MERRITT Date: 6-30-11 Time: 1700
Received by: (Signature and Printed Name) [illegible] Date: 7/1/11 Time: 856

Relinquished by: (Signature and Printed Name) Date: Time:
Received by: (Signature and Printed Name) Date: Time:

Relinquished by: (Signature and Printed Name) Date: Time:
Received by: (Signature and Printed Name) Date: Time:

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter:
C. Merritt 6/30/2011
Print Name Date
CM
Signature

Send Report To:
Attn:
Co: A/A
Addr:
City: State: Zip:

Bill To:
Attn:
Co: A/A
Addr:
City: State: Zip:

Special Instructions/Comments:

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

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

QA/QC
RTNE ☐
CT ☑
SWRCB ☐ Logcode_____
OTHER _____

Circle or Add Analysis(es) Requested

SPECIFY APPROPRIATE MATRIX

ITEM	LAB USE ONLY: Batch #: Lab No.	Sample Description: Sample ID / Location	Date	Time	8081A (Pesticides)	8082 (PCB)	8260B (Volatiles)	8270C (BNA)	6010B (Total Metal)	8015B (GRO) / 8020 (BTEX)	8015B (DRO)	8021 (BTEX)	TITLE 22 / CAM 17 (6010 / 7000)	Total Pb	pH EPA 9045	8015B (Motor Oil)			SOIL	WATER	GROUND WATER	WASTEWATER			TAT	Container(s) #	Type	PRESERVATION	REMARKS
	M8770-21	U7-2	6/29/2011	14:10									X						1						E	1	T M	C	
	-22	A1-0	6/29/2011	1448	X						X			X		X			1						E	1	T M	C	
	-23	A1-1	6/29/2011	1451						X				X	X				1						E	1	T M	C	
	-24	A1-2	6/29/2011	1454									X						1						E	1	T M	C	
	-25	A2-0	6/29/2011	1459	X						X			X		X			1						E	1	T M	C	
	-26	A2-1	6/29/2011	1502						X				X					1						E	1	T M	C	
	-27	A2-2	6/29/2011	1506									X						1						E	1	T M	C	
	-28	A3-0	6/29/2011		X						X			X		X			1						E	1	T M	C	
	-29	A3-1	6/29/2011							X				X					1						E	1	T M	C	
	-30	A3-2	6/29/2011										X						1						E	1	T M	C	

- TAT starts 8AM the following day if samples received after 3 PM

TAT: A = Overnight ≤ 24 hrs; B = Emergency Next Workday; C = Critical 2 Workdays; D = Urgent 3 Workdays; E = Routine 7 Workdays

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

Preservatives:
H=HCl N=HNO_3 S=H_2SO_4 C=4°C
Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

CHAIN OF CUSTODY RECORD

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

FOR LABORATORY USE ONLY

P.O. #: _____
Logged By: _____ Date: _____

Method of Transport: Client ☐ ATL ☐ CA OverN ☐ FedEx ☐ Other: _____

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

Client: Geocon
Attention: R. Day, C. Merritt, Livermore
Address: 6671 Brisa Street
City: Livermore State: CA Zip Code: 94550
Tel: 925-371-5900
Fax: 925-371-5915

Project Name: I-80 Mobility Project (Kimley-Horn)
Project #: E8583-06-01
Sampler: (Printed Name) CM/LC (Signature) CHRIS MERRITT

Relinquished by: (Signature and Printed Name) CHRIS MERRITT Date: 6-30-11 Time: 1700
Received by: (Signature and Printed Name) [signature] Date: 7/1/11 Time: 856

Relinquished by: (Signature and Printed Name) Date: Time:
Received by: (Signature and Printed Name) Date: Time:

Relinquished by: (Signature and Printed Name) Date: Time:
Received by: (Signature and Printed Name) Date: Time:

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter:
C. Merritt 6/30/2011
Print Name Date
CM
Signature

Send Report To:
Attn:
Co: A/A
Addr:
City: State: Zip:

Bill To:
Attn:
Co: A/A
Addr:
City: State: Zip:

Special Instructions/Comments:

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

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

Circle or Add Analysis(es) Requested

Q A / Q C
RTNE ☐
CT ☑
SWRCB ☐ Logcode_____
OTHER _____

ITEM	LAB USE ONLY: Batch #: / Lab No.	Sample Description: Sample ID / Location	Date	Time	8081A (Pesticides)	8082 (PCB)	8260B (Volatiles)	8270C (BNA)	6010B (Total Metal)	8015B (GRO) / 8020 (BTEX)	8015B (DRO)	8021 (BTEX)	TITLE 22 / CAM 17 (6010 / 7000)	Total Pb	pH EPA 9045	8015B (Motor Oil)			SPECIFY APPROPRIATE MATRIX: SOIL	WATER	GROUND WATER	WASTEWATER				TAT	Container(s) #	Type		PRESERVATION	REMARKS
	118770-31	A4-0	6/29/2011	15:25	X						X			X		X			1							E	1	T	M	C	
	-32	A4-1	6/29/2011	1527						X				X					1							E	1	T	M	C	
	-33	A4-2	6/29/2011	1530										X	X				1							E	1	T	M	C	
	-34	A5-0	6/29/2011	15:25	X						X		X			X			1							E	1	T	M	C	
	-35	A5-1	6/29/2011	1527						X				X					1							E	1	T	M	C	
	-36	A5-2	6/29/2011	1530										X					1							E	1	T	M	C	
	-37	A6-0	6/29/2011	1455	X						X			X		X			1							E	1	T	M	C	
	-38	A6-1	6/29/2011	1500						X				X					1							E	1	T	M	C	
	-39	A6-2	6/29/2011	1505									X						1							E	1	T	M	C	
																			1								1				

- TAT starts 8AM the following day if samples received after 3 PM

TAT: A = Overnight ≤ 24 hrs; B = Emergency Next Workday; C = Critical 2 Workdays; D = Urgent 3 Workdays; E = Routine 7 Workdays

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

Preservatives:
H=HCl N=HNO_3 S=H_2SO_4 C=4°C
Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

CHAIN OF CUSTODY RECORD

PS OF 7

Advanced Technology Laboratories

3275 Walnut Avenue
Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

FOR LABORATORY USE ONLY

P.O. #: _____

Logged By: _____ Date: _____

Method of Transport: Client ☐ ATL ☐ CA OverN ☐ FedEx ☐ Other: _____

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

Client: Geocon
Attention: R. Day, C. Merritt, Livermore

Address: 6671 Brisa Street
City: Livermore State: CA Zip Code: 94550
Tel: 925-371-5900
Fax: 925-371-5915

Project Name: I-80 Mobility Project (Kimley-Horn)
Project #: E8583-06-01
Sampler: (Printed Name) CM/LC (Signature) CHRIS MERRITT

Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
CHRIS MERRITT	6-30-11	1700	[illegible]	7/1/11	856

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter: C. Merritt 6/30/2011
Print Name Date
CM
Signature

Send Report To:
Attn:
Co: A/A
Addr:
City: State: Zip:

Bill To:
Attn:
Co: A/A
Addr:
City: State: Zip:

Special Instructions/Comments:

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

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

QA/QC: RTNE ☐ CT ☑ SWRCB ☐ Logcode_____ OTHER _____

Circle or Add Analysis(es) Requested; SPECIFY APPROPRIATE MATRIX

ITEM	LAB USE ONLY: Batch #: Lab No.	Sample Description: Sample ID / Location	Date	Time	8081A (Pesticides)	8082 (PCB)	8260B (Volatiles)	8270C (BNA)	6010B (Total Metal)	8015B (GRO) / 8020 (BTEX)	8015B (DRO)	8021 (BTEX)	TITLE 22 / CAM 17 (6010 / 7000)	Total Pb	pH EPA 9045	8015B (Motor Oil)			SOIL	WATER	GROUND WATER	WASTEWATER				TAT	Container(s) #	Container(s) Type	PRESERVATION	REMARKS
	118770-40	JM1-0	6/30/2011	10:28	X						X		X			X			1							E	1	T M	C	
	-41	JM1-1		1037						X				X	X				1							E	1	T M	C	
	-42	JM1-2		1043										X					1							E	1	T M	C	
	-43	JM2-0		1053	X						X			X		X			1							E	1	T M	C	
	-44	JM2-1		1057						X				X					1							E	1	T M	C	
	-45	JM2-2		1100										X					1							E	1	T M	C	
	-46	JM3-0		1105	X						X			X		X			1							E	1	T M	C	
	-47	JM3-1		1107						X			X						1							E	1	T M	C	
	-48	JM3-2		1112										X					1							E	1	T M	C	
	-49	JM4-0		1123	X						X			X		X			1							E	1	T M	C	

- TAT starts 8AM the following day if samples received after 3 PM

TAT: A = Overnight ≤ 24 hrs; B = Emergency Next Workday; C = Critical 2 Workdays; D = Urgent 3 Workdays; E = Routine 7 Workdays

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

Preservatives: H=HCl N=HNO_3 S=H_2SO_4 C=4°C Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

CHAIN OF CUSTODY RECORD

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

FOR LABORATORY USE ONLY

P.O. #: _____
Logged By: _____ Date: _____

Method of Transport: Client ☐ ATL ☐ CA OverN ☐ FedEx ☐ Other: _____

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

Client: Geocon
Attention: R. Day, C. Merritt, Livermore
Address: 6671 Brisa Street
City: Livermore State: CA Zip Code: 94550
Tel: 925-371-5900
Fax: 925-371-5915

Project Name: I-80 Mobility Project (Kimley-Horn)
Project #: E8583-06-01
Sampler: (Printed Name) CM/LC (Signature) CHRIS MERRITT

Relinquished by: (Signature and Printed Name) CHRIS MERRITT Date: 6-30-11 Time: 1700
Received by: (Signature and Printed Name) [signature] Date: 7/1/11 Time: 856

Relinquished by: (Signature and Printed Name) Date: Time:
Received by: (Signature and Printed Name) Date: Time:

Relinquished by: (Signature and Printed Name) Date: Time:
Received by: (Signature and Printed Name) Date: Time:

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter:
C. Merritt 6/30/2011
Print Name Date
CM
Signature

Send Report To:
Attn:
Co: A/A
Addr:
City: State: Zip:

Bill To:
Attn:
Co: A/A
Addr:
City: State: Zip:

Special Instructions/Comments:

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

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

Circle or Add Analysis(es) Requested

SPECIFY APPROPRIATE MATRIX

QA/QC
RTNE ☐
CT ☑
SWRCB ☐ Logcode_____
OTHER _____

ITEM	LAB USE ONLY: Batch #: Lab No.	Sample ID / Location	Date	Time	8081A (Pesticides)	8082 (PCB)	8260B (Volatiles)	8270C (BNA)	6010B (Total Metal)	8015B (GRO) / 8020 (BTEX)	8015B (DRO)	8021 (BTEX)	TITLE 22 / CAM 17 (6010 / 7000)	Total Pb	pH EPA 9045	8015B (Motor Oil)			SOIL	WATER	GROUND WATER	WASTEWATER				TAT	Container(s) #	Container(s) Type	PRESERVATION	REMARKS
	118770-50	JM4-1	6/29/2011	11:27					X			X		X					1							E	1	T M	C	
	-51	JM4-2	6/29/2011	1137									X						1							E	1	T M	C	
	-52	JM5-0	6/29/2011	1020	X					X			X		X				1							E	1	T M	C	
	-53	JM5-1	6/29/2011	1025					X				X						1							E	1	T M	C	
	-54	JM5-2	6/29/2011	1028									X						1							E	1	T M	C	
	-55	JM6-0	6/29/2011	1030	X					X			X		X				1							E	1	T M	C	
	-56	JM6-1	6/29/2011	1035					X				X						1							E	1	T M	C	
	-57	JM6-2	6/29/2011	1040								X							1							E	1	T M	C	
	-58	JM7-0	6/29/2011	1045	X					X			X		X				1							E	1	T M	C	
	-59	JM7-1	6/29/2011	1050					X				X						1							E	1	T M	C	

- TAT starts 8AM the following day if samples received after 3 PM

TAT: A = Overnight ≤ 24 hrs; B = Emergency Next Workday; C = Critical 2 Workdays; D = Urgent 3 Workdays; E = Routine 7 Workdays

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

Preservatives:
H=HCl N=HNO_3 S=H_2SO_4 C=4°C
Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

CHAIN OF CUSTODY RECORD

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

FOR LABORATORY USE ONLY

P.O. #: _____
Logged By: _____ Date: _____

Method of Transport: Client ☐ ATL ☐ CA OverN ☐ FedEx ☐ Other: _____

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

Client: Geocon
Attention: R. Day, C. Merritt, Livermore
Address: 6671 Brisa Street
City: Livermore State: CA Zip Code: 94550
Tel: 925-371-5900
Fax: 925-371-5915

Project Name: I-80 Mobility Project (Kimley-Horn)
Project #: E8583-06-01
Sampler: (Printed Name) CM / LC (Signature) CHRIS MERRITT

Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
CHRIS MERRITT	6-30-11	1700	Mayo	7/1/11	850

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter: C. Merritt 6/30/2011
Print Name Date
CM
Signature

Send Report To:
Attn: _____
Co: A/A
Addr: _____
City: State: Zip:

Bill To:
Attn: _____
Co: A/A
Addr: _____
City: State: Zip:

Special Instructions/Comments:

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

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

Circle or Add Analysis(es) Requested

QA/QC: RTNE ☐ CT ☑ SWRCB ☐ Logcode_____ OTHER _____

ITEM	LAB USE ONLY: Batch #: Lab No.	Sample Description: Sample ID / Location	Date	Time	8081A (Pesticides)	8082 (PCB)	8260B (Volatiles)	8270C (BNA)	6010B (Total Metal)	8015B (GRO) / 8020 (BTEX)	8015B (DRO)	8021 (BTEX)	TITLE 22 / CAM 17 (6010 / 7000)	Total Pb	pH EPA 9045	8015B (Motor Oil)			SPECIFY APPROPRIATE MATRIX: SOIL	WATER	GROUND WATER	WASTEWATER			TAT	Container(s) #	Type	PRESERVATION	REMARKS
	118770-60	JM7-2	6/29/2011	10:52									X						1						E	1	T M	C	
	-61	JM8-0	6/29/2011	1100	X						X			X		X			1						E	1	T M	C	
	-62	JM8-1	6/29/2011	1105						X			X		X				1						E	1	T M	C	
	-63	JM8-2	6/29/2011	1110									X						1						E	1	T M	C	
	-64	JM9-0	6/29/2011	1115	X						X			X		X			1						E	1	T M	C	
	-65	JM9-1	6/29/2011	1125						X			X						1						E	1	T M	C	
	-66	JM9-2	6/29/2011	1125									X						1						E	1	T M	C	
																			1							1			
																			1							1			
																			1							1			

- TAT starts 8AM the following day if samples received after 3 PM

TAT: A = Overnight ≤ 24 hrs; B = Emergency Next Workday; C = Critical 2 Workdays; D = Urgent 3 Workdays; E = Routine 7 Workdays

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

Preservatives: H=HCl N=HNO_3 S=H_2SO_4 C=4°C Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

Diane Galvan

From: Fernando Diwa
Sent: Tuesday, July 05, 2011 11:10 AM
To: Carmen Aguila; Diane Galvan
Cc: Beth Alpante; Ed Caballero; Eddie Rodriguez; Edgar Morrison; Bing Roura; Edric Caballero
Subject: FW: I-80 Mobility Project (Kimley-Horn), E8583-06-01

From: Fernando Diwa [mailto:fernando@atlglobal.com]
Sent: Saturday, July 02, 2011 2:01 PM
To: merritt@geoconinc.com
Cc: Carmen Aguila; Diane Galvan
Subject: I-80 Mobility Project (Kimley-Horn), E8583-06-01

Hi Chris,

This is to inform you of the following issues:

1. The time of collection indicated on coc for all samples of JM1, JM2, JM3 and JM4 is ealier by 1 hour against the time marked in sample containers (e.g. 10:28 per coc,
11:28 per container).

This was just a transcription error, time on sample takes precedence.

2. The date of collection indicated on coc for JM4-1, JM4-2 and all the samples for JM5, JM6, JM7, JM8 & JM9 is 6/29/11, but per containers, all samples were
collected on 6/30/11.

As above, date on sample is correct.

3. No sample received for JM1-0, collected on 6/30/11 @ 10:28, but received extra sample labeled as JM-1, collected on 6/30/11 @ 11:28.

That is also per sample

4. No sample received for JM8-2, collected on 6/29/11 @ 11:10, but received extra sample labeled as JM8-1.5, collected on 6/30.11 @ 11:10.

Depth on sample is correct, label results accordingly.

5. Received 4 extra samples not listed on coc labeled as Comp 2A, Comp 2B, Comp 2C and Comp 2D (date/time of collection not specified).

Grabbed these out of refrigerator by mistake when getting the ones from this job. Is there a job name or number on them? Hold them for a bit, just in case we actually needed to run them for another job.

Attached is a copy of coc for your reference. Please advise.

Sorry about the confusion, I don't use the electronic COC much, and those time/date discrepancies are from cut/pasting in the electronic COCs…

Regards,
Ronnie

July 25, 2011

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

Workorder No.: 118770

R. Day, C. Merritt
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

TEL: (925) 371-5900
FAX: (925) 371-5915

RE: I-80 Mobility Project (Kimley-Horn), E8583-06-

Attention: R. Day, C. Merritt

Enclosed are the results for sample(s) received on July 01, 2011 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

This is an addendum report. Please incorporate with documentation previously submitted.

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

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

Sincerely,

for Eddie F. Rodriguez
Laboratory Director

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

Advanced Technology Laboratories
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: Geocon Consultants, Inc.
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-
Lab Order: 118770

CASE NARRATIVE

Analytical Comments for Method 6010

Dilution was necessary for sample 118770-015A, due to sample matrix.

RPD for Duplicate (DUP) is outside criteria for samples 118770-026ADUP and 118770-048ADUP; however, the Laboratory Control Sample (LCS) validated the analytical batch.

Analytical Comments for Method 7420

Dilution was necessary for samples 118770-007A, 118770-008A, 118770-011A, 118770-019A, 118770-025A, 118770-028A, 118770-029A, 118770-031A, 118770-032A, 118770-033A, 118770-034A and 118770-037A, due to sample matrix.

Matrix Spike (MS) and /or Matrix Spike Duplicate (MSD) are/is outside recovery criteria for sample 118770-014AMS; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc. **Lab Order:** 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

Lab ID: 118770-001 **Collection Date:** 6/29/2011 1:30:00 PM
Client Sample ID: U1-0 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725A	QC Batch: 74435			PrepDate:	7/21/2011	Analyst: **VV**
Lead	5.6	0.25		mg/L	1	7/25/2011 11:48 AM

Lab ID: 118770-002 **Collection Date:** 6/29/2011 1:32:00 PM
Client Sample ID: U1-1 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725A	QC Batch: 74435			PrepDate:	7/21/2011	Analyst: **VV**
Lead	4.5	0.25		mg/L	1	7/25/2011 11:48 AM

Lab ID: 118770-003 **Collection Date:** 6/29/2011 1:35:00 PM
Client Sample ID: U1-2 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725A	QC Batch: 74435			PrepDate:	7/21/2011	Analyst: **VV**
Lead	2.6	0.25		mg/L	1	7/25/2011 11:48 AM

Lab ID: 118770-004 **Collection Date:** 6/29/2011 1:30:00 PM
Client Sample ID: U2-0 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725A	QC Batch: 74435			PrepDate:	7/21/2011	Analyst: **VV**
Lead	6.5	0.25		mg/L	1	7/25/2011 11:49 AM

Qualifiers:

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

CLIENT: Geocon Consultants, Inc. **Lab Order:** 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

Lab ID: 118770-007 **Collection Date:** 6/29/2011 1:42:00 PM
Client Sample ID: U3-0 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725A	QC Batch: 74435			PrepDate:	7/21/2011	Analyst: **VV**
Lead	26	1.2		mg/L	5	7/25/2011 11:50 AM

Lab ID: 118770-008 **Collection Date:** 6/29/2011 1:44:00 PM
Client Sample ID: U3-1 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725A	QC Batch: 74435			PrepDate:	7/21/2011	Analyst: **VV**
Lead	19	1.2		mg/L	5	7/25/2011 11:50 AM

Lab ID: 118770-010 **Collection Date:** 6/29/2011 1:45:00 PM
Client Sample ID: U4-0 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725A	QC Batch: 74435			PrepDate:	7/21/2011	Analyst: **VV**
Lead	5.8	0.25		mg/L	1	7/25/2011 11:52 AM

Lab ID: 118770-011 **Collection Date:** 6/29/2011 1:48:00 PM
Client Sample ID: U4-1 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725A	QC Batch: 74435			PrepDate:	7/21/2011	Analyst: **VV**
Lead	12	0.50		mg/L	2	7/25/2011 11:53 AM

Qualifiers:

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

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *25-Jul-11*

CLIENT: Geocon Consultants, Inc. **Lab Order:** 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

Lab ID: 118770-013 **Collection Date:** 6/29/2011 1:56:00 PM
Client Sample ID: U5-0 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725A	QC Batch: 74435			PrepDate:	7/21/2011	Analyst: **VV**
Lead	4.9	0.25		mg/L	1	7/25/2011 11:54 AM

Lab ID: 118770-014 **Collection Date:** 6/29/2011 2:03:00 PM
Client Sample ID: U5-1 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725A	QC Batch: 74435			PrepDate:	7/21/2011	Analyst: **VV**
Lead	3.6	0.25		mg/L	1	7/25/2011 11:55 AM

Lab ID: 118770-015 **Collection Date:** 6/29/2011 2:14:00 PM
Client Sample ID: U5-2 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS BY STLC						
			WET/ EPA 6010B			
RunID: ICP8_110725C	QC Batch: R135297			PrepDate:		Analyst: **CBB**
Chromium	ND	1.0		mg/L	20	7/25/2011 11:59 AM
Lead	4.4	1.0		mg/L	20	7/25/2011 11:59 AM

Lab ID: 118770-016 **Collection Date:** 6/29/2011 2:18:00 PM
Client Sample ID: U6-0 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725A	QC Batch: 74435			PrepDate:	7/21/2011	Analyst: **VV**
Lead	3.1	0.25		mg/L	1	7/25/2011 11:59 AM

Qualifiers:

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

CLIENT: Geocon Consultants, Inc. **Lab Order:** 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

Lab ID: 118770-017 **Collection Date:** 6/29/2011 2:22:00 PM
Client Sample ID: U6-1 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725A	QC Batch: 74435			PrepDate:	7/21/2011	Analyst: **VV**
Lead	3.5	0.25		mg/L	1	7/25/2011 11:59 AM

Lab ID: 118770-019 **Collection Date:** 6/29/2011 2:05:00 PM
Client Sample ID: U7-0 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725A	QC Batch: 74435			PrepDate:	7/21/2011	Analyst: **VV**
Lead	65	2.5		mg/L	10	7/25/2011 12:00 PM

Lab ID: 118770-020 **Collection Date:** 6/29/2011 2:08:00 PM
Client Sample ID: U7-1 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725A	QC Batch: 74435			PrepDate:	7/21/2011	Analyst: **VV**
Lead	2.3	0.25		mg/L	1	7/25/2011 12:00 PM

Lab ID: 118770-022 **Collection Date:** 6/29/2011 2:48:00 PM
Client Sample ID: A1-0 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725A	QC Batch: 74435			PrepDate:	7/21/2011	Analyst: **VV**
Lead	4.0	0.25		mg/L	1	7/25/2011 12:03 PM

Qualifiers:

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

CLIENT: Geocon Consultants, Inc. **Lab Order:** 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

Lab ID: 118770-025 **Collection Date:** 6/29/2011 2:59:00 PM
Client Sample ID: A2-0 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725A	QC Batch: 74435			PrepDate:	7/21/2011	Analyst: **VV**
Lead	31	2.5		mg/L	10	7/25/2011 12:04 PM

Lab ID: 118770-026 **Collection Date:** 6/29/2011 3:02:00 PM
Client Sample ID: A2-1 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725A	QC Batch: 74435			PrepDate:	7/21/2011	Analyst: **VV**
Lead	1.4	0.25		mg/L	1	7/25/2011 12:05 PM

Lab ID: 118770-028 **Collection Date:** 6/29/2011
Client Sample ID: A3-0 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725A	QC Batch: 74435			PrepDate:	7/21/2011	Analyst: **VV**
Lead	62	2.5		mg/L	10	7/25/2011 12:07 PM

Lab ID: 118770-029 **Collection Date:** 6/29/2011
Client Sample ID: A3-1 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725A	QC Batch: 74435			PrepDate:	7/21/2011	Analyst: **VV**
Lead	94	5.0		mg/L	20	7/25/2011 12:09 PM

Qualifiers:

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

CLIENT: Geocon Consultants, Inc. **Lab Order:** 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

Lab ID: 118770-031 **Collection Date:** 6/29/2011 3:25:00 PM
Client Sample ID: A4-0 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725B QC Batch: 74436				PrepDate:	7/21/2011	Analyst: **VV**
Lead	43	2.5		mg/L	10	7/25/2011 12:12 PM

Lab ID: 118770-032 **Collection Date:** 6/29/2011 3:27:00 PM
Client Sample ID: A4-1 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725B QC Batch: 74436				PrepDate:	7/21/2011	Analyst: **VV**
Lead	33	2.5		mg/L	10	7/25/2011 12:13 PM

Lab ID: 118770-033 **Collection Date:** 6/29/2011 3:30:00 PM
Client Sample ID: A4-2 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725B QC Batch: 74436				PrepDate:	7/21/2011	Analyst: **VV**
Lead	39	2.5		mg/L	10	7/25/2011 12:13 PM

Lab ID: 118770-034 **Collection Date:** 6/29/2011 3:25:00 PM
Client Sample ID: A5-0 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725B QC Batch: 74436				PrepDate:	7/21/2011	Analyst: **VV**
Lead	35	2.5		mg/L	10	7/25/2011 12:14 PM

Qualifiers:

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

CLIENT: Geocon Consultants, Inc. **Lab Order:** 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

Lab ID: 118770-037 **Collection Date:** 6/29/2011 2:55:00 PM
Client Sample ID: A6-0 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725D	QC Batch: 74502			PrepDate: 7/23/2011	Analyst: **VV**	
Lead	33	2.5		mg/L	10	7/25/2011 03:47 PM

Lab ID: 118770-038 **Collection Date:** 6/29/2011 3:00:00 PM
Client Sample ID: A6-1 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725B	QC Batch: 74436			PrepDate: 7/21/2011	Analyst: **VV**	
Lead	1.2	0.25		mg/L	1	7/25/2011 12:17 PM

Lab ID: 118770-046 **Collection Date:** 6/30/2011 12:05:00 AM
Client Sample ID: JM3-0 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725B	QC Batch: 74436			PrepDate: 7/21/2011	Analyst: **VV**	
Lead	2.3	0.25		mg/L	1	7/25/2011 12:17 PM

Lab ID: 118770-048 **Collection Date:** 6/30/2011 12:12:00 AM
Client Sample ID: JM3-2 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
LEAD BY ATOMIC ABSORPTION (STLC)						
WET			**WET/ EPA 7420**			
RunID: AA2_110725B	QC Batch: 74436			PrepDate: 7/21/2011	Analyst: **VV**	
Lead	0.82	0.25		mg/L	1	7/25/2011 12:18 PM

Qualifiers:

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

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_ST

Sample ID: **MB-74435** SampType: **MBLK** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **135297**
Client ID: **PBS** Batch ID: **R135297** TestNo: **WET/ EPA 60** Analysis Date: **7/25/2011** SeqNo: **2214947**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	0.050									
Lead	ND	0.050									

Sample ID: **MB-74435B STLC** SampType: **MBLK** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **135297**
Client ID: **PBS** Batch ID: **R135297** TestNo: **WET/ EPA 60** Analysis Date: **7/25/2011** SeqNo: **2214948**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									
Lead	ND	1.0									

Sample ID: **LCS-74435** SampType: **LCS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **135297**
Client ID: **LCSS** Batch ID: **R135297** TestNo: **WET/ EPA 60** Analysis Date: **7/25/2011** SeqNo: **2214949**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.932	1.0	1.000	0	93.2	85	115				
Lead	1.017	1.0	1.000	0	102	85	115				

