SFCTA Contract Number 06/07-29

SOUTH ACCESS TO THE GOLDEN GATE BRIDGE

DOYLE DRIVE

DOYLE DRIVE REPLACEMENT PROJECT

Environmental Soil Investigation
Buildings 201, 204, 228 and 605

Caltrans EA 04-163701

August 2010

Prepared By:

BASELINE Environmental Consulting

Our ref 131558/FRG
File ref 4-01
Date August 13, 2010

SOUTH ACCESS TO THE GOLDEN GATE BRIDGE
DOYLE DRIVE

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Mr. Ray Boyer, P.E.
District Branch Chief – Hazardous Waste
Office of Environmental Engineering
Division of Environmental Planning & Engineering
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Oakland, CA 94612

Re: Environmental Soil Investigation
Caltrans EA 04-163701; Buildings 201, 204, 228 and 605
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 – Buildings 201, 204, 228 and 605 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 contains an executive summary and describes investigation objectives, contaminants of potential concern, field activities, boring locations and soil characteristics, soil sample analyses, assessment approaches, soil analytical results, conclusions, and limitations. The report contains 5 Figures and 8 Tables.

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

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

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

Yours sincerely

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

Distribution: Ray Boyer, Caltrans – 10 copies
Cheri Page, BASELINE Environmental Consulting – 2 copies
John Karn, Arup PB JV Project Manager – 1 copy
Sabine van der Sluis, Parsons Brinckerhoff – 1 copy
Project Files

ENVIRONMENTAL SOIL INVESTIGATION

Caltrans EA 04-163701

AUGUST 2010

DOYLE DRIVE REPLACEMENT PROJECT
BUILDINGS 201, 204, 228, AND 605
SAN FRANCISCO, CALIFORNIA

For:

Arup PB Joint Venture
San Francisco, California

Y0239-04.A5.01487

5900 Hollis Street, Suite D • Emeryville, CA 94608 • (510) 420-8686

ENVIRONMENTAL SOIL INVESTIGATION

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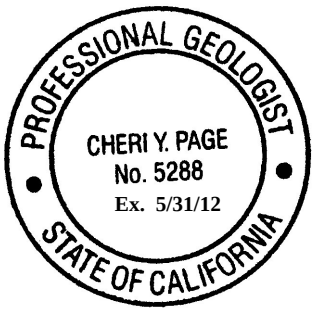
This *Environmental Soil Investigation* report, dated 9 August 2010, has been prepared by BASELINE Environmental Consulting as part of Caltrans contract EA 04-163701 for soil sampling around Buildings 201, 204, 228, and 605 of the Doyle Drive Replacement Project.

Cheri Page
Senior Geologist
P.G. No. 5288



Patrick Sutton
Environmental Scientist

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DOYLE DRIVE REPLACEMENT PROJECT
BUILDINGS 201, 204, 228, AND 605
San Francisco, California

BASELINE Environmental Consulting ("BASELINE") has prepared this report for the Arup PB Joint Venture. This report presents the results of environmental soil sampling around Buildings 201, 204, 228, and 605 in Presidio Trust Lands for the Doyle Drive Replacement Project ("Project") in San Francisco, California (Figure 1). The Project is sponsored by the San Francisco County Transportation Authority and the State of California Department of Transportation. The purpose of this report is to evaluate the chemical quality of soils near the drip line of each building to determine potential reuse, disposal, and management options, should the soil require excavation.

In October and November of 2009, BASELINE collected soil samples near the drip lines of Buildings 201, 204, 228, and 605 for analysis of lead from lead-based paint (Figures 2 through 5). Other contaminants of potential concern ("COPCs") analyzed around Buildings 228 and 605 included metals, total petroleum hydrocarbons as gasoline, diesel, motor oil, and fuel oil, volatile organic compounds, and polynuclear aromatic hydrocarbons.

Analytical results were systematically screened against RCRA hazardous waste thresholds,[1] California hazardous waste thresholds, Presidio Trust soil reuse criteria ("Cleanup Levels") specific to each building ("site"), and San Francisco Bay Regional Water Quality Control Board ("Regional Water Board") Environmental Screening Levels ("ESLs") (Tables 3 through 7). Prior to considering soil reuse options, all soils were screened against RCRA and California hazardous waste thresholds to determine if the soil would be considered hazardous waste, once excavated. If soils were considered to be a non-hazardous waste, then options were evaluated for reusing soils around each building and outside the Presidio Trust Lands.

Soils considered to be non-hazardous waste were screened against site-specific Cleanup Levels to determine if soils could be reused around each building. Soils around a building with constituent concentrations exceeding site-specific Cleanup Levels must either be: 1) managed in-place by instituting land use controls ("LUCs"); 2) excavated for off-site disposal; 3) excavated and reused in appropriate land use areas designated by the Presidio Trust; or 4) excavated and reused in appropriate land use areas outside Presidio Trust Lands.

Soils classified as non-hazardous waste were also screened against the Regional Water Board ESLs to evaluate potential reuse options outside Presidio Trust Lands. All soils were also

[1] The Resource Conservation and Recovery Act ("RCRA") defines certain wastes as hazardous under federal law.

screened against the Regional Water Board ESLs for construction workers to evaluate potential health risks from direct exposure to contaminated soils.

Data sets of lead concentrations in soil from lead-based paint were evaluated around each building based on the surface conditions of the soil and the depth of soil samples collected. Statistical analysis of data sets for lead concentrations in soil from lead-based paint was performed using guidelines and software developed by the Environmental Protection Agency and standard industry practices to determine exposure point concentrations for comparison against screening criteria to evaluate disposal and reuse options, as necessary.

CONCLUSIONS

Potential reuse, disposal, and management options for soils around Buildings 201, 204, 228, and 605 are summarized in Table 8. The lateral and vertical extent of soil impacts were not defined around each building. A more detailed evaluation should be performed prior to or during soil excavation activities that extend beyond the limits of this investigation; deeper than approximately 3.5 feet bgs (maximum soil sample depth) or beyond five feet from the drip line of each building.

Waste Classification

The following areas are classified as California hazardous wastes:

- Exposed soils along the north side of Building 201;
- All soils around Building 204; and
- All soils around Building 228.

Additional soil analysis should be performed for exposed soils along the north side of Building 201 to determine if the soils would be considered RCRA hazardous waste.

Soil Reuse and Management within Presidio Trust Lands

Soils beneath covered surfaces along the south, west, and north side of Building 201 may be reused on site. The following areas contain at least one sample with a constituent concentration above the site-specific Cleanup Levels and Presidio Trust would require implementation of LUCs if left in-place:

- Exposed soils along the north side of Building 201;
- All soils around Building 204;
- All soils around Building 228; and
- All soils around Building 605.

Soil Reuse Outside Presidio Trust Lands

Soil analytical results, screened against ESLs in shallow soils for residential and commercial/industrial land uses where groundwater is a current or potential drinking water source, indicated that non-hazardous soils beneath covered surface around Buildings 201 could potentially be reused outside of Presidio Trust Lands. Non-hazardous soils around Building 605 contained one or more soil samples with concentrations of TPH as diesel, benzo(a)pyrene, and dibenz(a,h)anthracene above residential ESLs. A more detailed evaluation should be performed to assess specific scenarios of possible soil reuse once the actual soils proposed for off-site reuse have been determined.

Construction Worker Health and Safety

The following areas may pose a health risk to construction workers directly exposed to the soils without specific health and safety provisions:

- Exposed soils along the north side of Building 201; and
- All soils around Building 204.

ENVIRONMENTAL SOIL INVESTIGATION
DOYLE DRIVE REPLACEMENT PROJECT
BUILDINGS 201, 204, 228, AND 605
San Francisco, California

1 INTRODUCTION

BASELINE Environmental Consulting ("BASELINE") has prepared this report for the Arup PB Joint Venture. This report presents the results of environmental soil sampling around Buildings 201, 204, 228, and 605 in Presidio Trust Lands for the Doyle Drive Replacement Project ("Project") in San Francisco, California (Figure 1). The Project is sponsored by the San Francisco County Transportation Authority and the State of California Department of Transportation ("Caltrans").

Caltrans requested an environmental soil investigation near the drip lines of Buildings 201, 204, 228, and 605 prior to proposed demolition or foundation work activities for the Project to evaluate if contaminants of potential concern ("COPCs") are present at concentrations that would require special soil management or disposal, should the soil require excavation. In October and November of 2009, BASELINE collected soil samples around Buildings 201, 204, 228, and 605 for analysis of COPCs.

The work scope for this environmental soil investigation was developed in coordination with Presidio Trust and Caltrans. The purpose of this report is to:

1) Pre-characterize soils near the drip line around each building for potential disposal at a permitted facility;

2) Evaluate the chemical quality of soils near the drip line for potential reuse around each building in accordance with Presidio Trust reuse criteria;[2]

3) Evaluate the chemical quality of soils near the drip line around each building for potential reuse outside Presidio Trust Lands; and

4) Evaluate the chemical quality of soils for construction worker health and safety.

2 BACKGROUND

Eleven buildings within Presidio Trust Lands identified by Caltrans are proposed for demolition or foundation work during the Project construction. This report presents the results of environmental soil sampling around four of the buildings proposed for demolition: Buildings 201, 204, 228, and 605. The other seven buildings do not require investigation at this time for the reasons discussed below.

[2] Evaluation of the chemical quality of soils for reuse within other land Presidio Trust Lands can be performed in a separate report by BASELINE, if requested.

The Presidio Trust has already completed environmental soil investigations around Buildings 106, 230, 606, and 1158. In June 2009, BASELINE and the ARUP/PB Joint Venture completed an environmental soil investigation around Building 670 (BASELINE, 2009). Building 231 has already been demolished and the soils surrounding the foundation will be managed by the Presidio Trust in accordance with the *Final Corrective Action Implementation Work Plan, Building 207/231 Area* (MACTEC Engineering and Consulting, Inc. ["MACTEC"], 2008). Soils around Building 205 are covered by concrete and are not accessible for soil sampling prior to demolition.

3 CONTAMINANTS OF POTENTIAL CONCERN

Prior to 1978, lead-based paint was applied to many Presidio buildings as part of routine construction and maintenance activities. Buildings 201, 204, 228, and 605 were constructed between 1896 and 1972; therefore, shallow soils near the drip line of these buildings may contain elevated levels of lead from lead-based paint (Presidio Trust, 2008b).

Building 228 was formerly used as a dry cleaning facility. Three 750-gallon underground storage tanks ("USTs") formerly located north of Building 228 were used to store Stoddard solvent for the dry cleaning facility. A fuel distribution pipeline was formerly located along the south side of Building 228. The dry cleaning operations ceased circa 1985 and the USTs and fuel distribution pipeline were removed in 1993 (MACTEC, 2008). Soil samples collected in the vicinity of the former USTs, by others, identified concentrations of total petroleum hydrocarbons ("TPH") as gasoline and diesel as high as 4,100 milligrams per kilogram ("mg/kg") and 150 mg/kg, respectively. Soil samples collected in the vicinity of the former fuel distribution pipeline by others identified concentrations of TPH as diesel and fuel oil as high as 2,500 mg/kg and 2,400 mg/kg, respectively. Soils impacted by the former USTs and fuel distribution pipeline have been identified as remedial units (Figure 4) that will be managed by implementation of corrective actions by the Presidio Trust in accordance with the *Final Corrective Action Implementation Work Plan, Building 207/231 Area* (MACTEC, 2008).

Previous soil sampling in the vicinity of Building 228 has also indicated that elevated concentrations of metals, polynuclear aromatic hydrocarbons ("PAHs"), and TPH as diesel and motor oil are present in the fill material. Concentrations of TPH as diesel and motor oil in the fill material typically range from 10 to 250 mg/kg (MACTEC, 2008). In addition to lead from lead-based paint, COPCs in soil around Building 228 include leaking underground fuel tank ("LUFT") metals, TPH as gasoline, diesel, motor oil, and fuel oil, volatile organic compounds ("VOCs"), and PAHs.

A coal bin storage area, railroad tracks, fuel dispensing and storage area, and 1,000-gallon diesel UST were formerly located at and adjacent to the north portion of Building 605 (Figure 5). In 1996, the diesel UST was removed and soil samples collected from the bottom of the tank excavation contained concentrations of TPH as diesel and motor oil as high as 600 mg/kg and 96 mg/kg, respectively. Previous soil sampling in the vicinity of Building 605 has also indicated that elevated concentrations of metals and PAHs are present in the fill material (Treadwell & Rollo, 2005). In addition to lead from lead-based paint, COPCs in soil at Buildings 605 include LUFT metals, TPH as gasoline, diesel, motor oil, and fuel oil, VOCs, and PAHs.

4 FIELD ACTIVITIES

BASELINE submitted excavation clearance applications with the proposed soil sample locations and chemical analyses to the Presidio Trust for approval prior to field activities. The Presidio Trust approved the scope of work, and issued Dig Permits for soil sampling around Buildings 201, 204, 228, and 605. Site access was previously approved by the Presidio Trust under the *License to Enter and Conduct Geotechnical Investigations, Modification No. 2* ("License to Enter") issued for soil and groundwater sampling within Area B of the Presidio (Presidio Trust, 2008a). Copies of the Dig Permits and License to Enter are included in Appendix A.

Prior to field activities, a private utility locator, Otis Haskin, cleared all boring locations. Underground Service Alert was then contacted for utility clearance. All field activities were conducted under a site-specific Health and Safety Plan (Caltrans and Arup/PB Joint Venture, 2008). Soil sampling for COPCs around Buildings 201, 204, 228, and 605 was conducted in accordance with the *Presidio-Wide Lead-Based Paint in Soil Investigation Workplan* ("Lead Workplan") (Presidio Trust, 2008b) and the Dig Permits approved by the Presidio Trust.

Between 19 October and 20 November 2009, BASELINE collected soil samples at depths ranging from ground surface to approximately 3.5 feet below ground surface ("bgs") from borings around Buildings 201, 204, 228, and 605, in accordance with the Lead Workplan (Presidio Trust, 2008b). Borings were located approximately every 25 feet along the sides of each building exterior at the drip line. Additional soil borings were located approximately every 75 feet along the sides of each building exterior and five feet outside the drip line. Boring locations were adjusted in the field based on obstructions and are described in Section 5, below.

Soil borings were advanced to target depths either by drilling with direct-push equipment or by using a combination of digging tools such as a hand auger and digging bar (Table 1). Drilling and hand augering activities were conducted by Gregg Drilling & Testing, Inc. of Martinez, California, a C-57 licensed driller.

A professional BASELINE geologist supervised all drilling activities and logged lithology using the Unified Soil Classification System (Appendix B). Soil samples were collected by driving a sampler fitted with new 3-inch stainless steel tubes into the ground using either a direct-push technology ("DPT") rig or a hand-operated slide hammer. After the sample was retrieved, the stainless steel liners were capped and sealed with silicone tape. Soil sampling equipment was decontaminated between samples by scrubbing with a laboratory-grade detergent solution and rinsing in two sequential pails of potable water.

The soil samples were labeled and stored in a container immediately following collection. Each sample was labeled with the project name, sample date, sampler initials, and unique sample identification. Samples were identified with the building name (e.g., 201), sample matrix (soil sample ["SS"]), boring location number (e.g., 01), and sample interval in feet (e.g., 1.00-1.25) in accordance with the Lead Workplan and in general accordance with the *Presidio-wide Quality Assurance Project Plan, Sampling Analysis Plan* ("QAPP") (Tetra Tech, 2001). Equipment rinsate blanks included the identification of the sample boring (e.g., 201SS01) plus "RB". Field duplicate samples were identified as "DUP" plus the date and sample identification number. Duplicate samples were collected from the same boring as the target samples.

The soil samples were submitted to Curtis & Tompkins, Ltd. of Berkeley, California ("Curtis & Tompkins"), a state-certified laboratory, following proper chain-of-custody protocol. Discrete samples were composited by the laboratory for analysis of soluble lead. Composite samples were identified with the building name, sample matrix, boring locations, and range of sample depths in feet.

After collecting soil samples, borings were grouted with neat cement using a tremie pipe. Surface completions matched existing conditions (e.g., soil or asphalt). Chaudhary & Associates, a licensed surveyor, surveyed all the boring locations and provided coordinates in both Project datum (North America Datum ["NAD"] of 1983 and North American Vertical Datum ["NAVD"] of 1988) and Presidio Trust datum (NAD of 1927 and Presidio Low Low Water). Survey results are summarized in Table 1.

Two 55-gallon drums of drill cuttings and one 55-gallon drum of rinsate water were generated during drilling activities around the buildings. The drums were sealed, labeled, and stored at the drum storage area along Mason Street. On 20 November and 30 December 2009, the drums were sampled and analyzed for evaluation of waste disposal options. On 27 January 2010, Clearwater Environmental of Union City, California, picked up and disposed of the drums as non-hazardous waste at Alviso Independent Oil of Alviso, California. Waste disposal manifests are included in Appendix C.

5 BORING LOCATIONS AND SOIL CHARACTERISTICS

On 20 October 2009, BASELINE collected a total of 42 soil samples from 16 borings (201SS01 through 201SS16) near the drip line along the south, west, and north sides of Building 201. Three soil samples were collected from each boring located beneath the drip line between ground surface and 3.5 feet bgs. One shallow soil sample was collected from each boring located approximately 5 feet outside the drip line. Soil samples were not collected along the east side of the building due to the presence of concrete pavement and a wood deck. Borings 201SS01 through 201SS12 and 201SS14 through 201SS16 were drilled through approximately three inches of asphalt or concrete along the south, east, and north side of the building. Soils were exposed near the northeast corner of the buildings at boring 201SS13 (Figure 2). Fill material was encountered in each boring (Appendix B).

On 19 and 20 October 2009, BASELINE collected a total of 66 soil samples from 24 borings (204SS01 through 204SS24) near the drip line around Building 204. Three soil samples were collected from each boring located beneath the drip line between ground surface and 3.0 feet bgs. One shallow soil sample was collected from each boring located approximately 5 feet outside the drip line. Borings 204SS01 through 204SS14 were drilled through approximately three inches of asphalt along the west, north, and east sides of the building. Borings 204SS15 through 204SS24 were located in exposed soils along the south side of the building (Figure 3). Fill material was encountered in each boring (Appendix B).

On 19 and 20 November 2009, BASELINE collected a total of 37 soil samples from 15 borings (228SS01 through 228SS15) near the drip line around Building 228. Three soil samples were collected from each boring located beneath the drip line between ground surface and 3.5 feet bgs. One shallow soil sample was collected from each boring located approximately 5 feet outside the drip line. Borings 228SS01 through 228SS04 and 228SS09 through 228SS15 were drilled

through approximately six inches of asphalt. Borings 228SS05 through 228SS08 were located in exposed soils along the north side of the building (Figure 4). Fill material was encountered in each boring (Appendix B).

On 19 November 2009, BASELINE collected a total of 54 soil samples from 19 borings (605SS11 through 605SS29) near the drip line along the northeast, east, and southeast sides of Building 605. Three soil samples were collected from each boring located beneath the drip line between ground surface and 3.5 feet bgs. One shallow soil sample was collected from each boring located approximately 5 feet outside the drip line. Soil samples were not collected along the north side of the building, because soil samples were previously collected and evaluated for lead from lead-based paint in 2003 (Ninyo & Moore, 2003). Soil samples were also not collected along the west and south sides of the building and portions of the east side of the building where concrete pavement was present. Borings 605SS14 through 605SS29 were drilled through approximately six inches of asphalt. Borings 605SS11 through 605SS13 were located in exposed soils (Figure 5). Fill material was encountered in each boring (Appendix B).

