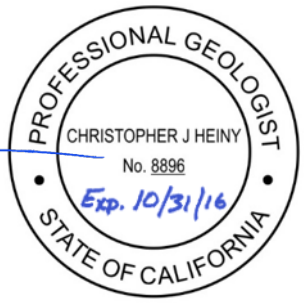
CORNERSTONE EARTH GROUP

Type of Services	**Soil Management Plan Addendum**
Location	**East Bay Bridge Center** **3839 Emery Street** **Emeryville, California**
Client **Client Address**	**Federal Realty Investment Trust** **356 Santana Row, Suite 1005** **San Jose, California 95128**
Project Number	**371-5-1**
Date	**February 2, 2015**



Christopher J. Heiny, P.G.
Senior Project Geologist

Kurt M. Soenen, P.E.
Principal Engineer

1259 Oakmead Parkway | Sunnyvale, CA 94085
T 408 245 4600 | F 408 245 4620

1270 Springbrook Road, Suite 101 | Walnut Creek, CA 94597
T 925 988 9500 | F 925 988 9501

www.cornerstoneearth.com

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SECTION 1: INTRODUCTION

On behalf of the Federal Realty Investment Trust (Federal Realty), Cornerstone Earth Group (Cornerstone) prepared this Soil Management Plan Addendum (SMP Addendum) to the 1994 Soil Management Plan prepared by Levine-Fricke (Levine-Fricke, 1994) for the East Bay Bridge Center located at the 3839 Emery Street in Emeryville, California (Site, Figures 1 and 2). This SMP Addendum also presents the analytical results of the soil samples collected near planned landscape improvements as discussed in Section 2.2. This work was performed for Federal Realty in accordance with our November 24, 2014 and December 5, 2014 Agreements (Agreements).

This SMP Addendum provides a decision framework to manage soil excavated for construction and unanticipated suspect conditions (i.e. unknown structures or impacted soil), if any, encountered during construction. This SMP additionally describes chemicals of potential concern (COPC) detected in soil beneath the Site, and protocols to address these COPC during construction.

This SMP includes the following:

- A description of the Site background.
- A general description of the planned tenant and landscape improvements of the Site.
- Summary of readily available soil quality data.
- Management procedures for the excavation of contaminated soil, including protocols for sampling of excavated soil for disposal acceptance and/or potential on-Site reuse.
- Protocols for contractors to follow to segregate “clean” soil from soil suspected to be contaminated under the guidance of the Environmental Consultant.
- A contingency plan to be implemented if buried structures, debris, or unidentified areas of impacted soil are encountered during Site development activities.

- An excavation dust control plan.
- A site specific Health and Safety Plan for excavation activities prepared by a certified industrial hygienist (CIH).

SECTION 2: SITE DESCRIPTION

2.1 LOCATION

The general description and location of the Site are listed in Table 1.

Table 1. Location and Ownership

Assessor's Parcel No. (APN)	49-619-5
Reported Address/Location	3839 Emery Street, Emeryville, California
Approximate Lot Size	8 acres
Approximate Bldg. Size (existing)	102,800 square feet

2.2 LANDSCAPE IMPROVEMENT PLANS

The Site currently consists of commercial retail space with asphalt pavement drive aisles and parking areas.

Landscaping improvements are proposed along the front of the building. As shown on Figure 3, approximately 500 linear feet of trench will be excavated both north of the frontage drive aisle (parking lot side) and south of the frontage drive aisle (building side; behind the concrete curbing). The planned landscape areas will be backfilled with "clean" imported topsoil; Silva Cell product covered by asphalt pavement and/ concrete will be placed in the remaining trench areas. Silva Cells are designed to create an expanded rooting zone and are hydraulically connected to the adjacent landscape area(s). The trench excavations will extend to a minimum depth of approximately 4 to 5 feet to accommodate the planned landscape improvements; however; additional over-excavation will be performed in areas where total petroleum hydrocarbon (TPH) affected soil extends beyond the design finished sub-grade trench excavation.

2.3 BACKGROUND

2.3.1 Prior Environmental Studies

In the late 1980's and early 1990's, Levine-Fricke performed several environmental investigations at contiguous properties bound by Beach Street to the west, San Pablo Avenue to the east, 40th Street to the north, and Highway 580 and Yerba Buena Avenue to the south (Properties); the Site was located in the eastern portion of these Properties. The prior studies are discussed in detail in a 1994 Soil Management Plan prepared by Levine-Fricke (Levine-Fricke, 1994). A copy of the provided Soil Management Plan is included in Appendix A and should be reviewed for a more detailed overview of the Site.

Based on information presented in the Soils Management Plan, in 1993 up to approximately 7 feet of petroleum hydrocarbon affected fill associated with historical uses at the Properties were

placed at the Site and capped by the existing hardscape surfaces (i.e. asphalt pavement or concrete) and building pads. Following fill placement, the Site was equally divided into 20 grid cells and two soil samples were collected from each grid cell from the upper approximate 3 feet of soil. Laboratory analyses of the fill samples for COPC detected up to 260 milligrams per kilogram (mg/kg) of TPH as diesel (TPHd), up to 4,400 mg/kg TPH as oil (TPHo), and up to 18,000 mg/kg of total oil and grease (TOG).

2.3.2 1994 Soil Management Plan

Levine-Fricke prepared a Soil Management Plan (Levine-Fricke, 1994) for the TPH-affected fill that was capped on-Site with hardscape surfaces consisting of concrete, asphalt, and/or building pads. This work reportedly was performed in accordance with Levine-Fricke's March 10, 1992 "Containment Plan for Total Petroleum Hydrocarbon-Affected Soils" that was approved by the California Regional Water Quality Control Board in their letter dated June 24, 1992. The objectives of the Soil Management Plan were to:

- Document on-Site containment of the TPH-affected soils;
- Outline measures to be taken to maintain the pavement cap over the contained soils;
- Specify protocols for the appropriate management of the contained soils if they are subsequently excavated; and
- Present a ground water monitoring program to monitor shallow ground water quality beneath areas where the affected soil was contained.

Based on a cross-section included in the Soil Management Plan, up to approximately 4 feet of fill was placed beneath the areas of the currently proposed landscaping improvements.

2.4 PRE-EXCAVATION CHARACTERIZATION SAMPLING – PLANNED LANDSCAPE AREAS

On December 23, 2014, Cornerstone directed a subsurface investigation and advanced 10 exploratory borings (EB-1 through EB-10) to approximate depths of 10 feet using a direct-push drill rig. The borings were located in the approximate areas where landscape excavation activities are planned. The subsurface lithologic information, Organic Vapor Meter (OVM) readings, and sample collection intervals are included on the boring logs in Appendix B. Approximate boring locations are shown on Figures 3 and 4.

Fill materials consisting of varying amounts of gravel, sand, and clay were observed to approximate depths of 4 to 6 feet. The underlying native soil observed in these borings was sandy clay with some gravel at varying depths. Ground water was not encountered in the borings.

Detected compounds are presented in the data summary tables included in the Tables Section of this SMP Addendum. TPHd and TPHo analytical results are also presented on Figure 4. The analytical results were compared to Environmental Screening Levels (ESLs) established by the San Francisco Bay Regional Water Quality Control Board (Water Board, December 2013). Metals data was also compared to their respective Total Threshold Limit Concentration (TTLC)

and/or Soluble Threshold Limit Concentration (STLC) at which a solid waste is considered a hazardous waste for waste disposal classification purposes per Title 26 of the California Code of Regulations. A more detailed discussion of the December 2014 sampling event including the laboratory reports and chain of custody documentation are provided under separate cover.

2.5 CONTAMINANTS OF POTENTIAL CONCERN

Based on the current and previous analytical data, COPC and their corresponding residential ESL are presented in Table 2.

Table 2. Contaminants of Potential Concern (COPC)

COPC	ESL (mg/kg)
TPHd	100
TPHo	100
Total Lead	80
benzo[a]pyrene	0.038
benzo[b]fluoranthene	0.38
benz(a)anthracene	0.38

SECTION 3: SOIL MANAGEMENT PLAN ADDENDUM

The SMP Addendum presented herein is purposefully broad in scope. This SMP Addendum presents protocols for excavation activities that may or will encounter COPC.

3.1 ROLES AND RESPONSIBILITIES

Key roles and responsibilities of personnel involved with implementing this SMP Addendum are summarized below in Table 3. Please read the entire SMP Addendum for a more complete discussion including other roles and responsibilities not outlined in Table 3.

Table 3. Roles and Responsibilities

Role	Summary of Responsibilities
Owner	▪ Personnel health and safety ▪ Sign waste profile and manifest forms
Contractor	▪ Personnel health and safety ▪ Implement construction mitigation measures as discussed in Section 3.2.4 including dust control, track-out prevention, and preparation and implementation of a SWPPP among others. ▪ Excavation, stockpiling, and soil loading activities presented in this SMP Addendum ▪ Obtain pre-approval from a permitted landfill for soil disposal ▪ Provide adequate documentation for proposed import fill as discussed in Section 3.5
Environmental Consultant	▪ Personnel health and safety ▪ Part-time observation as required by Owner ▪ Perform confirmation and/or soil stockpile sampling where appropriate.

Role	Summary of Responsibilities
	▪ Document field activities and preparation of daily field reports and a completion report ▪ Provide guidance on the segregation of clean and potentially impacted excavated soils.

3.2 RISK MANAGEMENT DURING CONSTRUCTION

This section presents the risk management procedures to be followed during construction activities, including worker training, construction impact mitigation measures, and soil management protocol.

3.2.1 Brief Description of Subsurface Construction Activities

Construction excavation activities associated with the planned tenant improvements will consist of trenching for landscape improvements both north and south of the frontage drive aisle as shown on Figure 3. The trench excavations will extend to a minimum depth of approximately 4 to 5 feet to accommodate the planned landscape improvements; however; additional over-excavation will be performed in areas where TPH-affected soil extends beyond the design finished sub-grade trench excavation. Based on the sampling data presented in Section 2.4, the anticipated trench depths in the areas of landscaping improvements are presented in Figure 4. Soils removed from these excavations are anticipated to be direct loaded and transported off-Site for landfill disposal. Some excavated soils may be temporarily stockpiled for additional sampling and landfill profiling purposes. Clean imported topsoil and/or Silva Cell product will be placed into the excavations.

Construction excavation activities also are planned inside the existing structure.

3.2.2 Pre-Construction Planning and Notification

Prior to the start of any construction activity that involves below ground work, information regarding Site risk management procedures (e.g. a copy of this SMP Addendum) will be provided to the contractors for their review and each contractor shall provide such information to its subcontractors.

3.2.3 Site-Specific Health and Safety Worker Requirements

Cornerstone prepared a Health and Safety Plan (HSP) that provides general health and safety guidance such that field activities can be conducted in a safe manner. The HSP is included in Appendix C. On-Site contractors performing subsurface activities that will or may encounter COPC will be required to develop their own Site-specific HSP. The HSP prepared by the contractor will, at a minimum, include the components of the HSP presented in Appendix C. Each contractor will be responsible for the health and safety of their own workers, including but not limited to preparation of their own injury and illness prevention plan (IIPP). The purpose of the HSP and IIPP is to provide general guidance regarding the work hazards that may be encountered during each phase of construction activities.

Contractors are also required to determine the requirements for worker training, based on the level of expected contact to soil associated with the contractor's activities and locations. The HSP will contain provisions for limiting and monitoring chemical exposure to construction workers, chemical and non-chemical hazards, emergency procedures, and standard safety protocols. Contractors are required to determine the appropriate level of training for their Site personnel, which could include the 40-hour HAZWOPER training course (29 CFR 1910.120 (e)), including respirator and personal protective equipment training. Personnel that may come in contact with the TPH-affected soil should be 40-hour HAZWOPER trained.

3.2.4 Construction Impact Mitigation Measures

During excavation activities, measures will be taken by contractors to minimize dust generation, storm water runoff and tracking of soil off-Site. The construction impact mitigation measures are described below.

3.2.4.1 Site Control

Site control procedures are required during excavation activities that will penetrate the asphalt pavement and/or concrete cap. Site control procedures will be implemented by the contractor to control the flow of personnel, vehicles and materials in and out of the Site while working in exposed soil areas, and help control the spread of COPC from the Site. Access and egress will be controlled at the appropriate locations. Construction activities will be controlled by the general contractor's Site Safety Officer. Unauthorized personnel and visitors shall not be allowed to access areas where cap materials have been penetrated. Eating, drinking, smoking, chewing tobacco, or applying cosmetic is prohibited in these areas.

3.2.4.2 Equipment Decontamination

Soil will be removed from equipment and vehicles before leaving the Site. Cleaning methods used may include dry methods, such as brushing, scraping, or vacuuming. If dry methods are not effective, wet methods, such as steam cleaning or pressure-washing, should be used. The contractor, however, will be required to contain and manage the rinse water. If off-Site disposal of the rinse water is necessary, the contractor will collect samples of the rinse water for analytical testing by a state certified laboratory, as required by the disposal facility.

Decontamination procedures will be developed and implemented by the contractor to minimize the possibility that equipment releases contaminated soil onto public roadways or to on-Site areas containing "clean" cover materials or new paving.

3.2.4.3 Personal Protective Equipment

Personal Protective Equipment (PPE) and clothing are used to isolate workers from COPC and physical hazardous. The minimum level of protection for workers coming into direct contact with contaminated materials is Level D:

1) Coveralls or similar clothing.
2) Reflective safety vests
3) Work gloves, as necessary
4) Steel-toed boots

5) Safety glasses, as necessary
6) Hard hat
7) Hearing protection, as necessary

3.2.4.4 Dust Control and Monitoring

Construction operations will be conducted to minimize the creation and dispersion of dust and will include, at a minimum, the following measures:

- Limit on-Site vehicle speed to approximately 15 miles per hour or less as needed to minimize visible dust generation;
- Apply water to the areas to be excavated and/or graded, and continue watering throughout the grading and/or excavation activities to minimize visible dust generation;
- Suspend excavation/grading activities when wind speeds are high enough to result in visible dust emissions (e.g. two gusts of greater than 25 miles per hour within 30 minutes);
- Keep soil stockpiles adequately wetted or covered when not in use and at the end of each work day;
- Minimizing the amount of excavated material or waste materials stored at the Site;
- If track-out occurs, clean track-out on paved public roads using a high efficiency particulate air filter (HEPA filter) equipped vacuum device at the end of each work day and upgrade decontamination procedure to help prevent future track-out, see Section 3.1.4.5 for additional details;
- When loading trucks for removal of excavated material, the material shall not extend above the walls or back of the truck bed. The load must be tightly covered with a tarp or other effective cover for all trucks hauling soil, sand, and other loose materials before the trucks leave the loading area. If needed, the materials will be wetted prior to covering;

Additional dust control measures may be identified and implemented by contractors, as necessary, especially if dry and windy conditions persist during periods of earthwork.

If requested by Federal Realty, the Environmental Consultant will perform perimeter/fence line dust monitoring to evaluate the potential for off-Site migration of dust during soil disturbing activities (excavation and off-haul). Particulate meters (MIE PDR-1000s) in data logging mode will be used to measure and record the real-time airborne dust concentrations. This information can be downloaded and printed. These meters will be used to collect measurements at two downwind locations and one upwind location along the perimeter of the Site during the excavation and off-haul activities. The locations will be determined each day by the Environmental Consultant and shall be based on the daily prevailing wind direction. The Environmental Consultant will record the wind direction, speed, and time of observation in the field throughout each day and the sampling location will be modified during the day if significant changes in wind direction are apparent.

3.2.4.5 Track-out Prevention

Any track-out on a paved road at any location where vehicles exit the work Site will be cleaned by using wet sweeping or a HEPA filter equipped vacuum device by the end of each work day. Dry sweeping of paved roadways is prohibited.

The following track-out prevention measure may also be utilized at the Site entrance/exit by on-Site contractors:

- A gravel pad near the Site exit for vehicle decontamination;
- A tire shaker; and/or
- A wheel wash system.

3.2.4.6 Storm Water Pollution Controls

A storm water pollution prevention plan (SWPPP) has been prepared by the Civil Engineer of Record. The Contractor will be responsible for implementing the SWPPP. Storm water pollution controls will be based on best management practices (BMPs), such as those described in "Information on Erosion and Sediment Control for Construction Projects: A Guidebook" (Water Board 1998) and "Erosion and Sediment Control Field Manual", Third Edition (Water Board 1999). Sediment and erosion control procedures may include, but are not limited to the following:

- Constructing temporary berms or erecting silt fences around exposed soil;
- Placing straw bale barriers or sediment traps around catch basins or other entrances to storm drains;
- Covering soil stockpiles with plastic sheeting or tarps during rainfall events; and
- Implementing other appropriate BMPs.

3.3 SOIL MANAGEMENT PROTOCOLS

If possible, excavated TPH-affected soil should be placed back into its excavation and capped by asphalt pavement or concrete surfaces. Excess soil that cannot be reused beneath hardscape surfaces must be properly profiled for off-Site landfill disposal.

Where an existing hardscape surface will be replaced with landscaping, the TPH-affected soil within the limits of the planned landscape boundary should be removed to create a "clean" landscape corridor. Similar procedures must be followed where Silva Cell product will be installed since these areas are hydraulically connected to the landscape areas.

3.3.1 Excavation Procedures in Planned Landscape Areas

Prior to starting excavation activities, the contractor will need to remove hardscape materials to access the underlying soil. The lateral limits of the planned landscape excavation areas are

shown on Figures 3 and 4. To create a "clean" landscape corridor, the landscape excavations will extend to the approximate depth where the remaining in-place soil does not contain TPHd and/TPHo concentrations that exceed their respective residential ESL of 100 mg/kg.

The landscape excavations have been subdivided into five designated areas based on the depth of fill and/or TPH concentrations that exceed 100 mg/kg. These areas are presented in Figure 4. For each designated area, the Contractor will initially excavate, direct load, and off-haul soil to the proposed "Initial Excavation Depth" shown on Figure 4.

The Contractor should assume that confirmation soil sampling at the base of the "Initial Excavation Depth" may be performed by the Owner's Environmental Consultant to help evaluate if additional over-excavation by the Contractor is required.

Additional over-excavation may be required in each designated area to achieve the design finished subgrade elevation and/or to remove potential TPH-affected soil below the design subgrade elevation. If required, Figure 4 presents the preliminary additional over-excavation depth interval in each designated area. The Environmental Consultant will provide guidance on screening and segregation of these soils.

Over-excavated soil from each area should be separately stockpiled so soil samples can be collected by the Environmental Consultant to evaluate reuse and/or landfill disposal options. Over-excavated soil that has been determined to contain TPH concentrations at or above 100 mg/kg or soil that is suspected to be contaminated (i.e., by visual and/or olfactory observations), will be segregated and stockpiled separately on-Site for further evaluation.

Stockpiled soil proposed for reuse in landscape areas will be sampled by the Environmental Consultant. Soil with COPC concentrations less than environmental screening criteria can be reused in landscape areas. Soil with COPC concentrations greater than environmental screening criteria will be transported off-Site for disposal and/or placed on-Site beneath hardscape surfaces (excluding the areas with Silva Cells)

3.3.2 Management of Soil

3.3.2.1 Confirmation Soil Sampling In Planned Landscape Areas

As discussed, pre-excavation characterization soil sampling was performed by Cornerstone to help evaluate the vertical extent of TPH-affected soil in the planned landscape excavation areas. The vertical extent of TPH-affected soils appears to range from approximate depths of 4½ to 8½ feet. Preliminary soil excavation areas are shown on Figure 4.

Depending on field observations and/or requirements from the overseeing regulatory agency, confirmation sampling may need to be performed to help confirm the TPH-affected soil has been removed from the bottom of the planned landscape excavations. Alternatively, additional pre-excavation characterization soil sampling could be performed to help delineate potential impacts.

3.3.2.2 Soil Stockpiling Procedures

Stockpiled soil that is presumed “clean” and/or suspected to be contaminated shall be placed on-Site on top of and covered by an “impermeable” liner (6 mil) to reduce infiltration by rainwater and contamination of underlying soil. “Clean” soil shall be stockpiled separately from suspect soil. If the stockpile is located on pavement or concrete, then a liner is not required beneath the pile. If a stockpile shall remain on-Site greater than 48 hours, sandbags shall be placed around the stockpile to secure the plastic sheeting. While remaining on-Site, stockpiles shall be checked daily to verify that they are adequately covered.

3.3.2.3 Waste Profiling of Excavated Soil

The analytical data presented in this SMP Addendum can be used to profile the soil that will require excavation and off-haul as part of the planned tenant improvements. The analytical results will need to be forwarded to disposal facilities by the contractor to determine the appropriate destination of the soil. Waste profile and manifest documentation will need to be signed by Federal Realty’s representative. Please note that additional sampling and analyses may be required by the contractor’s selected landfill depending on their accepting criteria.