Sample ID: **118770-026A-DUP** SampType: **DUP** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **135297**
Client ID: **A2-1** Batch ID: **R135297** TestNo: **WET/ EPA 60** Analysis Date: **7/25/2011** SeqNo: **2214952**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.046	1.0						0.04359	0	20	
Lead	1.746	1.0						1.326	27.4	20	R

Sample ID: **118770-026A-MS** SampType: **MS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **135297**
Client ID: **A2-1** Batch ID: **R135297** TestNo: **WET/ EPA 60** Analysis Date: **7/25/2011** SeqNo: **2214953**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_ST

Sample ID: **118770-026A-MS** SampType: **MS** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **135297**
Client ID: **A2-1** Batch ID: **R135297** TestNo: **WET/ EPA 60** Analysis Date: **7/25/2011** SeqNo: **2214953**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	2.313	1.0	2.500	0.04359	90.8	78	115				
Lead	3.663	1.0	2.500	1.326	93.5	80	118				

Sample ID: **118770-026A-MSD** SampType: **MSD** TestCode: **6010_ST** Units: **mg/L** Prep Date: RunNo: **135297**
Client ID: **A2-1** Batch ID: **R135297** TestNo: **WET/ EPA 60** Analysis Date: **7/25/2011** SeqNo: **2214954**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	2.309	1.0	2.500	0.04359	90.6	78	115	2.313	0.158	20	
Lead	3.662	1.0	2.500	1.326	93.5	80	118	3.663	0.0306	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420_ST

Sample ID: **MB-74435A** SampType: **MBLK** TestCode: **7420_ST** Units: **mg/L** Prep Date: **7/21/2011** RunNo: **135294**
Client ID: **PBS** Batch ID: **74435** TestNo: **WET/ EPA 74 WET** Analysis Date: **7/25/2011** SeqNo: **2214883**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: **LCS-74435** SampType: **LCS** TestCode: **7420_ST** Units: **mg/L** Prep Date: **7/21/2011** RunNo: **135294**
Client ID: **LCSS** Batch ID: **74435** TestNo: **WET/ EPA 74 WET** Analysis Date: **7/25/2011** SeqNo: **2214884**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	4.664	0.25	5.000	0	93.3	80	120				

Sample ID: **118770-014A-DUP** SampType: **DUP** TestCode: **7420_ST** Units: **mg/L** Prep Date: **7/21/2011** RunNo: **135294**
Client ID: **U5-1** Batch ID: **74435** TestNo: **WET/ EPA 74 WET** Analysis Date: **7/25/2011** SeqNo: **2214895**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	3.488	0.25						3.650	4.53	20	

Sample ID: **118770-014A-MS** SampType: **MS** TestCode: **7420_ST** Units: **mg/L** Prep Date: **7/21/2011** RunNo: **135294**
Client ID: **U5-1** Batch ID: **74435** TestNo: **WET/ EPA 74 WET** Analysis Date: **7/25/2011** SeqNo: **2214896**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	7.608	0.25	5.000	3.650	79.2	80	120				S

Sample ID: **MB-74435B** SampType: **MBLK** TestCode: **7420_ST** Units: **mg/L** Prep Date: **7/21/2011** RunNo: **135294**
Client ID: **PBS** Batch ID: **74435** TestNo: **WET/ EPA 74 WET** Analysis Date: **7/25/2011** SeqNo: **2214897**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420_ST

Sample ID: **118770-026A-DUP** SampType: **DUP** TestCode: **7420_ST** Units: **mg/L** Prep Date: **7/21/2011** RunNo: **135294**
Client ID: **A2-1** Batch ID: **74435** TestNo: **WET/ EPA 74 WET** Analysis Date: **7/25/2011** SeqNo: **2214906**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	1.297	0.25						1.411	8.44	20	

Sample ID: **118770-026A-MS** SampType: **MS** TestCode: **7420_ST** Units: **mg/L** Prep Date: **7/21/2011** RunNo: **135294**
Client ID: **A2-1** Batch ID: **74435** TestNo: **WET/ EPA 74 WET** Analysis Date: **7/25/2011** SeqNo: **2214907**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	6.445	0.25	5.000	1.411	101	80	120				

Sample ID: **118770-026A-MSD** SampType: **MSD** TestCode: **7420_ST** Units: **mg/L** Prep Date: **7/21/2011** RunNo: **135294**
Client ID: **A2-1** Batch ID: **74435** TestNo: **WET/ EPA 74 WET** Analysis Date: **7/25/2011** SeqNo: **2214908**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	6.733	0.25	5.000	1.411	106	80	120	6.445	4.36	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 7420_ST

Sample ID: **MB-74436A** SampType: **MBLK** TestCode: **7420_ST** Units: **mg/L** Prep Date: **7/21/2011** RunNo: **135295**
Client ID: **PBS** Batch ID: **74436** TestNo: **WET/ EPA 74 WET** Analysis Date: **7/25/2011** SeqNo: **2214911**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.25									

Sample ID: **LCS-74436** SampType: **LCS** TestCode: **7420_ST** Units: **mg/L** Prep Date: **7/21/2011** RunNo: **135295**
Client ID: **LCSS** Batch ID: **74436** TestNo: **WET/ EPA 74 WET** Analysis Date: **7/25/2011** SeqNo: **2214912**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	4.728	0.25	5.000	0	94.6	80	120				

Sample ID: **118770-048A-DUP** SampType: **DUP** TestCode: **7420_ST** Units: **mg/L** Prep Date: **7/21/2011** RunNo: **135295**
Client ID: **JM3-2** Batch ID: **74436** TestNo: **WET/ EPA 74 WET** Analysis Date: **7/25/2011** SeqNo: **2214921**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.639	0.25						0.8174	24.5	20	R

Sample ID: **118770-048A-MS** SampType: **MS** TestCode: **7420_ST** Units: **mg/L** Prep Date: **7/21/2011** RunNo: **135295**
Client ID: **JM3-2** Batch ID: **74436** TestNo: **WET/ EPA 74 WET** Analysis Date: **7/25/2011** SeqNo: **2214922**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	5.584	0.25	5.000	0.8174	95.3	80	120				

Sample ID: **118770-048A-MSD** SampType: **MSD** TestCode: **7420_ST** Units: **mg/L** Prep Date: **7/21/2011** RunNo: **135295**
Client ID: **JM3-2** Batch ID: **74436** TestNo: **WET/ EPA 74 WET** Analysis Date: **7/25/2011** SeqNo: **2214923**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	5.357	0.25	5.000	0.8174	90.8	80	120	5.584	4.15	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Diane Galvan

From: Luann Beadle [beadle@geoconinc.com]
Sent: Thursday, July 14, 2011 10:19 AM
To: Diane Galvan
Cc: day@geoconinc.com
Subject: E8583-06-01 I-80 Mobility ARM Lab Work Order No. 118770

Hi Diane,

Please run WET lead analysis on all lead results from this order ≥50 mg/kg. Regular TAT.

Thank you,
Luann

Luann Beadle | *Senior Staff Scientist*
Geocon Consultants, Inc.
6671 Brisa Street, Livermore, California 94550
Tel 925.371.5900 Fax 925.371.5915
www.geoconinc.com

Diane Galvan

From: Luann Beadle [beadle@geoconinc.com]
Sent: Thursday, July 14, 2011 10:44 AM
To: Diane Galvan
Cc: day@geoconinc.com
Subject: E8583-06-01 I-80 Mobility ARM Lab Work Order No. 118770

Hi Diane,

Please run WET chromium analysis on the chromium result from this order ≥50 mg/kg (Lab ID 118770-015A). Regular TAT also.

Thank you,
Luann

Luann Beadle | *Senior Staff Scientist*
Geocon Consultants, Inc.
6671 Brisa Street, Livermore, California 94550
Tel 925.371.5900 Fax 925.371.5915
www.geoconinc.com

August 02, 2011

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

Workorder No.: 118770

R. Day, C. Merritt
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

TEL: (925) 371-5900
FAX: (925) 371-5915

RE: I-80 Mobility Project (Kimley-Horn), E8583-06-

Attention: R. Day, C. Merritt

Enclosed are the results for sample(s) received on July 01, 2011 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

This is an addendum report. Please incorporate with documentation previously submitted.

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

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

Sincerely,

Eddie F. Rodriguez
Laboratory Director

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

Advanced Technology Laboratories
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: Geocon Consultants, Inc.
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-
Lab Order: 118770

CASE NARRATIVE

Analytical Comments for Method 6010

Dilution was necessary for sample 118770-037A, due to sample matrix.

RPD for Sample Duplicate (DUP) is outside criteria for sample 118770-029ADUP; however, the Laboratory Control Sample (LCS) validated the analytical batch.

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

Date: 8/2/2011

ANALYTICAL RESULTS

ICP METALS
WET DI/ EPA 6010B

CLIENT:	Geocon Consultants, Inc.	**Lab Order:**	118770
Project:	I-80 Mobility Project (Kimley-Horn), E8583-06-	**Date Received**	7/1/2011 8:56:00 AM
Project No:		**Matrix:**	Soil
Analyte:	Lead	**Analyst:**	IL

Laboratory ID	Client Sample ID	Results	Units	QC Batch	PQL	DF	Date Collected	Date Analyzed
118770-001A	U1-0	ND	mg/L	R135524	0.10	1	6/29/2011	8/2/2011
118770-004A	U2-0	0.16	mg/L	R135524	0.10	1	6/29/2011	8/2/2011
118770-007A	U3-0	ND	mg/L	R135524	0.10	1	6/29/2011	8/2/2011
118770-008A	U3-1	0.17	mg/L	R135524	0.10	1	6/29/2011	8/2/2011
118770-010A	U4-0	0.10	mg/L	R135524	0.10	1	6/29/2011	8/2/2011
118770-011A	U4-1	ND	mg/L	R135524	0.10	1	6/29/2011	8/2/2011
118770-019A	U7-0	ND	mg/L	R135524	0.10	1	6/29/2011	8/2/2011
118770-025A	A2-0	0.32	mg/L	R135524	0.10	1	6/29/2011	8/2/2011
118770-028A	A3-0	ND	mg/L	R135524	0.10	1	6/29/2011	8/2/2011
118770-029A	A3-1	0.56	mg/L	R135524	0.10	1	6/29/2011	8/2/2011
118770-031A	A4-0	ND	mg/L	R135524	0.10	1	6/29/2011	8/2/2011
118770-032A	A4-1	0.20	mg/L	R135524	0.10	1	6/29/2011	8/2/2011
118770-033A	A4-2	ND	mg/L	R135524	0.10	1	6/29/2011	8/2/2011
118770-034A	A5-0	ND	mg/L	R135524	0.10	1	6/29/2011	8/2/2011
118770-037A	A6-0	ND	mg/L	R135524	0.20	2	6/29/2011	8/2/2011

Qualifiers:

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

Advanced Technology Laboratories

Date: 8/2/2011

ANALYTICAL RESULTS

ICP METALS by TCLP Extraction
EPA 1311/ 6010B

CLIENT:	Geocon Consultants, Inc.	**Lab Order:**	118770
Project:	I-80 Mobility Project (Kimley-Horn), E8583-06-	**Date Received**	7/1/2011 8:56:00 AM
Project No:		**Matrix:**	Soil
Analyte:	Lead	**Analyst:**	IL

Laboratory ID	Client Sample ID	Results	Units	QC Batch	PQL	DF	Date Collected	Date Analyzed
118770-019A	U7-0	0.52	mg/L	74586	0.050	1	6/29/2011	8/2/2011
118770-025A	A2-0	0.19	mg/L	74586	0.050	1	6/29/2011	8/2/2011
118770-028A	A3-0	0.21	mg/L	74586	0.050	1	6/29/2011	8/2/2011
118770-029A	A3-1	0.39	mg/L	74586	0.050	1	6/29/2011	8/2/2011
118770-031A	A4-0	0.37	mg/L	74586	0.050	1	6/29/2011	8/2/2011
118770-034A	A5-0	0.14	mg/L	74586	0.050	1	6/29/2011	8/2/2011
118770-037A	A6-0	0.29	mg/L	74586	0.050	1	6/29/2011	8/2/2011

Qualifiers:

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

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Advanced Technology Laboratories

Date: 8/2/2011

ANALYTICAL RESULTS

pH
EPA 9045C

CLIENT:	Geocon Consultants, Inc.	**Lab Order:**	118770
Project:	I-80 Mobility Project (Kimley-Horn), E8583-06-	**Date Received**	7/1/2011 8:56:00 AM
Project No:		**Matrix:**	Soil
Analyte:	pH	**Analyst:**	PT

Laboratory ID	Client Sample ID	Results	Units	QC Batch	PQL	DF	Date Collected	Date Analyzed
118770-001A	U1-0	6.2	pH Units	R135364	0.10	1	6/29/2011	7/27/2011
118770-007A	U3-0	6.4	pH Units	R135364	0.10	1	6/29/2011	7/27/2011
118770-010A	U4-0	6.6	pH Units	R135364	0.10	1	6/29/2011	7/27/2011
118770-019A	U7-0	6.4	pH Units	R135364	0.10	1	6/29/2011	7/27/2011
118770-028A	A3-0	7.0	pH Units	R135364	0.10	1	6/29/2011	7/27/2011
118770-031A	A4-0	7.0	pH Units	R135364	0.10	1	6/29/2011	7/27/2011
118770-037A	A6-0	6.8	pH Units	R135364	0.10	1	6/29/2011	7/27/2011

Qualifiers:

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

Advanced Technology Laboratories

3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_DI

Sample ID: **MB-74571A** SampType: **MBLK** TestCode: **6010_DI** Units: **mg/L** Prep Date: RunNo: **135524**
Client ID: **PBW** Batch ID: **R135524** TestNo: **WET DI/ EPA** Analysis Date: **8/2/2011** SeqNo: **2219233**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.10									

Sample ID: **LCS-74571** SampType: **LCS** TestCode: **6010_DI** Units: **mg/L** Prep Date: RunNo: **135524**
Client ID: **LCSW** Batch ID: **R135524** TestNo: **WET DI/ EPA** Analysis Date: **8/2/2011** SeqNo: **2219234**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.972	0.10	1.000	0	97.2	85	115				

Sample ID: **118770-029A-DUP** SampType: **DUP** TestCode: **6010_DI** Units: **mg/L** Prep Date: RunNo: **135524**
Client ID: **A3-1** Batch ID: **R135524** TestNo: **WET DI/ EPA** Analysis Date: **8/2/2011** SeqNo: **2219245**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.787	0.10						0.5571	34.2	20	R

Sample ID: **118770-029A-MS** SampType: **MS** TestCode: **6010_DI** Units: **mg/L** Prep Date: RunNo: **135524**
Client ID: **A3-1** Batch ID: **R135524** TestNo: **WET DI/ EPA** Analysis Date: **8/2/2011** SeqNo: **2219246**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.846	0.10	2.500	0.5571	91.6	80	118				

Sample ID: **MB-74571B** SampType: **MBLK** TestCode: **6010_DI** Units: **mg/L** Prep Date: RunNo: **135524**
Client ID: **PBW** Batch ID: **R135524** TestNo: **WET DI/ EPA** Analysis Date: **8/2/2011** SeqNo: **2219247**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.10									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_DI

Sample ID: **118770-037A-DUP** SampType: **DUP** TestCode: **6010_DI** Units: **mg/L** Prep Date: RunNo: **135524**
Client ID: **A6-0** Batch ID: **R135524** TestNo: **WET DI/ EPA** Analysis Date: **8/2/2011** SeqNo: **2219253**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.024	0.20						0.02772	0	20	

Sample ID: **118770-037A-MS** SampType: **MS** TestCode: **6010_DI** Units: **mg/L** Prep Date: RunNo: **135524**
Client ID: **A6-0** Batch ID: **R135524** TestNo: **WET DI/ EPA** Analysis Date: **8/2/2011** SeqNo: **2219254**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	4.923	0.20	5.000	0.02772	97.9	80	118				

Sample ID: **118770-037A-MSD** SampType: **MSD** TestCode: **6010_DI** Units: **mg/L** Prep Date: RunNo: **135524**
Client ID: **A6-0** Batch ID: **R135524** TestNo: **WET DI/ EPA** Analysis Date: **8/2/2011** SeqNo: **2219255**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	4.830	0.20	5.000	0.02772	96.0	80	118	4.923	1.91	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_TC

Sample ID: **MB-74586** SampType: **MBLK** TestCode: **6010_TC** Units: **mg/L** Prep Date: **7/28/2011** RunNo: **135526**
Client ID: **PBS** Batch ID: **74586** TestNo: **EPA 1311/ 60 EPA3010A** Analysis Date: **8/2/2011** SeqNo: **2219256**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.002	0.050									

Sample ID: **MB-74570A TCLP** SampType: **MBLK** TestCode: **6010_TC** Units: **mg/L** Prep Date: **7/28/2011** RunNo: **135526**
Client ID: **PBS** Batch ID: **74586** TestNo: **EPA 1311/ 60 EPA3010A** Analysis Date: **8/2/2011** SeqNo: **2219257**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.050									

Sample ID: **LCS-74586** SampType: **LCS** TestCode: **6010_TC** Units: **mg/L** Prep Date: **7/28/2011** RunNo: **135526**
Client ID: **LCSS** Batch ID: **74586** TestNo: **EPA 1311/ 60 EPA3010A** Analysis Date: **8/2/2011** SeqNo: **2219258**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.978	0.050	1.000	0.001824	97.6	85	115				

Sample ID: **118770-037A-DUP** SampType: **DUP** TestCode: **6010_TC** Units: **mg/L** Prep Date: **7/28/2011** RunNo: **135526**
Client ID: **A6-0** Batch ID: **74586** TestNo: **EPA 1311/ 60 EPA3010A** Analysis Date: **8/2/2011** SeqNo: **2219266**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.282	0.050						0.2916	3.32	20	

Sample ID: **118770-037A-MS** SampType: **MS** TestCode: **6010_TC** Units: **mg/L** Prep Date: **7/28/2011** RunNo: **135526**
Client ID: **A6-0** Batch ID: **74586** TestNo: **EPA 1311/ 60 EPA3010A** Analysis Date: **8/2/2011** SeqNo: **2219267**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.520	0.050	2.500	0.2916	89.1	80	118				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_TC

Sample ID: **118770-037A-MSD** SampType: **MSD** TestCode: **6010_TC** Units: **mg/L** Prep Date: **7/28/2011** RunNo: **135526**
Client ID: **A6-0** Batch ID: **74586** TestNo: **EPA 1311/ 60 EPA3010A** Analysis Date: **8/2/2011** SeqNo: **2219268**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.676	0.050	2.500	0.2916	95.4	80	118	2.520	6.00	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Geocon Consultants, Inc.
Work Order: 118770
Project: I-80 Mobility Project (Kimley-Horn), E8583-06-

ANALYTICAL QC SUMMARY REPORT

TestCode: 9045_S

Sample ID: **118770-001ADUP** SampType: **DUP** TestCode: **9045_S** Units: **pH Units** Prep Date: RunNo: **135364**
Client ID: **U1-0** Batch ID: **R135364** TestNo: **EPA 9045C** Analysis Date: **7/27/2011** SeqNo: **2216186**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	6.260	0.10						6.210	0.802	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories
3275 Walnut Avenue, Signal Hill, CA 90755 Tel: 562. 989.4045 Fax: 562.989.4040

Diane Galvan

From: Luann Beadle [beadle@geoconinc.com]
Sent: Tuesday, July 26, 2011 5:57 PM
To: Diane Galvan
Cc: day@geoconinc.com
Subject: E8583-06-01 I-80 Mobility ARM (Lab Work Order 118770)

Hi Diane,

I have a long list. Please run the following analyses:

DI-WET for lead on samples:

118770-001
118770-004
118770-007
118770-008
118770-010
118770-011
118770-019
118770-025
118770-028
118770-029
118770-031
118770-032
118770-033
118770-034
118770-037

Please run TCLP lead on samples:

118770-019
118770-025
118770-028
118770-029
118770-031
118770-034
118770-037

Please run pH on samples:

118770-001
118770-007
118770-010
118770-019
118770-028
118770-031
118770-037

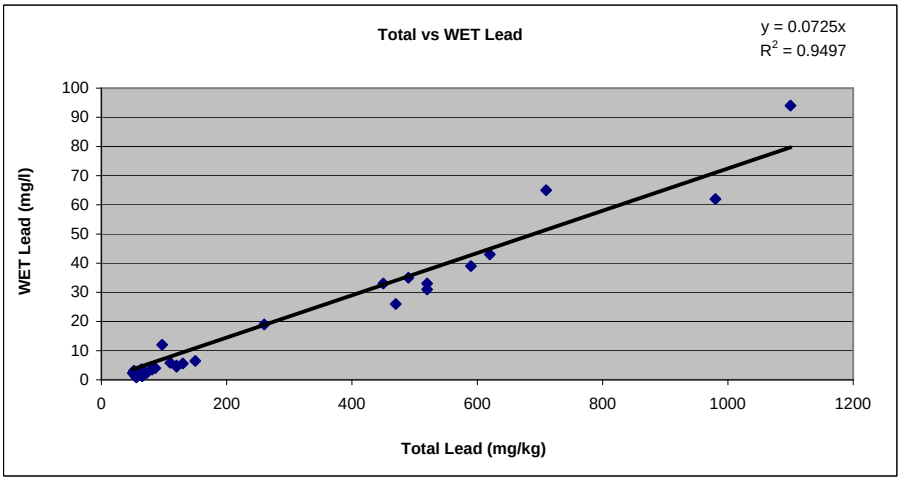
Regular TAT.

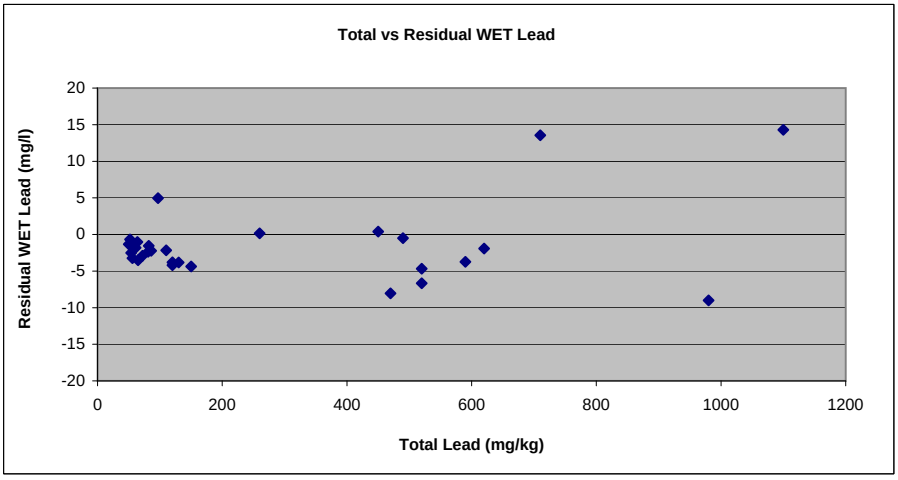
Thank you,
Luann

Luann Beadle | *Senior Staff Scientist*
Geocon Consultants, Inc.
6671 Brisa Street, Livermore, California 94550
Tel 925.371.5900 Fax 925.371.5915
www.geoconinc.com

APPENDIX C

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	Residual WET Lead (mg/l)	Squared Residual WET Lead (mg/l)
U3-1	1	260	19	0.16	0.03
A6-0	0	450	33	0.40	0.16
A5-0	0	490	35	-0.50	0.25
U6-0	0	52	3.1	-0.67	0.45
U5-1	1	64	3.6	-1.04	1.08
U7-1	1	50	2.3	-1.32	1.75
U5-2	2	82	4.4	-1.54	2.38
U1-2	2	61	2.6	-1.82	3.31
A4-0	0	620	43	-1.92	3.69
U4-0	0	110	5.8	-2.17	4.71
A1-0	0	86	4.0	-2.23	4.98
U6-1	1	81	3.5	-2.37	5.61
A2-1	1	54	1.4	-2.51	6.31
JM3-0	0	72	2.3	-2.92	8.51
JM3-2	2	56	0.82	-3.24	10.48
A6-1	1	65	1.2	-3.51	12.32
A4-2	2	590	39	-3.75	14.05
U5-0	0	120	4.9	-3.79	14.40
U1-0	0	130	5.6	-3.82	14.59
U1-1	1	120	4.5	-4.19	17.59
U2-0	0	150	6.5	-4.37	19.08
A4-1	1	520	33	-4.68	21.87
U4-1	1	97	12	4.97	24.72
A2-0	0	520	31	-6.68	44.58
U3-0	0	470	26	-8.05	64.86
A3-0	0	980	62	-9.01	81.11
U7-0	0	710	65	13.56	183.79
A3-1	1	1100	94	14.30	204.48





A-0

Number of Valid Observations	6
Number of Distinct Observations	6
Minimum	86
Maximum	980
Mean	524.3
Median	505
SD	288.3
Variance	83129
Coefficient of Variation	0.55
Skewness	0.135
Mean of log data	6.055
SD of log data	0.832
90% Standard Bootstrap UCL	662.4
95% Standard Bootstrap UCL	701.9

JM-0

Number of Valid Observations	9
Number of Distinct Observations	9
Minimum	8.2
Maximum	72
Mean	23.81
Median	12
SD	22
Variance	483.8
Coefficient of Variation	0.924
Skewness	1.659
Mean of log data	2.86
SD of log data	0.795
90% Standard Bootstrap UCL	32.35
95% Standard Bootstrap UCL	35.09

U-0

Number of Valid Observations	7
Number of Distinct Observations	7
Minimum	52
Maximum	710
Mean	248.9
Median	130
SD	245
Variance	60016
Coefficient of Variation	0.984
Skewness	1.488
Mean of log data	5.148
SD of log data	0.902
90% Standard Bootstrap UCL	360.9
95% Standard Bootstrap UCL	389.8

A-1

Number of Valid Observations	6
Number of Distinct Observations	6
Minimum	2.5
Maximum	1100
Mean	297.4
Median	59.5
SD	437.9
Variance	191731
Coefficient of Variation	1.472
Skewness	1.64
Mean of log data	4.35
SD of log data	2.143
90% Standard Bootstrap UCL	505.5
95% Standard Bootstrap UCL	572.4

JM-1

Number of Valid Observations	10
Number of Distinct Observations	10
Minimum	6.2
Maximum	23
Mean	11.79
Median	9.95
SD	5.466
Variance	29.88
Coefficient of Variation	0.464
Skewness	1.187
Mean of log data	2.381
SD of log data	0.428
90% Standard Bootstrap UCL	13.92
95% Standard Bootstrap UCL	14.51

U-1

Number of Valid Observations	7
Number of Distinct Observations	7
Minimum	8.8
Maximum	260
Mean	97.26
Median	81
SD	80.03
Variance	6405
Coefficient of Variation	0.823
Skewness	1.586
Mean of log data	4.223
SD of log data	1.045
90% Standard Bootstrap UCL	133.2
95% Standard Bootstrap UCL	144.1

A-2

Number of Valid Observations	6
Number of Distinct Observations	6
Minimum	1.4
Maximum	590
Mean	102
Median	2.3
SD	239.1
Variance	57178
Coefficient of Variation	2.344
Skewness	2.447
Mean of log data	1.951
SD of log data	2.316
90% Standard Bootstrap UCL	213.6
95% Standard Bootstrap UCL	246.8

JM-2

Number of Valid Observations	8
Number of Distinct Observations	8
Minimum	2.5
Maximum	56
Mean	17.03
Median	14.5
SD	16.72
Variance	279.4
Coefficient of Variation	0.982
Skewness	2.2
Mean of log data	2.481
SD of log data	0.915
90% Standard Bootstrap UCL	24.24
95% Standard Bootstrap UCL	26.28

U-2

Number of Valid Observations	7
Number of Distinct Observations	7
Minimum	1.2
Maximum	82
Mean	32.53
Median	23
SD	29.96
Variance	897.7
Coefficient of Variation	0.921
Skewness	0.744
Mean of log data	2.81
SD of log data	1.548
90% Standard Bootstrap UCL	45.92
95% Standard Bootstrap UCL	49.86

Arsenic

Number of Valid Observations	15
Number of Distinct Observations	7
Minimum	0.5
Maximum	11
Mean	2.18
Median	0.5
SD	2.876
Variance	8.272
Coefficient of Variation	1.319
Skewness	2.329
Mean of log data	0.142
SD of log data	1.112
95% Standard Bootstrap UCL	3.39

Cadmium

Number of Valid Observations	15
Number of Distinct Observations	5
Minimum	0.5
Maximum	3.6
Mean	0.933
Median	0.5
SD	0.912
Variance	0.832
Coefficient of Variation	0.978
Skewness	2.323
Mean of log data	-0.338
SD of log data	0.663
95% Standard Bootstrap UCL	1.295

Vanadium

Number of Valid Observations	15
Number of Distinct Observations	13
Minimum	17
Maximum	52
Mean	26.53
Median	25
SD	8.601
Variance	73.98
Coefficient of Variation	0.324
Skewness	1.954
Mean of log data	3.238
SD of log data	0.281
95% Standard Bootstrap UCL	30

STATE OF CALIFORNIA EDMUND G. BROWN, JR., Governor

DEPARTMENT OF INDUSTRIAL RELATIONS
DIVISION OF OCCUPATIONAL SAFETY AND HEALTH
MINING AND TUNNELING UNIT
2211 Park Towne Circle, Suite 2
Sacramento, California 95825

Telephone (916) 574-2540
FAX (916) 574-2542

November 17, 2011

Department of Transportation
PO Box 23660
Oakland, CA 94623

Attention: Albert Zepeda (via e-mail: albert_zepeda@dot.ca.gov)

Subject: Underground Classification #'s: C065-001-12T thru C066-001-12T

I-80 Integrated Corridor Mobility Active Traffic Management Project

Mr. Zepeda:

The information provided to this office relative to the above project has been reviewed. On the basis of this analysis, Underground Classification of "Potentially Gassy with Special Conditions" has been assigned to the shaft(s) identified on your submittal. Please retain the original Classification for your records and deliver a true and correct copy of the Classification to the shaft contractor(s) for posting at the job site.