6 SOIL SAMPLE ANALYSES

A total of 183 discrete soil samples were collected and analyzed for total lead by Environmental Protection Agency ("EPA") Method 6010B or 6020 (for those samples analyzed for LUFT metals). A total of 16 field duplicate samples were collected and analyzed for total lead by EPA Method 6010B. Two rinsate blanks were collected and analyzed for total lead by EPA Method 6020. In addition to analysis for total lead, all discrete soil samples were composited by the laboratory and analyzed for soluble lead. Each composite sample consisted of three or four discrete samples. Fifty-six composite soil samples were analyzed for soluble lead by the Waste Extraction Test ("WET"). Twenty-five composite samples were also analyzed for soluble lead by Toxicity Characteristic Leaching Procedure ("TCLP"), because the composite samples contained at least one discrete sample with total lead concentrations greater than 20 times the TCLP (or 100 mg/kg).

Four soil samples were collected from four borings around Building 228 between 2.0 and 3.5 feet bgs for analysis of COPCs associated with fill material and the former dry cleaning facility, former Stoddard solvent USTs, and former fuel distribution pipeline (Figure 4). The four soil samples were selectively analyzed for TPH as gasoline by EPA Method 8015B, TPH as diesel, motor oil, and fuel oil by EPA Method 8015B with silica-gel cleanup, VOCs by EPA Method 8260B, LUFT metals by EPA Method 6020, and PAHs by EPA Method 8310.

Six soil samples were collected from four borings along the east side of Building 605 between 2.0 and 3.5 feet bgs for analysis of COPCs associated with fill material and the former railroad tracks, former coal bin storage area, former fuel dispensing and storage area, and former diesel UST (Figure 5). The six soil samples were selectively analyzed for TPH as gasoline by EPA Method 8015B, TPH as diesel, motor oil, and fuel oil by EPA Method 8015B with silica-gel cleanup, VOCs by EPA Method 8021B, LUFT metals by EPA Method 6020, and PAHs by EPA Method 8310.

6.1 Laboratory Quality Assurance

Curtis & Tompkins performed laboratory analyses and quality assurance/quality control procedures in accordance with Presidio Trust's QAPP (Tetra Tech, 2001), with the 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) and *National Functional Guidelines for Inorganic Data Review* (EPA, 2004) ("National Functional Guidelines"), 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, and project-specific control limits. In addition, Level IV data validation packages were provided by Curtis & Tompkins and reviewed by LDC, as required by the Presidio Trust QAPP. LDC's data validation reports are in Appendix E. Electronic data in the Presidio Trust electronic data deliverable ("EDD") format are also provided on a compact disc with data qualifiers added by LDC (Appendix E).

7 ASSESSMENT APPROACH FOR SOIL REUSE, DISPOSAL, AND MANAGEMENT OPTIONS

Soil quality data were systematically screened against RCRA hazardous waste thresholds[3] (Code of Federal Regulations ["CFR"], 2009), Presidio Trust soil reuse criteria ("Cleanup Levels") specific to each building ("site"), California hazardous waste thresholds (California Code of Regulations ["CCR"], 2005), and California Regional Water Quality Control Board, San Francisco Bay Region ("Regional Water Board") Environmental Screening Levels ("ESLs") (Regional Water Board, 2008). Prior to considering soil reuse options, all soils were screened against RCRA and California hazardous waste thresholds to determine if the soil would be considered hazardous waste, once excavated. If soils were considered to be a non-hazardous waste, then options were evaluated for reusing soils around each building and outside the Presidio Trust Lands.

Soils considered to be non-hazardous waste were screened against site-specific Cleanup Levels to determine if soils could be reused around each building. Soils around a building with constituent concentrations exceeding site-specific Cleanup Levels must either be: 1) managed in-place by instituting land use controls ("LUCs"); 2) excavated for off-site disposal; 3) excavated and reused in appropriate land use areas designated by the Presidio Trust; or 4) excavated and reused in appropriate land use areas outside Presidio Trust Lands.

[3] The Resource Conservation and Recovery Act ("RCRA") defines certain wastes as hazardous under federal law.

Soils classified as non-hazardous waste were also screened against the Regional Water Board ESLs to evaluate potential reuse options outside Presidio Trust Lands. All soils were also screened against the Regional Water Board ESLs for construction workers to evaluate potential health risks from direct exposure to contaminated soils.

Data sets for lead concentrations in soil from lead-based paint around each building were considered unique populations, because the historical application of lead-based paint and maintenance of painted surfaces were unique to each building. Therefore, data sets of lead concentrations in soil around each building were evaluated separately to determine appropriate soil reuse, soil management, and disposal options.

Total lead concentrations reported for duplicate soil samples were considered representative of the overall heterogeneous distribution of total lead concentrations reported around each building. Therefore, the soil analytical results for duplicate samples were included in the evaluation of lead concentrations in soil around each building. Total lead concentrations reported for shallow soil samples collected from five feet outside the drip line of each building did not appear significantly different from lead concentrations in nearby shallow soil samples collected beneath the drip line. Therefore, the soil analytical results for soil samples collected five feet from the drip line were evaluated with soil samples collected beneath the drip line. Subsets of lead data were also evaluated for each building based on the surface conditions of the soil and the depth of soil samples collected, as described below.

Soils covered by asphalt or concrete may have lower concentrations of lead than exposed soils around the same building, because the covered soils have had less or no exposure to the lead-based paint. The general distributions of total lead concentrations beneath covered and exposed soils around each building were evaluated to determine if soils should be analyzed separately based on the surface conditions of the soil (i.e., covered soils versus exposed soils).

As the paint on the buildings deteriorates, loose or flaking lead-based paint chips may be surficially deposited over exposed soils; however, the lead particles usually do not migrate more than 2.5 feet bgs (Presidio Trust, 2008b). Therefore, total lead concentrations in soil from lead-based paint generally decrease with soil depth if the soils have not been disturbed. A decreasing trend in total lead concentrations at depth may not be apparent for soils that have been disturbed by previous grading or excavation activities (e.g., mixing of surface soils during utility excavations). The vertical gradient of total lead concentrations in soils was considered at approximate one-foot depth intervals around each building to determine if a decreasing trend in total lead concentrations was present and if subset analysis of separate sample depth intervals was appropriate.

Statistical analysis of select data sets for lead concentrations in soil from lead-based paint was performed to determine exposure point concentrations for comparison against screening criteria to evaluate disposal and reuse options. Statistical analysis was performed using guidelines and software developed by the EPA (EPA, 2010) and standard industry practices. ProUCL version 4.00.05 software was used to calculate the 90 or 95 percent upper confidence limits ("UCLs"), as appropriate, of the estimated mean for select data sets of lead concentrations in soil. The ProUCL software tests the data to determine if it is consistent with a normal, lognormal, or gamma distribution, and calculates UCLs using the appropriate statistical methods for the distributions identified. If the data set does not have a discernable distribution, ProUCL

will calculate the UCL using non-parametric methods. Duplicate soil samples were included in the statistical analysis of data sets by averaging the duplicate sample concentration of lead with the reported concentration of lead in the target sample.

7.1 Federal and California Hazardous Waste Thresholds

All soil analytical results were screened against RCRA and California hazardous waste thresholds. A soil, once excavated, may be classified as a RCRA hazardous waste, a California hazardous waste, or a non-hazardous waste depending on its toxicity characteristics. RCRA hazardous wastes must be disposed of at a Class I-permitted landfill in California. A non-RCRA, California hazardous waste must be disposed of at a Class I-permitted landfill in California or an out-of-state landfill permitted to accept such waste. Excavated soils that do not exceed the RCRA and California hazardous waste criteria can be evaluated for potential reuse or disposed of off-site as non-hazardous waste. Non-hazardous wastes are generally accepted at Class II- and Class III-permitted landfills in California, depending on the individual landfill's permit.

Soils are considered RCRA hazardous waste if they exhibit established characteristics of ignitability, corrosivity, reactivity, or toxicity. A waste is considered a RCRA hazardous waste if the soluble concentration of a chemical, as determined by TCLP, is greater than or equal to the toxicity thresholds established in Title 40 of the Code of Federal Regulations (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 RCRA hazardous waste, depending on the fraction of the total concentration that is soluble. There are no toxicity characteristics thresholds for total concentrations of chemicals for RCRA 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") or if the soluble concentration of a chemical, as determined by the WET, is greater than or equal to the Soluble Threshold Limit Concentration ("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, Section 66261.24 of the California Code of Regulations (CCR, 2005).

The EPA guidance document for evaluating hazardous wastes, *Test Methods for Evaluating Hazardous Waste, Physical/Chemical Methods* ("SW-846"), specifies that the one-tailed 90 percent UCL of a population mean (which is equivalent to the two-tailed 80 percent UCL) should be calculated and compared to hazardous waste thresholds. According to SW-846, if the calculated 90 percent UCL of a data set 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). The theoretical maximum soluble concentration of an analyte in a sample may be estimated by assuming that 100 percent of the total analyte concentration is soluble and taking into account that the WET results in a ten-fold dilution and the TCLP results in a twenty-fold dilution. The theoretical maximum soluble concentration represents the most conservative soluble concentration of an analyte for evaluating hazardous wastes.

7.2 Presidio Trust Reuse Criteria

The Presidio Trust has established Cleanup Levels for chemicals of concern in soil that are protective of human health and the environment. The Presidio Trust requires site-specific Cleanup Levels to be determined for each site based on the most stringent Cleanup Levels applicable to the site. The process for selecting site-specific Cleanup Levels is presented in the report *Development of Presidio-Wide Cleanup Levels for Soil, Sediment, Groundwater, and Surface Water* ("Cleanup Levels Document") (Erler & Kalinowski, Inc. ["EKI"], 2002). The Lead Workplan (Presidio Trust, 2008b) derived site-specific Cleanup Levels for lead in soil around Buildings 201, 204, 228, and 605 by selecting the most stringent Cleanup Levels for unrestricted land uses[4] from the Cleanup Levels Document. Site-specific Cleanup Levels for unrestricted land uses were also derived in this report for other COPCs in soils identified around Buildings 228 and 605 by selecting the most stringent Cleanup Levels for unrestricted land uses from the Cleanup Levels Document. Site-specific Cleanup Levels for COPCs around Buildings 228 and 605 were only derived for constituents detected above the laboratory reporting limits and are summarized in Table 2.

Soils around a building where all soil sample concentrations are below site-specific Cleanup Levels may be reused at the site if demonstrated to be a non-hazardous waste. Soils around a building where any soil sample concentration exceeds site-specific Cleanup Levels must either be managed in-place by instituting LUCs in accordance with the *Presidio Trust Land Use Controls Master Reference Report* (EKI, 2006), excavated for off-site disposal at a permitted facility, or excavated for reuse in other appropriate land use areas if demonstrated to be a non-hazardous waste.

7.3 Regional Water Board Environmental Screening Levels

Soil excavated during Project construction, demonstrated to be a non-hazardous waste, may be transported outside of Presidio Trust Lands 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/industrial land uses and construction workers for constituents 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 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 (Regional Water Board, 2008) are included in the summary of soil analytical results in Tables 3 through 7. The residential ESLs are more stringent than the ESLs for commercial/industrial land uses; therefore, any soil analytical results below the residential ESLs are also below the commercial/industrial ESLs. Soils analytical results were also screened against ESLs for construction workers (Regional Water Board, 2008) to provide information for Caltrans and/or the contractor to assess health and safety concerns.

[4] Buildings 201, 204, 228, and 605 are located in land use areas designated for recreation. However, selection of residential Cleanup Levels, as summarized in the Cleanup Levels Document (EKI, 2002), provides the opportunity for unrestricted land uses in the future.

The EPA Risk Assessment Guidance for Superfund specifies that the 95 percent UCL on the arithmetic average should be calculated and used as a reasonable estimate of the exposure concentration over time (EPA, 1989). Therefore, if the calculated 95 percent UCL of a data set is less than the ESL, then the chemical is not considered to be present above the threshold.

8 SOIL ANALYTICAL RESULTS

Analytical results for lead from lead-based paint in soil samples collected around Buildings 201, 204, 228, and 605 are summarized in Tables 3 through 6, respectively. Total lead concentrations in discrete soil samples ranged from 0.71 mg/kg to 24,000 mg/kg. Soluble lead concentrations analyzed by WET for composite soil samples ranged from less than 0.15 milligram per liter ("mg/L") to 38 mg/L. Soluble lead concentrations analyzed by TCLP for composite soil samples ranged from less than 0.031 mg/L to 0.72 mg/L.

Analytical results for other COPCs in soil samples collected around Buildings 228 and 605 are summarized in Table 7. Only constituents that were identified above laboratory reporting limits in at least one soil sample are presented in Table 7. No VOCs were identified above laboratory reporting limits in soil samples collected around Buildings 228 and 605 and, therefore, are not presented in Table 7.

Concentrations of lead were not reported above the laboratory reporting limits in the rinsate blanks collected at Building 228 and 605 (Appendix F). Concentrations of lead in duplicate samples were within the range of lead concentrations reported in other soil samples at each building, as described below.

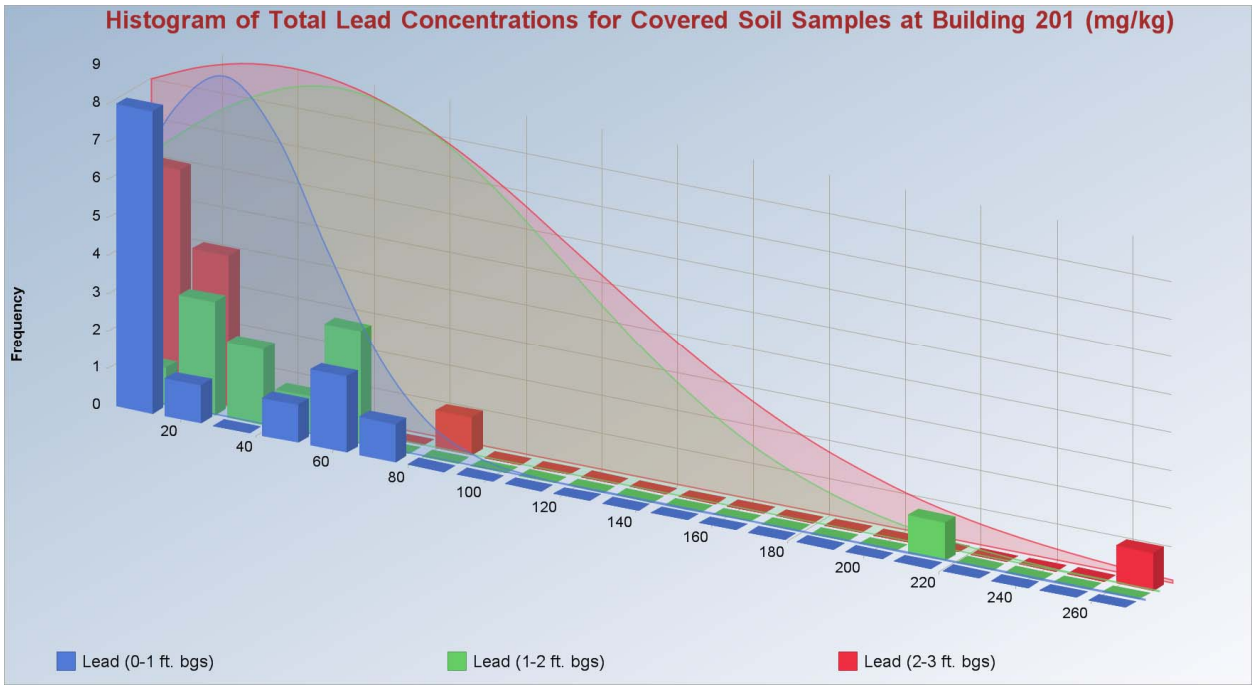
Site-specific Presidio Trust Cleanup Levels, hazardous waste thresholds, and Regional Water Board ESLs are listed in Tables 3 through 7 for constituents with established values. Constituent concentrations that equal or exceed the reuse criteria or hazardous waste thresholds are shaded in the tables. Laboratory reports are presented in Appendix F.

8.1 Building 201

The highest total lead concentrations in soil around Building 201 were reported in samples collected from boring 201SS13 near the northeast corner of the building at 0.00-0.25 foot bgs (1,100 mg/kg) and 0.50-0.75 foot bgs (540 mg/kg and 1,300 mg/kg[5]). Boring 201SS13 was the only sample location in an area of exposed soil. Soil samples collected from the other borings along the south, west, and north sides of the building were covered by asphalt or concrete and lead concentrations ranged from 1.1 mg/kg to 350 mg/kg. The concentrations of total lead reported in the area of exposed soils at boring 201SS13 appeared to be significantly higher than the lead concentrations reported in soil samples collected beneath covered surfaces around the building (Table 3 and Figure 2). Therefore, soil analytical results for exposed and covered soils around Building 201 were evaluated separately.

[5] Duplicate sample collected from boring 201SS13.

A decreasing trend of total lead concentrations in covered soil samples around Building 201 was not apparent based on soil samples collected at approximate one-foot depth intervals bgs, as shown in the histogram below.



Since the total lead concentrations did not appear to attenuate with depth, soils beneath covered surfaces around Building 201 have likely been disturbed by previous construction activities and the total lead data set was statistically evaluated as one population.

8.1.1 Assessment of Soil for Waste Disposal

Exposed Soils

Total lead concentrations for the two samples collected from exposed soils along the north side of Building 201 exceeded the TTLC of 1,000 mg/kg (Table 3 and Figure 2). Therefore, exposed soils from ground surface to at least 0.75 foot bgs along the north side of Building 201 would be considered a California hazardous waste, if excavated (Table 8). Additional testing will be required to determine if exposed soils excavated along the north side of Building 201 would be considered RCRA hazardous waste.

Covered Soils

Total lead concentrations for all covered soil samples along the south, west, and north sides of Building 201 were below the TTLC of 1,000 mg/kg. A total of twelve composites soil samples were analyzed for soluble lead by WET. Two of the composite samples collected less than one foot bgs reported WET lead concentrations above the STLC of 5 mg/L; however, these composite samples included discrete samples from exposed soils at boring 201SS13 (Figure 2), which are not representative of lead concentrations beneath covered surfaces. Two other composite samples representative of covered soils collected from less than one foot bgs reported WET lead concentrations below the STLC. The other eight covered composite soil samples

collected deeper than one foot bgs also reported WET lead concentrations below the STLC (Table 3).

To further evaluate WET lead concentrations for covered soils less than one foot bgs, ProUCL was used to calculate the 90 percent UCL for the theoretical maximum WET lead concentrations. The 90 percent UCL was calculated using nonparametric statistics, because the data did not have a discernable distribution at a 5 percent significance level. The 90 percent UCLs for theoretical maximum WET lead in covered soil samples less than one foot bgs ranged from 3.5 mg/L to 4.8 mg/L, which are less than the STLC of 5 mg/L. The UCL output file is provided in Appendix G.