In some cases, excess soil may be temporarily stockpiled and soil samples could be collected from the stockpiled soil to evaluate waste disposal options. The number of samples and laboratory testing program will be determined based on the contractor’s selected waste disposal facility’s acceptance criteria.

3.3.2.4 Soil Sampling Protocols

Soil samples will be collected in pre-cleaned new stainless steel liners. The ends of liners will be covered with Teflon film, fitted with plastic end caps, taped, and labeled with a unique identification number. Samples selected for VOC analysis will be collected in 5-gram Core N’ One™ capsules (in triplicate). The samples then will be placed in an ice- chilled cooler, and transported to a state-certified analytical laboratory with chain of custody documentation. Sampling equipment will be cleaned with laboratory grade detergent and rinsed or steam cleaned between sample points. If collected, samples will be selectively analyzed for the COPC identified at the Site. Other analytical test methods may be required by the disposal facility.

3.3.2.5 Impermeable Liners

The sidewalls of the landscape and Silva Cell excavations will be lined with an impermeable geomembrane liner to provide separation between the “clean” fill soil and the presumed TPH-affected sidewall soils. The Owner’s landscape architect has approved the following liner systems for this project: Herculine Sigma Smooth High Density Polyethylene (HDPE) Geomembrane and/or Firestone Ethylene Propylene Diene Monomer (EDPM) Geomembrane. The Environmental Consultant will observe the impermeable liner prior to backfilling and/or placement of Silva Cell product.

3.3.2.6 Field Documentation

During excavation activities in planned landscape areas, the Environmental Consultant will be present on-Site during the removal of the TPH-affected to observe soil conditions and contractor activities, perform dust monitoring, and collect confirmation and/or stockpile soil samples. As part of this process, daily field reports documenting Site activities will be completed and made available for inspection by authorized oversight personnel for the duration of the project.

3.3.2.7 Daily Field Reports

The Environmental Consultant will complete daily field reports for each Site visit. The daily field reports will document where, when, how, and from whom project information was obtained. Entries will be complete and accurate enough to permit reconstruction of field activities. Each page will be dated and the time of entry noted. Entries in the daily field reports will include:

- Site name and address
- Recorder's name
- Team members and their responsibilities
- Time of Site arrival/entry and time of Site departure
- A summary of any on-Site meetings
- Quantity of impacted soils excavated
- Quantity of impacted soils temporarily stored on-Site
- Quantity of excavated soils in truckloads transported off-Site
- Names of waste transporters and proposed disposal facilities
- Copies or numbers of manifests or other shipping documents (such as bill of landing) for waste shipments
- Quantity of import fill material in truckloads
- Deviations from this SMP and the Site's HSP
- Changes in personnel and responsibilities as well as reasons for the changes
- Levels of safety protection
- Calibration readings and equipment model for any equipment used

The following information will be recorded during the collection of each sample:

- Sample identification number
- Sample location and description
- Site sketch showing sample location and measured distances
- Sampler's name(s)
- Date and time of sample collection
- Designation of sample as composite or grab
- Type of sample (i.e., matrix)
- Type of preservation
- Type of sampling equipment used
- Field observations and details important to analysis or integrity of samples (e.g., heavy rains, odors, colors, etc.)
- Instrument readings (e.g., photoionization detector [PID], etc.)
- Chain-of-custody form numbers and chain-of-custody seal numbers
- Transport arrangements (courier delivery, lab pickup, etc.)
- Recipient laboratory(ies)

3.3.2.8 Chain of Custody Records

Chain-of-custody records are used to document sample collection and shipment to the laboratory for analysis. All sample shipments for analyses will be accompanied by a chain-of-custody record. Form(s) will be completed and sent with the samples for each laboratory and each shipment. If multiple coolers are sent to a single laboratory on a single day, chain-of-custody form(s) will be completed and sent with the samples for each cooler. The chain-of-custody record will identify the contents of each shipment and maintain the custodial integrity of the samples. Generally, a sample is considered to be in someone's custody if it is either in someone's physical possession, in someone's view, locked up, or kept in a secured area that is restricted to authorized personnel. Until receipt by the laboratory, the custody of the samples will be the responsibility of the sample collector.

3.3.2.9 Photographs

Photographs will be taken by the Environmental Consultant to help document information entered in the daily field report. When a photograph is taken, the following information will be written in the daily field report:

- Time, date, location, and, if appropriate, weather conditions
- Description of the subject photographed
- Name of person taking the photograph

3.4 CONTINGENCY PROCEDURES

Unexpected hazardous materials may be encountered during excavation activities. These materials include, but are not limited to, undocumented underground storage tanks (USTs), piping, sumps, septic tanks, and isolated areas of suspected soil contamination. If unexpected subsurface conditions are encountered, the following procedures shall be implemented:

- The work shall stop and the area shall be secured to prevent unauthorized entry and to prevent the spread of contamination. If the situation appears to be immediately dangerous to life or health (i.e., ruptured gas line), all work shall stop on-Site, the Site shall be evacuated, and the appropriate notifications shall be made in accordance with the Contractor's procedures.

- The Site supervisor, Cornerstone, and property owner shall be notified. The unexpected subsurface condition will be inspected by the appropriate personnel. Contact information is provided below in Table 4.

If an unexpected UST and/or associated piping is encountered, Alameda County Department of Environmental Health (DEH) will be notified and the appropriate permit will be obtained prior to removal.

Table 4. Key Project Contacts

Company	Contact	Telephone Number
Federal Realty (Property Owner)	Michael Strahs	408-551-2248
To Be Determined (Contractor)	---	---
To Be Determined (Regulatory Oversight Agency)	---	---
Cornerstone Earth Group (Environmental Consultant)	Kurt Soenen	408-245-4600

3.5 IMPORT FILL

To minimize the potential introduction of contaminated fill onto the Site, all possible sources of import fill shall have adequate documentation so it can be verified that the fill source is appropriate for the Site. Documentation will include detailed information on previous land use of the fill source, any Phase I Environmental Site Assessments performed and the findings, and the results of any analytical testing performed (Phase II Investigations). If no documentation is available, the documentation is inadequate, or if no analytical testing has been performed, samples of the potential fill material shall be collected and analyzed by the Contractor's environmental consultant. The analyses selected shall be based on the fill source and knowledge of the previous land use as determined by the contractor's environmental consultant. The sample frequency for potential fill material shall be in accordance with that outlined in the technical document titled, "Information Advisory on Clean Imported Fill Material" (DTSC, October 2001). The contractor's environmental consultant shall provide guidance to the contractor regarding the approval of the use of imported fill; no fill material will be accepted if it exceeds current residential environmental screening levels (unrestricted re-use criteria), regional background concentrations of metals, and/or Site-specific levels developed by Federal Realty. Soil from industrial properties and/or properties with current or historic incidents will not be accepted as import fill.

3.6 COMPLETION REPORT

Cornerstone will prepare a Completion Report presenting their observations, analytical results, and their conclusions and recommendations. The report will include a Site plan showing sampling locations and copies of the analytical reports.

SECTION 4: LIMITATIONS

Contractors working on-Site are responsible for the health and safety of their employees and subcontractors. In addition, the Site owner or their authorized representative is responsible for implementing the guidelines presented in this SMP Addendum; integrating these guidelines into the project specifications and construction plans; and for seeking clarification should they have questions regarding this SMP Addendum prior to starting work.

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Cornerstone. The chemical data presented in this report may change over time and are only valid for this time and location. Cornerstone makes no warranty, expressed or implied, except that our services have been performed in accordance with the environmental principles generally accepted at this time and location.

SECTION 5: REFERENCES

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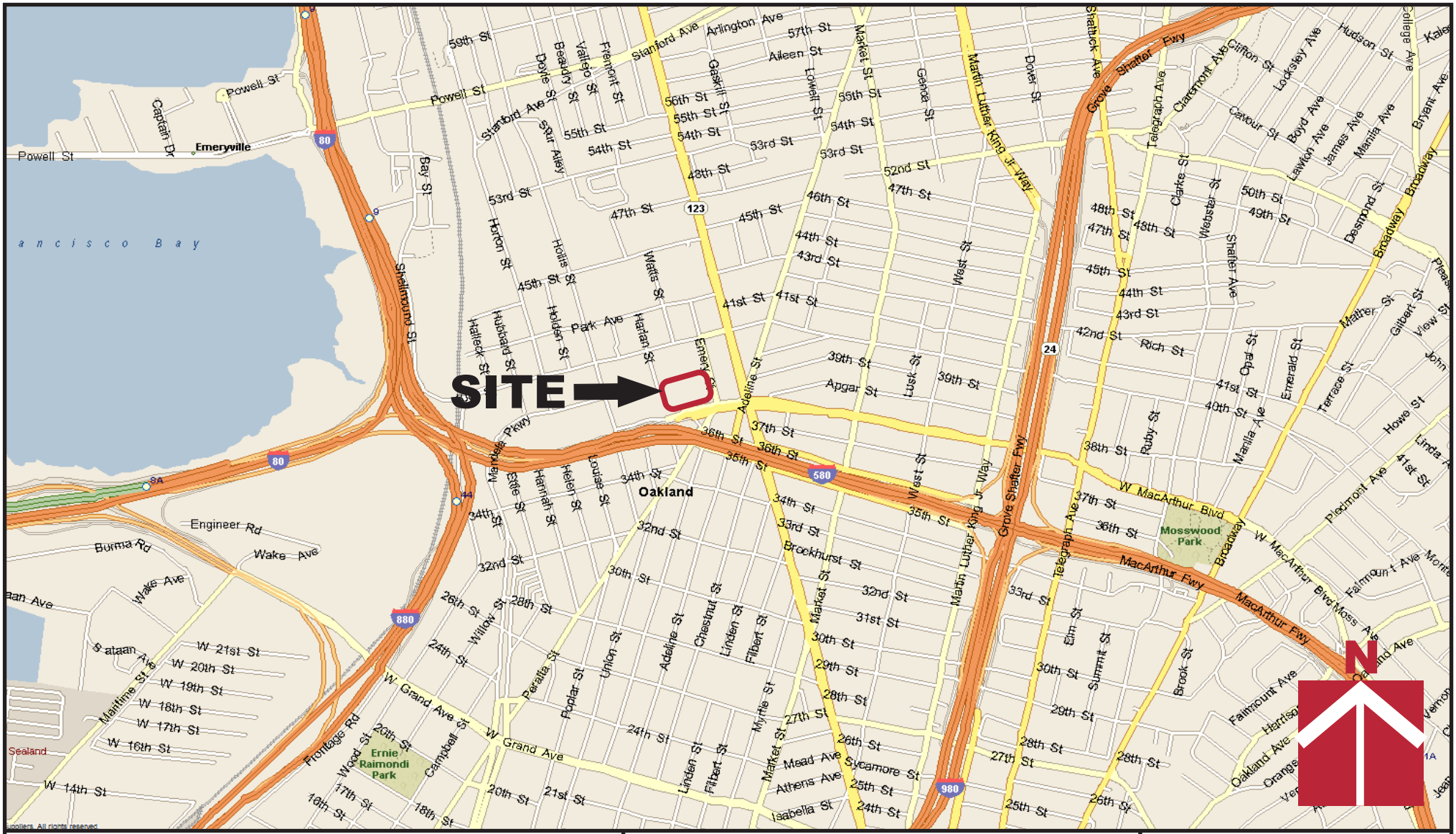


CORNERSTONE EARTH GROUP

Vicinity Map

East Bay Bridge Project
3839 Emery Street
Emeryville, CA

Project Number	371-5-1
Figure Number	Figure 1
Date	January 2015
Drawn By	RRN

Approximate Site Boundary and area of petroleum affected soils placed beneath building pads and/or paved areas

40th Street

Mandela Parkway

Holis Street

Emery Street

San Pablo Avenue

Planned landscape improvements (See Figure 3)

CITY OF EMERYVILLE

CITY OF OAKLAND

MacArthur Boulevard

EB-1 (6.0)
EB-2 (4,0)
EB-3 (4.5)
EB-4 (4.5)
EB-5 (4,5)
EB-6 (6,0)
EB-7 (4.5)
EB-8 (5.5)
EB-9 (4,5)
EB-10 (4,5)

Legend

EB-1 (6.0) Approximate location of soil boring (SB) and approximate depth of fill material in feet

N

0 150 300

APPROXIMATE SCALE (FEET)

Base by Field Paoli Architects, "Site Plan - A 0.4", dated 10/16/2014

Project Number 371-5-1

Figure Number Figure 2

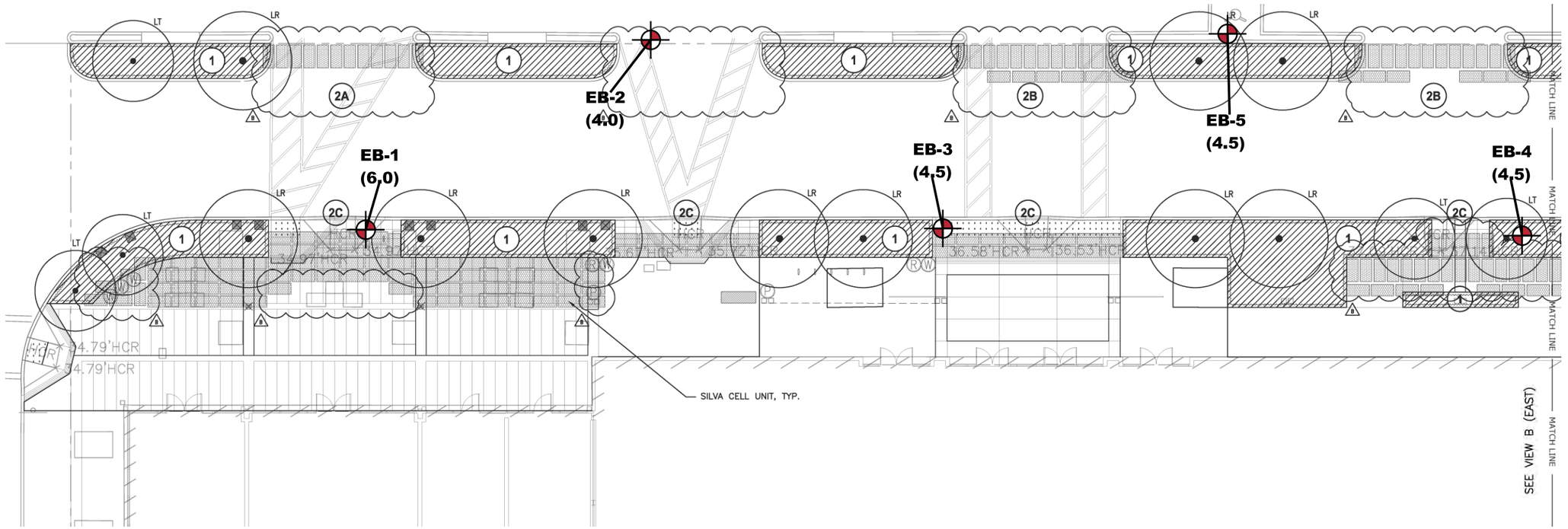
Drawn By RRN

Date January 2015

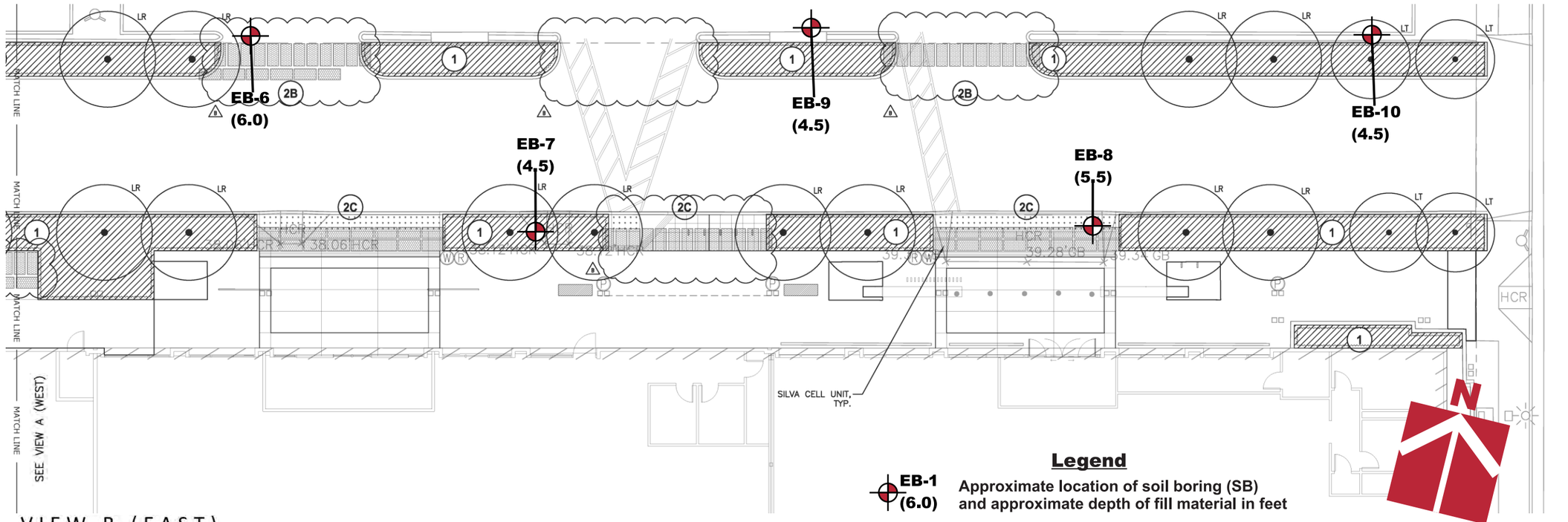
Site Plan

East Bay Bridge Project
3839 Emery Street
Emeryville, CA

CORNERSTONE EARTH GROUP



VIEW A (WEST)



VIEW B (EAST)

Legend

- **EB-1 (6.0)** — Approximate location of soil boring (SB) and approximate depth of fill material in feet
- Planned landscape area
- Planned Silva Cell area

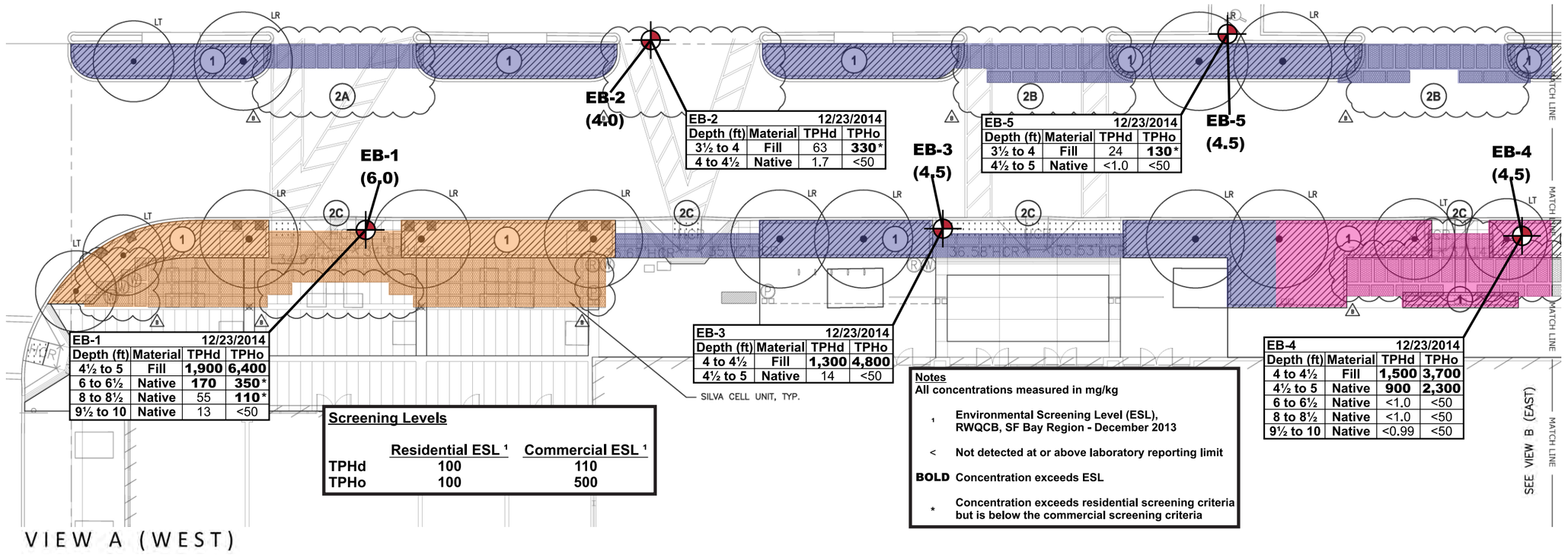
Base by Carducci & Associates, Inc., "Soil Preparation Plan - L6.01", dated 1/29/2015

