

SFCTA Contract Number 06/07-29

SOUTH ACCESS TO THE GOLDEN GATE BRIDGE

DOYLE DRIVE

DOYLE DRIVE REPLACEMENT PROJECT

**Environmental Soil Investigation
Eastern Alignment**

Caltrans EA 04-163751

June 2010

Prepared By:

BASELINE Environmental Consulting

Our ref 131558/FRG
File ref 4-01
Date June 9, 2010



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**Re: Environmental Soil Investigation
Caltrans EA 04-163751; Eastern Alignment
Doyle Drive Replacement Project
San Francisco, California**

Dear Mr. Boyer:

The Arup PB Joint Venture (JV) is pleased to present ten (10) copies of the Environmental Soil Investigation Report – Eastern Alignment on the subject project. The report was prepared by BASELINE Environmental Consulting, who is engaged under an agreement with the JV to provide environmental soil investigation services.

The report describes and summarizes investigation objectives, the soil sampling work plan, field and laboratory methodologies used, soil reuse or disposal framework, investigation results, waste classification evaluation and soil management, conclusions, and limitations. The report contains 2 Figures and 15 Tables.

The report contains the following appendices that are presented on a CD-ROM.

- Appendix A – Soil and Groundwater Sampling Workplan
- Appendix B – License to Enter and Dig Permits
- Appendix C – Boring Logs
- Appendix D – Agreement with Laboratory and Deviations from Presidio Trust QAPP
- Appendix E – LDC Data Validation Reports
- Appendix F – Waste Disposal Manifests
- Appendix G – Laboratory Reports
- Appendix H – Statistical Analyses

Should you have any questions regarding this report, please contact Cheri Page of BASELINE at (707) 762-5233.

Yours sincerely

Francis R. Greguras, P.E., G.E.
Arup PB JV

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Project Files

ENVIRONMENTAL SOIL INVESTIGATION

Caltrans EA 04-163751

JUNE 2010

DOYLE DRIVE REPLACEMENT PROJECT
EASTERN ALIGNMENT
SAN FRANCISCO, CALIFORNIA

For:

Arup PB Joint Venture
San Francisco, California

Y0239-04.A3.01396

ENVIRONMENTAL SOIL INVESTIGATION

Caltrans EA 04-163751

JUNE 2010

DOYLE DRIVE REPLACEMENT PROJECT
EASTERN ALIGNMENT
SAN FRANCISCO, CALIFORNIA

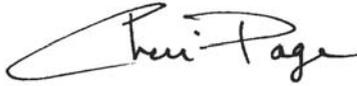
For:

Arup PB Joint Venture
San Francisco, California

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This *Environmental Soil Investigation* report, dated 9 June 2010, has been prepared by BASELINE Environmental Consulting as part of Caltrans contract EA 04-163751 for the Eastern Alignment of the Doyle Drive Replacement Project.



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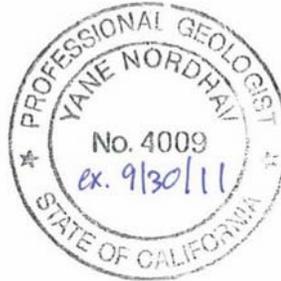


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ENVIRONMENTAL SOIL INVESTIGATION

DOYLE DRIVE REPLACEMENT PROJECT

EASTERN ALIGNMENT

San Francisco, California

1 INTRODUCTION

This report has been prepared by BASELINE Environmental Consulting for the Arup PB Joint Venture. This report is the third of three reports that present the results of environmental soil sampling along Doyle Drive near the Golden Gate Bridge in San Francisco, California (Caltrans and Arup PB Joint Venture, 2009a and 2009b).

1.1 Project Description

The Project is the Eastern Alignment portion of the proposed Doyle Drive Replacement Project (“DDRP” or “Project”) in San Francisco, California, and is sponsored by the San Francisco County Transportation Authority and the State of California Department of Transportation (“Caltrans”). The Eastern Alignment area is located within Presidio Trust Lands. The DDRP will upgrade a portion of Doyle Drive within the Presidio to meet current design and safety standards. The Project will upgrade the eastern portion of the DDRP including the proposed Main Post Tunnels and Girard Overpass, and the Richardson Avenue area, as shown on Figure 1.

The Project will include excavation of soil (“cut areas”) and possible filling in potential fill areas. Figure 2 shows cut areas within the Project; the areas not identified as cut areas could potentially receive fill. Limited excavation also may occur in areas not identified as cut areas prior to potential placement of fill (i.e., while readying the ground surface for placement of fill).

1.2 Investigation Objectives

The objectives of the environmental soil sampling discussed in this report were to: 1) pre-characterize soil for potential disposal off-site at a permitted facility or off-site reuse; 2) pre-characterize soil for potential reuse within the limits of the Project, in accordance with Presidio Trust reuse criteria,¹ 3) obtain chemical quality information of the soil and groundwater² for preparation of future worker health and safety plan(s).

2 SOIL SAMPLING WORKPLAN

Soil sampling was conducted in accordance with a Soil and Groundwater Sampling Work Plan (“Workplan”) (Caltrans and Arup PB Joint Venture, 2008). The Workplan was also reviewed and accepted by the Presidio Trust and they issued a License to Enter and Conduct Geotechnical

¹ Evaluation of whether the chemical quality of some or all excavated soil would meet Presidio Trust reuse criteria (EKI, 2002) can be evaluated in a separate report by BASELINE, if requested.

² Groundwater quality data collected in the Project was presented in Caltrans and ARUP PB Joint Venture, 2009c.

Investigations, Modification No. 2 (Presidio Trust, 2008). The Workplan and License to Enter are attached in Appendices A and B, respectively.

The Workplan was designed to meet the investigation objectives by: 1) collection of representative samples from soil to be excavated during Project construction in general accordance with U.S. Environmental Protection Agency (“EPA”) SW-846 (EPA, 1986) guidance; 2) selection of an analytical approach for soil samples that would meet landfill requirements for pre-approval of soil disposal, and that would meet Presidio Trust analytical requirements for potential reuse of soil within the Project limits without additional characterization after excavation; 3) collection and analysis of representative samples to allow Caltrans to prepare project specifications addressing worker health and safety; and 4) to allow the contractor to prepare an appropriate health and safety plan for construction workers.

2.1 Soil Boring Locations and Depths

Soil samples were collected from 61 borings (E001 through E061) drilled within the Project area, as shown on Figure 2. The boring locations were selected using a systematic, random approach as described in EPA SW-846 guidance (EPA, 1986). An initial, random boring location was selected, and subsequent boring locations were identified approximately every 200 lateral feet along the north- and southbound portions of the Project alignment, as requested by Caltrans.

The majority of the borings (35) were located in proposed cut areas, and the remaining borings (26) were located within potential fill areas (Figure 2). Table 1 lists the borings drilled within the Project area and Table 1 and Figure 2 indicate their locations in cut or potential fill areas.

In general, borings located in potential fill areas were drilled to a depth of about 2.5 feet below ground surface (“bgs”) to characterize only surficial soil, which may be removed to ready the area for potential surcharge materials (Table 1). Two borings in a potential fill area (E040 and E043) were drilled to eight ft bgs to characterize soil that may be excavated for a pier cap. One boring in a potential fill area (E034) was terminated at a depth of 1.2 ft bgs, where a concrete slab was encountered. Borings located within proposed cut areas were drilled to a depth of approximately two feet below the proposed depth of cut. These borings ranged in depth from 2.5 feet bgs to 23 ft bgs.

2.2 Soil Sampling and Analysis Approach

In general, soil samples were collected at depths of 0.5 to 1.0 and 2.0 to 2.5 feet bgs in every environmental boring and every five feet thereafter to the proposed depth of each boring. Discrete samples from the ground surface to a depth of 2.5 feet bgs were analyzed for total lead. Samples collected below a depth of 2.5 feet bgs were composited and analyzed for multiple chemicals identified by Presidio Trust as potential contaminants of concern in the Presidio (EKI, 2002).

Borings within contiguous cut or potential fill areas were identified as a single composite area (Figure 2). Samples collected from borings within a given composite area were composited with samples from other borings within that composite area. The soil analysis approach is described in more detail below in Section 3.4.

3 METHODOLOGY

3.1 Field Preparations

Dig Permits were obtained from the Presidio Trust for all borings (Appendix B). Dig Permit No. 2 included 17 borings within the Project area, and Dig Permit No. 3 included 44 borings within the Project area. Each boring location was marked in white paint, and locations not covered by asphalt or concrete were also identified using a wooden or metal stake. A private utility locator, Otis Haskin (“OHJ”), cleared all boring locations. Underground Service Alert (“USA”) was then contacted for utility clearance, and the Dig Permit was requested from Presidio Trust. Presidio Trust reviewed and checked the borehole locations with their equipment, maps, and site knowledge before issuing the Dig Permit authorizing drilling to commence.

3.2 Drilling Activities

Drilling operations were performed in general accordance with the applicable Standard Operating Procedures (“SOPs”) included in the Presidio Trust’s Presidio-Wide Quality Assurance Project Plan (“QAPP”) (Tetra Tech EM, Inc., 2001). Deviations from the QAPP SOPs are described in the Workplan (Appendix A). BASELINE staff performed fieldwork in accordance with BASELINE’s site-specific Health and Site Safety Plan, included in the Workplan.

Drilling and hand augering activities were conducted by Gregg Drilling & Testing, Inc. (“Gregg Drilling”) of Martinez, California, a C-57 licensed driller. Borings were drilled using direct-push equipment, a hollow-stem auger drill rig, or a hand auger (Table 1). Drilling augers and rods were cleaned between borings with a steam cleaner. Soil sampling equipment was decontaminated between samples by scrubbing with a laboratory-grade detergent solution and rinsing in two sequential pails of potable water.

A professional BASELINE geologist supervised all drilling activities and logged lithology using the Unified Soil Classification System. Boring logs are included in Appendix C.

Borings completed without encountering groundwater were backfilled with bentonite pellets or chips, hydrated in one-foot lifts, to within about one foot bgs. All borings with standing groundwater at the time of completion were backfilled with a neat cement grout to one foot bgs. The grout was placed using a tremie pipe. Surface completions matched existing conditions (e.g., soil or asphalt). After backfilling, each boring location was marked using a wooden stake, or white paint if the boring was located in concrete or asphalt, in preparation for surveying. A licensed surveyor, Chaudhary & Associates, located the borings after completion in accordance with the Presidio Trust QAPP. Survey coordinates are provided in both Project datum (NAD 83 and NAVD 88) and Presidio Trust datum (NAD27 and Presidio Low Low Water) in Table 1.

3.3 Soil Sampling and Handling Procedures

If asphalt or baserock was present at a boring location, the planned 0.5 to 1.0 foot bgs sample was collected from the first soil interval below the asphalt and baserock. Soil samples within proposed cut areas were also collected every five feet to the proposed depth of the cut. If bedrock was encountered within the planned depth of the boring, a sample was collected near the

top of the bedrock and, if possible, five feet below the top of bedrock. Additional bedrock samples were not collected if bedrock was encountered, as it was assumed that the same type of bedrock was present at depth. The sampling procedures for Colma Sand were the same as bedrock units because, although Colma Sand is not consolidated, BASELINE understands it will be used as a bearing formation for construction.

Soil samples were collected directly into clean, six-inch long brass or stainless steel liners or micro-core tubes. The collected samples were capped with Teflon and plastic end caps, labeled, and immediately stored in ice-cooled chests.

Samples were labeled with the boring number (e.g., E034), soil type, and sample depth in feet bgs. Soil type categories included fill (F), Bay Mud (B), alluvium (A), and Colma Sand (C). Although bedrock (e.g., serpentinite, shale, sandstone) was encountered during the previous investigations for the Contract 3 and 4 areas (Caltrans and Arup PB Joint Venture, 2009a and 2009b), bedrock was not encountered during this investigation. Alluvial and marine sediments were included in the “alluvium” category for the purpose of compositing chemically similar soil types. If serpentinite was observed in a sample, an “S” was added to the soil type descriptor (e.g., fill with serpentinite would be labeled “FS”). Sample depth indicated on the sample label was the bottom of the six-inch sample interval.

Composite sample instructions were provided to the laboratory within five days of the sample collection date. Composite samples were identified with “EC” indicating Environmental Composite, followed by the composite area number, the soil type descriptor, and the sample number. A list of composite samples and the discrete samples used to make up each composite sample is presented in Table 2. A total of nine composite areas (1 through 9) were designated in the Project area.

The samples were either picked up in the field daily during drilling activities by Curtis & Tompkins, Ltd. of Berkeley, California, a state-certified laboratory, or were delivered by BASELINE directly to the laboratory. In both cases, the samples were handled under chain-of-custody procedures.

3.4 Soil Sample Analyses

All laboratory analyses were conducted by Curtis & Tompkins, Ltd. of Berkeley, California with the exception of asbestos and herbicides analyses, which were performed by Forensic Analytical of Hayward, California and APPL, Inc. of Fresno, California, respectively. These laboratories are state-certified for the analyses conducted. Laboratory analyses performed on each sample are summarized in Table 3. The analytical scheme for the collected samples is described below.

- Fill samples
 - Discrete samples from depths of 1.0 and 2.5 feet bgs were analyzed for total lead.

- Up to five discrete fill samples, collected within five days from the same composite area, were composited and analyzed for **Sampling Suite A**.³
- If any metal concentration was greater than 10 times the Soluble Threshold Limit Concentration (“STLC”), the sample was also analyzed for the soluble metal by the Waste Extraction Test (“WET”). If any sample contained greater than 20 times the Toxicity Characteristic Leaching Procedure (“TCLP”) threshold, the sample was analyzed for leachable metal contents by TCLP.
- Discrete fill samples observed in the field to contain serpentinite were also analyzed for asbestos using the California Air Resources Board (“CARB”) Method.
- Alluvium/Marine and Bay Mud Sediment Samples
 - Up to five native alluvial/colluvial/marine deposit samples, collected within five days from the same composite area, were composited and analyzed for **Sampling Suite B**.⁴
 - Up to five Bay Mud samples collected within five days from the same composite area were composited and analyzed for **Sampling Suite B**.
- Bedrock Samples
 - Up to five Colma Sand samples, collected within five days from the same composite area, were composited for analysis of **Sampling Suite B**.

If any metal concentration was greater than 10 times the STLC, the sample was also analyzed for the soluble metal by WET. If any sample contained greater than 20 times the TCLP threshold, the sample was analyzed for leachable metal by TCLP.
 - Up to five bedrock samples, other than Colma Sand, collected within five days from the same composite area, would have been composited and analyzed for Title 22 metals. Bedrock, other than Colma Sand, was not encountered during this investigation.
 - Up to five bedrock samples, other than Colma Sand, collected within five days from the same composite area, would have been composited and analyzed for cyanide, sulfide, and pH. The samples would have been analyzed for reactivity if cyanide was greater than or equal to 250 milligrams per kilogram (mg/kg), and/or sulfide was greater than or equal to 500 mg/kg. Ignitability would have been determined if total

³ **Sampling Suite A** consists of Sampling Suite B, listed below, plus organochlorine pesticides by EPA Method 8081A and herbicides by EPA Method 8151A.

⁴ **Sampling Suite B** consists of Title 22 metals by EPA Methods 6020/7000 series; volatile organic compounds (“VOCs”) by EPA Method 8260B; semi-volatile organic compounds (“SVOCs”) by EPA Method 8270C; total petroleum hydrocarbons (“TPH”) as gasoline (“g”), diesel (“d”), and fuel oil (“fo”) by EPA Method 8015M/CA LUFT; silica gel cleanup on TPHd and TPHfo by EPA Method 3630; polycyclic aromatic hydrocarbons (“PAHs”) by EPA Method 8310; polychlorinated biphenyls (“PCBs”) by EPA Method 8082; cyanide by Standard Method 4500-CN-E; sulfide by EPA Method 9034; and corrosivity (“pH”) by EPA Method 9045D.

VOCs were greater than one percent. Bedrock, other than Colma Sand, was not encountered during this investigation.

- Up to five bedrock samples consisting of serpentinite and collected within five days from the same composite area would have been composited and analyzed for asbestos. Serpentinite bedrock was not encountered during this investigation.

3.5 Laboratory Quality Assurance

Curtis & Tompkins and APPL, Inc. performed laboratory analyses and quality assurance/quality control procedures in accordance with Presidio Trust's QAPP (Tetra Tech, 2001), with exceptions presented in the Responsibilities and Assumptions Document (BASELINE, 2008) attached as Appendix D. Presidio Trust reviewed the proposed QAPP deviations and did not request changes.

The field sample data were reviewed by Laboratory Data Consultants, Inc. ("LDC") of Sacramento, California for compliance with the Presidio Trust QAPP. Data were reviewed based on the appropriate EPA methods referenced (EPA, 1986), *National Functional Guidelines for Organic Data Review* (EPA, 1999), *National Functional Guidelines for Inorganic Data Review* (EPA, 2004), and the project-specific control limits provided in the QAPP or Presidio-approved variances requested by Curtis & Tompkins. Where specific guidance was not available, the data were evaluated in a conservative manner consistent with industry standards using professional experience.

Data review by LDC concluded that all soil sample analytical results were valid, as analytical methods and reporting were consistent with the Presidio Trust QAPP, National Functional Guidelines, or project-specific control limits. In addition, Level IV data validation packages were provided by Curtis & Tompkins and APPL, Inc., and reviewed by LDC, as required by the Presidio Trust QAPP. LDC's data validation reports are attached as Appendix E. Electronic data are also provided on CD in the Presidio Trust electronic data deliverable ("EDD") format with data qualifiers added by LDC (Appendix E).

3.6 Data Evaluation Methodology

Chemical data from the laboratory were loaded into a database. Soil quality data were screened against federal and state hazardous waste thresholds and California Regional Water Quality Control Board, San Francisco Bay Region ("Regional Water Board") residential and commercial/industrial Environmental Screening Levels ("ESLs") (Regional Water Board, 2008). Statistical analysis of subsets of data was performed, as needed, using guidelines and software developed by the EPA (EPA, 2009) and standard industry practices. The results of the data evaluation are presented, below, in Section 6.

3.7 Investigation-Derived Waste Disposal

Drill cuttings (typically dry to wet soil or rock) were placed in approved U.S. Department of Transportation ("DOT") 55-gallon drums. Water, used to clean augers and soil sampling equipment, was collected in separate drums and sampled to evaluate disposal options. The drums were sealed, labeled, and stored for no longer than 90 days at the drum storage area along Mason Street. Drums were hauled off-site to an appropriate disposal facility as soon as possible

after laboratory results were available and pick-up by a licensed waste hauler could be scheduled. Waste disposal manifests are in Appendix F.

Thirty drums of soil and groundwater generated during drilling activities conducted between 12 January 2009 and 18 February 2009 under Dig Permit No. 2 were picked up on 15 April 2009 by Clearwater Environmental of Union City, California. Five drums of liquid and 21 soil drums were disposed of as non-hazardous waste at Alviso Independent Oil of Alviso, California. Four drums of soil were disposed of as non-RCRA hazardous waste within 90 days of generation at Siemens Water Technologies Corporation (“Siemens”) in Vernon, California. BASELINE understands that Siemens forwards the waste to Kettleman Hills Hazardous Waste Facility in Kettleman, California after re-packaging.

Ten drums of soil and three drums of groundwater generated during drilling activities conducted between 13 April 2009 and 21 April 2009 under Dig Permit No. 3 were picked up on 2 July 2009 by Clearwater Environmental. Three drums of liquid and 6 soil drums were disposed of as non-hazardous waste at Alviso Independent Oil of Alviso, California. Three drums of soil were disposed of as non-RCRA hazardous waste and one drum of soil was disposed of as RCRA hazardous waste within 90 days of generation at Siemens Water Technologies Corporation (“Siemens”) in Vernon, California.

4 SOIL REUSE OR DISPOSAL FRAMEWORK

4.1 Criteria for Federal and California Hazardous and Non-Hazardous Waste

A soil, once excavated, may be classified as a federal hazardous waste, a California hazardous waste, or a non-hazardous waste depending on its characteristics. A soil is considered a federal hazardous waste if it is listed waste or exhibits the characteristics of ignitability, corrosivity, reactivity, or toxicity. The toxicity characteristic is identified by leachable concentrations of select chemicals, determined by TCLP, equal to or greater than the thresholds established in Title 40 of the Code of Federal Regulations (“CFR”) (CFR, 2009). The TCLP method uses a dilution ratio of 20:1 in the extraction process; therefore, a waste with a total concentration equal to or greater than 20 times the TCLP threshold could potentially be a federal hazardous waste, depending on the fraction of the total concentration that is soluble. There are no toxicity characteristics thresholds for total concentrations of compounds for federal hazardous wastes.

In California, a waste is considered hazardous if the total concentration of a chemical is equal to or greater than the Total Threshold Limit Concentration (“TTLC”) and/or if the soluble concentration of a chemical, determined by the WET, is greater than or equal to the STLC. The WET method uses a dilution ratio of 10:1 in the extraction process; therefore, a waste with a total concentration equal to or greater than ten times the STLC value could potentially be a California hazardous waste, depending on the fraction of the total concentration that is soluble. The TTLC and STLC values are established in Title 22 of the California Code of Regulations (“CCR”) (CCR, 2005).

A waste that does not exceed the federal and the California hazardous waste criteria is a non-hazardous waste. Federal hazardous wastes are only accepted for disposal at a Class I-permitted landfill in California. A non-federal, California hazardous waste may be disposed of at a Class I-

permitted landfill or an out-of-state landfill permitted to accept such waste. Non-hazardous wastes are generally accepted at Class II and Class III landfills in California, depending on the individual landfill's permit.

4.2 ESLs

Soil excavated during Project construction, demonstrated to be a non-hazardous waste, may be transported off-site and reused for other Caltrans projects and/or become the property of the contractor. The Regional Water Board has developed ESLs (Regional Water Board, 2008) for the protection of residential and commercial land uses and construction workers for chemical compounds commonly found on contaminated sites. The ESLs are chemical-specific concentrations that, if not exceeded, would not be expected to present a significant threat to human health and/or the environment. The screening values were developed by the Regional Water Board using conservative (worst-case) exposure assumptions. Since it is unknown where soils from the Project may be reused, ESLs for shallow soils for residential and commercial/industrial land uses where groundwater is considered an actual or potential drinking water source were used for screening purposes.

5 INVESTIGATION RESULTS

5.1 Lithologic Units and Potential Waste Streams

Lithologic units encountered during drilling included fill (F), alluvium (A), Bay Mud (B), and Colma Sand (C). These lithologic units were considered potential waste streams for the purpose of compositing chemically similar soil types. Alluvial and marine sediments were included in the "alluvium" category. Lithologic units encountered within each composite area are summarized below. Boring logs are included in Appendix C.

5.1.1 Composite Area 1 (Potential Fill/Surcharge Area)

Fill was the only lithologic unit encountered in the 10 borings in this composite area. The maximum depths of the borings was 3.0 feet bgs.

5.1.2 Composite Area 2 (Proposed Cut Area)

Fill was encountered in all 20 borings in this composite area to depths of 4.5 to 11.5 ft bgs. Serpentinite clasts were identified in the Fill from boring E029 from at depths of about 5.0 to 7.5 ft bgs.

Bay Mud was encountered in five of the borings (E0008, E009, E023, E024, and E025) below the Fill. The upper contact ranged from depths of 4.5 to 11.5 ft bgs in these borings. Both the upper and lower extent of the Bay Mud were encountered in borings E023, E024, and E025. The lower contact ranged from depths of 11.5 to 16.5 ft bgs; thus, at the locations explored, the thickness of Bay Mud ranged from 4 to 5.5 feet.

Alluvium consisting almost entirely of marine sand was encountered below the Bay Mud in borings E023, E024, and E025, and below the Fill in borings E026 and E027, to 23.0 ft bgs, the maximum depths of the borings.

5.1.3 Composite Area 3 (Potential Fill/Surcharge Area)

Fill was encountered in all five borings in this composite area to a depth of about 3.0 feet bgs, the maximum depth of the borings.

5.1.4 Composite Area 4 (Potential Fill/surcharge Area)

Fill was encountered in all three borings in this composite area to a depth of about 1.5 to 3.0 feet bgs, the maximum depth of the borings. Boring E034 encountered a concrete slab at a depth of about 1.5 ft bgs

5.1.5 Composite Area 5 (Potential Fill/surcharge Area)

Fill was encountered in all six borings in this composite area to depths of about 2.5 to 7.5 ft bgs. Two borings in this potential Fill area (E040 and E043) were drilled deeper than 2.5 feet to characterize soil that may be excavated for a pier cap. In boring E040, the Fill was underlain by Alluvium from about 2.5 to 7.0 ft bgs and Bay Mud to about 8.0 ft, the maximum depth of the boring. Fill extended to 7.5 ft bgs in boring E043, and was underlain by Bay Mud to about 8.0 ft bgs, the maximum depth of that boring.

5.1.6 Composite Area 6 (Proposed Cut Area)

Fill was encountered to 1.5 ft bgs in boring E046, the only boring in this composite area. The Fill was underlain by Alluvium to about 3.0 ft bgs, the maximum extent of the boring.

5.1.7 Composite Area 7 (Potential Fill/surcharge Area)

Fill was encountered in boring E048 to about 3.0 ft bgs, the maximum depth of the boring. The only other boring in this composite area, boring E047, encountered Fill to 0.5 ft bgs underlain by Alluvium to 3.0 ft bgs, the maximum extent of the boring.

5.1.8 Composite Area 8 (Proposed Cut Area)

Fill was encountered in both borings from this composite area, borings E052 and E053, to about 3.0 ft bgs, the maximum extent of the borings.

5.1.9 Composite Area 9 (Proposed Cut Area)

Fill was encountered in all twelve borings in this composite area, and was the only lithologic unit encountered in 8 of the 12 borings. These borings ranged from 3.0 to 15.0 ft bgs. Serpentinite clasts were identified in the Fill from borings E054 and E060 at depths ranging from about 1.0 to 2.5 ft bgs.

Bay Mud was encountered below the Fill in three borings (E049, E051, and E054). The upper contact ranged from about 5.0 to 12.0 ft bgs. The lower contact of the Bay Mud was not encountered in any borings. One boring, E061, encountered Colma Sand below the Fill from about 1.5 ft bgs to 12.5 ft bgs, the maximum extent of the boring.

5.2 Analytical Results

5.2.1 Chemical Compounds

Analytical results for all the soil samples are summarized in Tables 4 through 13. Only compounds that were identified above laboratory reporting limits in at least one sample are presented on the tables. Herbicides (analyzed by EPA Method 8151A) were not reported above laboratory reporting limits; therefore, the results are not tabulated. Laboratory reports are presented in Appendix G. Laboratory electronic data deliverable (“EDD”) files are presented in Appendix E.

Hazardous waste thresholds and ESLs are also listed in the tables for compounds with established values. Concentrations that exceed any of the thresholds or ESLs are shaded in the tables.