Four of the 12 composite samples were also analyzed for soluble lead by TCLP, because at least one of the discrete samples contained total lead concentrations greater than 20 times the TCLP threshold. One of the composite samples included a discrete sample from exposed soils at boring 201SS13 (Figure 2), which is not representative of lead concentrations beneath covered surfaces; however, the TCLP lead concentration was less than the TCLP threshold. The TCLP lead concentrations for the other three composite samples were also less than the TCLP threshold (Table 3).

Based on reported total and soluble lead concentrations, the 90 percent UCLs calculated for the theoretical maximum WET lead concentrations, and TCLP lead concentrations, covered soils along the south, west, and north sides of Building 201 would not be considered a RCRA or California hazardous waste due to lead, if excavated (Table 8).

8.1.2 Assessment of Soil Reuse and Management within Presidio Trust Lands

The site-specific Cleanup Levels for lead from lead-based paint in soil around Building 201 (Presidio Trust, 2008b) require that lead concentrations not exceed an average of 370 mg/kg and a maximum of 400 mg/kg.

Exposed Soils

Exposed soils along the north side of Building 201 would be considered California hazardous waste, as discussed in Section 8.1.1. Therefore, these soils may not be reused around the building (Table 8). Soils left in-place would require implementation of LUCs, because all lead concentrations from exposed soils along the north side of Building 201 exceeded the site-specific Cleanup Levels (Table 3 and Figure 2).

Covered Soils

The maximum lead concentration (350 mg/kg) for covered soils along the south, west, and north sides of Building 201 was below the site-specific Cleanup Level of 400 mg/kg, and the average concentration (51 mg/kg) was below the maximum average of 370 mg/kg (Table 3 and Figure 2). Therefore, the covered soils around Building 201 would not require further action by the Presidio Trust and could be reused around the building (Table 8).

8.1.3 Assessment of Soil Reuse Outside Presidio Trust Lands

Exposed Soils

Exposed soils along the north side of Building 201 would be considered California hazardous waste, as discussed in Section 8.1.1. Therefore, these soils may not be reused outside Presidio Trust lands (Table 8).

Covered Soils

Two duplicate soils samples (DUP102009-3 and DUP102009-4) contained total lead concentrations above the residential ESL (Table 3). Therefore, ProUCL was used to calculate the 95 percent UCL for the total lead concentrations in covered soil samples. ProUCL recommended using gamma distribution statistics to calculate the 95 percent UCL of total lead concentrations. The 95 percent approximate gamma UCL of total lead concentrations for covered soil samples was 55 mg/kg, which is less than the residential ESL for lead of 200 mg/kg (Regional Water Board, 2008). The UCL output file is provided in Appendix G.

Based on the total lead concentrations and calculated 95 percent UCL of total lead concentrations, representative concentrations in covered soils along the south, west, and north sides of Building 201 are below the residential and commercial/industrial ESLs. Therefore, this soil could potentially be reused outside Presidio Trust Lands for residential or commercial/industrial land uses (Table 8).

8.1.4 Assessment of Construction Worker Health and Safety

Exposed Soils

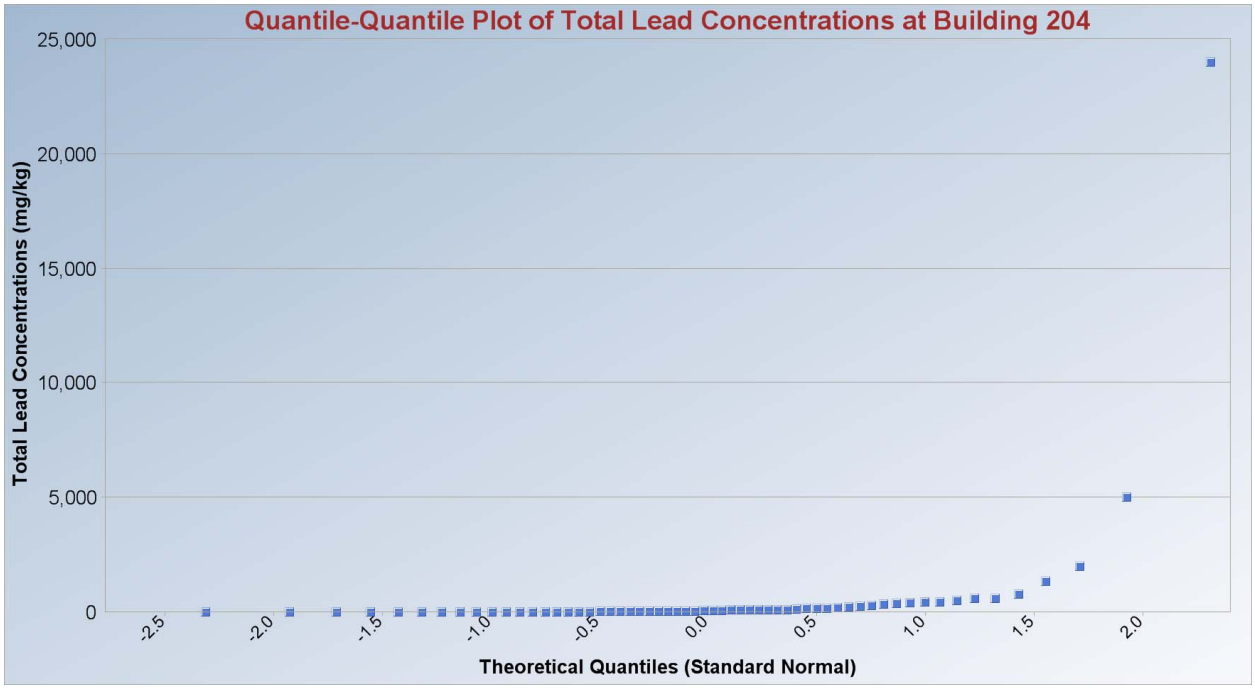
Total lead concentrations for all samples collected from exposed soils along the north side of Building 201 exceeded the Regional Water Board ESL of 750 mg/kg for construction workers (Regional Water Board, 2008) (Table 3 and Figure 2). Therefore, lead concentrations may pose a health risk to construction workers directly exposed to soils along the north side of Building 201 without specific health and safety provisions (Table 8).

Covered Soils

Total lead concentrations for all covered soils along the south, west, and north side of Building 201 were below the Regional Water Board ESL of 750 mg/kg for construction workers (Regional Water Board, 2008) (Table 3 and Figure 2). Therefore, lead concentrations would not be expected to pose a health risk to construction workers directly exposed to soils beneath covered surface along the south, west, and north sides of Building 201 (Table 8).

8.2 Building 204

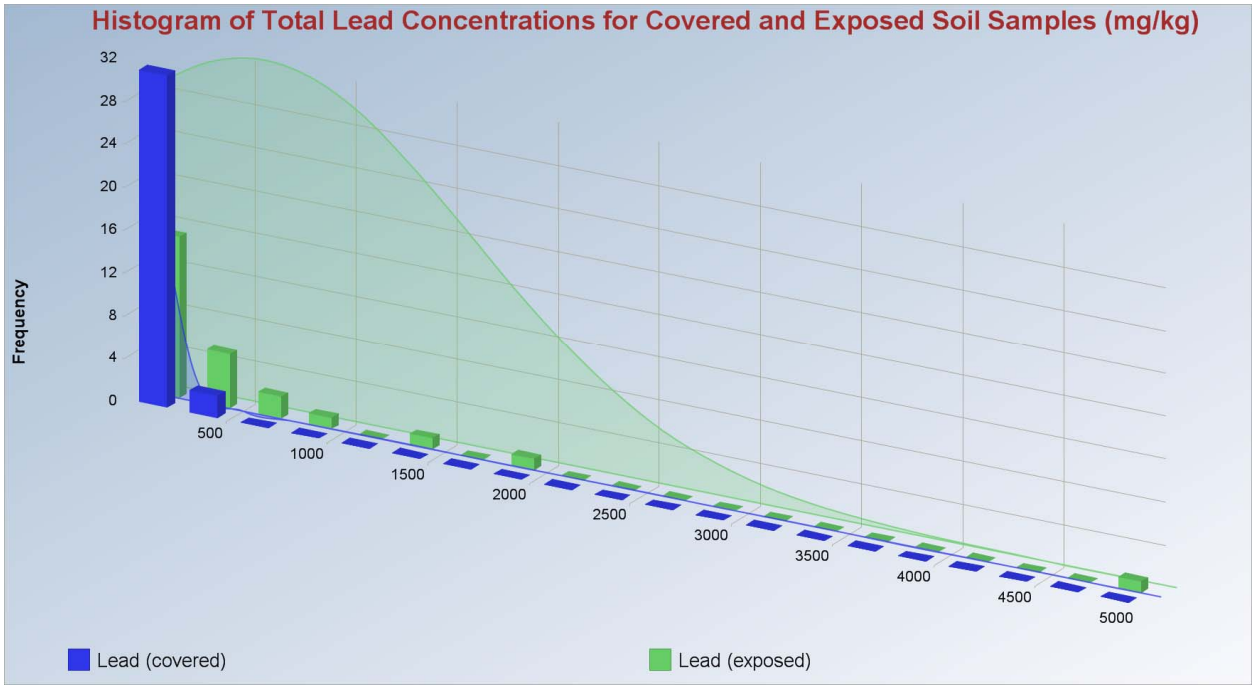
The highest total lead concentration in soil around Building 204 was reported in sample 204SS09;2.25-2.75 (24,000 mg/kg); this concentration was significantly greater than all other reported total lead concentrations in soils samples collected around the building (Table 4). As shown in the quantile-quantile plot below, the concentration of total lead appears to constitute an outlier.



ProUCL was used to confirm that the total lead concentration for sample 204SS09;2.25-2.75 was an outlier within the data set of all soil sample collected around Building 204 using the Rosner Outlier Test (Appendix G). The total lead concentration reported for sample 204SS09;2.25-2.75 was therefore excluded from statistical analyses of exposure point concentrations. Exclusion of this soil sample in statistical analyses for pre-classification of hazardous wastes would not change the soil classification since the covered soils around Building 204 would still be considered hazardous waste, as discussed below in Section 8.2.2.

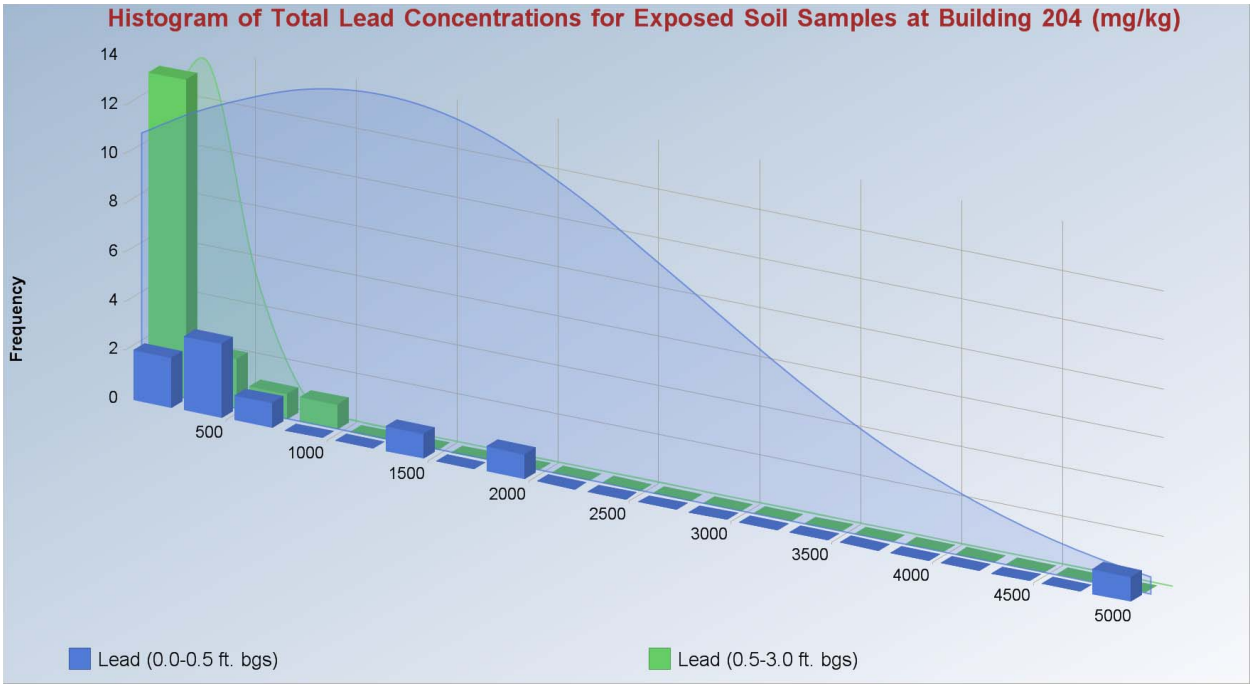
The concentrations of total lead in soil samples collected beneath covered surfaces along the west, north, and east sides of Building 204 generally appeared to be less than the total lead concentrations in samples collected from exposed soils along the south side of Building 204 (Table 4 and Figure 3), as shown in the histogram below.[6]

[6] The total lead result for covered soil sample 204SS09; 2.25-2.75 was excluded from the histogram.



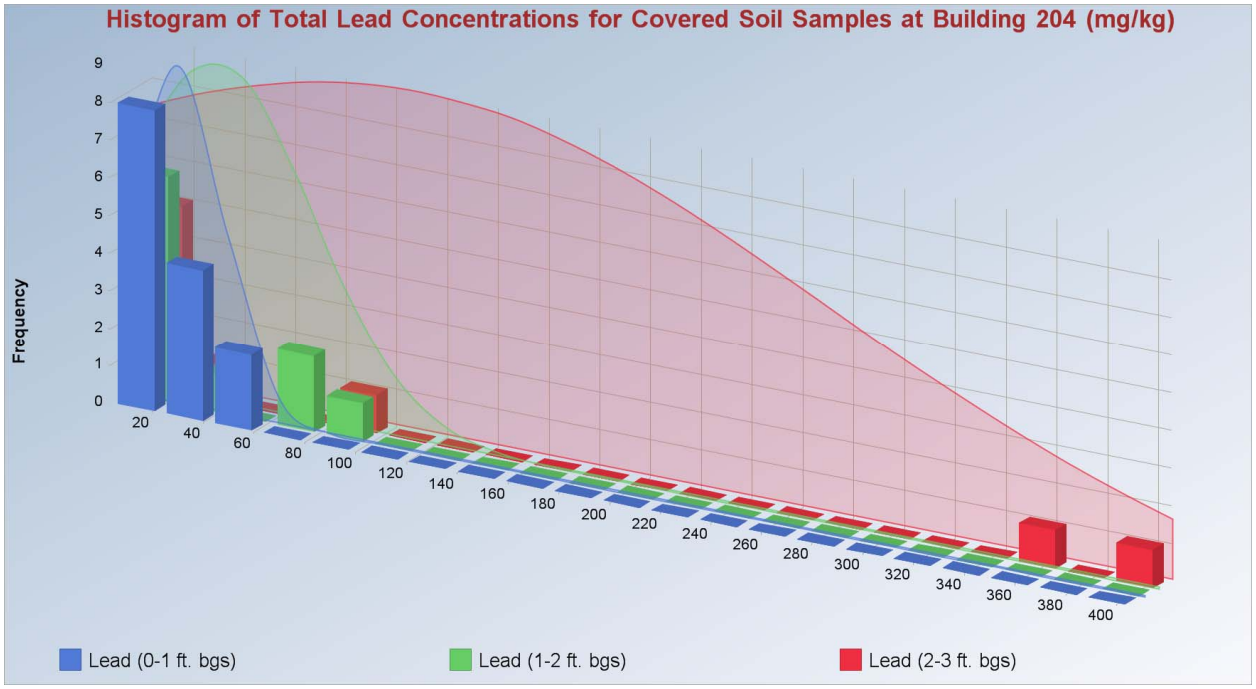
Based on the unique distributions, total lead concentrations for samples collected from exposed soils and beneath covered surface around Building 204 (Figure 3) were evaluated separately.

Total lead concentrations were generally higher in soil samples collected less than 0.5 foot bgs than those collected from soil samples deeper than 0.5 foot bgs in exposed soils at Building 204 (Table 4), as shown in the histogram below.



Based on the unique distributions, total lead concentrations for exposed soil samples collected less than 0.5 foot bgs were evaluated separately from samples collected deeper than 0.5 foot bgs.

A decreasing trend of total lead concentrations in covered soil samples around Building 204 was not apparent based on soil samples collected at approximate one-foot depth intervals bgs, as shown in the histogram below.[7]



Since the total lead concentrations did not appear to attenuate with depth, soils beneath covered surfaces around Building 204 have likely been disturbed by previous construction activities and the total lead data set were statistically evaluated as one population.

8.2.1 Assessment of Soil for Waste Disposal

Exposed Soils

Total lead concentrations of four of the 29 samples from exposed soils around Building 204 from less than 0.5 foot bgs exceeded the TTLC of 1,000 mg/kg. None of the total lead concentrations for exposed soils deeper than 0.5 foot bgs exceeded the TTLC (Table 4).

Five composite soil samples, representative of exposed soils, were analyzed for soluble lead by WET.[8] Two of the composite soil samples, collected from less than 0.5 foot bgs, contained WET lead above the STLC of 5 mg/L. One of the three composite soil samples collected from deeper than 0.5 foot bgs also reported WET lead above the STLC (Table 4).

[7] The total lead result for covered soil sample 204SS09; 2.25-2.75 was excluded from the histogram.

[8] Five other composite samples were analyzed that contained a combination of discrete samples from beneath covered surfaces and exposed soils. These composite samples are not considered representative of exposed soil quality.

The calculated 90 percent UCLs for the theoretical maximum WET lead concentrations in exposed soils less than 0.5 feet bgs ranged from 210 to 270 mg/L assuming the apparent lognormal and gamma distributions of the data. The calculated 90 percent UCLs for the theoretical maximum WET lead concentrations in exposed soils deeper than 0.5 feet bgs ranged from 30 to 31 mg/L assuming the apparent gamma distribution of the data. The calculated 90 percent UCLs for the theoretical maximum WET lead concentrations in exposed soils were all greater than the STLC for WET lead of 5 mg/L. The UCL output files are provided in Appendix G.

The five composite soil samples representative of exposed soils were also analyzed for soluble lead by TCLP. None of the TCLP lead concentrations exceeded the TCLP threshold (Table 4).

Based on the reported total and soluble lead concentrations, the 90 percent UCL calculations for theoretical maximum WET lead concentrations, and TCLP lead concentrations, exposed soils from ground surface to at least three feet bgs around Building 204 would be considered a California hazardous waste, but not RCRA hazardous waste (Table 8).

Covered Soils

Total lead concentrations for covered soil samples around Building 204 were below the TTLC of 1,000 mg/kg, except for sample 204SS09;2.25-2.75 (Table 4). A total of seven composite soil samples representative of soils beneath covered surfaces were analyzed for soluble lead by WET.[9] Two of the seven composite soil samples reported WET lead concentrations above the STLC of 5 mg/L (Table 4); one of these composite samples included sample 204SS09;2.25-2.75 (which has been determined to be a statistical outlier at 24,000 mg/kg of total lead).