Project Number: 371-5-1
Figure Number: Figure 3
Drawn By: RRN
Date: January 2015

Planned Landscape Improvements

East Bay Bridge Project
3839 Emery Street
Emeryville, CA

CORNERSTONE EARTH GROUP



EB-1		12/23/2014	
Depth (ft)	Material	TPHd	TPHo
4½ to 5	Fill	**1,900**	**6,400**
6 to 6½	Native	**170**	**350***
8 to 8½	Native	55	**110***
9½ to 10	Native	13	<50

EB-2		12/23/2014	
Depth (ft)	Material	TPHd	TPHo
3½ to 4	Fill	63	**330***
4 to 4½	Native	1.7	<50

EB-3		12/23/2014	
Depth (ft)	Material	TPHd	TPHo
4 to 4½	Fill	**1,300**	**4,800**
4½ to 5	Native	14	<50

EB-4		12/23/2014	
Depth (ft)	Material	TPHd	TPHo
4 to 4½	Fill	**1,500**	**3,700**
4½ to 5	Native	**900**	**2,300**
6 to 6½	Native	<1.0	<50
8 to 8½	Native	<1.0	<50
9½ to 10	Native	<0.99	<50

EB-5		12/23/2014	
Depth (ft)	Material	TPHd	TPHo
3½ to 4	Fill	24	**130***
4½ to 5	Native	<1.0	<50

Screening Levels

	Residential ESL [1]	Commercial ESL [1]
TPHd	100	110
TPHo	100	500

Notes
All concentrations measured in mg/kg

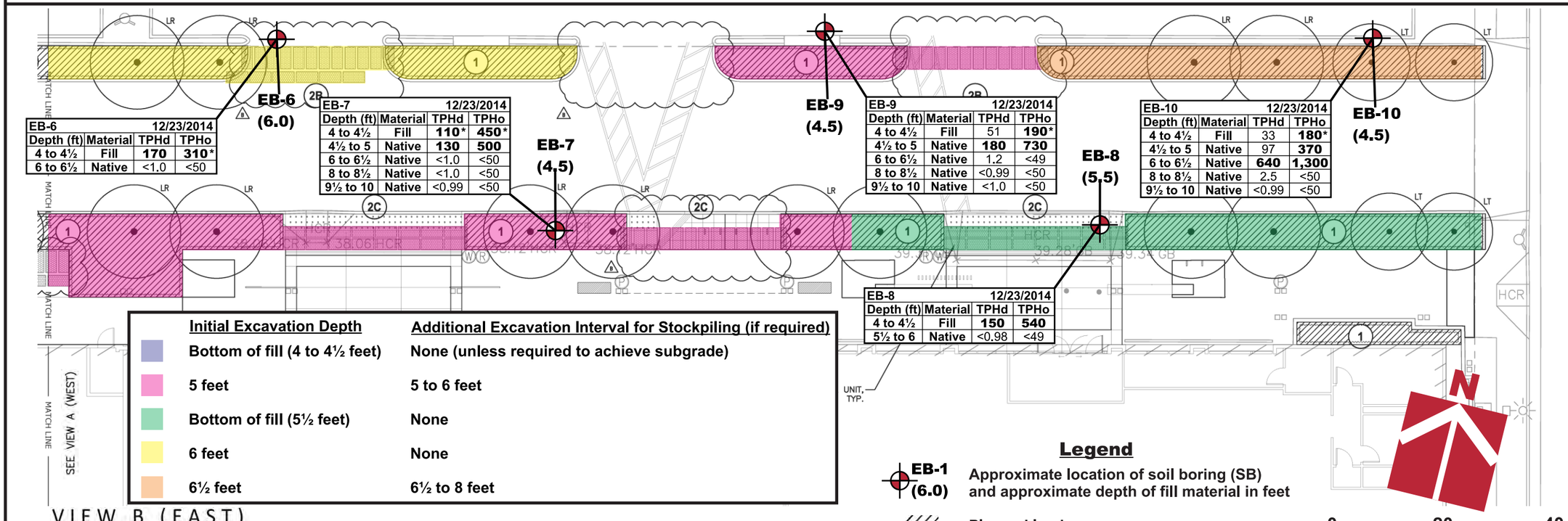
[1] Environmental Screening Level (ESL), RWQCB, SF Bay Region - December 2013

< Not detected at or above laboratory reporting limit

BOLD Concentration exceeds ESL

* Concentration exceeds residential screening criteria but is below the commercial screening criteria

VIEW A (WEST)



EB-6		12/23/2014	
Depth (ft)	Material	TPHd	TPHo
4 to 4½	Fill	**170**	**310***
6 to 6½	Native	<1.0	<50

EB-7		12/23/2014	
Depth (ft)	Material	TPHd	TPHo
4 to 4½	Fill	**110***	**450***
4½ to 5	Native	**130**	**500**
6 to 6½	Native	<1.0	<50
8 to 8½	Native	<1.0	<50
9½ to 10	Native	<0.99	<50

EB-8		12/23/2014	
Depth (ft)	Material	TPHd	TPHo
4 to 4½	Fill	**150**	**540**
5½ to 6	Native	<0.98	<49

EB-9		12/23/2014	
Depth (ft)	Material	TPHd	TPHo
4 to 4½	Fill	51	**190***
4½ to 5	Native	**180**	**730**
6 to 6½	Native	1.2	<49
8 to 8½	Native	<0.99	<50
9½ to 10	Native	<1.0	<50

EB-10		12/23/2014	
Depth (ft)	Material	TPHd	TPHo
4 to 4½	Fill	33	**180***
4½ to 5	Native	97	**370**
6 to 6½	Native	**640**	**1,300**
8 to 8½	Native	2.5	<50
9½ to 10	Native	<0.99	<50

Initial Excavation Depth	Additional Excavation Interval for Stockpiling (if required)
Bottom of fill (4 to 4½ feet)	None (unless required to achieve subgrade)
5 feet	5 to 6 feet
Bottom of fill (5½ feet)	None
6 feet	None
6½ feet	6½ to 8 feet

VIEW B (EAST)

Legend

EB-1 (6.0) Approximate location of soil boring (SB) and approximate depth of fill material in feet

Planned landscape area

Planned Silva Cell area

0 20 40

APPROXIMATE SCALE (FEET)

Base by Carducci & Associates, Inc., "Soil Preparation Plan - L6.01", dated 1/29/2015

Project Number 371-5-1

Figure Number Figure 4

Drawn By RRN

Date January 2015

Soil Analytical Data and Excavation Plan

East Bay Bridge Project
3839 Emery Street
Emeryville, CA

CORNERSTONE EARTH GROUP

CORNERSTONE EARTH GROUP

Table A. Analytical Results of Selected Soil Samples
(Concentrations in mg/kg)

Sample Location	Sample ID	Date	Depth (feet)	Material	TPHd	TPHo	TPHg	Acetone	Other VOCs
EB-1	EB-1 (4.5-5)	12/23/2014	4½-5	Fill	**1,900**	**6,400**	<0.23	0.089	ND
	EB-1 (6-6.5)	12/23/2014	6-6½	Native	**170**	**350***	<0.23	<0.047	ND
	EB-1 (8-8.5)	12/23/2014	8-8½	Native	55	**110***	---	---	---
	EB-1 (9.5-10)	12/23/2014	9½-10	Native	13	<50	---	---	---
EB-2	EB-2 (3.5-4)	12/23/2014	3½-4	Fill	63	**330***	<0.25	0.053	ND
	EB-2 (4-4.5)	12/23/2014	4-4½	Native	1.7	<50	---	---	---
EB-3	EB-3 (4-4.5)	12/23/2014	4-4½	Fill	**1,300**	**4,800**	<0.23	<0.047	ND
	EB-3 (4.5-5)	12/23/2014	4½-5	Native	14	<50	---	---	---
EB-4	EB-4 (4-4.5)	12/23/2014	4-4½	Fill	**1,500**	**3,700**	<0.28	<0.056	ND
	EB-4 (4.5-5)	12/23/2014	4½-5	Native	**900**	**2,300**	---	---	---
	EB-4 (6-6.5)	12/23/2014	6-6½	Native	<1.0	<50	---	---	---
	EB-4 (8-8.5)	12/23/2014	8-8½	Native	<1.0	<50	---	---	---
	EB-4 (9.5-10)	12/23/2014	9½-10	Native	<0.99	<50	---	---	---
EB-5	EB-5 (3.5-4)	12/23/2014	3½-4	Fill	24	**130***	<0.26	<0.052	ND
	EB-5 (4.5-5)	12/23/2014	4½-5	Native	<1.0	<50	---	---	---
EB-6	EB-6 (4-4.5)	12/23/2014	4-4½	Fill	**170**	**310***	<0.25	<0.05	ND
	EB-6 (6-6.5)	12/23/2014	6-6½	Native	<1.0	<50	---	---	---
EB-7	EB-7 (4-4.5)	12/23/2014	4-4½	Fill	**110***	**450***	<0.22	<0.043	ND
	EB-7 (4.5-5)	12/23/2014	4½-5	Native	**130**	**500**	---	---	---
	EB-7 (6-6.5)	12/23/2014	6-6½	Native	<1.0	<50	---	---	---
	EB-7 (8-8.5)	12/23/2014	8-8½	Native	<1.0	<50	---	---	---
	EB-7 (9.5-10)	12/23/2014	9½-10	Native	<0.99	<50	---	---	---
EB-8	EB-8 (4-4.5)	12/23/2014	4-4½	Fill	**150**	**540**	<0.25	<0.05	ND
	EB-8 (5.5-6)	12/23/2014	5½-6	Native	<0.98	<49	---	---	---
EB-9	EB-9 (4-4.5)	12/23/2014	4-4½	Fill	51	**190***	<0.21	<0.042	ND
	EB-9 (4.5-5)	12/23/2014	4½-5	Native	**180**	**730**	---	---	---
	EB-9 (6-6.5)	12/23/2014	6-6½	Native	1.2	<49	---	---	---
	EB-9 (8-8.5)	12/23/2014	8-8½	Native	<0.99	<50	---	---	---
	EB-9 (9.5-10)	12/23/2014	9½-10	Native	<1.0	<50	---	---	---
EB-10	EB-10 (4-4.5)	12/23/2014	4-4½	Fill	33	**180***	<0.24	<0.049	ND
	EB-10 (4.5-5)	12/23/2014	4½-5	Native	97	**370**	---	---	---
	EB-10 (6-6.5)	12/23/2014	6-6½	Native	**640**	**1,300**	---	---	---
	EB-10 (8-8.5)	12/23/2014	8-8½	Native	2.5	<50	---	---	---
	EB-10 (9.5-10)	12/23/2014	9½-10	Native	<0.99	<50	---	---	---
Residential ESL[1]					100	100	100	0.5	Varies
Commercial ESL[1]					110	500	500	0.5	Varies

1 Environmental Screening Level (ESL), RWQCB, San Francisco Bay Region – December 2013
< Not detected at or above laboratory reporting limit
NE Not Established
--- Not Analyzed
BOLD Concentration exceeds ESL
* Concentration exceeds residential screening criteria but is below the commercial screening criteria

CORNERSTONE EARTH GROUP

Table B. Analytical Results of Selected Soil Samples
(Concentrations in mg/kg)

Sample ID	Location	Date	Material	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Lead STLC	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
COMPOSITE-1	EB-1(4-4.5) and EB-2(3-3.5)	12/23/2014	Fill	1.4	4.9	140	0.23	0.23	24	6.7	31	**120**	2.0	0.24	25	<0.88	<0.22	<0.44	26	130
COMPOSITE-2	EB-3(3.5-4) and EB-4(3.5-4)	12/23/2014	Fill	<1.9	5.9	170	0.46	<0.47	38	9.1	29	35	---	0.17	44	<3.8	<0.94	<1.9	35	77
COMPOSITE-3	EB-5(3-3.5) and EB-6(3.5-4)	12/23/2014	Fill	<1.3	6.2	140	<0.25	<0.32	28	8.8	25	64	14 (2)*	0.27	32	<2.5	<0.64	<1.3	28	56
EB-5(3-3.5)	Discrete sample from EB-5(3-3½ ft)	12/23/2014	Fill	---	---	---	---	---	---	---	---	64	2.5	---	---	---	---	---	---	---
EB-6(3.5-4)	Discrete sample from EB-6(3-3½ ft)	12/23/2014	Fill	---	---	---	---	---	---	---	---	13	0.37	---	---	---	---	---	---	---
COMPOSITE-4	EB-7(3.5-4) and EB-8(3.5-4)	12/23/2014	Fill	0.48	6.5	130	0.31	1.3	31	7.4	30	45	---	0.15	33	0.99	0.29	0.68	31	68
COMPOSITE-5	EB-9(3.5-4) and EB-10(3.5-4)	12/23/2014	Fill	<1.5	11	140	0.30	2.1	37	7.1	45	60	3.0	0.23	35	<3.0	<0.75	<1.5	35	89
Residential ESL[1]				20	0.39	750	4	12	1,000	23	230	80	n/a	6.7	150	10	20	0.78	200	600
Commercial ESL[1]				40	1.6	1,500	8	12	2,500	80	230	320	n/a	10	150	10	40	10	200	600
Scott, 1991 [2]	Background Range			NE	0.2 to 5.5	NE	0.3 to 1.4	0.05 to 1.7	30.5 to 72	NE	23.8 to 47.5	6.8 to 16.1	n/a	0.05 to 0.90	46.4 to 101	NE	NE	NE	39 to 288	47.7 to 82.8
	Maximum Background Detection			22	20	NE	3.2	14	170	NE	67	54	n/a	1.3	145	4	4.8	3.8	NE	120
Bradford, 1996 [3]	Background Range			0.15 to 1.95	0.6 to 11	133 to 1,400	0.25 to 2.7	0.05 to 1.7	23 to 1,579	2.7 to 46.9	9.1 to 96.4	12.4 to 97.1	n/a	0.05 to 0.90	9 to 509	0.015 to 0.43	0.1 to 8.3	0.42 to 0.9846	39 to 288	88 to 236
	Upper Quartile			0.73	4.7	625	1.53	0.44	115	18.3	36.6	26.7	n/a	0.34	56	0.05	0.53	1.1	134	170
LBNL, 2009 [4]	99th Percentile			<6	28	410	1	5.6	120	25	63	43	n/a	0.42	272	4.9	2.9	10	90	140
	95% Upper Tolerance Limit (UTL)			5.5	19.1	323.6	1	2.7	99.6	22.2	69.4	16.1	n/a	0.4	119.8	5.6	1.8	7.6	74.3	106.1
Duverge, 2011 [5]	Mean			NE	4.6	NE	NE	NE	NE	NE	NE	NE	n/a	NE	NE	NE	NE	NE	NE	NE
	99th Percentile			NE	11	NE	NE	NE	NE	NE	NE	NE	n/a	NE	NE	NE	NE	NE	NE	NE
TTLC [6]				500	500	10,000	75	100	2,500	8,000	2,500	1,000	n/a	20	2,000	100	500	700	2,400	5,000
STLC [7] (mg/L)				15	5	100	0.75	1	5	80	25	n/a	5	0.2	20	1	5	7	24	250

1 Environmental Screening Level (ESL), RWQCB, San Francisco Bay Region – December 2013
2 Scott, Christina. December 1991. *Background Metal Concentrations in Soils in Northern Santa Clara County .*
3 Bradford, et. al. March 1996. *Background Concentrations of Trace and Major Elements in California Soils.*
4 LBNL, 2009. *Analysis of Background Distributions of Metals in the Soil at Lawrence Berkeley National Laboratory.*
5 Duverge, 2011. *Establishing Backround Arsenic in Soil of the Urbanized San Francisco Bay Region.*
6 Total Threshold Limit Concentration - California Code of Regulations, Title 22, Chapter 11, Article 3.
7 Soluble Threshold Limit Concentration - California Code of Regulations, Title 22, Chapter 11, Article 3.
< Not detected at or above laboratory reporting limit
NE Not Established
--- Not Analyzed
BOLD Concentration exceeds ESL or background range
* The two discrete samples (EB-5 and EB-6) used in the 2-point Composite-3 sample were analyzed for STLC lead, and the concentration was below the STLC limit. The Composite-3 sample was reanalyzed and soluble lead was detected at a concentration of 2 mg/L.

CORNERSTONE EARTH GROUP

Table C. Analytical Results of Selected Soil Samples
(Concentrations in mg/kg)

Sample ID	Location	Date	Material	PCBs	Pesticides	Anthracene	Benz(a) anthracene	Benzo(g,h,i) perylene	Benzo[a] pyrene	Benzo[b] fluoranthene	Benzo[k] fluoranthene	Chrysene	Dibenz(a,h) anthracene	Fluoranthene	Indeno (1,2,3-cd) pyrene	Pyrene
COMPOSITE-1	EB-1(4-4.5) and EB-2(3-3.5)	12/23/2014	Fill	ND	ND	0.14	**0.44***	0.15	**0.47**	**0.71***	0.32	0.45	0.051	0.80	0.15	1.3
COMPOSITE-2	EB-3(3.5-4) and EB-4(3.5-4)	12/23/2014	Fill	ND	ND	<0.05	0.10	0.066	**0.11***	0.17	0.055	0.14	<0.05	0.20	0.055	0.28
COMPOSITE-3	EB-5(3-3.5) and EB-6(3.5-4)	12/23/2014	Fill	ND	ND	<0.025	0.03	<0.025	0.037	0.056	<0.025	0.047	<0.025	0.068	<0.025	0.093
COMPOSITE-4	EB-7(3.5-4) and EB-8(3.5-4)	12/23/2014	Fill	ND	ND	<0.025	0.046	0.034	**0.063***	0.099	0.03	0.067	<0.025	0.094	0.027	0.13
COMPOSITE-5	EB-9(3.5-4) and EB-10(3.5-4)	12/23/2014	Fill	ND	ND	<0.05	<0.05	<0.05	**0.052***	0.079	<0.05	0.056	<0.05	0.084	<0.05	0.11
Residential ESL[1]				Variable	Variable	2.8	0.38	27	0.038	0.38	0.38	3.8	0.11	40	0.38	85
Commercial ESL[1]				Variable	Variable	2.8	1.3	27	0.13	1.3	1.3	13	38	40	1.3	85

1 Environmental Screening Level (ESL), RWQCB, San Francisco Bay Region – December 2013
< Not detected at or above laboratory reporting limit
ND Not detected at or above reporting limit
NE Not Established
--- Not Analyzed
BOLD Concentration exceeds ESL or RSL
* Concentration exceeds residential screening criteria but is below the commercial screening criteria

CORNERSTONE
EARTH GROUP

APPENDIX A – 1994 SOIL MANAGEMENT PLAN

Soils Management Plan for Petroleum Hydrocarbon-Affected Soils Yerba Buena/East Baybridge Center Emeryville and Oakland, California

November 30, 1994
1649.00-019

Prepared for
Catellus Development Corporation
201 Mission Street, 30th Floor
San Francisco, California 94105

LEVINE·FRICKE

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

November 30, 1994 LF 1649.00-019

Mr. Sumadhu Arigala
California Regional Water Quality Control Board
2101 Webster Street, Suite 500
Oakland, California 94612

Subject: Soils Management Plan for Petroleum Hydrocarbon-Affected Soils, Yerba Buena/East Baybridge Center, Emeryville and Oakland, California

Dear Mr. Arigala:

As requested by the Regional Water Quality Control Board (RWQCB) in a letter dated June 24, 1992, Levine•Fricke, on behalf of Catellus Development Corporation, has prepared the enclosed Soils Management Plan (SMP) for the Yerba Buena/East Baybridge Center. The objectives of the SMP are to:

- document on-site containment of petroleum-affected soils
- outline measures to be taken to maintain the pavement cap over the contained soils
- specify protocols for the appropriate management of the contained soils if they are subsequently excavated
- present the ground-water monitoring program implemented at the site following containment of soil to monitor shallow ground-water quality beneath areas where petroleum-affected soil has been contained

If you have any questions, please call either of the undersigned or Ms. Kimberly Brandt at Catellus Development (415) 974-4500.

Sincerely,

Ron Goloubow
Senior Project Geologist

Jenifer Beatty
Senior Project Hydrogeologist

Enclosure

cc: Ms. Susan Hugo, ACHA
Ms. Kimberly Brandt, Catellus Development Corporation

1900 Powell Street, 12th Floor
Emeryville, California 94608
(510) 652-4500
Fax (510) 652-2246

CONTENTS

LIST OF TABLES

LIST OF FIGURES

CERTIFICATION

All hydrogeologic and geologic information, conclusions, and recommendations in this document have been prepared under the supervision of and reviewed by a Levine·Fricke California Registered Geologist. All engineering information, conclusions, and recommendations in this document have been prepared under the supervision of and reviewed by a Levine·Fricke California Professional Engineer.