When the contractor who will be performing the work is selected, please advise them to notify this office to determine if a mandated Prejob Conference with the Division is required prior to commencing any activity associated with drilling of the shaft(s).

Should you have another bore under construction that is not required to have an Underground Classification (i.e.: less than 30 inches in diameter), please contact the Mining and Tunneling Unit prior to any employee entry of such a space.

If you have any questions on this subject, please contact this office at your earliest convenience.

Sincerely,

Douglas Patterson
Senior Engineer

cc: R. Brockman
File

State of California

Department of Industrial Relations

DIVISION OF OCCUPATIONAL SAFETY AND HEALTH
MINING AND TUNNELING UNIT

Underground Classification

C065-001-12T

DEPARTMENT OF TRANSPORTATION
NAME OF TUNNEL OR MINE AND COMPANY NAME

of PO Box 23660, Oakland, CA 94623
MAILING ADDRESS

at I-80 INTEGRATED CORRIDOR MOBILITY ACTIVE TRAFFIC MANAGEMENT PROJECT
LOCATION

has been classified as ***POTENTIALLY GASSY with Special Conditions***
CLASSIFICATION

as required by the California Labor Code § 7955.

The Division shall be notified if sufficient quantities of flammable gas or vapors have been encountered underground. Classifications are based on the California Labor Code Part 9, Tunnel Safety Orders and Mine Safety Orders.

SPECIAL CONDITIONS

1. A Certified Gas Tester shall perform pre-entry and continuous monitoring of the underground environment to measure Oxygen and detect explosive, flammable, and toxic gasses whenever an employee is working in the underground environment.
2. Mechanical ventilation shall provide for continuous exhaust of fumes and air at any time an employee is working in the underground environment. The primary ventilation fans must be located outside of the underground environment and shall be reversible by a single switch near the fan location.
3. The Division shall be notified immediately if any **Flammable Gas** or **Petroleum Vapor** exceeds 5% of the Lower Explosive Limit.
4. All utilities that may be in conflict with the project shall be identified and physically located (potholed) prior to the start of project operations.

SMALL AMOUNTS OF DIESEL FUEL & MOTOR OIL IN SURFACE SOILS

The two 60-inch diameter by 43 feet deep drilled shafts located on the shoulder of the Ashby Avenue west-bound on-ramp to I-80, Berkeley, Alameda County.

This classification shall be conspicuously posted at the place of employment.

Date November 17, 2011

Douglas Patterson, Senior Engineer

State of California

Department of Industrial Relations

DIVISION OF OCCUPATIONAL SAFETY AND HEALTH
MINING AND TUNNELING UNIT

Underground Classification

C066-001-12T

DEPARTMENT OF TRANSPORTATION
NAME OF TUNNEL OR MINE AND COMPANY NAME

of PO Box 23660, Oakland, CA 94623
MAILING ADDRESS

at I-80 INTEGRATED CORRIDOR MOBILITY ACTIVE TRAFFIC MANAGEMENT PROJECT
LOCATION

has been classified as ***POTENTIALLY GASSY with Special Conditions***
CLASSIFICATION

as required by the California Labor Code § 7955.

The Division shall be notified if sufficient quantities of flammable gas or vapors have been encountered underground. Classifications are based on the California Labor Code Part 9, Tunnel Safety Orders and Mine Safety Orders.

SPECIAL CONDITIONS

1. A Certified Gas Tester shall perform pre-entry and continuous monitoring of the underground environment to measure Oxygen and detect explosive, flammable, and toxic gasses whenever an employee is working in the underground environment.
2. Mechanical ventilation shall provide for continuous exhaust of fumes and air at any time an employee is working in the underground environment. The primary ventilation fans must be located outside of the underground environment and shall be reversible by a single switch near the fan location.
3. The Division shall be notified immediately if any **Flammable Gas** or **Petroleum Vapor** exceeds 5% of the Lower Explosive Limit.
4. All utilities that may be in conflict with the project shall be identified and physically located (potholed) prior to the start of project operations.

SMALL AMOUNTS OF DIESEL FUEL & MOTOR OILS IN SURFACE SOILS

The twenty-one (21) 42-inch diameter drilled shafts with depths varying between 36 and 61 feet deep located on the northbound and southbound shoulders of I-80 between Powell Street (in Emeryville, Alameda County) and Macdonald Avenue (in El Cerrito, Contra Costa County).

This classification shall be conspicuously posted at the place of employment.

Date November 17, 2011

Douglas Patterson, Senior Engineer

04-Ala/CC-80
Ala PM 2.0/8.0
CC PM 0.0/13.5
EA 04-3A7761

Interstate 80 Integrated Corridor Mobility / Adaptive Ramp Metering Project
Alameda and Contra Costa Counties, California
EA 04-3A7761
February 2012

Storm Water Information Handout

Prepared for:

Prepared by:

February 2012

DRAFT

This page is intentionally left blank.

DRAFT

Table of Contents

1 Overview 1
1.1 Intent of this Document 1
1.2 Summary of New Requirements 1
2 General Project Information 2
2.1 Location 2
2.2 Major Engineering Features 3
2.3 Receiving Water Bodies 3
2.4 Creek Crossings 3
2.5 Climate and Rainfall 4
2.6 Soils and Geology 4
2.7 Hazardous Waste 4
2.8 Existing Treatment BMPs 4
3 Construction General Permit 7
3.1 Risk Assessment 7
3.1.1 Sediment Risk 7
3.1.2 Receiving Water Body Risk 13
3.1.3 Risk Level 13
3.2 Notice of Termination (NOT) 15
3.3 Caltrans Forms 15
4 Run-on Discharges 16
5 Project registration Documents 17
5.1 General Information Included 18
5.2 Storm Water Pollution Prevention Plan 18
5.3 Notice of Intent (NOI) 18
5.4 Site Maps 18

Figures

Figure 1. Vicinity Map 2
Figure 2. Rainfall Data 5
Figure 3. Soil erosion factor K map for John Muir Parkway (State Route 4) 6
Figure 4. Soil erosion factor K map for University Avenue and Ashby Avenue 6
Figure 5. R Factor - John Muir Parkway (State Route 4) 8
Figure 6. Sediment Risk Factor Worksheet - John Muir Parkway (State Route 4) 9
Figure 7. R Factor - University Avenue and Ashby Avenue On-Ramps 11
Figure 8. Sediment Risk Factor Worksheet - University Avenue and Ashby Avenue On-Ramps 12
Figure 9. Receiving Water Risk Factor Worksheet – On-ramp locations 13
Figure 10. Combined Risk Level Matrix - John Muir Parkway (State Route 4) 14
Figure 11. Combined Risk Level Matrix - University Avenue and Ashby Avenue On-Ramps . 14

DRAFT

Tables

Table 1. List of Hydrologic Units 3
Table 2. LS Factor - John Muir Parkway (State Route 4) 8
Table 3. LS Factor - University Avenue and Ashby Avenue On-Ramps 11
Table 4. Summary of Run-On Discharge 16

Appendices

Appendix A Notice of Intent (NOI)
Appendix B Conceptual Sampling Plan
Appendix C Run-on Watershed Map

DRAFT

Disclaimer

A "Disclaimer" is required specifying that the information provided in the Storm Water Information Handout is just a guideline and is to be used for information purposes only and should not be considered a sole source document to adhere to the requirements of the National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP), Number CAS000002, effective as of July 1, 2010. The Contractor is required to provide water quality monitoring, sampling and implement best management practices (BMPs) based on standard industry operations, field conditions and conditions encountered based on the Contractor's means and methods. The information in this handout is not to be construed in any way as a waiver of the provisions in the CGP. Bidders and Contractors are cautioned to make independent investigations and examinations as they deem necessary to satisfy the conditions encountered in performance of work, with respect to the following: sampling and monitoring locations, distribution of watershed areas for sizing of BMPs, and selection of BMPs in order to conform to the requirement of the contract documents and the CGP.

DRAFT

1 OVERVIEW

1.1 Intent of this Document

The objectives of this Water Quality Information Handout are: to summarize general water quality information of the Project; to summarize updated requirements per the new Construction General Permit (CGP), which became effective as of July 1, 2010; to aid in developing the Storm Water Pollution Prevention Plan (SWPPP) of the project; and to highlight information necessary to file Project Registration Documents (PRDs) to the State Water Resources Control Board via the Stormwater Multi Application Reporting and Tracking System (SMARTS) and file the Notice of Intent (NOI) at the start of construction.

1.2 Summary of New Requirements

The "National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities" (NPDES Number CAS000002), or CGP, regulates discharges from construction activities within the Project area.

The CGP is based on a risk level (RL) permitting approach. The RL is calculated by 1) project sediment risk and 2) receiving water risk. See the risk assessment calculations in Section 3.1of this document for details.

A risk assessment was done for the Interstate 80 Integrated Corridor Mobility / Adaptive Ramp Metering Project (Project). The Project was determined to be **RL 2** for work at the John Muir Parkway (State Route 4) on-ramp and areas discharging to Pinole Creek. All other Project areas are **RL 1**.

RL 1 projects are subject to minimum best management practice (BMP) implementation and visual monitoring requirements. RL 2 projects are subject to further monitoring and sampling requirements, plus Numeric Action Levels (NALs) for pH and turbidity.

All projects will have to upload storm water data into SMARTS, such as NOIs, SWPPPs, annual reports, and monitoring data, as applicable.

DRAFT

2 GENERAL PROJECT INFORMATION

2.1 Location

The Project involves work along the I-80 corridor from the Bay Bridge Toll Plaza in Alameda County (R2-2003-0021) to the Carquinez Bridge in Contra Costa County (99-058), see Figure 1.

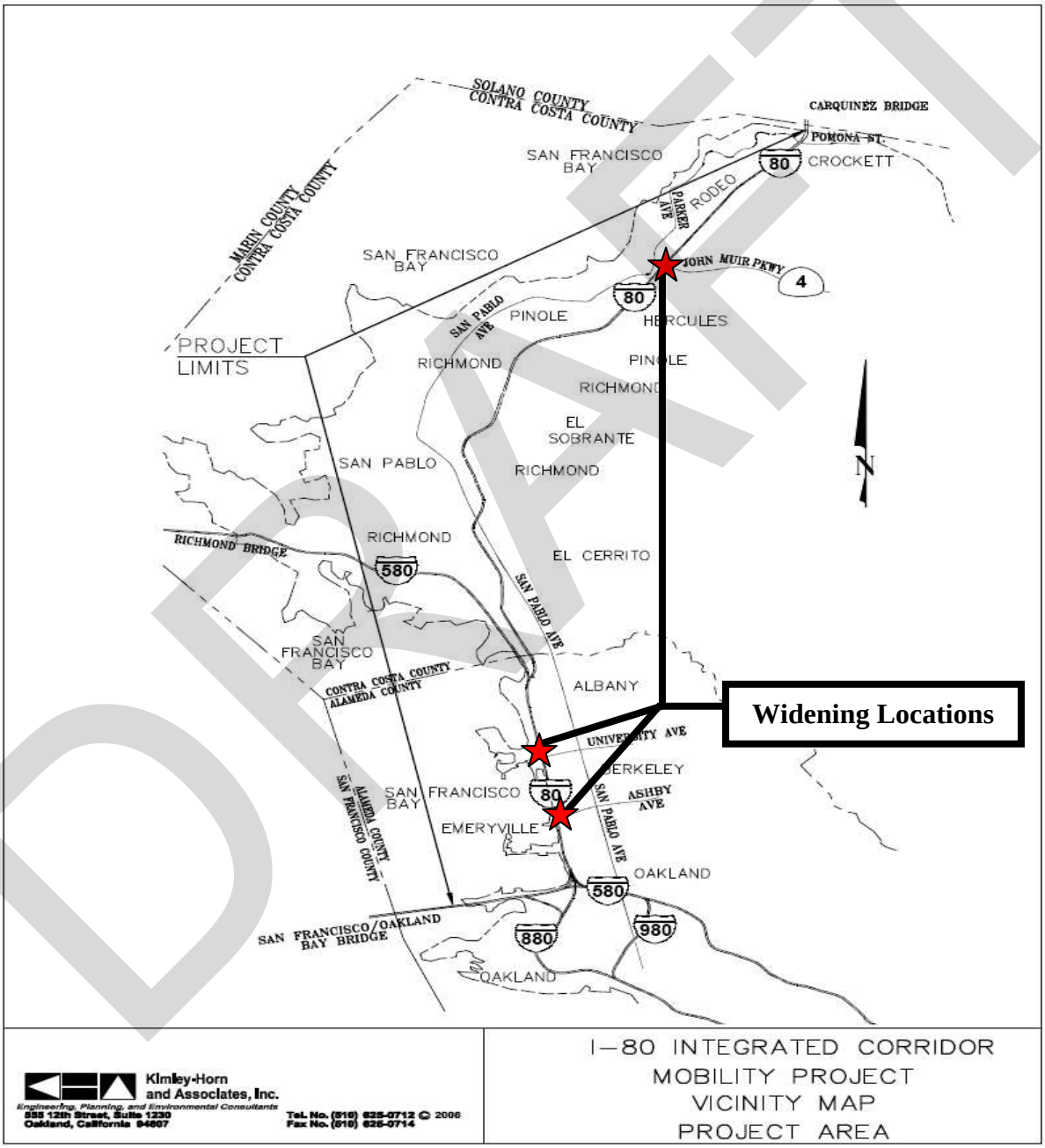


Figure 1. Vicinity Map

DRAFT

2.2 Major Engineering Features

The Integrated Corridor Mobility (ICM) project implements current and evolving Intelligent Transportation Systems (ITS) and traffic management technologies to improve transportation mobility, efficiency and safety along Interstate 80 (I-80). This handout addresses the Adaptive Ramp Metering (ARM) elements of the ICM Project. All improvements, staging, and access for the proposed Project take place within the existing Caltrans right-of-way (R/W).

Ramp metering plan improvements include the implementation of ARM at thirty eight ramp locations along the Project corridor. ARM includes the installation of ramp metering signals which are coordinated with traffic data collected by detector loop systems and closed circuit television cameras to allow adjustment to changing upstream and downstream corridor conditions. Ramp metering improvements also include various on-ramp striping modifications, which include the addition of High Occupancy Vehicle (HOV) lanes and California Highway Patrol (CHP) enforcement areas. On-ramp re-striping will be completed within existing paved areas.

This Project includes the widening of three on-ramps, the westbound on-ramps at the John Muir Parkway (State Route 4) interchange in Hercules, the University Avenue interchange in Berkeley, and the Ashby Avenue interchange in Emeryville. Ramp widening at these locations are the only significant addition of impervious area for the Project.

2.3 Receiving Water Bodies

The Project extends through three hydrologic units, see Table 1.

Table 1. List of Hydrologic Units

From Post Mile	To Post Mile	Hydrologic Unit	Hydrologic area	Hydrologic sub-area number
Ala-1.99	Ala-2.00	Bay Bridges	Bay Waters	203.10
Ala-2.00	Ala-4.00	South Bay	East Bay Cities	204.20
Ala-4.00 CC-0.00	Ala-8.04 CC-4.00	Bay Bridges	Berkeley	203.30
CC-4.00	CC-13.49	San Pablo	Pinole	206.60

Source: California State University-Sacramento, Office of Water Programs

2.4 Creek Crossings

The following direct receiving water bodies are identified I-80 bridge crossings within the Project limits: Temescal Creek (Ala-PM 3.49), Cerrito Creek (CC-PM 0.01), Wildcat Creek (CC-PM 3.99), San Pablo Creek (CC-PM 4.81), Pinole Creek (CC-PM 8.40) and Rodeo Creek (CC-PM 10.71). Additional direct receiving water bodies that cross I-80 within the Project limits are Codornices Creek (near the Albany and Berkeley boundary), Garrity Creek (0.3 miles north of the Hilltop Drive interchange), and Refugio Creek (at the Sycamore Avenue undercrossing).

Temescal, Codornices, and Cerrito creeks discharge to the San Francisco Bay, Central approximately 1 mile west of I-80. Wildcat Creek discharges to Castro Cove approximately 4 miles west of I-80; Castro Cove outlets to the San Pablo Bay. San Pablo Creek 3.5 miles

DRAFT

northwest of I-80, Garrity Creek 2.5 miles northwest of I-80, Pinole Creek 1.5 miles north of I-80, Refugio Creek 1 mile west of I-80, and Rodeo Creek 1.2 miles northwest of I-80 discharge to San Pablo Bay. Areas north of Rodeo Creek to the end of the Project at the Carquinez Bridge discharge to Carquinez Strait.

2.5 Climate and Rainfall

A National Oceanic and Atmospheric Administration (NOAA) weather station located in Berkeley was used to obtain precipitation data (see Figure 2). The compliance storm event at the Berkeley station was determined from NOAA's online Atlas 14, Volume 6, Version 2 (http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=ca).

Rainy days per year (assumed equal to precipitation 0.10 inches or greater):	42.4 days
Qualifying rain events per year (precipitation 0.5 inches or greater):	16.9 days
Compliance Storm Event (rainfall total for the 5 year, 24 hour storm)	3.41 inches

2.6 Soils and Geology

The soil erosion factor K indicates the erodibility of the fine-earth fraction of the soil. The factor is given as a percentage or fraction ranging from 0.02 to 0.69; the higher the value, the more susceptible the soil is to sheet and rill erosion by water. The K value at the John Muir Parkway (State Route 4) on-ramp was obtained from the Natural Resources Conservation Service "Web Soil Survey;" the K value at the John Muir Parkway (State Route 4) on-ramp is 0.20 (see Figure 3). The "Web Soil Survey" does not provide K values at the University Avenue and Ashby Avenue on-ramps, so the K values at these locations were obtained from a Google Earth based K map developed by the State Water Resources Control Board; the K values at these ramp locations is 0.37 (see Figure 4); the Google Earth K map is available at: ftp://swrcb2a.waterboards.ca.gov/pub/swrcb/dwq/cgp/Risk/RUSLE/.

2.7 Hazardous Waste

Soils containing aerially deposited lead (ADL) are present within the Project limits. Soils containing ADL is not reused for this Project, and if encountered, should be handled as specified in the Project Specifications.

2.8 Existing Treatment BMPs

There are no known existing treatment BMPs impacted by the Project.

DRAFT

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Service

Climatography of the United States No. 20 1971-2000

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: BERKELEY, CA **COOP ID: 040693**

Climate Division: CA 4 **NWS Call Sign:** **Elevation: 310 Feet** **Lat: 37°52N** **Lon: 122°16W**

Precipitation (inches)

	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med-ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	5.13	4.99	6.98	1982	4	12.47	1973	.22	1984	10.6	7.8	3.5	1.6	.44	.79	1.47	2.18	2.96	3.85	4.91	6.24	8.08	11.16	14.18
Feb	4.75	4.46	3.20	2000	13	14.49	1998	.20	1997	9.9	7.1	3.4	1.5	.35	.65	1.26	1.91	2.64	3.48	4.49	5.77	7.55	10.54	13.50
Mar	4.08	2.86	2.60	1986	10	11.74	1983	.09	1988	10.1	6.7	2.9	1.0	.35	.63	1.17	1.73	2.36	3.06	3.91	4.97	6.43	8.88	11.29
Apr	1.63	1.36	2.43	1958	2	5.34	1982	.06	1985	6.2	3.9	.8	.2	.14	.25	.47	.70	.94	1.23	1.56	1.99	2.57	3.55	4.51
May	.61	.18	1.99	1957	18	4.00	1990	.00+	1992	2.9	1.5	.2	.1	.00	.00	.00	.03	.10	.21	.37	.62	1.01	1.76	2.57
Jun	.14	.06	1.04	1929	15	1.06	1995	.00+	1996	1.1	.4	.1	.0	.00	.00	.00	.00	.01	.05	.10	.16	.26	.42	.58
Jul	.07	.00	1.40	1974	8	1.50	1974	.00+	2000	.4	.1	@	@	.00	.00	.00	.00	.00	.00	.00	.00	.01	.17	.39
Aug	.10	.00	.69	1997	19	1.33	1976	.00+	2000	.6	.3	.1	.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.22	.56
Sep	.36	.11	2.52	1959	18	1.65	1977	.00+	1996	1.7	.9	.2	@	.00	.00	.00	.00	.02	.11	.23	.39	.64	1.07	1.50
Oct	1.37	1.12	2.34	1962	11	4.22	1975	.00+	1999	3.9	2.2	.9	.4	.00	.05	.22	.42	.64	.91	1.24	1.66	2.25	3.27	4.28
Nov	3.62	2.76	3.89	1994	5	11.47	1973	.00	1995	7.9	5.6	2.3	.8	.11	.37	.86	1.38	1.96	2.62	3.42	4.42	5.82	8.17	10.50
Dec	3.54	3.26	3.77	1995	11	9.44	1996	.00	1989	8.4	5.9	2.5	.9	.39	.81	1.40	1.91	2.43	2.99	3.61	4.36	5.36	6.97	8.49
Ann	25.40	23.25	6.98	Jan 1982	4	14.49	Feb 1998	.00+	Aug 2000	63.7	42.4	16.9	6.5	12.44	14.60	17.56	19.93	22.12	24.31	26.64	29.29	32.60	37.60	42.07

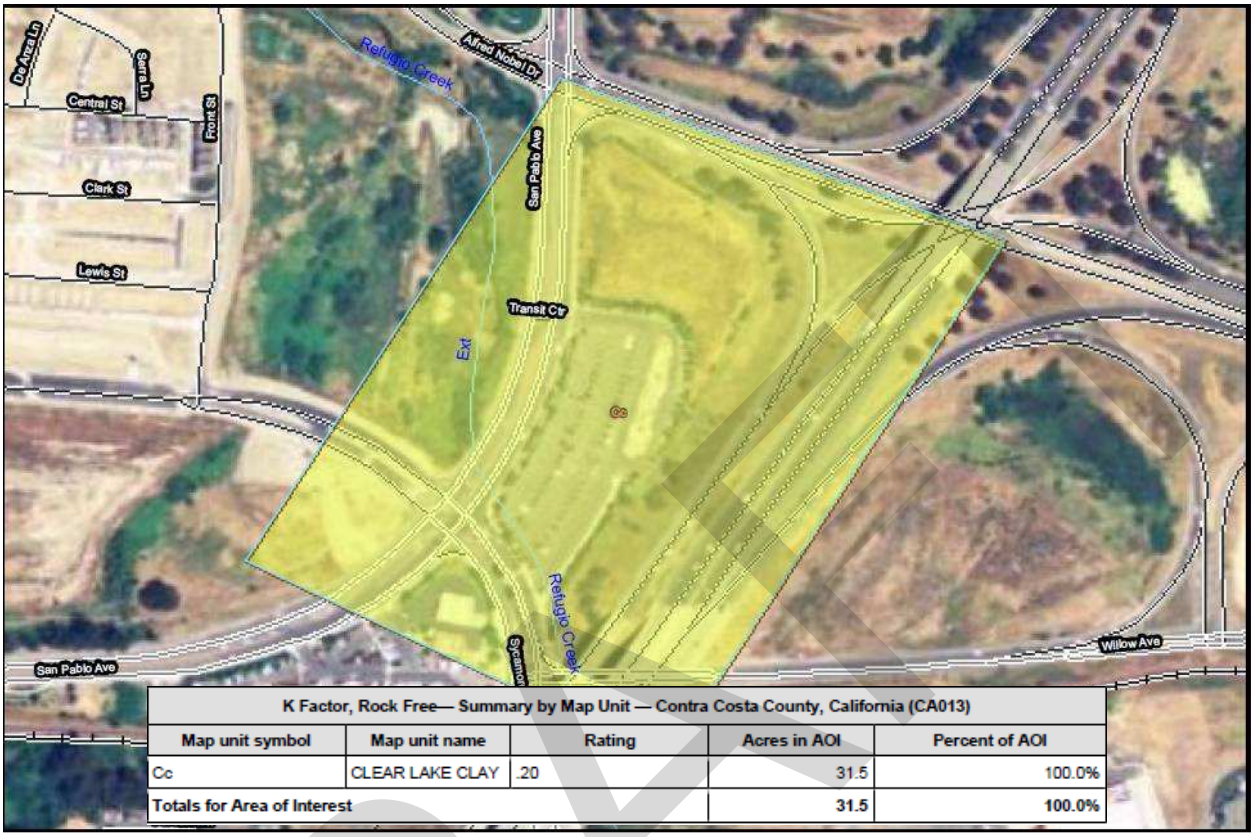
+ Also occurred on an earlier date(s)
# Denotes amounts of a trace
@ Denotes mean number of days greater than 0 but less than .05
** Statistics not computed because less than six years out of thirty had measurable precipitation

(1) From the 1971-2000 Monthly Normals
(2) Derived from station's available digital record: 1919-2001
(3) Derived from 1971-2000 serially complete daily data
Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

012-B

Figure 2. Rainfall Data

DRAFT



K Factor, Rock Free— Summary by Map Unit — Contra Costa County, California (CA013)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Cc	CLEAR LAKE CLAY	.20	31.5	100.0%
Totals for Area of Interest			31.5	100.0%

Figure 3. Soil erosion factor K map for John Muir Parkway (State Route 4)

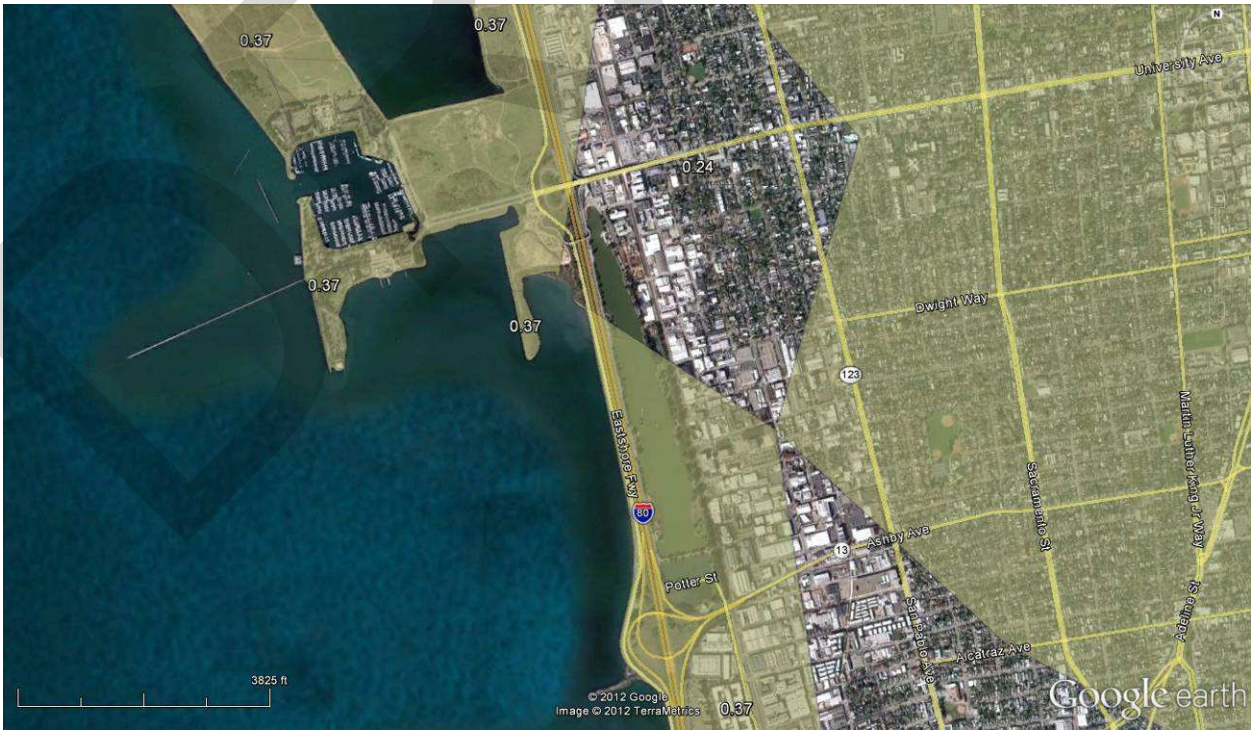


Figure 4. Soil erosion factor K map for University Avenue and Ashby Avenue

3 CONSTRUCTION GENERAL PERMIT

To minimize the potential effects of construction runoff on the quality of the receiving water bodies, any construction activity affecting one acre or more must obtain coverage under the CGP. Permit applicants are required to prepare a SWPPP and implement BMPs to reduce construction effects on receiving water quality.