5.2.2 Asbestos

Asbestos was analyzed for one Fill sample in Composite Area 2 (E029FS-7.5) and two Fill samples in Composite Area 9 (E054FS-2.5 and E060FS-2.5) due to the presence of serpentinite clasts in Fill. Asbestos was not reported in these samples above 0.25 percent (Table 12 and Appendix G). Material containing friable asbestos equal to or greater than one percent is classified as a California hazardous waste. An asbestos dust mitigation plan is required by the California Code of Regulations (“CCR”), Title 17 (CCR, 2002) and requires an application to the Bay Area Air Quality Management District before grading in areas where asbestos has been reported above 0.25 percent. Based on the results of these three samples, Fill containing serpentinite in Composite Areas 2 and 9 is not hazardous, and a dust mitigation plan is not required before grading. Serpentinite was not encountered in Fill in Composite Areas 1, 3, 4, 5, 6, 7, or 8.

6 WASTE CLASSIFICATION AND SOIL MANAGEMENT

Data evaluation was conducted in two phases. The initial phase was to identify soil types and/or locations where the soil would be classified as a hazardous waste. Hazardous waste screening results are discussed below in Section 6.1, and are summarized on Table 14. The second phase was to screen those soils that were determined to be non-hazardous wastes for disposal purposes against ESLs established by the Regional Water Board for residential and commercial/industrial land uses where the groundwater is considered a current or potential source of drinking water (Table A, Regional Water Board, 2008), and against ESLs for construction/trench worker direct exposure (Table K-3, Regional Water Board, 2008). Screening against ESLs was performed to provide information for Caltrans and/or the contractor to assess health and safety concerns and possible soil reuse options either within the Project or at other locations. The ESL screening results are discussed below in Section 6.2, and are summarized on Table 15

Evaluation of possible reuse of soils within the Project area in accordance with Presidio Trust reuse criteria may be presented in a separate report to be prepared by BASELINE. BASELINE understands the contractor will be preparing a Soil Management Plan based on recommendations of this report, and Presidio Trust’s response to a future request for soil reuse, if any.

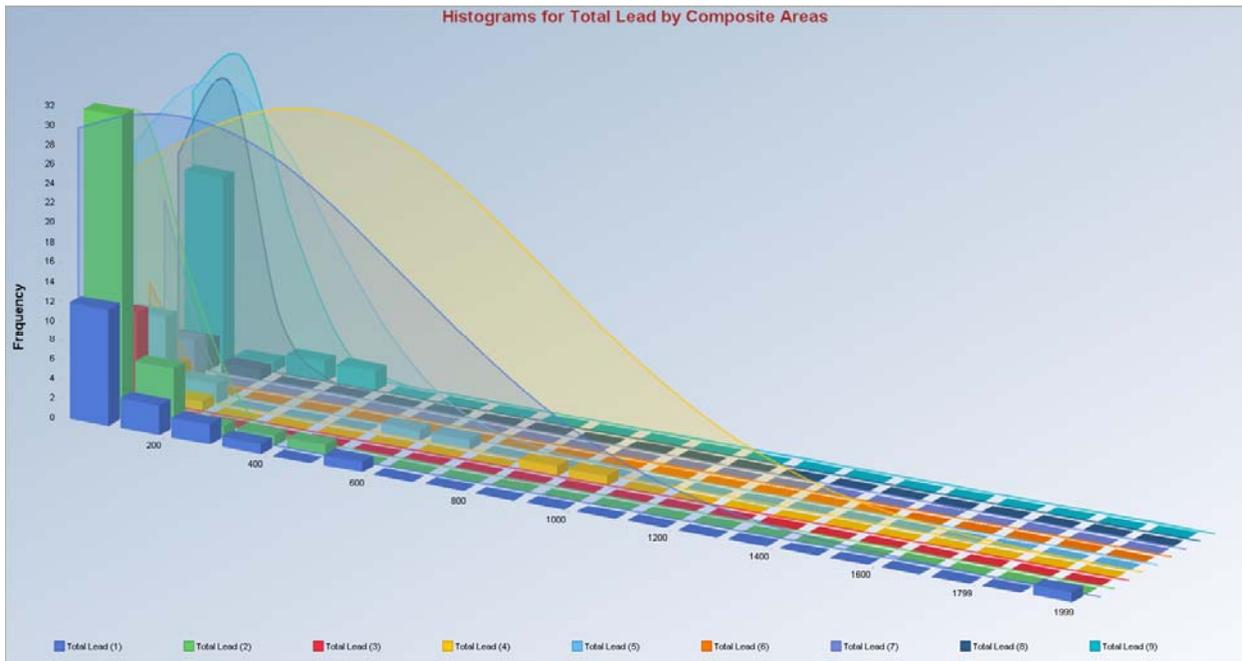
6.1 Evaluation for Waste Classification

The first step in the data evaluation process to determine whether soil may be considered a California or federal hazardous waste was to systematically explore all the soil quality data to identify compounds that may exceed hazardous waste thresholds. The only chemical that had one or more concentrations exceeding hazardous waste thresholds was lead, in the top 2.5 feet bgs (Tables 4 through 12). The following discussion regarding hazardous waste thresholds is therefore limited to evaluation of lead.

Statistically, each composite area was conservatively considered to be a unique population because excavation may be implemented in phases, and soil from each composite area may be excavated as a unique waste stream. If excavation of multiple composite areas is to be conducted simultaneously, and two or more composite areas could therefore be considered a single waste stream, statistical evaluation of that proposed waste stream can be conducted in the future, if requested.

6.1.1 Top 2.5 Feet of Soil in All Composite Areas (1 to 9)

In general, soil samples were collected from 0.5-1.0 and 2.0-2.5 feet bgs and analyzed discretely for total lead. Initial examination of the data revealed that the total lead concentrations varied by composite area, as can be seen in the histogram below.



The basic statistics for total lead concentrations in samples collected in the top 2.5 feet from each composite area are summarized below.

Total Lead Raw Statistics, 0.5-2.5 feet bgs(mg/kg)

Composite Area	No. of Samples	Minimum	Maximum	Mean	Median	Variance	SD
1	20	0.85	2,000	200	30	200,000	440
2	40	0.57	480	67	12	10,000	100
3	10	2.3	36	12	6.3	150	12
4	5	31	940	400	150	200,000	450
5	12	5.6	660	160	69	47,000	220
6	2	3.5	8.2	5.9	5.9	11	3.3
7	4	2.4	17	8.5	7.2	47	6.9
8	4	6.2	170	68	47	5,200	72
9	24	0.8	360	66	15	11,000	110

While all the discrete samples in each composite area were analyzed for total lead, only those samples with total lead concentrations greater than 50 mg/kg (ten times the STLC) were analyzed for WET lead. Therefore, to conservatively estimate WET lead concentrations for the samples not actually analyzed for WET lead, the WET lead concentrations were assumed to be 10 percent of the total lead concentrations. The basic statistics for WET lead (analyzed and estimated) concentrations in samples collected in the top 2.5 feet from each composite area are summarized below.

WET Lead Raw Statistics, 0.5-2.5 feet bgs (mg/L)

Composite Area	No. of Samples	Minimum	Maximum	Mean	Median	Variance	SD
1	20	0.085	1,300	68	1.3	84,000	290
2	40	0.057	86	7.0	0.88	340	18
3	10	0.23	3.6	1.2	0.60	1.5	1.2
4	5	3.1	69	27	5.4	980	31
5	12	0.56	48	9.0	4.7	170	13
6	2	0.35	0.82	0.59	0.59	0.11	0.33
7	4	0.24	1.7	0.85	0.72	0.47	0.69
8	4	0.15	3.2	1.32	0.96	1.8	1.3
9	24	0.08	18	2.4	1.1	15	3.8

Only those samples with total lead concentrations greater than 100 mg/kg (20 times the TCLP) were analyzed for TCLP lead. Therefore, to conservatively estimate TCLP lead concentrations for the samples not actually analyzed for TCLP lead, the TCLP lead concentrations were assumed to be 20 percent of the total lead concentrations. The basic statistics for TCLP lead (analyzed and estimated) concentrations in samples collected in the top 2.5 feet of each composite area are summarized below.

TCLP Lead Raw Statistics, 0.5-2.5 feet bgs (mg/L)

Composite Area	No. of Samples	Minimum	Maximum	Mean	Median	Variance	SD
1	20	0.03	6.4	0.820	0.23	2.3	1.5
2	40	0.0285	4.05	0.84	0.24	1.3	1.13
3	10	0.115	1.8	0.61	0.31	0.38	0.62
4	5	0.03	2.6	1.4	1.6	0.88	0.94
5	12	0.043	4.25	1.9	2.0	2.0	1.4
6	2	0.175	0.41	0.29	0.30	0.03	0.17
7	4	0.12	0.85	0.42	0.36	0.19	0.34
8	4	0.31	3.1	1.4	1.0	1.7	1.3
9	24	0.03	3.9	0.75	0.35	0.94	1.0

Since the maximum total lead concentration in Composite Area 1 exceeded the TTLC of 1,000 mg/kg, the maximum TCLP concentration in Composite Area 1 exceeded the TCLP of 5 mg/L, and the maximum WET lead concentrations in Composite Areas 1, 2, 4, 5, and 9 exceeded the STLC of 5 mg/L, these parameters were evaluated further to determine whether representative concentrations exceeded California hazardous waste thresholds.

Guidance in the EPA SW-846 specifies that the one-tailed 90 percent upper confidence limit (“UCL”) on the mean (which is equivalent to the two-tailed 80 percent UCL) should be calculated and compared to hazardous waste thresholds. If the calculated 90 percent UCL is less than the hazardous waste threshold, then the chemical is not considered to be present in the waste above the threshold, and the waste represented by the data is not considered a hazardous waste due to that chemical (EPA, 1986).

Using ProUCL version 4.00.04 software, estimates of the 90 percent UCL for WET lead concentrations in the less than 2.0 feet bgs subset were calculated (the data and UCL output file is provided in Appendix H). The software tests the data to determine if it is consistent with a normal, lognormal, or gamma distributions, and also calculates UCLs assuming these three distributions as well using nonparametric methods. UCLs reported below in Sections 6.1.1.1 through 6.1.1.6 are as follows:

- Normal Distributions: 90% Student’s t-UCL
- Lognormal Distributions: 90% Chebyshev Minimum Variance Unbiased Estimate (“MVUE”) UCL if calculated by ProUCL; otherwise, the 90% H-Stat (DL/2) UCL was reported.
- Gamma Distributions: 90% Approximate and 90% Adjusted Gamma UCLs
- Nonparametric Distributions: 90% CLT, 90% Jackknife, and 90% Chebyshev (Mean, Sd) UCLs

6.1.1.1. Total and Soluble Lead in Top 2.5 Feet of Soil in Composite Area 1

The total and WET lead concentrations in the shallow soil samples collected from Composite Area 1 were higher than from other areas, and this area contained the only sample with a TCLP concentration above the federal hazardous waste threshold, and the only sample that exceeded the TTLC of 1,000 mg/kg. Ten discrete soil samples were collected from 0.5-1.5 feet bgs and ten discrete samples were collected from 2.0-2.5 feet bgs in Composite Area 1. The basic statistics for total and WET lead concentrations were presented in 6.1.1, above.

Soluble Lead TCLP Concentrations

The eight discrete samples that had total lead concentrations greater than twenty times the TCLP were analyzed for soluble TCLP lead, and one of TCLP lead concentrations exceeded the TCLP hazardous waste threshold of 5 mg/L (Table 5) in Composite Area 1.

ProUCL was used to estimate the 90 percent UCL for TCLP lead concentrations from Composite Area 1, assuming TCLP lead concentrations equal to twenty percent of the total lead concentration for those samples not actually analyzed for TCLP lead. The data and UCL output file are provided in Appendix H.

The TCLP lead concentrations do not follow a normal distribution, but are consistent with both lognormal and gamma distributions at a five percent significance level. The estimated 90 percent UCLs assuming lognormal and gamma distributions, are:

- Gamma Distribution Methods
 - 90% Approximate Gamma UCL = 1.9 mg/L
 - 90% Adjusted Gamma UCL = 2.0 mg/L
- Lognormal Distribution Methods
 - 90% H-Stat (DL/2) UCL = 3.4 mg/L

Soluble Lead WET Concentrations

The nine discrete soil samples that had total lead concentrations greater than ten times the STLC were analyzed for soluble WET lead, and five of the WET lead concentrations exceeded the STLC of 5 mg/L.

ProUCL was used to estimate the 90 percent UCL for WET lead concentrations from Composite Area 1, assuming WET lead concentrations equal to ten percent of the total lead concentration for those samples not actually analyzed for WET lead. The data and UCL output file are provided in Appendix H.

The WET lead concentrations are not consistent with normal, lognormal, or gamma distributions at a five percent significance level. The estimated 90 percent UCLs using nonparametric (no discernable distribution) statistics are:

- 90% CLT UCL = 151 mg/L
- 90% Jackknife UCL = 154 mg/L
- 90% Chebyshev (Mean, Sd) UCL = 263 mg/L

Waste Classification

The 90% UCL estimates are all less than the TCLP lead of 5 mg/L, and greater than the STLC for WET lead of 5 mg/L. Therefore, the representative TCLP and WET lead concentrations in the top 2.5 feet of soil in Composite Area 1 would cause the shallow soil above 2.5 feet bgs to not be considered a federal RCRA waste, and to be considered a California hazardous waste. Because the soil above 2.5 feet is considered a California hazardous waste due to WET lead concentrations, further evaluation of total lead concentrations is not necessary.

6.1.1.2. Total and Soluble WET Lead in Top 2.5 Feet of Soil in Composite Area 2

Twenty discrete soil samples were collected from 0.5-1.5 feet bgs and twenty discrete samples were collected from 2.0-2.5 feet bgs in Composite Area 1. The basic statistics for total and WET lead concentrations in Composite Area 2 were presented in Section 6.1.1, above.

None of the total lead concentrations in Composite Area 2 exceeded the TTLC of 1,000 mg/kg. The ten discrete samples that had total lead concentrations greater than twenty times the TCLP were analyzed for TCLP lead, and none of the samples exceeded the TCLP of 5 mg/L. The fifteen samples that had total lead concentrations greater than ten times the STLC were analyzed for soluble WET lead, and seven of the WET lead concentrations exceeded the STLC of 5 mg/L.

ProUCL was used to estimate the 90 percent UCL for WET lead concentrations in the top 2.5 feet of soil in Composite Area 2, assuming that WET lead concentrations were equal to ten percent of the total lead concentration for those samples not actually analyzed for WET lead. The data and UCL output file are provided in Appendix H.

The WET lead concentrations are not consistent with normal, lognormal, or gamma distributions at a five percent significance level. The estimated 90 percent UCLs using nonparametric (no discernable distribution) statistics are:

- 90% CLT UCL = 11 mg/L
- 90% Jackknife UCL = 11 mg/L
- 90% Chebyshev (Mean, Sd) UCL = 16 mg/L

The 90% UCL estimates are all greater than the STLC for WET lead of 5 mg/L. Therefore, the representative WET lead concentrations in the top 2.5 feet of soil in Composite Area 2 would cause the shallow soil above 2.5 feet bgs to be considered a California hazardous waste.

6.1.1.3. Total and Soluble WET Lead in Top 2.5 Feet of Soil in Composite Areas 3, 6, 7, and 8

A total of ten discrete soil samples were collected from 0.5-1.5 feet bgs and a total of ten discrete samples were collected from 2.0-2.5 feet bgs in Composite Areas 3, 6, 7, and 8. The basic statistics for total and WET lead concentrations were presented in Section 6.1.1, above.

None of the total lead concentrations in Composite Areas 3, 6, 7, and 8 exceeded the TTLC of 1,000 mg/kg. None of the samples had total lead concentrations greater than ten times the STLC or 20 times the TCLP. Therefore, none were analyzed for soluble WET or TCLP lead. The total lead concentrations in the top 2.5 feet of soil in Composite Areas 3, 6, 7, and 8 would cause the shallow soil above 2.5 feet bgs to be considered a non-hazardous waste.

6.1.1.4. Total and Soluble WET Lead in Top 2.5 Feet of Soil in Composite Area 4

Three discrete soil samples were collected from 0.5-1.5 feet bgs and two discrete samples were collected from 2.0-2.5 feet bgs in Composite Area 4. The basic statistics for total and WET lead concentrations were presented in Section 6.1.1, above.

None of the total lead concentrations in Composite Area 4 exceeded the TTLC of 1,000 mg/kg. The three samples that had total lead concentrations greater than twenty times the TCLP were analyzed for TCLP lead, and none of the samples exceeded the TCLP of 5 mg/L. The four samples that had total lead concentrations greater than ten times the STLC were analyzed for soluble WET lead, and three of the WET lead concentrations exceeded the STLC of 5 mg/L.

ProUCL was used to estimate the 90 percent UCL for WET lead concentrations in the top 2.5 feet of these Composite Areas, assuming WET lead concentrations equal to ten percent of the total lead concentration for those samples not actually analyzed for WET lead. The data and UCL output file are provided in Appendix H.

The WET lead concentrations are consistent with normal, lognormal, and gamma distributions at a five percent significance level. The estimated 90 percent UCLs assuming these distributions are:

- Normal Distribution Methods
 - 90% Student's t-UCL = 48 mg/L
- Lognormal Distribution Methods
 - 90% Chebyshev (MVUE) UCL = 73 mg/L
- Gamma Distribution Methods
 - 90% Approximate Gamma UCL = 93 mg/L
 - 90% Adjusted Gamma UCL = 144 mg/L

The 90% UCL estimates are all greater than the STLC for WET lead of 5 mg/L. Therefore, the representative WET lead concentrations in the top 2.5 feet of soil in Composite Area 4 would cause the shallow soil above 2.5 feet bgs to be considered a California hazardous waste.

6.1.1.5. Total and Soluble WET Lead in Top 2.5 Feet of Soil in Composite Area 5

Six discrete soil samples were collected from 0.5-1.5 feet bgs and six discrete samples were collected from 2.0-2.5 feet bgs in Composite Area 5. The basic statistics for total and WET lead concentrations in Composite Area 5 were presented in Section 6.1.1, above.

None of the total lead concentrations in Composite Area 5 exceeded the TTLC of 1,000 mg/kg. The four samples that had total lead concentrations greater than twenty times the TCLP were analyzed for TCLP lead, and none of the samples exceeded the TCLP of 5 mg/L. The seven samples that had total lead concentrations greater than ten times the STLC were analyzed for soluble WET lead, and five of the WET lead concentrations exceeded the STLC of 5 mg/L.

ProUCL was used to estimate the 90 percent UCL for WET lead concentrations in the top 2.5 feet of soil in Composite Area 5, assuming WET lead concentrations equal to ten percent of the total lead concentration for those samples not actually analyzed for WET lead. The data and UCL output file are provided in Appendix H.

The WET lead concentrations are consistent with lognormal and gamma distributions at a five percent significance level. The estimated 90 percent UCLs assuming these distributions are:

- Lognormal Distribution Methods
 - 90% Chebyshev (MVUE) UCL = 18 mg/L
- Gamma Distribution Methods
 - 90% Approximate Gamma UCL = 15 mg/L
 - 90% Adjusted Gamma UCL = 16 mg/L

The 90% UCL estimates are all greater than the STLC for WET lead of 5 mg/L. Therefore, the representative WET lead concentrations in the top 2.5 feet of soil in Composite Area 5 would cause the shallow soil above 2.5 feet bgs to be considered a California hazardous waste.

6.1.1.6. Total and Soluble WET Lead in Top 2.5 Feet of Soil in Composite Area 9

Twelve discrete soil samples were collected from 0.5-1.5 feet bgs and twelve discrete samples were collected from 2.0-2.5 feet bgs in Composite Area 9. The basic statistics for total and WET lead concentrations were presented in Section 6.1.1, above.

None of the total lead concentrations in Composite Area 9 exceeded the TTLC of 1,000 mg/kg. The five samples that had total lead concentrations greater than twenty times the TCLP were analyzed for TCLP lead, and none of the samples exceeded the TCLP of 5 mg/L. The six samples that had total lead concentrations greater than ten times the STLC were analyzed for soluble WET lead, and two of the WET lead concentrations exceeded the STLC of 5 mg/L.

ProUCL was used to estimate the 90 percent UCL for WET lead concentrations in the top 2.5 feet in Composite Area 9, assuming WET lead concentrations equal to ten percent of the total lead concentration for those samples not actually analyzed for WET lead. The data and UCL output file are provided in Appendix H.

The WET lead concentrations are consistent with lognormal and gamma distributions at a five percent significance level. The estimated 90 percent UCLs assuming these distributions are:

- Lognormal Distribution Methods
 - 90% Chebyshev (MVUE) UCL = 4.7 mg/L
- Gamma Distribution Methods
 - 90% Approximate Gamma UCL = 3.5 mg/L
 - 90% Adjusted Gamma UCL = 3.5 mg/L

The 90% UCL estimates are all less than the STLC for WET lead of 5 mg/L. Therefore, the representative WET lead concentrations in the top 2.5 feet of soil in Composite Area 9 would cause the shallow soil above 2.5 feet bgs to be considered a non-hazardous waste.

6.1.2 Fill Deeper than 2.5 Feet bgs in All Composite Areas

Fill deeper than 2.5 feet bgs was only encountered in Composite Areas 2, 5, and 9 during the investigation.⁵ Lead concentrations from 18 composite samples (and one discrete sample) of Fill from Composite Areas 2, 5, and 9 are presented below.⁶

Total lead concentrations ranged from 3.6 to 940 mg/kg, which are below the TTLC of 1,000 mg/kg. Six of the samples contained total lead above 50 mg/kg and were analyzed for WET lead. Four samples contained total lead above 100 mg/kg and were analyzed for TCLP lead. None of the samples had WET or TCLP concentrations above 5 mg/L. Therefore, Fill deeper than 2.5 feet bgs in Composite Areas 2, 5, and 9 would not be considered a California hazardous waste due to lead.

⁵ Soil samples were not collected below a depth of 2.5 feet in the other composite areas (Composite Areas 1, 3, 4, 6, 7, and 8) since excavation was not planned in that area, or excavation was not planned to extend below a depth of 2.5 bgs.

⁶ Note that all composite samples included discrete samples collected from both above and below 2.5 feet bgs, and therefore analytical results represent all the fill as one waste stream. However, inclusion of samples from the top 2.5 feet in the composite samples, where total lead concentrations could be higher than at greater depths, would have biased the sample concentrations high; even with these potentially higher total lead concentrations from the shallower samples, the total and soluble concentrations were below thresholds.

Total and Soluble Lead In All Fill Deeper Than 2.5 Feet Bgs

Composite	Sample ID	Sample	Lead	Lead, TCLP	Lead, WET
2	EC02-F002	1.0-7.5	140	0.02	3.3
2	EC02-F003	1.0-7.5	5	Not analyzed	Not analyzed
2	EC02-F006	1.0-7.5	11	Not analyzed	Not analyzed
2	EC02-F007	1.0-8.0	50	Not analyzed	0.8
2	EC02-F008	1.0-7.5	940	0.014	2.7
2	EC02-F010	1.0-8.0	6.7	Not analyzed	Not analyzed
2	EC02-F011	1.0-7.5	6.8	Not analyzed	Not analyzed
2	E041F-7.5	7.5	2.9	Not analyzed	Not analyzed
5	EC05-F003	1.0-7.5	86	Not analyzed	2.3
9	EC009-F005	1.0-11.5	16	Not analyzed	Not analyzed
9	EC009-F006	1.0-7.5	11	Not analyzed	Not analyzed
9	EC009-F007	1.0-7.5	44	Not analyzed	Not analyzed
9	EC009-F008	1.0-8.0	12	Not analyzed	Not analyzed
9	EC009-F009	1.0-12.5	220	0.006	1
9	EC009-F010	1.0-12.5	3.6	Not analyzed	Not analyzed
9	EC09-F001	1.0-7.5	12	Not analyzed	Not analyzed
9	EC09-F002	1.0-7.5	12	Not analyzed	Not analyzed
9	EC09-F003	1.0-12.5	6.5	Not analyzed	Not analyzed
9	EC09-F004	1.0-7.5	140	0.32	3.7

6.1.3 Alluvium Deeper than 2.5 Feet bgs in All Composite Areas

Alluvium deeper than 2.5 feet bgs was only encountered in Composite Area 2 during the investigation. Lead concentrations from five composite samples of alluvium from Composite Area 2 are summarized, below.

Total and Soluble Lead In All Alluvium Deeper Than 2.5 Feet Bgs

Composite Area	Sample ID	Sample Depth (feet bgs)	Lead (mg/kg)	Lead, TCLP (mg/L)	Lead, WET (mg/L)
2	EC02-A001	7.0-22.5	2.3	Not analyzed	Not analyzed
2	EC02-A002	12.5-22.5	1.7	Not analyzed	Not analyzed
2	EC02-A003	17.5-22.5	2	Not analyzed	Not analyzed
2	EC02-A004	7.5-22.5	3.8	Not analyzed	Not analyzed
2	EC02-A005	7.5	4.1	Not analyzed	Not analyzed

Total lead concentrations ranged from 1.7 to 4.1 mg/kg, which are below the TTLC. None of the samples contained total lead above 50 mg/kg or 100 mg/kg, so none was analyzed for WET or TCLP lead, respectively. Therefore, Alluvium deeper than 2.5 feet bgs in Composite Area 2 would not be considered a California hazardous waste due to lead.

6.1.4 Bay Mud Deeper than 2.5 Feet bgs in All Composite Areas

Bay Mud deeper than 2.5 feet bgs was only encountered in Composite Areas 2, 5, and 9 during the investigation. Lead concentrations from four composite samples of Bay Mud collected from deeper than 2.5 feet bgs in Composite Areas 2, 5, and 9 are presented below.

Total and Soluble Lead In All Bay Mud Deeper Than 2.5 Feet Bgs

Composite Area	Sample ID	Sample Depth (feet bgs)	Lead (mg/kg)	Lead, TCLP (mg/L)	Lead, WET (mg/L)
2	EC02-B001	7.5-12.5	23	Not analyzed	Not analyzed
2	EC02-B002	8.0	29	Not analyzed	Not analyzed
5	EC05-B001	7.5	9.1	Not analyzed	Not analyzed
9	EC009-B001	12.5-13.0	33	Not analyzed	Not analyzed

Total lead concentrations ranged from 9.1 to 33 mg/kg, which are below the TTLC. None of the samples contained total lead above 50 mg/kg or 100 mg/kg, so none was analyzed for WET or TCLP lead, respectively. Therefore, Bay Mud deeper than 2.5 feet bgs in Composite Areas 2, 5, and 9 would not be considered a California hazardous waste due to lead.

6.1.5 Colma Sand Deeper than 2.5 Feet bgs in All Composite Areas

Colma Sand deeper than 2.5 feet bgs was only encountered in Composite Area 9 during the investigation. Lead concentrations from the one composite sample of Colma Sand collected from Composite Area 9 is presented below.

Total and Soluble Lead In All Colma Sand Deeper Than 2.5 Feet Bgs

Composite Area	Sample ID	Sample Depth (feet bgs)	Lead (mg/kg)	Lead, TCLP (mg/L)	Lead, WET (mg/L)
9	EC09-C001	2.5-12.5	2.5	Not analyzed	Not analyzed

Total lead concentration was 2.5 mg/kg, which is below the TTLC. The sample did not contain total lead above 50 mg/kg or 100 mg/kg, so it was not analyzed for WET or TCLP lead, respectively. Therefore, the Colma Sand deeper than 2.5 feet bgs encountered in Composite Area 9 would not be considered a California hazardous waste due to lead.