Andrew L. Wright
Principal Geologist
California Registered Geologist (4592)

11-30-94
Date

James D. Levine
President
California Professional Engineer (33428)

Nov 30, 1994
Date

November 30, 1994 LF 1649.00-019

**SOILS MANAGEMENT PLAN FOR
PETROLEUM HYDROCARBON-AFFECTED SOILS
YERBA BUENA/EAST BAYBRIDGE CENTER
EMERYVILLE AND OAKLAND, CALIFORNIA**

1.0 INTRODUCTION

Levine·Fricke has prepared this document on behalf of Catellus Development Corporation ("Catellus") to document soil containment activities and provide a plan for monitoring the contained soils at the Yerba Buena/East Baybridge Center in Emeryville and Oakland, California ("the Site"; Figures 1 and 2).

During redevelopment of the Site, localized areas of soil containing concentrations of oil and diesel above site cleanup levels were identified. Those soils were relocated and placed beneath paved areas of the Site in accordance with the March 10, 1992 "Containment Plan for Total Petroleum Hydrocarbon-Affected Soils" (Levine·Fricke 1992a).

According to the Containment Plan, petroleum-affected soils at the Site were to be left in place and capped with a low permeability cover, or placed beneath proposed building pads and/or in areas to be covered with asphalt or concrete (parking lots, walkways). Placement of the affected soils in this manner was proposed to minimize possible exposure to the affected soils and mitigate future effects to shallow ground water by reducing surface infiltration through the soil.

The Containment Plan was approved by the California Regional Water Quality Control Board (RWQCB) in a letter from the RWQCB dated June 24, 1992 (a copy of this letter is contained in Appendix A). In that letter, the RWQCB approved the plan to relocate petroleum-affected soil, but requested that the document be amended to include specific guidance language providing for the maintenance of the proposed encapsulations to protect water quality, and for conducting any future excavation or grading activities at the Site. The RWQCB requested that the document be referred to as the Soils Management Plan. In addition, the RWQCB, and more recently the ACHA in a June 10, 1994 letter, requested that a notice be

placed on the recorded deed(s) whenever soil containing elevated concentrations of pollutants are contained on any parcel. A copy of the recorded deed notice is included in Appendix B.

2.0 OBJECTIVES

The objectives of this Soils Management Plan are to:

- provide a summary of investigation and remediation of petroleum-affected soil at the Site
- document where petroleum hydrocarbon-affected soils have been contained
- present analytical data for soil samples collected from containment areas prior to encapsulating the soil
- provide a monitoring and maintenance plan for the containment area cap (paved areas)
- specify protocols for the appropriate management of contained soils in the event they are subsequently excavated
- present the ground-water monitoring program implemented at the site following containment of soil

3.0 BACKGROUND

Levine·Fricke initiated environmental investigations at the Site on behalf of Catellus in September 1989 (Levine·Fricke 1990, 1991a, and 1991c) by conducting a driveby survey. Soil sampling commenced in January 1990. To aid organization of the sampling and analysis program, the Site was divided into Areas A, B, and C (see Figure 2). Localized areas of petroleum-affected soil were identified during environmental investigations and site grading activities. In cooperation with the ACHA and the RWQCB, cleanup goals for localized areas of petroleum hydrocarbons were established and a program for containing the petroleum-affected soil on site was developed (the Containment Plan; Levine·Fricke 1992a).

The ACHA approved soil cleanup goals for the Site of 10 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPHg), 100 ppm for TPH as diesel (TPHd), 1.0 ppm total for

benzene, toluene, ethylbenzene, and xylenes (BTEX compounds), and 1,000 ppm for total oil and grease (TOG). Cleanup criteria for aerated soil were less than 10 ppm TPHg and less than 1 ppm combined TEX and below detection limits for benzene.

The following section describes areas where affected soil was identified and later subsequently contained in conjunction with site development activities.

3.1 Area A

Results of sampling and analysis conducted in Area A indicated that petroleum hydrocarbons characterized as diesel and oil were widespread in the shallow soil of the western and central portions of Area A. Generally, the affected soil appeared to be contained primarily in a 3- to 5-foot-thick layer of gravel fill, where concentrations of petroleum hydrocarbons ranged from below laboratory detection limits to 6,800 parts per million (ppm). In the central portion of Area A, petroleum hydrocarbons were detected in soil samples collected from depths between approximately 3 and 7 feet bgs at slightly higher concentrations, ranging from below laboratory detection limits to 17,000 ppm. Because petroleum hydrocarbons appeared to be widespread in shallow soil, a remedial option consisting of containment and capping in areas slated for immediate commercial development was selected to minimize the risk of future impact to shallow ground water and limit possible exposure to the affected soil (Levine·Fricke 1991b).

Two fuel underground storage tanks (USTs) encountered during site grading activities were removed from Area A (beneath the Home Depot building pad) in October 1993 (Figure 2). A report summarizing UST removal activities and proposed management of affected soils was submitted to the ACHA on October 29, 1993 (Levine·Fricke 1993d). Approximately 2,500 cubic yards (cy) of diesel- and oil-affected soil was excavated from the vicinity of the USTs to reduce petroleum concentrations to below site cleanup levels. After characterization, these soils were contained in accordance with the Containment Plan.

3.2 Area B

Area B of the Site includes the former Ransome Construction Company ("Ransome") property (Figure 2). Initially, Levine·Fricke investigated this area during the Phase I Investigation of the Site (Levine·Fricke 1990). Further environmental investigations of the property were then conducted by Ransome and its environmental consultant Aqua

Resources, Inc. (ARI) in 1990 (ARI 1991). Those investigations indicated the presence of diesel, oil, and gasoline (and BTEX) in the soil. ARI initiated excavating, stockpiling, and aerating petroleum-affected soil at the property in 1991. Ransome requested that ARI stop work in September 1991, and Levine·Fricke, on behalf of Catellus, continued the excavation, on-site stockpiling and aeration of petroleum-affected soil. Gasoline-affected soils were aerated to below cleanup levels for TPHg and BTEX. Approximately 25,000 cubic yards (cy) of oil- and diesel-affected soil was ultimately stockpiled on site from the Ransome excavation work (Levine·Fricke 1992c).

One fuel UST encountered during site grading activities was removed from an area southeast of the intersection of Hollis Street and the newly constructed 40th Street (Figure 2). A total of approximately 20 cy of petroleum-affected soil was removed from the UST excavation and aerated on site until concentrations of TPHg and BTEX were below aeration criteria for the Site (Levine·Fricke 1994). The aerated soil was then contained on site in accordance with the Containment Plan.

3.3 Area C

Three USTs and associated piping were removed from the former Bashland property, located west of the Ransome property across Hollis Street, on April 7, 1992 (Figure 2). Approximately 2,000 cy of petroleum hydrocarbon-affected soil removed during UST excavation was incorporated into the containment area east of Hollis Street (Levine·Fricke 1992b).

In February and March 1993, 1,200 cy of oil-affected soil was excavated from beneath the former Bashland building to reduce concentrations of oil in soil to below cleanup levels for the Site (Levine·Fricke 1993b). Approximately 500 cy of stockpiled soil was determined to be below backfill criteria for the Site and was used as backfill material in the final excavation. As verbally approved by Ms. Susan Hugo of the ACHA and Mr. Richard Hiett of the RWQCB in a meeting on June 2, 1993, approximately 700 cy of stockpiled oil-affected soil was contained on the Site.

Two 12,000-gallon fuel USTs, formerly located along Beach Street, were encountered during soil investigation and removed on August 31, 1993 (Figure 2; Levine·Fricke 1993c). Approximately 6,000 cy of petroleum-affected soil (primarily oil- and diesel-affected) was removed from the vicinity of the USTs during tank removal activities. Soil containing TPHg and BTEX was aerated on site until concentrations of TPHg and BTEX

Final grading for the Home Depot building pad and adjacent walkways included the placement of approximately 1.5 to 6.2 feet of petroleum hydrocarbon-affected soil. The thickest layer of affected soil (up to 6.5 feet thick) was contained beneath the western portion of the Home Depot building (Figure 3).

Grading for the Home Depot parking lot included the placement of up to approximately 4 feet of petroleum hydrocarbon-affected soil. In accordance with the Containment Plan, there is a minimum of approximately 8 to 12 feet of native soil between the petroleum hydrocarbon-affected soil and shallow ground water, which is approximately 12 to 20 feet below ground surface (bgs) across the area in which soil is contained (see cross section in Figure 4).

4.2 Regional Retail Building and Adjacent Paved Areas

Grading for the Regional Retail building pad and adjacent walkway areas consisted of the placement of up to 5 feet of petroleum hydrocarbon-affected soil fill in the eastern portion of the building. Grading in the Regional Retail parking lot included the placement of up to approximately 4 feet of petroleum hydrocarbon-affected soil. In accordance with the Containment Plan, there is approximately 12 feet of native soil between the petroleum hydrocarbon-affected soil and the first saturated sediments, which are approximately 17 feet bgs at well MW-6 (see Figure 4).

5.0 CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN SOILS CONTAINED AT THE EAST BAYBRIDGE CENTER

Pursuant to the agreement between the ACHA, the RWQCB, and Catellus, soil samples were collected to document concentrations of the contained petroleum hydrocarbon-affected soils at the Site (Levine·Fricke 1993a). To collect these data, the parking lot area and building pad area were divided into grids consisting of 8 cells and 12 cells, respectively (see Figure 5). Two soil samples were collected from each grid cell from generally 1 and 3 feet bgs, in accordance with soil sampling procedures described in Appendix C.

Soil samples were collected as grading activities were completed on November 10 and 17 and December 28, 1993, and January 5, 1994. Soil samples were analyzed for TPHd and TPH as motor oil (TPHmo) using EPA Method 3550 and TOG using Standard Method 5520EF by Anametrix, Inc., a state-certified analytical laboratory.

Analytical results are presented in Table 1. Results indicated that the TPHd concentrations ranged from non-detectable to 260 mg/kg, TPHmo concentrations ranged from 36 to 4,400 mg/kg, and TOG concentrations ranged from 280 to 18,000 mg/kg. Laboratory certificates are presented in Appendix D.

6.0 MONITORING PROGRAMS

A pavement monitoring plan has been implemented at the Site to identify and fill any cracks that might develop in the cap surface, reducing the potential for human contact with affected soil and the likelihood of rainwater or other surface runoff infiltrating contained soils. Additionally, a ground-water monitoring program has been implemented at the Site to assess if petroleum hydrocarbons in contained soil are migrating to shallow ground water. Ground-water monitoring and reporting for the entire Site, including the contained areas, will be performed in accordance with the regulatory-approved work plan dated April 28, 1993, and the revised quarterly monitoring program. A report summarizing these activities will be presented to the RWQCB and the ACHA at the end of November 1994.

6.1 Pavement Monitoring

Paved areas overlying the petroleum hydrocarbon-affected soil will be inspected for cracking twice a year, during the first two weeks of October and March of every year. The October inspection period was selected so that cracks, if they develop, can be filled before seasonal rains begin. The March inspection period was selected so that any cracks that develop during the course of the rainy season can be filled before spring and summer irrigation begins. Cracks longer than 3 inches and greater than 1/8-inch in width will be sealed with liquid asphalt (or caulking). As noted above, a description of these inspection activities will be incorporated into the quarterly monitoring reports for the second and fourth quarters for submittal to the RWQCB and ACHA.

6.2 Future Soil Excavation and Management

If excavation of contained soil becomes necessary (i.e., for the purpose of pavement or utility repair or construction), special handling of the excavated soil will be required. Petroleum hydrocarbon-affected soil removed from excavations should be stockpiled on and covered with plastic sheeting to reduce the potential for contact with surface water

(e.g., irrigation, rain, or runoff). Where appropriate, petroleum hydrocarbon-affected soil should be replaced and recompacted in the excavation to the fullest extent possible and encapsulated with low permeability asphalt or concrete. However, it should be noted that lime-treated soil will not be reusable as backfill in the design pavement section because after lime-treated soils have been disturbed, they cannot retain the same structural integrity. The location of these soils is indicated on Figure 3. Affected soil that has been excavated and cannot be used as backfill material should be properly disposed of off site in accordance with applicable laws or regulations.

6.3 Ground-Water Monitoring

To assess whether petroleum hydrocarbons in contained soils are migrating to shallow ground water, a ground-water monitoring program has been implemented at the Site.

As discussed in our April 29, 1993 work plan and as presented in our quarterly monitoring report dated October 28, 1994, the monitoring program will include collecting ground-water samples on a semiannual basis (twice a year) from eight monitoring wells located across the Site as described in Appendix E. Figure 6 illustrates the locations of the monitoring wells, which were selected based on their locations. Ground-water samples will be collected using procedures described in Appendix E and submitted for chemical analysis for TPHd and TPHo using EPA Method 3510.

Results from the first year of monitoring will be used to establish background conditions at the Site. Subsequent analytical results will be evaluated relative to these initial results to assess whether shallow ground-water quality is being affected by possible migration of petroleum hydrocarbons from the soil contained at the Site and to establish possible reduced sampling frequencies for later years.

7.0 SUMMARY

Petroleum hydrocarbon-affected soils identified at the Site during environmental investigations and site grading activities have been capped with a low permeability cover, or placed beneath proposed building pads and/or in areas to be covered with asphalt or concrete (parking lots, walkways).

Affected soils were placed in this manner to minimize possible exposure to the affected soils and mitigate future effects to shallow ground water by reducing surface infiltration through the soil.

Figure 2 shows the location and approximate depths of the contained soils. Soil samples collected from the contained soil indicate the presence of TPHd (up to 260 mg/kg), TPHmo (up to 4,400 mg/kg) and TOG (up to 18,000 mg/kg).

A pavement monitoring plan has been implemented at the Site to identify and fill any cracks that might develop in the cap surface, reducing the potential for human contact with affected soil and the likelihood of rainwater or other surface runoff infiltrating contained soils. To assess if petroleum hydrocarbons in contained soil are migrating to shallow ground water, a ground-water monitoring program has been implemented at the Site. Reports presenting results of the ground-water monitoring program will be prepared by Levine·Fricke and submitted to the ACHA and the RWQCB for review.

REFERENCES

Aqua Resources, Inc. 1991. Remedial Investigation and Closure Plan for Former corporation Yard Site, 4030 Hollis Street, Emeryville, California. January 16.

California Regional Water Quality Control Board (RWQCB). 1992. Correspondence to Ms. Amanda Spencer of Levine·Fricke. June 24.

Levine·Fricke Inc. 1990. Phase I and Phase II Environmental investigation, Yerba Buena Project Site, Emeryville and Oakland, California. August 15 (REVISED October 26, 1990).

———. 1991a. Phase III Environmental investigation, Yerba Buena Project Site, Emeryville and Oakland, California. February 6.

———. 1991b. Site Remedial Plan, Yerba Buena Project Site, Emeryville and Oakland, California. February 11.

———. 1991c. Additional Ground-Water Investigation, Yerba Buena Project Site, Emeryville and Oakland, California. September 6.

———. 1991d. Report on Soil Remediation Activities, Yerba Buena Project Site, Emeryville and Oakland, California. November 13.

———. 1992a. Containment plan for petroleum hydrocarbon-affected soils, Yerba Buena Project Site, Emeryville and Oakland, California. March 10.

———. 1992b. Tank Removal Report, Bashland Property, 4015 Hollis Street, Emeryville, California. June 24.

———. 1992c. Soil Remediation Activities Report, Former Ransome Property, Yerba Buena Project Site, Emeryville, California. December 21.

———. 1993a. Work Plan for Site Characterization and Remediation Activities to Be Conducted in Conjunction with Proposed Site Development, Yerba Buena/East Baybridge Project Site, Emeryville and Oakland, California. April 28.

———. 1993b. Soil Investigation and Remediation Activities Report, Former Bashland Property, Yerba Buena/East Baybridge Development Project, Emeryville, California. July 16.

———. 1993c. Report on the Removal of Two Underground Fuel Storage Tanks and Soil Remediation Activities, Beach Street Area, Yerba Buena/East Baybridge Project Site, Oakland, California. October 20.

———. 1993d. Underground Tank Removal and Soil Remediation Activities in Area A, Yerba Buena/East Baybridge Center Project Site, Emeryville and Oakland, California. October 29.

———. 1993e. Remediation and Containment of Soil Excavated During Soil Remediation Activities, Beach Street Area Yerba Buena/East Baybridge Center Project Site, Oakland, California. November 19.

———. 1994. Underground Storage Tank Removal Report, 40th and Hollis Streets, Emeryville, California. January 10.

TABLE 1
ANALYTICAL RESULTS FOR DOCUMENTATION SOIL SAMPLES COLLECTED FROM CONTAINED SOILS
EAST BAYBRIDGE CENTER SITE
EMERYVILLE AND OAKLAND, CALIFORNIA
(concentrations reported in milligrams per kilogram [mg/kg])

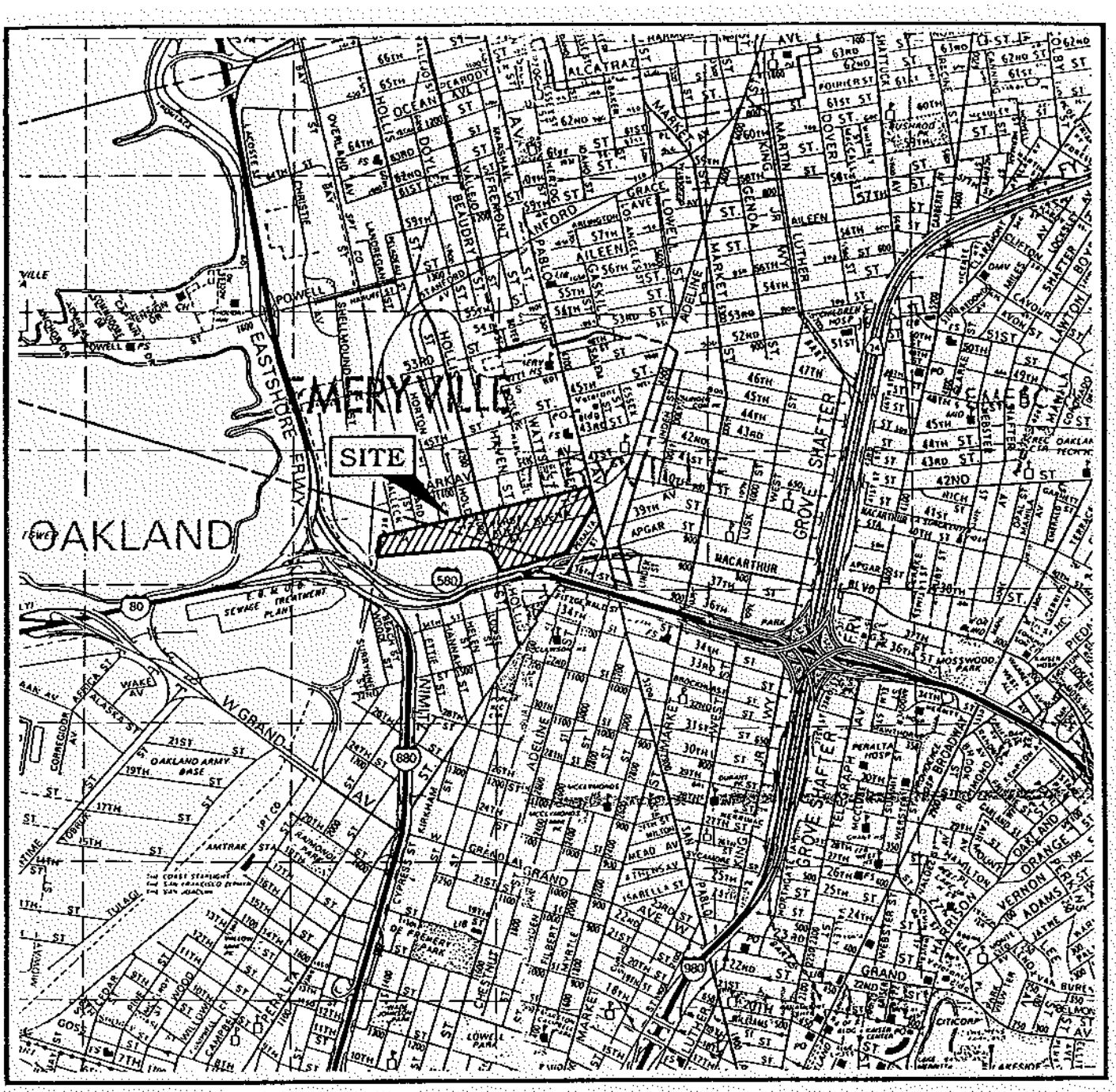
Sample ID	Sample Date	TPHd	TPHmo	TOG
D1-0.5-1	28-Dec-93	<100	1200	2100
D1-1-1.5	28-Dec-93	<10	72	1200
D2-0.5-1	28-Dec-93	<50	690	1200
D2-1-1.5	28-Dec-93	<10	140	1200
D3-0.75	05-Jan-94	15	110	2000
D3-1.5	05-Jan-94	13	150	1000
D4-1.0	05-Jan-94	<100	460	3800
D4-1.75	05-Jan-94	<10	73	890
D5-0.5-1	28-Dec-93	<10	85	340
D5-1-1.5	28-Dec-93	<20	230	1100
D6-0.5-1	28-Dec-93	17	210	850
D6-1-1.5	28-Dec-93	15	240	840
D7-0.75	05-Jan-94	<10	68	2100
D7-1.5	05-Jan-94	48	87	1200
D8-1.5	05-Jan-94	<100	330	3100
D8-2.5	05-Jan-94	<10	96	1300
D9-1.0	10-Nov-93	<500	1400	950
D9-2.0	10-Nov-93	<50	170	830
D10-1.0	10-Nov-93	<500	720	2200
D10-2.0	10-Nov-93	<50	290	1500
D11-1.0	10-Nov-93	<500	2000	8500
D11-1.5	10-Nov-93	<500	1100	1700
D12-1.0	10-Nov-93	<500	580	1500
D12-2.5	10-Nov-93	<500	1400	4300
D13-1.0	10-Nov-93	<500	730	2700
D13-2.0	10-Nov-93	<500	530	1400
D14-1.0	10-Nov-93	<500	900	18000
D14-1.5	10-Nov-93	<500	1300	4000
D15-0.5	17-Nov-93	<100	250	950
D15-1.5	17-Nov-93	<100	330	2000
D16-1.0	17-Nov-93	<500	710	1700
D16-2.0	17-Nov-93	<500	1800	15000
D17-1.0	17-Nov-93	<500	830	1900
D17-2.0	17-Nov-93	<500	650	820
D18-1.0	17-Nov-93	<10	36	280
D18-2.0	17-Nov-93	260	4400	8500
D19-1.0	17-Nov-93	<500	880	2200
D19-2.0	17-Nov-93	<500	660	1500
D20-1.0	17-Nov-93	<100	240	1000
D20-2.0	17-Nov-93	<500	2500	2600

Data entered by MEK/18 Apr 94 Data proofed by MJS QA/QC by MJS/MEK

TPHd - total petroleum hydrocarbons as diesel analyzed by GCFID
TPHmo - total petroleum hydrocarbons as motor oil analyzed by GCFID
TOG - total oil and grease analyzed by EPA Method 5520EF

Samples analyzed by Anametrix, Inc., of San Jose, California.