3.1 Risk Assessment

The CGP requirements include a risk assessment to determine the Project's impact risk to receiving water bodies. The risk assessment uses measurements of the Project's potential sediment risk and the sensitivity of the receiving water bodies to sediment to determine the risk level of the Project.

3.1.1 Sediment Risk

The sediment risk is based on the following equation from the CGP "Fact Sheet" (Section J.1.a pg. 28):

Equation 1. Sediment Risk Equation
$A = (R)(K)(LS)(C)(P)$

Where:

R = Runoff erosivity factor
K = Soil erodibility factor
LS = Length-slope factor
C = Cover
P = Management operations and support practices
A = Rate of sheet and rill erosion (tons per acre)

The cover factor (C) and management operations and support practices (P) are given values of 1.0 by the CGP to simulate bare ground conditions.

3.1.1.1 John Muir Parkway (State Route 4) On-Ramp

The R of **46.06** was determined from the United States Environmental Protection Agency (EPA) "Rainfall Erosivity Factor Calculator for Small Construction Sites," see Figure 5.

As stated in Section 2.6, the K is **0.20**.

The LS of **2.49** was calculated based on the original grade delineated on electronic cross sections, see Table 2.

Based on these factors, the A is **23** tons per acre, because this value is between 15 and 75, this segment of the Project is classified as having a **medium** sediment risk, see Figure 6.

DRAFT

Rainfall Erosivity Factor Calculator for Small Construction Sites

Facility Information

Facility Name: EA 04-3a7761 I-80 ARM (John Muir Parkway)
Start Date: 05/31/2012
End Date: 12/03/2013
Latitude: 38.0141
Longitutde: -122.2708

Erosivity Index Calculator Results

AN EROSIVITY INDEX VALUE OF **46.06** HAS BEEN DETERMINED FOR THE CONSTRUCTION PERIOD OF **05/31/2012 - 12/03/2013**.

A rainfall erosivity factor of 5.0 or greater has been calculated for your site and period of construction. **You do not qualify for a waiver from NPDES permitting requirements**.

Figure 5. R Factor - John Muir Parkway (State Route 4)

Table 2. LS Factor - John Muir Parkway (State Route 4)

Site Specific Analysis of LS Factor
I-80 ARM PSE

Number of X-Sections = 3

Alignment		Number of Segments	Slope Segment 1				Slope Segment 2				Slope Segment 3				Slope Segment 4			
Station	Line		Length (ft)	Rise (ft)	Steepness (%)	LS	Length (ft)	Rise (ft)	Steepness (%)	LS	Length (ft)	Rise (ft)	Steepness (%)	LS	Length (ft)	Rise (ft)	Steepness (%)	LS
941+75	J1/J2	7	22.570	4.138	18.33	1.04	67.646	33.823	50.00	6.60	3.103	0.155	5.00	0.23	21.509	0.532	2.47	0.17
944+00	J1/J2	7	34.126	5.752	16.86	1.29	53.872	26.936	50.00	5.48	3.103	0.155	5.00	0.23	24.599	0.380	1.54	0.13
110+00	J1/J2	7	39.497	5.789	14.66	1.23	60.126	19.198	31.93	3.94	1.267	0.634	50.00	0.58	3.103	0.155	5.00	0.23

Slope Segment 5				Slope Segment 6				Slope Segment 7				Weighted Average for All segments	
Length (ft)	Rise (ft)	Steepness (%)	LS	Length (ft)	Rise (ft)	Steepness (%)	LS	Length (ft)	Rise (ft)	Steepness (%)	LS	Total Slope Length (ft)	Weighted LS
24.000	0.557	2.32	0.17	10.000	0.200	2.00	0.13	5.000	0.250	5.00	0.23	153.828	3.13
24.000	0.439	1.83	0.15	10.000	0.200	2.00	0.13	5.000	0.250	5.00	0.23	154.700	2.26
18.457	1.332	7.21	0.34	12.694	0.858	6.76	0.28	7.306	0.146	1.99	0.13	142.450	2.09

Area Weighted LS = **2.49**
(Composite Weigthed LS / Number of X-Sections)

DRAFT

	A	B	C
1	**Sediment Risk Factor Worksheet**		**Entry**
2	**A) R Factor**		
3	Analyses of data indicated that when factors other than rainfall are held constant, soil loss is directly proportional to a rainfall factor composed of total storm kinetic energy (E) times the maximum 30-min intensity (I30) (Wischmeier and Smith, 1958). The numerical value of R is the average annual sum of EI30 for storm events during a rainfall record of at least 22 years. "Isoerodent" maps were developed based on R values calculated for more than 1000 locations in the Western U.S. Refer to the link below to determine the R factor for the project site.		
4	http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm		
5	**R Factor Value**		46.06
6	**B) K Factor (weighted average, by area, for all site soils)**		
7	The soil-erodibility factor K represents: (1) susceptibility of soil or surface material to erosion, (2) transportability of the sediment, and (3) the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Fine-textured soils that are high in clay have low K values (about 0.05 to 0.15) because the particles are resistant to detachment. Coarse-textured soils, such as sandy soils, also have low K values (about 0.05 to 0.2) because of high infiltration resulting in low runoff even though these particles are easily detached. Medium-textured soils, such as a silt loam, have moderate K values (about 0.25 to 0.45) because they are moderately susceptible to particle detachment and they produce runoff at moderate rates. Soils having a high silt content are especially susceptible to erosion and have high K values, which can exceed 0.45 and can be as large as 0.65. Silt-size particles are easily detached and tend to crust, producing high rates and large volumes of runoff. Use Site-specific data must be submitted.		
8	Site-specific K factor guidance		
9	**K Factor Value**		0.2
10	**C) LS Factor (weighted average, by area, for all slopes)**		
11	The effect of topography on erosion is accounted for by the LS factor, which combines the effects of a hillslope-length factor, L, and a hillslope-gradient factor, S. Generally speaking, as hillslope length and/or hillslope gradient increase, soil loss increases. As hillslope length increases, total soil loss and soil loss per unit area increase due to the progressive accumulation of runoff in the downslope direction. As the hillslope gradient increases, the velocity and erosivity of runoff increases. Use the LS table located in separate tab of this spreadsheet to determine LS factors. Estimate the weighted LS for the site prior to construction.		
12	LS Table		
13	**LS Factor Value**		2.49
14			
15	**Watershed Erosion Estimate (=RxKxLS) in tons/acre**	23	
16	**Site Sediment Risk Factor**	**Medium**	
17	Low Sediment Risk: < 15 tons/acre		
18	Medium Sediment Risk: >=15 and <75 tons/acre		
19	High Sediment Risk: >= 75 tons/acre		
20			

Figure 6. Sediment Risk Factor Worksheet - John Muir Parkway (State Route 4)

DRAFT

3.1.1.2 University Avenue and Ashby Avenue On-Ramps

The R of **46.06** was determined from the United States Environmental Protection Agency (EPA) "Rainfall Erosivity Factor Calculator for Small Construction Sites.," Figure 7

As stated in Section 2.6, the K is **0.37**.

The LS of **0.78** was calculated based on the original grade delineated on electronic cross sections, see Table 3.

Based on these factors, the A is **13** tons per acre, because this value is less than 15, these segments of the Project are classified as having a **low** sediment risk, see Figure 8.

3.1.1.3 Other Project Areas

The proposed work at areas outside of the ramp widening areas primarily involve installation of ramp metering signals and closed circuit television cameras, and various on-ramp striping modifications. This work results in minimal to no DSA, so no individual sediment risk factor for this work was developed.

DRAFT

Rainfall Erosivity Factor Calculator for Small Construction Sites

Facility Information

Facility Name: EA 04-3a7761 I-80 ARM (Ashby & University)
Start Date: 05/31/2012
End Date: 12/03/2013
Latitude: 37.8572
Longitutde: -122.3011

Erosivity Index Calculator Results

AN EROSIVITY INDEX VALUE OF **46.06** HAS BEEN DETERMINED FOR THE CONSTRUCTION PERIOD OF **05/31/2012 - 12/03/2013**.

A rainfall erosivity factor of 5.0 or greater has been calculated for your site and period of construction. **You do not qualify for a waiver from NPDES permitting requirements**.

Figure 7. R Factor - University Avenue and Ashby Avenue On-Ramps

Table 3. LS Factor - University Avenue and Ashby Avenue On-Ramps

Site Specific Analysis of LS Factor
I-80 ARM PSE

Number of X-Sections = 6

Alignment		Number of Segments	Slope Segment 1				Slope Segment 2				Slope Segment 3				Slope Segment 4			
Station	Line		Length (ft)	Rise (ft)	Steepness (%)	LS	Length (ft)	Rise (ft)	Steepness (%)	LS	Length (ft)	Rise (ft)	Steepness (%)	LS	Length (ft)	Rise (ft)	Steepness (%)	LS
223+70	AA1	6	4.910	0.000	N/A	0.00	16.094	0.607	3.77	0.20	1.995	0.499	25.01	0.45	3.330	0.167	5.02	0.23
229+20	AA1	7	35.896	1.345	3.75	0.30	6.756	0.182	2.69	0.16	3.333	0.167	5.01	0.23	1.667	0.500	29.99	0.48
233+80	AA1	7	51.354	6.664	12.98	1.30	31.221	2.295	7.35	0.48	17.315	1.837	10.61	0.47	1.667	0.500	29.99	0.48
305+62	U1	4	20.000	10.000	50.00	2.41	8.000	0.750	9.38	0.36	25.000	2.000	8.00	0.45	17.100	1.000	5.85	0.28
308+00	U1	4	20.000	10.000	50.00	2.41	24.000	3.000	12.50	0.72	13.820	0.864	6.25	0.27	12.310	1.000	8.12	0.32
233+80	U1	5	20.000	10.000	50.00	2.41	24.000	3.000	12.50	0.72	9.820	1.000	10.18	0.39	23.320	1.000	4.29	0.26

Slope Segment 5				Slope Segment 6				Slope Segment 7				Weighted Average for All segments	
Length (ft)	Rise (ft)	Steepness (%)	LS	Length (ft)	Rise (ft)	Steepness (%)	LS	Length (ft)	Rise (ft)	Steepness (%)	LS	Total Slope Length (ft)	Weighted LS
1.667	0.500	29.99	0.48	27.972	1.625	5.81	0.37			N/A	0.00	55.968	0.29
47.757	0.918	1.92	0.20	1.295	0.647	49.96	0.58	96.705	9.510	9.83	1.40	193.409	0.82
3.891	1.945	49.99	0.70	28.026	0.895	3.19	0.23	62.416	4.128	6.61	0.67	195.890	0.72
		N/A	0.00			N/A	0.00			N/A	0.00	70.100	0.96
		N/A	0.00			N/A	0.00			N/A	0.00	70.130	1.04
15.610	1.000	6.41	0.28			N/A	0.00			N/A	0.00	92.750	0.86

Area Weighted LS = **0.78**
(Composite Weigthed LS / Number of X-Sections)

DRAFT

	A	B	C
1	**Sediment Risk Factor Worksheet**		**Entry**
2	**A) R Factor**		
3	Analyses of data indicated that when factors other than rainfall are held constant, soil loss is directly proportional to a rainfall factor composed of total storm kinetic energy (E) times the maximum 30-min intensity (I30) (Wischmeier and Smith, 1958). The numerical value of R is the average annual sum of EI30 for storm events during a rainfall record of at least 22 years. "Isoerodent" maps were developed based on R values calculated for more than 1000 locations in the Western U.S. Refer to the link below to determine the R factor for the project site.		
4	http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm		
5	**R Factor Value**		46.06
6	**B) K Factor (weighted average, by area, for all site soils)**		
7	The soil-erodibility factor K represents: (1) susceptibility of soil or surface material to erosion, (2) transportability of the sediment, and (3) the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Fine-textured soils that are high in clay have low K values (about 0.05 to 0.15) because the particles are resistant to detachment. Coarse-textured soils, such as sandy soils, also have low K values (about 0.05 to 0.2) because of high infiltration resulting in low runoff even though these particles are easily detached. Medium-textured soils, such as a silt loam, have moderate K values (about 0.25 to 0.45) because they are moderately susceptible to particle detachment and they produce runoff at moderate rates. Soils having a high silt content are especially susceptible to erosion and have high K values, which can exceed 0.45 and can be as large as 0.65. Silt-size particles are easily detached and tend to crust, producing high rates and large volumes of runoff. Use Site-specific data must be submitted.		
8	Site-specific K factor guidance		
9	**K Factor Value**		0.37
10	**C) LS Factor (weighted average, by area, for all slopes)**		
11	The effect of topography on erosion is accounted for by the LS factor, which combines the effects of a hillslope-length factor, L, and a hillslope-gradient factor, S. Generally speaking, as hillslope length and/or hillslope gradient increase, soil loss increases. As hillslope length increases, total soil loss and soil loss per unit area increase due to the progressive accumulation of runoff in the downslope direction. As the hillslope gradient increases, the velocity and erosivity of runoff increases. Use the LS table located in separate tab of this spreadsheet to determine LS factors. Estimate the weighted LS for the site prior to construction.		
12	LS Table		
13	**LS Factor Value**		0.78
14			
15	**Watershed Erosion Estimate (=RxKxLS) in tons/acre**	13	
16	**Site Sediment Risk Factor**	**Low**	
17	Low Sediment Risk: < 15 tons/acre		
18	Medium Sediment Risk: >=15 and <75 tons/acre		
19	High Sediment Risk: >= 75 tons/acre		
20			

Figure 8. Sediment Risk Factor Worksheet - University Avenue and Ashby Avenue On-Ramps

DRAFT

3.1.2 Receiving Water Body Risk

3.1.2.1 John Muir Parkway (State Route 4), University Avenue and Ashby Avenue On-Ramps

None of the receiving water bodies at the on-ramp locations have the combined existing beneficial uses of SPWN, COLD and MIGR, nor are the receiving water bodies indentified as impaired for sediment; therefore, the receiving water risk at the on-ramp locations are **low**.

Receiving Water (RW) Risk Factor Worksheet	**Entry**	**Score**
A. Watershed Characteristics	**yes/no**	
A.1. Does the disturbed area discharge (either directly or indirectly) to a **303(d)-listed waterbody impaired by sediment**? For help with impaired waterbodies please check the attached worksheet or visit the link below: 2006 Approved Sediment-impared WBs Worksheet http://www.waterboards.ca.gov/water_issues/programs/tmdl/303d_lists2006_epa.shtml **OR**	**NO**	**Low**
A.2. Does the disturbed area discharge to a waterbody with designated beneficial uses of SPAWN & COLD & MIGRATORY? http://www.ice.ucdavis.edu/geowbs/asp/wbguse.asp		

Figure 9. Receiving Water Risk Factor Worksheet – On-ramp locations

3.1.2.2 Other Project Areas

Pinole Creek is the only receiving water body within the Project that has the existing beneficial uses of COLD, SPWN and MIGR; therefore, Pinole Creek is identified as having a **high** receiving water risk.

3.1.3 Risk Level

3.1.3.1 John Muir Parkway (State Route 4) On-Ramp

The Project improvements at the John Muir Parkway (State Route 4) on-ramp have a **Medium Sediment Risk** and **Low Receiving Water Risk**, resulting in the work at this area to be **RL 2**, see Figure 10.

3.1.3.2 University Avenue and Ashby Avenue On-Ramps

The Project improvements at the University Avenue and Ashby Avenue on-ramps have a **Low Sediment Risk** and **Low Receiving Water Risk**, resulting in the work at these locations to be **RL 1**, see Figure 11.

3.1.3.3 Other Project Areas

The proposed work at areas outside of the ramp widening locations, with the exception of areas draining to Pinole Creek, is **RL 1**. Because Pinole Creek is classified as having a **high** receiving water risk, areas draining to Pinole Creek are **RL 2**.

DRAFT

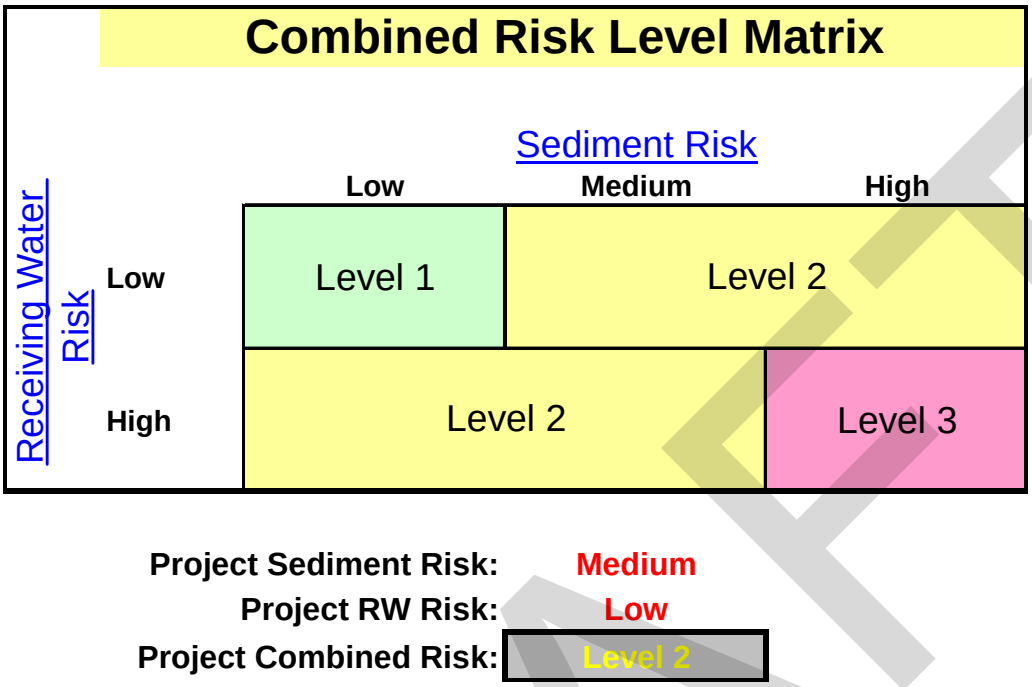


Figure 10. Combined Risk Level Matrix - John Muir Parkway (State Route 4)

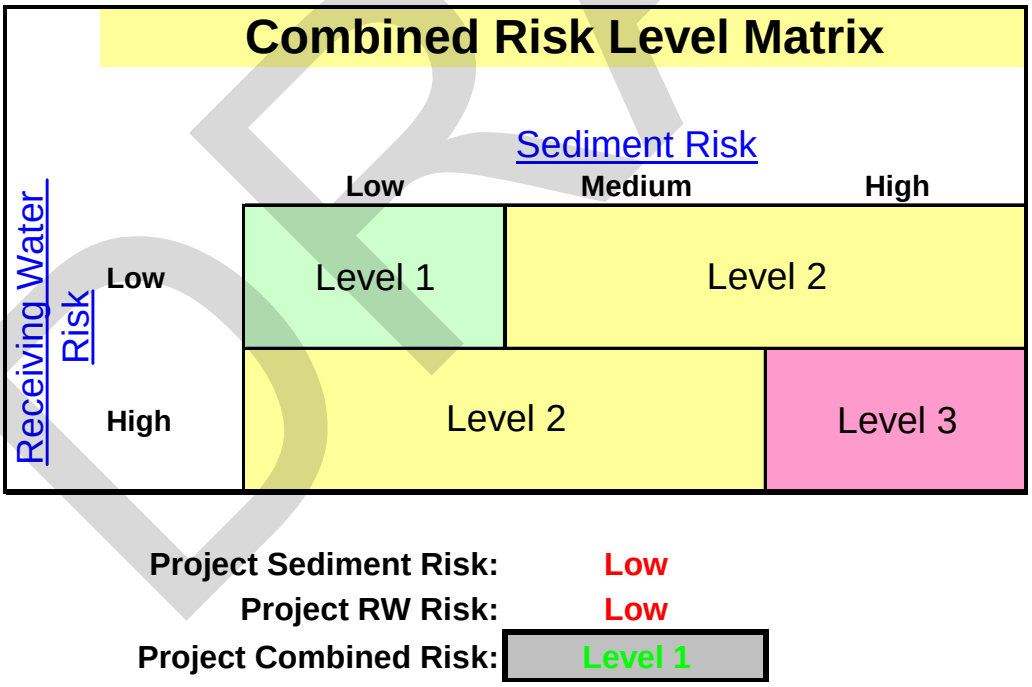


Figure 11. Combined Risk Level Matrix - University Avenue and Ashby Avenue On-Ramps

DRAFT

3.2 Notice of Termination (NOT)

The CGP provides both revised and new requirements for completion and approval of the NOT. The NOT requirements are presented in Section II.D of the CGP "Order." These requirements include demonstrating through photos, computational proof or other "custom methods," such as results of testing and analysis, that the terms of the NOT have been satisfied.

While these methods of demonstrating compliance are at the option of Caltrans, should the RWQCB determine that the visual photos do not adequately show compliance, further computational efforts may be required. This computational proof is obtained through the use of the Revised Universal Soil Loss Equation 2 (RUSLE2) program.

3.3 Caltrans Forms

The Caltrans Division of Construction has developed forms to comply with the CGP. These forms are available at: http://www.dot.ca.gov/hq/construc/forms.htm.

DRAFT

4 RUN-ON DISCHARGES

The run-on discharges are calculated to design stormwater BMPs during construction. For this Project, the Rational Method is used to calculate the run-on discharges. The anticipated run-on at the ramp locations are shown in Table 4 and run-on watershed maps are included in Appendix C. There is no anticipated run-on discharges that will impact the proposed work at the areas outside of the ramp widening areas because the existing slopes are stabilized and existing drainage facilities should adequately collect any runoff discharging to the roadway. Actual run-on discharges should be determined by the Contractor based on anticipated staging work and documented in the SWPPP.

Equation 1. Rational Method for run-on discharge

$$Q = CiA$$

Where:

Q = Run-on discharge (cubic feet per second)
C = Runoff coefficient = **0.7**
(HDM Figure 819.2A-high relief (0.28), high soil infiltration (0.12), extreme vegetal cover (0.16) and extreme surface storage (0.12))
i = 2-year, 24-hour rainfall intensity (inches/hour) = **0.111**
(Berkeley Station, http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=ca)
A = Drainage area (acre)

Table 4. Summary of Run-On Discharge

Location	A	Q
Ashby Avenue On-Ramp	0.31	0.02
University Avenue On-Ramp	0.10	0.01
John Muir Parkway (State Route 4) On-Ramp	0.12	0.01

DRAFT

5 PROJECT REGISTRATION DOCUMENTS

To obtain permit coverage under the CGP, all dischargers must electronically file PRDs, NOTs, changes of information, sampling and monitoring information, annual reporting, and other compliance documents required by this CGP through the SWRCB's SMARTS. The Contractor will have to coordinate these submittals with Caltrans within the timeframe allotted in the contract special provisions and as specified in the CGP. SMARTS is found under the following website:

https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp

PRDs include the following information:

1. Notice of Intent (NOI)
2. Site Map(s) Includes:
    a. The project's surrounding area (vicinity)
    b. Site layout
    c. Construction site boundaries
    d. Drainage areas
    e. Discharge locations
    f. Sampling locations
    g. Areas of soil disturbance (temporary or permanent)
    h. Active areas of soil disturbance (cut or fill)
    i. Locations of all runoff BMPs
    j. Locations of all erosion control BMPs
    k. Locations of all sediment control BMPs
    l. Locations of sensitive habitats, watercourses, or other features which are not to be disturbed
    m. Locations of all post-construction BMPs
    n. Locations of storage areas for waste, vehicles, service, loading/unloading of materials, access (entrance/exits) points to construction site, fueling and water storage, water transfer for dust control and compaction practices

3. **SWPPPs**

4. **Risk Assessment**
    a. The Standard Risk Assessment includes utilization of the following:
        i. Receiving water Risk Assessment
        ii. EPA Rainfall Erosivity Factor Calculator Website
        iii. Sediment Risk Assessment
        iv. Sediment sensitive water bodies list

DRAFT

5.1 General Information Included

The following is a list of information included in this Storm Water Information Handout that can be used for the PRDs:

- Vicinity Map
- Risk Assessment

5.2 Storm Water Pollution Prevention Plan

The contractor for the Project is required to prepare a SWPPP because the Project involves disturbing more than 1 acre of soil. The SWPPP must include the following information:

- Active areas of cut and fill
- Areas of soil disturbance (temporary and permanent)
- Locations of storage areas for waste, vehicles, access, etc.
- Locations of all runoff BMPs
- Locations of all erosion control BMPs
- Locations of all sediment control BMPs

The SWPPP should be submitted with the PRDs and will be forthcoming from the Contractor.

5.3 Notice of Intent (NOI)

The NOI must be submitted once the contractor submits the SWPPP. This document is included in Appendix A.

5.4 Site Maps

Registration requirements can be met by the inclusion of the following plans, which can be found in the appendices.