6.2 Screening against ESLs

Chemical concentrations quantified above laboratory reporting limits associated with soils that were classified as non-hazardous wastes were screened against ESLs established by the Regional Water Board for residential and commercial/industrial land uses where the groundwater is considered a current or potential source of drinking water (Table A, Regional Water Board, 2008), and against ESLs for construction/trench worker direct exposure (Table K-3, Regional Water Board, 2008). The ESLs are listed at the bottom of Tables 4 through 11, and chemical concentrations that exceeded any of the screening criteria, including ESLs, are shaded.

Non-hazardous soils from each composite area were grouped in subsets by potential waste stream, or chemically similar soil types, for comparison against screening levels. In particular, the following subsets were evaluated against ESLs:

- Top 2.5 feet of Fill
- Fill deeper than 2.5 feet bgs
- Alluvium deeper than 2.5 feet bgs
- Bay Mud deeper than 2.5 feet bgs
- Colma Sand deeper than 2.5 feet bgs

Chemical compounds that exceeded one or more ESLs in each composite area are summarized by potential waste stream on Table 15, with the exception of arsenic and vanadium which are discussed below. Even if only one of numerous samples collected from a potential waste stream contained a compound that exceeded an ESL, that compound is listed in the above table. Statistical analysis of the representative concentration for that waste stream has not been performed. This type of analysis should be conducted once the actual waste stream proposed for off-site reuse has been determined. The information summarized in Table 15 should be considered a preliminary screening only, and more detailed evaluation may be needed for specific scenarios.

Arsenic and Vanadium in All Composite Areas

Arsenic and vanadium concentrations exceeded the residential ESLs in all samples from all Composite Areas, and arsenic also equaled or exceeded the commercial ESL in all Composite Areas (Table 4). However, none of the arsenic concentrations and only one of the vanadium concentrations (EC04-F001) was above background concentrations published by the Lawrence Berkeley National Laboratory (LBNL). Background concentrations for arsenic published by the LBNL are substantially higher than the ESLs for residential and commercial/industrial land uses, which are based on health risk considerations. The 99th percentile for arsenic determined by the LBNL 28 mg/kg (LBNL, 2009), whereas the residential and commercial/industrial ESLs are 0.39 and 1.6 mg/kg, respectively. The 99th percentile determined by LBNL for vanadium is 90 mg/kg, above the residential ESL of 16 mg/kg.

Background concentrations for arsenic and vanadium established by Presidio Trust are also higher than the ESLs for residential and commercial/industrial land uses. Presidio Trust background concentrations range from 3.2 to 6.2 mg/kg for arsenic, and 61 to 92 mg/kg for vanadium, depending on lithology (EKI, 2002).

7 CONCLUSIONS

A systematic investigation of the quality of soils that are expected to be excavated within the Project has provided data to support waste classification of the soils for disposal purposes and preliminary screening against ESLs established by the Regional Water Board.

The results of the waste classification are summarized in Tables 14 and 15. The following soil group or soil types are classified as California hazardous wastes:

- All soil in the top 2.5 feet in Composite Areas 1, 2, 4, and 5.

The following soil types are classified as non-hazardous wastes:

- Soil in the top 2.5 feet in Composite Areas 3, 6, 7, 8, and 9.
- Fill deeper than 2.5 feet bgs in Composite Areas 2, 5, and 9. Fill deeper than 2.5 feet bgs was not encountered in Composite Areas 1, 3, 4, 6, 7, or 8.
- Alluvium deeper than 2.5 feet bgs in Composite Areas 2 and 5. Alluvium deeper than 2.5 feet bgs was not encountered in Composite Areas 1, 3, 4, 6, 7, 8, or 9.
- Bay Mud deeper than 2.5 feet bgs in Composite Areas 2, 5, and 9. Bay Mud deeper than 2.5 feet bgs was not encountered in Composite Areas 1, 3, 4, 6, 7, or 8.
- Colma Sand deeper than 2.5 feet bgs in Composite Area 9. Colma Sand deeper than 2.5 feet bgs was not encountered in Composite Areas 1, 2, 3, 4, 5, 6, 7, or 8.

No samples were collected from deeper than 2.5 feet bgs in Composite Areas 1, 3, 4, 6, 7, and 8 during this investigation. Additional characterization of soils below 2.5 feet bgs should be performed if excavation below 2.5 feet were to occur.

A preliminary screening of chemical constituents against ESLs in shallow soils for residential and commercial/industrial land uses where groundwater is a current or potential drinking water source, and against ESLs for construction/trench workers, indicates that one or more samples of each soil group classified as a non-hazardous waste exceeds one or more ESLs. A more detailed evaluation should be performed to assess specific scenarios of possible soil reuse once the actual waste stream proposed for off-site reuse has been determined.

8 LIMITATIONS

BASELINE's objective is to perform our work with care, exercising the customary thoroughness and competence of earth science, environmental, and engineering consulting professionals, in accordance with the standard for professional services for a consulting firm at the time these services were provided. It is important to recognize that even the most comprehensive scope of services may fail to detect environmental conditions and potential liability at a particular site. Therefore, BASELINE cannot act as insurers and cannot "certify or underwrite" that a site is free of environmental contamination, and no expressed or implied representation or warranty is included or intended in this report except that the work was performed within the limits prescribed with the customary thoroughness and competence of our profession.

The passage of time, manifestation of latent conditions, or occurrence of future events may require further exploration at the project site, analysis of the data, and re-evaluation of the findings, observations, conclusions, and recommendations expressed in the report.

The findings, observations, conclusions, and recommendations expressed by BASELINE in this report are limited by the scope of services and should not be considered an opinion concerning the compliance of any past or current owner or operator of the site with any federal, state, or local law or regulation. No warranty or guarantee, whether expressed or implied is made with respect to the data reported or findings, observations, conclusions, and recommendations expressed in this report.

9 REFERENCES

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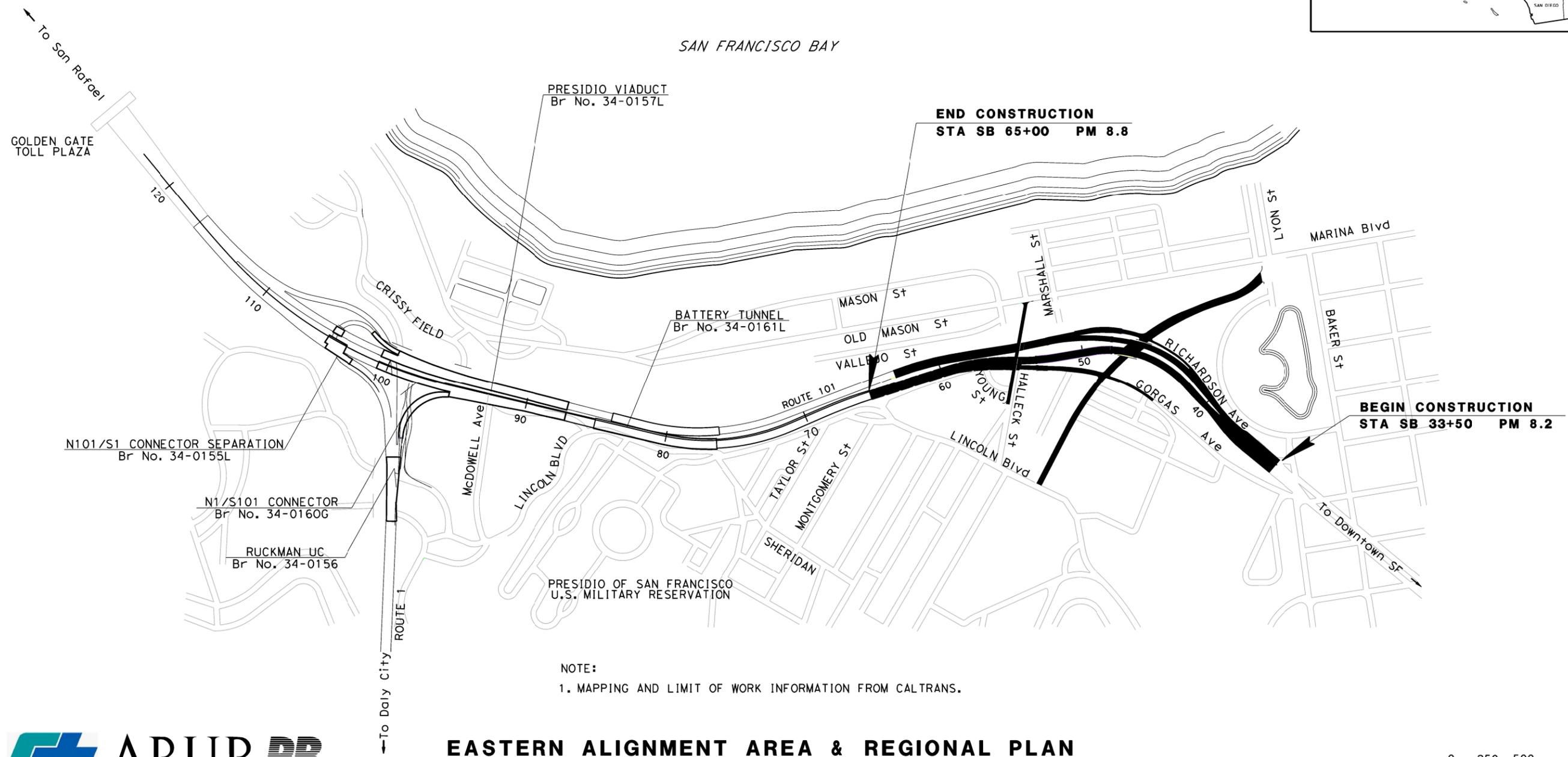
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FIGURES

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
 PROJECT PLANS FOR CONSTRUCTION ON
 STATE HIGHWAY
 IN THE CITY AND COUNTY OF SAN FRANCISCO
 0.6 MILE SOUTH OF THE
 ROUTE 101/1 SEPARATION

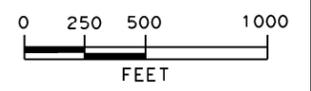
TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Sf	101,1	9.2/9.8, 6.8/7.1		

NOTE:
 1. MAPPING AND LIMIT OF WORK INFORMATION FROM CALTRANS.

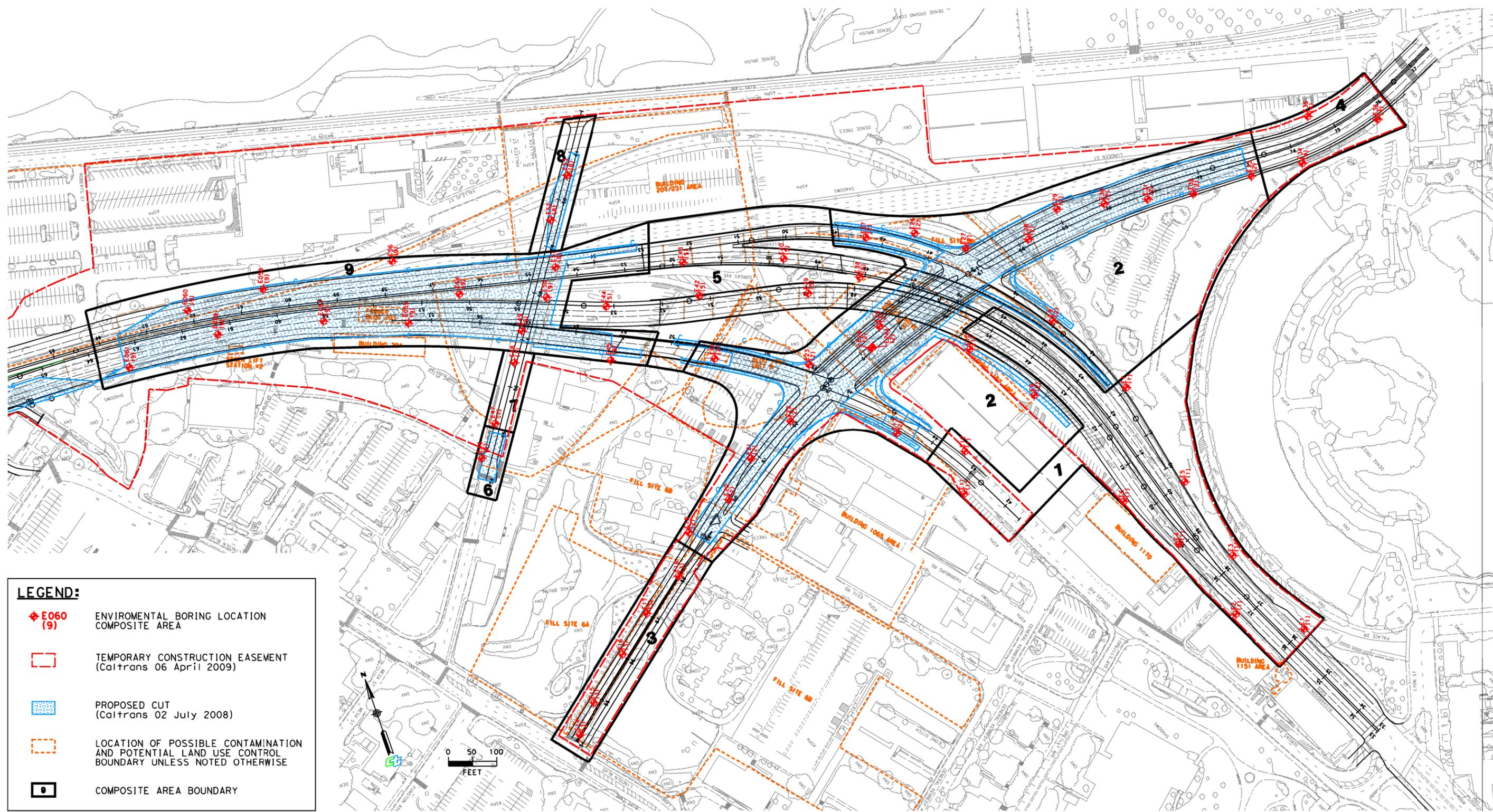
**EASTERN ALIGNMENT AREA & REGIONAL PLAN
 FIGURE 1 - MAY 27, 2010 - REV 02**



RELATIVE BORDER SCALE IS IN INCHES



DATE PLOTTED => 08/04/10
 TIME PLOTTED => 10:00 AM
 LAST REVISION => 00-00-00



LEGEND:

- ◆ **E060 (9)** ENVIRONMENTAL BORING LOCATION COMPOSITE AREA
- TEMPORARY CONSTRUCTION EASEMENT (Caltrans 06 April 2009)
- PROPOSED CUT (Caltrans 02 July 2008)
- LOCATION OF POSSIBLE CONTAMINATION AND POTENTIAL LAND USE CONTROL BOUNDARY UNLESS NOTED OTHERWISE
- COMPOSITE AREA BOUNDARY

DOYLE DRIVE REPLACEMENT PROJECT - EASTERN ALIGNMENT AREA

**Environmental Boring Locations and Composite Areas
FIGURE 2 - May 27, 2010 - Rev 02**



ARUP **PR**
joint venture

TABLES

TABLE 1: Soil Boring Survey Data
Eastern Alignment of Doyle Drive Replacement Project

Composite Area	Boring ID	Cut or Fill ¹	Drilling Method	Boring Depth (feet bgs)	Installation Date	Project Survey Coordinates ²			Presidio Trust Survey Coordinates ³		
						Northing	Easting	Elevation	Northing	Easting	Elevation
1	E001	Fill	HSA	2.5	4/21/2009	2120198.221	5998705.619	12.893	479791.015	1437337.590	13.263
1	E002	Fill	HA	2.5	4/21/2009	2120221.883	5998562.300	12.649	479814.675	1437194.269	13.019
1	E003	Fill	HSA	3.0	4/21/2009	2120343.206	5998549.914	10.610	479935.999	1437181.881	10.980
1	E004	Fill	HSA	3.0	4/17/2009	2120361.018	5998437.188	10.565	479953.810	1437069.153	10.935
1	E005	Fill	HSA	3.0	4/21/2009	2120490.336	5998442.565	12.291	480083.130	1437074.528	12.661
1	E006	Fill	HSA	3.0	4/17/2009	2120443.652	5998318.980	10.661	480036.443	1436950.942	11.031
1	E007	Fill	HSA	3.0	4/21/2009	2120679.795	5998312.014	12.576	480272.589	1436943.973	12.946
1	E010	Fill	HSA	3.0	4/20/2009	2120741.993	5997983.927	10.426	480334.783	1436615.881	10.796
1	E011	Fill	HSA	3.0	4/17/2009	2120442.508	5997987.476	11.157	480035.294	1436619.434	11.527
1	E012	Fill	HSA	3.0	4/17/2009	2120530.214	5997984.462	9.934	480123.001	1436616.419	10.304
2	E008	Cut	HSA	8.0	4/20/2009	2120653.928	5998122.074	10.333	480246.719	1436754.031	10.703
2	E009	Cut	HSA	8.0	4/14/2009	2120808.971	5998152.396	10.962	480401.764	1436784.351	11.332
2	E013	Cut	HSA	8.0	4/17/2009	2120559.994	5997840.603	12.784	480152.780	1436472.558	13.154
2	E019	Cut	HSA	3.0	4/15/2009	2120333.799	5997421.757	22.138	479926.576	1436053.710	22.508
2	E020	Cut	HSA	3.0	4/14/2009	2120405.534	5997499.986	20.554	479998.313	1436131.939	20.924
2	E021	Cut	HSA	3.0	4/17/2009	2120492.939	5997542.197	15.522	480085.719	1436174.149	15.892
2	E022	Cut	HSA	8.0	4/17/2009	2120575.437	5997620.661	15.505	480168.220	1436252.613	15.875
2	E023	Cut	HSA	23.0	4/15/2009	2120693.530	5997653.204	15.099	480286.315	1436285.155	15.469
2	E024	Cut	HSA	23.0	4/16/2009	2120733.682	5997779.336	10.321	480326.469	1436411.288	10.691
2	E025	Cut	HSA	23.0	4/16/2009	2120779.556	5997794.434	11.237	480372.344	1436426.385	11.607
2	E026	Cut	HSA	23.0	4/14/2009	2120976.121	5997856.851	11.184	480568.912	1436488.800	11.554
2	E027	Cut	HSA	23.0	4/14/2009	2120950.629	5997964.957	10.569	480543.421	1436596.908	10.939
2	E028	Cut	HSA	8.0	4/20/2009	2120975.437	5998093.585	12.890	480568.231	1436725.537	13.260
2	E029	Cut	HSA	8.0	4/20/2009	2121040.435	5998149.949	13.475	480633.231	1436781.901	13.845
2	E030	Cut	HSA	3.0	4/20/2009	2121056.390	5998247.840	13.338	480649.188	1436879.793	13.708
2	E031	Cut	HSA	8.0	4/20/2009	2121070.508	5998336.466	13.526	480663.307	1436968.419	13.896
2	E032	Cut	HSA	3.0	4/20/2009	2121086.237	5998430.304	12.644	480679.038	1437062.258	13.014
2	E033	Cut	HA	2.5	4/21/2009	2121128.768	5998548.497	13.055	480721.571	1437180.452	13.425
2	E037	Cut	HSA	3.5	4/14/2009	2120962.029	5997756.409	11.797	480554.818	1436388.357	12.167
2	E041	Cut	HSA	8.0	4/16/2009	2120696.079	5997456.354	12.552	480288.861	1436088.302	12.922
3	E014	Fill	HSA	3.0	4/15/2009	2119904.783	5997216.519	40.699	479497.552	1435848.476	41.069
3	E015	Fill	HSA	3.0	4/15/2009	2119972.203	5997242.847	37.338	479564.973	1435874.803	37.708
3	E016	Fill	HSA	3.0	4/15/2009	2120074.983	5997297.293	33.412	479667.755	1435929.248	33.782
3	E017	Fill	HSA	3.0	4/15/2009	2120161.839	5997343.407	29.107	479754.613	1435975.362	29.477

TABLE 1: Soil Boring Survey Data
Eastern Alignment of Doyle Drive Replacement Project

Composite Area	Boring ID	Cut or Fill ¹	Drilling Method	Boring Depth (feet bgs)	Installation Date	Project Survey Coordinates ²			Presidio Trust Survey Coordinates ³		
						Northing	Easting	Elevation	Northing	Easting	Elevation
3	E018	Fill	HSA	3.0	4/15/2009	2120242.329	5997404.602	24.514	479835.104	1436036.556	24.884
4	E034	Fill	HA	1.2	4/21/2009	2121160.663	5998653.111	11.240	480753.468	1437285.067	11.610
4	E035	Fill	HSA	3.0	4/20/2009	2121257.851	5998659.424	10.701	480850.657	1437291.379	11.071
4	E036	Fill	HA	2.5	4/21/2009	2121258.799	5998803.892	12.482	480851.607	1437435.848	12.852
5	E038	Fill	HSA	3.0	4/16/2009	2120879.124	5997748.016	11.280	480471.912	1436379.965	11.650
5	E039	Fill	HSA	3.5	4/13/2009	2120840.002	5997643.508	10.891	480432.788	1436275.456	11.261
5	E040	Fill	HSA	8.0	4/13/2009	2120909.868	5997589.331	10.847	480502.654	1436221.278	11.217
5	E042	Fill	HSA	3.5	4/13/2009	2120823.949	5997418.133	11.160	480416.732	1436050.079	11.530
5	E043	Fill	HSA	8.0	4/13/2009	2120891.663	5997380.902	11.174	480484.446	1436012.846	11.544
5	E044	Fill	HSA	3.5	4/13/2009	2120792.011	5997227.492	13.518	480384.791	1435859.436	13.888
6	E046	Cut	HSA	3.0	2/18/2009	2120465.229	5996985.282	32.102	480058.001	1435617.228	32.472
7	E047	Fill	HSA	3.0	2/18/2009	2120539.283	5997008.953	29.821	480132.056	1435640.898	30.191
7	E048	Fill	HSA	3.0	2/18/2009	2120666.964	5997042.341	22.268	480259.739	1435674.285	22.638
8	E052	Cut	HSA	3.0	2/19/2009	2120965.270	5997102.875	13.503	480558.050	1435734.815	13.873
8	E053	Cut	HA	2.5	2/19/2009	2121058.507	5997132.156	11.766	480651.288	1435764.095	12.136
9	E045	Cut	HSA	3.0	2/18/2009	2120681.817	5997242.674	11.908	480274.595	1435874.620	12.278
9	E049	Cut	HSA	13.5	2/18/2009	2120733.014	5997054.904	20.360	480325.790	1435686.847	20.730
9	E050	Cut	HSA	15.0	2/19/2009	2120804.487	5997102.164	17.968	480397.265	1435734.106	18.338
9	E051	Cut	HSA	13.0	2/17/2009	2120867.759	5997117.287	16.515	480460.538	1435749.229	16.885
9	E054	Cut	HSA	15.0	2/17/2009	2120802.360	5996921.621	12.509	480395.135	1435553.561	12.879
9	E055	Cut	HSA	12.5	1/23/2009	2120737.015	5996818.168	12.667	480329.788	1435450.108	13.037
9	E056	Cut	HSA	11.5	2/17/2009	2120863.370	5996778.589	11.704	480456.144	1435410.526	12.074
9	E057	Cut	HSA	7.5	1/22/2009	2120732.222	5996643.033	12.504	480324.992	1435274.971	12.874
9	E058	Cut	HSA	7.5	1/23/2009	2120791.638	5996514.296	11.404	480384.407	1435146.231	11.774
9	E059	Cut	HSA	7.5	1/23/2009	2120693.589	5996425.576	12.799	480286.356	1435057.512	13.169
9	E060	Cut	HSA	10.0	1/23/2009	2120739.746	5996360.833	12.562	480332.512	1434992.767	12.932
9	E061	Cut	HSA	12.5	1/22/2009	2120616.781	5996246.582	15.519	480209.544	1434878.517	15.889

TABLE 1: Soil Boring Survey Data
Eastern Alignment of Doyle Drive Replacement Project

Notes:

Boring locations are shown on Figure 2.

bgs = below ground surface.

Drilling Methods:

HA = Hand Auger

HSA = Hollow Stem Auger

DPT = Direct Push Technology

MR = Mud Rotary

¹ Proposed cut and potential fill areas are shown on Figure 2.

² Project survey coordinates and vertical datum in feet relative to NAD83 (State Plane System, California Zone III) and NAVD 88, respectively. Borings surveyed at ground elevation by Chaudhary & Associates.

³ Presidio Trust survey coordinates and vertical datum are in feet relative to NAD27 and Presidio Low Low Water (PLLW), respectively. Survey data calculated by Chaudhary & Associates from NAD 83 and NAVD 88.