"D14-1.5" refers to documentation samples series, sample grid location #14, sample depth 1.5 feet below the petroleum-affected soil surface (depth measured to top of sample).



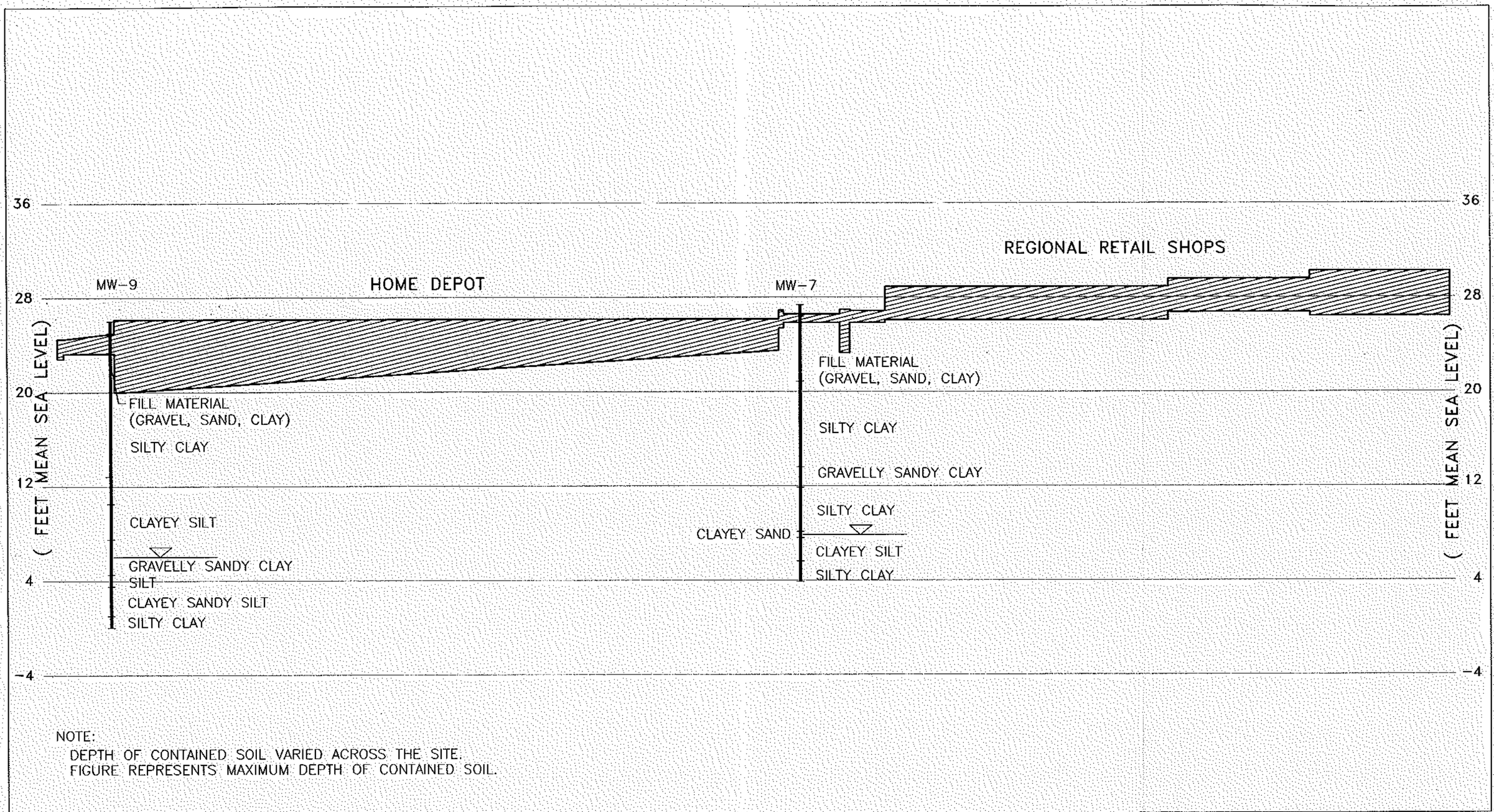
MAP SOURCE:
Alameda & Contra Costa Counties,
Thomas Bros. map, 1990 Edition

Figure 1 : SITE LOCATION MAP
YERBA BUENA PROJECT SITE

Project No. 1649

LEVINE • FRICKE
CONSULTING ENGINEERS AND HYDROGEOLOGISTS

1649ALS • SITE91 • cyz



NOTE:
DEPTH OF CONTAINED SOIL VARIED ACROSS THE SITE.
FIGURE REPRESENTS MAXIMUM DEPTH OF CONTAINED SOIL.

DEPTH OF SATURATED SEDIMENTS

TOTAL PETROLEUM HYDROCARBON-AFFECTED SOIL

SECTION A-A'

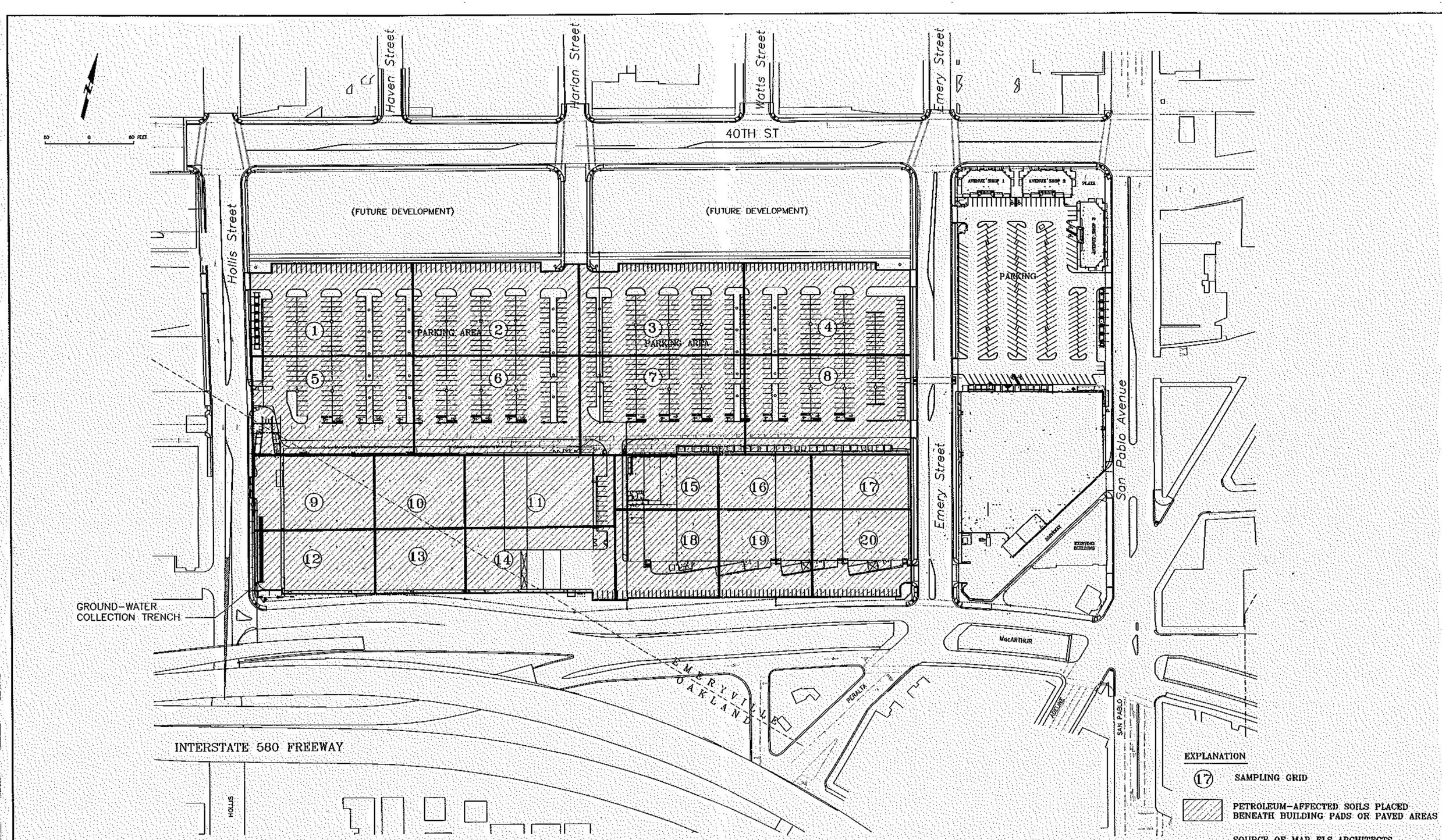
SCALE: 1"=80' HORIZ
1"=8' VERT.

Figure 4 :
CROSS SECTION A-A'

Project No.1649

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS, & APPLIED SCIENTISTS

S:\ENGCAD\1649\SEC-AA.DWG GM 111494



SOURCE OF MAP ELS ARCHITECTS

	REVISION	DESIGN	DRAWN	CHECKED	DATE

SCALE :
DESIGN :
DRAWN :
CHECKED :

LEVINE • FRICKE
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS
Emeryville, California

drawing reproduced
HALF - SIZE

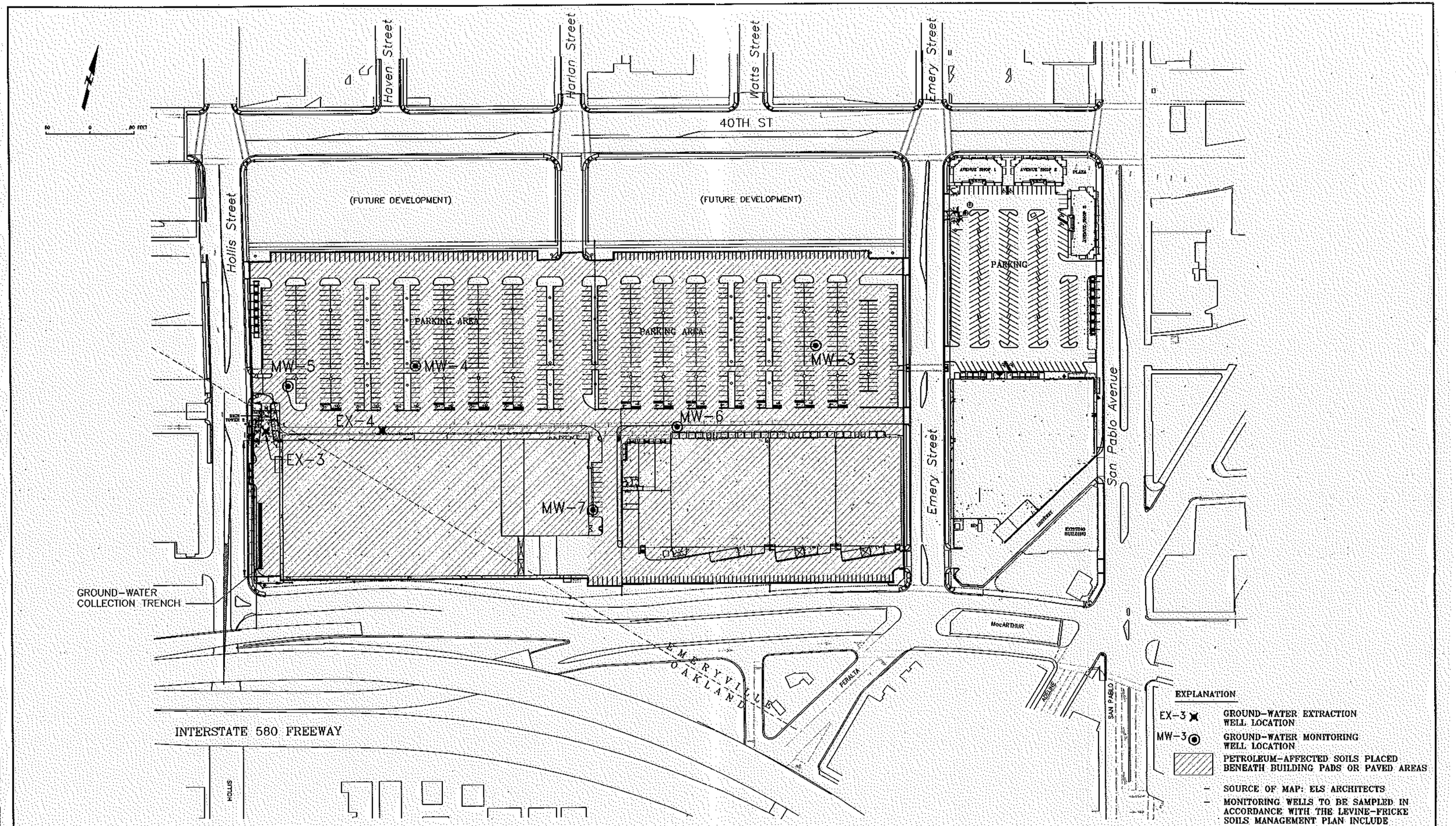
CATELLUS DEVELOPMENT CORPORATION

YERBA BUENA/EAST BAYBRIDGE DEVELOPMENT
EMERYVILLE & OAKLAND, CALIFORNIA

Figure 5
DOCUMENTATION SOIL SAMPLE LOCATIONS
NOVEMBER 1993 THROUGH JANUARY 1994

Project No. 1649
Date JUNE 94

DRAWING CODE C:\ACAD12\1649\SITEPLN4.DWG/GM



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SCALE :
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YERBA BUENA/EAST BAYBRIDGE DEVELOPMENT
EMERYVILLE & OAKLAND, CALIFORNIA

Figure 6
SITE PLAN SHOWING
GROUND-WATER MONITORING WELL LOCATIONS

Project No. 1649
Date JUNE 94

APPENDIX A

JUNE 24, 1992 LETTER FROM THE RWQCB

STATE OF CALIFORNIA PETE WILSON, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION
2101 WEBSTER STREET, SUITE 500
OAKLAND, CA 94612

Phone: (510) 464-1255
FAX: (510) 464-1380

June 24, 1992
File No. 2223.09(LF)

Amanda Spencer
Senior Hydrogeologist
Levine Fricke
1900 Powell Street, 12th Floor
Emeryville, CA 94608

SUBJECT: Catellus - Yerba Buena Project, Emeryville

Dear Ms. Spencer:

This letter is written in follow-up to your meeting of June 22 with Lester Feldman of my staff concerning the subject proposed development project. I understand that Dennis Byrne of Alameda County Health Care Services Agency has been acting as lead in resolving soil and groundwater pollution issues for the sites involved. I also understand that the overall project involves identification and remediation of volatile organics in the groundwater at one location, verification of hydrocarbon cleanup in the groundwater at several locations, the closure of several underground fuel tanks, remediation of hydrocarbon contaminated soils related to former underground tanks, and the relocation of some hydrocarbon contaminated soils within the project boundaries.

As indicated by Mr. Feldman, this Regional Board staff has no objection to the relocation of hydrocarbon contaminated soils within the project area as proposed in the Draft Plan dated March 10, 1992. This Draft Plan should be re-named the Soils Management Plan and be amended to include specific guidance language providing for the maintenance of the proposed encapsulations to protect water quality. As indicated by Mr. Feldman and Mr. Byrne any future activity on the site which necessitates excavation of the soils of concern should be managed in such a way as to mitigate any water quality problem which could arise (e.g., polluted surface runoff).

Additional concerns which should be addressed for the subject site prior to any leased business occupancy or sale include the following:

1. A Notice is to be placed on the recorded deed(s) whenever soils containing elevated levels of pollutants are contained on any affected parcel.

2. An Self-Monitoring Program shall be in place at all times acceptable to the Alameda County Health Agency or the Regional Board staff. This program shall provide for monitoring of all groundwater under active remediation, and shall provide for verification of all completed cleanups. An Annual Report shall be filed with both agencies.

3. Completion of any groundwater cleanup will be considered by the Board based upon a recommendation for Closure by the Alameda County Health Agency per Board guidelines.

Please direct any questions to Lester Feldman of my staff at (510) 464-1332.

Sincerely,

Steven R. Ritchie,
Executive Officer

cc: Dennis Byrne, Alameda County Health Agency
Don Marini, Catellus
Ric Notini, Catellus
Jim Levine, Levine Fricke

APPENDIX B

RECORDED DEED NOTICE

Recorded in Official Records, Alameda County
Patrick O'Connell, Clerk-Recorder

10.00

94265033 08:30am 07/29/94

005 271688 24 33 000065

A2E 2 7.00 3.00 0.00 0.00 0.00 0.00 0.00

Recording Requested By and
When Recorded Return To:

CATELLUS DEVELOPMENT CORPORATION
201 Mission Street, 30th Floor
San Francisco, CA 94105
Telephone: (415) 974-4500
Attn: Law Department

155155

NOTICE

Portions of the soil located beneath the building pad and parking lot of Lots 2 and 4, Tract Map 6368, Official Records of Alameda County, contain oil and diesel at concentrations ranging from less than 50 parts per million (ppm) to 17,000 ppm and less than 10 ppm to 2,600 ppm, respectively. The placement of such soil has been reviewed and approved by the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) and the Alameda County Health Agency (ACHA) offices in letters dated June 24, 1992 and March 5, 1991, respectively, to Catellus Development Corporation. Further information is on file at the RWQCB and the ACHA offices. Upon recordation of written confirmation from such agencies or their successors that said oil and diesel-affected soils are in concentrations that no longer require this notice, this notice will be deemed to be removed and of no further force or effect.

Made this 14th day of July, 1994.

CATELLUS DEVELOPMENT CORPORATION
OWNER

By: James S. O'Connor

Its: Senior Vice President

"THIS INSTRUMENT FILED FOR RECORD BY FIRST AMERICAN TITLE INSURANCE COMPANY AS AN ACCOMMODATION ONLY. IT HAS NOT BEEN EXAMINED AS TO ITS EXECUTION OR AS TO ITS EFFECT UPON THE TITLE."

h:\legal\wordslrv163

94265033

STATE OF CALIFORNIA)
) ss.
COUNTY OF SAN FRANCISCO)

On July 18, 1994, before me, Albert J. Luis, Notary Public, personally appeared James G. O'Gara - Senior Vice President, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

Signature Albert J. Luis

My Commission Expires September 13, 1995

OFFICIAL NOTARY SEAL
ALBERT J. LUIS
Notary Public — California
SAN FRANCISCO COUNTY
My Comm. Expires SEP 13,1995

APPENDIX C

FIELD PROCEDURES FOR SOIL SAMPLE COLLECTION

FIELD PROCEDURES FOR SOIL SAMPLE COLLECTION

Soil samples were collected by driving a brass tube-lined split-spoon sampler into the soil, using hand or truck-mounted equipment. Sample tubes were then sealed with teflon-lined plastic caps or were transferred into laboratory-supplied glass jars and then capped with teflon-lined plastic caps. The samples were individually labeled and placed in a cooler for transportation to the analytical laboratory under standard chain-of-custody protocols. All sampling equipment was washed with a laboratory grade detergent (Alconox) and rinsed with de-ionized water before each use.