The calculated 90 percent UCLs for the theoretical maximum WET lead concentrations in covered soils ranged from 6.6 to 7.4 mg/L assuming the apparent lognormal distribution of the data;[10] these were above the STLC of 5 mg/L for WET lead. The UCL output file is provided in Appendix G.

Three of the seven composite samples, representative of covered soils, were also analyzed for soluble lead by TCLP, because at least one of the discrete samples contained total lead concentrations greater than 20 times the TCLP threshold. None of the TCLP lead concentrations exceeded the TCLP threshold (Table 4).

Based on reported total and soluble lead concentrations, the 90 percent UCL calculations for theoretical maximum WET lead concentrations, and TCLP lead concentrations, covered soils from ground surface to at least 2.75 feet bgs around Building 204 would be considered California hazardous waste, but not RCRA hazardous waste (Table 8).

[9] Five other composite samples were analyzed that contained a combination of discrete samples from beneath covered surfaces and exposed soils. These composite samples are not considered representative of soil quality beneath covered surfaces.

[10] The theoretical maximum WET lead concentration for Sample 204SS09; 2.25-2.75 was excluded from the data set since this sample was previously identified as an outlier.

8.2.2 Assessment of Soil Reuse and Management within Presidio Trust Lands

The site-specific Cleanup Levels for lead from lead-based paint in soil around Building 204 (Presidio Trust, 2008b) require that lead concentrations not exceed an average of 370 mg/kg and a maximum of 400 mg/kg.

Exposed Soils

Exposed soils around Building 204 would be considered California hazardous waste, as discussed in Section 8.2.1. Therefore, these soils may not be reused around the building (Table 8). Soils left in-place would require implementation of LUCs, because exposed soils contained concentrations of total lead above the site-specific Cleanup Level of 400 mg/kg in 12 of 29 samples (Table 4 and Figure 3).

Covered Soils

Covered soils around Building 204 would be considered California hazardous waste, as discussed in Section 8.2.1. Therefore, these soils may not be reused around the building (Table 8). Soils left in-place would require implementation of LUCs, because covered soils contained concentrations of total lead above the site-specific Cleanup Level of 400 mg/kg in three of 37 samples (Table 4 and Figure 3). Therefore covered soils around Building 204 could not be reused around the building and would require implementation of LUCs if left in-place (Table 8).

8.2.3 Assessment of Soil Reuse Outside Presidio Trust Lands

Exposed Soils

Exposed soils around Building 204 (Figure 3) would be considered California hazardous waste, as discussed in Section 8.2.1. Therefore, these soils may not be reused outside Presidio Trust Lands (Table 8).

Covered Soils

Covered soils around Building 204 would be considered California hazardous waste, as discussed in Section 8.2.1. Therefore, these soils may not be reused outside Presidio Trust Lands (Table 8).

8.2.4 Assessment of Construction Worker Health and Safety

Exposed Soils

Total lead concentrations in five of 29 exposed soil samples around Building 204 exceeded the Regional Water Board ESL of 750 mg/kg for construction workers (Regional Water Board, 2008) (Table 4 and Figure 3). ProUCL was used to calculate the 95 percent UCL for the total lead concentrations in exposed soil samples collected from all sample depths. ProUCL recommended using gamma distribution statistics to calculate the 95 percent UCL of total lead concentrations. The 95 percent approximate gamma UCL of total lead concentrations for exposed soil samples was 890 mg/kg (Appendix G), which exceeds the Regional Water Board ESL for construction workers. Therefore, lead concentrations may pose a health risk to construction workers directly exposed to uncovered soils around Building 204 without specific health and safety provisions (Table 8).

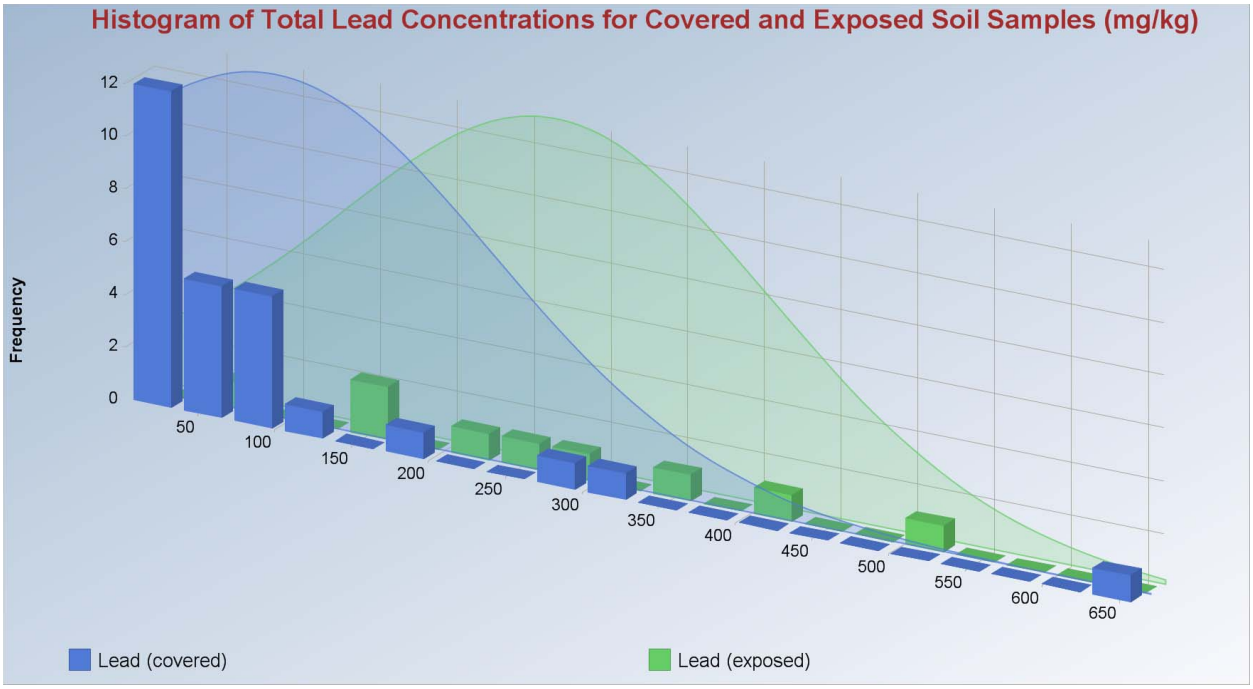
Covered Soils

The total lead concentrations reported in covered soil samples around Building 204 were below the Regional Water Board ESL of 750 mg/kg for construction workers (Regional Water Board, 2008), except for soil sample 204SS09;2.25-2.75 (24,000 mg/kg) (Table 4 and Figure 3). Sample 204SS09;2.25-2.75, which was previously identified as a data outlier, is not considered representative of the exposure point concentration for total lead in covered soils; however, the sample concentration indicates that there are one or more isolated areas of soil that may pose a health risk to construction workers directly exposed to the soils without specific health and safety provisions (Table 8).

8.3 Building 228

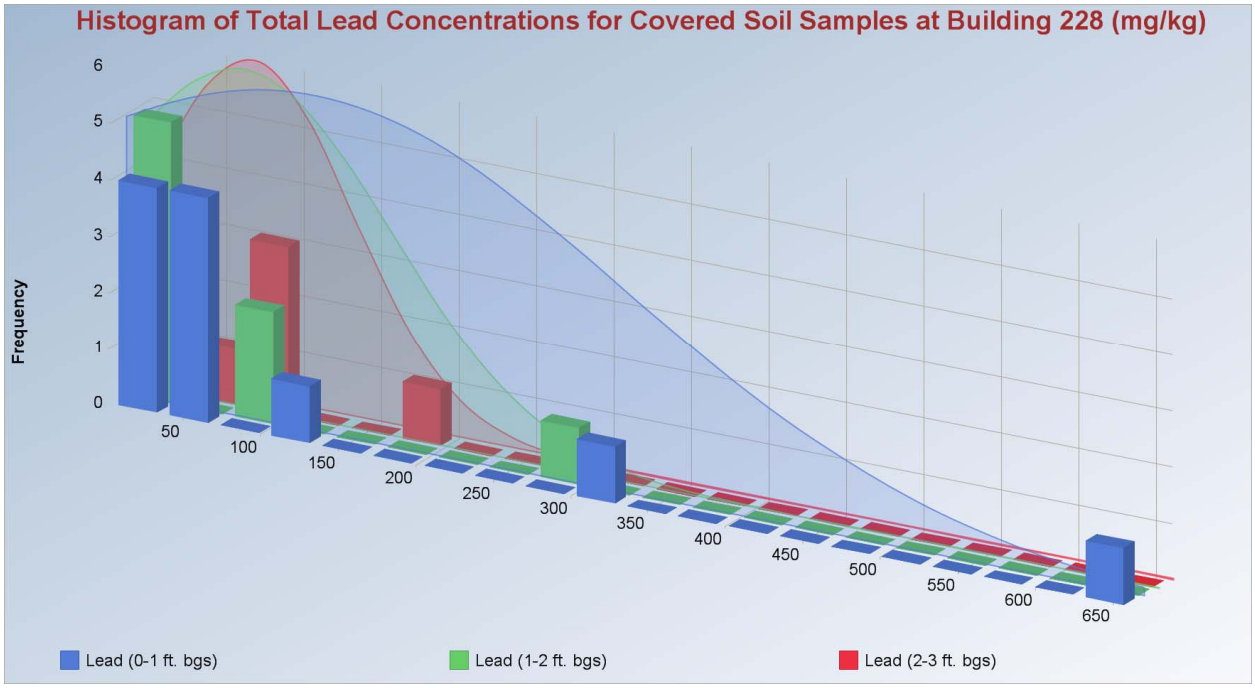
Four soil samples were analyzed for COPCs associated with fill material and the former dry cleaning facility, Stoddard solvent USTs, and fuel distribution pipeline at Building 228. The four samples contained concentrations of LUFT metals and TPH as diesel, motor oil, and fuel oil above laboratory reporting limits. Concentrations of TPH as gasoline and VOCs were not identified above laboratory reporting limits; one sample analyzed for PAHs also did not contain concentrations above the laboratory reporting limits (Table 7).

All soil samples analyzed for lead from lead-based paint contained concentrations of total lead above the laboratory reporting limit. The concentrations of total lead from soil samples collected beneath covered surfaces along the west, east, and south sides of Building 228 generally appeared to be less than the total lead concentrations in samples collected from exposed soils along the north side of Building 204 (Table 5 and Figure 4), as shown in the histogram below.



Based on the unique distributions, total lead concentrations for samples collected from exposed soils and beneath covered surfaces around Building 228 (Figure 4) were evaluated separately.

The data set for exposed soil samples around Building 228 did not appear to show a consistent attenuation of lead concentrations with depth. A decreasing trend of total lead concentrations in covered soil samples around Building 228 was also not apparent based on soil samples collected at approximate one-foot depth intervals bgs (Table 5), as shown in the histogram below.



Since the total lead concentrations do not appear to attenuate with each depth interval, soils beneath covered and exposed surfaces around Building 228 have likely been disturbed by previous construction activities and the total lead data set were statistically evaluated as one population.

8.3.1 Assessment of Soil for Waste Disposal

The only COPC around Building 228 that had concentrations exceeding hazardous waste thresholds was lead (Table 5 and Table 7).

Exposed Soils

Total lead concentrations for all nine samples of exposed soil around Building 228 were less than the TTLC of 1,000 mg/kg. Two composite soil samples representative of exposed soils were collected less than one foot bgs and analyzed for WET lead.[11] The WET lead concentrations for the two composite soil samples were reported above the STLC of 5 mg/L (Table 5).

The calculated 90 percent UCLs for the theoretical maximum WET lead concentrations in exposed soils ranged from 33 to 45 mg/L assuming the apparent normal, lognormal, and gamma distributions of the data; these concentrations were all greater than the STLC for WET lead of 5 mg/L. The UCL output file is provided in Appendix G.

[11] One other composite sample was analyzed that contained a combination of discrete samples from beneath covered surfaces and exposed soils. This composite sample is not considered representative of exposed soil quality.

The two composite soil samples representative of exposed soils were also analyzed for soluble lead by TCLP. The TCLP lead concentrations did not exceed the TCLP threshold (Table 5).

Based on the reported total lead and soluble lead concentrations, the 90 percent UCL calculations for theoretical maximum WET lead concentrations, and TCLP lead concentrations, exposed soils from ground surface to at least 2.5 feet bgs around Building 228 would be considered California hazardous waste, but not RCRA hazardous waste (Table 8).

Covered Soils

Total lead concentrations for all 28 covered soil samples around Building 228 were less than the TTLC of 1,000 mg/kg. Ten composite soil samples representative of covered soils were collected and analyzed for WET lead.[12] The WET lead concentrations for five of the ten composite samples exceeded the STLC of 5 mg/L (Table 5).

The calculated 90 percent UCLs for the theoretical maximum WET lead concentrations in covered soils ranged from 13 to 20 mg/L assuming the apparent lognormal and gamma distributions of the data; these concentrations were all greater than the STLC for WET lead of 5 mg/L. The UCL output file is provided in Appendix G.

The ten composite soil samples representative of covered soils were also analyzed for soluble lead by TCLP. None of the TCLP lead concentrations exceeded the TCLP threshold (Table 5).

Based on the reported total lead and soluble lead concentrations, the 90 percent UCL calculated for theoretical maximum WET lead concentrations, and the TCLP lead concentrations, covered soils from ground surface to at least 3.5 feet bgs around Building 228 would be considered California hazardous waste, but not RCRA hazardous waste (Table 8).

8.3.2 Assessment of Soil Reuse and Management within Presidio Trust Lands

The site-specific Cleanup Levels for lead from lead-based paint in soil around building 228 (Presidio Trust, 2008b) require that total lead concentrations not exceed 300 mg/kg.

Exposed Soils

Exposed soils around Building 228 would be considered California hazardous waste, as discussed in Section 8.3.1. Therefore, these soils may not be reused around the building (Table 8). Soils left in-place would require implementation of LUCs, because exposed soils contained concentrations of total lead above the site-specific Cleanup Level of 300 mg/kg in three of nine samples (Table 5 and Figure 4).

Covered Soils

Covered soils around Building 228 would be considered California hazardous waste, as discussed in Section 8.3.1. Therefore, these soils may not be reused around the building (Table 8). Soils left in-place would require implementation of LUCs, because covered soils

[12] One other composite sample was analyzed that contained a combination of discrete samples from beneath covered surfaces and exposed soils. This composite sample is not considered representative of soil quality beneath covered surfaces.

contained concentrations of total lead above the site-specific Cleanup Level of 300 mg/kg in two of 28 samples (Table 5 and Figure 4).

Concentrations of total lead also exceeded site-specific Cleanup Levels for petroleum related compounds in samples from borings 228SS02, 228SS05, and 228SS10; however, the lead concentrations were similar to lead concentrations from lead-based paint observed in other soils samples collected around the building and do not appear to be additionally elevated due to petroleum (Tables 5 and 7).

Concentrations of TPH as motor oil and fuel oil were both reported at 200 mg/kg in soil samples collected from borings 228SS02 and 228SS10, which exceeds the site-specific Cleanup Levels for Building 228 (Table 7). The reported concentrations of TPH as motor oil and fuel oil were within the range of 10 to 250 mg/kg of TPH as motor oil previously reported for fill material in the vicinity of Building 228 (MACTEC, 2008). The presence of TPH as motor oil and fuel oil above unrestricted site-specific Cleanup Levels for Building 228 does not change the soil management strategy determined by elevated lead concentrations in the soil.

8.3.3 Assessment of Soil Reuse Outside Presidio Trust Lands

Exposed Soils

Exposed soils around Building 228 (Figure 4) would be considered California hazardous waste, as discussed in Section 8.3.1. Therefore, these soils may not be reused outside Presidio Trust Lands (Table 8).

Covered Soils

Covered soils around Building 228 (Figure 4) would be considered California hazardous waste, as discussed in Section 8.3.1. Therefore, these soils may not be reused outside Presidio Trust Lands (Table 8).

8.3.4 Assessment of Construction Worker Health and Safety

Soil analytical results for soil samples analyzed for COPCs associated with fill material and the former dry cleaning facility, former Stoddard solvent USTs, and former fuel distribution pipeline around Building 228 did not exceed the Regional Water Board ESLs for construction workers (Table 5 and Table 7). The assessment of worker health and safety for managing soils impacted be lead from lead-based paint is summarized below.

Exposed Soils

Total lead concentrations in all nine soil samples of exposed soils around Building 228 were below the Regional Water Board ESL of 750 mg/kg for construction workers (Regional Water Board, 2008) (Table 5 and Figure 4). Therefore, lead concentrations would not be expected to pose a health risk to construction workers directly exposed to uncovered soils around Building 228 (Table 8).

Covered Soils

Total lead concentrations in all 28 samples of covered soil around Building 228 were below the Regional Water Board ESL of 750 mg/kg for construction workers (Regional Water Board, 2008) (Table 5 and Figure 4). Therefore, lead concentrations would not be expected to

pose a health risk to construction workers directly exposed to soils beneath covered surfaces around Building 228 (Table 8).

8.4 Building 605

The six soil samples analyzed for COPCs associated with fill material and the former railroad tracks, coal bin storage area, fuel dispensing and storage area, and diesel UST at Building 605 contained concentrations of LUFT metals, PAHs, and TPH as diesel, motor oil, and fuel oil above laboratory reporting limits. Concentrations of TPH as gasoline and VOCs were not identified above laboratory reporting limits (Table 7).

All soil samples analyzed for lead from lead-based paint contained concentrations of total lead above the laboratory reporting limit. Concentrations of total lead reported for soil samples collected from exposed soils (borings 605SS11 through 605SS13) appeared similar to concentrations reported for soil samples collected beneath covered surfaces (borings 605SS14 through 605SS29) (Table 6). Therefore, soil samples collected from exposed soils and beneath covered surfaces were evaluated together.

8.4.1 Assessment of Soil for Waste Disposal

Lead concentrations were not reported above the TTLC in any of the 54 samples around Building 605 analyzed for lead (Table 6). Concentrations of other metals were also below the TTLC in the four samples analyzed for other COPC (Table 7).

Fourteen composite soil samples were collected and analyzed for WET lead. The WET lead concentrations for the composite soil samples were reported below the STLC of 5 mg/L (Table 6).

Two of the 14 composite soil samples were also analyzed for soluble lead by TCLP, because at least one of the discrete samples contained total lead concentrations greater than 20 times the TCLP threshold. The TCLP lead concentrations did not exceed the TCLP threshold of 5 mg/L (Table 6).

Based on the soil analytical results, soils around Building 605 within the limits of this investigation would not be considered RCRA or California hazardous waste (Table 8).

8.4.2 Assessment of Soil Reuse and Management within Presidio Trust Lands

The site-specific Cleanup Level for lead from lead-based paint in soil around Building 605 requires that lead concentrations do not exceed 300 mg/kg. None of the soils samples analyzed for total lead from lead-based paint around Building 605 (Table 6) exceeded this site-specific Cleanup Level (Presidio Trust, 2008b).