**TABLE 2: Soil Composite and Discrete Sample Correlations
Eastern Alignment of Doyle Drive Replacement Project**

Composite Area	Composite Sample ID	Discrete Sample ID	Lithology
1	EC01-F001	E011F-1.0	F
		E011F-2.5	F
		E012F-1.0	F
		E012F-2.5	F
1	EC01-F002	E001F-1.0	F
		E001F-2.5	F
		E003F-1.5	F
		E003F-2.5	F
1	EC01-F003	E005F-1.0	F
		E005F-2.5	F
		E007F-1.0	F
		E007F-2.5	F
1	EC01-F004	E002F-1.0	F
		E002F-2.5	F
		E004F-1.0	F
		E004F-2.5	F
1	EC01-F005	E006F-1.0	F
		E006F-2.5	F
		E010F-1.0	F
		E010F-2.5	F
2	EC02-A001	E026A-12.5	A
		E026A-17.5	A
		E026A-22.5	A
		E026A-7.0	A
		E026A-17.5	A
2	EC02-A002	E024A-17.5	A
		E024A-22.5	A
		E025A-12.5	A
		E025A-17.5	A
		E025A-22.5	A
2	EC02-A003	E023A-17.5	A
		E023A-22.5	A
2	EC02-A004	E027A-12.5	A
		E027A-17.5	A
		E027A-22.5	A
		E027A-7.5	A
2	EC02-A005	E028A-7.5	A
2	EC02-B001	E009B-7.5	B
		E023B-12.5	B
		E024B-12.5	B
		E024B-7.5	B
2	EC02-B002	E008B-8.0	B
2	EC02-F001	E019F-1.0	F
		E019F-2.5	F
		E020F-1.0	F
		E020F-2.5	F
2	EC02-F002	E023F-1.0	F
		E023F-2.5	F
		E023F-7.5	F
		E024F-1.0	F
		E024F-2.5	F

**TABLE 2: Soil Composite and Discrete Sample Correlations
Eastern Alignment of Doyle Drive Replacement Project**

Composite Area	Composite Sample ID	Discrete Sample ID	Lithology
2	EC02-F003	E025F-1.0	F
		E025F-2.5	F
		E025F-7.5	F
2	EC02-F004	E026F-1.5	F
		E026F-2.5	F
		E027F-1.5	F
		E027F-2.5	F
2	EC02-F005	E009F-1.0	F
		E009F-2.5	F
		E037F-1.0	F
		E037F-2.5	F
2	EC02-F006	E041F-1.0	F
		E041F-2.5	F
		E041F-7.5	F
2	EC02-F007	E021F-1.0	F
		E021F-2.5	F
		E022F-1.0	F
		E022F-2.5	F
		E022F-8.0	F
2	EC02-F008	E013F-1.0	F
		E013F-2.5	F
		E013F-7.5	F
2	EC02-F009	E032F-1.0	F
		E032F-2.5	F
		E033F-1.0	F
		E033F-2.5	F
2	EC02-F010	E030F-1.0	F
		E030F-2.5	F
		E031F-1.0	F
		E031F-2.0 ¹	F
		E031F-8.0	F
2	EC02-F011	E028F-1.0	F
		E028F-2.5	F
		E029F-1.0	F
		E029F-2.5	F
		E029FS-7.5	FS
2	EC02-F012	E008F-1.0	F
		E008F-2.5	F
3	EC03-F001	E016F-1.0	F
		E017F-1.0	F
		E017F-2.5	F
		E018F-1.0	F
3	EC03-F002	E018F-2.5	F
		E014F-1.0	F
		E014F-2.5	F
		E015F-1.0	F
		E015F-2.5	F
		E016F-2.5	F

**TABLE 2: Soil Composite and Discrete Sample Correlations
Eastern Alignment of Doyle Drive Replacement Project**

Composite Area	Composite Sample ID	Discrete Sample ID	Lithology
4	EC04-F001	E034F-1.0	F
		E035F-1.0	F
		E035F-2.5	F
		E036F-1.0	F
		E036F-2.5	F
5	EC05-B001	E040B-7.5	B
5	EC05-F001	E042F-1.0	F
		E042F-2.5	F
		E044F-1.0	F
		E044F-2.5	F
5	EC05-F002	E039F-1.0	F
		E039F-2.5	F
		E040F-1.0	F
		E040F-2.5	F
5	EC05-F003	E038F-1.0	F
		E038F-2.5	F
		E043F-1.0	F
		E043F-2.5	F
		E043F-7.5	F
6	EC006-A001	E046A-2.5	A
6	EC006-F001	E046F-1.0	F
7	EC007-A001	E047A-1.0	A
		E047A-2.5	A
7	EC007-F001	E048F-1.0	F
		E048F-2.5	F
8	EC008-F001	E052F-1.0	F
		E052F-2.5	F
		E053F-1.0	F
		E053F-2.5	F
9	EC009-B001	E051B-12.5	B
		E054B-13.0	B
		E056F-1.0	F
9	EC009-F005	E056F-11.5	F
		E056F-2.5	F
		E056F-7.5	F
		E056F-7.5	F
9	EC009-F006	E054F-1.0	F
		E054F-8.0	F
		E054FS-2.5	FS
9	EC009-F007	E051F-1.0	F
		E051F-2.5	F
		E051F-7.5	F
9	EC009-F008	E050F-1.5	F
		E050F-2.5	F
		E050F-8.0	F
9	EC009-F009	E045F-1.0	F
		E045F-2.5	F
		E050F-12.5	F

**TABLE 2: Soil Composite and Discrete Sample Correlations
Eastern Alignment of Doyle Drive Replacement Project**

Composite Area	Composite Sample ID	Discrete Sample ID	Lithology
9	EC009-F010	E049F-1.0	F
		E049F-12.5	F
		E049F-2.5	F
		E049F-7.5	F
9	EC09-C001	E061C-12.5	C
		E061C-2.5	C
		E061C-7.5	C
9	EC09-F001	E057F-1.0	F
		E059F-1.0	F
		E059F-2.5	F
		E059F-7.5	F
		E061F-1.0	F
9	EC09-F002	E055F-1.0	F
		E055F-2.5	F
		E057F-3.0	F
		E057F-7.5	F
9	EC09-F003	E055F-12.5	F
		E055F-7.5	F
		E060F-1.0	F
		E060FS-2.5	FS
9	EC09-F004	E058F-1.0	F
		E058F-2.5	F
		E058F-7.5	F
		E060F-7.5	F

Notes:

Boring locations are shown on Figure 2.

Key to Discrete Sample IDs: E061C-2.5 indicates sample collected from environmental boring number E061, lithology of sample is Colma sand (C=Colma sand), and sample depth is 2.0 to 2.5 feet bgs.

Key to Composite Sample IDs: EC09-C001 indicates an environmental composite sample made up of discrete samples collected from Composite Area 9, and lithology of sample is Colma sand (C=Colma sand).

Key to Lithologies: F = Fill; FS = Fill with serpentinite; A = Alluvium; C = Colma Sand; B = Bay Mud.
bgs = below ground surface.

¹ The laboratory sample identification was E031F-2.5. BASELINE changed the sample identification to E031F-2.0 based on review of the boring log.

**TABLE 3: Summary of Soil Sample Analyses
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Composite Area	Boring ID	Sample ID	Sample Depth (feet bgs)	Sample Date	Lithology	Title 22 Metals	Total Lead (Only)	Soluble Lead	Soluble Chromium	Total Petroleum Hydrocarbons	Volatile Organic Compounds	Semi-Volatile Organic Compounds	Polycyclic Aromatic Hydrocarbons	Pesticides	Herbicides	Polychlorinated Biphenyls	Asbestos	Cyanide	Sulfide	pH	Moisture
Table Location:						4,5	5	5	5	6	7	8	9	10	NT	11	12	13	13	13	NT
1	--	EC01-F001	1.0-2.5	4/17/2009	F	X		X	X	X	X	X	X	X	X	X		X	X	X	X
1	--	EC01-F002	1.0-2.5	4/21/2009	F	X		X	X	X	X	X	X	X	X	X		X	X	X	X
1	--	EC01-F003	1.0-2.5	4/21/2009	F	X		X	X	X	X	X	X	X	X	X		X	X	X	X
1	--	EC01-F004	1.0-2.5	4/17/2009	F	X		X	X	X	X	X	X	X	X	X		X	X	X	X
1	--	EC01-F005	1.0-2.5	4/17/2009	F	X			X	X	X	X	X	X	X	X		X	X	X	X
2	--	EC02-A001	7.0-22.5	4/14/2009	A	X				X	X	X	X			X		X	X	X	X
2	--	EC02-A002	12.5-22.5	4/16/2009	A	X				X	X	X	X			X		X	X	X	X
2	--	EC02-A003	17.5-22.5	4/15/2009	A	X				X	X	X	X			X		X	X	X	X
2	--	EC02-A004	7.5-22.5	4/14/2009	A	X			X	X	X	X	X			X		X	X	X	X
2	--	EC02-A005	7.5	4/20/2009	A	X				X	X	X	X			X		X	X	X	X
2	--	EC02-B001	7.5-12.5	4/14/2009	B	X			X	X	X	X	X			X		X	X	X	X
2	--	EC02-B002	8.0	4/20/2009	B	X			X	X	X	X	X			X		X	X	X	X
2	--	EC02-F001	1.0-2.5	4/14/2009	F	X			X	X	X	X	X	X	X	X		X	X	X	X
2	--	EC02-F002	1.0-7.5	4/15/2009	F	X		X	X	X	X	X	X	X	X	X		X	X	X	X
2	--	EC02-F003	1.0-7.5	4/16/2009	F	X			X	X	X	X	X	X	X	X		X	X	X	X
2	--	EC02-F004	1.5-2.5	4/14/2009	F	X				X	X	X	X	X	X	X		X	X	X	X
2	--	EC02-F005	1.0-2.5	4/14/2009	F	X		X	X	X	X	X	X	X	X	X		X	X	X	X
2	--	EC02-F006	1.0-7.5	4/16/2009	F	X			X	X	X	X	X	X	X	X		X	X	X	X
2	--	EC02-F007	1.0-8.0	4/17/2009	F	X		X	X	X	X	X	X	X	X	X		X	X	X	X
2	--	EC02-F008	1.0-7.5	4/17/2009	F	X		X	X	X	X	X	X	X	X	X		X	X	X	X
2	--	EC02-F009	1.0-2.5	4/20/2009	F	X		X	X	X	X	X	X	X	X	X		X	X	X	X
2	--	EC02-F010	1.0-8.0	4/20/2009	F	X			X	X	X	X	X	X	X	X		X	X	X	X
2	--	EC02-F011	1.0-7.5	4/20/2009	F	X			X	X	X	X	X	X	X	X		X	X	X	X
2	--	EC02-F012	1.0-2.5	4/20/2009	F	X		X	X	X	X	X	X	X	X	X		X	X	X	X

**TABLE 3: Summary of Soil Sample Analyses
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Composite Area	Boring ID	Sample ID	Sample Depth (feet bgs)	Sample Date	Lithology	Title 22 Metals	Total Lead (Only)	Soluble Lead	Soluble Chromium	Total Petroleum Hydrocarbons	Volatile Organic Compounds	Semi-Volatile Organic Compounds	Polycyclic Aromatic Hydrocarbons	Pesticides	Herbicides	Polychlorinated Biphenyls	Asbestos	Cyanide	Sulfide	pH	Moisture
Table Location:						4,5	5	5	5	6	7	8	9	10	NT	11	12	13	13	13	NT
3	--	EC03-F001	1.0-2.5	4/15/2009	F	X			X	X	X	X	X	X	X	X		X	X	X	X
3	--	EC03-F002	1.0-2.5	4/15/2009	F	X				X	X	X	X	X	X	X		X	X	X	X
4	--	EC04-F001	1.0-2.5	4/20/2009	F	X		X	X	X	X	X	X	X	X	X		X	X	X	X
5	--	EC05-B001	7.5	4/13/2009	B	X			X	X	X	X	X	X	X	X		X	X	X	X
5	--	EC05-F001	1.0-2.5	4/13/2009	F	X		X		X	X	X	X	X	X	X		X	X	X	X
5	--	EC05-F002	1.0-2.5	4/13/2009	F	X		X	X	X	X	X	X	X	X	X		X	X	X	X
5	--	EC05-F003	1.0-7.5	4/13/2009	F	X		X	X	X	X	X	X	X	X	X		X	X	X	X
6	--	EC006-A001	2.5	2/18/2009	A	X			X	X	X	X	X			X		X	X	X	X
6	--	EC006-F001	1.0	2/18/2009	F	X				X	X	X	X	X	X	X		X	X	X	X
7	--	EC007-A001	1.0-2.5	2/18/2009	A	X			X	X	X	X	X			X		X	X	X	X
7	--	EC007-F001	1.0-2.5	2/18/2009	F	X				X	X	X	X	X	X	X		X	X	X	X
8	--	EC008-F001	1.0-2.5	2/19/2009	F	X		X		X	X	X	X	X	X	X		X	X	X	X
9	--	EC009-B001	12.5-13.0	2/17/2009	B	X			X	X	X	X	X			X		X	X	X	X
9	--	EC009-F005	1.0-11.5	2/17/2009	F	X			X	X	X	X	X	X	X	X		X	X	X	X
9	--	EC009-F006	1.0-7.5	2/17/2009	F	X			X	X	X	X	X	X	X	X		X	X	X	X
9	--	EC009-F007	1.0-7.5	2/17/2009	F	X			X	X	X	X	X	X	X	X		X	X	X	X
9	--	EC009-F008	1.0-8.0	2/19/2009	F	X			X	X	X	X	X	X	X	X		X	X	X	X
9	--	EC009-F009	1.0-12.5	2/18/2009	F	X		X	X	X	X	X	X	X	X	X		X	X	X	X
9	--	EC009-F010	1.0-12.5	2/18/2009	F	X			X	X	X	X	X	X	X	X		X	X	X	X
9	--	EC09-C001	2.5-12.5	1/22/2009	C	X			X	X	X	X	X			X		X	X	X	X
9	--	EC09-F001	1.0-7.5	1/22/2009	F	X			X	X	X	X	X	X	X	X		X	X	X	X
9	--	EC09-F002	1.0-7.5	1/22/2009	F	X			X	X	X	X	X	X	X	X		X	X	X	X
9	--	EC09-F003	1.0-12.5	1/23/2009	F	X			X	X	X	X	X	X	X	X		X	X	X	X
9	--	EC09-F004	1.0-7.5	1/23/2009	F	X		X		X	X	X	X	X	X	X		X	X	X	X

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Composite Area	Boring ID	Sample ID	Sample Depth (feet bgs)	Sample Date	Lithology	Title 22 Metals	Total Lead (Only)	Soluble Lead	Soluble Chromium	Total Petroleum Hydrocarbons	Volatile Organic Compounds	Semi-Volatile Organic Compounds	Polycyclic Aromatic Hydrocarbons	Pesticides	Herbicides	Polychlorinated Biphenyls	Asbestos	Cyanide	Sulfide	pH	Moisture	
Table Location:						4,5	5	5	5	6	7	8	9	10	NT	11	12	13	13	13	NT	
1	E001	E001F-1.0	1.0	4/21/2009	F		X	X														X
1	E001	E001F-2.5	2.5	4/21/2009	F		X	X														X
1	E002	E002F-1.0	1.0	4/21/2009	F		X	X														X
1	E002	E002F-2.5	2.5	4/21/2009	F		X	X														X
1	E003	E003F-1.5	1.5	4/21/2009	F		X	X														X
1	E003	E003F-2.5	2.5	4/21/2009	F		X															X
1	E004	E004F-1.0	1.0	4/17/2009	F		X															X
1	E004	E004F-2.5	2.5	4/17/2009	F		X															X
1	E005	E005F-1.0	1.0	4/21/2009	F		X	X														X
1	E005	E005F-2.5	2.5	4/21/2009	F		X															X
1	E006	E006F-1.0	1.0	4/17/2009	F		X															X
1	E006	E006F-2.5	2.5	4/17/2009	F		X															X
1	E007	E007F-1.0	1.0	4/21/2009	F		X	X														X
1	E007	E007F-2.5	2.5	4/21/2009	F		X	X														X
1	E010	E010F-1.0	1.0	4/20/2009	F		X															X
1	E010	E010F-2.5	2.5	4/20/2009	F		X															X
1	E011	E011F-1.0	1.0	4/17/2009	F		X	X														X
1	E011	E011F-2.5	2.5	4/17/2009	F		X															X
1	E012	E012F-1.0	1.0	4/17/2009	F		X															X
1	E012	E012F-2.5	2.5	4/17/2009	F		X															X
2	E008	E008F-1.0	1.0	4/20/2009	F		X	X														X
2	E008	E008F-2.5	2.5	4/20/2009	F		X															X
2	E009	E009F-1.0	1.0	4/14/2009	F		X	X														X
2	E009	E009F-2.5	2.5	4/14/2009	F		X															X

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Table Location:						4,5	5	5	5	6	7	8	9	10	NT	11	12	13	13	13	NT	
2	E013	E013F-1.0	1.0	4/17/2009	F		X	X														X
2	E013	E013F-2.5	2.5	4/17/2009	F		X	X														X
2	E019	E019F-1.0	1.0	4/15/2009	F		X															X
2	E019	E019F-2.5	2.5	4/15/2009	F		X															X
2	E020	E020F-1.0	1.0	4/14/2009	F		X															X
2	E020	E020F-2.5	2.5	4/14/2009	F		X															X
2	E021	E021F-1.0	1.0	4/17/2009	F		X															X
2	E021	E021F-2.5	2.5	4/17/2009	F		X															X
2	E022	E022F-1.0	1.0	4/17/2009	F		X	X														X
2	E022	E022F-2.5	2.5	4/17/2009	F		X	X														X
2	E023	E023F-1.0	1.0	4/15/2009	F		X	X														X
2	E023	E023F-2.5	2.5	4/15/2009	F		X	X														X
2	E024	E024F-1.0	1.0	4/16/2009	F		X	X														X
2	E024	E024F-2.5	2.5	4/16/2009	F		X															X
2	E025	E025F-1.0	1.0	4/16/2009	F		X															X
2	E025	E025F-2.5	2.5	4/16/2009	F		X															X
2	E026	E026F-1.5	1.5	4/14/2009	F		X															X
2	E026	E026F-2.5	2.5	4/14/2009	F		X															X
2	E027	E027F-1.5	1.5	4/14/2009	F		X	X														X
2	E027	E027F-2.5	2.5	4/14/2009	F		X															X
2	E028	E028F-1.0	1.0	4/20/2009	F		X															X
2	E028	E028F-2.5	2.5	4/20/2009	F		X	X														X
2	E029	E029F-1.0	1.0	4/20/2009	F		X															X
2	E029	E029F-2.5	2.5	4/20/2009	F		X															X

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Table Location:						4,5	5	5	5	6	7	8	9	10	NT	11	12	13	13	13	NT	
2	E029	E029FS-7.5	7.5	4/20/2009	FS												X					
2	E030	E030F-1.0	1.0	4/20/2009	F		X															X
2	E030	E030F-2.5	2.5	4/20/2009	F		X															X
2	E031	E031F-1.0	1.0	4/20/2009	F		X															X
2	E031	E031F-2.0 ¹	2.0	4/20/2009	F		X															X
2	E032	E032F-1.0	1.0	4/20/2009	F		X															X
2	E032	E032F-2.5	2.5	4/20/2009	F		X	X														X
2	E033	E033F-1.0	1.0	4/21/2009	F		X	X														X
2	E033	E033F-2.5	2.5	4/21/2009	F		X	X														X
2	E037	E037F-1.0	1.0	4/14/2009	F		X															X
2	E037	E037F-2.5	2.5	4/14/2009	F		X															X
2	E041	E041F-1.0	1.0	4/16/2009	F		X															X
2	E041	E041F-2.5	2.5	4/16/2009	F		X	X														X
2	E041	E041F-7.5	7.5	4/16/2009	F		X															X
3	E014	E014F-1.0	1.0	4/15/2009	F		X															X
3	E014	E014F-2.5	2.5	4/15/2009	F		X															X
3	E015	E015F-1.0	1.0	4/15/2009	F		X															X
3	E015	E015F-2.5	2.5	4/15/2009	F		X															X
3	E016	E016F-1.0	1.0	4/15/2009	F		X															X
3	E016	E016F-2.5	2.5	4/15/2009	F		X															X
3	E017	E017F-1.0	1.0	4/15/2009	F		X															X
3	E017	E017F-2.5	2.5	4/15/2009	F		X															X
3	E018	E018F-1.0	1.0	4/15/2009	F		X															X
3	E018	E018F-2.5	2.5	4/15/2009	F		X															X

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Table Location:						4,5	5	5	5	6	7	8	9	10	NT	11	12	13	13	13	NT	
4	E034	E034F-1.0	1.0	4/21/2009	F		X	X														X
4	E035	E035F-1.0	1.0	4/20/2009	F		X															X
4	E035	E035F-2.5	2.5	4/20/2009	F		X	X														X
4	E036	E036F-1.0	1.0	4/21/2009	F		X	X														X
4	E036	E036F-2.5	2.5	4/21/2009	F		X	X														X
5	E038	E038F-1.0	1.0	4/16/2009	F		X	X														X
5	E038	E038F-2.5	2.5	4/16/2009	F		X															X
5	E039	E039F-1.0	1.0	4/13/2009	F		X															X
5	E039	E039F-2.5	2.5	4/13/2009	F		X	X														X
5	E040	E040F-1.0	1.0	4/13/2009	F		X															X
5	E042	E042F-1.0	1.0	4/13/2009	F		X	X														X
5	E042	E042F-2.5	2.5	4/13/2009	F		X															X
5	E043	E043F-1.0	1.0	4/13/2009	F		X	X														X
5	E043	E043F-2.5	2.5	4/13/2009	F		X															X
5	E044	E044F-1.0	1.0	4/13/2009	F		X	X														X
5	E044	E044F-2.5	2.5	4/13/2009	F		X	X														X
5	E040	E040F-2.5	2.5	4/13/2009	F		X	X														X
6	E046	E046A-2.5	2.5	2/18/2009	A		X															X
6	E046	E046F-1.0	1.0	2/18/2009	F		X															X
7	E047	E047A-1.0	1.0	2/18/2009	A		X															X
7	E047	E047A-2.5	2.5	2/18/2009	A		X															X
7	E048	E048F-1.0	1.0	2/18/2009	F		X															X
7	E048	E048F-2.5	2.5	2/18/2009	F		X															X
8	E052	E052F-1.0	1.0	2/19/2009	F		X															X

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Table Location:						4,5	5	5	5	6	7	8	9	10	NT	11	12	13	13	13	NT	
8	E052	E052F-2.5	2.5	2/19/2009	F		X															X
8	E053	E053F-1.0	1.0	2/19/2009	F		X	X														X
8	E053	E053F-2.5	2.5	2/19/2009	F		X	X														X
9	E045	E045F-1.0	1.0	2/18/2009	F		X	X														X
9	E045	E045F-2.5	2.5	2/18/2009	F		X															X
9	E049	E049F-1.0	1.0	2/18/2009	F		X															X
9	E049	E049F-2.5	2.5	2/18/2009	F		X															X
9	E050	E050F-1.5	1.5	2/19/2009	F		X															X
9	E050	E050F-2.5	2.5	2/19/2009	F		X															X
9	E051	E051F-1.0	1.0	2/17/2009	F		X															X
9	E051	E051F-2.5	2.5	2/17/2009	F		X															X
9	E054	E054F-1.0	1.0	2/17/2009	F		X															X
9	E054	E054FS-2.5	2.5	2/17/2009	FS		X										X					X
9	E055	E055F-1.0	1.0	1/23/2009	F		X															X
9	E055	E055F-2.5	2.5	1/23/2009	F		X	X														X
9	E056	E056F-1.0	1.0	2/17/2009	F		X	X														X
9	E056	E056F-2.5	2.5	2/17/2009	F		X															X
9	E057	E057F-1.0	1.0	1/22/2009	F		X															X
9	E057	E057F-3.0	3.0	1/22/2009	F		X															X
9	E058	E058F-1.0	1.0	1/23/2009	F		X	X														X
9	E058	E058F-2.5	2.5	1/23/2009	F		X	X														X
9	E059	E059F-1.0	1.0	1/23/2009	F		X															X
9	E059	E059F-2.5	2.5	1/23/2009	F		X	X														X
9	E060	E060F-1.0	1.0	1/23/2009	F		X															X

**TABLE 3: Summary of Soil Sample Analyses
Eastern Alignment of Doyle Drive Replacement Project**

Composite Area	Boring ID	Sample ID	Sample Depth (feet bgs)	Sample Date	Lithology	Title 22 Metals	Total Lead (Only)	Soluble Lead	Soluble Chromium	Total Petroleum Hydrocarbons	Volatile Organic Compounds	Semi-Volatile Organic Compounds	Polycyclic Aromatic Hydrocarbons	Pesticides	Herbicides	Polychlorinated Biphenyls	Asbestos	Cyanide	Sulfide	pH	Moisture	
Table Location:						4,5	5	5	5	6	7	8	9	10	NT	11	12	13	13	13	NT	
9	E060	E060FS-2.5	2.5	1/23/2009	FS		X										X					X
9	E061	E061C-2.5	2.5	1/22/2009	C		X															X
9	E061	E061F-1.0	1.0	1/22/2009	F		X															X

**TABLE 3: Summary of Soil Sample Analyses
Eastern Alignment of Doyle Drive Replacement Project**

Notes:

Boring locations are shown on Figure 2.

Laboratory reports are included in Appendix G.

Key to Discrete Sample IDs: E061C-2.5 indicates sample collected from environmental boring number E061, lithology of sample is Colma sand (C=Colma sand), and sample depth is 2.0 to 2.5 feet bgs.

Key to Composite Sample IDs: EC09-C001 indicates an environmental composite sample made up of discrete samples collected from Composite Area 9, and lithology of sample is Colma sand (C=Colma sand).

Key to Lithologies: F = Fill; FS = Fill with serpentinite; A = Alluvium; C = Colma Sand; B = Bay Mud.

Title 22 Metals analyzed by Environmental Protection Agency Methods 6020 and 7471A (Mercury).

Total lead analyzed by Environmental Protection Agency Methods 6010B and 6020.

Soluble chromium and lead by Waste Extraction Test ("WET") and Toxicity Characteristic Leaching Procedure ("TCLP") methods.

Total Petroleum Hydrocarbons analyzed by Environmental Protection Agency Method 8015B.

Volatile Organic Compounds analyzed by Environmental Protection Agency Method 8260B.

Semi-Volatile Organic Compounds analyzed by Environmental Protection Agency Method 8270C.

Polycyclic Aromatic Hydrocarbons analyzed by Environmental Protection Agency Method 8310.

Pesticides analyzed by Environmental Protection Agency Method 8081A.

Herbicides analyzed by Environmental Protection Agency Method 8151A.

Polychlorinated Biphenyls analyzed by Environmental Protection Agency Method 8082.

Asbestos analyzed by California Air Resource Board Method 435 with reporting limit of 0.25 percent.

Cyanide analyzed by Standard Method 4500-CN-E.

Sulfide analyzed by Environmental Protection Agency Method 9034.

pH analyzed by Environmental Protection Agency Method 9045D.

Moisture analyzed by American Society for Testing and Materials Method D2216/CLP.

bgs = below ground surface.

NT = No table (constituents were not detected above laboratory reporting limits).

¹ The laboratory sample identification was E031F-2.5. BASELINE changed the sample identification to E031F-2.0 based on review of the boring log.