APPENDIX D

LABORATORY CERTIFICATES FOR DOCUMENTATION SOIL SAMPLES

Inchcape Testing Services
Anametrix Laboratories

1961 Concourse Drive
Suite E
San Jose, CA 95131
Tel: 408-432-8192
Fax: 408-432-8198

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9311165
Date Received : 11/11/93
Project ID : 1649.19
Purchase Order: N/A

The following samples were received at Anametrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9311165- 1	D9-1.0
9311165- 2	D9-2.0
9311165- 3	D10-1.0
9311165- 4	D10-2.0
9311165- 5	D11-1.0
9311165- 6	D11-1.5
9311165- 7	D12-1.0
9311165- 8	D12-2.5
9311165- 9	D13-1.0
9311165-10	D13-2.0
9311165-11	D14-1.0
9311165-12	D14-1.5

This report consists of 10 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anametrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Sarah Schoen, Ph.D.
Laboratory Director

12-6-93
Date

COPY

RECEIVED
DEC - 7 1993
LEVINE-FRICKE

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9311165
Date Received : 11/11/93
Project ID : 1649.19
Purchase Order: N/A
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9311165- 1	D9-1.0	SOIL	11/10/93	TPHd
9311165- 2	D9-2.0	SOIL	11/10/93	TPHd
9311165- 3	D10-1.0	SOIL	11/10/93	TPHd
9311165- 4	D10-2.0	SOIL	11/10/93	TPHd
9311165- 5	D11-1.0	SOIL	11/10/93	TPHd
9311165- 6	D11-1.5	SOIL	11/10/93	TPHd
9311165- 7	D12-1.0	SOIL	11/10/93	TPHd
9311165- 8	D12-2.5	SOIL	11/10/93	TPHd
9311165- 9	D13-1.0	SOIL	11/10/93	TPHd
9311165-10	D13-2.0	SOIL	11/10/93	TPHd
9311165-11	D14-1.0	SOIL	11/10/93	TPHd
9311165-12	D14-1.5	SOIL	11/10/93	TPHd

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9311165
Date Received : 11/11/93
Project ID : 1649.19
Purchase Order: N/A
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- The diesel surrogate recovery for sample D14-1.0 is outside of quality control limits due to a possible matrix effect.

Cheryl Palmer 12/6/93
Department Supervisor Date

Reggie Dawson 12/6/93
Chemist Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS AS DIESEL
ANAMETRIX, INC. (408) 432-8192

Anametrix W.O.: 9311165
Matrix : SOIL
Date Sampled : 11/10/93
Date Extracted: 11/12/93

Project Number : 1649.19
Date Released : 12/01/93
Instrument I.D.: HP9

Anametrix I.D.	Client I.D.	Date Analyzed	Reporting Limit (mg/Kg)	Amount Found (mg/Kg)	Surrogate %Rec
9311165-01	D9-1.0	11/27/93	500	ND	75%
9311165-02	D9-2.0	12/01/93	50	ND	63%
9311165-03	D10-1.0	11/27/93	500	ND	75%
9311165-04	D10-2.0	12/01/93	50	ND	60%
9311165-05	D11-1.0	11/27/93	500	ND	67%
9311165-06	D11-1.5	11/27/93	500	ND	71%
9311165-07	D12-1.0	11/27/93	500	ND	66%
9311165-08	D12-2.5	11/27/93	500	ND	79%
9311165-09	D13-1.0	11/27/93	500	ND	67%
9311165-10	D13-2.0	11/27/93	500	ND	61%
9311165-11	D14-1.0	11/27/93	500	ND	14%
9311165-12	D14-1.5	11/27/93	500	ND	68%
BN12H1F1	METHOD BLANK	11/21/93	500	ND	68%

Note : Reporting limit is obtained by multiplying the dilution factor times 10 mg/Kg.
The surrogate recovery limits for C25 are 30-130%.

ND - Not detected at or above the practical quantitation limit for the method.
TPHd - Total Petroleum Hydrocarbons as C12-C22 is determined by GCFID following sample extraction by EPA Method 3510.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Peggie Dawson 12/3/93
Analyst Date

Cheryl Balmer 12/3/93
Supervisor Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL
ANAMETRIX, INC. (408) 432-8192

Anametrix W.O.: 9311165
Matrix : SOIL
Date Sampled : 11/10/93
Date Extracted: 11/12/93

Project Number : 1649.19
Date Released : 12/01/93
Instrument I.D.: HP9

Anametrix I.D.	Client I.D.	Date Analyzed	Reporting Limit (mg/Kg)	Amount Found (mg/Kg)	Surrogate %Rec
9311165-01	D9-1.0	11/27/93	500	1400	75%
9311165-02	D9-2.0	12/01/93	50	170	63%
9311165-03	D10-1.0	11/27/93	500	720	75%
9311165-04	D10-2.0	12/01/93	50	290	60%
9311165-05	D11-1.0	11/27/93	500	2000	67%
9311165-06	D11-1.5	11/27/93	500	1100	71%
9311165-07	D12-1.0	11/27/93	500	580	66%
9311165-08	D12-2.5	11/27/93	500	1400	79%
9311165-09	D13-1.0	11/27/93	500	730	67%
9311165-10	D13-2.0	11/27/93	500	530	61%
9311165-11	D14-1.0	11/27/93	500	900	14%
9311165-12	D14-1.5	11/27/93	500	1300	68%
BN12H1F1	METHOD BLANK	11/21/93	500	ND	68%

Note : Reporting limit is obtained by multiplying the dilution factor times 10 mg/Kg.
The surrogate recovery limits for C25 are 30-130%.

ND - Not detected at or above the practical quantitation limit for the method.
TPHd - Total Petroleum Hydrocarbons as C22-C36 is determined by GCFID following sample extraction by EPA Method 3510.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Reggie Dawson 12/3/93
Analyst Date

Cheryl Bateman 12/3/93
Supervisor Date

TOTAL EXTRACTABLE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT
EPA METHOD 3550 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : LAB CONTROL SAMPLE
Matrix : SOIL
Date Sampled : N/A
Date Extracted: 11/12/93
Date Analyzed : 11/21/93

Anametrix I.D. : MN12H1F1
Analyst : RD
Supervisor : GS
Date Released : 12/01/93
Instrument I.D.: HP9

COMPOUND	SPIKE AMT (mg/Kg)	REC LCS (mg/Kg)	% REC LCS	% REC LIMITS *
DIESEL	125	107	86%	48-113
SURROGATE			79%	30-130

* Quality control limits established by Anametrix, Inc.

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9311165
Date Received : 11/11/93
Project ID : 1649.19
Purchase Order: N/A
Department : PREP
Sub-Department: PREP

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9311165- 1	D9-1.0	SOIL	11/10/93	5520EF
9311165- 2	D9-2.0	SOIL	11/10/93	5520EF
9311165- 3	D10-1.0	SOIL	11/10/93	5520EF
9311165- 4	D10-2.0	SOIL	11/10/93	5520EF
9311165- 5	D11-1.0	SOIL	11/10/93	5520EF
9311165- 6	D11-1.5	SOIL	11/10/93	5520EF
9311165- 7	D12-1.0	SOIL	11/10/93	5520EF
9311165- 8	D12-2.5	SOIL	11/10/93	5520EF
9311165- 9	D13-1.0	SOIL	11/10/93	5520EF
9311165-10	D13-2.0	SOIL	11/10/93	5520EF
9311165-11	D14-1.0	SOIL	11/10/93	5520EF
9311165-12	D14-1.5	SOIL	11/10/93	5520EF

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9311165
Date Received : 11/11/93
Project ID : 1649.19
Purchase Order: N/A
Department : PREP
Sub-Department: PREP

QA/QC SUMMARY :

- No QA/QC problems encountered for these samples.

Cathy Nettenberg 11/22/93
Department Supervisor Date

Chemist 11/24/93
Date

ANALYSIS DATA SHEET - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS
AS OIL AND GREASE
ANAMETRIX LABORATORIES (408) 432-8192

Project # : 1649.19
Matrix : SOIL
Date sampled : 11/10/93
Date extracted: 11/15/93
Date analyzed : 11/16/93

Anametrix I.D. : 9311165
Analyst : TS
Supervisor : [signature]
Date released : 11/19/93

Workorder #	Sample I.D.	Reporting Limit (mg/Kg)	Amount Found (mg/Kg)
9311165-01	D9-1.0	30	950
9311165-02	D9-2.0	30	830
9311165-03	D10-1.0	30	2,200
9311165-04	D10-2.0	30	1,500
9311165-05	D11-1.0	30	8,500
9311165-06	D11-1.5	30	1,700
9311165-07	D12-1.0	30	1,500
9311165-08	D12-2.5	30	4,300
9311165-09	D13-1.0	30	2,700
9311165-10	D13-2.0	30	1,400
9311165-11	D14-1.0	30	18,000
9311165-12	D14-1.5	30	4,000
BN15H1W9	METHOD BLANK	30	ND

ND - Not detected above the reporting limit for the method.
TRPH - Total Recoverable Petroleum Hydrocarbons are determined by Standard Method 5520EF, 18th edition.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

MATRIX SPIKE REPORT - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS
AS OIL AND GREASE
ANAMETRIX LABORATORIES (408) 432-8192

Sample I.D. : 1649.19, D13-1.0MS, MD
Matrix : SOIL
Date sampled : 11/10/93
Date extracted : 11/15/93
Date analyzed : 11/16/93

Anametrix I.D. : 9311165-09
Analyst : JJ
Supervisor : CM
Date Released : 11/19/93

COMPOUND	SPIKE AMT (mg/Kg)	SAMPLE CONC (mg/Kg)	MS AMT (mg/Kg)	%REC MS	MD AMT (mg/Kg)	%REC MD	%RPD	% REC LIMITS
Motor Oil	300	2700	3000	100%	3000	100%	0%	48-114%

* Quality control limits established by Anametrix Laboratories.

TRPH - Total Recoverable Petroleum Hydrocarbons are determined by Standard Method 5520EF, 18th edition.

ND - Not detectable

LAB CONTROL SAMPLE REPORT - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS
AS OIL AND GREASE
ANAMETRIX LABORATORIES (408) 432-8192

Sample I.D.	: LAB CONTROL SAMPLE	Anametrix I.D.	: MN15H1W9
Matrix	: SOIL	Analyst	: TS
Date sampled	: N/A	Supervisor	: CM
Date extracted	: 11/15/93	Date Released	: 11/19/93
Date analyzed	: 11/16/93		

COMPOUND	SPIKE AMT. (mg/Kg)	LCS (mg/Kg)	%REC LCS	%REC LIMITS
Motor Oil	300	320	107%	71-119%

* Quality control established by Anametrix Laboratories.

TRPH - Total Recoverable Petroleum Hydrocarbons are determined by Standard Method 5520EF.

#165 CHAIN OF CUSTODY / ANALYSES REQUEST FORM

9311165 (10/12) 17:30

Project No.: 1649.19	Field Logbook No.:	Date: 11-10-93	Serial No.: 11212
Project Name: Yerba Buena	Project Location: Emeryville-Oakland, CA		
Sampler (Signature): Michael Stoll			Samplers: MJS

SAMPLES — ANALYSES

	SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	EPA 601	EPA 624	TPH diesel	TPH motor oil	SM 5520EF Oil/Grease		HOLD	RUSH	REMARKS
1	D9-1.0	11-10-93			1	SOIL			X	X	X				Regular TAT
2	D9-2.0				1	SOIL			X	X	X				
3	D10-1.0				1	SOIL			X	X	X				
4	D10-2.0				1	SOIL			X	X	X				
5	D11-1.0				1	SOIL			X	X	X				
6	D11-1.5				1	SOIL			X	X	X				
7	D12-1.0				1	SOIL			X	X	X				
8	D12-2.5				1	SOIL			X	X	X				
9	D13-1.0				1	SOIL			X	X	X				
10	D13-2.0				1	SOIL			X	X	X				
11	D14-1.0				1	SOIL			X	X	X				
12	D14-1.5	X			1	SOIL			X	X	X				
															Results to Jenifer Beatty
															Documentation sample locations 9-14

RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
Michael Stoll	11-11-93	1510	Benny S. Cmigosa	11/11/93	1510
Benny S. Cmigosa	11/11/93	1630	Bandy C. Falcon	11/11/93	16:30

METHOD OF SHIPMENT:	DATE	TIME	LAB COMMENTS:

Sample Collector: LEVINE-FRICKE
1900 Powell Street, 12th Floor
Emeryville, Ca 94608
510 ~~(415)~~ 652-4500

Analytical Laboratory: ANAMETRIX INC, SAN JOSE, CA

Shipping Copy (White) Lab Copy (Green) File Copy (Yellow) Field Copy (Pink)

FORM NO. 86/COC/ARF

Inchcape Testing Services
Anametrix Laboratories

1961 Concourse Drive
Suite E
San Jose, CA 95131
Tel: 408-432-8192
Fax: 408-432-8198

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9311259
Date Received : 11/18/93
Project ID : 1649.19
Purchase Order: N/A

The following samples were received at Anametrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9311259- 1	D20-1.0
9311259- 2	D20-2.0
9311259- 3	D15-0.5
9311259- 4	D15-1.5
9311259- 5	D17-1.0
9311259- 6	D17-2.0
9311259- 7	D16-1.0
9311259- 8	D16-2.0
9311259- 9	D18-1.0
9311259-10	D18-2.0
9311259-11	D19-1.0
9311259-12	D19-2.0

This report consists of 10 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anametrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Corinne Pham for
Sarah Schoen, Ph.D.
Laboratory Director

12/09/93
Date

COPY

RECEIVED
DEC 2 1 1993
LEVINE-FRICKE

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9311259
Date Received : 11/18/93
Project ID : 1649.19
Purchase Order: N/A
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9311259- 1	D20-1.0	SOIL	11/17/93	TPHd
9311259- 2	D20-2.0	SOIL	11/17/93	TPHd
9311259- 3	D15-0.5	SOIL	11/17/93	TPHd
9311259- 4	D15-1.5	SOIL	11/17/93	TPHd
9311259- 5	D17-1.0	SOIL	11/17/93	TPHd
9311259- 6	D17-2.0	SOIL	11/17/93	TPHd
9311259- 7	D16-1.0	SOIL	11/17/93	TPHd
9311259- 8	D16-2.0	SOIL	11/17/93	TPHd
9311259- 9	D18-1.0	SOIL	11/17/93	TPHd
9311259-10	D18-2.0	SOIL	11/17/93	TPHd
9311259-11	D19-1.0	SOIL	11/17/93	TPHd
9311259-12	D19-2.0	SOIL	11/17/93	TPHd

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9311259
Date Received : 11/18/93
Project ID : 1649.19
Purchase Order: N/A
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- No QA/QC problems encountered for these samples.

Cheryl Baeman 12/6/93
Department Supervisor Date

Peggie Davison 12/8/93
Chemist Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS AS DIESEL
ANAMETRIX, INC. (408) 432-8192

Anametrix W.O.: 9311259
Matrix : SOIL
Date Sampled : 11/17/93
Date Extracted: 11/19/93

Project Number : 1649.19
Date Released : 12/08/93
Instrument I.D.: HP9

Anametrix I.D.	Client I.D.	Date Analyzed	Reporting Limit (mg/Kg)	Amount Found (mg/Kg)	Surrogate %Rec
9311259-01	D20-1.0	12/07/93	100	ND	72%
9311259-02	D20-2.0	12/05/93	500	ND	79%
9311259-03	D15-0.5	12/05/93	100	ND	71%
9311259-04	D15-1.5	12/07/93	100	ND	75%
9311259-05	D17-1.0	12/05/93	500	ND	75%
9311259-06	D17-2.0	12/05/93	500	ND	72%
9311259-07	D16-1.0	12/05/93	500	ND	77%
9311259-08	D16-2.0	12/05/93	500	ND	41%
9311259-09	D18-1.0	12/04/93	10	ND	64%
9311259-10	D18-2.0	12/05/93	200	260	75%
9311259-11	D19-1.0	12/05/93	500	ND	71%
9311259-12	D19-2.0	12/05/93	500	ND	59%
BN19H1F1	METHOD BLANK	12/04/93	10	ND	67%

Note : Reporting limit is obtained by multiplying the dilution factor times 10 mg/Kg.
The surrogate recovery limits for C25 are 30-130%.

ND - Not detected at or above the practical quantitation limit for the method.
TPHd - Total Petroleum Hydrocarbons as C12-C22 is determined by GCFID following sample extraction by EPA Method 3510.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Peggie Dawson 12/8/93
Analyst Date

Cheryl Balmer 12/8/93
Supervisor Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL
ANAMETRIX, INC. (408) 432-8192

Anametrix W.O.: 9311259
Matrix : SOIL
Date Sampled : 11/17/93
Date Extracted: 11/19/93

Project Number : 1649.19
Date Released : 12/08/93
Instrument I.D.: HP9

Anametrix I.D.	Client I.D.	Date Analyzed	Reporting Limit (mg/Kg)	Amount Found (mg/Kg)	Surrogate %Rec
9311259-01	D20-1.0	12/07/93	100	240	72%
9311259-02	D20-2.0	12/05/93	500	2500	79%
9311259-03	D15-0.5	12/05/93	100	250	71%
9311259-04	D15-1.5	12/07/93	100	330	75%
9311259-05	D17-1.0	12/05/93	500	830	75%
9311259-06	D17-2.0	12/05/93	500	650	72%
9311259-07	D16-1.0	12/05/93	500	710	77%
9311259-08	D16-2.0	12/05/93	500	1800	41%
9311259-09	D18-1.0	12/04/93	10	36	64%
9311259-10	D18-2.0	12/05/93	200	4400	75%
9311259-11	D19-1.0	12/05/93	500	880	71%
9311259-12	D19-2.0	12/05/93	500	660	59%
BN19H1F1	METHOD BLANK	12/04/93	10	ND	67%

Note : Reporting limit is obtained by multiplying the dilution factor times 10 mg/Kg.
The surrogate recovery limits for C25 are 30-130%.

ND - Not detected at or above the practical quantitation limit for the method.
TPHd - Total Petroleum Hydrocarbons as C22-C36 is determined by GCFID following sample extraction by EPA Method 3510.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Peggie Davison 12/8/93
Analyst Date

Cheryl Baemer 12/8/93
Supervisor Date

TOTAL EXTRACTABLE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT
EPA METHOD 3550 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : LAB CONTROL SAMPLE
Matrix : SOIL
Date Sampled : N/A
Date Extracted: 11/19/93
Date Analyzed : 12/04/93

Anametrix I.D. : MN19H1F1
Analyst : RD
Supervisor : JM
Date Released : 12/08/93
Instrument I.D.: HP9

COMPOUND	SPIKE AMT (mg/Kg)	REC LCS (mg/Kg)	% REC LCS	% REC LIMITS *
DIESEL	125	118	94%	48-113
SURROGATE			70%	30-130

* Quality control limits established by Anametrix, Inc.

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9311259
Date Received : 11/18/93
Project ID : 1649.19
Purchase Order: N/A
Department : PREP
Sub-Department: PREP

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9311259- 1	D20-1.0	SOIL	11/17/93	5520EF
9311259- 2	D20-2.0	SOIL	11/17/93	5520EF
9311259- 3	D15-0.5	SOIL	11/17/93	5520EF
9311259- 4	D15-1.5	SOIL	11/17/93	5520EF
9311259- 5	D17-1.0	SOIL	11/17/93	5520EF
9311259- 6	D17-2.0	SOIL	11/17/93	5520EF
9311259- 7	D16-1.0	SOIL	11/17/93	5520EF
9311259- 8	D16-2.0	SOIL	11/17/93	5520EF
9311259- 9	D18-1.0	SOIL	11/17/93	5520EF
9311259-10	D18-2.0	SOIL	11/17/93	5520EF
9311259-11	D19-1.0	SOIL	11/17/93	5520EF
9311259-12	D19-2.0	SOIL	11/17/93	5520EF

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9311259
Date Received : 11/18/93
Project ID : 1649.19
Purchase Order: N/A
Department : PREP
Sub-Department: PREP

QA/QC SUMMARY :

- No QA/QC problems encountered for these samples.