- Conceptual Sampling Plan - recommended and for reference only (Appendix B)
  - Subject to changes by the Contractor and approved by the RE
- Run-on Watershed Map (Appendix C)
  - Subject to changes by the Contractor and approved by the Resident Engineer

DRAFT

Appendix A Notice of Intent (NOI)

DRAFT

Attachment 2

State Water Resources Control Board

NOTICE OF INTENT

TO COMPLY WITH THE TERMS OF THE
GENERAL PERMIT TO DISCHARGE STORM WATER
ASSOCIATED WITH CONSTRUCTION ACTIVITY (WQ ORDER No. 99-08-DWQ)

I. NOI STATUS (SEE INSTRUCTIONS)

MARK ONLY ONE ITEM 1. ☐ New Construction 2. ☐ Change of Information for WDID#

II. PROPERTY OWNER

Name: CALTRANS DISTRICT 4		Contact Person: BIJAN SARTIPI	
Mailing Address: 111 GRAND AVENUE		Title: DISTRICT DIRECTOR	
City: OAKLAND	State: CA	Zip: 94623	Phone: (510) 286-5900

Owner Type (*check one*) 1.[ ] Private Individual 2.[ ]Business 3.[ ]Municipal 4.[X]State 5.[ ]Federal 6.[ ]Other

III. DEVELOPER/CONTRACTOR INFORMATION

Developer/Contractor		Contact Person	
Mailing Address		Title	
City	State	Zip	Phone

IV. CONSTRUCTION PROJECT INFORMATION

Site/Project Name: EA 04-3A7761 I-80 ICM/ARM		Site Contact Person: Caltrans Resident Engineer	
Physical Address/Location: Bay Bridge to Carquinez Bridge	Latitude: 37.8572°	Longitude: -122.3011°	County: Alameda and Contra Costa
City (or nearest City): Oakland to Crockett	Zip: 94710	Site Phone Number	Emergency Phone Number

A. Total size of construction site area: 1140 Acres

B. Total area to be disturbed: 2.42 Acres (% of total _____)

C. Percent of site imperviousness (including rooftops):
Before Construction: ~80 %
After Construction: ~80 %

D. Tract Number(s): _____, _____

E. Mile Post Marker: Ala 2.0/8.0; CC 0.0/13.5

F. Is the construction site part of a larger common plan of development or sale?
☒ YES ☐ NO

G. Name of plan or development: Integrated Corridor Mobility

H. Construction commencement date: 05 / 31 / 12

I. % of site to be mass graded: _____

J. Projected construction dates:
Complete grading: ____/____/____ Complete project: 12 / 03 / 13

K. Type of Construction (Check all that apply):
1. ☐ Residential 2. ☐ Commercial 3. ☐ Industrial 4. ☐ Reconstruction 5. ☒ Transportation
6. ☐ Utility Description: _____ 7. ☐ Other (Please List): _____

V. BILLING INFORMATION

SEND BILL TO: ☐ OWNER (as in II. above)	Name	Contact Person	
☐ DEVELOPER (as in III. above)	Mailing Address	Phone/Fax	
☐ OTHER (enter information at right)	City	State	Zip

DRAFT

VI. REGULATORY STATUS

A. Has a local agency approved a required erosion/sediment control plan? ☒ YES ☐ NO

Does the erosion/sediment control plan address construction activities such as infrastructure and structures? ☒ YES ☐ NO

Name of local agency: California Department of Transportation Phone: (510) 286-5900

B. Is this project or any part thereof, subject to conditions imposed under a CWA Section 404 permit of 401 Water Quality Certification? ☐ YES ☒ No

If yes, provide details: _____

VII. RECEIVING WATER INFORMATION

A. Does the storm water runoff from the construction site discharge to (Check all that apply):

1. ☒ **Indirectly to waters of the U.S.**
2. ☐ **Storm drain system - Enter owner's name:** _____
3. ☐ **Directly to waters of U.S. (e.g. , river, lake, creek, stream, bay, ocean, etc.)**

B. Name of receiving water: (river, lake, creek, stream, bay, ocean): Temescal Creek, Cerrito Creek, Wildcat Creek, San Pablo Creek, Pinole Creek, Rodeo Creek, Codornices Creek, Garrity Creek

VIII. IMPLEMENTATION OF NPDES PERMIT REQUIREMENTS

A. STORM WATER POLLUTION PREVENTION PLAN (SWPPP) (check one)

☐ A SWPPP has been prepared for this facility and is available for review: Date Prepared: ____/____/____ Date Amended: ____/____/____

☐ A SWPPP will be prepared and ready for review by (enter date): ____/____/____

☐ A tentative schedule has been included in the SWPPP for activities such as grading, street construction, home construction, etc.

B. MONITORING PROGRAM

☒ A monitoring and maintenance schedule has been developed that includes inspection of the construction BMPs before anticipated storm events and after actual storm events and is available for review.

If checked above: A qualified person has been assigned responsibility for pre-storm and post-storm BMP inspections to identify effectiveness and necessary repairs or design changes ☐ YES ☐ NO

Name: _____ Phone: _____

C. PERMIT COMPLIANCE RESPONSIBILITY

A qualified person has been assigned responsibility to ensure full compliance with the Permit, and to implement all elements of the Storm Water Pollution Prevention Plan including:

1. Preparing an annual compliance evaluation ☐ YES ☐ NO

Name: _____ Phone: _____

2. Eliminating all unauthorized discharges ☐ YES ☐ NO

IX. VICINITY MAP AND FEE (must show site location in relation to nearest named streets, intersections, etc.)

Have you included a vicinity map with this submittal? ☒ YES ☐ NO

Have you included payment of the annual fee with this submittal? ☐ YES ☐ NO

X. CERTIFICATIONS

"I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment. In addition, I certify that I have read the entire General Permit, including all attachments, and agree to comply with and be bound by all of the provisions, requirements, and prohibitions of the permit, including the development and implementation of a Storm Water Pollution Prevention Plan and a Monitoring Program Plan will be complied with."

Printed Name: _____

Signature: _____ **Date:** _____

Title: _____

DRAFT

Appendix B Conceptual Sampling Plan

DRAFT

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	2.0/8.0, 0.0/13.5		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. 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.

ALAMEDA COUNTY
CONGESTION MANAGEMENT
1333 BROADWAY, SUITE
220 OAKLAND, CA 94612

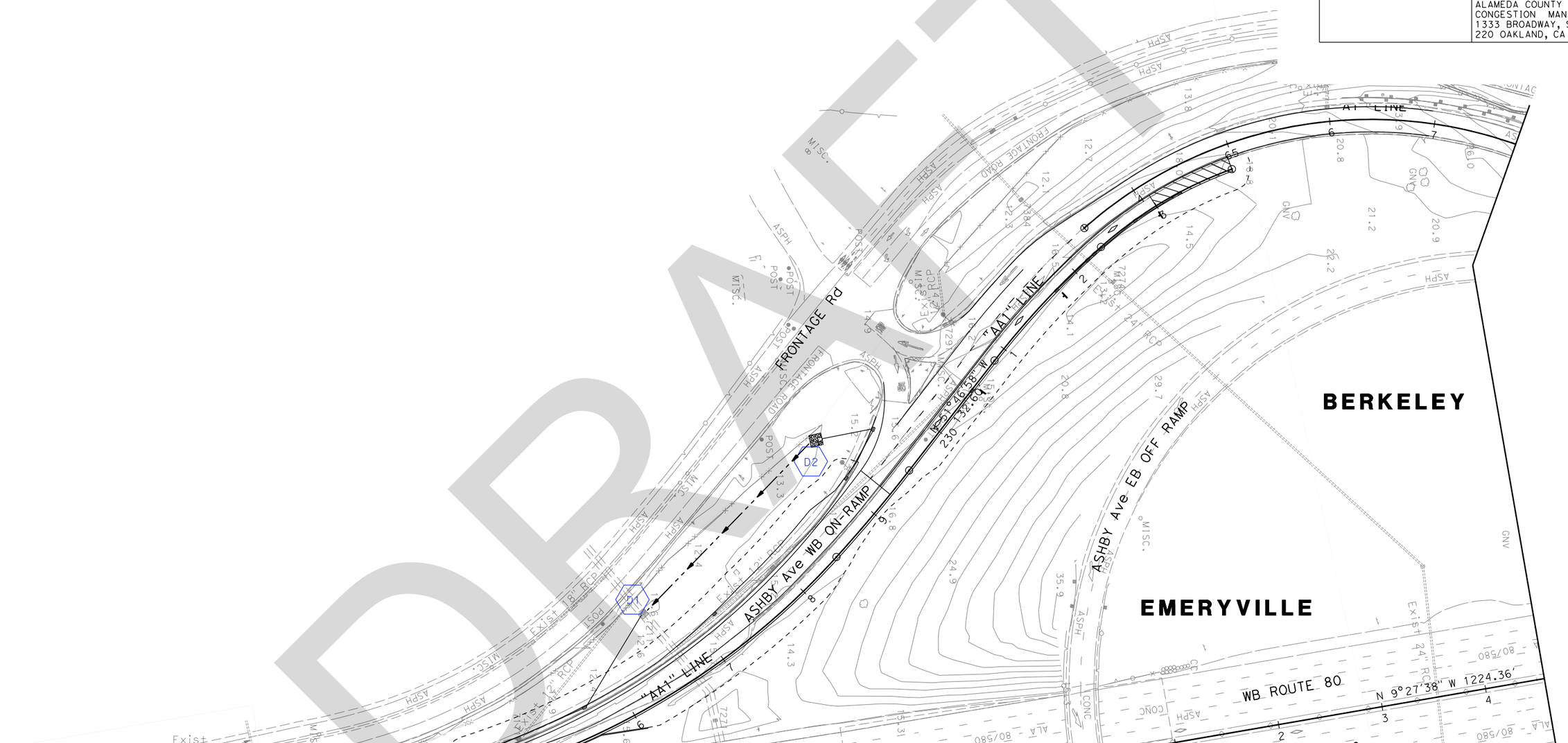
NOTE:

FOR ACCURATE RIGHT OF WAY AND ACCESS DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

LEGEND:

D# DISCHARGE LOCATION No.

S# DISCHARGE AND SAMPLING LOCATION No.



DRAFT

SAMPLING PLAN

SCALE: 1" = 50'

SAMP-1

THIS PLAN FOR REFERENCE ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

LAST REVISION 00-00-00

DATE PLOTTED => 2/23/2012
TIME PLOTTED => 10:11:12 AM

BORDER LAST REVISED 4/11/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => andrew_chin
DGN FILE => ...\Dwg\sampling\43a770samp001.dgn

CU 00000

EA 3A7761

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	2.0/8.0, 0.0/13.5		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

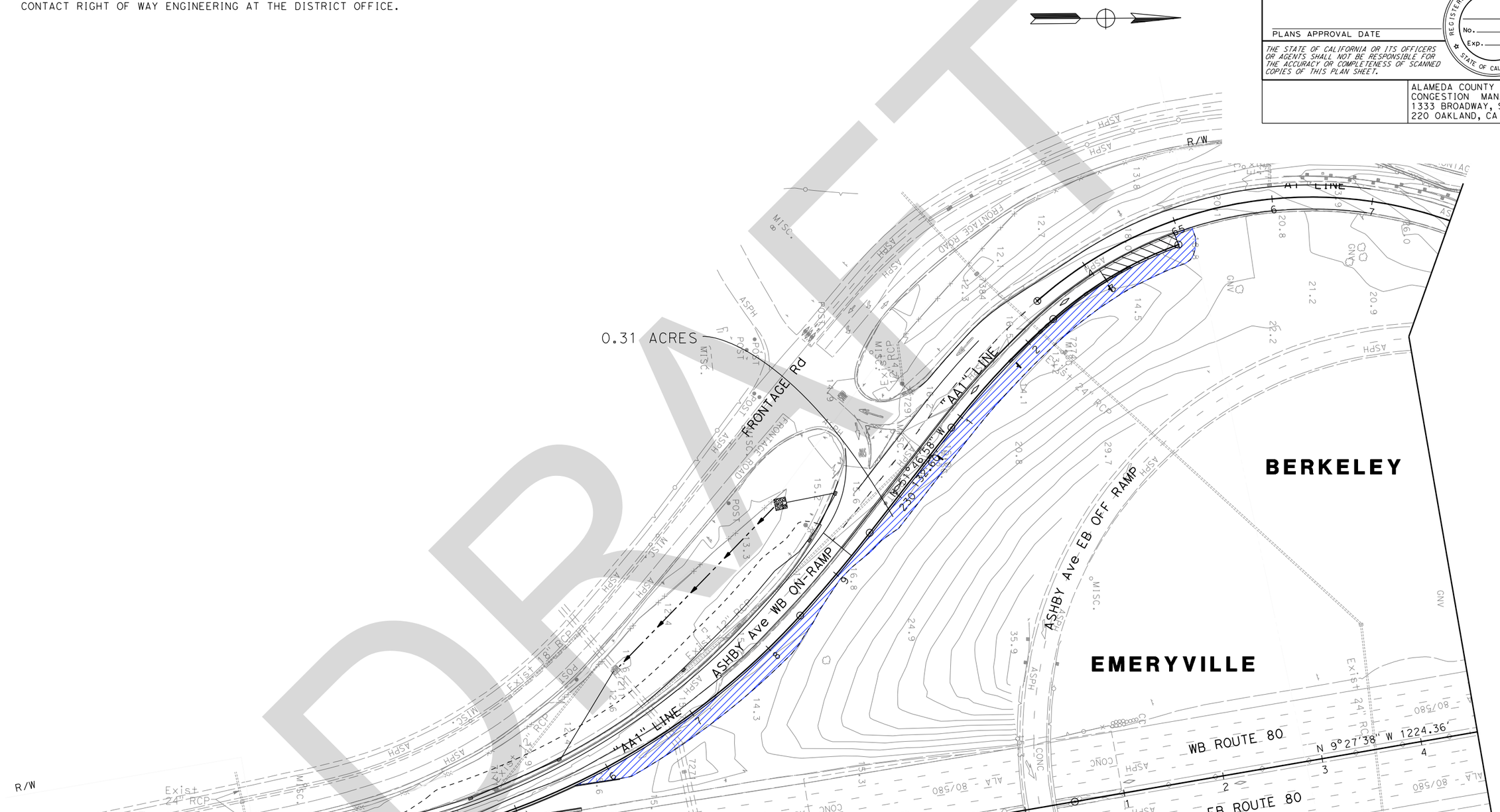
REGISTERED PROFESSIONAL ENGINEER No. Exp. STATE OF CALIFORNIA

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.

ALAMEDA COUNTY
CONGESTION MANAGEMENT
1333 BROADWAY, SUITE
220 OAKLAND, CA 94612

NOTE:

FOR ACCURATE RIGHT OF WAY AND ACCESS DATA,
CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



RUN-ON PLAN

SCALE: 1" = 50'

RUN-1

THIS PLAN FOR REFERENCE ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

LAST REVISION 00-00-00

DATE PLOTTED => 2/23/2012
TIME PLOTTED => 9:54:26 AM

BORDER LAST REVISED 4/11/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => andrew_chin
DGN FILE => ...\Dwg\run-on\43a770run001.dgn

CU 00000

EA 3A7761

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	2.0/8.0, 0.0/13.5		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

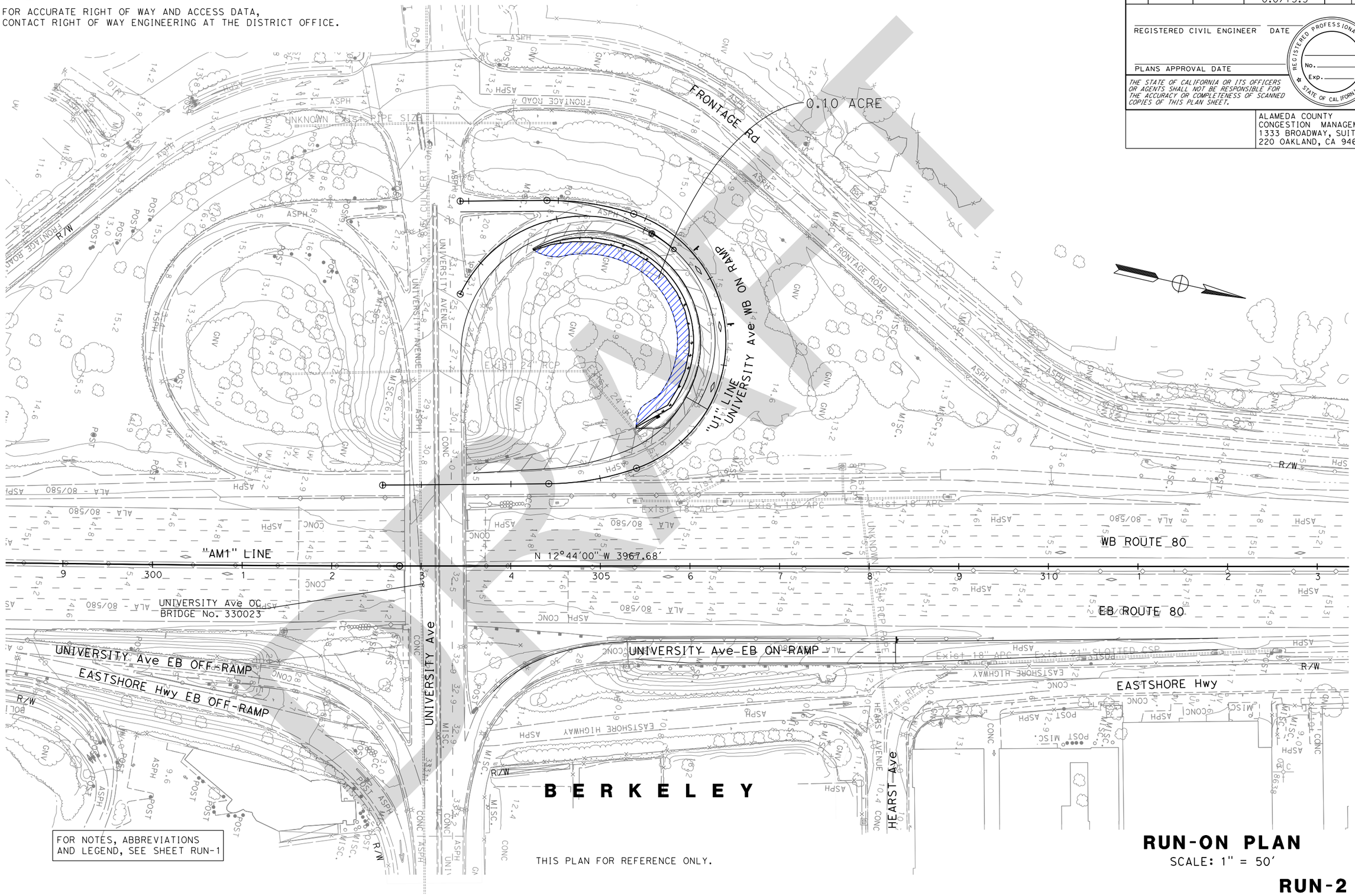
REGISTERED PROFESSIONAL ENGINEER No. Exp. STATE OF CALIFORNIA

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.

ALAMEDA COUNTY
CONGESTION MANAGEMENT
1333 BROADWAY, SUITE
220 OAKLAND, CA 94612

NOTE:

FOR ACCURATE RIGHT OF WAY AND ACCESS DATA,
CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



THIS PLAN FOR REFERENCE ONLY.

RUN-ON PLAN

SCALE: 1" = 50'

RUN-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

LAST REVISION 00-00-00

DATE PLOTTED => 2/23/2012
TIME PLOTTED => 10:05:32 AM

BORDER LAST REVISED 4/11/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => andrew_chin
DGN FILE => ...\Dwg\run-on\43a770samp002.dgn

CU 00000

EA 3A7761

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	2.0/8.0, 0.0/13.5		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. STATE OF CALIFORNIA

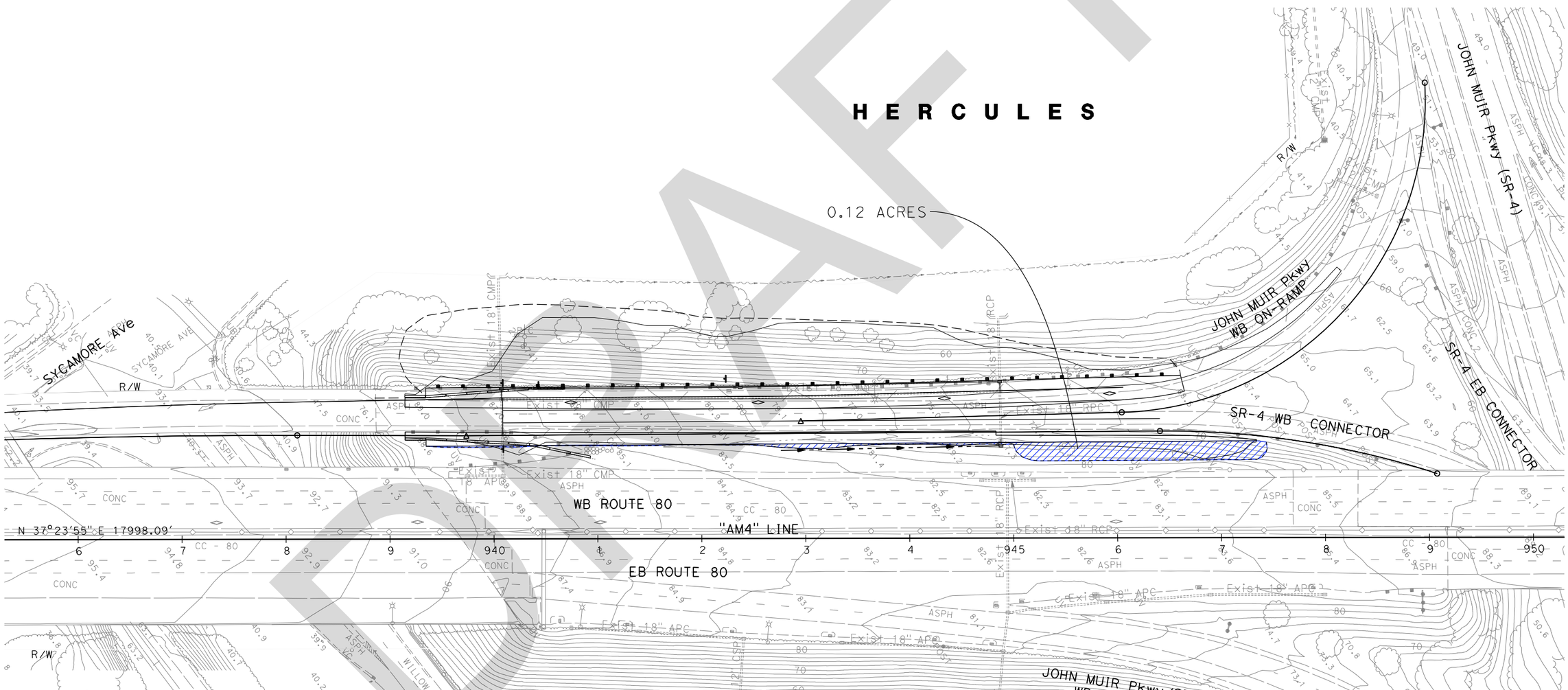
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

ALAMEDA COUNTY
CONGESTION MANAGEMENT
1333 BROADWAY, SUITE
220 OAKLAND, CA 94612

NOTE:

FOR ACCURATE RIGHT OF WAY AND ACCESS DATA,
CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

DRAFT



FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET RUN-1

THIS PLAN FOR REFERENCE ONLY.

RUN-ON PLAN

SCALE: 1" = 50'

RUN-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

LAST REVISION 00-00-00

DATE PLOTTED => 2/23/2012
TIME PLOTTED => 10:01:00 AM

BORDER LAST REVISED 4/11/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => andrew_chin
DGN FILE => ...\Dwg\run-on\43a770run003.dgn

CU 00000

EA 3A7761

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	2.0/8.0, 0.0/13.5		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. 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.

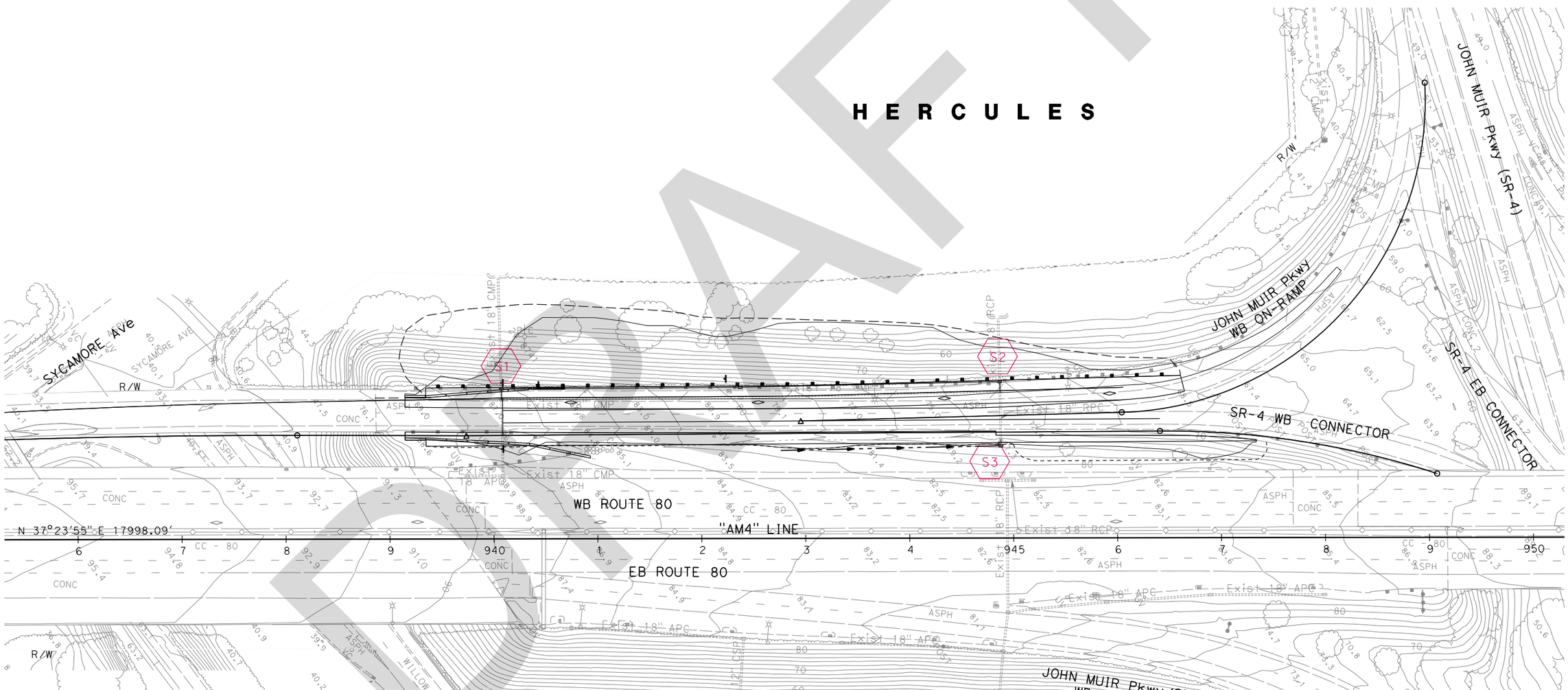
ALAMEDA COUNTY
CONGESTION MANAGEMENT
1333 BROADWAY, SUITE
220 OAKLAND, CA 94612

NOTE:

FOR ACCURATE RIGHT OF WAY AND ACCESS DATA,
CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

DRAFT

HERCULES



FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET SAMP-1

THIS PLAN FOR REFERENCE ONLY.

SAMPLING PLAN

SCALE: 1" = 50'

SAMP-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY

DATE REVISED

LAST REVISION 00-00-00

DATE PLOTTED => 2/23/2012
TIME PLOTTED => 10:13:07 AM

BORDER LAST REVISED 4/11/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => andrew_chin
DGN FILE => ...\Dwg\sampling\43a770samp003.dgn

CU 00000

EA 3A7761

Appendix C Run-on Watershed Map

DRAFT

NON-STORM WATER INFORMATION PACKAGE

CONTRACT NO. 0400002043-(3A7764)

04-ALA-80-2.0/8/0

04-CC-80-0.0/13.5

ADAPTIVE RAMP METERING IN ALAMEDA AND CONTRA COSTA COUNTIES AT VARIOUS LOCATIONS FROM POWELL STREET UNDERCROSSING TO 0.1 MILE WEST OF THE CARQUINEZ BRIDGE

1. **Project Description**

   This project proposes to install adaptive ramp metering (ARM) equipment at 38 on-ramps in both directions of Interstate 80 from Powell Street to the Carquinez Bridge. Ramp meter equipment includes in-pavement loop detection for each on-ramp, ramp meter signals, METER ON sign, and controller cabinet. This project also proposes widening of three on-ramps (WB SR-4, WB University Avenue, and WB Ashby Avenue) to accommodate required ramp meter configuration; California Highway Patrol (CHP) enforcement area at one ramp; and High-Occupancy Vehicle (HOV) preferential lanes at seven ramps.

2. **Construction Activities requiring Dewatering**

   Ground water may be encountered in the structure excavations while installing cast-in-drilled hole (CIDH) piles for Variable Message Signs at Ashby Avenue. Pile excavation is 43 feet deep.

3. **Seepage Rate Memorandum**

   The seepage rate memorandum is included on the following page.

4. **Publicly Owned Treatment Facilities**

   A list and map of Publicly Owned Treatment Facilities is included on the following pages.

5. **Dewatering Location Maps**

   Locations of possible dewatering are shown on the attached design plan sheet. Foundation locations are at each installation of overhead ramp metering signals.

State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MR. KAMRAN NAKHJIRI
Branch Chief
Water Pollution Control
Office of Water Quality

Date: November 9, 2011

Attention: J.Chen

File: 04- ALA-80 PM 2.3/8.0
04 – CC -80 PM 0.0/13.1
04- 3A7771
Integrated Corridor Mobility Project (ICM)

From: RIFAAT NASHED RN
Engineering Geologist
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

GRANT WILCOX GW
Chief, Branch B
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

Subject : Seepage Rate (Flow Rate) Estimate at ATM and IDB sign structure Locations

This memo is in response to your request to provide the groundwater depth and seepage rate for the construction of 11 Active Traffic Management (ATM) signs and 6 Information Display Boards (IDB). It is our understanding that this information will be used in estimating dewatering quantities.