Concentrations of TPH as diesel exceeded the site-specific Cleanup Levels for Building 605 in one of four samples analyzed for TPH as diesel (boring 605SS11). Concentrations of TPH as motor oil and fuel oil exceeded the site-specific Cleanup Levels for Building 605 in two of four samples analyzed for TPH motor oil and fuel oil (borings 605SS11 and 605SS12). A concentration of benzo(a)pyrene was reported at 0.084 mg/kg in a soil sample collected from boring 605SS15, which exceeds the site-specific Cleanup Levels for Building 605 (Table 7). The

reported concentration of benzo(a)pyrene is within the range of 0.032 to 2.9 mg/kg of benzo(a)pyrene previously reported for fill material sampled in the vicinity of Building 605 (Treadwell & Rollo, 2005), which could indicate that concentrations of benzo(a)pyrene above site Cleanup Levels extend across other portions of the site. Soils around Building 605 may not be reused around the building and would require implementation of LUCs if left in-place (Table 8).

8.4.3 Assessment of Soil Reuse Outside Presidio Trust Lands

Total lead from lead-based paint exceeded the residential ESL of 200 mg/kg in one of the 54 soil samples (sample 605SS22;2.5-3.0 had 210 mg/kg) (Table 6). ProUCL was used to calculate the 95 percent UCL for the total lead concentrations for the samples collected along the northeast, east, and southeast side of Building 605. ProUCL recommended using gamma distribution statistics to calculate the 95 percent UCL of total lead concentrations. The 95 percent approximate gamma UCL of total lead concentrations was 33 mg/kg, which is less than the residential ESL for lead (Regional Water Board, 2008). Based on the calculated 95 percent UCL for total lead concentrations, lead in soils along the northeast, east, and southeast side of Building 605 would not limit the potential reuse of these soils outside of Presidio Trust Lands for residential or commercial/industrial purposes (Table 8). The UCL output file is provided in Appendix G.

Total petroleum hydrocarbons as diesel exceeded the Regional Water Board ESL of 83 mg/kg for residential and commercial/industrial land uses in soil sample 605SS11;2.0-2.5 (160 mg/kg). Concentrations of dibenz(a,h)anthracene exceeded the Regional Water Board ESL of 0.062 mg/kg for residential land uses in samples 605SS12;2.0-2.5 (0.095 mg/kg) and 605SS15;2.5-3.0 (0.084 mg/kg). Benzo(a)pyrene also exceeded the Regional Water Board ESL of 0.038 mg/kg for residential land uses in soil sample 605SS15;2.5-3.0 (0.084 mg/kg) (Table 7). Based on the results of this investigation, soils along the northeast, east, and southeast sides of Building 605 may not meet Regional Water Board criteria for reuse. Sampling of excavated and stockpiled soils from this area would be required prior to consideration for reuse outside Presidio Trust Lands.

8.4.4 Assessment of Construction Worker Health and Safety

No COPCs in any soil samples along the northeast, east, and southeast sides of Building 605 exceeded the Regional Water Board ESL concentrations for construction workers. Therefore, soils around Building 605 would not be expected to pose a health risk to construction workers directly exposed to the soils (Tables 6, 7, and 8).

9 CONCLUSIONS

Potential reuse, disposal, and management options for soils around Buildings 201, 204, 228, and 605 are summarized in Table 8. The lateral and vertical extent of soil impacts were not defined around each building. A more detailed evaluation should be performed prior to or during soil excavation activities that extend beyond the limits of this investigation; deeper than approximately 3.5 feet bgs (maximum soil sample depth) or beyond five feet from the drip line of each building.

9.1 Waste Classification

The following areas are classified as California hazardous wastes:

- Exposed soils along the north side of Building 201;
- All soils around Building 204; and
- All soils around Building 228.

Additional soil analysis should be performed for exposed soils along the north side of Building 201 to determine if the soils would be considered RCRA hazardous waste.

9.2 Soil Reuse and Management within Presidio Trust Lands

Soils beneath covered surfaces along the south, west, and north side of Building 201 may be reused on site. The following areas contain at least one sample with a constituent concentration above the site-specific Cleanup Levels and Presidio Trust would require implementation of LUCs if left in-place:

- Exposed soils along the north side of Building 201;
- All soils around Building 204;
- All soils around Building 228; and
- All soils around Building 605.

9.3 Soil Reuse Outside Presidio Trust Lands

Soil analytical results, screened against ESLs in shallow soils for residential and commercial/industrial land uses where groundwater is a current or potential drinking water source, indicated that non-hazardous soils beneath covered surface around Buildings 201 could potentially be reused outside of Presidio Trust Lands. Non-hazardous soils around Building 605 contained one or more soil samples with concentrations of TPH as diesel, benzo(a)pyrene, and dibenz(a,h)anthracene above residential ESLs. A more detailed evaluation should be performed to assess specific scenarios of possible soil reuse once the actual soils proposed for off-site reuse have been determined.

9.4 Construction Worker Health and Safety

The following areas may pose a health risk to construction workers directly exposed to the soils without specific health and safety provisions:

- Exposed soils along the north side of Building 201; and
- All soils around Building 204.

10 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.

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FIGURES

LEGEND:

APPROXIMATE ROOF LINE OF BUILDINGS IN STUDY AREA

MASON STREET

BUILDING 605

VALLEJO STREET

RICHARDSON AVENUE

EXISTING DOYLE DRIVE

HALLECK ST

BUILDING 204

YOUNG STREET

BUILDING 201

HALLECK STREET

BUILDING 228

SAN FRANCISCO COUNTY TRANSPORTATION AUTHORITY

Caltrans

ARUP PB joint venture

DOYLE DRIVE REPLACEMENT PROJECT
Environmental Soil Investigation-Buildings 201, 204, 228 and 605
Regional Location Map
FIGURE 1 - JULY 16, 2010 - Rev.02

REFERENCE BASEMAP FROM CALTRANS TOPO SURVEY 2008.04.04

0 40 80
FEET

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2010-07-09 Soil Lead Sampling adj Bldg, Site Vicinity Map, Figure 1.dgn

LEGEND:

APPROXIMATE ROOF LINE OF BUILDING 201

CONCRETE AREA OR WOOD DECK (NO SAMPLE COLLECTED)

SOIL SAMPLE LOCATION FOR LEAD

EXPOSED SOILS ADJACENT TO DRIP LINE

COVERED SURFACES ADJACENT TO DRIP LINE

YOUNG STREET

EXISTING DOYLE DRIVE

201SS15
201SS16
201SS01
201SS02
201SS03
201SS04
201SS05
201SS06
201SS07
201SS08
201SS09
201SS11
201SS10
201SS14
201SS12
201SS13

BUILDING 201

BUILDING 228

HALLECK STREET

0 10 20
FEET

DOYLE DRIVE REPLACEMENT PROJECT
Environmental Soil Investigation
Building 201 Soil Sample Locations
FIGURE 2 - July 16, 2010 - Rev.02

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2010-07-09 Soil Lead Sampling at BLDG 201, Figure 2.dgn

LEGEND:

APPROXIMATE ROOF LINE OF BUILDING 204

CONCRETE AREA (NO SAMPLE COLLECTED)

SOIL SAMPLE LOCATION FOR LEAD

EXPOSED SOILS ADJACENT TO DRIP LINE

COVERED SURFACES ADJACENT TO DRIP LINE

CONCRETE RAMP

204SS01
204SS02
204SS03
204SS04
204SS05
204SS06
204SS07
204SS08
204SS09
204SS10
204SS11
204SS12
204SS13
204SS14
204SS15
204SS16
204SS17
204SS18
204SS19
204SS20
204SS21
204SS22
204SS23
204SS24

BUILDING 204

YOUNG STREET

0 10 20
FEET

DOYLE DRIVE REPLACEMENT PROJECT
Environmental Soil Investigation
Building 204 Soil Sample Locations
FIGURE 3 - July 16, 2010 - Rev.02

ARUP PB joint venture

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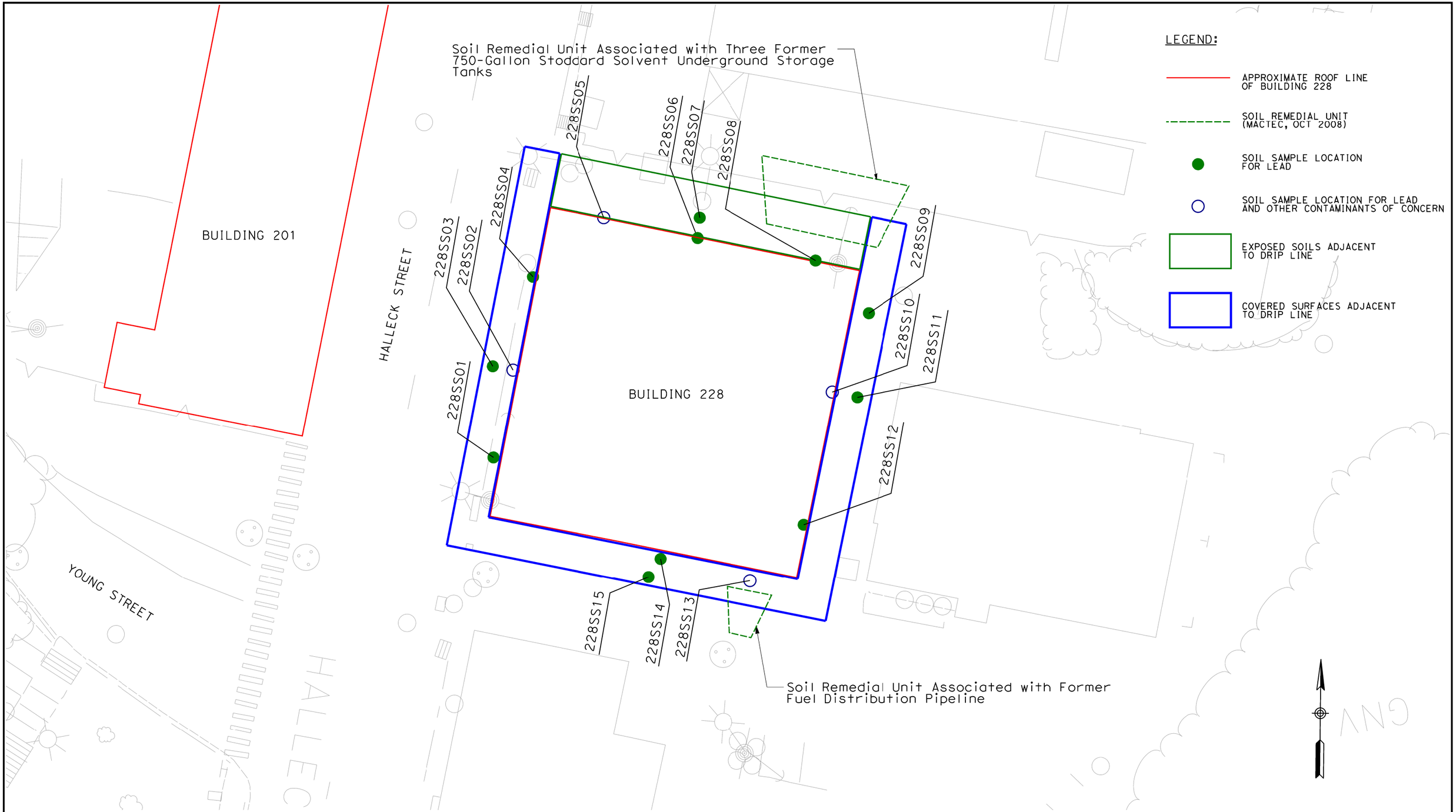
2010-07-09 Soil Lead Sampling at BLDG 204, Figure 3.dgn



DOYLE DRIVE REPLACEMENT PROJECT
Environmental Soil Investigation
Building 228 Soil Sample Locations
FIGURE 4 - July 16, 2010 - Rev.02

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2010-07-09 Soil Lead Sampling at BLDG 228, Figure 4.dgn

LEGEND:

- APPROXIMATE ROOF LINE OF BUILDING 605
- CONCRETE AREA OR WOOD DECK (NO SAMPLE COLLECTED)
- SOIL SAMPLE LOCATION FOR LEAD
- SOIL SAMPLE LOCATION FOR LEAD AND OTHER CONTAMINANTS OF CONCERN
- APPROXIMATE SOIL SAMPLE LOCATION PREVIOUSLY COLLECTED (NINYO & MOORE, JUNE 2003)
- APPROXIMATE SOIL SAMPLE LOCATION PREVIOUSLY COLLECTED (TREADWELL & ROLLO, DEC 2005)
- APPROXIMATE LOCATION OF FORMER FUEL DISPENSING AND STORAGE FEATURES (TREADWELL & ROLLO, DEC 2005)
- APPROXIMATE LOCATION OF FORMER COAL BIN STORAGE AREA (TREADWELL & ROLLO, DEC 2005)
- APPROXIMATE LOCATION OF FORMER RAILROAD TRACKS (TREADWELL & ROLLO, DEC 2005)

MASON STREET

604SB06

605SS03 605SS04 605SS05 605SS06 605SS07 605SS08

604SB05

605SS02

605SS01

605SS11 605SS09

601SB02

Former Fuel Dispensing and Storage Area

Former 1000-Gallon Diesel Underground Storage Tank

605SS15 605SS17 605SS16 605SS18 605SS19

605SS12 605SS10 605SS13 605SS14

BUILDING 605

605SS20 605SS21 605SS22

605SS23

605SS24 605SS25

605SS29 605SS28 605SS27 605SS26

BUILDING 606

VALLEJO STREET

RICHARDSON AVENUE

EXISTING DOYLE DRIVE

0 20 40
FEET

DOYLE DRIVE REPLACEMENT PROJECT
Environmental Soil Investigation
Building 605 Soil Sample Locations
FIGURE 5 - JULY 16, 2010 - Rev.02

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2010-07-09 Soil Lead Sampling at BLDG 605, Figure 5.dgn

TABLES

TABLE 1: Soil Boring Survey Data
Doyle Drive Replacement Project, Environmental Soil Investigation

Building ID	Boring ID	Drilling Method	Boring Depth (feet bgs)	Installation Date	Project Survey Coordinates [1]			Presidio Trust Survey Coordinates [2]		
					Northing	Easting	Elevation	Northing	Easting	Elevation
201	201SS01	DPT	4.00	10/20/2009	2120646.825	5996980.924	12.910	480239.599	1435612.867	13.280
201	201SS02	DPT	4.00	10/20/2009	2120666.635	5996984.537	12.913	480259.410	1435616.480	13.283
201	201SS03	DPT	0.50	10/20/2009	2120671.359	5996982.124	12.100	480264.134	1435614.067	12.470
201	201SS04	DPT	4.00	10/20/2009	2120698.047	5996991.238	11.656	480290.822	1435623.180	12.026
201	201SS05	DPT	4.00	10/20/2009	2120724.317	5996995.418	11.403	480317.092	1435627.360	11.773
201	201SS06	DPT	4.00	10/20/2009	2120748.316	5996995.305	11.467	480341.092	1435627.247	11.837
201	201SS07	DPT	1.00	10/20/2009	2120749.410	5996993.465	11.529	480342.186	1435625.407	11.899
201	201SS08	DPT	4.00	10/20/2009	2120770.288	5997002.317	11.144	480363.064	1435634.259	11.514
201	201SS09	DPT	4.00	10/20/2009	2120791.581	5997009.413	10.910	480384.357	1435641.354	11.280
201	201SS10	DPT	4.00	10/20/2009	2120813.471	5997013.844	10.855	480406.248	1435645.785	11.225
201	201SS11	DPT	1.00	10/20/2009	2120813.276	5997009.749	10.994	480406.053	1435641.690	11.364
201	201SS12	DPT	4.00	10/20/2009	2120813.834	5997025.419	10.931	480406.611	1435657.360	11.301
201	201SS13	HA	0.75	10/20/2009	2120810.074	5997046.007	12.290	480402.851	1435677.948	12.660
201	201SS14	DPT	4.00	10/20/2009	2120615.425	5997002.341	24.181	480208.199	1435634.285	24.551
201	201SS15	DPT	3.50	10/20/2009	2120621.047	5996978.260	21.704	480213.821	1435610.203	22.074
201	201SS16	DPT	1.50	10/20/2009	2120617.797	5996977.576	21.898	480210.571	1435609.519	22.268
204	204SS01	DPT	4.00	10/19/2009	2120679.068	5996666.076	13.109	480271.838	1435298.015	13.479
204	204SS02	DPT	1.00	10/19/2009	2120678.800	5996659.271	13.081	480271.570	1435291.210	13.451
204	204SS03	DPT	4.00	10/19/2009	2120707.876	5996674.075	12.560	480300.646	1435306.013	12.930
204	204SS04	DPT	4.00	10/19/2009	2120708.004	5996697.682	12.427	480300.775	1435329.621	12.797
204	204SS05	DPT	4.00	10/19/2009	2120708.029	5996720.368	12.465	480300.800	1435352.307	12.835
204	204SS06	DPT	1.00	10/19/2009	2120713.083	5996719.102	12.394	480305.854	1435351.041	12.764
204	204SS07	DPT	4.00	10/19/2009	2120714.806	5996740.511	12.511	480307.578	1435372.450	12.881
204	204SS08	DPT	4.00	10/19/2009	2120714.274	5996760.281	12.496	480307.046	1435392.220	12.866
204	204SS09	DPT	4.00	10/19/2009	2120707.839	5996788.179	12.648	480300.611	1435420.119	13.018
204	204SS10	DPT	0.50	10/19/2009	2120710.747	5996787.895	12.609	480303.519	1435419.835	12.979
204	204SS11	DPT	4.00	10/19/2009	2120707.703	5996809.384	12.709	480300.475	1435441.324	13.079
204	204SS12	DPT	4.00	10/19/2009	2120707.925	5996839.821	12.776	480300.698	1435471.761	13.146
204	204SS13	DPT	4.00	10/19/2009	2120688.516	5996855.823	13.146	480281.289	1435487.764	13.516
204	204SS14	DPT	1.00	10/19/2009	2120688.730	5996858.745	13.121	480281.503	1435490.686	13.491
204	204SS15	HA	3.00	10/19/2009	2120669.690	5996847.717	14.264	480262.463	1435479.658	14.634

TABLE 1: Soil Boring Survey Data
Doyle Drive Replacement Project, Environmental Soil Investigation