TABLE 4: Total Metal Concentrations in Soil (mg/kg, dry weight basis)
Eastern Alignment of Doyle Drive Replacement Project

Composite Area	Sample ID	Sample Depth (feet bgs)	Sample Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium ⁴	Cobalt	Copper	Lead ⁴	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
1	EC01-F001	1.0-2.5	4/17/2009	0.18	3.0	65	0.32	0.10	52	9.9	18	55	0.29	0.13	41	0.12	0.077	<0.28	44	66
1	EC01-F002	1.0-2.5	4/21/2009	7.2	4.7	87	0.33	0.13	59	9.4	40	99	0.18	0.29	54	0.097	1.4	<0.29	40	120
1	EC01-F003	1.0-2.5	4/21/2009	0.47	5.6	140	0.43	0.59	65	11	47	330	0.56	0.39	55	0.17	1.3	<0.27	46	170
1	EC01-F004	1.0-2.5	4/17/2009	3.1	6.8	110	0.45	0.44	79	15	27	370	0.13	0.45	81	0.16	0.31	<0.28	52	160
1	EC01-F005	1.0-2.5	4/17/2009	0.11	4.1	85	0.35	<0.29	86	14	16	33	0.070	0.18	72	<0.29	<0.29	<0.29	54	46
2	EC02-A001	7.0-22.5	4/14/2009	<0.33	3.6	8.1	0.13	<0.33	37	6.0	47	2.3	<0.026	0.12	34	<0.33	<0.33	<0.33	20	22
2	EC02-A002	12.5-22.5	4/16/2009	<0.30	2.9	6.8	0.11	<0.30	28	5.3	6.0	1.7	<0.025	<0.30	28	<0.30	<0.30	<0.30	18	19
2	EC02-A003	17.5-22.5	4/15/2009	<0.30	2.9	6.9	0.13	<0.30	26	5.4	5.9	2.0	<0.026	0.11	30	<0.30	<0.30	<0.30	19	19
2	EC02-A004	7.5-22.5	4/14/2009	0.095	2.1	52	0.27	<0.28	81	9.4	9.8	3.8	<0.022	<0.28	58	<0.28	<0.28	<0.28	50	32
2	EC02-A005	7.5	4/20/2009	0.079	3.2	8.2	0.14	<0.30	32	4.4	22	4.1	<0.024	0.098	20	<0.30	<0.30	<0.30	18	32
2	EC02-B001	7.5-12.5	4/14/2009	0.38	10	160	0.66	<0.45	240	19	34	23	0.048	1.4	280	0.37	<0.45	<0.45	80	94
2	EC02-B002	8.0	4/20/2009	0.13	3.7	97	0.66	0.37	86	16	49	29	0.26	1.2	94	0.28	0.12	<0.47	54	95
2	EC02-F001	1.0-2.5	4/14/2009	<0.27	1.7	64	0.24	<0.27	65	8.9	9.5	2.7	0.21	<0.27	53	<0.27	<0.27	<0.27	44	32
2	EC02-F002	1.0-7.5	4/15/2009	0.18	3.3	100	0.31	0.12	57	11	22	140	0.29	0.22	42	<0.28	0.48	<0.28	45	74
2	EC02-F003	1.0-7.5	4/16/2009	0.13	2.2	89	0.38	<0.29	62	10	34	5.0	<0.023	0.24	40	<0.29	<0.29	<0.29	47	31
2	EC02-F004	1.5-2.5	4/14/2009	0.12	3.3	60	0.32	0.12	40	8.8	32	24	0.032	0.34	42	<0.27	<0.27	<0.27	29	40
2	EC02-F005	1.0-2.5	4/14/2009	0.20	4.3	62	0.26	0.16	51	8.7	16	71	0.11	0.34	47	<0.28	<0.28	<0.28	37	89
2	EC02-F006	1.0-7.5	4/16/2009	0.41	1.5	36	0.21	<0.29	59	10	15	11	0.029	0.22	56	<0.29	<0.29	<0.29	30	31
2	EC02-F007	1.0-8.0	4/17/2009	0.48	3.2	140	0.73	0.39	58	9.3	16	50	0.085	0.18	49	0.52	<0.28	0.046	42	52
2	EC02-F008	1.0-7.5	4/17/2009	0.18	4.9	69	2.1	1.6	53	8.5	19	940	0.20	0.11	37	1.7	0.14	0.66	37	68
2	EC02-F009	1.0-2.5	4/20/2009	0.78	5.1	110	0.41	0.36	64	9.6	210	240	0.11	0.31	57	0.11	0.11	<0.27	38	200
2	EC02-F010	1.0-8.0	4/20/2009	0.11	2.3	46	0.27	0.074	58	14	39	6.7	<0.022	0.096	55	<0.27	<0.27	<0.27	66	58
2	EC02-F011	1.0-7.5	4/20/2009	0.091	3.8	61	0.36	0.093	78	11	18	6.8	<0.023	0.15	61	0.13	<0.29	<0.29	50	49
2	EC02-F012	1.0-2.5	4/20/2009	0.67	5.1	330	0.51	0.42	62	13	67	370	2.0	0.38	49	0.14	0.18	<0.30	48	170
3	EC03-F001	1.0-2.5	4/15/2009	0.16	3.6	91	0.35	0.11	65	14	19	14	0.053	0.27	56	<0.28	0.98	<0.28	52	43
3	EC03-F002	1.0-2.5	4/15/2009	0.20	3.0	120	0.28	0.15	45	13	37	39	0.046	0.16	48	<0.28	<0.28	<0.28	51	68
4	EC04-F001	1.0-2.5	4/20/2009	0.40	4.4	300	0.28	0.36	57	12	59	460	0.14	0.55	110	0.17	0.19	<0.26	140	220
5	EC05-B001	7.5	4/13/2009	0.13	6.2	50	0.57	0.15	82	15	55	9.1	0.041	2.8	93	0.40	<0.40	<0.40	59	100
5	EC05-F001	1.0-2.5	4/13/2009	0.58	4.9	190	0.48	0.21	41	13	40	240	0.27	0.43	52	0.16	0.21	<0.29	48	210
5	EC05-F002	1.0-2.5	4/13/2009	1.8	4.0	160	0.34	0.78	54	8.6	48	360	0.33	0.37	45	0.084	1.1	<0.28	41	420
5	EC05-F003	1.0-7.5	4/13/2009	0.42	9.7	91	0.34	0.15	58	12	35	86	1.1	0.82	62	0.18	<0.31	<0.31	39	120
6	EC06-A001	2.5	2/18/2009	0.060	3.6	88	0.35	<0.30	90	11	24	3.6	<0.024	0.10	90	<0.30	<0.30	<0.30	57	45
6	EC06-F001	1.0	2/18/2009	0.19	6.1	180	0.66	<0.27	14	9.1	37	10	2.0	0.36	29	0.13	<0.27	<0.27	18	73
7	EC07-A001	1.0-2.5	2/18/2009	0.076	2.7	85	0.27	<0.29	120	27	9.7	3.1	<0.024	0.10	100	<0.29	<0.29	<0.29	59	40
7	EC07-F001	1.0-2.5	2/18/2009	0.13	6.9	300	0.60	0.064	33	17	51	39	0.057	0.32	43	<0.27	<0.27	0.024	41	53
8	EC08-F001	1.0-2.5	2/19/2009	0.25	3.8	130	0.32	0.19	48	10	43	170	0.099	0.66	42	0.096	<0.28	<0.28	37	81
9	EC09-B001	12.5-13.0	2/17/2009	0.37	8.3	84	0.93	0.78	93	12	35	33	0.25	4.0	150	0.39	<0.52	<0.52	62	140
9	EC09-F005	1.0-11.5	2/17/2009	0.25	3.2	69	0.29	0.080	53	7.2	16	16	<0.023	0.26	30	<0.27	<0.27	0.044	40	35
9	EC09-F006	1.0-7.5	2/17/2009	0.13	2.6	250	0.24	<0.28	60	14	34	11	0.036	0.74	46	<0.28	<0.28	<0.28	70	51
9	EC09-F007	1.0-7.5	2/17/2009	0.29	3.1	110	0.28	0.063	63	10	32	44	0.17	0.28	53	<0.28	<0.28	<0.28	41	55
9	EC09-F008	1.0-8.0	2/19/2009	0.26	7.0	250	0.60	0.080	130	16	28	12	0.088	0.40	97	0.18	<0.29	<0.29	64	58
9	EC09-F009	1.0-12.5	2/18/2009	0.41	4.5	300	0.39	0.58	110	20	43	220	0.18	0.48	87	0.26	0.10	<0.31	57	250
9	EC09-F010	1.0-12.5	2/18/2009	0.068	1.9	63	0.23	<0.30	98	12	9.2	3.6	0.029	<0.30	72	<0.30	<0.30	<0.30	57	32
9	EC09-C001	2.5-12.5	1/22/2009	<0.29	1.6	30	0.19	<0.29	80	8.4	8.0	2.5	<0.024	<0.29	50	<0.29	<0.29	<0.29	44	27
9	EC09-F001	1.0-7.5	1/22/2009	0.080	2.0	53	0.18	0.063	72	9.1	18	12	0.072	0.16	51	0.19	0.082	<0.28	46	38

**TABLE 4: Total Metal Concentrations in Soil (mg/kg, dry weight basis)
Eastern Alignment of Doyle Drive Replacement Project**

Composite Area	Sample ID	Sample Depth (feet bgs)	Sample Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium ⁴	Cobalt	Copper	Lead ⁴	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
9	EC09-F002	1.0-7.5	1/22/2009	0.11	3.3	370	0.33	<0.29	79	9.5	24	12	0.036	0.36	44	0.11	<0.29	<0.29	53	43
9	EC09-F003	1.0-12.5	1/23/2009	0.20	3.1	90	0.30	0.087	79	8.1	33	6.5	<0.024	0.16	44	0.11	<0.29	<0.29	42	33
9	EC09-F004	1.0-7.5	1/23/2009	0.22	2.9	80	0.22	0.35	45	6.5	21	140	0.043	0.28	31	<0.29	<0.29	<0.29	38	76
California Hazardous Waste Criteria - TTLC (mg/kg) ^{1,2}				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
California Hazardous Waste Criteria - STLC (mg/L) ^{1,4}				15	5.0	100	0.75	1.0	560	80	25	5.0	0.2	350	20	1.0	5.0	7.0	24	250
RCRA Hazardous Waste Criteria - TCLP (mg/L) ^{3,4}				NV	5.0	100	NV	1.0	5.0	NV	NV	5.0	0.2	NV	NV	1.0	5.0	NV	NV	NV
ESL for Residential Land Use (mg/kg) ⁵				6.3	0.39	750	4.0	1.7	750 ⁸	40	230	200	1.3	40	150	10	20	1.3	16	600
ESL for Commercial/Industrial Land Use (mg/kg) ⁶				40	1.6	1,500	8.0	7.4	750 ⁸	80	230	750	10	40	150	10	40	16	200	600
ESL for Construction/Trench Worker Exposure (mg/kg) ⁷				310	15	2,600	98	39	1,200,000 ⁸	94	310,000	750	58	3,900	260	3,900	3,900	62	770	230,000
LBNL 99th Percentile of Background Metals (mg/kg) ⁹				<6	28	410	1.0	5.6	120	25	63	43	0.42	4.8	272	4.9	2.9	10	90	140

Notes:

Boring locations are shown on Figure 2.

Laboratory reports are included in Appendix G.

Key to Composite Sample IDs: EC09-C001 indicates an environmental composite sample made up of discrete samples collected from Composite Area 9, and lithology of sample is Colma sand (C=Colma sand).

Key to Lithologies: F = Fill; FS = Fill with serpentinite; A = Alluvium; C = Colma Sand; B = Bay Mud.

Soil results are reported on a dry-weight basis in accordance with the Presidio Trust Quality Assurance Project Plan ("QAPP").

Values shown in bold indicate analytes quantified above the laboratory reporting limit.

Analytical results shaded gray indicate that concentrations were greater than Environmental Screening Levels ("ESLs").

Additional samples that were analyzed for only lead are included in Table 5.

Title 22 Metals analyzed by Environmental Protection Agency Methods 6020 and 7471A (Mercury).

bgs = below ground surface.

mg/kg = milligram per kilogram.

mg/L = milligram per liter.

<x.x = Compound was not identified at or above the laboratory reporting limit of x.x.

NV = No Value.

TTLC = Total Threshold Limit Concentration.

STLC = Soluble Threshold Limit Concentration.

RCRA = Resource Conservation and Recovery Act.

TCLP = Toxicity Characteristic Leaching Procedure

¹ California Code of Regulations, Title 22, Division 4.5, Chapter 11.

² Wet weight basis.

³ Code of Federal Regulations, Title 40, Chapter 1, Section 261.24.

⁴ See Table 5 for soluble results.

⁵ California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater is a Current or Potential Source of Drinking Water, Residential Land Use.

⁶ California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater is a Current or Potential Source of Drinking Water, Commercial/Industrial Land Use.

⁷ California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table K-3, Direct Exposure Soil Screening Levels, Construction/Trench Worker Exposure Scenario.

⁸ Value for chromium III.

⁹ Lawrence Berkeley National Laboratory ("LBNL"), 2009, Analysis of Background Distributions of Metals in the Soil at Lawrence Berkeley National Laboratory, April (Revised).

**TABLE 5: Total and Soluble Chromium and Lead Concentrations in Soil
Eastern Alignment of Doyle Drive Replacement Project**

Composite Area	Boring ID	Sample ID	Sample Depth (feet bgs)	Sample Date	Chromium	Chromium, TCLP	Chromium, WET	Lead	Lead, TCLP	Lead, WET
					Units	mg/kg	mg/L	mg/L	mg/kg	mg/L
1	--	EC01-F001	1.0-2.5	4/17/2009	52	--	0.29	55	--	3.5
1	--	EC01-F002	1.0-2.5	4/21/2009	59	--	<0.25	99	--	1.1
1	--	EC01-F003	1.0-2.5	4/21/2009	65	--	<0.25	330	0.0055	2.2
1	--	EC01-F004	1.0-2.5	4/17/2009	79	--	0.36	370	0.32	810
1	--	EC01-F005	1.0-2.5	4/17/2009	86	--	0.61	33	--	--
2	--	EC02-A001	7.0-22.5	4/14/2009	37	--	--	2.3	--	--
2	--	EC02-A002	12.5-22.5	4/16/2009	28	--	--	1.7	--	--
2	--	EC02-A003	17.5-22.5	4/15/2009	26	--	--	2.0	--	--
2	--	EC02-A004	7.5-22.5	4/14/2009	81	--	<0.25	3.8	--	--
2	--	EC02-A005	7.5	4/20/2009	32	--	--	4.1	--	--
2	--	EC02-B001	7.5-12.5	4/14/2009	240	<0.0050	0.33	23	--	--
2	--	EC02-B002	8.0	4/20/2009	86	--	0.68	29	--	--
2	--	EC02-F001	1.0-2.5	4/14/2009	65	--	<0.25	2.7	--	--
2	--	EC02-F002	1.0-7.5	4/15/2009	57	--	<0.25	140	0.020	3.3
2	--	EC02-F003	1.0-7.5	4/16/2009	62	--	0.28	5.0	--	--
2	--	EC02-F004	1.5-2.5	4/14/2009	40	--	--	24	--	--
2	--	EC02-F005	1.0-2.5	4/14/2009	51	--	<0.25	71	--	3.7
2	--	EC02-F006	1.0-7.5	4/16/2009	59	--	<0.25	11	--	--
2	--	EC02-F007	1.0-8.0	4/17/2009	58	--	0.30	50	--	0.80
2	--	EC02-F008	1.0-7.5	4/17/2009	53	--	<0.25	940	0.014	2.7
2	--	EC02-F009	1.0-2.5	4/20/2009	64	--	<0.25	240	0.021	17
2	--	EC02-F010	1.0-8.0	4/20/2009	58	--	<0.25	6.7	--	--
2	--	EC02-F011	1.0-7.5	4/20/2009	78	--	<0.25	6.8	--	--
2	--	EC02-F012	1.0-2.5	4/20/2009	62	--	<0.25	370	0.012	11
3	--	EC03-F001	1.0-2.5	4/15/2009	65	--	<0.25	14	--	--
3	--	EC03-F002	1.0-2.5	4/15/2009	45	--	--	39	--	--
4	--	EC04-F001	1.0-2.5	4/20/2009	57	--	<0.25	460	0.039	16
5	--	EC05-B001	7.5	4/13/2009	82	--	<0.25	9.1	--	--
5	--	EC05-F001	1.0-2.5	4/13/2009	41	--	--	240	0.016	8.1
5	--	EC05-F002	1.0-2.5	4/13/2009	54	--	<0.25	360	0.23	17
5	--	EC05-F003	1.0-7.5	4/13/2009	58	--	0.36	86	--	2.3
6	--	EC006-A001	2.5	2/18/2009	90	--	<0.25	3.6	--	--
6	--	EC006-F001	1.0	2/18/2009	14	--	--	10	--	--
7	--	EC007-A001	1.0-2.5	2/18/2009	120	<0.0050	<0.25	3.1	--	--
7	--	EC007-F001	1.0-2.5	2/18/2009	33	--	--	39	--	--
8	--	EC008-F001	1.0-2.5	2/19/2009	48	--	--	170	0.021	12
9	--	EC009-B001	12.5-13.0	2/17/2009	93	--	0.40	33	--	--
9	--	EC009-F005	1.0-11.5	2/17/2009	53	--	<0.25	16	--	--
9	--	EC009-F006	1.0-7.5	2/17/2009	60	--	<0.25	11	--	--
9	--	EC009-F007	1.0-7.5	2/17/2009	63	--	<0.25	44	--	--
9	--	EC009-F008	1.0-8.0	2/19/2009	130	<0.0050	<0.25	12	--	--
9	--	EC009-F009	1.0-12.5	2/18/2009	110	<0.0050	0.41	220	0.0060	1.0
9	--	EC009-F010	1.0-12.5	2/18/2009	98	--	0.31	3.6	--	--
9	--	EC09-C001	2.5-12.5	1/22/2009	80	--	<0.25	2.5	--	--
9	--	EC09-F001	1.0-7.5	1/22/2009	72	--	<0.25	12	--	--

**TABLE 5: Total and Soluble Chromium and Lead Concentrations in Soil
Eastern Alignment of Doyle Drive Replacement Project**

Composite Area	Boring ID	Sample ID	Sample Depth (feet bgs)	Sample Date	Chromium	Chromium, TCLP	Chromium, WET	Lead	Lead, TCLP	Lead, WET
					Units	mg/kg	mg/L	mg/L	mg/kg	mg/L
9	--	EC09-F002	1.0-7.5	1/22/2009	79	--	0.32	12	--	--
9	--	EC09-F003	1.0-12.5	1/23/2009	79	--	<0.25	6.5	--	--
9	--	EC09-F004	1.0-7.5	1/23/2009	45	--	--	140	0.32	3.7
1	E001	E001F-1.0	1.0	4/21/2009	--	--	--	60	--	1.4
1	E001	E001F-2.5	2.5	4/21/2009	--	--	--	160	0.033	0.27
1	E002	E002F-1.0	1.0	4/21/2009	--	--	--	580 ¹	6.4 ¹	1,300 ¹
1	E002	E002F-2.5	2.5	4/21/2009	--	--	--	200	0.18	16
1	E003	E003F-1.5	1.5	4/21/2009	--	--	--	210	<0.030	3.0
1	E003	E003F-2.5	2.5	4/21/2009	--	--	--	1.2	--	--
1	E004	E004F-1.0	1.0	4/17/2009	--	--	--	9.5	--	--
1	E004	E004F-2.5	2.5	4/17/2009	--	--	--	6.6	--	--
1	E005	E005F-1.0	1.0	4/21/2009	--	--	--	2,000	0.16	12
1	E005	E005F-2.5	2.5	4/21/2009	--	--	--	27	--	--
1	E006	E006F-1.0	1.0	4/17/2009	--	--	--	33	--	--
1	E006	E006F-2.5	2.5	4/17/2009	--	--	--	3.8	--	--
1	E007	E007F-1.0	1.0	4/21/2009	--	--	--	260	<0.030	8.0
1	E007	E007F-2.5	2.5	4/21/2009	--	--	--	310	<0.030	0.87
1	E010	E010F-1.0	1.0	4/20/2009	--	--	--	11	--	--
1	E010	E010F-2.5	2.5	4/20/2009	--	--	--	5.3	--	--
1	E011	E011F-1.0	1.0	4/17/2009	--	--	--	170	0.30	13
1	E011	E011F-2.5	2.5	4/17/2009	--	--	--	0.85	--	--
1	E012	E012F-1.0	1.0	4/17/2009	--	--	--	24	--	--
1	E012	E012F-2.5	2.5	4/17/2009	--	--	--	4.0	--	--
2	E008	E008F-1.0	1.0	4/20/2009	--	--	--	190	0.66	47
2	E008	E008F-2.5	2.5	4/20/2009	--	--	--	5.6	--	--
2	E009	E009F-1.0	1.0	4/14/2009	--	--	--	160	0.055	3.0
2	E009	E009F-2.5	2.5	4/14/2009	--	--	--	49	--	--
2	E013	E013F-1.0	1.0	4/17/2009	--	--	--	160	0.22	12
2	E013	E013F-2.5	2.5	4/17/2009	--	--	--	140	1.3	11
2	E019	E019F-1.0	1.0	4/15/2009	--	--	--	2.5	--	--
2	E019	E019F-2.5	2.5	4/15/2009	--	--	--	2.7	--	--
2	E020	E020F-1.0	1.0	4/14/2009	--	--	--	12	--	--
2	E020	E020F-2.5	2.5	4/14/2009	--	--	--	4.8	--	--
2	E021	E021F-1.0	1.0	4/17/2009	--	--	--	4.9	--	--
2	E021	E021F-2.5	2.5	4/17/2009	--	--	--	0.86	--	--
2	E022	E022F-1.0	1.0	4/17/2009	--	--	--	220	0.18	7.9
2	E022	E022F-2.5	2.5	4/17/2009	--	--	--	190	<0.030	86
2	E023	E023F-1.0	1.0	4/15/2009	--	--	--	130	0.071	1.9
2	E023	E023F-2.5	2.5	4/15/2009	--	--	--	100	0.14	2.7
2	E024	E024F-1.0	1.0	4/16/2009	--	--	--	330	0.036	0.47
2	E024	E024F-2.5	2.5	4/16/2009	--	--	--	3.2	--	--
2	E025	E025F-1.0	1.0	4/16/2009	--	--	--	5.5	--	--
2	E025	E025F-2.5	2.5	4/16/2009	--	--	--	3.8	--	--
2	E026	E026F-1.5	1.5	4/14/2009	--	--	--	12	--	--
2	E026	E026F-2.5	2.5	4/14/2009	--	--	--	1.6	--	--

**TABLE 5: Total and Soluble Chromium and Lead Concentrations in Soil
Eastern Alignment of Doyle Drive Replacement Project**

Composite Area	Boring ID	Sample ID	Sample Depth (feet bgs)	Sample Date	Units					
					Chromium mg/kg	Chromium, TCLP mg/L	Chromium, WET mg/L	Lead mg/kg	Lead, TCLP mg/L	Lead, WET mg/L
2	E027	E027F-1.5	1.5	4/14/2009	--	--	--	81	--	0.29
2	E027	E027F-2.5	2.5	4/14/2009	--	--	--	39	--	--
2	E028	E028F-1.0	1.0	4/20/2009	--	--	--	8.4	--	--
2	E028	E028F-2.5	2.5	4/20/2009	--	--	--	51	--	0.92
2	E029	E029F-1.0	1.0	4/20/2009	--	--	--	5.2	--	--
2	E029	E029F-2.5	2.5	4/20/2009	--	--	--	2.6	--	--
2	E030	E030F-1.0	1.0	4/20/2009	--	--	--	3.0	--	--
2	E030	E030F-2.5	2.5	4/20/2009	--	--	--	41	--	--
2	E031	E031F-1.0	1.0	4/20/2009	--	--	--	3.0	--	--
2	E031	E031F-2.0 ²	2.0	4/20/2009	--	--	--	0.57	--	--
2	E032	E032F-1.0	1.0	4/20/2009	--	--	--	4.7	--	--
2	E032	E032F-2.5	2.5	4/20/2009	--	--	--	60	--	1.1
2	E033	E033F-1.0	1.0	4/21/2009	--	--	--	480 ¹	1.1	72
2	E033	E033F-2.5	2.5	4/21/2009	--	--	--	67	--	2.2
2	E037	E037F-1.0	1.0	4/14/2009	--	--	--	9.1	--	--
2	E037	E037F-2.5	2.5	4/14/2009	--	--	--	38	--	--
2	E041	E041F-1.0	1.0	4/16/2009	--	--	--	2.2	--	--
2	E041	E041F-2.5	2.5	4/16/2009	--	--	--	68	--	7.7
2	E041	E041F-7.5	7.5	4/16/2009	--	--	--	2.9	--	--
3	E014	E014F-1.0	1.0	4/15/2009	--	--	--	31	--	--
3	E014	E014F-2.5	2.5	4/15/2009	--	--	--	19	--	--
3	E015	E015F-1.0	1.0	4/15/2009	--	--	--	7.4	--	--
3	E015	E015F-2.5	2.5	4/15/2009	--	--	--	5.1	--	--
3	E016	E016F-1.0	1.0	4/15/2009	--	--	--	36	--	--
3	E016	E016F-2.5	2.5	4/15/2009	--	--	--	3.4	--	--
3	E017	E017F-1.0	1.0	4/15/2009	--	--	--	12	--	--
3	E017	E017F-2.5	2.5	4/15/2009	--	--	--	4.1	--	--
3	E018	E018F-1.0	1.0	4/15/2009	--	--	--	2.3	--	--
3	E018	E018F-2.5	2.5	4/15/2009	--	--	--	2.5	--	--
4	E034	E034F-1.0	1.0	4/21/2009	--	--	--	150	<0.030	4.6
4	E035	E035F-1.0	1.0	4/20/2009	--	--	--	31	--	--
4	E035	E035F-2.5	2.5	4/20/2009	--	--	--	52	--	5.4
4	E036	E036F-1.0	1.0	4/21/2009	--	--	--	940	1.7	69
4	E036	E036F-2.5	2.5	4/21/2009	--	--	--	830	1.1	52
5	E038	E038F-1.0	1.0	4/16/2009	--	--	--	190	0.043	1.8
5	E038	E038F-2.5	2.5	4/16/2009	--	--	--	41	--	--
5	E039	E039F-1.0	1.0	4/13/2009	--	--	--	48	--	--
5	E039	E039F-2.5	2.5	4/13/2009	--	--	--	560	0.64	48
5	E040	E040F-1.0	1.0	4/13/2009	--	--	--	5.6	--	--
5	E040	E040F-2.5	2.5	4/13/2009	--	--	--	660	1.9	15
5	E042	E042F-1.0	1.0	4/13/2009	--	--	--	68	--	6.1
5	E042	E042F-2.5	2.5	4/13/2009	--	--	--	32	--	--
5	E043	E043F-1.0	1.0	4/13/2009	--	--	--	85	--	6.8
5	E043	E043F-2.5	2.5	4/13/2009	--	--	--	45	--	--

**TABLE 5: Total and Soluble Chromium and Lead Concentrations in Soil
Eastern Alignment of Doyle Drive Replacement Project**

Composite Area	Boring ID	Sample ID	Sample Depth (feet bgs)	Sample Date	Chromium	Chromium, TCLP	Chromium, WET	Lead	Lead, TCLP	Lead, WET
					mg/kg	mg/L	mg/L	mg/kg	mg/L	mg/L
				Units						
5	E044	E044F-1.0	1.0	4/13/2009	--	--	--	69	--	1.7
5	E044	E044F-2.5	2.5	4/13/2009	--	--	--	140	0.079	12
6	E046	E046F-1.0	1.0	2/18/2009	--	--	--	8.2	--	--
6	E046	E046A-2.5	2.5	2/18/2009	--	--	--	3.5	--	--
7	E047	E047A-1.0	1.0	2/18/2009	--	--	--	3.4	--	--
7	E047	E047A-2.5	2.5	2/18/2009	--	--	--	2.4	--	--
7	E048	E048F-1.0	1.0	2/18/2009	--	--	--	11	--	--
7	E048	E048F-2.5	2.5	2/18/2009	--	--	--	17	--	--
8	E052	E052F-1.0	1.0	2/19/2009	--	--	--	6.2	--	--
8	E052	E052F-2.5	2.5	2/19/2009	--	--	--	32	--	--
8	E053	E053F-1.0	1.0	2/19/2009	--	--	--	170	0.39	1.3
8	E053	E053F-2.5	2.5	2/19/2009	--	--	--	62	--	<0.15
9	E045	E045F-1.0	1.0	2/18/2009	--	--	--	310	0.86	18
9	E045	E045F-2.5	2.5	2/18/2009	--	--	--	39	--	--
9	E049	E049F-1.0	1.0	2/18/2009	--	--	--	2.2	--	--
9	E049	E049F-2.5	2.5	2/18/2009	--	--	--	4.0	--	--
9	E050	E050F-1.5	1.5	2/19/2009	--	--	--	11	--	--
9	E050	E050F-2.5	2.5	2/19/2009	--	--	--	10	--	--
9	E051	E051F-1.0	1.0	2/17/2009	--	--	--	49	--	--
9	E051	E051F-2.5	2.5	2/17/2009	--	--	--	41	--	--
9	E054	E054F-1.0	1.0	2/17/2009	--	--	--	27	--	--
9	E054	E054FS-2.5	2.5	2/17/2009	--	--	--	0.8	--	--
9	E055	E055F-1.0	1.0	1/23/2009	--	--	--	5.6	--	--
9	E055	E055F-2.5	2.5	1/23/2009	--	--	--	78	--	1.5
9	E056	E056F-1.0	1.0	2/17/2009	--	--	--	360	<0.030	1.7
9	E056	E056F-2.5	2.5	2/17/2009	--	--	--	5.6	--	--
9	E057	E057F-1.0	1.0	1/22/2009	--	--	--	19	--	--
9	E057	E057F-3.0	3.0	1/22/2009	--	--	--	2.8	--	--
9	E058	E058F-1.0	1.0	1/23/2009	--	--	--	220	<0.030	1.7
9	E058	E058F-2.5	2.5	1/23/2009	--	--	--	240	0.048	8.3
9	E059	E059F-1.0	1.0	1/23/2009	--	--	--	2.2	--	--
9	E059	E059F-2.5	2.5	1/23/2009	--	--	--	120	<0.030	1.1
9	E060	E060F-1.0	1.0	1/23/2009	--	--	--	9.9	--	--
9	E060	E060FS-2.5	2.5	1/23/2009	--	--	--	21	--	--
9	E061	E061F-1.0	1.0	1/22/2009	--	--	--	8.2	--	--
9	E061	E061C-2.5	2.5	1/22/2009	--	--	--	2.5	--	--
California Hazardous Waste Criteria - TTLC (mg/kg) ^{3,10}					2,500	NV	NV	1,000	NV	NV
California Hazardous Waste Criteria - STLC (mg/L) ³					NV	NV	560	NV	NV	5.0
RCRA Hazardous Waste Criteria - TCLP (mg/L) ⁴					NV	5.0	NV	NV	5.0	NV
ESL for Residential Land Use (mg/kg) ⁵					750 ⁸	NV	NV	200	NV	NV
ESL for Commerical/Industrial Land Use (mg/kg) ⁶					750 ⁸	NV	NV	750	NV	NV
ESL for Construction/Trench Worker Exposure (mg/kg) ⁷					1,200,000 ⁸	NV	NV	750	NV	NV
LBNL 99th Percentile of Background Metals (mg/kg) ⁹					120	NV	NV	43	NV	NV

**TABLE 5: Total and Soluble Chromium and Lead Concentrations in Soil
Eastern Alignment of Doyle Drive Replacement Project**

Notes:

Boring locations are shown on Figure 2.