Department Supervisor 11/29/93 Date

Chemist 11.29.93 Date

ANALYSIS DATA SHEET - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS
AS OIL AND GREASE
ANAMETRIX LABORATORIES (408) 432-8192

Project # : 1649.19
Matrix : SOIL
Date sampled : 11/17/93
Date extracted: 11/19/93
Date analyzed : 11/22/93

Anametrix I.D. : 9311259
Analyst : M.P
Supervisor : CW
Date released : 11/29/93

Workorder #	Sample I.D.	Reporting Limit (mg/Kg)	Amount Found (mg/Kg)
9311259-01	D20-1.0	30	1,000
9311259-02	D20-2.0	30	2,600
9311259-03	D15-0.5	30	950
9311259-04	D15-1.5	30	2,000
9311259-05	D17-1.0	30	1,900
9311259-06	D17-2.0	30	820
9311259-07	D16-1.0	30	1,700
9311259-08	D16-2.0	30	15,000
9311259-09	D18-1.0	30	280
9311259-10	D18-2.0	30	8,500
9311259-11	D19-1.0	30	2,200
9311259-12	D19-2.0	30	1,500
BN19H1W9	METHOD BLANK	30	ND

ND - Not detected above the reporting limit for the method.
TRPH - Total Recoverable Petroleum Hydrocarbons are determined by Standard Method 5520EF, 18th edition.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

MATRIX SPIKE REPORT - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS
AS OIL AND GREASE
ANAMETRIX LABORATORIES (408) 432-8192

Sample I.D.	: 1649.19, D16-1.0MS, MD	Anametrix I.D.	: 9311259-07
Matrix	: SOIL	Analyst	: MP
Date sampled	: 11/17/93	Supervisor	:
Date extracted	: 11/19/93	Date Released	: 11/24/93
Date analyzed	: 11/22/93		

COMPOUND	SPIKE AMT (mg/Kg)	SAMPLE CONC (mg/Kg)	MS AMT (mg/Kg)	%REC MS	MD AMT (mg/Kg)	%REC MD	%RPD	% REC LIMITS
Motor Oil	300	1700	1900	67%	2000	100%	5%	48-114%

* Quality control limits established by Anametrix Laboratories.

TRPH - Total Recoverable Petroleum Hydrocarbons are determined by Standard Method 5520EF, 18th edition.

LAB CONTROL SAMPLE REPORT - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS
AS OIL AND GREASE
ANAMETRIX LABORATORIES (408) 432-8192

Sample I.D.	: LAB CONTROL SAMPLE	Anametrix I.D.	: MN19H1W9
Matrix	: SOIL	Analyst	: M. P
Date sampled	: N/A	Supervisor	:
Date extracted	: 11/19/93	Date Released	: 11/24/93
Date analyzed	: 11/22/93		

COMPOUND	SPIKE AMT. (mg/Kg)	LCS (mg/Kg)	%REC LCS	%REC LIMITS
Motor Oil	300	290	97%	71-119%

* Quality control established by Anametrix Laboratories.

TRPH - Total Recoverable Petroleum Hydrocarbons are determined by Standard Method 5520EF.

#257 9311259 (10/24) 2 of 5

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 1649.19	Field Logbook No.:	Date: 11/17/93	Serial No.: 8986
Project Name: Yerba Buena	Project Location: Emeryville		
Sampler (Signature): Jennifer Beaty			

	SAMPLES					ANALYSES								
	SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	EPA 601	EPA 624	TPH as diesel/MO	5520 E/F			HOLD	RUSH
1	D20-1.0	11/17/93	1120		1	Soil			X	X				
2	D20-2.0	11/17/93	1120						X	X				
3	D15-0.5		930						X	X				
4	D15-1.5		930						X	X				
5	D17-1.0		1110						X	X				
6	D17-2.0		1110						X	X				
7	D16-1.0		955						X	X				
8	D16-2.0		955						X	X				
9	D18-1.0		945						X	X				
10	D18-2.0		950						X	X				
11	D19-1.0		1130						X	X				
12	D19-2.0		1130						X	X				

Samplers: JB

REMARKS: NORMAL T.A.T

TPH as diesel / motor oil

O+G by 5520 E/F

RELINQUISHED BY: (Signature) Jennifer Beaty	DATE 11/18/93	TIME 2PM	RECEIVED BY: (Signature) Penny S. Cardoza	DATE 11/18/93	TIME 1400
RELINQUISHED BY: (Signature) Penny S. Cardoza	DATE 11/18/93	TIME 1550	RECEIVED BY: (Signature)	DATE 11/18/93	TIME 15:50
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
METHOD OF SHIPMENT: Courier	DATE 11/18/93	TIME 1400	LAB COMMENTS:		

Sample Collector:
LEVINE-FRICKE
1900 Powell Street, 12th Floor
Emeryville, Ca 94608
(415) 652-4500

Analytical Laboratory:
ANAMETRIX

Shipping Copy (White) Lab Copy (Green) File Copy (Yellow) Field Copy (Pink) FORM NO. 86/COC/ARF

Inchcape Testing Services
Anametrix Laboratories

1961 Concourse Drive
Suite E
San Jose, CA 95131
Tel: 408-432-8192
Fax: 408-432-8198

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9312312
Date Received : 12/29/93
Project ID : 1649.19
Purchase Order: N/A

The following samples were received at Anametrix for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9312312- 1	D10.5-1
9312312- 2	D11-1.5
9312312- 3	D50.5-1
9312312- 4	D51-1.5
9312312- 5	D60.5-1
9312312- 6	D61-1.5
9312312- 7	D20.5-1
9312312- 8	D21-1.5

This report consists of 11 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group which performed the analysis(es) and generated the data.

The results contained within this report relate to only the sample(s) tested. Additionally, these data should be considered in their entirety and Anametrix cannot be responsible for the detachment, separation, or otherwise partial use of this report.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234.

If you have any further questions or comments on this report, please call us as soon as possible. Thank you for using Anametrix.

Sarah Schoen, Ph.D.
Laboratory Director

1-19-94
Date

RECEIVED
JAN 20
LEVINE-FRICKE

COPY

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9312312
Date Received : 12/29/93
Project ID : 1649.19
Purchase Order: N/A
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9312312- 1	D10.5-1	SOIL	12/28/93	TPHd
9312312- 2	D11-1.5	SOIL	12/28/93	TPHd
9312312- 3	D50.5-1	SOIL	12/28/93	TPHd
9312312- 4	D51-1.5	SOIL	12/28/93	TPHd
9312312- 5	D60.5-1	SOIL	12/28/93	TPHd
9312312- 6	D61-1.5	SOIL	12/28/93	TPHd
9312312- 7	D20.5-1	SOIL	12/28/93	TPHd
9312312- 8	D21-1.5	SOIL	12/28/93	TPHd

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9312312
Date Received : 12/29/93
Project ID : 1649.19
Purchase Order: N/A
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- No QA/QC problems encountered for these samples.

Cheryl Balmes 1/13/94
Department Supervisor Date

Lucia Shor 1/13/94
Chemist Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS AS DIESEL
ANAMETRIX, INC. (408) 432-8192

Anametrix W.O.: 9312312
Matrix : SOIL
Date Sampled : 12/28/93
Date Extracted: 01/04/94

Project Number : 1649.19
Date Released : 01/13/94
Instrument I.D.: HP9

Anametrix I.D.	Client I.D.	Date Analyzed	Reporting Limit (mg/Kg)	Amount Found (mg/Kg)	Surrogate %Rec
9312312-01	D10.5-1	01/12/94	100	ND	102%
9312312-02	D11-1.5	01/08/94	10	ND	90%
9312312-03	D50.5-1	01/08/94	10	ND	96%
9312312-04	D51-1.5	01/12/94	20	ND	92%
9312312-05	D60.5-1	01/08/94	10	17	90%
9312312-06	D61-1.5	01/08/94	10	15	92%
9312312-07	D20.5-1	01/12/94	50	ND	98%
9312312-08	D21-1.5	01/08/94	10	ND	98%
BJ04H1F1	METHOD BLANK	01/08/94	10	ND	86%

Note : Reporting limit is obtained by multiplying the dilution factor times 10 mg/Kg.
The surrogate recovery limits for C25 are 30-130%.

ND - Not detected at or above the practical quantitation limit for the method.
TPHd - Total Petroleum Hydrocarbons as C12-C22 is determined by GCFID following sample extraction by EPA Method 3510.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Lina Shor 1/13/94
Analyst Date

Cheryl Bedner 1/13/94
Supervisor Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL
ANAMETRIX, INC. (408) 432-8192

Anametrix W.O.: 9312312
Matrix : SOIL
Date Sampled : 12/28/93
Date Extracted: 01/04/94

Project Number : 1649.19
Date Released : 01/13/94
Instrument I.D.: HP9

Anametrix I.D.	Client I.D.	Date Analyzed	Reporting Limit (mg/Kg)	Amount Found (mg/Kg)	Surrogate %Rec
9312312-01	D10.5-1	01/12/94	100	1200	102%
9312312-02	D11-1.5	01/08/94	10	72	90%
9312312-03	D50.5-1	01/08/94	10	85	96%
9312312-04	D51-1.5	01/12/94	20	230	92%
9312312-05	D60.5-1	01/08/94	10	210	90%
9312312-06	D61-1.5	01/08/94	10	240	92%
9312312-07	D20.5-1	01/12/94	50	690	98%
9312312-08	D21-1.5	01/08/94	10	140	98%
BJ04H1F1	METHOD BLANK	01/08/94	10	ND	86%

Note : Reporting limit is obtained by multiplying the dilution factor times 10 mg/Kg.
The surrogate recovery limits for C25 are 30-130%.

ND - Not detected at or above the practical quantitation limit for the method.
TPHd - Total Petroleum Hydrocarbons as C22-C36 is determined by GCFID following sample extraction by EPA Method 3510.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Lucia Shaw 1/13/94
Analyst Date

Cheryl Balmer 1/13/94
Supervisor Date

TOTAL EXTRACTABLE HYDROCARBON MATRIX SPIKE REPORT
EPA METHOD 3550 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 1649.19 D51-1.5
Matrix : SOIL
Date Sampled : 12/28/93
Date Extracted: 01/04/94
Date Analyzed : 01/12/94

Anametrix I.D. : 9312312-04
Analyst : IS
Supervisor : [illegible]
Date Released : 01/13/94
Instrument I.D.: HP9

COMPOUND	SPIKE AMT (mg/Kg)	SAMPLE CONC (mg/Kg)	REC MS (mg/Kg)	% REC MS	REC MD (mg/Kg)	% REC MD	RPD	% REC LIMITS *
DIESEL	125	0	82	66%	86	69%	5%	32-143
SURROGATE				101%		112%		30-130

* Quality control limits established by Anametrix, Inc.

TOTAL EXTRACTABLE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT
EPA METHOD 3550 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: LAB CONTROL SAMPLE	Anametrix I.D.	: MJ04H1F1
Matrix	: SOIL	Analyst	: IS
Date Sampled	: N/A	Supervisor	: G
Date Extracted	: 01/04/94	Date Released	: 01/13/94
Date Analyzed	: 01/08/94	Instrument I.D.	: HP9

COMPOUND	SPIKE AMT (mg/Kg)	REC LCS (mg/Kg)	% REC LCS	% REC LIMITS *
DIESEL	125	91	73%	48-113
SURROGATE			92%	30-130

* Quality control limits established by Anametrix, Inc.

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9312312
Date Received : 12/29/93
Project ID : 1649.19
Purchase Order: N/A
Department : PREP
Sub-Department: PREP

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9312312- 1	D10.5-1	SOIL	12/28/93	5520EF
9312312- 2	D11-1.5	SOIL	12/28/93	5520EF
9312312- 3	D50.5-1	SOIL	12/28/93	5520EF
9312312- 4	D51-1.5	SOIL	12/28/93	5520EF
9312312- 5	D60.5-1	SOIL	12/28/93	5520EF
9312312- 6	D61-1.5	SOIL	12/28/93	5520EF
9312312- 7	D20.5-1	SOIL	12/28/93	5520EF
9312312- 8	D21-1.5	SOIL	12/28/93	5520EF

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9312312
Date Received : 12/29/93
Project ID : 1649.19
Purchase Order: N/A
Department : PREP
Sub-Department: PREP

QA/QC SUMMARY :

-Due to the high concentration of Total Recoverable Petroleum Hydrocarbons in sample D21-1.5, the matrix spike and matrix spike duplicate are outside of quality control limits.

Cathy Miller 1/11/94
Department Supervisor Date

Chemist 1/11/94
Date

ANALYSIS DATA SHEET - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS
AS OIL AND GREASE
ANAMETRIX LABORATORIES (408) 432-8192

Project # : 1649.19
Matrix : SOIL
Date sampled : 12/28/93
Date extracted: 01/06/94
Date analyzed : 01/07/94

Anametrix I.D. : 9312312
Analyst : HE
Supervisor : CW
Date released : 01/07/94

Workorder #	Sample I.D.	Reporting Limit (mg/Kg)	Amount Found (mg/Kg)
9312312-01	D10.5-1	30	2,100
9312312-02	D11-1.5	30	1,200
9312312-03	D50.5-1	30	340
9312312-04	D51-1.5	30	1,100
9312312-05	D60.5-1	30	850
9312312-06	D61-1.5	30	840
9312312-07	D20.5-1	30	1,200
9312312-08	D21-1.5	30	1,200
BJ06H1W9	METHOD BLANK	30	ND

ND - Not detected above the reporting limit for the method.
TRPH - Total Recoverable Petroleum Hydrocarbons are determined by Standard Method 5520EF, 18th edition.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

MATRIX SPIKE REPORT - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS
AS OIL AND GREASE
ANAMETRIX LABORATORIES (408) 432-8192

Sample I.D. : 1649.19, D21-1.5MS, MD
Matrix : SOIL
Date sampled : 12/28/93
Date extracted : 12/06/93
Date analyzed : 12/07/93

Anametrix I.D. : 9312312-08
Analyst : HC
Supervisor : CW
Date Released : 12/07/93

COMPOUND	SPIKE AMT (mg/Kg)	SAMPLE CONC (mg/Kg)	MS AMT (mg/Kg)	%REC MS	MD AMT (mg/Kg)	%REC MD	%RPD	% REC LIMITS
Motor Oil	300	1220	2100	293	1900	227	7	48-114

* Quality control limits established by Anametrix Laboratories.

TRPH - Total Recoverable Petroleum Hydrocarbons are determined by Standard Method 5520EF, 18th edition.

LAB CONTROL SAMPLE REPORT - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS
AS OIL AND GREASE
ANAMETRIX LABORATORIES (408) 432-8192

Sample I.D.	: LAB CONTROL SAMPLE	Anametrix I.D.	: MJ06H1W9
Matrix	: SOIL	Analyst	: HE
Date sampled	: N/A	Supervisor	: CM
Date extracted	: 01/06/94	Date Released	: 01/07/94
Date analyzed	: 01/07/94		

COMPOUND	SPIKE AMT. (mg/Kg)	LCS (mg/Kg)	%REC LCS	%REC LIMITS
Motor Oil	300	293	97	71-119

* Quality control established by Anametrix Laboratories.

TRPH - Total Recoverable Petroleum Hydrocarbons are determined by Standard Method 5520EF.

#66 9312312 (1015)

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 1649.19	Field Logbook No.:	Date: 12/28/93	Serial No.: No. 12636
Project Name: YERBA BUENA	Project Location: EMERYVILLE, CA		
Sampler (Signature): J. C. Le			Samplers: JCK

	SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	EPA 601	EPA 624	TPH-D	TPH-G (MODIFIED)	OIL & GREASE	HOLD	RUSH	REMARKS
1	D10.5-1.0	12/28/93	14:40		1	SOIL			X	X	X			STANDARD TAT
2	D11.0-1.5		14:40						X	X	X			
3	D50.5-1.0		15:00						X	X	X			
4	D51.0-1.5		15:00						X	X	X			CONTACT JENNIFER BEATTY
5	D60.5-1.0		15:15						X	X	X			
6	D61.0-1.5		15:15						X	X	X			
7	D20.5-1.0		15:30						X	X	X			
8	D21.0-1.5		15:30						X	X	X			

RELINQUISHED BY: (Signature) J. C. Le	DATE 12-29-93	TIME 1005	RECEIVED BY: (Signature) Benny S. Canizosa
RELINQUISHED BY: (Signature) Benny S. Canizosa	DATE 12-29-93	TIME 1210	RECEIVED BY: (Signature) Dorothy C. Falcon
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)
METHOD OF SHIPMENT:	DATE	TIME	LAB COMMENTS:

Sample Collector: LEVINE-FRICKE 1900 Powell Street, 12th Floor Emeryville, California 94608 (510) 652-4500	Analytical Laboratory: ANALETRIX SAN JOSE, CA.

Shipping Copy (White) Lab Copy (Green) File Copy (Yellow) Field Copy (Pink) FORM NO. 86/COC/ARF

Inchcape Testing Services
Anametrix Laboratories

1961 Concourse Drive
Suite E
San Jose, CA 95131
Tel: 408-432-8192
Fax: 408-432-8198

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9401041
Date Received : 01/05/94
Project ID : 1649.19
Purchase Order: N/A

The following samples were received at Anametrix for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9401041- 1	D3-0.75
9401041- 2	D3-1.5
9401041- 3	D4-1.0
9401041- 4	D4-1.75
9401041- 5	D7-0.75
9401041- 6	D7-1.5
9401041- 7	D8-1.5
9401041- 8	D8-2.5

COPY

This report consists of 10 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group which performed the analysis(es) and generated the data.

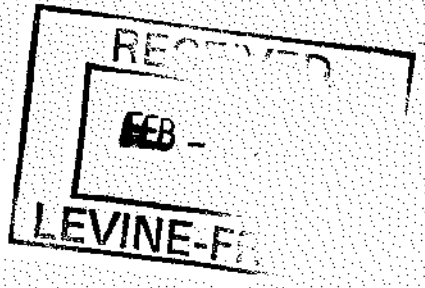
The results contained within this report relate to only the sample(s) tested. Additionally, these data should be considered in their entirety and Anametrix cannot be responsible for the detachment, separation, or otherwise partial use of this report.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234.

If you have any further questions or comments on this report, please call us as soon as possible. Thank you for using Anametrix.

Doug Robbins
Laboratory Director

1-31-94
Date



REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9401041
Date Received : 01/05/94
Project ID : 1649.19
Purchase Order: N/A
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9401041- 1	D3-0.75	SOIL	01/05/94	TPHd
9401041- 2	D3-1.5	SOIL	01/05/94	TPHd
9401041- 3	D4-1.0	SOIL	01/05/94	TPHd
9401041- 4	D4-1.75	SOIL	01/05/94	TPHd
9401041- 5	D7-0.75	SOIL	01/05/94	TPHd
9401041- 6	D7-1.5	SOIL	01/05/94	TPHd
9401041- 7	D8-1.5	SOIL	01/05/94	TPHd
9401041- 8	D8-2.5	SOIL	01/05/94	TPHd

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9401041
Date Received : 01/05/94
Project ID : 1649.19
Purchase Order: N/A
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- Diesel recovery for the matrix spike duplicate on sample D7-1.5 and the relative percent difference between the matrix spike and matrix spike duplicate are outside of quality control limits due to the relatively high background level of diesel present in the sample.

Department Supervisor 1/31/94 Date

Chemist 1/31/94 Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS AS DIESEL
ANAMETRIX, INC. (408) 432-8192

Anametrix W.O.: 9401041
Matrix : SOIL
Date Sampled : 01/05/94
Date Extracted: 01/10/94

Project Number : 1649.19
Date Released : 01/31/94
Instrument I.D.: HP19

Anametrix I.D.	Client I.D.	Date Analyzed	Reporting Limit (mg/Kg)	Amount Found (mg/Kg)	Surrogate %Rec
9401041-01	D3-0.75	01/26/94	10	15	94%
9401041-02	D3-1.5	01/26/94	10	13	103%
9401041-03	D4-1.0	01/26/94	100	ND	99%
9401041-04	D4-1.75	01/26/94	10	ND	92%
9401041-05	D7-0.75	01/26/94	10	ND	88%
9401041-06	D7-1.5	01/26/94	10	48	98%
9401041-07	D8-1.5	01/26/94	100	ND	98%
9401041-08	D8-2.5	01/26/94	10	ND	92%
BJ10H2F1	METHOD BLANK	01/26/94	10	ND	96%

Note : Reporting limit is obtained by multiplying the dilution factor times 10 mg/Kg.
The surrogate recovery limits for C25 are 30-130%.