Building ID	Boring ID	Drilling Method	Boring Depth (feet bgs)	Installation Date	Project Survey Coordinates [1]			Presidio Trust Survey Coordinates [2]		
					Northing	Easting	Elevation	Northing	Easting	Elevation
204	204SS16	HA	2.50	10/19/2009	2120669.604	5996822.565	13.332	480262.376	1435454.506	13.702
204	204SS17	HA	2.50	10/19/2009	2120670.362	5996802.191	12.584	480263.134	1435434.132	12.954
204	204SS18	HA	0.50	10/19/2009	2120666.772	5996802.367	12.503	480259.544	1435434.308	12.873
204	204SS19	HA	2.50	10/19/2009	2120670.140	5996777.666	12.605	480262.912	1435409.606	12.975
204	204SS20	HA	2.50	10/19/2009	2120670.039	5996752.636	12.609	480262.810	1435384.576	12.979
204	204SS21	HA	2.50	10/19/2009	2120669.882	5996727.758	12.711	480262.653	1435359.698	13.081
204	204SS22	HA	0.50	10/19/2009	2120667.045	5996727.926	12.495	480259.816	1435359.866	12.865
204	204SS23	HA	2.50	10/19/2009	2120670.033	5996704.131	12.960	480262.803	1435336.070	13.330
204	204SS24	HA	2.50	10/20/2009	2120669.944	5996673.104	13.578	480262.714	1435305.043	13.948
228	228SS01	HA	3.00	11/20/2009	2120612.369	5997056.806	25.428	480205.144	1435688.750	25.798
228	228SS02	HA	3.00	11/20/2009	2120632.004	5997061.188	23.678	480224.779	1435693.132	24.048
228	228SS03	HA	1.00	11/20/2009	2120632.863	5997056.660	23.716	480225.638	1435688.604	24.086
228	228SS04	HA	3.00	11/20/2009	2120652.880	5997065.665	22.477	480245.656	1435697.609	22.847
228	228SS05	HA	2.50	11/19/2009	2120666.215	5997081.606	20.642	480258.991	1435713.550	21.012
228	228SS06	HA	2.50	11/19/2009	2120661.641	5997102.616	20.344	480254.417	1435734.560	20.714
228	228SS07	HA	0.25	11/19/2009	2120666.202	5997103.077	20.506	480258.978	1435735.021	20.876
228	228SS08	HA	2.00	11/19/2009	2120656.743	5997130.009	20.323	480249.519	1435761.954	20.693
228	228SS09	HA	2.00	11/19/2009	2120644.736	5997140.996	20.729	480237.513	1435772.941	21.099
228	228SS10	HA	3.00	11/19/2009	2120627.094	5997132.803	21.464	480219.870	1435764.748	21.834
228	228SS11	HA	0.75	11/19/2009	2120625.902	5997138.428	21.276	480218.678	1435770.373	21.646
228	228SS12	HA	3.00	11/19/2009	2120597.251	5997126.420	22.177	480190.027	1435758.366	22.547
228	228SS13	DPT	3.50	11/20/2009	2120584.663	5997114.396	23.858	480177.438	1435746.342	24.228
228	228SS14	DPT	3.00	11/20/2009	2120589.571	5997094.328	24.701	480182.346	1435726.273	25.071
228	228SS15	DPT	1.00	11/20/2009	2120586.324	5997092.120	25.122	480179.099	1435724.065	25.492
605	605SS11	HA	2.50	11/19/2009	2121063.429	5996635.083	10.604	480656.203	1435267.016	10.974
605	605SS12	HA	2.50	11/19/2009	2121029.343	5996640.627	10.964	480622.117	1435272.560	11.334
605	605SS13	HA	0.25	11/19/2009	2121031.052	5996643.441	10.988	480623.826	1435275.374	11.358
605	605SS14	DPT	4.00	11/19/2009	2121017.815	5996675.948	10.282	480610.589	1435307.882	10.652
605	605SS15	DPT	3.50	11/19/2009	2121021.543	5996703.409	10.218	480614.318	1435335.343	10.588
605	605SS16	DPT	4.00	11/19/2009	2121025.039	5996728.259	10.278	480617.814	1435360.193	10.648
605	605SS17	DPT	1.50	11/19/2009	2121028.064	5996728.152	10.233	480620.839	1435360.086	10.603

TABLE 1: Soil Boring Survey Data
Doyle Drive Replacement Project, Environmental Soil Investigation

Building ID	Boring ID	Drilling Method	Boring Depth (feet bgs)	Installation Date	Project Survey Coordinates [1]			Presidio Trust Survey Coordinates [2]		
					Northing	Easting	Elevation	Northing	Easting	Elevation
605	605SS18	DPT	3.50	11/19/2009	2121028.460	5996753.048	10.305	480621.236	1435384.983	10.675
605	605SS19	DPT	4.00	11/19/2009	2121031.957	5996774.052	10.258	480624.733	1435405.987	10.628
605	605SS20	DPT	4.00	11/19/2009	2121001.645	5996784.685	10.233	480594.421	1435416.621	10.603
605	605SS21	DPT	1.00	11/19/2009	2121002.258	5996788.337	10.122	480595.034	1435420.273	10.492
605	605SS22	DPT	4.00	11/19/2009	2120972.283	5996787.246	10.083	480565.058	1435419.182	10.453
605	605SS23	DPT	4.00	11/19/2009	2120967.165	5996757.853	10.061	480559.940	1435389.789	10.431
605	605SS24	DPT	4.00	11/19/2009	2120936.692	5996730.288	10.018	480529.466	1435362.224	10.388
605	605SS25	DPT	1.00	11/19/2009	2120937.431	5996735.270	9.923	480530.205	1435367.206	10.293
605	605SS26	DPT	4.00	11/19/2009	2120915.097	5996701.697	10.199	480507.870	1435333.633	10.569
605	605SS27	DPT	4.00	11/19/2009	2120911.582	5996677.070	10.322	480504.355	1435309.006	10.692
605	605SS28	DPT	4.00	11/19/2009	2120898.887	5996658.830	10.166	480491.660	1435290.765	10.536
605	605SS29	DPT	0.75	11/19/2009	2120892.444	5996658.939	9.662	480485.217	1435290.875	10.032

Notes:
ID = identification.
bgs = below ground surface.
HA = hand auger.
DPT = direct push technology.

[1] Project survey coordinates and vertical datum in NAD83 (State Plane System, California Zone III) and NAVD 88, respectively.

[2] Presidio Trust survey coordinates and vertical datum are in NAD27 and Presidio Low Low Water, respectively.

TABLE 2: Site-Specific Presidio Trust Cleanup Levels for Petroleum-Related Constituents in Soil around Buildings 228 and 605 (mg/kg)
Doyle Drive Replacement Project, Environmental Soil Investigation

Location [1]	Potential Contaminant Source	Contaminants of Potential Concerns [2]	Presidio Trust Planned Land Use [3,4]	Presidio Trust Ecological Protection Zones [4]	Soil Depth above Groundwater [5]	Site-Specific Cleanup Levels for Petroleum-Related Constituents in Soil																							
						LUFT Metals					Total Petroleum Hydrocarbons				Polynuclear Aromatic Hydrocarbons														
						Cadmium	Chromium	Lead	Nickel	Zinc	Gasoline C7-C12	Diesel C12-C24	Motor Oil C24-C36	Fuel Oil C24-C36	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
Building 228	Former dry cleaner Former Stoddard solvent USTs Former fuel distribution pipeline Fill material	Non-Petroleum Compounds VOC Petroleum Compounds LUFT Metals, TPH, VOC, PAH	Residential	Buffer, terrestrial, and freshwater	≤ 5 feet [6]	NV	NV	50	NV	NV	100	115	144	144	308	0.43	0.04	0.43	620	0.43	4.3	NV	316	60	NV	9	86	241
Building 605	Former railroad tracks Former coal bin storage area Former diesel UST Former fuel dispenser Fill material	Petroleum Compounds LUFT Metals, TPH, VOC, PAH	Residential	Buffer, terrestrial, and saltwater	≤ 5 feet [7]	NV	NV	50	NV	NV	11.6	115	144	144	308	0.43	0.04	0.43	620	0.43	4.3	NV	316	60	NV	9	86	241
Presidio Trust Cleanup Levels for Petroleum Related Compounds																													
					Human Health - Residential	NV	NV	NV	NV	NV	1,030	1,380	1,900	1,900	5,900	0.43	0.04	0.43	620	0.43	4.3	NV	820	770	NV	480	600	620
					Human Health - Recreational	NV	NV	NV	NV	NV	2,400	3,200	4,500	4,500	13,800	1	0.1	1	1,400	1	10	NV	1,900	1,800	NV	1,100	1,400	1,400
					Ecological Receptors - Terrestrial Zone	NV	NV	50	NV	NV	610	700	980	980	NV	NV	0.3	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV
					Ecological Receptors - Freshwater Zone	NV	NV	NV	NV	NV	140	144	144	144	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV
					Ecological Receptors - Saltwater Zone	NV	NV	NV	NV	NV	11.6	144	144	144	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV
					Drinking Water - Soil ≤ 5 feet above groundwater	NV	NV	NV	NV	NV	100	115	160	160	308	8	3	23	5,040	23	54	NV	316	60	NV	9	86	241

Notes:
LUFT = leaking underground fuel tank.
TPH = total petroleum hydrocarbons.
VOC = volatile organic compounds.
PAH = polynuclear aromatic hydrocarbons.
NV = no value.

[1] Buildings 201 and 204 are not included in this table because the soil samples were only analyzed for lead from lead-based paint. In 2008, the Presidio Trust established site-specifc Cleanup Levels for lead from lead-based paint in the *Presidio-Wide Lead-Based Paint in Soil Investigation Workplan* .

[2] Non-petroleum compounds (i.e., VOCs) were not detected above laboratory reporting limits; therefore, only site-specific Cleanup Levels for petroleum related compounds detected above the laboratory reporting limit are presented in this table.

[3] Buildings 228 and 605 are located in land use areas designated for recreation. However, selection of residential Cleanup Levels provides the opportunity for unrestricted land uses in the future.

[4] Erler & Kalinowski, Inc., 2002, Development of Presidio-Wide Cleanup Levels for Soil, Sediment, Groundwater, and Surface Water, 30 October.

[5] Groundwater was presumed to be a potential source of drinking water in order to select the most conservative Cleanup Levels that could apply to each site.

[6] MACTEC Engineering and Consulting, Inc., 2008, Final Corrective Action Implementation Work Plan, Building 207/231 Area, Presidio of San Francisco, California, 23 October.

[7] Treadwell & Rollo, 2005, Final Corrective Action Plan, Commissary/PX Study Area, Presidio of San Francisco, California, December.

TABLE 3: Total and Soluble Lead Concentrations in Soil around Building 201
Doyle Drive Replacement Project, Environmental Soil Investigation

Boring Location	Sample Identification	Sample Depth (feet bgs)	Surface Soil Condition	Sample Date	Lead	WET Lead	TCLP Lead
				Units:	mg/kg	mg/L	mg/L
--	201SS13,03,04,05; 0-0.5	0.00-0.50	Covered/Exposed	10/20/2009	--	**17**	**0.20**
--	201SS06,07,08,09; 0.25-0.5	0.25-0.50	Covered	10/20/2009	--	**0.54**	--
--	201SS15,16,14; 0.25-0.5	0.25-0.50	Covered	10/20/2009	--	**0.43**	<0.031
--	201SS10,11,12,13; 0.25-0.75	0.25-0.75	Covered/Exposed	10/20/2009	--	**12**	--
--	201SS05,06,08; 0.75-1.25	0.75-1.25	Covered	10/20/2009	--	**1.7**	<0.031
--	201SS09,10,12; 0.75-1.25	0.75-1.25	Covered	10/20/2009	--	**1.4**	--
--	201SS14,15; 0.75-1.25	0.75-1.25	Covered	10/20/2009	--	**2.0**	--
--	201SS01,01,04; 1.0-2.0	1.00-2.00	Covered	10/20/2009	--	**1.7**	--
--	201SS04,05,06; 2.25-2.75	2.25-2.75	Covered	10/20/2009	--	**0.19**	--
--	201SS08,09,10; 2.25-2.75	2.25-2.75	Covered	10/20/2009	--	**0.78**	<0.031
--	201SS12,14,15; 2.25-2.75	2.25-2.75	Covered	10/20/2009	--	<0.15	--
--	201SS01,02,02; 2.5-3.5	2.50-3.50	Covered	10/20/2009	--	**1.3**	--
201SS01	201SS01; 1.0-1.25	1.00-1.25	Covered	10/20/2009	**11**	--	--
201SS01	201SS01; 1.5-2.0	1.50-2.00	Covered	10/20/2009	**26**	--	--
201SS01	201SS01; 3.0-3.25	3.00-3.25	Covered	10/20/2009	**90**	--	--
201SS02	201SS02; 2.5-2.75	2.50-2.75	Covered	10/20/2009	**16**	--	--
201SS02	201SS02; 3.0-3.5	3.00-3.50	Covered	10/20/2009	**12**	--	--
201SS03	201SS03; 0.25-0.5	0.25-0.50	Covered	10/20/2009	**69**	--	--
201SS04	201SS04; 0.25-0.5	0.25-0.50	Covered	10/20/2009	**8.3**	--	--
201SS04	201SS04; 0.75-1.25	0.75-1.25	Covered	10/20/2009	**67**	--	--
201SS04	201SS04; 2.25-2.75	2.25-2.75	Covered	10/20/2009	**16**	--	--
201SS05	201SS05; 0.25-0.5	0.25-0.50	Covered	10/20/2009	**6.0**	--	--
201SS05	201SS05; 0.75-1.25	0.75-1.25	Covered	10/20/2009	**42**	--	--
201SS05	201SS05; 2.25-2.75	2.25-2.75	Covered	10/20/2009	**8.0**	--	--
201SS06	201SS06; 0.25-0.5	0.25-0.50	Covered	10/20/2009	**12**	--	--
201SS06	201SS06; 0.75-1.25	0.75-1.25	Covered	10/20/2009	**23**	--	--
201SS06	201SS06; 2.25-2.75	2.25-2.75	Covered	10/20/2009	**2.0**	--	--
201SS07	201SS07; 0.25-0.5	0.25-0.50	Covered	10/20/2009	**11**	--	--
201SS08	201SS08; 0.25-0.5	0.25-0.50	Covered	10/20/2009	**11**	--	--
201SS08	201SS08; 0.75-1.25	0.75-1.25	Covered	10/20/2009	**200**	--	--
201SS08	DUP102009-3	0.75-1.25	Covered	10/20/2009	**250**	--	--
201SS08	201SS08; 2.25-2.75	2.25-2.75	Covered	10/20/2009	**16**	--	--
201SS09	201SS09; 0.25-0.5	0.25-0.50	Covered	10/20/2009	**68**	--	--
201SS09	201SS09; 0.75-1.25	0.75-1.25	Covered	10/20/2009	**55**	--	--
201SS09	201SS09; 2.25-2.75	2.25-2.75	Covered	10/20/2009	**190**	--	--
201SS09	DUP102009-4	2.25-2.75	Covered	10/20/2009	**350**	--	--
201SS10	201SS10; 0.25-0.5	0.25-0.50	Covered	10/20/2009	**51**	--	--
201SS10	201SS10; 0.75-1.25	0.75-1.25	Covered	10/20/2009	**28**	--	--
201SS10	201SS10; 2.25-2.75	2.25-2.75	Covered	10/20/2009	**22**	--	--
201SS11	201SS11; 0.25-0.5	0.25-0.50	Covered	10/20/2009	**13**	--	--
201SS12	201SS12; 0.25-0.5	0.25-0.50	Covered	10/20/2009	**6.2**	--	--
201SS12	201SS12; 0.75-1.25	0.75-1.25	Covered	10/20/2009	**19**	--	--
201SS12	201SS12; 2.25-2.75	2.25-2.75	Covered	10/20/2009	**8.4**	--	--
201SS13	201SS13; 0-0.25	0.00-0.25	Exposed	10/20/2009	**1,100**	--	--
201SS13	201SS13; 0.5-0.75	0.50-0.75	Exposed	10/20/2009	**540**	--	--
201SS13	DUP102009-5	0.50-0.75	Exposed	10/20/2009	**1,300**	--	--
201SS14	201SS14; 0.25-0.5	0.25-0.50	Covered	10/20/2009	**62**	--	--

TABLE 3: Total and Soluble Lead Concentrations in Soil around Building 201
Doyle Drive Replacement Project, Environmental Soil Investigation

Boring Location	Sample Identification	Sample Depth (feet bgs)	Surface Soil Condition	Sample Date	Lead	WET Lead	TCLP Lead
				Units:	mg/kg	mg/L	mg/L
201SS14	201SS14; 0.75-1.25	0.75-1.25	Covered	10/20/2009	**77**	--	--
201SS14	DUP102009-2	0.75-1.25	Covered	10/20/2009	**59**	--	--
201SS14	201SS14; 2.25-2.75	2.25-2.75	Covered	10/20/2009	**1.1**	--	--
201SS15	201SS15; 0.25-0.5	0.25-0.50	Covered	10/20/2009	**14**	--	--
201SS15	201SS15; 0.75-1.25	0.75-1.25	Covered	10/20/2009	**39**	--	--
201SS15	201SS15; 2.25-2.75	2.25-2.75	Covered	10/20/2009	**1.4**	--	--
201SS16	201SS16; 0.25-0.5	0.25-0.50	Covered	10/20/2009	**22**	--	--
Presidio Trust Cleanup Goals for Building 201 [1]					400 [7]	NV	NV
California Hazardous Waste Criteria [2]					1,000	5.0	NV
RCRA-Hazardous Waste Criteria [3]					NV	NV	5.0
ESL for Residential Land Use [4]					200	NV	NV
ESL for Commercial/Industrial Land Use [5]					750	NV	NV
ESL for Construction Workers [6]					750	NV	NV

Shading Key:

Analytical results shaded gray indicate that concentrations were greater than or equal to hazardous waste criteria or greater than site-specific Presidio Trust Cleanup Goals or ESLs.

Notes:

Key to Discrete Sample IDs: 228SS02;2.5-3.0 indicates a sample collected from boring 228SS02 and the sample depth is 2.5 to 3.0 feet bgs.

Key to Composite Sample IDs: 201SS14,15; 0.75-1.25 indicates a composite sample made up of discrete samples collected from borings 201SS14 and 201SS15, and the composite sample depth is 0.75 to 1.25 feet bgs.

"DUP" at the beginning of a Sample ID indicates a duplicate of the preceding sample that was collected and analyzed for quality assurance reasons.

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

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

Total lead analyzed by EPA Method 6010B.

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

bgs = below ground surface.

mg/kg = milligram per kilogram.

mg/L = milligram per liter.

<x.x = analyte was not identified above laboratory reporting limit of x.x.

-- = not analyzed or not applicable.

NV = no value.

RCRA = Resource Conservation and Recovery Act.

ESL = Environmental Screening Level.

[1] Presidio Trust, 2008, Presidio-Wide Lead-Based Paint in Soil Investigation Work Plan, October.

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

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

TABLE 3: Total and Soluble Lead Concentrations in Soil around Building 201
Doyle Drive Replacement Project, Environmental Soil Investigation

[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, Residential 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 A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater is a Current or Potential Source of Drinking Water, Commercial/Industrial 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 K-3, Direct Exposure Soil Screening Levels, Construction/Trench Worker Exposure Scenario.

[7] No samples shall exceed 400 mg/kg and an average of 370 mg/kg.