Laboratory reports are included in Appendix G.

Key to Discrete Sample IDs: E061C-2.5 indicates sample collected from environmental boring number E061, lithology of sample is Colma sand (C=Colma sand), and sample depth is 2.0 to 2.5 feet bgs.

Key to Composite Sample IDs: EC09-C001 indicates an environmental composite sample made up of discrete samples collected from Composite Area 9, and lithology of sample is Colma sand (C=Colma sand).

Key to Lithologies: F = Fill; FS = Fill with serpentinite; A = Alluvium; C = Colma Sand; B = Bay Mud.

Total chromium and lead results are reported on a dry-weight basis in accordance with the Presidio Trust Quality Assurance Project Plan ("QAPP").

Values shown in bold indicate analytes quantified above the laboratory reporting limit.

Analytical results shaded gray indicate that concentrations were greater than or equal to hazardous waste criteria or Environmental Screening Levels ("ESLs").

Total chromium and lead analyzed by Environmental Protection Agency Methods 6010B and 6020.

Soluble chromium and lead by Waste Extraction Test ("WET") and Toxicity Characteristic Leaching Procedure ("TCLP") methods.

Samples containing total concentrations equal to or greater than 20 times the TCLP value were analyzed for soluble metals by TCLP.

Samples containing total concentrations equal to or greater than 10 times the STLC value were analyzed for soluble metals by WET method.

bgs = below ground surface.

mg/kg = milligram per kilogram.

mg/L = milligram per liter.

<x.x = Compound was not identified at or above the laboratory reporting limit of x.x.

-- = Not analyzed or not applicable.

NV = No Value.

RCRA = Resource Conservation and Recovery Act.

¹ These samples were reanalyzed for statistical purposes outside of sample holding time. Analytical results did not change the hazardous waste category of the composite area; therefore, the results are not included in this report.

² The laboratory sample identification was E031F-2.5. BASELINE changed the sample identification to E031F-2.0 based on review of the boring log.

³ California Code of Regulations, Title 22, Division 4.5, Chapter 11.

⁴ Code of Federal Regulations, Title 40, Chapter 1, Section 261.24.

⁵ California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater is a Current or Potential Source of Drinking Water, Residential Land Use.

⁶ California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater is a Current or Potential Source of Drinking Water, Commercial/Industrial Land Use.

⁷ California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table K-3, Direct Exposure Soil Screening Levels, Construction/Trench Worker Exposure Scenario.

⁸ Value for chromium III.

⁹ Lawrence Berkeley National Laboratory ("LBNL"), 2009, Analysis of Background Distributions of Metals in the Soil at Lawrence Berkeley National Laboratory, April (Revised).

¹⁰ Wet weight basis.

**TABLE 6: Total Petroleum Hydrocarbon Concentrations in Soil (mg/kg, dry weight basis)
Eastern Alignment of Doyle Drive Replacement Project**

Composite Area	Sample ID	Sample Depth (feet bgs)	Sample Date	TPH as Gasoline C7-C12	TPH as Diesel C12-C24	TPH as Motor Oil C24-C36
1	EC01-F001	1.0-2.5	4/17/2009	<1.0	3.9	52
1	EC01-F002	1.0-2.5	4/21/2009	<1.1	42	28
1	EC01-F003	1.0-2.5	4/21/2009	<1.1	47	250
1	EC01-F004	1.0-2.5	4/17/2009	<1.1	8.2	40
1	EC01-F005	1.0-2.5	4/17/2009	<1.2	1.8	<5.9
2	EC02-A001	7.0-22.5	4/14/2009	<1.3	<1.3	<6.5
2	EC02-A002	12.5-22.5	4/16/2009	<1.2	<1.2	<6.1
2	EC02-A003	17.5-22.5	4/15/2009	<1.1	1.5	<6.0
2	EC02-A004	7.5-22.5	4/14/2009	<1.1	<1.1	<5.6
2	EC02-A005	7.5	4/20/2009	<1.3	<1.2	<6.0
2	EC02-B001	7.5-12.5	4/14/2009	<1.7	23	140
2	EC02-B002	8.0	4/20/2009	<1.8	22	26
2	EC02-F001	1.0-2.5	4/14/2009	<1.1	<1.1	<5.5
2	EC02-F002	1.0-7.5	4/15/2009	<1.1	29	100
2	EC02-F003	1.0-7.5	4/16/2009	<1.2	<1.2	<5.8
2	EC02-F004	1.5-2.5	4/14/2009	<1.0	2.5	13
2	EC02-F005	1.0-2.5	4/14/2009	<1.2	16	110
2	EC02-F006	1.0-7.5	4/16/2009	<1.1	<1.1	6.8
2	EC02-F007	1.0-8.0	4/17/2009	<1.2	39	250
2	EC02-F008	1.0-7.5	4/17/2009	<1.2	<1.1	<5.5
2	EC02-F009	1.0-2.5	4/20/2009	<1.1	120	240
2	EC02-F010	1.0-8.0	4/20/2009	<1.1	42	400
2	EC02-F011	1.0-7.5	4/20/2009	<1.1	1.2	<5.7
2	EC02-F012	1.0-2.5	4/20/2009	<1.2	8.5	22
3	EC03-F001	1.0-2.5	4/15/2009	<1.2	1.8	<5.7
3	EC03-F002	1.0-2.5	4/15/2009	<1.1	220	310
4	EC04-F001	1.0-2.5	4/20/2009	<1.1	30	280
5	EC05-B001	7.5	4/13/2009	<1.6	14	140
5	EC05-F001	1.0-2.5	4/13/2009	1.7	58	160
5	EC05-F002	1.0-2.5	4/13/2009	<1.1	43	130
5	EC05-F003	1.0-7.5	4/13/2009	<1.2	13	74
6	EC006-A001	2.5	2/18/2009	<1.3	<1.2	<5.9
6	EC006-F001	1.0	2/18/2009	<1.2	<1.1	<5.4
7	EC007-A001	1.0-2.5	2/18/2009	<1.3	<1.2	<5.9
7	EC007-F001	1.0-2.5	2/18/2009	<1.1	8.8	23
8	EC008-F001	1.0-2.5	2/19/2009	<1.2	20	99
9	EC009-B001	12.5-13.0	2/17/2009	<2.0	16	150
9	EC009-F005	1.0-11.5	2/17/2009	<1.0	7.3	23
9	EC009-F006	1.0-7.5	2/17/2009	<1.2	9.6	69
9	EC009-F007	1.0-7.5	2/17/2009	21	54	63
9	EC009-F008	1.0-8.0	2/19/2009	<1.1	4.3	11
9	EC009-F009	1.0-12.5	2/18/2009	<1.3	16	67
9	EC009-F010	1.0-12.5	2/18/2009	<1.2	<1.2	<6.1

**TABLE 6: Total Petroleum Hydrocarbon Concentrations in Soil (mg/kg, dry weight basis)
Eastern Alignment of Doyle Drive Replacement Project**

Composite Area	Sample ID	Sample Depth (feet bgs)	Sample Date	TPH as Gasoline C7-C12	TPH as Diesel C12-C24	TPH as Motor Oil C24-C36
9	EC09-C001	2.5-12.5	1/22/2009	<1.1	<1.2	<5.9
9	EC09-F001	1.0-7.5	1/22/2009	<1.2	22	94
9	EC09-F002	1.0-7.5	1/22/2009	<1.1	1.8	16
9	EC09-F003	1.0-12.5	1/23/2009	<1.1	24	240
9	EC09-F004	1.0-7.5	1/23/2009	<1.1	29	260
California Hazardous Waste Criteria (mg/kg) ¹				NV	NV	NV
ESL for Residential Land Use (mg/kg) ²				83	83	370
ESL for Commerical/Industrial Land Use (mg/kg) ³				83	83	2,500
ESL for Construction/Trench Worker Exposure (mg/kg) ⁴				4,200	4,200	12,000

Notes:

Boring locations are shown on Figure 2.

Laboratory reports are included in Appendix G.

Key to Composite Sample IDs: EC09-C001 indicates an environmental composite sample made up of discrete samples collected from Composite Area 9, and lithology of sample is Colma sand (C=Colma sand).

Key to Lithologies: F = Fill; FS = Fill with serpentinite; A = Alluvium; C = Colma Sand; B = Bay Mud.

Soil results are reported on a dry-weight basis in accordance with the Presidio Trust Quality Assurance Project Plan ("QAPP").

Values shown in bold indicate analytes quantified above the laboratory reporting limit.

Analytical results shaded gray indicate that concentrations were greater than Environmental Screening Levels ("ESLs").

Total Petroleum Hydrocarbons ("TPH") analyzed by Environmental Protection Agency Method 8015B.

Silica gel cleanup was performed prior to analysis for diesel and motor oil.

bgs = below ground surface.

mg/kg = milligram per kilogram.

<x.x = Compound was not identified at or above the laboratory reporting limit of x.x.

NV = No Value.

(C7-C12) indicates carbon range.

¹ California Code of Regulations, Title 22, Division 4.5, Chapter 11.

² California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater is a Current or Potential Source of Drinking Water, Residential Land Use.

³ California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater is a Current or Potential Source of Drinking Water, Commercial/Industrial Land Use.

⁴ California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table K-3, Direct Exposure Soil Screening Levels, Construction/Trench Worker Exposure Scenario.

**TABLE 7: Volatile Organic Compound Concentrations in Soil (mg/kg, dry weight basis)
Eastern Alignment of Doyle Drive Replacement Project**

Composite Area	Sample ID	Sample Depth (feet bgs)	Sample Date	2-Butanone	Acetone	Benzene	Ethylbenzene	m,p-Xylenes	Methylene Chloride
1	EC01-F001	1.0-2.5	4/17/2009	<0.011	0.028	<0.0054	<0.0054	<0.0054	0.0022
1	EC01-F002	1.0-2.5	4/21/2009	<0.011	<0.023	<0.0057	<0.0057	<0.0057	0.0035
1	EC01-F003	1.0-2.5	4/21/2009	<0.011	<0.022	<0.0054	<0.0054	<0.0054	<0.022
1	EC01-F004	1.0-2.5	4/17/2009	<0.011	<0.021	<0.0053	<0.0053	<0.0053	0.0034
1	EC01-F005	1.0-2.5	4/17/2009	<0.011	0.040	<0.0055	<0.0055	<0.0055	<0.022
2	EC02-A001	7.0-22.5	4/14/2009	<0.013	0.012	<0.0064	<0.0064	<0.0064	<0.026
2	EC02-A002	12.5-22.5	4/16/2009	<0.012	0.011	<0.0060	<0.0060	<0.0060	<0.024
2	EC02-A003	17.5-22.5	4/15/2009	<0.011	0.016	<0.0056	<0.0056	<0.0056	<0.022
2	EC02-A004	7.5-22.5	4/14/2009	<0.010	0.011	<0.0051	<0.0051	<0.0051	<0.021
2	EC02-A005	7.5	4/20/2009	<0.012	0.018	<0.0060	<0.0060	<0.0060	<0.024
2	EC02-B001	7.5-12.5	4/14/2009	0.062	0.23	<0.0087	<0.0087	<0.0087	<0.035
2	EC02-B002	8.0	4/20/2009	0.11	1.0	<0.0090	<0.0090	<0.0090	<0.036
2	EC02-F001	1.0-2.5	4/14/2009	<0.011	<0.022	<0.0054	<0.0054	<0.0054	<0.022
2	EC02-F002	1.0-7.5	4/15/2009	<0.011	0.016	<0.0056	<0.0056	<0.0056	<0.023
2	EC02-F003	1.0-7.5	4/16/2009	<0.012	0.031	<0.0058	<0.0058	<0.0058	<0.023
2	EC02-F004	1.5-2.5	4/14/2009	<0.010	<0.021	<0.0052	<0.0052	<0.0052	<0.021
2	EC02-F005	1.0-2.5	4/14/2009	<0.010	<0.021	<0.0052	<0.0052	<0.0052	<0.021
2	EC02-F006	1.0-7.5	4/16/2009	<0.011	0.036	<0.0056	<0.0056	<0.0056	<0.022
2	EC02-F007	1.0-8.0	4/17/2009	<0.011	0.013	<0.0053	<0.0053	<0.0053	0.0023
2	EC02-F008	1.0-7.5	4/17/2009	<0.011	0.0093	<0.0053	<0.0053	<0.0053	<0.021
2	EC02-F009	1.0-2.5	4/20/2009	<0.010	<0.021	<0.0052	<0.0052	<0.0052	<0.021
2	EC02-F010	1.0-8.0	4/20/2009	<0.010	0.0032	<0.0052	<0.0052	<0.0052	<0.021
2	EC02-F011	1.0-7.5	4/20/2009	<0.011	0.0030	<0.0053	<0.0053	<0.0053	<0.021
2	EC02-F012	1.0-2.5	4/20/2009	<0.011	0.0033	<0.0054	<0.0054	<0.0054	<0.022
3	EC03-F001	1.0-2.5	4/15/2009	<0.011	0.0024	<0.0053	<0.0053	<0.0053	<0.021
3	EC03-F002	1.0-2.5	4/15/2009	<0.011	<0.023	<0.0057	<0.0057	<0.0057	<0.023
4	EC04-F001	1.0-2.5	4/20/2009	<0.010	<0.020	<0.0051	<0.0051	<0.0051	<0.020
5	EC05-B001	7.5	4/13/2009	0.018	0.091	<0.0079	<0.0079	<0.0079	<0.031
5	EC05-F001	1.0-2.5	4/13/2009	<0.024	0.15	0.061	0.061	0.22	<0.047
5	EC05-F002	1.0-2.5	4/13/2009	<0.011	0.018	<0.0055	<0.0055	<0.0055	<0.022
5	EC05-F003	1.0-7.5	4/13/2009	<0.012	0.053	<0.0060	<0.0060	<0.0060	<0.024
6	EC006-A001	2.5	2/18/2009	<0.012	0.0029	<0.0060	<0.0060	<0.0060	<0.024
6	EC006-F001	1.0	2/18/2009	<0.011	0.0024	<0.0053	<0.0053	<0.0053	<0.021
7	EC007-A001	1.0-2.5	2/18/2009	<0.011	0.0029	<0.0055	<0.0055	<0.0055	<0.022
7	EC007-F001	1.0-2.5	2/18/2009	<0.010	0.0079	<0.0051	<0.0051	<0.0051	<0.020
8	EC008-F001	1.0-2.5	2/19/2009	<0.011	<0.022	<0.0054	<0.0054	<0.0054	<0.022
9	EC009-B001	12.5-13.0	2/17/2009	0.24	0.77	<0.035	<0.035	<0.035	<0.14
9	EC009-F005	1.0-11.5	2/17/2009	<0.011	0.0050	<0.0053	<0.0053	<0.0053	<0.021
9	EC009-F006	1.0-7.5	2/17/2009	<0.011	0.0048	<0.0053	<0.0053	<0.0053	<0.021
9	EC009-F007	1.0-7.5	2/17/2009	<0.11	0.058	<0.054	<0.054	0.11	<0.21
9	EC009-F008	1.0-8.0	2/19/2009	<0.011	0.045	<0.0055	<0.0055	<0.0055	<0.022
9	EC009-F009	1.0-12.5	2/18/2009	0.031	0.12	<0.0060	<0.0060	<0.0060	<0.024
9	EC009-F010	1.0-12.5	2/18/2009	<0.012	0.034	<0.0059	<0.0059	<0.0059	<0.024
9	EC09-C001	2.5-12.5	1/22/2009	<0.011	<0.022	<0.0056	<0.0056	<0.0056	<0.022

**TABLE 7: Volatile Organic Compound Concentrations in Soil (mg/kg, dry weight basis)
Eastern Alignment of Doyle Drive Replacement Project**

Composite Area	Sample ID	Sample Depth (feet bgs)	Sample Date	2-Butanone	Acetone	Benzene	Ethylbenzene	m,p-Xylenes	Methylene Chloride
9	EC09-F001	1.0-7.5	1/22/2009	<0.011	0.031	<0.0053	<0.0053	<0.0053	<0.021
9	EC09-F002	1.0-7.5	1/22/2009	<0.011	0.025	<0.0056	<0.0056	<0.0056	<0.022
9	EC09-F003	1.0-12.5	1/23/2009	<0.011	<0.022	<0.0056	<0.0056	<0.0056	0.0047
9	EC09-F004	1.0-7.5	1/23/2009	<0.011	<0.021	<0.0053	<0.0053	<0.0053	<0.021
California Hazardous Waste Criteria (mg/kg) ¹				NV	NV	NV	NV	NV	NV
ESL for Residential Land Use (mg/kg) ²				3.9	0.5	0.044	2.3	2.3	0.077
ESL for Commercial/Industrial Land Use (mg/kg) ³				3.9	0.5	0.044	3.3	2.3	0.077
ESL for Construction/Trench Worker Exposure (mg/kg) ⁴				34,000	100,000	12	210	420	630

Notes:

Boring locations are shown on Figure 2.

Laboratory reports are included in Appendix G.

Key to Composite Sample IDs: EC09-C001 indicates an environmental composite sample made up of discrete samples collected from Composite Area 9, and lithology of sample is Colma sand (C=Colma sand).

Key to Lithologies: F = Fill; FS = Fill with serpentinite; A = Alluvium; C = Colma Sand; B = Bay Mud.

Soil results are reported on a dry-weight basis in accordance with the Presidio Trust Quality Assurance Project Plan ("QAPP").

Values shown in bold indicate analytes quantified above the laboratory reporting limit.

Analytical results shaded gray indicate that concentrations were greater than Environmental Screening Levels ("ESLs").

Analytical results partially shaded blue indicate that laboratory reporting limits were greater than ESLs.

Only compounds that were identified above laboratory reporting limits in at least one sample are presented.

Volatile Organic Compounds analyzed by Environmental Protection Agency Method 8260B.

bgs = below ground surface.

mg/kg = milligram per kilogram.

<x.x = Compound was not identified at or above the laboratory reporting limit of x.x.

NV = No Value.

¹ California Code of Regulations, Title 22, Division 4.5, Chapter 11.

² California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater is a Current or Potential Source of Drinking Water, Residential Land Use.

³ California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater is a Current or Potential Source of Drinking Water, Commercial/Industrial Land Use.

⁴ California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table K-3, Direct Exposure Soil Screening Levels, Construction/Trench Worker Exposure Scenario.

**TABLE 8: Semi-Volatile Organic Compound Concentrations in Soil (mg/kg, dry weight basis)
Eastern Alignment of Doyle Drive Replacement Project**

Composite Area	Sample ID	Sample Depth (feet bgs)	Sample Date	2-Methylnaphthalene
1	EC01-F001	1.0-2.5	4/17/2009	<0.37
1	EC01-F002	1.0-2.5	4/21/2009	<0.076
1	EC01-F003	1.0-2.5	4/21/2009	<0.15
1	EC01-F004	1.0-2.5	4/17/2009	<0.076
1	EC01-F005	1.0-2.5	4/17/2009	<0.078
2	EC02-A001	7.0-22.5	4/14/2009	<0.087
2	EC02-A002	12.5-22.5	4/16/2009	<0.080
2	EC02-A003	17.5-22.5	4/15/2009	<0.080
2	EC02-A004	7.5-22.5	4/14/2009	<0.075
2	EC02-A005	7.5	4/20/2009	<0.080
2	EC02-B001	7.5-12.5	4/14/2009	<0.12
2	EC02-B002	8.0	4/20/2009	<0.13
2	EC02-F001	1.0-2.5	4/14/2009	<0.072
2	EC02-F002	1.0-7.5	4/15/2009	<0.38
2	EC02-F003	1.0-7.5	4/16/2009	<0.077
2	EC02-F004	1.5-2.5	4/14/2009	<0.071
2	EC02-F005	1.0-2.5	4/14/2009	<0.30
2	EC02-F006	1.0-7.5	4/16/2009	<0.077
2	EC02-F007	1.0-8.0	4/17/2009	<0.22
2	EC02-F008	1.0-7.5	4/17/2009	<0.072
2	EC02-F009	1.0-2.5	4/20/2009	<0.36
2	EC02-F010	1.0-8.0	4/20/2009	<0.73
2	EC02-F011	1.0-7.5	4/20/2009	<0.076
2	EC02-F012	1.0-2.5	4/20/2009	<0.079
3	EC03-F001	1.0-2.5	4/15/2009	<0.075
3	EC03-F002	1.0-2.5	4/15/2009	<0.30
4	EC04-F001	1.0-2.5	4/20/2009	<0.35
5	EC05-B001	7.5	4/13/2009	<0.11
5	EC05-F001	1.0-2.5	4/13/2009	<0.78
5	EC05-F002	1.0-2.5	4/13/2009	<0.76
5	EC05-F003	1.0-7.5	4/13/2009	<0.083
6	EC006-A001	2.5	2/18/2009	<0.079
6	EC006-F001	1.0	2/18/2009	<0.072
7	EC007-A001	1.0-2.5	2/18/2009	<0.077
7	EC007-F001	1.0-2.5	2/18/2009	<0.071
8	EC008-F001	1.0-2.5	2/19/2009	<0.37
9	EC009-B001	12.5-13.0	2/17/2009	<0.14
9	EC009-F005	1.0-11.5	2/17/2009	<0.072
9	EC009-F006	1.0-7.5	2/17/2009	<0.23
9	EC009-F007	1.0-7.5	2/17/2009	1.0
9	EC009-F008	1.0-8.0	2/19/2009	<0.076
9	EC009-F009	1.0-12.5	2/18/2009	<0.082
9	EC009-F010	1.0-12.5	2/18/2009	<0.081
9	EC09-C001	2.5-12.5	1/22/2009	<0.079
9	EC09-F001	1.0-7.5	1/22/2009	<0.075

**TABLE 8: Semi-Volatile Organic Compound Concentrations in Soil (mg/kg, dry weight basis)
Eastern Alignment of Doyle Drive Replacement Project**

Composite Area	Sample ID	Sample Depth (feet bgs)	Sample Date	2-Methylnaphthalene
9	EC09-F002	1.0-7.5	1/22/2009	<0.078
9	EC09-F003	1.0-12.5	1/23/2009	<0.38
9	EC09-F004	1.0-7.5	1/23/2009	<0.077
California Hazardous Waste Criteria (mg/kg) ¹				NV
ESL for Residential Land Use (mg/kg) ²				0.25
ESL for Commercial/Industrial Land Use (mg/kg) ³				0.25
ESL for Construction/Trench Worker Exposure (mg/kg) ⁴				1,400

Notes:

Boring locations are shown on Figure 2.

Laboratory reports are included in Appendix G.

Key to Composite Sample IDs: EC09-C001 indicates an environmental composite sample made up of discrete samples collected from Composite Area 9, and lithology of sample is Colma sand (C=Colma sand).

Key to Lithologies: F = Fill; FS = Fill with serpentinite; A = Alluvium; C = Colma Sand; B = Bay Mud.

Soil results are reported on a dry-weight basis in accordance with the Presidio Trust Quality Assurance Project Plan ("QAPP").

Values shown in bold indicate analytes quantified above the laboratory reporting limit.

Analytical results shaded gray indicate that concentrations were greater than Environmental Screening Levels ("ESLs").

Analytical results partially shaded blue indicate that laboratory reporting limits were greater than ESLs.

Only compounds that were identified above laboratory reporting limits in at least one sample are presented.

Semi-Volatile Organic Compounds analyzed by Environmental Protection Agency Method 8270C.

bgs = below ground surface.

mg/kg = milligram per kilogram.

<x.x = Compound was not identified at or above the laboratory reporting limit of x.x.

NV = No Value.

¹ California Code of Regulations, Title 22, Division 4.5, Chapter 11.

² California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater is a Current or Potential Source of Drinking Water, Residential Land Use.

³ California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater is a Current or Potential Source of Drinking Water, Commercial/Industrial Land Use.

⁴ California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table K-3, Direct Exposure Soil Screening Levels, Construction/Trench Worker Exposure Scenario.