It should be noted that in our estimate for all locations, we considered the maximum depth and width of excavation under the groundwater elevation in each construction. All of the sign structures will be supported on Caltrans standard CIDH pile with different lengths and diameters.

Four sign locations (SS16-1, SS21-1, SS37-1 and SS56-1) are estimated dry because of either no groundwater encountered during drilling of the borings or the rocky nature of the subsurface (SS16-1, SS37-1, SS56-1) or due to the pile tip elevation is higher than the groundwater elevation (SS21-1).

The following table shows the summary of the sign structures that will encounter groundwater during their excavation, borings that utilized in estimating their seepage rate, groundwater elevations, and their seepage rates.

Sign TYPE	NO.	BORING NO.	Groundwater Elevation (ft)	Seepage Rate (Gallon/day/ ft^2)
ATM	SS3-2	A-11-002	2.5	0.6
	SS6-2	A-11-003	4.0	1.4
	SS8-1	A-11-004	5.5	1.0
	SS9-1	A-11-005	9.0	1.5
	SS12-1	A-11-006	13.0	1.4
	SS13-2	As-built, Ret. Wall	4.0	0.3
	SS18-1	A-11-018	-3.0	0.4
	SS23-1	A-11-012	27.0	1.1
	SS25-1	A-11-013	31.0	0.1
IDB	SS3-1	AS-built, Powel St.	5.0	1.4
	SS13-1	A-11-007	4.5	1.3
	SS26-1	As-built, Cutting Blvd	37.5	1.4
	SS50-1	A-11-017	129.0	0.2

According to "The Federal Highway Report NO. FHWA-TS-80-224, Page 48-49", the Coefficient of Permeability K (ft./day) for all soils encountered in the project area are as follows:

Unified Soil Classification	Coefficient of Permeability K (ft./day)
Well graded gravel (GW)	2.7 to 274
Gravel with silt (GM)	2.7^{-4}x 27
Clayey gravel (GC)	$2.7x10^{-5}$ to $2.7x10^{-2}$
Well graded sand (SW)	1.4 to 137
Poorly graded sand (SP)	0.14 to 1.4
Silty sand (SM)	$2.7x10^{-4}$ to 1.4
Clayey Sand (SC)	$2.7x10^{-5}$ to 0.14
Lean clay (CL)	$2.7x10^{-5}$ to $2.7x10^{-3}$
Elastic silt (MH)	$2.7x10^{-6}$ to $2.7x10^{-4}$
Fat clay (CH)	$2.7x10^{-7}$ to $2.7x10^{-5}$

This seepage rate (flow rate) estimate is provided for cost estimate purposes only.

If you have any questions or need additional information, please call Rifaat Nashed at (510) 622-1773 or Grant Wilcox at (510) 286-4835.

c: TPokrywka, GWilcox, Route File, Daily File

RNashed/

I-80 I(NTEGRATED CORIRIDOR MOBOLITY PROJECT

Seepage Rate for ATM & IDB Sign Structures

Sign Structure NO. (CIDH Pile)	SOIL	Length (ft)	CIDH Diameter (ft)	No of Piles/Holes	A (ft^2)	K (ft/day)	H (ft)	H_0 (ft)	dH (ft)	d S (ft)	i	q (ft^3/day)	q total (Gallon/day)	q total (Gallon/day/ft^2)	flow rate per sign(Gallon/day/ft 2)
SS3-2	sand with silt(SP-SM)	4.0	5.0	2	164.85	1.4	2.5	-35.0	37.5	142.5	0.26316	60.7342105	453.2403771	2.74941084	
	Fat clay (CH)	4.0	5.0	2	164.85	0.000027	2.5	-35.0	37.5	142.5	0.26316	0.0011713	0.008741064	5.3024E-05	
	clayey sand (SC)	13.0	5.0	2	447.45	0.14	2.5	-35.0	37.5	142.5	0.26316	16.485	123.0223881	0.27494108	
	clayey sand with gravel (SC)	9.0	5.0	2	321.85	0.00027	2.5	-35.0	37.5	142.5	0.26316	0.02286829	0.170658877	0.00053024	
	Lean Clay with sand(CL)	7.5	5.0	2	274.75	0.0027	2.5	-35.0	37.5	142.5	0.26316	0.19521711	1.456844069	0.00530244	**0.6**
SS6-2	Poorly graded sand (SP)	10.0	5.0	2	353.25	1.4	4.0	-34.0	38.0	144.4	0.26316	130.144737	971.2293794	2.74941084	
	Lean Clay with sand(CL)	14.0	5.0	2	478.85	0.0027	4.0	-34.0	38.0	144.4	0.26316	0.34023553	2.539071092	0.00530244	
	Poorly graded sand with silt(Sp-SM)	7.0	5.0	2	259.05	1.4	4.0	-34.0	38.0	144.4	0.26316	95.4394737	712.2348782	2.74941084	
	Lean Clay with sand(CL)	7.0	5.0	2	259.05	0.0027	4.0	-34.0	38.0	144.4	0.26316	0.18406184	1.373595837	0.00530244	**1.4**
SS8-1	Poorly graded sand (SP)	10.0	5.0	2	353.25	1.4	5.5	-40.5	46.0	174.8	0.26316	130.144737	971.2293794	2.74941084	
	clayey sand with gravel (SC)	14.0	5.0	2	478.85	0.14	5.5	-40.5	46.0	174.8	0.26316	17.6418421	131.6555381	0.27494108	
	Lean Clay with sand(CL)	22.0	5.0	2	730.05	0.00027	5.5	-40.5	46.0	174.8	0.26316	0.05187197	0.387104281	0.00053024	**1.0**
SS9-1	Poorly graded sand (SP)	4.0	5.0	2	164.85	1.4	9.0	-36.0	45.0	171	0.26316	60.7342105	453.2403771	2.74941084	
	silty sand (SM)	8.0	5.0	2	290.45	0.14	9.0	-36.0	45.0	171	0.26316	10.7007895	79.85663786	0.27494108	
	well graded gravel (GW)	5.0	5.0	2	196.25	2.7	9.0	-36.0	45.0	171	0.26316	139.440789	1040.602907	5.30243519	
	Lean Clay with sand(CL)	3.0	5.0	2	133.45	0.0027	9.0	-36.0	45.0	171	0.26316	0.09481974	0.707609976	0.00530244	
	clayey gravel (GC)	7.0	5.0	2	259.05	0.27	9.0	-36.0	45.0	171	0.26316	18.4061842	137.3595837	0.53024352	
	Lean Clay with sand(CL)	18.0	5.0	2	604.45	0.0027	9.0	-36.0	45.0	171	0.26316	0.42947763	3.205056952	0.00530244	**1.5**
SS12-1	Poorly graded sand (SP)	5.2	5.0	2	202.53	1.4	13.0	-22.5	35.5	134.9	0.26316	74.6163158	556.8381775	2.74941084	
	silty sand (SM)	11.1	5.0	2	387.79	1.4	13.0	-22.5	35.5	134.9	0.26316	142.87	1066.19403	2.74941084	
	clayey sand (SC)	4	5.0	2	164.85	0.14	13.0	-22.5	35.5	134.9	0.26316	6.07342105	45.32403771	0.27494108	
	Lean clay (CL)	5.2	5.0	2	202.53	0.00027	13.0	-22.5	35.5	134.9	0.26316	0.01439029	0.10739022	0.00053024	
	silty sand with gravel(SP)	4.8	5.0	2	189.97	1.4	13.0	-22.5	35.5	134.9	0.26316	69.9889474	522.3055774	2.74941084	
	Lean to fat clay(CL/CH)	5.2	5.0	2	202.53	0.000027	13.0	-22.5	35.5	134.9	0.26316	0.00143903	0.010739022	5.3024E-05	**1.4**
SS13-2	silty sandy gravel (GM)	2	3.5	1	31.596	0.27	4.0	-37.5	41.5	157.7	0.26316	2.24499671	16.75370679	0.53024352	
	Bay mud(CH)	10	3.5	1	119.52	0.000027	4.0	-37.5	41.5	157.7	0.26316	0.00084919	0.006337272	5.3024E-05	
	sandy clay (CL)	9	3.5	1	108.53	0.0027	4.0	-37.5	41.5	157.7	0.26316	0.07711076	0.575453407	0.00530244	
	clayey gravel (GC)	5	3.5	1	64.566	0.27	4.0	-37.5	41.5	157.7	0.26316	4.58760197	34.23583562	0.53024352	
	Lean clay (CL)	4	3.5	1	53.576	0.027	4.0	-37.5	41.5	157.7	0.26316	0.38067336	2.840845935	0.05302435	
	clayey sand (SC)	5	3.5	1	64.566	0.14	4.0	-37.5	41.5	157.7	0.26316	2.37875658	17.75191477	0.27494108	
	silty clay(CL)	6.00	3.5	1	75.56	0.27	4.0	-37.5	41.5	157.7	0.26316	5.36847039	40.0632119	0.53024352	**0.3**
SS18-1	Lean Clay with sand(CL)	6.4	5.0	2	240.21	0.27	-3.0	-33.5	30.5	115.9	0.26316	17.0675526	127.3697958	0.53024352	
	clayey sand with gravel (SC)	8.6	5.0	2	309.29	0.14	-3.0	-33.5	30.5	115.9	0.26316	11.3948947	85.03652789	0.27494108	
	Lean clay (CL)	21.5	5.0	2	714.35	0.27	-3.0	-33.5	30.5	115.9	0.26316	50.7564474	378.779458	0.53024352	**0.4**
SS23-1	Well graded sand w/ silt and gravel(Sw-SM)	5.0	5.0	2	196.25	1.4	27.0	2.50	24.5	93.1	0.26316	72.3026316	539.5718775	2.74941084	
	Lean clay(CL)	5.00	5.0	2	196.25	0.00027	27.0	2.50	24.5	93.1	0.26316	0.01394408	0.104060291	0.00053024	
	Clayey gravel with sand (GC)	14.50	5.0	2	494.55	0.27	27.0	2.50	24.5	93.1	0.26316	35.1390789	262.2319324	0.53024352	**1.1**
SS25-1	Sandy lean clay (CL)	3.0	5.0	2	133.45	0.027	31	28.0	3.0	11.4	0.26316	0.94819737	7.076099764	0.05302435	**0.1**

SS-3-1	Poorly graded sand (SP)	9.00	5.0	1	160.93	1.4	5.0	-27.0	32.0	121.6	0.26316	59.2881579	442.4489395	2.74941084	
	Lean clay (CL)	6.00	5.0	1	113.83	0.27	5.0	-27.0	32.0	121.6	0.26316	8.08756579	60.35496858	0.53024352	
	Clayey sand and gravel (SC)	9.00	5.0	1	160.93	0.14	5.0	-27.0	32.0	121.6	0.26316	5.92881579	44.24489395	0.27494108	
	Lean clay (CL)	5.00	5.0	1	98.13	0.27	5.0	-27.0	32.0	121.6	0.26316	6.97203947	52.03014533	0.53024352	
	Sand with gravel(SP)	3.0	5.0	1	66.73	1.4	5.0	-27.0	32.0	121.6	0.26316	24.5828947	183.4544383	2.74941084	**1.4**
SS13-1	Poorly graded sand with silt(Sp-SM)	5.2	5.0	1	101.27	1.4	4.5	-20.5	25.0	95	0.26316	37.3081579	278.4190888	2.74941084	
	Poorly graded sand (SP)	5.0	5.0	1	98.13	1.4	4.5	-20.5	25.0	95	0.26316	36.1513158	269.7859387	2.74941084	
	Sandy lean clay (CL)	5.2	5.0	1	101.27	0.27	4.5	-20.5	25.0	95	0.26316	7.19514474	53.69510998	0.53024352	
	Clayey sand (SC)	6.0	5.0	1	113.83	0.14	4.5	-20.5	25.0	95	0.26316	4.19355263	31.29516889	0.27494108	
	Lean clay (CL)	3.10	5.0	1	68.30	0.027	4.5	-20.5	25.0	95	0.26316	0.48525395	3.621298115	0.05302435	**1.3**
SS26-1	silty clay(CL)	2.5	5.0	1	58.88	0.027	37.5	11.5	26.0	98.8	0.26316	0.41832237	3.12180872	0.05302435	
	Silty sand(SM)	11.0	5.0	1	192.33	1.4	37.5	11.5	26.0	98.8	0.26316	70.8565789	528.7804399	2.74941084	
	silty clay(CL)	5.5	5.0	1	105.98	0.027	37.5	11.5	26.0	98.8	0.26316	0.75298026	5.619255695	0.05302435	
	Silty sand(SM)	7.0	5.0	1	129.53	1.4	37.5	11.5	26.0	98.8	0.26316	47.7197368	356.1174391	2.74941084	**1.4**
SS50-1	Lean clay with gravel(CL)	5.4	5.00	1	104.41	0.27	129	111.0	18.0	68.4	0.26316	7.41825	55.36007463	0.53024352	
	Elastic silt (MH)	5.6	5.00	1	107.55	0.00027	129	111.0	18.0	68.4	0.26316	0.00764136	0.057025039	0.00053024	
	sand lean clay (CL)	7.0	5.00	1	129.53	0.027	129	111.0	18.0	68.4	0.26316	0.92030921	6.867979183	0.05302435	**0.2**

q = KiA

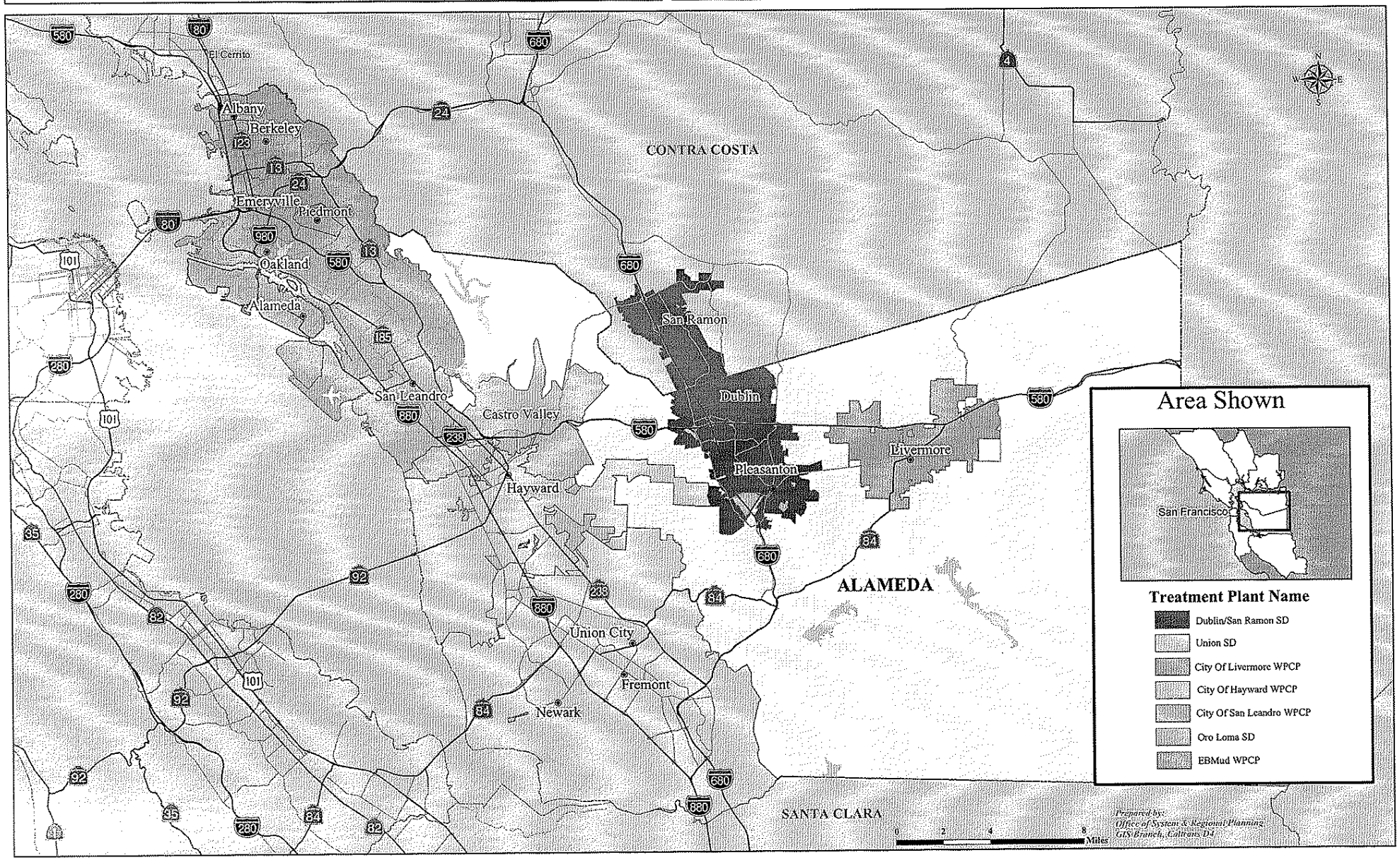
Notes

Length = bed thickness
Perimeter = is the circumference of the pile (hole) = 2 PI r/or width of of hole - trench
A = The cylender surface area = 2 PI r x Length
k = Soil permeability (from Hwy Subdrainage Design Report No. FHWA - TS-80-224- Page 48-49)
H = ground water elevation
H0 = the pile tip (bottom of the hole) elevation/bottom of trench
dH = water head
ds = gradient distance Li = 3.8x(H - H0)……Ref. FHWA-Ts-80-224 Page 66
"i" = dH/ds
q total = (gallon/day/ft2) = q total (gallon/day)/ total surface area

Alameda POTW

	City Discharger	Treatment Plant Name	WDR Discharger Name	Discharger Contact Name	Contact Phone No.	Contact Email	Mail Address	Ct Contact for Groundwater & De-Watering Discharges	Service Area of the POTW
6	Dublin	Dublin San Ramon Service District	Dublin San Ramon SD	Bob Anderson/ Levi Fuller	925-875-2360, cell 925-570-8757; 925-846-0568, ext. 119	anderson@dsrsd.com; fuller@dsrsd.com	DSRSD, 7051 Dublin Blvd., Dublin, CA 94568	Call Env. Compliance Officer Eric Kuefner @ 925-875-2335 "case-by-case situation -prefer not during storms" Testing required,$385 for annual permit, per million gal fee, etc.	Dublin, San Ramon, & Pleasanton
7	Pleasanton		City of Pleasanton	Richard Lagomarsino; Daniel Smith	925-931-5538; 925-931-5509	rlagomarsino@ci.pleasanton.ca.us; dsmith@ci.pleasanton.ca.us	Richard Lagomarsino, Lead Utility Operator and Daniel Smith, Utility Superintendent, 3333 Busch Road, Pleasanton, CA 94588	Same as Dublin-San Ramon SD - see line #A- 7	Same as Dublin-San Ramon SD - see line #A- 7
8	Union City	Union SD	Union SD	Roger Ham	510-477-7540	roger_ham@unionsanitary.com	Roger Ham, Collection Service Manager, Uniion Sanitary District, 5072 Benson Road, Union City, CA 94587	Best contact is Von Henry @ 510-477-7637. UCSD would consider if there are no other options available, ie. If non-contaminated using the storm drain is "ok"	Services: Fremont (including Niles), Union City, & Newark
9	Livermore	City of Livermore WPCP	City of Livermore	Darren Greenwood	925-960-8100	dggreenwood@ci.livermore.ca.us	Darren Greenwood, Water Resources Manager, 101 West Jacklondon Blv., Livermore, CA 94551	Call Env. Source Control's - Alex Paredes 925-960-8144 ; "requires testing, then annual G.W discharge Permit of $250, and $6,750 PMG's of discharge" - Will mail packet	City of Livermore, the Ruby Hills Development of Pleasanton, and the Veteran's Hospital of unincorporated Alameda County.
10	Hayward	City of Hayward WPCP	City of Hayward	Alex Ameri	510-583-4720	alexa@ci.hayward.ca.us	Alex Ameri, Deputy Director/Utilities, Dept. of Public Works, 777 B Street, Hayward, CA 94541-5007	Call Ms. Dije Ndreu @ 510-881-7960 They will accept discharge with test results. Permit fee is $470 plus per gallon fee. See email of 6/22/04 has all info	Per Alex Ameri: 90% of the city of Hayward is served by this sewer system - the other 10% (the North end, north of "A" St.) is serviced by Ora Loma Sanitation
11	San Leandro	San Leandro WPCP	City of San Leandro	Dean Wilson	510-577-6030	dwilson@ci.san-leandro.ca.us	Dean Wilson, Water Pollution Control Plant Manager, 3000 David St., San Leandro, CA 94577	Contact: John Camp in Env.Services @ 510-577-6029. "Haven't accepted in the past...prefers Baker tanks for sediment, then discharge to storm drain" There is a special Discharge Permit, includes $2.40 per 100 cu.ft. Would consider proposals.	Plant phone # is 510-577-3434 - they only do "the city boundaries of San Leandro - not the unincorporated areas - its sort of a Zig-Zag kind of thing..." They do have their boundaries on GIS - call Mike Hamer at 577-3339
12	San Lorenzo	Oro Loma SD	Oro Loma S.D.	Michael C. Cameron	510-481-6969	mcameron@oroloma.org	Michael Cameron, General Manager, Oro Loma Sanitary District, 2600 Grant Avenue, San Lorenzo, CA 94580	Best contact: Jeff Carson 510-481-6971. Fee, permit, plan, testing, possible treatment required. Potential problems are large sediments and amounts. May only allow discharge between 2 and 4 A.M. Service area is 40% of both Hayward and San Leandro, San Lorenzo, and some unincorporated Alameda County	Call Bill Halstead @ 510-481-6963 - he has base maps and shape files which he will make available on CD or pdf. Service area is all of San Lorenzo, parts of San Leandro, Hayward, and Castro Valley, and parts of unincorporated Alameda County. "Ora Loma is a 'district' and not subject to city boundaries..."
13	Castro Valley		Castro Valley S.D.	Roland Williams	510-537-0757	roland@cvsan.org	Roland William, General Manager, Castro Valley Sanitary District, 21040 Marshall Street, Castro Valley, CA 94546-6098	Same as Oro Loma SD - see line # A-12	Same as Oro Loma SD - see line # A-12
14	Oakland	EBMUD WPCP	EBMUD	Maura A. Bonnarens; Jennifer Smith	510-287-1141; 510-287-0509	mbonnaro@ebmud.com; jsmith@ebmud.com	David R. Williams, P.O. Box 2055 (MS#702), Oakland, CA 94623-1055	Web site: www.ebmud.com or call 510-287-1651 "for determination of your permitting needs" Best contact Gail Tupper at 510-287-1608 Permit is 13 pages long (costs $650) - "every situation is different/special..."	Cities of: Alameda, Albany, Berkeley, El Cerrito, Emeryville, Kensington, Oakland, and the Stege Sanitary section of Richmond.
15	Alameda		City of Alameda	Wali Waziri	510-749-5853	wwaziri@ci.alameda.ca.us	Mat Naclerio, Director of Public Works, City of Alameda, Alameda Point, Building 1, 950 West Mall Square, Room 110, Alameda, CA 94501	Same as EBMUD WPCP - see line # A-14	Part of EBMUD see # A -14
16	Albany		City of Albany	Ann Chaney	510-528-5768	achaney@albanyca.org	Ann Chaney, Director of Community Development and Environmental Resources, City of Albany-City Hall, 1000 San Pablo Ave, Albany, CA 94706	Same as EBMUD WPCP - see line # A-14	Part of EBMUD see # A -14
17	Berkeley		City of Berkeley	Henry Yee	510-981-6303	hyee@ci.berkeley.ca.us	Rene Cardinaux, Public Works Director, City of Berkeley, 2180 Milvia St., Berkeley, CA 94704	Same as EBMUD WPCP - see line # A-14	Part of EBMUD see # A -14
18	Emeryville		City of Emeryville	Maurice Kaufman	510-596-4334	mkaufman@ci.emeryville.ca.us	Hank Van Dyke, City Engineer, City of Emeryville, 1333 Park Ave., Emeryville, CA 94608	Same as EBMUD WPCP - see line # A -14	Part of EBMUD see # A -14
19	Oakland		City of Oakland	Fuad Sweiss; Allen Law	510-238-6607 (LR); 238-6939(AL)	fssweiss@oaklandnet.com; atlaw@oaklandnet.com	Michael Neary, Engineering Division Manager, Cit of Oakland, 250 Frank Ogawa Plaza, Suite 4314, Oakland, CA 94612	Same as EBMUD WPCP - see line #A -14	Part of EBMUD see # A -14
20	Piedmont		City of Piedmont	Larry Rosenberg	510-420-3050	lrosenberg@ci.piedmont.ca.us	Larry Rosenberg, Director of Public Works, City of Piedmont, 120 Vista Ave., Piedmont, CA 94611	Same as EBMUD WPCP - see line # A -14	Part of EBMUD see # A -14