TABLE 4: Total and Soluble Lead Concentrations in Soil around Building 204
Doyle Drive Replacement Project, Environmental Soil Investigation

Boring Location	Sample Identification	Sample Depth (feet bgs)	Surface Soil Condition	Sample Date	Lead	WET Lead	TCLP Lead
				Units:	mg/kg	mg/L	mg/L
--	204SS16,17,18,19; 0-0.25	0.00-0.25	Exposed	10/19/2009	--	**31**	**0.28**
--	204SS20,21,22,23; 0-0.25	0.00-0.25	Exposed	10/19/2009	--	**29**	**0.40**
--	204SS24,01,02,03; 0-0.5	0.00-0.50	Covered/Exposed	10/19/2009	--	**5.5**	**0.05**
--	204SS04,05,06,07; 0.25-0.5	0.25-0.50	Covered	10/19/2009	--	**0.49**	--
--	204SS08,09,10,11; 0.25-0.5	0.25-0.50	Covered	10/19/2009	--	**0.41**	--
--	204SS12,13,14,15; 0.25-0.75	0.25-0.75	Covered/Exposed	10/19/2009	--	**29**	**0.14**
--	204SS16,17,19,20; 0.5-1.0	0.50-1.00	Exposed	10/19/2009	--	**4.8**	**0.05**
--	204SS21,23,24; 0.5-1.0	0.50-1.00	Exposed	10/19/2009	--	**4.1**	<0.031
--	204SS01,03,04; 0.75-1.25	0.75-1.25	Covered	10/19/2009	--	**0.68**	--
--	204SS05,07,08; 0.75-1.25	0.75-1.25	Covered	10/19/2009	--	**1.2**	<0.031
--	204SS09,11,12; 0.75-1.25	0.75-1.25	Covered	10/19/2009	--	<0.15	--
--	204SS13,15; 0.75-1.5	0.75-1.50	Covered/Exposed	10/19/2009	--	**22**	**0.27**
--	204SS16,17,19,20; 2.0-2.5	2.00-2.50	Exposed	10/19/2009	--	**7.1**	**0.07**
--	204SS23,24,01,03; 2.0-2.75	2.00-2.75	Covered/Exposed	10/19/2009	--	**0.64**	--
--	204SS13,15,21; 2.0-3.0	2.00-3.00	Covered/Exposed	10/19/2009	--	**7.2**	**0.07**
--	204SS04,05,07,08; 2.25-2.75	2.25-2.75	Covered	10/19/2009	--	**22**	**0.41**
--	204SS09,11,12; 2.25-2.75	2.25-2.75	Covered	10/19/2009	--	**38**	**0.72**
204SS01	204SS01; 0.25-0.5	0.25-0.50	Covered	10/19/2009	**31**	--	--
204SS01	204SS01; 0.75-1.25	0.75-1.25	Covered	10/19/2009	**34**	--	--
204SS01	204SS01; 2.25-2.75	2.25-2.75	Covered	10/19/2009	**7.2**	--	--
204SS02	204SS02; 0.25-0.5	0.25-0.50	Covered	10/19/2009	**62**	--	--
204SS03	204SS03; 0.25-0.5	0.25-0.50	Covered	10/19/2009	**17**	--	--
204SS03	204SS03; 0.75-1.25	0.75-1.25	Covered	10/19/2009	**10**	--	--
204SS03	204SS03; 2.25-2.75	2.25-2.75	Covered	10/19/2009	**18**	--	--
204SS04	204SS04; 0.25-0.5	0.25-0.50	Covered	10/19/2009	**10**	--	--
204SS04	204SS04; 0.75-1.25	0.75-1.25	Covered	10/19/2009	**83**	--	--
204SS04	DUP101909-1	0.75-1.25	Covered	10/19/2009	**78**	--	--
204SS04	204SS04; 2.25-2.75	2.25-2.75	Covered	10/19/2009	**14**	--	--
204SS05	204SS05; 0.25-0.5	0.25-0.50	Covered	10/19/2009	**12**	--	--
204SS05	204SS05; 0.75-1.25	0.75-1.25	Covered	10/19/2009	**100**	--	--
204SS05	204SS05; 2.25-2.75	2.25-2.75	Covered	10/19/2009	**150**	--	--
204SS05	DUP101909-2	2.25-2.75	Covered	10/19/2009	**590**	--	--
204SS06	204SS06; 0.25-0.5	0.25-0.50	Covered	10/19/2009	**51**	--	--
204SS07	204SS07; 0.25-0.5	0.25-0.50	Covered	10/19/2009	**5.7**	--	--
204SS07	204SS07; 0.75-1.25	0.75-1.25	Covered	10/19/2009	**79**	--	--
204SS07	204SS07; 2.25-2.75	2.25-2.75	Covered	10/19/2009	**90**	--	--
204SS08	204SS08; 0.25-0.5	0.25-0.50	Covered	10/19/2009	**12**	--	--
204SS08	204SS08; 0.75-1.25	0.75-1.25	Covered	10/19/2009	**14**	--	--
204SS08	204SS08; 2.25-2.75	2.25-2.75	Covered	10/19/2009	**510**	--	--
204SS08	DUP101909-3	2.25-2.75	Covered	10/19/2009	**300**	--	--
204SS09	204SS09; 0.25-0.5	0.25-0.50	Covered	10/19/2009	**29**	--	--
204SS09	204SS09; 0.75-1.25	0.75-1.25	Covered	10/19/2009	**3.5**	--	--
204SS09	204SS09; 2.25-2.75	2.25-2.75	Covered	10/19/2009	**24,000**	--	--
204SS10	204SS10; 0.25-0.5	0.25-0.50	Covered	10/19/2009	**15**	--	--
204SS11	204SS11; 0.25-0.5	0.25-0.50	Covered	10/19/2009	**8.0**	--	--
204SS11	204SS11; 0.75-1.25	0.75-1.25	Covered	10/19/2009	**6.0**	--	--
204SS11	204SS11; 2.25-2.75	2.25-2.75	Covered	10/19/2009	**42**	--	--

TABLE 4: Total and Soluble Lead Concentrations in Soil around Building 204
Doyle Drive Replacement Project, Environmental Soil Investigation

Boring Location	Sample Identification	Sample Depth (feet bgs)	Surface Soil Condition	Sample Date	Lead	WET Lead	TCLP Lead
				Units:	mg/kg	mg/L	mg/L
204SS12	204SS12; 0.25-0.5	0.25-0.50	Covered	10/19/2009	**37**	--	--
204SS12	204SS12; 0.75-1.25	0.75-1.25	Covered	10/19/2009	**5.3**	--	--
204SS12	204SS12; 2.25-2.75	2.25-2.75	Covered	10/19/2009	**6.2**	--	--
204SS13	204SS13; 0.25-0.5	0.25-0.50	Covered	10/19/2009	**35**	--	--
204SS13	204SS13; 0.75-1.25	0.75-1.25	Covered	10/19/2009	**11**	--	--
204SS13	204SS13; 2.25-2.75	2.25-2.75	Covered	10/19/2009	**20**	--	--
204SS14	204SS14; 0.25-0.5	0.25-0.50	Covered	10/19/2009	**7.8**	--	--
204SS15	204SS15; 0.5-0.75	0.50-0.75	Exposed	10/19/2009	**770**	--	--
204SS15	204SS15; 1.0-1.5	1.00-1.50	Exposed	10/19/2009	**580**	--	--
204SS15	204SS15; 2.5-3.0	2.50-3.00	Exposed	10/19/2009	**150**	--	--
204SS16	204SS16; 0-0.25	0.00-0.25	Exposed	10/19/2009	**2,000**	--	--
204SS16	204SS16; 0.5-1.0	0.50-1.00	Exposed	10/19/2009	**460**	--	--
204SS16	DUP101909-4	0.50-1.00	Exposed	10/19/2009	**410**	--	--
204SS16	204SS16; 2.0-2.5	2.00-2.50	Exposed	10/19/2009	**16**	--	--
204SS17	204SS17; 0-0.25	0.00-0.25	Exposed	10/19/2009	**250**	--	--
204SS17	204SS17; 0.5-1.0	0.50-1.00	Exposed	10/19/2009	**170**	--	--
204SS17	204SS17; 2.0-2.5	2.00-2.50	Exposed	10/19/2009	**94**	--	--
204SS18	204SS18; 0-0.25	0.00-0.25	Exposed	10/19/2009	**230**	--	--
204SS19	204SS19; 0-0.25	0.00-0.25	Exposed	10/19/2009	**1,000**	--	--
204SS19	DUP101909-5	0.00-0.25	Exposed	10/19/2009	**1,700**	--	--
204SS19	204SS19; 0.5-1.0	0.50-1.00	Exposed	10/19/2009	**40**	--	--
204SS19	204SS19; 2.0-2.5	2.00-2.50	Exposed	10/19/2009	**48**	--	--
204SS20	204SS20; 0-0.25	0.00-0.25	Exposed	10/19/2009	**5,000**	--	--
204SS20	204SS20; 0.5-1.0	0.50-1.00	Exposed	10/19/2009	**130**	--	--
204SS20	204SS20; 2.0-2.5	2.00-2.50	Exposed	10/19/2009	**290**	--	--
204SS21	204SS21; 0-0.25	0.00-0.25	Exposed	10/19/2009	**500**	--	--
204SS21	204SS21; 0.5-1.0	0.50-1.00	Exposed	10/19/2009	**140**	--	--
204SS21	204SS21; 2.0-2.5	2.00-2.50	Exposed	10/19/2009	**190**	--	--
204SS22	204SS22; 0-0.25	0.00-0.25	Exposed	10/19/2009	**330**	--	--
204SS23	204SS23; 0-0.25	0.00-0.25	Exposed	10/19/2009	**430**	--	--
204SS23	204SS23; 0.5-1.0	0.50-1.00	Exposed	10/19/2009	**10**	--	--
204SS23	204SS23; 2.0-2.5	2.00-2.50	Exposed	10/19/2009	**0.71**	--	--
204SS24	204SS24; 0-0.25	0.00-0.25	Exposed	10/20/2009	**610**	--	--
204SS24	DUP102009-1	0.00-0.25	Exposed	10/20/2009	**560**	--	--
204SS24	204SS24; 0.5-1.0	0.50-1.00	Exposed	10/20/2009	**100**	--	--
204SS24	204SS24; 2.0-2.5	2.00-2.50	Exposed	10/20/2009	**93**	--	--
				Presidio Trust Cleanup Goals for Building 204 [1]	400 [7]	NV	NV
				California Hazardous Waste Criteria [2]	1,000	5.0	NV
				RCRA-Hazardous Waste Criteria [3]	NV	NV	5.0
				ESL for Residential Land Use [4]	200	NV	NV
				ESL for Commercial/Industrial Land Use [5]	750	NV	NV
				ESL for Construction Workers [6]	750	NV	NV

Shading Key:

Analytical results shaded gray indicate that concentrations were greater than or equal to hazardous waste criteria or greater than site-specific Presidio Trust Cleanup Goals or ESLs.

TABLE 4: Total and Soluble Lead Concentrations in Soil around Building 204
Doyle Drive Replacement Project, Environmental Soil Investigation

Notes:

Key to Discrete Sample IDs: 228SS02;2.5-3.0 indicates a sample collected from boring 228SS02 and the sample depth is 2.5 to 3.0 feet bgs.

Key to Composite Sample IDs: 201SS14,15; 0.75-1.25 indicates a composite sample made up of discrete samples collected from borings 201SS14 and 201SS15, and the composite sample depth is 0.75 to 1.25 feet bgs.

"DUP" at the beginning of a Sample ID indicates a duplicate of the preceding sample that was collected and analyzed for quality assurance reasons.

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

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

Total lead analyzed by EPA Method 6010B.

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

bgs = below ground surface.

mg/kg = milligram per kilogram.

mg/L = milligram per liter.

<x.x = analyte was not identified above laboratory reporting limit of x.x.

-- = not analyzed or not applicable.

NV = no value.

RCRA = Resource Conservation and Recovery Act.

ESL = Environmental Screening Level.

[1] Presidio Trust, 2008, Presidio-Wide Lead-Based Paint in Soil Investigation Work Plan, October.

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

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

[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, Residential 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 A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater is a Current or Potential Source of Drinking Water, Commercial/Industrial 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 K-3, Direct Exposure Soil Screening Levels, Construction/Trench Worker Exposure Scenario.

[7] No samples shall exceed 400 mg/kg and an average of 370 mg/kg.

TABLE 5: Total and Soluble Lead Concentrations in Soil around Building 228
Doyle Drive Replacement Project, Environmental Soil Investigation

Boring Location	Sample Identification	Sample Depth (feet bgs)	Surface Soil Condition	Sample Date	Lead	WET Lead	TCLP Lead
				Units:	mg/kg	mg/L	mg/L
--	228SS01,02,03,04; 0-1.0	0.00-1.00	Covered	11/20/2009	--	**7.0**	--
--	228SS05,05,06,06; 0-1.0	0.00-1.00	Exposed	11/20/2009	--	**10**	<0.050
--	228SS07,08,08; 0-1.0	0.00-1.00	Exposed	11/20/2009	--	**6.3**	**0.09**
--	228SS09,10,11; 0-1.0	0.00-1.00	Covered	11/20/2009	--	**6.6**	<0.050
--	228SS12,13,14,15; 0-1.0	0.00-1.00	Covered	11/20/2009	--	**0.69**	--
--	228SS01,02; 1.0-2.0	1.00-2.00	Covered	11/20/2009	--	**5.5**	<0.050
--	228SS04,09; 1.0-2.0	1.00-2.00	Covered	11/20/2009	--	**0.36**	--
--	228SS10,12; 1.0-2.0	1.00-2.00	Covered	11/20/2009	--	**22**	<0.050
--	228SS13,14; 1.0-2.0	1.00-2.00	Covered	11/20/2009	--	**0.26**	--
--	228SS01,02; 2.0-3.5	2.00-3.50	Covered	11/20/2009	--	**3.0**	<0.050
--	228SS04,05,06; 2.0-3.5	2.00-3.50	Covered/Exposed	11/20/2009	--	**4.6**	<0.050
--	228SS10,12; 2.0-3.5	2.00-3.50	Covered	11/20/2009	--	**5.0**	--
--	228SS13,13,14; 2.0-3.5	2.00-3.50	Covered	11/20/2009	--	<0.25	--
228SS01	228SS01;0.5-0.75	0.50-0.75	Covered	11/20/2009	**50**	--	--
228SS01	228SS01;1.0-1.5	1.00-1.50	Covered	11/20/2009	**100**	--	--
228SS01	DUP112009-1	1.00-1.50	Covered	11/20/2009	**68**	--	--
228SS01	228SS01;2.5-3.0	2.50-3.00	Covered	11/20/2009	**190**	--	--
228SS02	228SS02;0.5-0.75	0.50-0.75	Covered	11/20/2009	**49**	--	--
228SS02	228SS02;1.0-1.5	1.00-1.50	Covered	11/20/2009	**83**	--	--
228SS02	228SS02;2.5-3.0	2.50-3.00	Covered	11/20/2009	**57**	--	--
228SS03	228SS03;0.75-1.0	0.75-1.00	Covered	11/20/2009	**57**	--	--
228SS04	228SS04;0.5-0.75	0.50-0.75	Covered	11/20/2009	**20**	--	--
228SS04	228SS04;1.0-1.5	1.00-1.50	Covered	11/20/2009	**13**	--	--
228SS04	228SS04;2.5-3.0	2.50-3.00	Covered	11/20/2009	**100**	--	--
228SS05	228SS05;0-0.25	0.00-0.25	Exposed	11/19/2009	**150**	--	--
228SS05	228SS05;0.5-1.0	0.50-1.00	Exposed	11/19/2009	**270**	--	--
228SS05	228SS05;2.0-2.5	2.00-2.50	Exposed	11/19/2009	**60**	--	--
228SS06	228SS06;0-0.25	0.00-0.25	Exposed	11/19/2009	**510**	--	--
228SS06	228SS06;0.5-1.0	0.50-1.00	Exposed	11/19/2009	**230**	--	--
228SS06	228SS06;2.0-2.5	2.00-2.50	Exposed	11/19/2009	**260**	--	--
228SS07	228SS07;0-0.25	0.00-0.25	Exposed	11/19/2009	**400**	--	--
228SS08	228SS08;0-0.25	0.00-0.25	Exposed	11/19/2009	**340**	--	--
228SS08	228SS08;0.5-1.0	0.50-1.00	Exposed	11/19/2009	**150**	--	--
228SS09	228SS09;0.5-0.75	0.50-0.75	Covered	11/19/2009	**130**	--	--
228SS09	228SS09;1.0-1.5	1.00-1.50	Covered	11/19/2009	**35**	--	--
228SS10	228SS10;0.5-0.75	0.50-0.75	Covered	11/19/2009	**660**	--	--
228SS10	228SS10;1.0-1.5	1.00-1.50	Covered	11/19/2009	**290**	--	--
228SS10	228SS10;2.5-3.0	2.50-3.00	Covered	11/19/2009	**79**	--	--
228SS11	228SS11;0.5-0.75	0.50-0.75	Covered	11/19/2009	**320**	--	--
228SS12	228SS12;0.5-0.75	0.50-0.75	Covered	11/19/2009	**36**	--	--
228SS12	228SS12;1.0-1.5	1.00-1.50	Covered	11/19/2009	**30**	--	--
228SS12	228SS12;2.5-3.0	2.50-3.00	Covered	11/19/2009	**85**	--	--
228SS13	228SS13;0.5-0.75	0.50-0.75	Covered	11/20/2009	**5.3**	--	--
228SS13	228SS13;1.0-1.5	1.00-1.50	Covered	11/20/2009	**4.0**	--	--
228SS13	228SS13;2.5-3.0	2.50-3.00	Covered	11/20/2009	**4.8**	--	--
228SS13	228SS13;3.0-3.5	3.00-3.50	Covered	11/20/2009	**4.9**	--	--
228SS14	228SS14;0.5-0.75	0.50-0.75	Covered	11/20/2009	**27**	--	--

TABLE 5: Total and Soluble Lead Concentrations in Soil around Building 228
Doyle Drive Replacement Project, Environmental Soil Investigation

Boring Location	Sample Identification	Sample Depth (feet bgs)	Surface Soil Condition	Sample Date	Lead	WET Lead	TCLP Lead
				Units:	mg/kg	mg/L	mg/L
228SS14	228SS14;1.0-1.5	1.00-1.50	Covered	11/20/2009	**25**	--	--
228SS14	228SS14;2.5-3.0	2.50-3.00	Covered	11/20/2009	**3.0**	--	--
228SS15	228SS15;0.5-0.75	0.50-0.75	Covered	11/20/2009	**20**	--	--
Presidio Trust Cleanup Goals for Building 228 [1]					300	NV	NV
California Hazardous Waste Criteria [2]					1,000	5.0	NV
RCRA-Hazardous Waste Criteria [3]					NV	NV	5.0
ESL for Residential Land Use [4]					200	NV	NV
ESL for Commercial/Industrial Land Use [5]					750	NV	NV
ESL for Construction Workers [6]					750	NV	NV

Shading Key:

Analytical results shaded gray indicate that concentrations were greater than or equal to hazardous waste criteria or greater than site-specific Presidio Trust Cleanup Goals or ESLs.

Notes:

Key to Discrete Sample IDs: 228SS02;2.5-3.0 indicates a sample collected from boring 228SS02 and the sample depth is 2.5 to 3.0 feet bgs.

Key to Composite Sample IDs: 201SS14,15; 0.75-1.25 indicates a composite sample made up of discrete samples collected from borings 201SS14 and 201SS15, and the composite sample depth is 0.75 to 1.25 feet bgs.

"DUP" at the beginning of a Sample ID indicates a duplicate of the preceding sample that was collected and analyzed for quality assurance reasons.

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

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

Total lead analyzed by EPA Methods 6010B or 6020.