**TABLE 9: Polycyclic Aromatic Hydrocarbon Concentrations in Soil (mg/kg, dry weight basis)
Eastern Alignment of Doyle Drive Replacement Project**

Composite Area	Sample ID	Analysis Method	Sample Depth (feet bgs)	Sample Date	Acenaphthene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
1	EC01-F001	EPA 8310	1.0-2.5	4/17/2009	<0.15	0.0068	0.031	0.039	0.049	0.13	0.019	0.10	0.050	0.12	<0.030	0.071	<0.15	0.043	0.071
1	EC01-F002	EPA 8310	1.0-2.5	4/21/2009	<0.038	0.018	0.10	0.10	0.065	0.14	0.041	0.11	0.12	0.20	0.061	0.091	<0.038	0.14	0.21
1	EC01-F003	EPA 8310	1.0-2.5	4/21/2009	<0.036	0.0046	0.028	0.032	0.032	0.065	0.016	0.052	0.032	0.055	0.0044	0.035	<0.036	0.026	0.044
1	EC01-F004	EPA 8310	1.0-2.5	4/17/2009	<0.038	0.0019	0.016	0.021	0.019	0.038	0.0092	0.026	0.024	0.041	<0.0075	0.020	<0.038	0.022	0.035
1	EC01-F005	EPA 8310	1.0-2.5	4/17/2009	<0.039	0.0026	0.019	0.025	0.017	0.030	0.0088	0.022	0.027	0.034	<0.0078	0.018	<0.039	0.013	0.033
2	EC02-A001	EPA 8310	7.0-22.5	4/14/2009	<0.043	<0.0043	0.0014	0.0021	0.0023	0.0037	<0.0043	0.0017	0.0030	0.0044	<0.0087	0.0018	<0.043	0.0024	0.0041
2	EC02-A002	EPA 8310	12.5-22.5	4/16/2009	<0.040	<0.0040	<0.0040	0.0028	<0.0080	<0.0080	<0.0040	<0.0040	<0.0080	<0.0080	<0.0080	<0.0040	<0.040	0.0012	<0.0040
2	EC02-A003	EPA 8310	17.5-22.5	4/15/2009	<0.040	<0.0040	<0.0040	<0.0040	<0.0079	<0.0079	<0.0040	<0.0040	<0.0079	<0.0079	<0.0079	<0.0040	<0.040	0.0011	<0.0040
2	EC02-A004	EPA 8310	7.5-22.5	4/14/2009	<0.037	<0.0037	<0.0037	<0.0037	<0.0074	<0.0074	<0.0037	<0.0037	<0.0074	<0.0074	<0.0074	<0.0037	<0.037	0.0011	<0.0037
2	EC02-A005	EPA 8310	7.5	4/20/2009	<0.040	<0.0040	<0.0040	<0.0040	<0.0080	<0.0080	<0.0040	<0.0040	<0.0080	<0.0080	<0.0080	0.0012	<0.040	<0.0040	<0.0040
2	EC02-B001	EPA 8310	7.5-12.5	4/14/2009	<0.060	<0.0060	<0.0060	0.14	<0.012	<0.012	<0.0060	<0.0060	<0.012	0.048	<0.012	<0.0060	<0.06	0.0057	0.0016
2	EC02-B002	EPA 8310	8.0	4/20/2009	<0.25	<0.025	0.053	0.081	0.048	0.080	0.028	0.060	0.074	0.11	<0.0050	0.046	<0.25	0.020	0.11
2	EC02-F001	EPA 8310	1.0-2.5	4/14/2009	<0.036	<0.0036	<0.0036	0.0010	0.0024	0.0078	<0.0036	0.0026	0.0030	0.0060	0.0083	0.0017	<0.036	0.022	0.0059
2	EC02-F002	EPA 8310	1.0-7.5	4/15/2009	<0.038	0.011	0.041	0.044	0.044	0.066	0.019	0.079	0.025	0.11	0.0098	0.031	<0.038	0.061	0.074
2	EC02-F003	EPA 8310	1.0-7.5	4/16/2009	<0.038	<0.0038	<0.0038	<0.0038	<0.0077	<0.0077	<0.0038	<0.0038	<0.0077	<0.0077	<0.0077	<0.0038	<0.038	<0.0038	<0.0038
2	EC02-F004	EPA 8310	1.5-2.5	4/14/2009	<0.036	0.00085	0.0065	0.0085	0.0064	0.013	0.0032	0.010	0.008	0.014	<0.0072	0.0068	<0.036	0.0073	0.013
2	EC02-F005	EPA 8310	1.0-2.5	4/14/2009	<0.075	0.0093	0.017	0.035	0.033	0.064	0.012	0.079	0.019	0.15	0.0052	0.017	<0.075	0.036	0.076
2	EC02-F006	EPA 8310	1.0-7.5	4/16/2009	<0.038	<0.0038	<0.0038	0.0018	0.0020	0.0041	0.00095	0.0015	0.0032	0.0041	<0.0076	0.0017	<0.038	0.0021	0.0031
2	EC02-F007	EPA 8310	1.0-8.0	4/17/2009	<0.15	<0.015	0.0048	0.0090	0.010	0.018	0.0037	0.023	0.011	0.025	<0.029	0.0086	<0.15	0.0055	0.0097
2	EC02-F008	EPA 8310	1.0-7.5	4/17/2009	<0.036	<0.0036	0.012	0.021	0.017	0.034	0.0089	0.015	0.024	0.017	<0.0073	0.014	<0.036	0.0063	0.014
2	EC02-F009	EPA 8310	1.0-2.5	4/20/2009	<0.15	<0.015	0.017	0.020	0.027	0.051	0.012	0.037	0.037	0.045	<0.029	0.020	<0.15	0.020	0.033
2	EC02-F010	EPA 8310	1.0-8.0	4/20/2009	<0.15	0.0037	0.018	0.015	0.034	0.039	0.0041	0.085	0.072	0.026	<0.029	0.014	<0.15	0.025	0.018
2	EC02-F011	EPA 8310	1.0-7.5	4/20/2009	<0.038	<0.0038	0.0018	0.0025	<0.0076	0.0071	0.00093	0.0027	0.0022	0.0041	<0.0076	<0.0038	<0.038	0.0026	0.0042
2	EC02-F012	EPA 8310	1.0-2.5	4/20/2009	<0.039	0.0012	0.010	0.012	0.0082	0.015	0.0047	0.020	0.0081	0.030	<0.0078	0.0076	<0.039	0.019	0.022
3	EC03-F001	EPA 8310	1.0-2.5	4/15/2009	<0.038	<0.0038	<0.0038	<0.0038	<0.0076	<0.0076	<0.0038	<0.0038	<0.0076	<0.0076	<0.0076	<0.0038	<0.038	0.0012	<0.0038
3	EC03-F002	EPA 8310	1.0-2.5	4/15/2009	<0.075	<0.0075	0.010	0.0024	0.017	0.026	<0.0075	0.033	0.060	0.017	<0.015	0.023	<0.075	0.014	0.0086
4	EC04-F001	EPA 8310	1.0-2.5	4/20/2009	<0.035	0.0067	0.032	0.040	0.046	0.16	0.016	0.093	0.089	0.11	<0.0070	0.073	<0.035	0.045	0.078
5	EC05-B001	EPA 8310	7.5	4/13/2009	<0.11	<0.011	<0.011	0.56	0.0064	0.014	0.0031	0.0060	0.020	0.035	<0.022	0.0074	<0.11	0.0068	0.0070
5	EC05-F001	EPA 8310	1.0-2.5	4/13/2009	<0.78	0.49	2.3	1.7	1.2	2.0	0.78	2.5	1.5	5.5	0.50	1.0	<0.78	5.1	5.4
5	EC05-F002	EPA 8310	1.0-2.5	4/13/2009	<0.075	0.013	0.025	0.059	0.071	0.057	0.026	0.20	0.036	0.24	0.0066	0.069	<0.075	0.10	0.089
5	EC05-F003	EPA 8310	1.0-7.5	4/13/2009	<0.082	0.012	0.020	0.050	0.023	0.043	0.013	0.038	0.029	0.068	0.015	0.022	<0.082	0.063	0.055
6	EC006-A001	EPA 8310	2.5	2/18/2009	<0.039	<0.0039	<0.0039	<0.0039	<0.0078	<0.0078	<0.0039	<0.0039	<0.0078	<0.0078	<0.0078	<0.0039	<0.039	<0.0039	<0.0039
6	EC006-F001	EPA 8310	1.0	2/18/2009	<0.036	<0.0036	<0.0036	0.00044	0.0043	0.0045	<0.0036	0.0045	<0.0072	0.0056	0.0023	0.0022	<0.036	0.024	0.0032
7	EC007-A001	EPA 8310	1.0-2.5	2/18/2009	<0.040	<0.0040	<0.0040	<0.0040	<0.0079	<0.0079	<0.0040	<0.0040	<0.0079	<0.0079	<0.0079	<0.0040	<0.040	<0.0040	<0.0040
7	EC007-F001	EPA 8310	1.0-2.5	2/18/2009	<0.036	0.0019	0.0044	0.0063	0.015	0.020	0.0040	0.015	0.023	0.033	0.0038	0.0059	<0.036	0.056	0.022
8	EC008-F001	EPA 8310	1.0-2.5	2/19/2009	<0.037	0.029	0.31	0.20	0.20	0.35	0.13	0.34	0.30	0.67	0.037	0.26	<0.037	0.52	0.76
9	EC009-B001	EPA 8310	12.5-13.0	2/17/2009	<0.069	<0.0069	<0.0069	0.093	0.015	0.0080	0.35	<0.0069	0.013	0.025	<0.014	0.0033	<0.069	0.0067	0.0036
9	EC009-F005	EPA 8310	1.0-11.5	2/17/2009	<0.036	0.00063	0.0026	0.0058	0.0051	0.0097	0.0021	0.0079	0.0047	0.010	<0.0072	0.0032	<0.036	0.0092	0.0070
9	EC009-F006	EPA 8310	1.0-7.5	2/17/2009	<0.038	<0.0038	0.0019	0.0033	0.0060	0.0087	0.0017	0.0077	0.0067	0.0068	<0.0076	0.015	<0.038	0.0066	0.0052
9	EC009-F007	EPA 8310	1.0-7.5	2/17/2009	1.1	0.013	0.024	0.057	0.036	0.074	0.019	0.055	0.045	0.093	0.099	0.051	0.095	0.20	0.069
9	EC009-F008	EPA 8310	1.0-8.0	2/19/2009	<0.038	0.011	0.034	0.039	0.034	0.050	0.018	0.041	0.042	0.11	0.0073	0.025	<0.038	0.049	0.091
9	EC009-F008	EPA 8270C ¹	1.0-8.0	2/19/2009	<0.076	<0.076	<0.076	<0.076	0.081	<0.076	<0.076	0.083	<0.076	0.17	<0.076	<0.076	<0.076	<0.076	0.17

**TABLE 9: Polycyclic Aromatic Hydrocarbon Concentrations in Soil (mg/kg, dry weight basis)
Eastern Alignment of Doyle Drive Replacement Project**

Composite Area	Sample ID	Analysis Method	Sample Depth (feet bgs)	Sample Date	Acenaphthene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene	
9	EC009-F009	EPA 8310	1.0-12.5	2/18/2009	<0.041	0.00092	0.027	0.056	0.066	0.11	0.015	0.077	0.037	0.040	<0.0082	0.020	<0.041	0.040	0.026	
9	EC009-F010	EPA 8310	1.0-12.5	2/18/2009	<0.041	<0.0041	<0.0041	<0.0041	<0.0081	<0.0081	<0.0041	<0.0041	<0.0081	<0.0081	<0.0081	<0.0041	<0.041	<0.0041	<0.0041	
9	EC09-C001	EPA 8310	2.5-12.5	1/22/2009	<0.039	<0.0039	<0.0039	<0.0039	<0.0078	<0.0078	<0.0039	<0.0039	<0.0078	<0.0078	<0.0078	<0.0039	<0.039	<0.0039	<0.0039	
9	EC09-F001	EPA 8310	1.0-7.5	1/22/2009	<0.037	0.0015	0.0058	0.011	0.012	0.012	0.0046	0.017	0.0065	0.075	<0.0074	0.0045	<0.037	0.016	0.016	
9	EC09-F002	EPA 8310	1.0-7.5	1/22/2009	<0.039	0.0019	0.0062	0.011	0.0091	0.018	0.0039	0.012	0.0031	0.018	<0.0078	0.0025	<0.039	0.011	0.013	
9	EC09-F003	EPA 8310	1.0-12.5	1/23/2009	<0.038	0.0065	0.028	0.0027	0.024	0.049	0.0039	0.057	<0.0076	0.032	<0.0076	<0.0038	<0.038	0.0095	0.013	
9	EC09-F004	EPA 8310	1.0-7.5	1/23/2009	<0.038	0.0054	0.0090	0.016	0.024	0.033	0.010	0.039	0.0052	0.076	<0.0076	0.011	<0.038	0.052	0.037	
California Hazardous Waste Criteria (mg/kg) ²					NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV
ESL for Residential Land Use (mg/kg) ³					16	2.8	0.38	0.038	0.38	27	0.38	23	0.062	40	8.9	0.62	1.3	11	85	
ESL for Commercial/Industrial Land Use (mg/kg) ⁴					16	2.8	1.3	0.13	1.3	27	1.3	23	0.21	40	8.9	2.1	2.8	11	85	
ESL for Construction/Trench Worker Exposure (mg/kg) ⁵					17,000	100,000	15	1.5	15	11,000	15	2,400	2.4	14,000	12,000	24	130	11,000	21,000	

Notes:

Boring locations are shown on Figure 2.

Laboratory reports are included in Appendix G.

Key to Composite Sample IDs: EC09-C001 indicates an environmental composite sample made up of discrete samples collected from Composite Area 9, and lithology of sample is Colma sand (C=Colma sand).

Key to Lithologies: F = Fill; FS = Fill with serpentinite; A = Alluvium; C = Colma Sand; B = Bay Mud.

Soil results are reported on a dry-weight basis in accordance with the Presidio Trust Quality Assurance Project Plan ("QAPP").

Values shown in bold indicate analytes quantified above the laboratory reporting limit.

Analytical results shaded gray indicate that concentrations were greater than Environmental Screening Levels ("ESLs").

Polycyclic Aromatic Hydrocarbons analyzed by Environmental Protection Agency Method 8310.

bgs = below ground surface.

mg/kg = milligram per kilogram.

<x.x = Compound was not identified at or above the laboratory reporting limit of x.x.

NV = No Value.

¹ Analytical results for this composite sample by EPA Methods 8310 and 8270C were significantly different, and are likely due to lab composite sample non-homogeneity. Results for all quality assurance samples for both methods were acceptable. The five subsamples for this composite sample were composited by the laboratory, and unique aliquots were collected for each analysis. One of the five subsamples was collected immediately below an asphalt road. Asphalt particles, which contain polycyclic aromatic hydrocarbons, may have been present in the EPA Method 8270C sample aliquot.

² California Code of Regulations, Title 22, Division 4.5, Chapter 11.

³ California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater is a Current or Potential Source of Drinking Water, Residential Land Use.

⁴ California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater is a Current or Potential Source of Drinking Water, Commercial/Industrial Land Use.

⁵ California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table K-3, Direct Exposure Soil Screening Levels, Construction/Trench Worker Exposure Scenario.

TABLE 10: Pesticide Concentrations in Soil (mg/kg, dry weight basis)
Eastern Alignment of Doyle Drive Replacement Project

Composite Area	Sample ID	Sample Depth (feet bgs)	Sample Date	4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	alpha-Chlordane	delta-BHC	Dieldrin	Endrin	Endrin ketone	gamma-Chlordane	Heptachlor	Heptachlor epoxide
1	EC01-F001	1.0-2.5	4/17/2009	<0.037	<0.037	<0.037	<0.019	<0.019	<0.019	<0.037	<0.037	<0.037	<0.019	<0.019	<0.019
1	EC01-F002	1.0-2.5	4/21/2009	<0.0038	<0.0038	0.0045	0.0024	<0.0019	<0.0019	<0.0038	<0.0038	0.0074	<0.0019	0.0041	<0.0019
1	EC01-F003	1.0-2.5	4/21/2009	<0.018	<0.018	0.038	<0.0093	<0.0093	<0.0093	<0.018	<0.018	<0.018	<0.0093	<0.0093	<0.0093
1	EC01-F004	1.0-2.5	4/17/2009	0.0073	0.021	0.057	<0.0019	0.0037	<0.0019	0.018	0.0040	<0.0037	0.0028	<0.0019	<0.0019
1	EC01-F005	1.0-2.5	4/17/2009	<0.0038	<0.0038	<0.0038	<0.0020	<0.0020	<0.0020	<0.0038	<0.0038	<0.0038	<0.0020	<0.0020	<0.0020
2	EC02-F001	1.0-2.5	4/14/2009	<0.0036	<0.0036	<0.0036	<0.0019	<0.0019	<0.0019	<0.0036	<0.0036	<0.0036	<0.0019	<0.0019	<0.0019
2	EC02-F002	1.0-7.5	4/15/2009	0.023	<0.019	0.081	<0.0097	<0.0097	<0.0097	<0.019	<0.019	<0.019	<0.0097	<0.0097	<0.0097
2	EC02-F003	1.0-7.5	4/16/2009	<0.0038	<0.0038	<0.0038	<0.0020	<0.0020	<0.0020	<0.0038	<0.0038	<0.0038	<0.0020	<0.0020	<0.0020
2	EC02-F004	1.5-2.5	4/14/2009	<0.0035	<0.0035	<0.0035	<0.0018	<0.0018	<0.0018	<0.0035	<0.0035	<0.0035	<0.0018	<0.0018	<0.0018
2	EC02-F005	1.0-2.5	4/14/2009	<0.037	<0.037	<0.037	<0.019	<0.019	<0.019	<0.037	<0.037	<0.037	<0.019	<0.019	<0.019
2	EC02-F006	1.0-7.5	4/16/2009	<0.0037	<0.0037	<0.0037	<0.0019	<0.0019	<0.0019	<0.0037	<0.0037	<0.0037	<0.0019	<0.0019	<0.0019
2	EC02-F007	1.0-8.0	4/17/2009	<0.018	<0.018	<0.018	<0.0094	<0.0094	<0.0094	<0.018	<0.018	<0.018	<0.0094	<0.0094	<0.0094
2	EC02-F008	1.0-7.5	4/17/2009	<0.0036	<0.0036	<0.0036	<0.0019	<0.0019	<0.0019	<0.0036	<0.0036	<0.0036	<0.0019	<0.0019	<0.0019
2	EC02-F009	1.0-2.5	4/20/2009	0.031	0.031	0.17	<0.0019	0.012	0.0043	<0.0036	0.0043	<0.0036	0.010	0.0025	0.0024
2	EC02-F010	1.0-8.0	4/20/2009	<0.036	<0.036	<0.036	<0.019	<0.019	<0.019	<0.036	<0.036	<0.036	<0.019	<0.019	<0.019
2	EC02-F011	1.0-7.5	4/20/2009	<0.0037	<0.0037	<0.0037	<0.0019	<0.0019	<0.0019	<0.0037	<0.0037	<0.0037	<0.0019	<0.0019	<0.0019
2	EC02-F012	1.0-2.5	4/20/2009	<0.0039	<0.0039	<0.0039	<0.0020	<0.0020	<0.0020	<0.0039	<0.0039	<0.0039	<0.0020	<0.0020	<0.0020
3	EC03-F001	1.0-2.5	4/15/2009	<0.0037	<0.0037	<0.0037	<0.0019	<0.0019	<0.0019	<0.0037	<0.0037	<0.0037	<0.0019	<0.0019	<0.0019
3	EC03-F002	1.0-2.5	4/15/2009	<0.019	<0.019	<0.019	<0.0095	<0.0095	<0.0095	<0.019	<0.019	<0.019	<0.0095	<0.0095	<0.0095
4	EC04-F001	1.0-2.5	4/20/2009	<0.035	<0.035	<0.035	<0.018	<0.018	<0.018	<0.035	<0.035	<0.035	<0.018	<0.018	<0.018
5	EC05-B001	7.5	4/13/2009	<0.0053	<0.0053	<0.0053	<0.0027	<0.0027	<0.0027	<0.0053	<0.0053	<0.0053	<0.0027	<0.0027	<0.0027
5	EC05-F001	1.0-2.5	4/13/2009	<0.039	<0.039	<0.039	<0.020	<0.020	<0.020	<0.039	<0.039	<0.039	<0.020	<0.020	<0.020
5	EC05-F002	1.0-2.5	4/13/2009	<0.038	<0.038	<0.038	<0.019	<0.019	<0.019	<0.038	<0.038	<0.038	<0.019	<0.019	<0.019
5	EC05-F003	1.0-7.5	4/13/2009	<0.0041	<0.0041	<0.0041	<0.0021	<0.0021	<0.0021	<0.0041	<0.0041	<0.0041	<0.0021	<0.0021	<0.0021
6	EC006-F001	1.0	2/18/2009	<0.018	<0.018	<0.018	<0.0092	<0.0092	<0.0092	<0.018	<0.018	<0.018	<0.0092	<0.0092	<0.0092
7	EC007-F001	1.0-2.5	2/18/2009	<0.0036	<0.0036	<0.0036	<0.0018	<0.0018	<0.0018	<0.0036	<0.0036	<0.0036	<0.0018	<0.0018	<0.0018
8	EC008-F001	1.0-2.5	2/19/2009	<0.037	<0.037	<0.037	<0.019	<0.019	<0.019	<0.037	<0.037	<0.037	<0.019	<0.019	<0.019
9	EC009-F005	1.0-11.5	2/17/2009	<0.0035	<0.0035	<0.0035	<0.0018	<0.0018	<0.0018	<0.0035	<0.0035	<0.0035	<0.0018	<0.0018	<0.0018
9	EC009-F006	1.0-7.5	2/17/2009	<0.037	<0.037	<0.037	<0.019	<0.019	<0.019	<0.037	<0.037	<0.037	<0.019	<0.019	<0.019
9	EC009-F007	1.0-7.5	2/17/2009	<0.037	<0.037	<0.037	<0.019	<0.019	<0.019	<0.037	<0.037	<0.037	<0.019	<0.019	<0.019
9	EC009-F008	1.0-8.0	2/19/2009	<0.0038	<0.0038	<0.0038	<0.0019	<0.0019	<0.0019	<0.0038	<0.0038	<0.0038	<0.0019	<0.0019	<0.0019
9	EC009-F009	1.0-12.5	2/18/2009	<0.0041	<0.0041	<0.0041	<0.0021	<0.0021	<0.0021	<0.0041	<0.0041	<0.0041	<0.0021	<0.0021	<0.0021
9	EC009-F010	1.0-12.5	2/18/2009	<0.0040	<0.0040	<0.0040	<0.0020	<0.0020	<0.0020	<0.0040	<0.0040	<0.0040	<0.0020	<0.0020	<0.0020
9	EC09-F001	1.0-7.5	1/22/2009	<0.0037	<0.0037	<0.0037	<0.0019	<0.0019	<0.0019	<0.0037	<0.0037	<0.0037	<0.0019	<0.0019	<0.0019
9	EC09-F002	1.0-7.5	1/22/2009	<0.0039	<0.0039	<0.0039	<0.0020	<0.0020	<0.0020	<0.0039	<0.0039	<0.0039	<0.0020	<0.0020	<0.0020
9	EC09-F003	1.0-12.5	1/23/2009	<0.019	<0.019	<0.019	<0.0099	<0.0099	<0.0099	<0.019	<0.019	<0.019	<0.0099	<0.0099	<0.0099
9	EC09-F004	1.0-7.5	1/23/2009	0.027	<0.019	0.026	<0.0098	0.14	<0.0098	<0.019	<0.019	<0.019	0.12	<0.0098	<0.0098
California Hazardous Waste Criteria (mg/kg) ^{1,6}				1.0 ⁵	1.0 ⁵	1.0 ⁵	1.4	2.5	NV	8.0	0.2	NV	2.5	4.7	NV
ESL for Residential Land Use (mg/kg) ²				2.4	1.7	1.7	0.032	0.44	NV	0.0023	0.00065	NV	0.44	0.013	0.014
ESL for Commerical/Industrial Land Use (mg/kg) ³				10	4.0	4.0	0.13	1.7	NV	0.0023	0.00065	NV	1.7	0.013	0.014
ESL for Construction/Trench Worker Exposure (mg/kg) ⁴				120	87	87	1.5	21	NV	1.6	160	NV	21	5.8	2.9

**TABLE 10: Pesticide Concentrations in Soil (mg/kg, dry weight basis)
Eastern Alignment of Doyle Drive Replacement Project**

Notes:

Boring locations are shown on Figure 2.

Laboratory reports are included in Appendix G.

Key to Composite Sample IDs: EC09-C001 indicates an environmental composite sample made up of discrete samples collected from Composite Area 9, and lithology of sample is Colma sand (C=Colma sand).

Key to Lithologies: F = Fill; FS = Fill with serpentinite; A = Alluvium; C = Colma Sand; B = Bay Mud.

Soil results are reported on a dry-weight basis in accordance with the Presidio Trust Quality Assurance Project Plan ("QAPP").

Values shown in bold indicate analytes quantified above the laboratory reporting limit.

Analytical results shaded gray indicate that concentrations were greater than or equal to hazardous waste criteria or Environmental Screening Levels ("ESLs").

Analytical results partially shaded blue indicate that laboratory reporting limits were greater than ESLs.

Only compounds that were identified above laboratory reporting limits in at least one sample are presented.

Pesticides analyzed by Environmental Protection Agency Method 8081A.

bgs = below ground surface.

mg/kg = milligram per kilogram.

<x.x = Compound was not identified at or above the laboratory reporting limit of x.x.

NV = No Value.

¹ California Code of Regulations, Title 22, Division 4.5, Chapter 11.

² California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater is a Current or Potential Source of Drinking Water, Residential Land Use.

³ California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater is a Current or Potential Source of Drinking Water, Commercial/Industrial Land Use.

⁴ California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table K-3, Direct Exposure Soil Screening Levels, Construction/Trench Worker Exposure Scenario.

⁵ The Total Threshold Limit Concentration for combined DDD, DDE, and DDT is 1.0 mg/kg.

⁶ Wet weight basis.