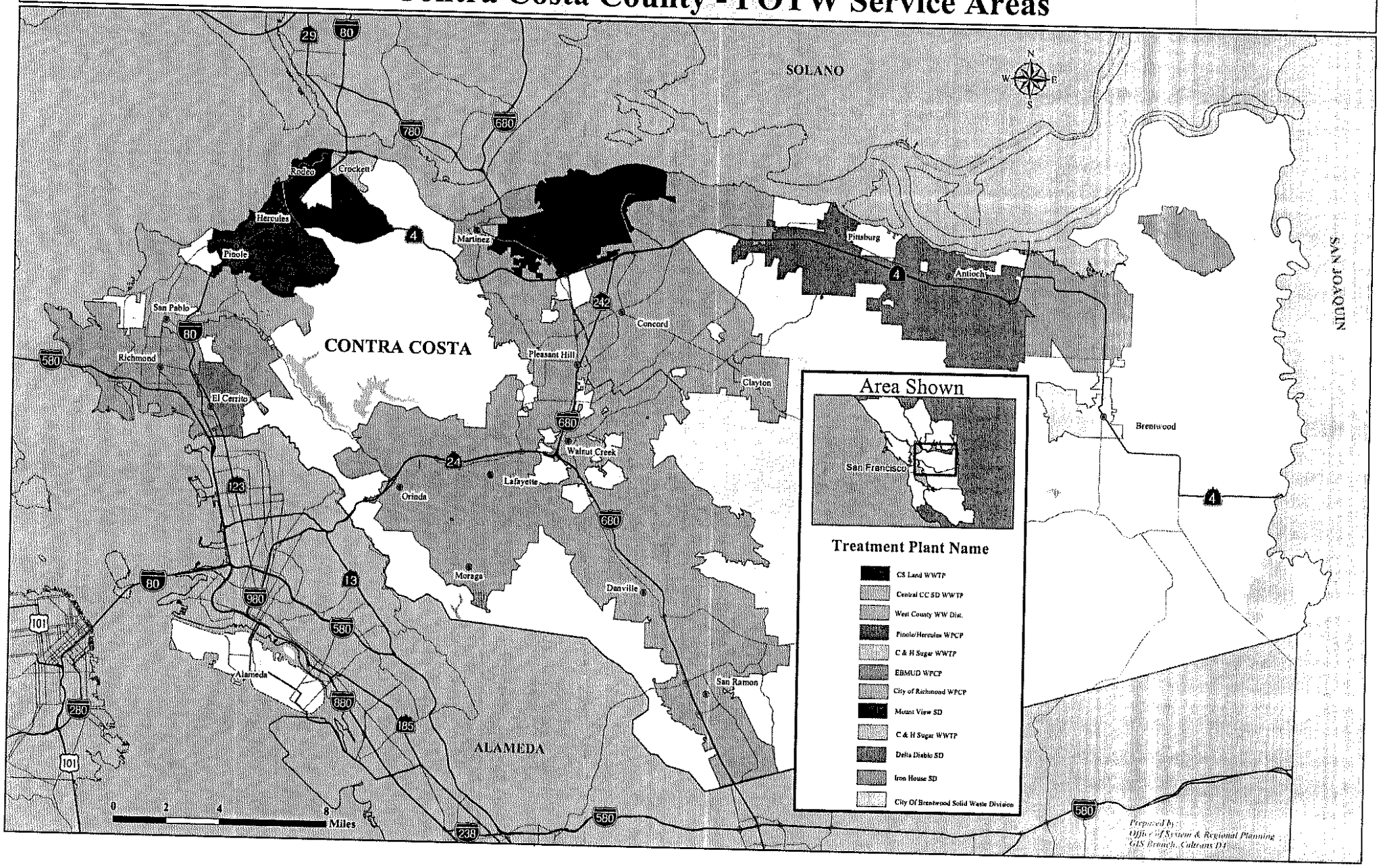
Alameda County - POTW Service Areas



Contra Costa POTW

	City Discharger	Treatment Plant Name	WDR Discharger Name	Discharger Contact Name	Contact Phone No.	Contact Email	Mail Address	Ct Contact for Groundwater & De-Watering Discharges	Service Area of the POTW
1	Richmond	City of Richmond WPCP	Veolia Water [formerly U.S. Filter]	Chris McAuliffe	510-412-2001	shalabel@usfilter.com	1401 Marine Way South, Richmond, CA 94804	Contact: Steve Friday @ 510-412-2009 website:"www.ci.richmond.ca.us/wastewater" Permit fee is now $750 (good for multiple sites), Total Scan for metals needed, possible site history needed. Steve has worked with Ct before on a 580 project with Chevron	City of Richmond
2	Richmond	West County WW District	West County WW District	John Foly(agency manager), Paul Winnick (collection system manager)	510-222-6700	jfoly@wcwd.org; pwinnicki@wcwd.org	2910 Hill Top Drive, Richmond, CA 94806	Contact Paul Winnecke @ 510-222-6700. Sevice area is San Pablo, N. Richmond, El Sobrante. Need permit, analysis, per gallon fee - wouldn't take during major storm event Try wcwd.org website	San Pablo, N. Richmond, El Sobrante
3	Pinole	Pinole-Hercules WPCP	Pinole-Hercules WPCP	Brent M. Salmi	510-724-9017	bsalmi@ci.pinole.ca.us	Brent M. Salmi, 2131 Pear St., Pinole, CA 94564	Brent Salmi is the City Engineer for both Pinole and Hercules 510-724-9017: No permit process - prefers, if tested, clean, and sediment-free to put in Storm drain. Also depends on quantity - will decide when given specifics of job	Cities of Pinole and Hercules
4	Hercules		City of Hercules	Jeff Brown	510-799-8252	jbrown@ci.hercules.ca.us	Jeff Brown, City of Hercules, 111 Civic Drive, Hercules, CA 94547	City of Hercules sends their Wastewater to the Pinole-Hercules Plant-see Line # A - 3	City of Hercules - see Line # A - 3
87	Contra Costa County, Port Costa WWTP	Contra Costa County, Port Costa WWTP	Contra Costa County, Public Works Dept. (include CCCSD6 and CCCSD5, CCCM28)	Lisa Carnahan	925-313-2191	lcarnaha@pw.co.contra-costa.ca.us	Contra Costa County Public Work, 255 Glacier Dr., Martinez, CA 94553	Per Lisa Carnahan 925-313-2191: "Absolutely not." This is a very small plant with limited capacity, ie. # 6 is 47 homes (Stonehurst @ Alhambra,) #5 is 86 homes in Port Costa and #28 is a small Trailer Park.	Probably Port Costa - which has no Caltrans ROW within its city limits
88	CS Land WWTP	CS Land WWTP	CS Land WWTP	Dylan Radke	925-228-1400	dylan@gdwp.com	Dylan Radke, Attorney, P.O. Box 630, Martinez, CA 94553	Contact Tracy Sizemore @ 602-728-3047. This is a small land holding of 1900 acres only has Hwy 123 (San Pablo Ave in Crockett and Rodeo) TS says see Region 2 2004 Order #64	Crockett and Rodeo
89	Mt. View SD	Mt. View SD	Mt. View SD	Dave Contreras	925-228-5635x32	dcontreras@mvsd.org	David Contreras, 3800 Authur Road, Martinez, CA 94553	Per Dave Riddle: "Normally they would not accept - they didn't on Caltrans' 680/Marina Vista project - and the water was trucked to CC Central San." They would listen to proposals and the final decision would be made by Dr. Teng Wu or David Contreras.	Services unincorporated areas of Martinez - mostly North of Hwy 4 and E/W of Hwy 680
90	Central Contra Costa SD WWTP	Central Contra Costa SD WWTP	Central Contra Costa SD WWTP	Jim Kelly, John Pearl	JK, 925-229-7386; JP, 925-229-7156	jkelly@centralsan.dst.ca.us ; jpeard@centralsan.dst.ca.us	CCCSD, 5019 Imhoff Place, Martinez, CA 94553	Call Doug Craig @ 925-229-7284. They have accepted 60,000 gallons (8-12 truck loads per day)from Ct from the Ben-Mtz Bridge/680 project. They need source control, analyze - then talk about requirements and fee structure - will do what's best for their service area	They do these cities: Orinda, Moraga, Lafayette, Walnut Creek, San Ramon, Concord, Clayton, Pleasant Hill, Martinez, Alamo, Danville, and Port Chicago
91			City of Concord	Qamar Khan, Director of Public Works for Maintenance Services	925-671-3231			Same as Central Contra Costa SD see line # A -90	The city of Concord had their own WWTP until CCSD (line # A - 91) was built. Their WW is collected by the city - then sent to CCSD
92			City of Clayton - system managed by City of Concord	Qamar Khan, Director of Public Works for Maintenance Services	925-671-3231			No Caltrans ROW within City of Clayton - Same as Central Contra Costa SD see line # A - 90	No Caltrans ROW within City of Clayton
104	C&H Sugar WWTP	C&H Sugar WWTP	C&H Sugar	Elizabeth Crowley	510-787-4352		They don't have sanitary sewer system, C&H sugar sends their WW to Crockett Valona SD and CVSD sends all the WW to C&H Sugar WWTP	Best contact: Elizabeth Crowley @ 510-787-4352. She is "scared to take on unknowns" anything would be "conditionally dependent" - they have very tight limits on all metals. She's approachable - but is very dissapointed in Ct re: the Zampa Bridge It's possible.	The C & H plant handles all the waste north of the Railroad (in Crockett), the "industrial" part of Crockett, and from their plant. WW is commingled with the Crockett-Valona residential wastes, treated and discharged.
105			Crockett-Valona SD	Kent Peterson	510-787-2992	cvsd@earthlink.net	Kent Peterson, Crockettt Valona Sanitary District, P.O. Box 578, Crockett, CA 94525	Per Kent Peterson @ 510-787-2992 Crockett sends their WW to C&H and they WOULD NOT accept as it is disallowed per their agreement with C&H	The "Crockett" section is the area on both sides of I-80, while the "Valona" section is further east of 3rd Ave. Crockett and Valona called "Cro-Lona" sends their wastes to the C & H plant (on the Strait) where it is treated at a plant that is jointly owned by both of them

Contra Costa County - POTW Service Areas



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	3.8/8.0, 0.0/13.5		

REGISTERED ELECTRICAL ENGINEER — DATE 10/14/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DAVID S. HAINES — No. 16999 — Exp. 6/30/13 — ELECT — STATE OF CALIFORNIA

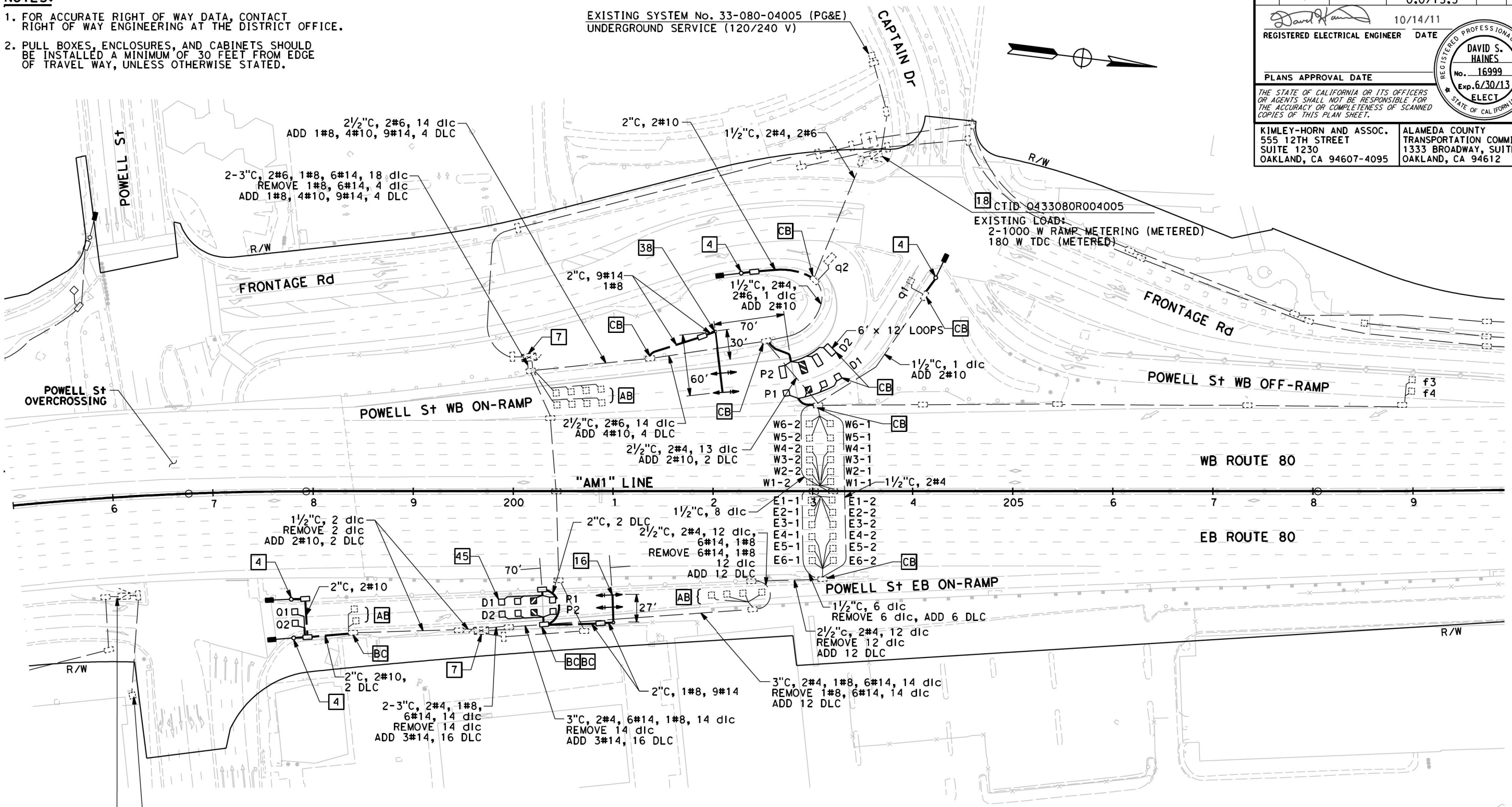
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

KIMLEY-HORN AND ASSOC.
555 12TH STREET
SUITE 1230
OAKLAND, CA 94607-4095

ALAMEDA COUNTY
TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. PULL BOXES, ENCLOSURES, AND CABINETS SHOULD BE INSTALLED A MINIMUM OF 30 FEET FROM EDGE OF TRAVEL WAY, UNLESS OTHERWISE STATED.



18 EXISTING TYPE III-AF SERVICE EQUIPMENT ENCLOSURE No. 03562
CTID 0433080R003562

EXISTING LOAD:
3000 W TRAFFIC SIGNALS (METERED)
100 W COMMUNICATION EQUIPMENT (METERED)
4000 W LIGHTING (METERED)
600 W TRAFFIC MONITORING STATION (METERED)

APPROVED FOR ELECTRICAL WORK ONLY

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1

RAMP METERING SYSTEM

LOCATION 1

SCALE: 1" = 50′

E-3

REVISED BY	DATE REVISED
JCS	10/14/11

CALCULATED-DESIGNED BY: R. DOLE
CHECKED BY: K. AKWABI
CONSULTANT FUNCTIONAL SUPERVISOR: RANDAL DURRENBERGER

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

LAST REVISION 08-22-11 — DATE PLOTTED => 2/6/2012 — TIME PLOTTED => 3:33:49 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	3.8/8.0, 0.0/13.5		

REGISTERED ELECTRICAL ENGINEER — DATE 10/14/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DAVID S. HAINES — No. 16999 — Exp. 6/30/13 — ELECT — STATE OF CALIFORNIA

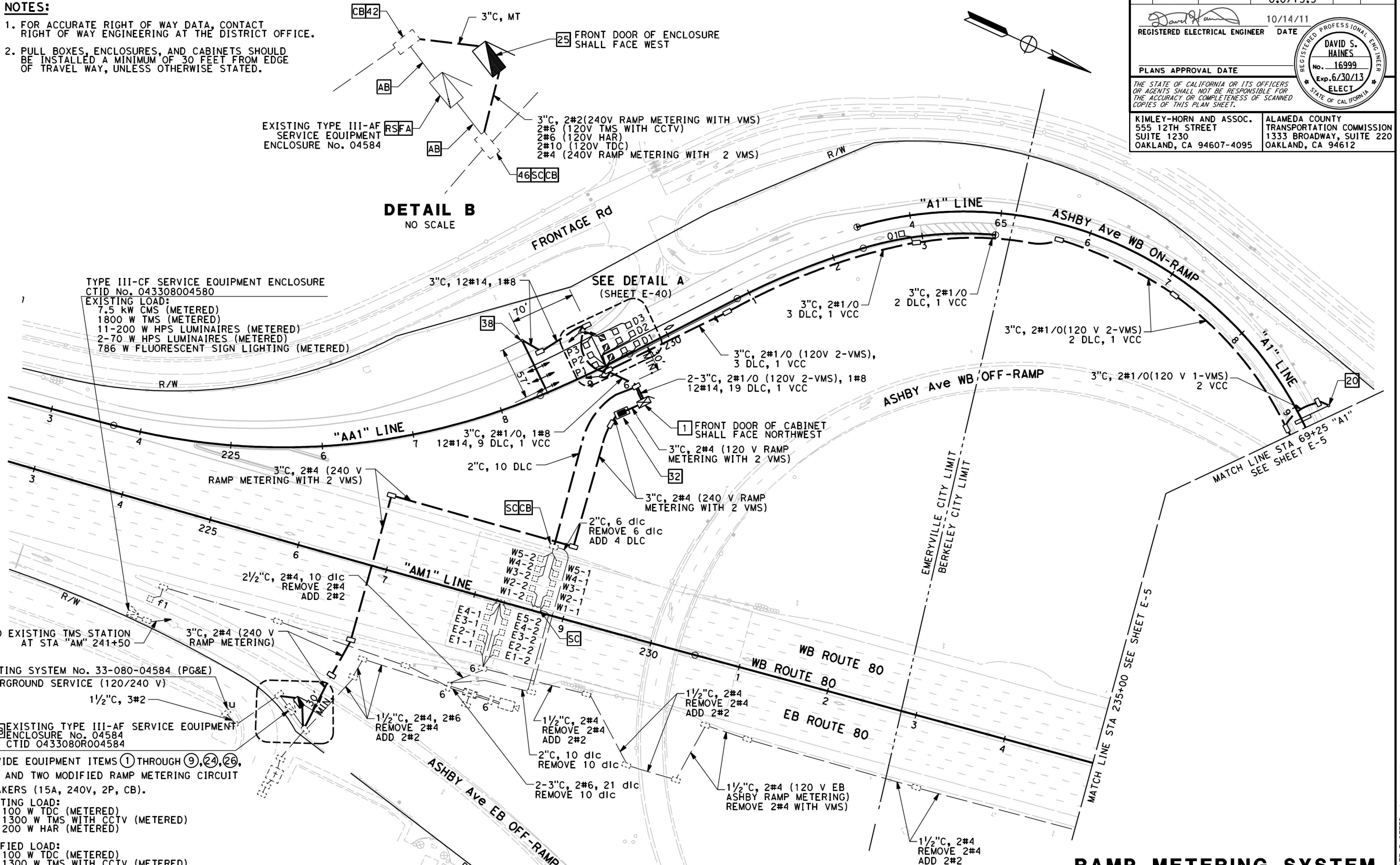
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

KIMLEY-HORN AND ASSOC.
555 12TH STREET
SUITE 1230
OAKLAND, CA 94607-4095

ALAMEDA COUNTY
TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. PULL BOXES, ENCLOSURES, AND CABINETS SHOULD BE INSTALLED A MINIMUM OF 30 FEET FROM EDGE OF TRAVEL WAY, UNLESS OTHERWISE STATED.



APPROVED FOR ELECTRICAL WORK ONLY

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1

RAMP METERING SYSTEM

LOCATION 2

SCALE: 1" = 50'

E-4

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	CHECKED BY	REVISED BY	DATE REVISED
Caltrans	RANDAL DURRENBERGER	R. DOLE	K. AKWABI	JCS	10/14/11

LAST REVISION 08-22-11 — DATE PLOTTED => 2/6/2012 — TIME PLOTTED => 3:33:51 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	3.8/8.0, 0.0/13.5		

REGISTERED ELECTRICAL ENGINEER — DATE 10/14/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DAVID S. HAINES — No. 16999 — Exp. 6/30/13 — ELECT — STATE OF CALIFORNIA

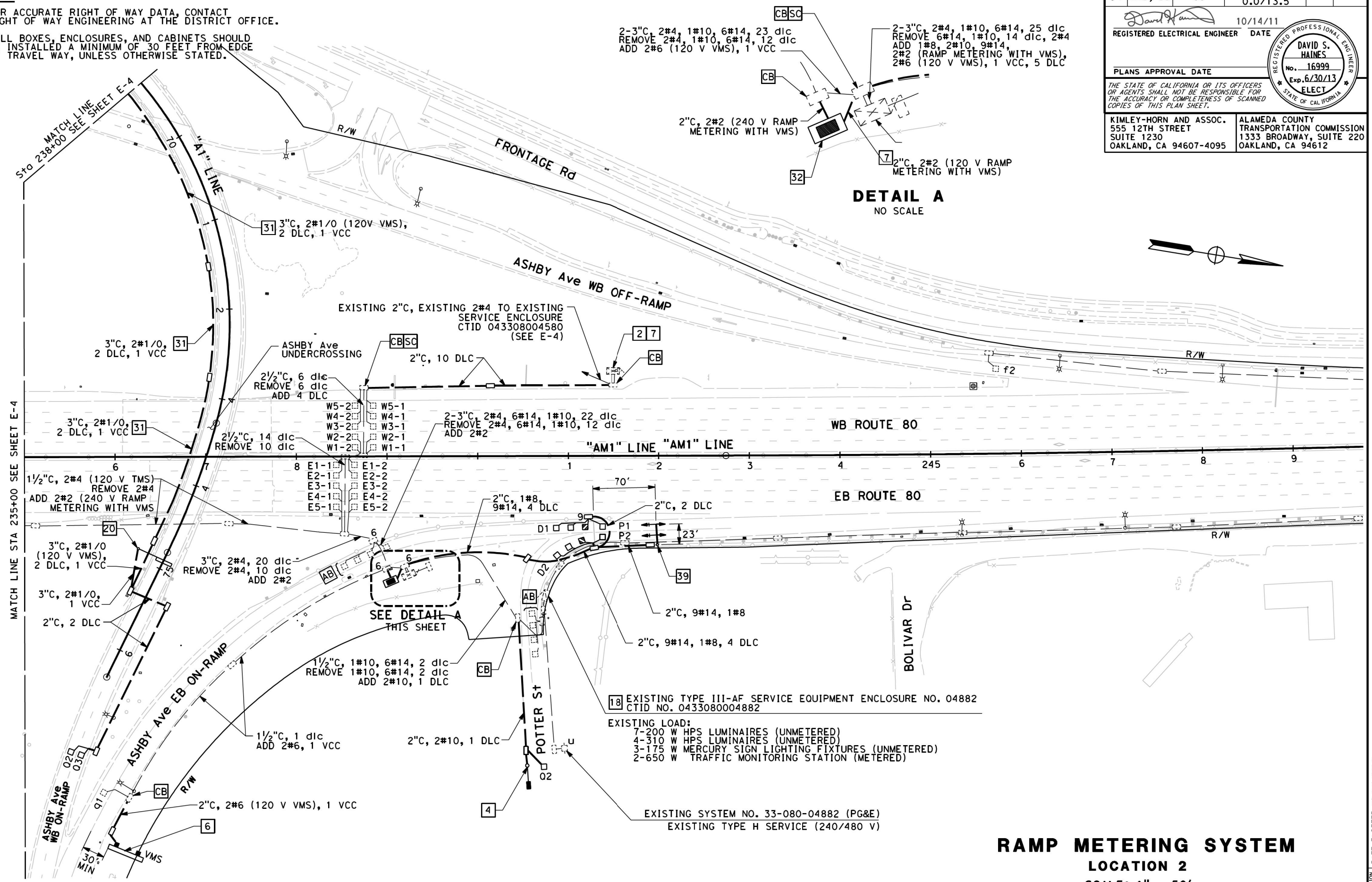
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

KIMLEY-HORN AND ASSOC.
555 12TH STREET
SUITE 1230
OAKLAND, CA 94607-4095

ALAMEDA COUNTY TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. PULL BOXES, ENCLOSURES, AND CABINETS SHOULD BE INSTALLED A MINIMUM OF 30 FEET FROM EDGE OF TRAVEL WAY, UNLESS OTHERWISE STATED.



RAMP METERING SYSTEM

LOCATION 2

SCALE: 1" = 50'

APPROVED FOR ELECTRICAL WORK ONLY

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1

E-5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: RANDAL DURRENBERGER

CALCULATED-DESIGNED BY	R. DOLE	REVISED BY	JCS
CHECKED BY	K. AKWABI	DATE REVISED	10/14/11

LAST REVISION 08-22-11 — DATE PLOTTED => 2/6/2012 — TIME PLOTTED => 3:33:54 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	3.8/8.0, 0.0/13.5		

REGISTERED ELECTRICAL ENGINEER — DATE 10/14/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DAVID S. HAINES — No. 16999 — Exp. 6/30/13 — ELECT — STATE OF CALIFORNIA

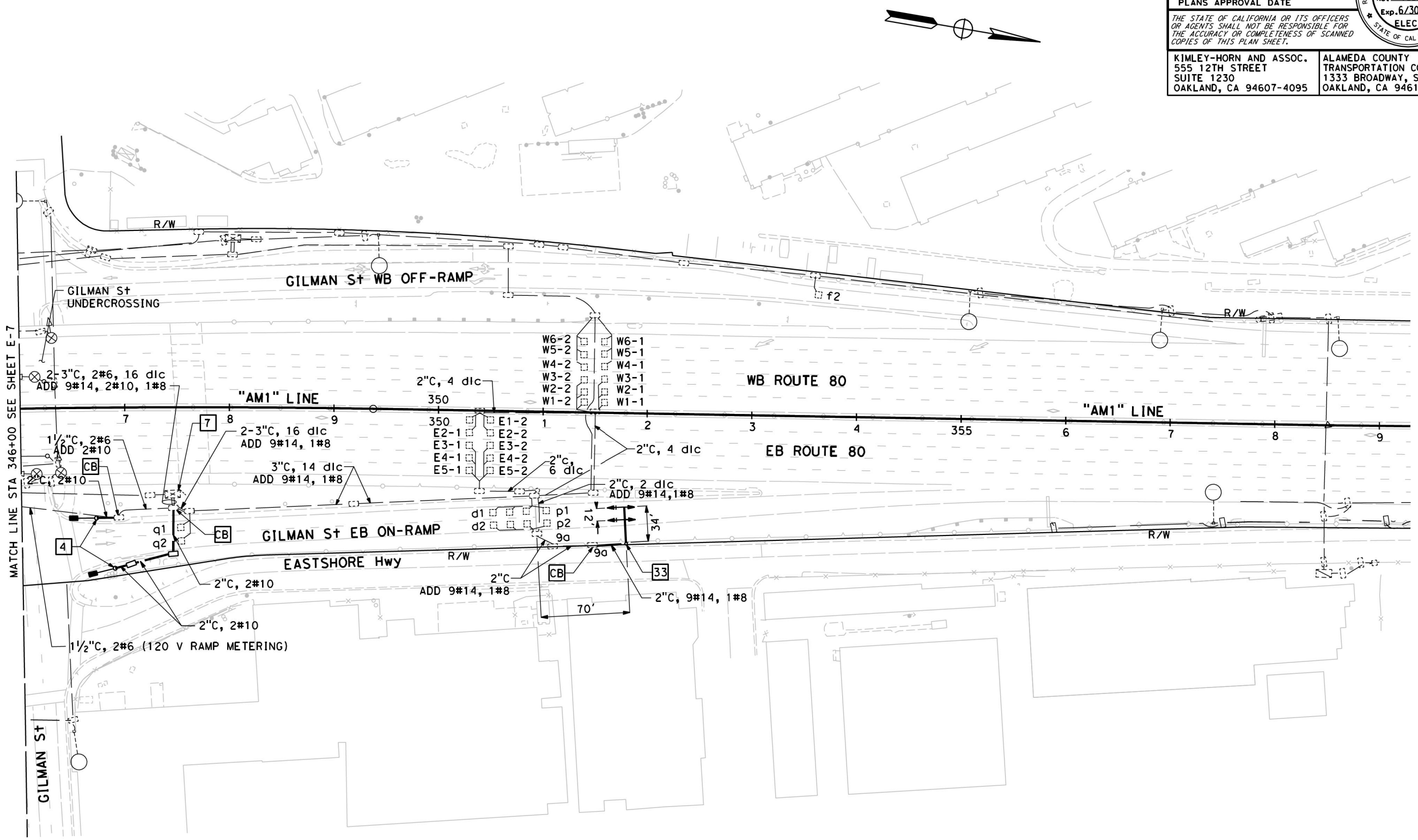
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

KIMLEY-HORN AND ASSOC.
555 12TH STREET
SUITE 1230
OAKLAND, CA 94607-4095

ALAMEDA COUNTY
TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. PULL BOXES, ENCLOSURES, AND CABINETS SHOULD BE INSTALLED A MINIMUM OF 30 FEET FROM EDGE OF TRAVEL WAY, UNLESS OTHERWISE STATED.