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

bgs = below ground surface.

mg/kg = milligram per kilogram.

mg/L = milligram per liter.

<x.x = analyte was not identified above laboratory reporting limit of x.x.

-- = not analyzed or not applicable.

NV = no value.

RCRA = Resource Conservation and Recovery Act.

ESL = Environmental Screening Level.

[1] Presidio Trust, 2008, Presidio-Wide Lead-Based Paint in Soil Investigation Work Plan, October.

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

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

[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, Residential 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 A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater is a Current or Potential Source of Drinking Water, Commercial/Industrial 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 K-3, Direct Exposure Soil Screening Levels, Construction/Trench Worker Exposure Scenario.

TABLE 6: Total and Soluble Lead Concentrations in Soil around Building 605
Doyle Drive Replacement Project, Environmental Soil Investigation

Boring Location	Sample Identification	Sample Depth (feet bgs)	Surface Soil Condition	Sample Date	Lead	WET Lead	TCLP Lead
				Units:	mg/kg	mg/L	mg/L
--	605SS11,11,12,12; 0-1.0	0.00-1.00	Exposed	11/19/2009	--	**1.3**	--
--	605SS13,14,15; 0-1.0	0.00-1.00	Covered/Exposed	11/19/2009	--	**0.28**	--
--	605SS16,17,18; 0-1.0	0.00-1.00	Covered	11/19/2009	--	<0.25	--
--	605SS19,20,21,22; 0-1.0	0.00-1.00	Covered	11/19/2009	--	**0.72**	--
--	605SS23,24,25; 0-1.0	0.00-1.00	Covered	11/19/2009	--	**0.85**	--
--	605SS26,27,28,29; 0-1.0	0.00-1.00	Covered	11/19/2009	--	<0.25	--
--	605SS14,15,16; 1.0-2.0	1.00-2.00	Covered	11/19/2009	--	**1.0**	<0.050
--	605SS18,19,20; 1.0-2.0	1.00-2.00	Covered	11/19/2009	--	**1.2**	--
--	605SS22,23,24; 1.0-2.0	1.00-2.00	Covered	11/19/2009	--	**1.8**	--
--	605SS26,27,28; 1.0-2.0	1.00-2.00	Covered	11/19/2009	--	**0.48**	--
--	605SS11,12,14,15; 2.0-3.5	2.00-3.50	Covered/Exposed	11/19/2009	--	**1.4**	--
--	605SS15,16,18,18; 2.0-3.5	2.00-3.50	Covered	11/19/2009	--	**0.66**	--
--	605SS19,20,22,23; 2.0-3.5	2.00-3.50	Covered	11/19/2009	--	**3.9**	<0.050
--	605SS24,26,27,28; 2.0-3.5	2.00-3.50	Covered	11/19/2009	--	<0.25	--
605SS11	605SS11;0-0.25	0.00-0.25	Exposed	11/19/2009	**35**	--	--
605SS11	605SS11;0.5-1.0	0.50-1.00	Exposed	11/19/2009	**11**	--	--
605SS11	605SS11;2.0-2.5	2.00-2.50	Exposed	11/19/2009	**20**	--	--
605SS12	605SS12;0-0.25	0.00-0.25	Exposed	11/19/2009	**44**	--	--
605SS12	605SS12;0.5-1.0	0.50-1.00	Exposed	11/19/2009	**47**	--	--
605SS12	605SS12;2.0-2.5	2.00-2.50	Exposed	11/19/2009	**46**	--	--
605SS13	605SS13;0-0.25	0.00-0.25	Exposed	11/19/2009	**50**	--	--
605SS14	605SS14;0.5-0.75	0.50-0.75	Covered	11/19/2009	**6.3**	--	--
605SS14	605SS14;1.0-1.5	1.00-1.50	Covered	11/19/2009	**100**	--	--
605SS14	DUP111909-1	1.00-1.50	Covered	11/19/2009	**35**	--	--
605SS14	605SS14;2.5-3.0	2.50-3.00	Covered	11/19/2009	**14**	--	--
605SS15	605SS15;0.5-0.75	0.50-0.75	Covered	11/19/2009	**14**	--	--
605SS15	605SS15;1.0-1.5	1.00-1.50	Covered	11/19/2009	**22**	--	--
605SS15	605SS15;2.5-3.0	2.50-3.00	Covered	11/19/2009	**45**	--	--
605SS15	605SS15;3.0-3.5	3.00-3.50	Covered	11/19/2009	**16**	--	--
605SS16	605SS16;0.5-0.75	0.50-0.75	Covered	11/19/2009	**1.8**	--	--
605SS16	605SS16;1.0-1.5	1.00-1.50	Covered	11/19/2009	**5.1**	--	--
605SS16	605SS16;2.5-3.0	2.50-3.00	Covered	11/19/2009	**17**	--	--
605SS17	605SS17;0.5-0.75	0.50-0.75	Covered	11/19/2009	**4.6**	--	--
605SS18	605SS18;0.5-0.75	0.50-0.75	Covered	11/19/2009	**4.9**	--	--
605SS18	605SS18;1.0-1.5	1.00-1.50	Covered	11/19/2009	**9.1**	--	--
605SS18	DUP111909-2	1.00-1.50	Covered	11/19/2009	**7.3**	--	--
605SS18	605SS18;2.5-3.0	2.50-3.00	Covered	11/19/2009	**9.7**	--	--
605SS18	605SS18;3.0-3.5	3.00-3.50	Covered	11/19/2009	**6.1**	--	--
605SS19	605SS19;0.5-0.75	0.50-0.75	Covered	11/19/2009	**10**	--	--
605SS19	605SS19;1.0-1.5	1.00-1.50	Covered	11/19/2009	**23**	--	--
605SS19	605SS19;2.5-3.0	2.50-3.00	Covered	11/19/2009	**72**	--	--
605SS20	605SS20;0.5-0.75	0.50-0.75	Covered	11/19/2009	**42**	--	--
605SS20	605SS20;1.0-1.5	1.00-1.50	Covered	11/19/2009	**32**	--	--
605SS20	605SS20;2.5-3.0	2.50-3.00	Covered	11/19/2009	**150**	--	--
605SS21	605SS21;0.5-0.75	0.50-0.75	Covered	11/19/2009	**8.5**	--	--
605SS22	605SS22;0.5-0.75	0.50-0.75	Covered	11/19/2009	**13**	--	--

TABLE 6: Total and Soluble Lead Concentrations in Soil around Building 605
Doyle Drive Replacement Project, Environmental Soil Investigation

Boring Location	Sample Identification	Sample Depth (feet bgs)	Surface Soil Condition	Sample Date	Lead	WET Lead	TCLP Lead
				Units:	mg/kg	mg/L	mg/L
605SS22	605SS22;1.0-1.5	1.00-1.50	Covered	11/19/2009	**61**	--	--
605SS22	605SS22;2.5-3.0	2.50-3.00	Covered	11/19/2009	**210**	--	--
605SS22	DUP111909-3	2.50-3.00	Covered	11/19/2009	**5.7**	--	--
605SS23	605SS23;0.5-0.75	0.50-0.75	Covered	11/19/2009	**5.8**	--	--
605SS23	605SS23;1.0-1.5	1.00-1.50	Covered	11/19/2009	**42**	--	--
605SS23	605SS23;2.5-3.0	2.50-3.00	Covered	11/19/2009	**3.6**	--	--
605SS24	605SS24;0.5-0.75	0.50-0.75	Covered	11/19/2009	**32**	--	--
605SS24	605SS24;1.0-1.5	1.00-1.50	Covered	11/19/2009	**35**	--	--
605SS24	605SS24;2.5-3.0	2.50-3.00	Covered	11/19/2009	**2.2**	--	--
605SS25	605SS25;0.5-0.75	0.50-0.75	Covered	11/19/2009	**10**	--	--
605SS26	605SS26;0.5-0.75	0.50-0.75	Covered	11/19/2009	**19**	--	--
605SS26	605SS26;1.0-1.5	1.00-1.50	Covered	11/19/2009	**28**	--	--
605SS26	DUP111909-4	1.00-1.50	Covered	11/19/2009	**19**	--	--
605SS26	605SS26;2.5-3.0	2.50-3.00	Covered	11/19/2009	**1.6**	--	--
605SS27	605SS27;0.5-0.75	0.50-0.75	Covered	11/19/2009	**5.5**	--	--
605SS27	605SS27;1.0-1.5	1.00-1.50	Covered	11/19/2009	**26**	--	--
605SS27	605SS27;2.5-3.0	2.50-3.00	Covered	11/19/2009	**1.4**	--	--
605SS28	605SS28;0.5-0.75	0.50-0.75	Covered	11/19/2009	**7.4**	--	--
605SS28	605SS28;1.0-1.5	1.00-1.50	Covered	11/19/2009	**14**	--	--
605SS28	DUP111909-5	1.00-1.50	Covered	11/19/2009	**2.4**	--	--
605SS28	605SS28;2.5-3.0	2.50-3.00	Covered	11/19/2009	**3.1**	--	--
605SS29	605SS29;0.5-0.75	0.50-0.75	Covered	11/19/2009	**6.2**	--	--
				Presidio Trust Cleanup Goals for Building 605 [1]	300	NV	NV
				California Hazardous Waste Criteria [2]	1,000	5.0	NV
				RCRA-Hazardous Waste Criteria [3]	NV	NV	5.0
				ESL for Residential Land Use [4]	200	NV	NV
				ESL for Commercial/Industrial Land Use [5]	750	NV	NV
				ESL for Construction Workers [6]	750	NV	NV

Shading Key:

Analytical results shaded gray indicate that concentrations were greater than or equal to hazardous waste criteria or greater than site-specific Presidio Trust Cleanup Goals or ESLs.

Notes:

Key to Discrete Sample IDs: 228SS02;2.5-3.0 indicates a sample collected from boring 228SS02 and the sample depth is 2.5 to 3.0 feet bgs.

Key to Composite Sample IDs: 201SS14,15; 0.75-1.25 indicates a composite sample made up of discrete samples collected from borings 201SS14 and 201SS15, and the composite sample depth is 0.75 to 1.25 feet bgs.

"DUP" at the beginning of a Sample ID indicates a duplicate of the preceding sample that was collected and analyzed for quality assurance reasons.

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

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

Total lead analyzed by EPA Methods 6010B or 6020.

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

TABLE 6: Total and Soluble Lead Concentrations in Soil around Building 605
Doyle Drive Replacement Project, Environmental Soil Investigation

bgs = below ground surface.
mg/kg = milligram per kilogram.
mg/L = milligram per liter.
<x.x = analyte was not identified above laboratory reporting limit of x.x.
-- = not analyzed or not applicable.
NV = no value.
RCRA = Resource Conservation and Recovery Act.
ESL = Environmental Screening Level.

[1] Presidio Trust, 2008, Presidio-Wide Lead-Based Paint in Soil Investigation Work Plan, October.

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

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

[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, Residential 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 A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater is a Current or Potential Source of Drinking Water, Commercial/Industrial 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 K-3, Direct Exposure Soil Screening Levels, Construction/Trench Worker Exposure Scenario.

TABLE 7: Soil Concentrations for Other Contaminants of Potential Concern (mg/kg, dry weight)
Doyle Drive Replacement Project, Environmental Soil Investigation

Boring Location	Sample Identification	Sample Depth (feet bgs)	Sample Date	LUFT Metals					Total Petroleum Hydrocarbons				Polynuclear Aromatic Hydrocarbons												
				Cadmium	Chromium	Lead	Nickel	Zinc	Gasoline C7-C12	Diesel C12-C24	Motor Oil C24-C36	Fuel Oil C24-C36	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
Soil Analytical Results For Building 228																									
228SS02	228SS02;2.5-3.0	2.50-3.00	11/20/09	**0.25**	**31**	**57**	**45**	**110**	<1.1	**23**	**200**	**200**	--	--	--	--	--	--	--	--	--	--	--	--	--
228SS05	228SS05;2.0-2.5	2.00-2.50	11/19/09	**0.16**	**57**	**60**	**76**	**150**	<1.1	**19**	**45**	**45**	--	--	--	--	--	--	--	--	--	--	--	--	--
228SS10	228SS10;2.5-3.0	2.50-3.00	11/19/09	**0.12**	**80**	**79**	**71**	**71**	<1.2	**42**	**200**	**200**	--	--	--	--	--	--	--	--	--	--	--	--	--
228SS13	228SS13;3.0-3.5	3.00-3.50	11/20/09	**0.054**	**71**	**4.9**	**57**	**50**	<1.1	<1.2	<5.9	--	<0.0039	<0.0039	<0.0039	<0.0077	<0.0077	<0.0039	<0.0039	<0.0077	<0.0077	<0.0077	<0.0039	<0.039	<0.0039	<0.0039
Soil Analytical Results For Building 605																									
605SS11	605SS11;2.0-2.5	2.00-2.50	11/19/09	**0.14**	**47**	**20**	**65**	**72**	<1.1	**160**	**300**	**300**	**0.027**	**0.045**	**0.016**	**0.043**	**0.059**	**0.0085**	**0.072**	**0.042**	**0.23**	<0.0074	**0.0028**	**0.12**	**0.20**	**0.051**
605SS12	605SS12;2.0-2.5	2.00-2.50	11/19/09	**0.29**	**50**	**46**	**84**	**140**	<1.1	**39**	**250**	**250**	<0.014	**0.0041**	**0.012**	**0.026**	**0.055**	**0.0080**	**0.045**	**0.095**	**0.072**	<0.029	**0.023**	<0.14	**0.019**	**0.019**
605SS15	605SS15;2.5-3.0	2.50-3.00	11/19/09	--	--	**45**	--	--	<1.4	**10**	**40**	**40**	**0.012**	**0.080**	**0.084**	**0.05**	**0.10**	**0.025**	**0.077**	**0.063**	**0.12**	**0.0028**	**0.063**	<0.047	**0.061**	**0.15**
605SS15	605SS15;3.0-3.5	3.00-3.50	11/19/09	**0.071**	**39**	**16**	**38**	**33**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
605SS18	605SS18;2.5-3.0	2.50-3.00	11/19/09	--	--	**9.7**	--	--	<1.1	**15**	**26**	**26**	<0.0038	<0.0038	**0.0014**	**0.0018**	**0.0033**	<0.0038	**0.0040**	**0.0025**	**0.0071**	<0.0076	**0.0025**	<0.038	**0.0013**	**0.0018**
605SS18	605SS18;3.0-3.5	3.00-3.50	11/19/09	**0.083**	**78**	**6.1**	**59**	**37**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Presidio Trust Cleanup Levels for Building 228 [1]				NV	NV	50	NV	NV	100	115	144	144	308	0.43	0.04	0.43	620	0.43	4.3	NV	316	60	NV	9	86	241
Presidio Trust Cleanup Levels for Building 605 [1]				NV	NV	50	NV	NV	11.6	115	144	144	308	0.43	0.04	0.43	620	0.43	4.3	NV	316	60	NV	9	86	241
California Hazardous Waste Criteria - TTLC [2]				100	2,500 [6]	1,000	2,000	5,000	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV	NV
ESL for Residential Land Use [3]				1.7	750 [6]	200	150	600	83	83	370	370	2.8	0.38	0.038	0.38	27	0.38	23	0.062	40	NV	NV	1.3	11	85
ESL for Commercial/Industrial Land Use [4]				7.4	750 [6]	750	150	600	83	83	2,500	2,500	2.8	1.3	0.13	1.3	27	1.3	23	0.21	40	NV	NV	2.8	11	85
ESL for Construction Workers [5]				39	1.2E+06 [6]	750	260	230,000	4,200	4,200	12,000	12,000	100,000	15	1.5	15	11,000	15	2,400	2.4	14,000	NV	NV	130	11,000	21,000

Shading Key:
Analytical results shaded gray indicate that concentrations were greater than or equal to hazardous waste criteria or greater than site-specific Presidio Trust Cleanup Goals or ESLs.

Notes:
Key to Discrete Sample IDs: 228SS02;2.5-3.0 indicates a sample collected from environmental boring 228SS02 and the sample depth is 2.5 to 3.0 feet bgs.
Soil results are reported on a dry-weight basis in accordance with the Presidio Trust Quality Assurance Project Plan.
Values shown in bold indicate analytes quantified above the laboratory reporting limit.
Additional samples that were analyzed for lead only are included in Tables 5 and 6.
Only compounds that were identified above laboratory reporting limits in at least one sample are presented.
Volatile organic compounds ("VOCs") analyzed by EPA Methods 8021B and 8260B were not reported above laboratory reporting limits and are not presented in this table.
Leaking Underground Fuel Tank ("LUFT") Metals analyzed by EPA Method 6020.
Total petroleum hydrocarbons analyzed by EPA Method 8015B.
Polynuclear aromatic hydrocarbons analyzed by EPA Method 8310.
bgs = below ground surface.
mg/kg = milligram per kilogram.
<x.x = analyte was not identified above laboratory reporting limit of x.x.
-- = not analyzed.
NV = no value.
TTLC = Total Threshold Limit Concentration

[1] See Table 2 for BASELINE's derivation of site-specific Cleanup Goals.
[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, May.
[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, May.
[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, May
[6] Screening value is trivalent chromium.

TABLE 8: Summary of Soil Assessment Results for Contaminants of Potential Concern
Doyle Drive Replacement Project

Building ID	Contaminants of Potential Concern	Soil Group	Sample Depth (feet bgs)	Waste Classification [1,2]	Potential Soil Reuse Around Building [3]	Potential Soil Reuse Outside Presidio Trust Lands [4, 5]	Health Risk to Construction Workers [4]
201	Lead	Exposed Soils	0 to 0.75	California Hazardous Waste [6]	No	No	Yes
201	Lead	Covered Soils	0 to 3.5	Non-hazardous Waste	Yes	Yes	No
204	Lead	Exposed Soils	0 to 3.0	California Hazardous Waste	No	No	Yes
204	Lead	Covered Soils	0 to 2.75	California Hazardous Waste	No	No	Yes
228	LUFT Metals, TPH, VOC, PAH, and Lead	Exposed Soils	0 to 2.5	California Hazardous Waste (lead only)	No	No	No
228	LUFT Metals, TPH, VOC, PAH, and Lead	Covered Soils	0 to 3.5	California Hazardous Waste (lead only)	No	No	No
605	LUFT Metals, TPH, VOC, PAH, and Lead	All Soils	0 to 3.5	Non-hazardous Waste	No (TPH and PAH only)	No (TPH and PAH only)	No

Notes:
ID = identification.
bgs = below ground surface.
LUFT = leaking underground fuel tank.
TPH = total petroleum hydrocarbons.
VOC = volatile organic compounds.
PAH = polynuclear aromatic hydrocarbons.
RCRA = Resource Conservation and Recovery Act.

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

[2] Code of Federal Regulations, Title 40, Chapter 1, Section 261.24.

[3] Erler & Kalinowski, Inc., 2002, Development of Presidio-Wide Cleanup Levels for Soil, Sediment, Groundwater, and Surface Water, 30 October.

[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.

[5] Prior to off-site reuse, additional soil analyses may be required to evaluate other contaminants of potential concern.

[6] Additional testing will be required to determine if exposed soils excavated along the north side of Building 201 would be considered a RCRA-hazardous waste, once excavated.

APPENDICES

(IN PDF ON CD ROM)