**TABLE 11: Polychlorinated Biphenyl Concentrations in Soil (mg/kg, dry weight basis)
Eastern Alignment of Doyle Drive Replacement Project**

Composite Area	Sample ID	Sample Depth (feet bgs)	Sample Date	Aroclor-1254	Aroclor-1260
1	EC01-F001	1.0-2.5	4/17/2009	<0.013	<0.013
1	EC01-F002	1.0-2.5	4/21/2009	<0.014	<0.014
1	EC01-F003	1.0-2.5	4/21/2009	0.037	0.057
1	EC01-F004	1.0-2.5	4/17/2009	0.071	0.040
1	EC01-F005	1.0-2.5	4/17/2009	<0.014	<0.014
2	EC02-A001	7.0-22.5	4/14/2009	<0.016	<0.016
2	EC02-A002	12.5-22.5	4/16/2009	<0.015	<0.015
2	EC02-A003	17.5-22.5	4/15/2009	<0.014	<0.014
2	EC02-A004	7.5-22.5	4/14/2009	<0.013	<0.013
2	EC02-A005	7.5	4/20/2009	<0.014	<0.014
2	EC02-B001	7.5-12.5	4/14/2009	<0.022	<0.022
2	EC02-B002	8.0	4/20/2009	<0.023	<0.023
2	EC02-F001	1.0-2.5	4/14/2009	<0.013	<0.013
2	EC02-F002	1.0-7.5	4/15/2009	<0.014	<0.014
2	EC02-F003	1.0-7.5	4/16/2009	<0.014	<0.014
2	EC02-F004	1.5-2.5	4/14/2009	<0.013	<0.013
2	EC02-F005	1.0-2.5	4/14/2009	<0.013	0.020
2	EC02-F006	1.0-7.5	4/16/2009	<0.014	<0.014
2	EC02-F007	1.0-8.0	4/17/2009	<0.013	<0.013
2	EC02-F008	1.0-7.5	4/17/2009	<0.013	<0.013
2	EC02-F009	1.0-2.5	4/20/2009	0.060	0.052
2	EC02-F010	1.0-8.0	4/20/2009	<0.013	<0.013
2	EC02-F011	1.0-7.5	4/20/2009	<0.014	<0.014
2	EC02-F012	1.0-2.5	4/20/2009	<0.014	<0.014
3	EC03-F001	1.0-2.5	4/15/2009	<0.014	<0.014
3	EC03-F002	1.0-2.5	4/15/2009	<0.014	<0.014
4	EC04-F001	1.0-2.5	4/20/2009	0.030	0.036
5	EC05-B001	7.5	4/13/2009	<0.019	<0.019
5	EC05-F001	1.0-2.5	4/13/2009	<0.014	<0.014
5	EC05-F002	1.0-2.5	4/13/2009	<0.014	<0.014
5	EC05-F003	1.0-7.5	4/13/2009	<0.015	<0.015
6	EC006-A001	2.5	2/18/2009	<0.014	<0.014
6	EC006-F001	1.0	2/18/2009	<0.013	<0.013
7	EC007-A001	1.0-2.5	2/18/2009	<0.014	<0.014
7	EC007-F001	1.0-2.5	2/18/2009	<0.013	<0.013
8	EC008-F001	1.0-2.5	2/19/2009	<0.013	<0.013
9	EC009-B001	12.5-13.0	2/17/2009	<0.025	<0.025
9	EC009-F005	1.0-11.5	2/17/2009	<0.013	<0.013
9	EC009-F006	1.0-7.5	2/17/2009	<0.014	<0.014
9	EC009-F007	1.0-7.5	2/17/2009	<0.014	<0.014
9	EC009-F008	1.0-8.0	2/19/2009	<0.014	<0.014
9	EC009-F009	1.0-12.5	2/18/2009	<0.015	<0.015
9	EC009-F010	1.0-12.5	2/18/2009	<0.015	<0.015
9	EC09-C001	2.5-12.5	1/22/2009	<0.014	<0.014
9	EC09-F001	1.0-7.5	1/22/2009	<0.013	<0.013
9	EC09-F002	1.0-7.5	1/22/2009	<0.014	<0.014
9	EC09-F003	1.0-12.5	1/23/2009	<0.014	<0.014
9	EC09-F004	1.0-7.5	1/23/2009	<0.014	0.040
California Hazardous Waste Criteria (mg/kg) ^{1,2}				50	50
ESL for Residential Land Use (mg/kg) ³				0.22	0.22
ESL for Commerical/Industrial Land Use (mg/kg) ⁴				0.74	0.74
ESL for Construction/Trench Worker Exposure (mg/kg) ⁵				6.7	6.7

**TABLE 11: Polychlorinated Biphenyl Concentrations in Soil (mg/kg, dry weight basis)
Eastern Alignment of Doyle Drive Replacement Project**

Notes:

Boring locations are shown on Figure 2.

Laboratory reports are included in Appendix G.

Key to Composite Sample IDs: EC09-C001 indicates an environmental composite sample made up of discrete samples collected from Composite Area 9, and lithology of sample is Colma sand (C=Colma sand).

Key to Lithologies: F = Fill; FS = Fill with serpentinite; A = Alluvium; C = Colma Sand; B = Bay Mud.

Soil results are reported on a dry-weight basis in accordance with the Presidio Trust Quality Assurance Project Plan ("QAPP").

Values shown in bold indicate analytes quantified above the laboratory reporting limit.

Only compounds that were identified above laboratory reporting limits in at least one sample are presented.

Polychlorinated Biphenyls analyzed by Environmental Protection Agency Method 8082.

bgs = below ground surface.

mg/kg = milligram per kilogram.

<x.x = Compound was not identified at or above the laboratory reporting limit of x.x.

¹ California Code of Regulations, Title 22, Division 4.5, Chapter 11.

² Wet weight basis.

³ California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater is a Current or Potential Source of Drinking Water, Residential Land Use.

⁴ California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater is a Current or Potential Source of Drinking Water, Commercial/Industrial Land Use.

⁵ California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table K-3, Direct Exposure Soil Screening Levels, Construction/Trench Worker Exposure Scenario.

TABLE 12: Asbestos in Soil (percent)
Eastern Alignment of Doyle Drive Replacement Project

Composite Area	Boring ID	Sample ID	Sample Depth (feet bgs)	Sample Date	Percent Asbestos
2	E029	E029FS-7.5	7.5	4/20/2009	<0.25
9	E054	E054FS-2.5	2.5	2/17/2009	<0.25
9	E060	E060FS-2.5	2.5	1/23/2009	<0.25
California Hazardous Waste Criteria ¹					1%
CARB Asbestos Dust Mitigation Plan Action Level ²					0.25%

Notes:

Boring locations are shown on Figure 2.

Laboratory reports are included in Appendix G.

Key to Discrete Sample IDs: E061C-2.5 indicates sample collected from environmental boring number E061, lithology of sample is Colma sand (C=Colma sand), and sample depth is 2.0 to 2.5 feet bgs.

Key to Lithologies: F = Fill; FS = Fill with serpentinite; A = Alluvium; C = Colma Sand; B = Bay Mud.

Asbestos analyzed by California Air Resource Board Method 435 with reporting limit of 0.25 percent.

bgs = below ground surface.

<x.x = Compound was not identified at or above the laboratory reporting limit of x.x.

¹ California Code of Regulations, Title 22, Division 4.5, Chapter 11.

² California Air Resources Board ("CARB") Asbestos Toxic Control Measure.

TABLE 13: Miscellaneous Parameters in Soil
Eastern Alignment of Doyle Drive Replacement Project

Composite Area	Boring ID	Sample ID	Sample Depth (feet bgs)	Sample Date	Cyanide ¹	Sulfide ¹	pH	Moisture
					mg/kg	mg/kg		
1	--	EC01-F001	1.0-2.5	4/17/2009	<1.1	<11	8.0	11
1	--	EC01-F002	1.0-2.5	4/21/2009	<1.1	<11	7.6	13
1	--	EC01-F003	1.0-2.5	4/21/2009	<1.1	<11	7.0	9.0
1	--	EC01-F004	1.0-2.5	4/17/2009	<1.1	<11	7.6	12
1	--	EC01-F005	1.0-2.5	4/17/2009	<1.2	<12	7.2	15
2	--	EC02-A001	7.0-22.5	4/14/2009	<1.3	<13	8.3	24
2	--	EC02-A002	12.5-22.5	4/16/2009	<1.2	<12	8.4	18
2	--	EC02-A003	17.5-22.5	4/15/2009	<1.2	<12	8.7	17
2	--	EC02-A004	7.5-22.5	4/14/2009	<1.1	<11	8.4	11
2	--	EC02-B001	7.5-12.5	4/14/2009	<1.8	<18	8.0	45
2	--	EC02-F001	1.0-2.5	4/14/2009	<1.1	<11	8.0	9.0
2	--	EC02-F002	1.0-7.5	4/15/2009	<1.1	<11	8.3	12
2	--	EC02-F003	1.0-7.5	4/16/2009	<1.2	<12	7.2	14
2	--	EC02-F004	1.5-2.5	4/14/2009	<1.1	<11	7.5	7.0
2	--	EC02-F005	1.0-2.5	4/14/2009	<1.1	<11	9.1	11
2	--	EC02-F006	1.0-7.5	4/16/2009	<1.1	<11	6.7	13
2	--	EC02-F007	1.0-8.0	4/17/2009	<1.1	<11	7.9	10
2	--	EC02-F008	1.0-7.5	4/17/2009	<1.1	<11	7.7	9.0
2	--	EC02-F009	1.0-2.5	4/20/2009	<1.1	<11	7.1	9.0
2	--	EC02-F010	1.0-8.0	4/20/2009	<1.1	<11	7.2	9.0
2	--	EC02-F011	1.0-7.5	4/20/2009	<1.2	<11	7.3	13
2	--	EC02-F012	1.0-2.5	4/20/2009	<1.2	<12	6.8	16
3	--	EC03-F001	1.0-2.5	4/15/2009	<1.1	<11	7.2	12
3	--	EC03-F002	1.0-2.5	4/15/2009	<1.1	<11	7.9	12
4	--	EC04-F001	1.0-2.5	4/20/2009	<1.1	<11	7.9	5.0
5	--	EC05-F001	1.0-2.5	4/13/2009	<1.2	<12	7.6	15
5	--	EC05-F002	1.0-2.5	4/13/2009	<1.1	<11	7.7	12
5	--	EC05-F003	1.0-7.5	4/13/2009	<1.3	<13	7.7	20
7	--	EC007-A001	1.0-2.5	2/18/2009	<1.2	<12	7.5	15
7	--	EC007-F001	1.0-2.5	2/18/2009	<1.1	<11	7.9	8.0
8	--	EC008-F001	1.0-2.5	2/19/2009	<1.1	<11	7.3	11
9	--	EC009-B001	12.5-13.0	2/17/2009	<2.1	<21	6.4	52
9	--	EC009-F005	1.0-11.5	2/17/2009	<1.1	<11	7.6	8.0
9	--	EC009-F006	1.0-7.5	2/17/2009	<1.1	<11	7.9	12
9	--	EC009-F007	1.0-7.5	2/17/2009	<1.1	<11	7.6	12
9	--	EC009-F008	1.0-8.0	2/19/2009	<1.1	<11	7.9	13
9	--	EC009-F009	1.0-12.5	2/18/2009	<1.2	<12	6.9	19
9	--	EC009-F010	1.0-12.5	2/18/2009	<1.2	<12	7.3	18
9	--	EC09-C001	2.5-12.5	1/22/2009	<1.2	<12	7.5	15
9	--	EC09-F001	1.0-7.5	1/22/2009	<1.1	<11	7.6	11
9	--	EC09-F002	1.0-7.5	1/22/2009	<1.2	<12	7.3	14
9	--	EC09-F003	1.0-12.5	1/23/2009	<1.1	<11	7.9	13
9	--	EC09-F004	1.0-7.5	1/23/2009	<1.1	<11	7.3	13
1	E001	E001F-1.0	1.0	4/21/2009	--	--	--	6.0
1	E001	E001F-2.5	2.5	4/21/2009	--	--	--	16

TABLE 13: Miscellaneous Parameters in Soil
Eastern Alignment of Doyle Drive Replacement Project

Composite Area	Boring ID	Sample ID	Sample Depth	Sample Date	Cyanide ¹	Sulfide ¹	pH	Moisture
			(feet bgs)	mg/kg	mg/kg	SU	%	
			Units	mg/kg	mg/kg	mg/kg	SU	%
1	E002	E002F-1.0	1.0	4/21/2009	--	--	--	6.0
1	E002	E002F-2.5	2.5	4/21/2009	--	--	--	6.0
1	E003	E003F-1.5	1.5	4/21/2009	--	--	--	8.0
1	E003	E003F-2.5	2.5	4/21/2009	--	--	--	19
1	E004	E004F-1.0	1.0	4/17/2009	--	--	--	14
1	E004	E004F-2.5	2.5	4/17/2009	--	--	--	18
1	E005	E005F-1.0	1.0	4/21/2009	--	--	--	9.0
1	E005	E005F-2.5	2.5	4/21/2009	--	--	--	11
1	E006	E006F-1.0	1.0	4/17/2009	--	--	--	26
1	E006	E006F-2.5	2.5	4/17/2009	--	--	--	15
1	E007	E007F-1.0	1.0	4/21/2009	--	--	--	7.0
1	E007	E007F-2.5	2.5	4/21/2009	--	--	--	4.0
1	E010	E010F-1.0	1.0	4/20/2009	--	--	--	10
1	E010	E010F-2.5	2.5	4/20/2009	--	--	--	14
1	E011	E011F-1.0	1.0	4/17/2009	--	--	--	9.0
1	E011	E011F-2.5	2.5	4/17/2009	--	--	--	18
1	E012	E012F-1.0	1.0	4/17/2009	--	--	--	4.0
1	E012	E012F-2.5	2.5	4/17/2009	--	--	--	14
2	E008	E008F-1.0	1.0	4/20/2009	--	--	--	11
2	E008	E008F-2.5	2.5	4/20/2009	--	--	--	17
2	E008	EC02-B002	8.0	4/20/2009	<1.9	<19	7.9	47
2	E009	E009F-1.0	1.0	4/14/2009	--	--	--	6.0
2	E009	E009F-2.5	2.5	4/14/2009	--	--	--	15
2	E013	E013F-1.0	1.0	4/17/2009	--	--	--	5.0
2	E013	E013F-2.5	2.5	4/17/2009	--	--	--	5.0
2	E019	E019F-1.0	1.0	4/15/2009	--	--	--	8.0
2	E019	E019F-2.5	2.5	4/15/2009	--	--	--	10
2	E020	E020F-1.0	1.0	4/14/2009	--	--	--	3.0
2	E020	E020F-2.5	2.5	4/14/2009	--	--	--	10
2	E021	E021F-1.0	1.0	4/17/2009	--	--	--	12
2	E021	E021F-2.5	2.5	4/17/2009	--	--	--	10
2	E022	E022F-1.0	1.0	4/17/2009	--	--	--	9.0
2	E022	E022F-2.5	2.5	4/17/2009	--	--	--	5.0
2	E023	E023F-1.0	1.0	4/15/2009	--	--	--	12
2	E023	E023F-2.5	2.5	4/15/2009	--	--	--	10
2	E024	E024F-1.0	1.0	4/16/2009	--	--	--	19
2	E024	E024F-2.5	2.5	4/16/2009	--	--	--	16
2	E025	E025F-1.0	1.0	4/16/2009	--	--	--	11
2	E025	E025F-2.5	2.5	4/16/2009	--	--	--	19
2	E026	E026F-1.5	1.5	4/14/2009	--	--	--	7.0
2	E026	E026F-2.5	2.5	4/14/2009	--	--	--	3.0
2	E027	E027F-1.5	1.5	4/14/2009	--	--	--	7.0
2	E027	E027F-2.5	2.5	4/14/2009	--	--	--	5.0
2	E028	E028F-1.0	1.0	4/20/2009	--	--	--	11
2	E028	E028F-2.5	2.5	4/20/2009	--	--	--	12
2	E028	EC02-A005	7.5	4/20/2009	<1.2	<12	8.2	17

TABLE 13: Miscellaneous Parameters in Soil
Eastern Alignment of Doyle Drive Replacement Project

Composite Area	Boring ID	Sample ID	Sample Depth	Sample Date	Cyanide ¹	Sulfide ¹	pH	Moisture
			(feet bgs)	mg/kg	mg/kg	SU	%	
2	E029	E029F-1.0	1.0	4/20/2009	--	--	--	10
2	E029	E029F-2.5	2.5	4/20/2009	--	--	--	19
2	E030	E030F-1.0	1.0	4/20/2009	--	--	--	10
2	E030	E030F-2.5	2.5	4/20/2009	--	--	--	13
2	E031	E031F-1.0	1.0	4/20/2009	--	--	--	9.0
2	E031	E031F-2.0 ²	2.0	4/20/2009	--	--	--	12
2	E032	E032F-1.0	1.0	4/20/2009	--	--	--	11
2	E032	E032F-2.5	2.5	4/20/2009	--	--	--	8.0
2	E033	E033F-1.0	1.0	4/21/2009	--	--	--	8.0
2	E033	E033F-2.5	2.5	4/21/2009	--	--	--	7.0
2	E037	E037F-1.0	1.0	4/14/2009	--	--	--	4.0
2	E037	E037F-2.5	2.5	4/14/2009	--	--	--	9.0
2	E041	E041F-1.0	1.0	4/16/2009	--	--	--	12
2	E041	E041F-2.5	2.5	4/16/2009	--	--	--	10
2	E041	E041F-7.5	7.5	4/16/2009	--	--	--	16
3	E014	E014F-1.0	1.0	4/15/2009	--	--	--	13
3	E014	E014F-2.5	2.5	4/15/2009	--	--	--	11
3	E015	E015F-1.0	1.0	4/15/2009	--	--	--	9.0
3	E015	E015F-2.5	2.5	4/15/2009	--	--	--	9.0
3	E016	E016F-1.0	1.0	4/15/2009	--	--	--	12
3	E016	E016F-2.5	2.5	4/15/2009	--	--	--	12
3	E017	E017F-1.0	1.0	4/15/2009	--	--	--	11
3	E017	E017F-2.5	2.5	4/15/2009	--	--	--	12
3	E018	E018F-1.0	1.0	4/15/2009	--	--	--	11
3	E018	E018F-2.5	2.5	4/15/2009	--	--	--	13
4	E034	E034F-1.0	1.0	4/21/2009	--	--	--	9.0
4	E035	E035F-1.0	1.0	4/20/2009	--	--	--	4.0
4	E035	E035F-2.5	2.5	4/20/2009	--	--	--	6.0
4	E036	E036F-1.0	1.0	4/21/2009	--	--	--	4.0
4	E036	E036F-2.5	2.5	4/21/2009	--	--	--	5.0
5	E038	E038F-1.0	1.0	4/16/2009	--	--	--	6.0
5	E038	E038F-2.5	2.5	4/16/2009	--	--	--	10
5	E039	E039F-1.0	1.0	4/13/2009	--	--	--	9.0
5	E039	E039F-2.5	2.5	4/13/2009	--	--	--	12
5	E040	E040F-1.0	1.0	4/13/2009	--	--	--	10
5	E040	E040F-2.5	2.5	4/13/2009	--	--	--	25
5	E040	EC05-B001	7.5	4/13/2009	<1.6	<16	7.2	38
5	E042	E042F-1.0	1.0	4/13/2009	--	--	--	12
5	E042	E042F-2.5	2.5	4/13/2009	--	--	--	16
5	E043	E043F-1.0	1.0	4/13/2009	--	--	--	11
5	E043	E043F-2.5	2.5	4/13/2009	--	--	--	12
5	E044	E044F-1.0	1.0	4/13/2009	--	--	--	14
5	E044	E044F-2.5	2.5	4/13/2009	--	--	--	17
6	E046	E046F-1.0	1.0	2/18/2009	--	--	--	9.0

TABLE 13: Miscellaneous Parameters in Soil
Eastern Alignment of Doyle Drive Replacement Project

Composite Area	Boring ID	Sample ID	Sample Depth (feet bgs)	Sample Date	Cyanide ¹	Sulfide ¹	pH	Moisture
					mg/kg	mg/kg	SU	%
6	E046	EC006-F001	1.0	2/18/2009	<1.1	<11	8.3	8.0
6	E046	E046A-2.5	2.5	2/18/2009	--	--	--	14
6	E046	EC006-A001	2.5	2/18/2009	<1.2	<12	7.1	16
7	E047	E047A-1.0	1.0	2/18/2009	--	--	--	14
7	E047	E047A-2.5	2.5	2/18/2009	--	--	--	15
7	E048	E048F-1.0	1.0	2/18/2009	--	--	--	9.0
7	E048	E048F-2.5	2.5	2/18/2009	--	--	--	16
8	E052	E052F-1.0	1.0	2/19/2009	--	--	--	9.0
8	E052	E052F-2.5	2.5	2/19/2009	--	--	--	8.0
8	E053	E053F-1.0	1.0	2/19/2009	--	--	--	13
8	E053	E053F-2.5	2.5	2/19/2009	--	--	--	13
9	E045	E045F-1.0	1.0	2/18/2009	--	--	--	14
9	E045	E045F-2.5	2.5	2/18/2009	--	--	--	18
9	E049	E049F-1.0	1.0	2/18/2009	--	--	--	12
9	E049	E049F-2.5	2.5	2/18/2009	--	--	--	16
9	E050	E050F-1.5	1.5	2/19/2009	--	--	--	13
9	E050	E050F-2.5	2.5	2/19/2009	--	--	--	14
9	E051	E051F-1.0	1.0	2/17/2009	--	--	--	7.0
9	E051	E051F-2.5	2.5	2/17/2009	--	--	--	14
9	E054	E054F-1.0	1.0	2/17/2009	--	--	--	11
9	E054	E054FS-2.5	2.5	2/17/2009	--	--	--	10
9	E055	E055F-1.0	1.0	1/23/2009	--	--	--	10
9	E055	E055F-2.5	2.5	1/23/2009	--	--	--	15
9	E056	E056F-1.0	1.0	2/17/2009	--	--	--	7.0
9	E056	E056F-2.5	2.5	2/17/2009	--	--	--	4.0
9	E057	E057F-1.0	1.0	1/22/2009	--	--	--	15
9	E057	E057F-3.0	3.0	1/22/2009	--	--	--	19
9	E058	E058F-1.0	1.0	1/23/2009	--	--	--	11
9	E058	E058F-2.5	2.5	1/23/2009	--	--	--	12
9	E059	E059F-1.0	1.0	1/23/2009	--	--	--	11
9	E059	E059F-2.5	2.5	1/23/2009	--	--	--	7.0
9	E060	E060F-1.0	1.0	1/23/2009	--	--	--	10
9	E060	E060FS-2.5	2.5	1/23/2009	--	--	--	10
9	E061	E061F-1.0	1.0	1/22/2009	--	--	--	10
9	E061	E061C-2.5	2.5	1/22/2009	--	--	--	11
ESL for Residential Land Use (mg/kg) ³					0.0036	NV	NV	NV
ESL for Commerical/Industrial Land Use (mg/kg) ⁴					0.0036	NV	NV	NV
ESL for Construction/Trench Worker Exposure (mg/kg) ⁵					1,300	NV	NV	NV

**TABLE 13: Miscellaneous Parameters in Soil
Eastern Alignment of Doyle Drive Replacement Project**

Notes:

Boring locations are shown on Figure 2.

Laboratory reports are included in Appendix G.

Key to Discrete Sample IDs: E061C-2.5 indicates sample collected from environmental boring number E061, lithology of sample is Colma sand (C=Colma sand), and sample depth is 2.0 to 2.5 feet bgs.

Key to Composite Sample IDs: EC09-C001 indicates an environmental composite sample made up of discrete samples collected from Composite Area 9, and lithology of sample is Colma sand (C=Colma sand).

Key to Lithologies: F = Fill; FS = Fill with serpentinite; A = Alluvium; C = Colma Sand; B = Bay Mud.

Values shown in bold indicate analytes quantified above the laboratory reporting limit.

Analytical results partially shaded blue indicate that laboratory reporting limits were greater than Environmental Screening Levels ("ESLs").

Cyanide analyzed by Standard Method 4500-CN-E.

Sulfide analyzed by Environmental Protection Agency Method 9034.

pH analyzed by Environmental Protection Agency Method 9045D.

Moisture analyzed by American Society for Testing and Materials Method D2216/CLP.

bgs = below ground surface.

mg/kg = milligram per kilogram.

SU = standard units

% = percent

<x.x = Compound was not identified at or above the laboratory reporting limit of x.x.

-- = Not analyzed or not applicable.

- ¹ Soil results are reported on a dry-weight basis in accordance with the Presidio Trust Quality Assurance Project Plan ("QAPP").
- ² The laboratory sample identification was E031F-2.5. BASELINE changed the sample identification to E031F-2.0 based on review of the boring log.
- ³ California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater is a Current or Potential Source of Drinking Water, Residential Land Use.
- ⁴ California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater is a Current or Potential Source of Drinking Water, Commercial/Industrial Land Use.
- ⁵ California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table K-3, Direct Exposure Soil Screening Levels, Construction/Trench Worker Exposure Scenario.

**TABLE 14: Summary of Hazardous Waste Classification Results by Composite Area
Eastern Alignment of Doyle Drive Replacement Project**

Composite Area	Potential Waste Stream				
	Top 2.5 Feet of Soil	Fill Deeper Than 2.5 Feet bgs	Alluvium Deeper Than 2.5 Feet bgs	Bay Mud Deeper Than 2.5 Ft bgs	Colma Sand Deeper Than 2.5 Feet bgs
1	CA Hazardous Waste	NE	NE	NE	NE
2	CA Hazardous Waste	Nonhazardous Waste	Nonhazardous Waste	Nonhazardous Waste	NE
3	Nonhazardous Waste	NE	NE	NE	NE
4	CA Hazardous Waste	NE	NE	NE	NE
5	CA Hazardous Waste	Nonhazardous Waste	Nonhazardous Waste	Nonhazardous Waste	NE
6	Nonhazardous Waste	NE	NE	NE	NE
7	Nonhazardous Waste	NE	NE	NE	NE
8	Nonhazardous Waste	NE	NE	NE	NE
9	Nonhazardous Waste	Nonhazardous Waste	NE	Nonhazardous Waste	Nonhazardous Waste

Notes:

See Figure 2 for location of composite areas.

bgs = Below ground surface.

CA = California.

NE = Not encountered during investigation.

**TABLE 15: Summary of Environmental Screening Level Exceedances by Composite Area
Eastern Alignment of Doyle Drive Replacement Project**

Composite Area	Potential Waste Stream				
	Top 2.5 Feet of Soil	Fill Deeper Than 2.5 Feet bgs	Alluvium Deeper Than 2.5 Feet bgs	Bay Mud Deeper Than 2.5 Ft bgs	Colma Sand Deeper Than 2.5 Feet bgs
Residential ESL Exceedances					
1	CA hazardous waste	NE	NE	NE	NE
2	CA hazardous waste	lead TPH as motor oil benzo(a)pyrene dibenzo(a,h)anthracene	None	nickel acetone benzo(a)pyrene dibenzo(a,h)anthracene	NE
3	TPH as diesel	NE	NE	NE	NE
4	CA hazardous waste	NE	NE	NE	NE
5	CA hazardous waste	benzo(a)pyrene	None	benzo(a)pyrene	NE
6	mercury	NE	NE	NE	NE
7	None	NE	NE	NE	NE
8	benzo(a)pyrene dibenzo(a,h)anthracene	NE	NE	NE	NE
9	lead	lead benzo(a)pyrene methylnaphthalene	NE	nickel acetone benzo(a)pyrene	None
Commercial/Industrial ESL Exceedances					
1	CA hazardous waste	NE	NE	NE	NE
2	CA hazardous waste	lead	None	nickel acetone benzo(a)pyrene	NE
3	TPH as diesel	NE	NE	NE	NE
4	CA hazardous waste	NE	NE	NE	NE
5	CA hazardous waste	None	None	benzo(a)pyrene	NE
6	None	NE	NE	NE	NE
7	None	NE	NE	NE	NE
8	benzo(a)pyrene dibenzo(a,h)anthracene	NE	NE	NE	NE
9	None	methylnaphthalene	NE	nickel acetone	None
Construction Worker Direct-Exposure ESL Exceedances					
1	lead	NE	NE	NE	NE
2	None	lead	None	nickel	NE
3	None	NE	NE	NE	NE
4	lead	NE	NE	NE	NE
5	benzo(a)pyrene	None	None	None	NE
6	None	NE	NE	NE	NE
7	None	NE	NE	NE	NE
8	None	NE	NE	NE	NE
9	None	None	NE	None	None

Notes:

See Figure 2 for locations of composite areas.

Soil subsets previously determined to be California hazardous waste due to lead were not evaluated for residential and All soil subsets analyzed exceeded the residential and commercial ESLs for arsenic, and the residential ESL for vanadium. ESL = Environmental Screening Level.

CA = California.

NE = Not encountered during investigation.

TPH = Total petroleum hydrocarbons.

APPENDICES
(IN PDF ON CD ROM)