RAMP METERING SYSTEM

LOCATION 4

SCALE: 1" = 50'

E-8

APPROVED FOR ELECTRICAL WORK ONLY

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1

REVISED BY	DATE REVISED
JCS	10/14/11

CALCULATED-DESIGNED BY: R. DOLE
CHECKED BY: K. AKWABI
CONSULTANT FUNCTIONAL SUPERVISOR: RANDAL DURRENBERGER

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 08-22-11 | DATE PLOTTED => 2/6/2012 | TIME PLOTTED => 3:34:02 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	3.8/8.0, 0.0/13.5		

REGISTERED ELECTRICAL ENGINEER — DATE 10/14/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DAVID S. HAINES — No. 16999 — Exp. 6/30/13 — ELECT — STATE OF CALIFORNIA

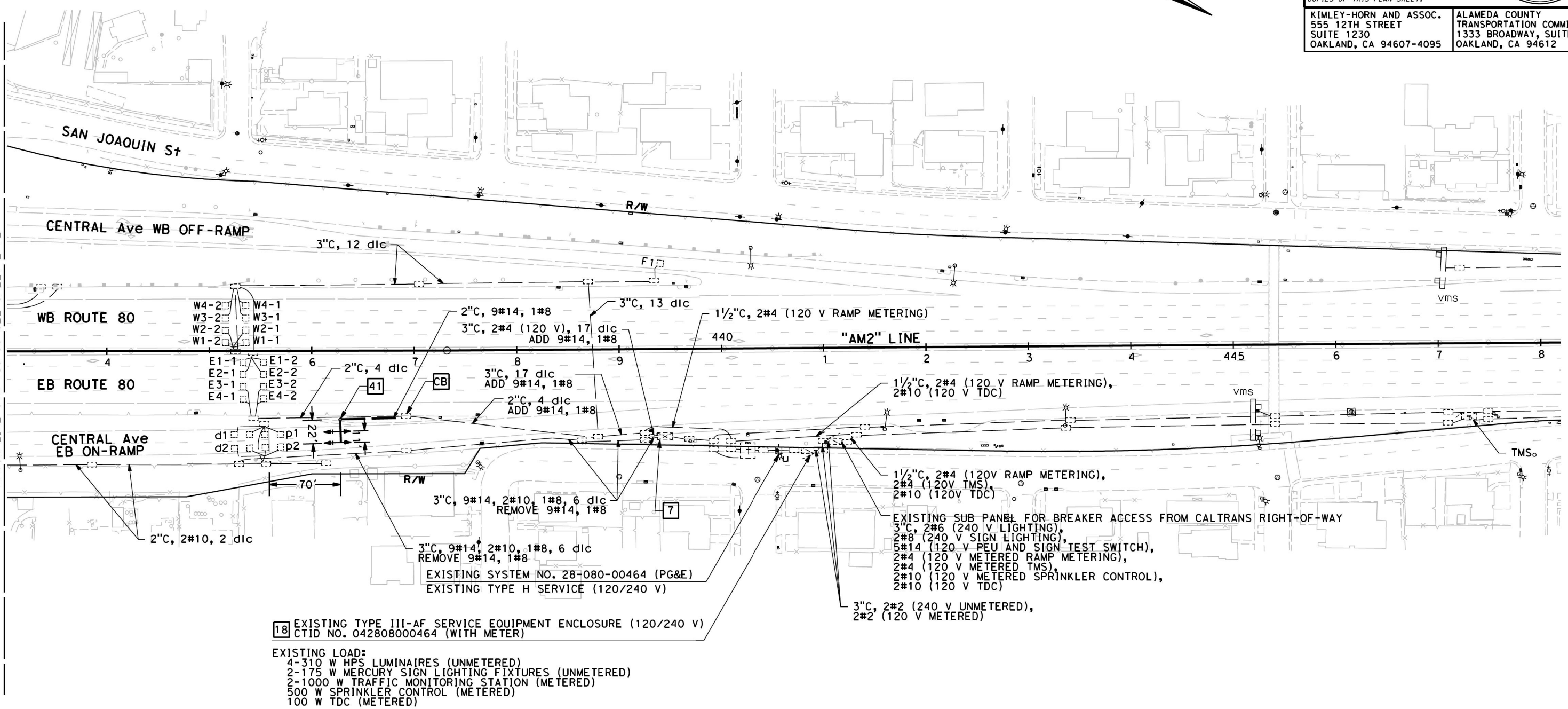
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

KIMLEY-HORN AND ASSOC.
555 12TH STREET
SUITE 1230
OAKLAND, CA 94607-4095

ALAMEDA COUNTY
TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. PULL BOXES, ENCLOSURES, AND CABINETS SHOULD BE INSTALLED A MINIMUM OF 30 FEET FROM EDGE OF TRAVEL WAY, UNLESS OTHERWISE STATED.



EXISTING LOAD:
- 4-310 W HPS LUMINAIRES (UNMETERED)
- 2-175 W MERCURY SIGN LIGHTING FIXTURES (UNMETERED)
- 2-1000 W TRAFFIC MONITORING STATION (METERED)
- 500 W SPRINKLER CONTROL (METERED)
- 100 W TDC (METERED)

MODIFIED LOAD:
- 4-310 W HPS LUMINAIRES (UNMETERED)
- 2-175 W MERCURY SIGN LIGHTING FIXTURES (UNMETERED)
- 500 W SPRINKLER CONTROL (METERED)
- 100 W TDC (METERED)
- 1000 W TRAFFIC MONITORING STATION (METERED)
- 1000 W RAMP METERING (METERED)

RAMP METERING SYSTEM

LOCATION 6

SCALE: 1" = 50'

E-13

APPROVED FOR ELECTRICAL WORK ONLY

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: RANDAL DURRENBERGER

CALCULATED-DESIGNED BY: R. DOLE — CHECKED BY: K. AKWABI — REVISED BY: JCS — DATE REVISED: 10/14/11

LAST REVISION 08-22-11 — DATE PLOTTED => 2/6/2012 — TIME PLOTTED => 3:34:14 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	3.8/8.0, 0.0/13.5		

REGISTERED ELECTRICAL ENGINEER — DATE 10/14/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DAVID S. HAINES — No. 16999 — Exp. 6/30/13 — ELECT — STATE OF CALIFORNIA

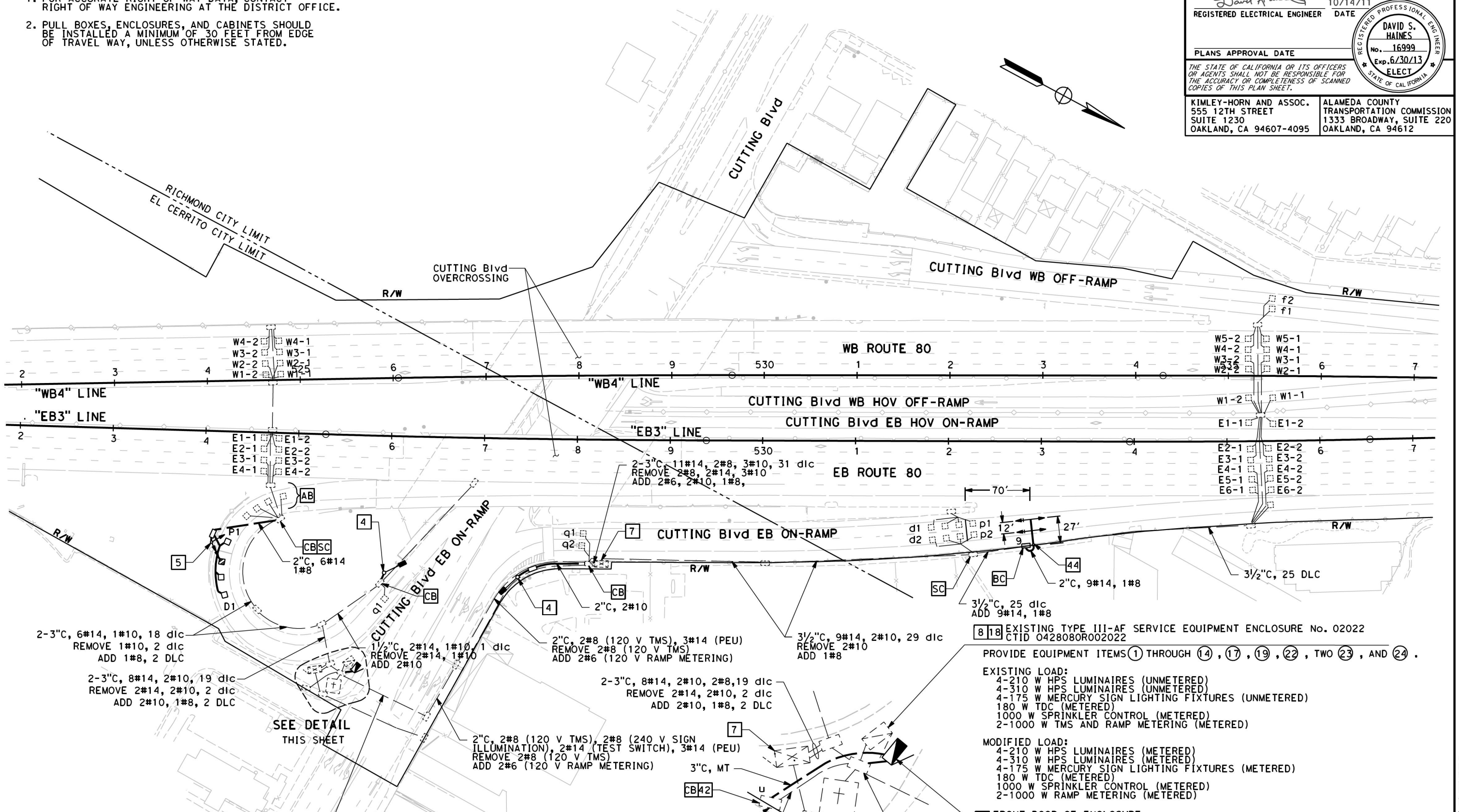
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

KIMLEY-HORN AND ASSOC.
555 12TH STREET
SUITE 1230
OAKLAND, CA 94607-4095

ALAMEDA COUNTY
TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. PULL BOXES, ENCLOSURES, AND CABINETS SHOULD BE INSTALLED A MINIMUM OF 30 FEET FROM EDGE OF TRAVEL WAY, UNLESS OTHERWISE STATED.



RAMP METERING SYSTEM

LOCATION 9

SCALE: 1" = 50'

APPROVED FOR ELECTRICAL WORK ONLY

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1

E-17

CALCULATED-DESIGNED BY	CHECKED BY	REVISED BY	DATE REVISED
R. DOLE	K. AKWABI	JCS	10/14/11

CONSULTANT FUNCTIONAL SUPERVISOR: RANDAL DURRENBERGER

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

LAST REVISION 08-22-11 — DATE PLOTTED => 2/6/2012 — TIME PLOTTED => 3:34:23 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	3.8/8.0, 0.0/13.5		

REGISTERED ELECTRICAL ENGINEER — DATE 10/14/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DAVID S. HAINES — No. 16999 — Exp. 6/30/13 — ELECT — STATE OF CALIFORNIA

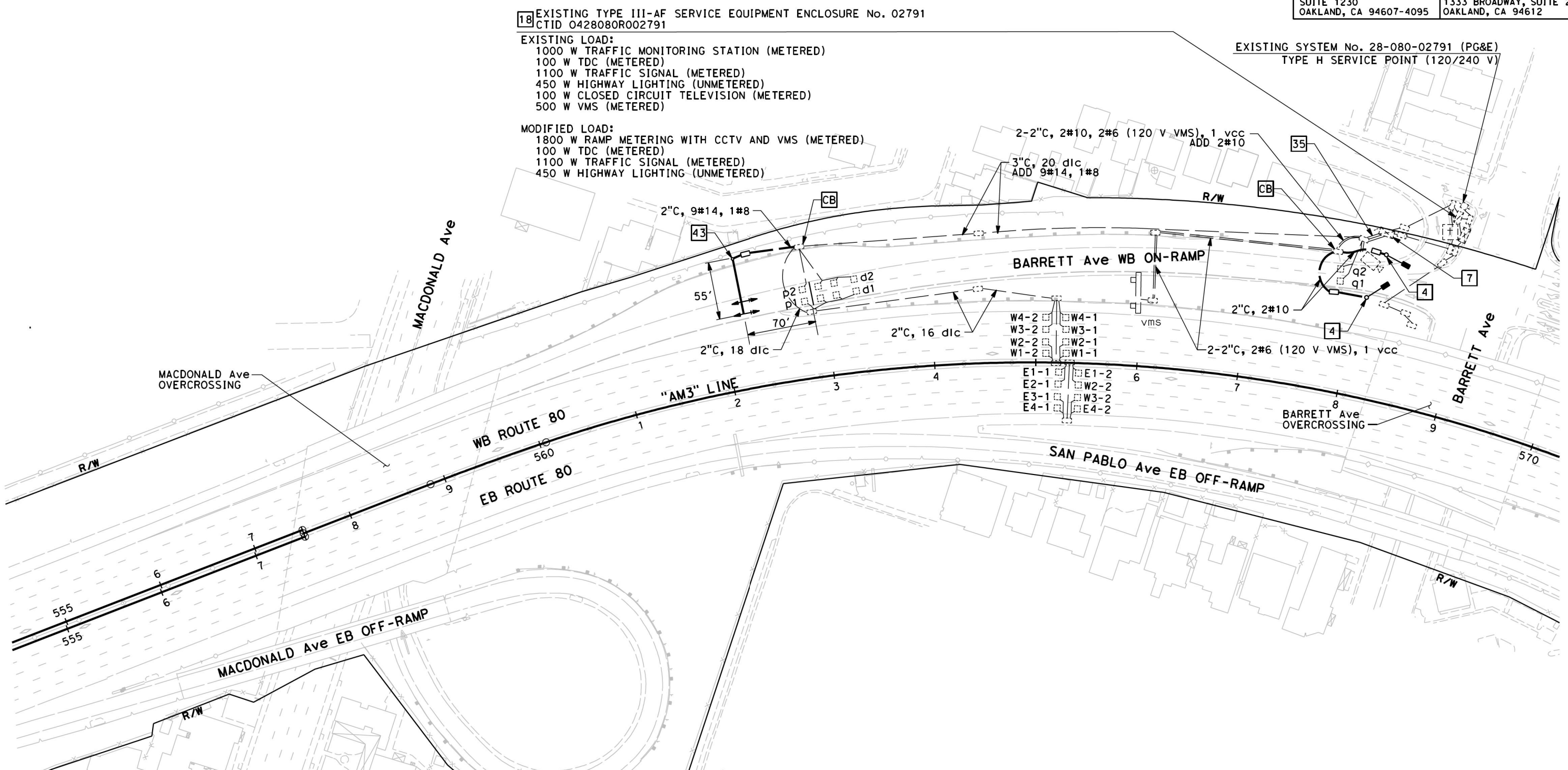
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

KIMLEY-HORN AND ASSOC.
555 12TH STREET
SUITE 1230
OAKLAND, CA 94607-4095

ALAMEDA COUNTY
TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. PULL BOXES, ENCLOSURES, AND CABINETS SHOULD BE INSTALLED A MINIMUM OF 30 FEET FROM EDGE OF TRAVEL WAY, UNLESS OTHERWISE STATED.



RAMP METERING SYSTEM

LOCATION 10

SCALE: 1" = 50'

E-18

APPROVED FOR ELECTRICAL WORK ONLY

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: RANDAL DURRENBERGER

CALCULATED-DESIGNED BY: R. DOLE — CHECKED BY: K. AKWABI

REVISED BY: JCS — DATE REVISED: 10/14/11

LAST REVISION: 08-22-11 — DATE PLOTTED => 2/6/2012 — TIME PLOTTED => 3:34:26 PM

BORDER LAST REVISED 7/2/2010 | USERNAME => kwasi.akwabi | DGN FILE => 0400002043ua018.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0727 | PROJECT NUMBER & PHASE 04000020431

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	3.8/8.0, 0.0/13.5		

REGISTERED ELECTRICAL ENGINEER — DATE 10/14/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DAVID S. HAINES — No. 16999 — Exp. 6/30/13 — ELECT — STATE OF CALIFORNIA

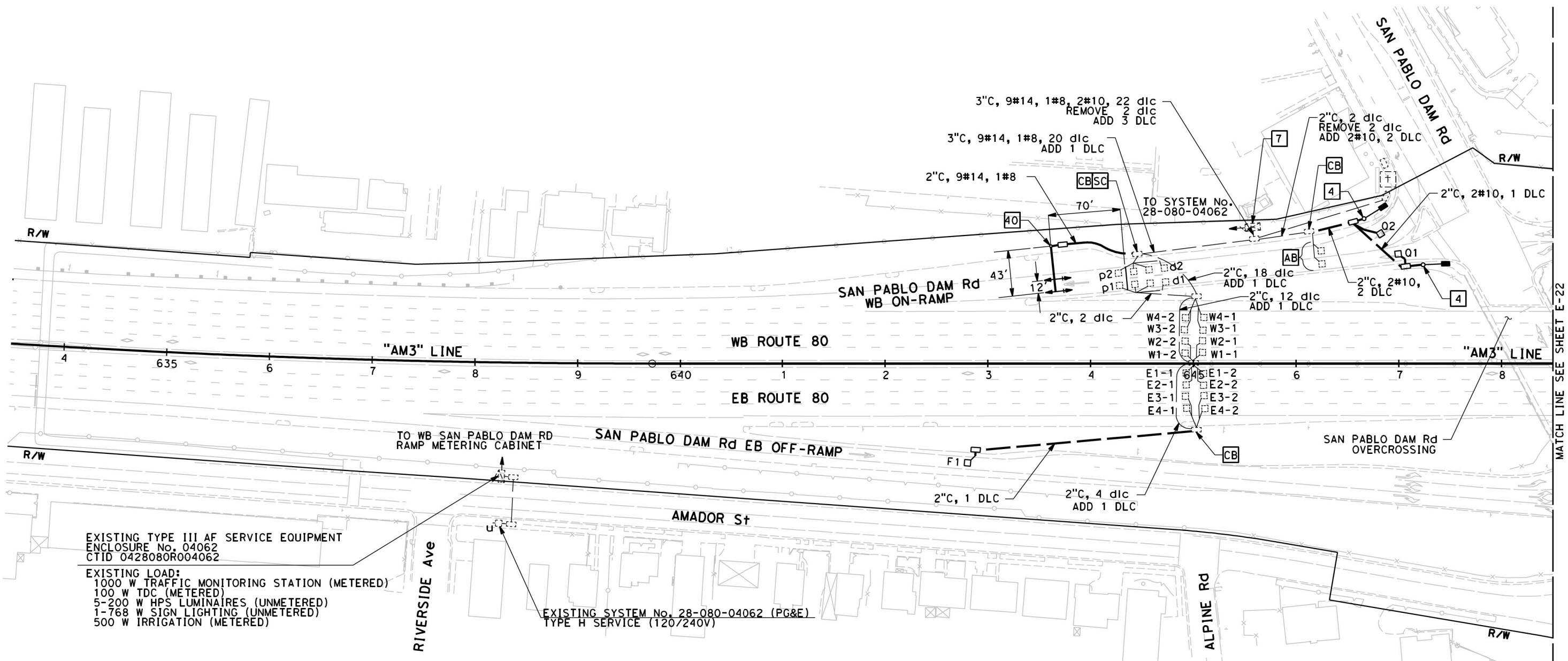
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

KIMLEY-HORN AND ASSOC.
555 12TH STREET
SUITE 1230
OAKLAND, CA 94607-4095

ALAMEDA COUNTY
TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. PULL BOXES, ENCLOSURES, AND CABINETS SHOULD BE INSTALLED A MINIMUM OF 30 FEET FROM EDGE OF TRAVEL WAY, UNLESS OTHERWISE STATED.



RAMP METERING SYSTEM

LOCATION 13

SCALE: 1" = 50'

E-21

APPROVED FOR ELECTRICAL WORK ONLY

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: RANDAL DURRENBERGER

CALCULATED-DESIGNED BY: R. DOLE — CHECKED BY: K. AKWABI

REVISED BY: JCS — DATE REVISED: 10/14/11

LAST REVISION 08-22-11 — DATE PLOTTED => 2/6/2012 — TIME PLOTTED => 3:34:32 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	3.8/8.0, 0.0/13.5		

REGISTERED ELECTRICAL ENGINEER — DATE 10/14/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DAVID S. HAINES — No. 16999 — Exp. 6/30/13 — ELECT — STATE OF CALIFORNIA

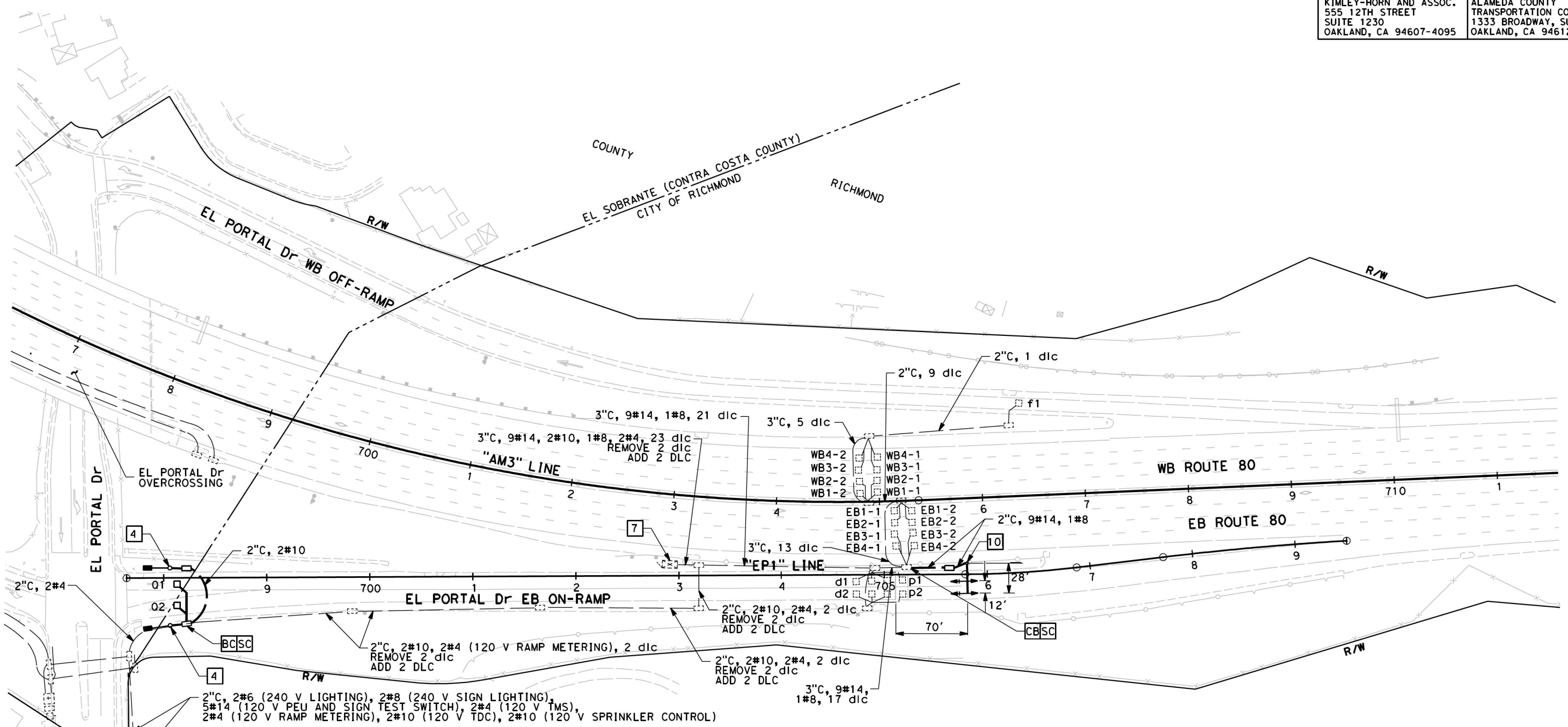
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

KIMLEY-HORN AND ASSOC.
555 12TH STREET
SUITE 1230
OAKLAND, CA 94607-4095

ALAMEDA COUNTY
TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. PULL BOXES, ENCLOSURES, AND CABINETS SHOULD BE INSTALLED A MINIMUM OF 30 FEET FROM EDGE OF TRAVEL WAY, UNLESS OTHERWISE STATED.



RAMP METERING SYSTEM

LOCATION 15

SCALE: 1" = 50'

E-24

APPROVED FOR ELECTRICAL WORK ONLY

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: RANDAL DURRENBERGER

CALCULATED-DESIGNED BY: R. DOLE — CHECKED BY: K. AKWABI

REVISED BY: JCS — DATE REVISED: 10/14/11

LAST REVISION 08-22-11 — DATE PLOTTED => 2/6/2012 — TIME PLOTTED => 3:34:38 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala, CC	80	3.8/8.0, 0.0/13.5		

REGISTERED ELECTRICAL ENGINEER — DATE 10/14/11

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — DAVID S. HAINES — No. 16999 — Exp. 6/30/13 — ELECT — STATE OF CALIFORNIA

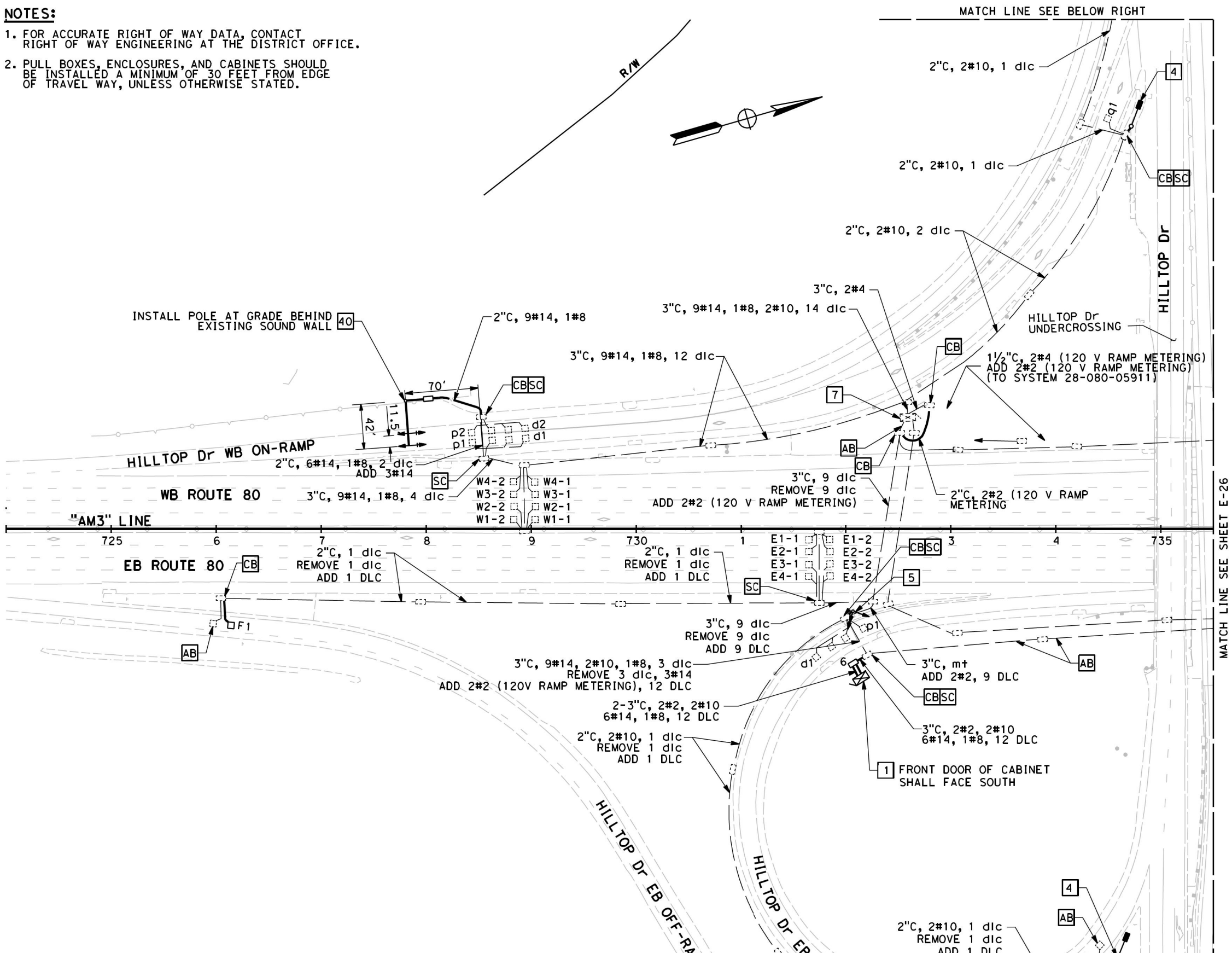
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

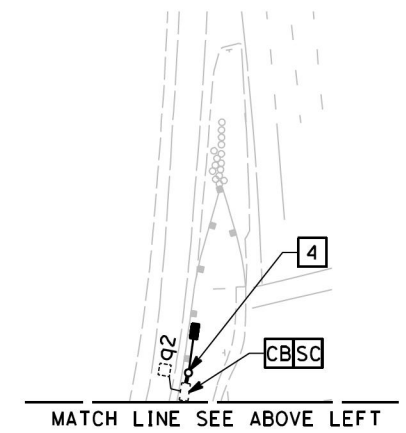
KIMLEY-HORN AND ASSOC.
555 12TH STREET
SUITE 1230
OAKLAND, CA 94607-4095

ALAMEDA COUNTY
TRANSPORTATION COMMISSION
1333 BROADWAY, SUITE 220
OAKLAND, CA 94612

NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. PULL BOXES, ENCLOSURES, AND CABINETS SHOULD BE INSTALLED A MINIMUM OF 30 FEET FROM EDGE OF TRAVEL WAY, UNLESS OTHERWISE STATED.





APPROVED FOR ELECTRICAL WORK ONLY

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1

RAMP METERING SYSTEM

LOCATION 16

SCALE: 1" = 50'

E-25

REVISED BY	DATE REVISED
JCS	10/14/11

CALCULATED-DESIGNED BY: R. DOLE
CHECKED BY: K. AKWABI
CONSULTANT FUNCTIONAL SUPERVISOR: RANDAL DURRENBERGER

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

LAST REVISION 08-22-11 — DATE PLOTTED => 2/6/2012 — TIME PLOTTED => 3:34:40 PM