ND - Not detected at or above the practical quantitation limit for the method.
TPHd - Total Petroleum Hydrocarbons as C12-C22 is determined by GCFID following sample extraction by EPA Method 3510.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Doshi 1/31/94.
Analyst Date

Cheryl O Brown 1.1.94
Supervisor Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL
ANAMETRIX, INC. (408) 432-8192

Anametrix W.O.: 9401041
Matrix : SOIL
Date Sampled : 01/05/94
Date Extracted: 01/10/94

Project Number : 1649.19
Date Released : 01/31/94
Instrument I.D.: HP19

Anametrix I.D.	Client I.D.	Date Analyzed	Reporting Limit (mg/Kg)	Amount Found (mg/Kg)	Surrogate %Rec
9401041-01	D3-0.75	01/26/94	10	110	94%
9401041-02	D3-1.5	01/26/94	10	150	103%
9401041-03	D4-1.0	01/26/94	100	460	99%
9401041-04	D4-1.75	01/26/94	10	73	92%
9401041-05	D7-0.75	01/26/94	10	68	88%
9401041-06	D7-1.5	01/26/94	10	87	98%
9401041-07	D8-1.5	01/26/94	100	330	98%
9401041-08	D8-2.5	01/26/94	10	96	92%
BJ10H2F1	METHOD BLANK	01/26/94	10	ND	96%

Note : Reporting limit is obtained by multiplying the dilution factor times 10 mg/Kg.
The surrogate recovery limits for C25 are 30-130%.

ND - Not detected at or above the practical quantitation limit for the method.
TPHd - Total Petroleum Hydrocarbons as C22-C36 is determined by GCFID following sample extraction by EPA Method 3510.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Analyst Joshi 1/31/94. Date

Supervisor Cheryl Balman 1/31/94 Date

TOTAL EXTRACTABLE HYDROCARBON MATRIX SPIKE REPORT
EPA METHOD 3550 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 1649.19 D7-1.5
Matrix : SOIL
Date Sampled : 01/05/94
Date Extracted: 01/10/94
Date Analyzed : 01/26/94

Anametrix I.D. : 9401041-06
Analyst : FD
Supervisor : JB
Date Released : 01/31/94
Instrument I.D.: HP19

COMPOUND	SPIKE AMT (mg/Kg)	SAMPLE CONC (mg/Kg)	REC MS (mg/Kg)	% REC MS	REC MD (mg/Kg)	% REC MD	RPD	% REC LIMITS *
DIESEL	125	48	157	87%	247	159%	45%	32-143
SURROGATE				94%		97%		30-130

* Quality control limits established by Anametrix, Inc.

TOTAL EXTRACTABLE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT
EPA METHOD 3550 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : LAB CONTROL SAMPLE
Matrix : SOIL
Date Sampled : N/A
Date Extracted: 01/10/94
Date Analyzed : 01/26/94

Anametrix I.D. : MJ10H2F1
Analyst : JD
Supervisor : MB
Date Released : 01/31/94
Instrument I.D.: HP19

COMPOUND	SPIKE AMT (mg/Kg)	REC LCS (mg/Kg)	% REC LCS	% REC LIMITS *
DIESEL	125	102	82%	48-113
SURROGATE			104%	30-130

* Quality control limits established by Anametrix, Inc.

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9401041
Date Received : 01/05/94
Project ID : 1649.19
Purchase Order: N/A
Department : PREP
Sub-Department: PREP

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9401041- 1	D3-0.75	SOIL	01/05/94	5520EF
9401041- 2	D3-1.5	SOIL	01/05/94	5520EF
9401041- 3	D4-1.0	SOIL	01/05/94	5520EF
9401041- 4	D4-1.75	SOIL	01/05/94	5520EF
9401041- 5	D7-0.75	SOIL	01/05/94	5520EF
9401041- 6	D7-1.5	SOIL	01/05/94	5520EF
9401041- 7	D8-1.5	SOIL	01/05/94	5520EF
9401041- 8	D8-2.5	SOIL	01/05/94	5520EF

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. JENIFER BEATTY
LEVINE-FRICKE
1900 POWELL STREET 12TH FLOOR
EMERYVILLE, CA 94608

Workorder # : 9401041
Date Received : 01/05/94
Project ID : 1649.19
Purchase Order: N/A
Department : PREP
Sub-Department: PREP

QA/QC SUMMARY :

- No QA/QC problems encountered for these samples.

Cathy Mullen 1/17/94
Department Supervisor Date

Chemist 1/14/94
Date

ANALYSIS DATA SHEET - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS
AS OIL AND GREASE
ANAMETRIX LABORATORIES (408) 432-8192

Project # : 1649.19
Matrix : SOIL
Date sampled : 01/05/94
Date extracted: 01/10/94
Date analyzed : 01/11/94

Anametrix I.D. : 9401041
Analyst : HG
Supervisor : CW
Date released : 01/14/94

Workorder #	Sample I.D.	Reporting Limit (mg/Kg)	Amount Found (mg/Kg)
9401041-01	D3-0.75	30	2,000
9401041-02	D3-1.5	30	1,000
9401041-03	D4-1.0	30	3,800
9401041-04	D4-1.75	30	890
9401041-05	D7-0.75	30	2,100
9401041-06	D7-1.5	30	1,200
9401041-07	D8-1.5	30	3,100
9401041-08	D8-2.5	30	1,300
BJ10H1W9	METHOD BLANK	30	ND

ND - Not detected above the reporting limit for the method.
TRPH - Total Recoverable Petroleum Hydrocarbons are determined by Standard Method 5520EF, 18th edition.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

LAB CONTROL SAMPLE REPORT - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS
AS OIL AND GREASE
ANAMETRIX LABORATORIES (408) 432-8192

Sample I.D.	: LAB CONTROL SAMPLE	Anametrix I.D.	: MJ10H1W9
Matrix	: SOIL	Analyst	:
Date sampled	: N/A	Supervisor	:
Date extracted	: 01/10/94	Date Released	: 01/14/94
Date analyzed	: 01/11/94		

COMPOUND	SPIKE AMT. (mg/Kg)	LCS (mg/Kg)	%REC LCS	%REC LIMITS
Motor Oil	300	300	100	71-119

* Quality control established by Anametrix Laboratories.

TRPH - Total Recoverable Petroleum Hydrocarbons are determined by Standard Method 5520EF.

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

Project No.: 1649.19	Field Logbook No.:	Date: 1-5-94	Serial No.: № 12158
Project Name: Yerba Buena	Project Location: Emeryville, CA		
Sampler (Signature): Michael Stoll			Samplers: MJS

	SAMPLES						ANALYSES								
	SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	EPA 601	EPA 624	TPH diesel	TPH motor oil	Oil & Grease SM 552 DEF		HOLD	RUSH	REMARKS
1	D3-0.75	1-5-94			1	SOIL			X	X	X				Regular TAT
2	D3-1.5														
3	D4-1.0														
4	D4-1.75														
5	D7-0.75														
6	D7-1.5														
7	D8-1.5														
8	D8-2.5	X			X	X			X	X	X				
															Results to: Jenifer Beatty

RELINQUISHED BY: (Signature) Michael Stoll	DATE 1-5-94	TIME 1230	RECEIVED BY: (Signature) Bonny S. Carrizosa	DATE 1/5/94	TIME 1230
RELINQUISHED BY: (Signature) Bonny S. Carrizosa	DATE 1-5-94	TIME 1645	RECEIVED BY: (Signature) Josephine DeCarli	DATE 1/5/94	TIME 16:45
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
METHOD OF SHIPMENT:	DATE	TIME	LAB COMMENTS:		

Sample Collector:
LEVINE-FRICKE
1900 Powell Street, 12th Floor
Emeryville, California 94608
(510) 652-4500

Analytical Laboratory:
Anametrix Inc., San Jose, CA

Shipping Copy (White) Lab Copy (Green) File Copy (Yellow) Field Copy (Pink) FORM 86/COC/ARF

APPENDIX E

SAMPLING PROCEDURES TO BE USED FOR THE GROUND-WATER MONITORING PLAN

SAMPLING PROCEDURES TO BE USED FOR THE GROUND-WATER MONITORING PLAN

A ground-water monitoring program will be implemented to monitor ground-water quality in the vicinity of contained petroleum hydrocarbon-affected soils. The program will include the collection of water samples from eight shallow ground-water monitoring wells (MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, LF-22, and LF-23) on a semiannual basis.

Before sample collection, depth to static water will be measured in each well and three to five well casing volumes of ground water will be purged from each well using a centrifugal pump or a bailer until indicator parameter readings (pH, specific conductance, and temperature) are stable. Indicator parameters will be measured using portable field instruments and recorded on water-quality sampling forms. Purging and sampling equipment will be steam cleaned before use at each well. Purged ground water will be pumped into the on-site treatment system.

After each well has been purged, ground-water samples will be collected using a clean Teflon bailer. Samples are to be collected in containers appropriate for the laboratory analysis to be performed. Samples will be immediately capped and placed in an ice-chilled cooler for transportation to the analytical laboratory.

The samples will be submitted to a state-certified analytical laboratory and analyzed for total petroleum hydrocarbons as diesel and as motor oil. Results of these analyses will be included in quarterly ground-water monitoring reports prepared for the entire East Baybridge Center.

CORNERSTONE
EARTH GROUP

APPENDIX B – BORING LOGS

BORING NUMBER EB-1

CORNERSTONE EARTH GROUP

PROJECT NAME FRIT East Bay Bridge Project
PROJECT NUMBER 371-5-2
PROJECT LOCATION Emeryville, CA

DATE STARTED 12/23/14 **DATE COMPLETED** 12/23/14
GROUND ELEVATION _____ **BORING DEPTH** 10 ft.
DRILLING CONTRACTOR _____ **LATITUDE** _____ **LONGITUDE** _____
DRILLING METHOD Geoprobe Hydraulic Push
GROUND WATER LEVELS:
LOGGED BY RRB ▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____ ▼ **AT END OF DRILLING** Not Encountered

This log is a part of a report by Cornerstone Earth Group, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	Sample Type and Interval	Sample Submitted for Laboratory Analysis	Percent Recovery (%)	OVM Reading (ppm)	Odors or Discoloration	Notes
	0.0		6 inches asphalt concrete over aggregate base							
			Sandy Lean Clay with Gravel (CL) [Fill] stiff, moist, dark brown							
	2.5						60	1- 2.3	None	
						x				
						x				
	5.0									
						x		14.4		
			Sandy Lean Clay (CL) stiff, moist, light brown							
	7.5						90		None	
						x		0.5		
						x		1.7		
	10.0		Bottom of Boring at 10.0 feet.							
	12.5									

CORNERSTONE GE LOG DEC192007 - CORNERSTONE 0812.GDT - 1/22/15 12:16 - P:\DRAFTING\GINT FILES\371-5-2 FRIT EAST BAY BRIDGE PROJECT GE.GPJ

BORING NUMBER EB-2

CORNERSTONE EARTH GROUP

PROJECT NAME FRIT East Bay Bridge Project
PROJECT NUMBER 371-5-2
PROJECT LOCATION Emeryville, CA

DATE STARTED 12/23/14 **DATE COMPLETED** 12/23/14
GROUND ELEVATION _____ **BORING DEPTH** 10 ft.
DRILLING CONTRACTOR _____ **LATITUDE** _____ **LONGITUDE** _____
DRILLING METHOD Geoprobe Hydraulic Push
GROUND WATER LEVELS:
LOGGED BY RRB ▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____ ▼ **AT END OF DRILLING** Not Encountered

This log is a part of a report by Cornerstone Earth Group, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	Sample Type and Interval	Sample Submitted for Laboratory Analysis	Percent Recovery (%)	OVM Reading (ppm)	Odors or Discoloration	Notes
	0.0		6 inches asphalt concrete over aggregate base							
			Sandy Lean Clay with Gravel (CL) [Fill] stiff, moist, dark brown					0.5		
	2.5						100		None	
						x		6		
						x				
						x		6		
			Sandy Lean Clay (CL) stiff, moist, dark brown							
	5.0					x				
								0.3		
								0.7		
	7.5						80		None	
						x				
			becomes light brown							
						x				
	10.0		Bottom of Boring at 10.0 feet.							
	12.5									

CORNERSTONE GE LOG DEC192007 - CORNERSTONE 0812.GDT - 1/22/15 12:16 - P:\DRAFTING\GINT FILES\371-5-2 FRIT EAST BAY BRIDGE PROJECT GE.GPJ

BORING NUMBER EB-3

CORNERSTONE EARTH GROUP

PROJECT NAME FRIT East Bay Bridge Project
PROJECT NUMBER 371-5-2
PROJECT LOCATION Emeryville, CA

DATE STARTED 12/23/14 **DATE COMPLETED** 12/23/14
GROUND ELEVATION _____ **BORING DEPTH** 10 ft.
DRILLING CONTRACTOR _____ **LATITUDE** _____ **LONGITUDE** _____
DRILLING METHOD Geoprobe Hydraulic Push
GROUND WATER LEVELS:
LOGGED BY RRB ▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____ ▼ **AT END OF DRILLING** Not Encountered

This log is a part of a report by Cornerstone Earth Group, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	Sample Type and Interval	Sample Submitted for Laboratory Analysis	Percent Recovery (%)	OVM Reading (ppm)	Odors or Discoloration	Notes
	0.0		6 inches asphalt concrete over aggregate base							
			Sandy Lean Clay (CL) [Fill] stiff, moist, dark brown					0		
								1.4		
	2.5						60		None	
						x				
						x				
						x				
			Sandy Lean Clay (CL) stiff, moist, dark brown							
	5.0									
						x		0.1		
								1.8		
	7.5						100		None	
			becomes light brown			x				
						x				
	10.0		Bottom of Boring at 10.0 feet.							
	12.5									

CORNERSTONE GE LOG DEC192007 - CORNERSTONE 0812.GDT - 1/22/15 12:16 - P:\DRAFTING\GINT FILES\371-5-2 FRIT EAST BAY BRIDGE PROJECT GE.GPJ

BORING NUMBER EB-4

CORNERSTONE EARTH GROUP

PROJECT NAME FRIT East Bay Bridge Project
PROJECT NUMBER 371-5-2
PROJECT LOCATION Emeryville, CA

DATE STARTED 12/23/14 **DATE COMPLETED** 12/23/14
GROUND ELEVATION _____ **BORING DEPTH** 10 ft.
DRILLING CONTRACTOR _____ **LATITUDE** _____ **LONGITUDE** _____
DRILLING METHOD Geoprobe Hydraulic Push
GROUND WATER LEVELS:
LOGGED BY RRB ▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____ ▼ **AT END OF DRILLING** Not Encountered

This log is a part of a report by Cornerstone Earth Group, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	Sample Type and Interval	Sample Submitted for Laboratory Analysis	Percent Recovery (%)	OVM Reading (ppm)	Odors or Discoloration	Notes
	0.0		6 inches asphalt concrete over aggregate base							
			Sandy Lean Clay (CL) [Fill] stiff, moist, dark brown					0.7		
								1.0		
	2.5						60		None	
						x				
						x				
						x				
			Sandy Lean Clay (CL) stiff, moist, dark brown, trace gravel							
	5.0									
						x		0.9		
								1.5		
	7.5						100		None	
						x				
						x				
	10.0		Bottom of Boring at 10.0 feet.							
	12.5									

CORNERSTONE GE LOG DEC192007 - CORNERSTONE 0812.GDT - 1/22/15 12:16 - P:\DRAFTING\GINT FILES\371-5-2 FRIT EAST BAY BRIDGE PROJECT GE.GPJ

BORING NUMBER EB-5

CORNERSTONE EARTH GROUP

PROJECT NAME FRIT East Bay Bridge Project
PROJECT NUMBER 371-5-2
PROJECT LOCATION Emeryville, CA

DATE STARTED 12/23/14 **DATE COMPLETED** 12/23/14
GROUND ELEVATION _____ **BORING DEPTH** 10 ft.
DRILLING CONTRACTOR _____
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Geoprobe Hydraulic Push
GROUND WATER LEVELS:
LOGGED BY RRB
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

This log is a part of a report by Cornerstone Earth Group, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	Sample Type and Interval	Sample Submitted for Laboratory Analysis	Percent Recovery (%)	OVM Reading (ppm)	Odors or Discoloration	Notes
	0.0		6 inches asphalt concrete over aggregate base							
			Sandy Lean Clay with Gravel (CL) [Fill] stiff, moist, dark brown					0		
								4.5		
	2.5					x	70		None	
						x				
						x		4.5		
			Sandy Lean Clay (CL) stiff, moist, dark brown							
	5.0									
						x		0.1		
								2.5		
	7.5						100		None	
						x				
						x				
	10.0		Bottom of Boring at 10.0 feet.							
	12.5									

CORNERSTONE GE LOG DEC192007 - CORNERSTONE 0812.GDT - 1/22/15 12:16 - P:\DRAFTING\GINT FILES\371-5-2 FRIT EAST BAY BRIDGE PROJECT GE.GPJ

BORING NUMBER EB-6

CORNERSTONE EARTH GROUP

PROJECT NAME FRIT East Bay Bridge Project
PROJECT NUMBER 371-5-2
PROJECT LOCATION Emeryville, CA

DATE STARTED 12/23/14 **DATE COMPLETED** 12/23/14
GROUND ELEVATION _____ **BORING DEPTH** 10 ft.
DRILLING CONTRACTOR _____
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Geoprobe Hydraulic Push
GROUND WATER LEVELS:
LOGGED BY RRB
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

This log is a part of a report by Cornerstone Earth Group, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	Sample Type and Interval	Sample Submitted for Laboratory Analysis	Percent Recovery (%)	OVM Reading (ppm)	Odors or Discoloration	Notes
	0.0		6 inches asphalt concrete over aggregate base							
			Sandy Lean Clay with Gravel (CL) [Fill] stiff, moist, dark brown					0.3		
								0.3		
	2.5						80		None	
						x				
						x		4.5		
	5.0									
			Sandy Lean Clay (CL) stiff, moist, dark brown			x		10.1		
								4.5		
			trace gravel 7-9'							
	7.5						100		None	
						x		11		
			becomes light brown							
						x				
	10.0		Bottom of Boring at 10.0 feet.							
	12.5									

CORNERSTONE GE LOG DEC192007 - CORNERSTONE 0812.GDT - 1/22/15 12:16 - P:\DRAFTING\GINT FILES\371-5-2 FRIT EAST BAY BRIDGE PROJECT GE.GPJ

BORING NUMBER EB-7

CORNERSTONE EARTH GROUP

PROJECT NAME FRIT East Bay Bridge Project
PROJECT NUMBER 371-5-2
PROJECT LOCATION Emeryville, CA

DATE STARTED 12/23/14 **DATE COMPLETED** 12/23/14
GROUND ELEVATION _____ **BORING DEPTH** 10 ft.
DRILLING CONTRACTOR _____ **LATITUDE** _____ **LONGITUDE** _____
DRILLING METHOD Geoprobe Hydraulic Push
GROUND WATER LEVELS:
LOGGED BY RRB ▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____ ▼ **AT END OF DRILLING** Not Encountered

This log is a part of a report by Cornerstone Earth Group, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	Sample Type and Interval	Sample Submitted for Laboratory Analysis	Percent Recovery (%)	OVM Reading (ppm)	Odors or Discoloration	Notes
	0.0		6 inches asphalt concrete over aggregate base							
			Sandy Lean Clay (CL) [Fill] stiff, moist, dark brown					0.3		
								0.7		
	2.5					x	50		None	
						x				
						x				
	5.0		**Sandy Lean Clay (CL)** stiff, moist, dark brown							
						x		0.3		
								2.6		
	7.5						100		None	
						x				
						x				
	10.0		Bottom of Boring at 10.0 feet.							
	12.5									

CORNERSTONE GE LOG DEC192007 - CORNERSTONE 0812.GDT - 1/22/15 12:16 - P:\DRAFTING\GINT FILES\371-5-2 FRIT EAST BAY BRIDGE PROJECT GE.GPJ

BORING NUMBER EB-8

CORNERSTONE EARTH GROUP

PROJECT NAME FRIT East Bay Bridge Project
PROJECT NUMBER 371-5-2
PROJECT LOCATION Emeryville, CA

DATE STARTED 12/23/14 **DATE COMPLETED** 12/23/14
GROUND ELEVATION _____ **BORING DEPTH** 10 ft.
DRILLING CONTRACTOR _____ **LATITUDE** _____ **LONGITUDE** _____
DRILLING METHOD Geoprobe Hydraulic Push
GROUND WATER LEVELS:
LOGGED BY RRB ▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____ ▼ **AT END OF DRILLING** Not Encountered

This log is a part of a report by Cornerstone Earth Group, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	Sample Type and Interval	Sample Submitted for Laboratory Analysis	Percent Recovery (%)	OVM Reading (ppm)	Odors or Discoloration	Notes
	0.0		6 inches asphalt concrete over aggregate base							
			Sandy Lean Clay (CL) [Fill] stiff, moist, dark brown, trace gravel					1.5		
	2.5						60		None	
						x		2.1		
						x				
	5.0									
						x				
						x		1.8		
			Sandy Lean Clay (CL) stiff, moist, dark brown					2.8		
	7.5						100		None	
						x				
						x				
	10.0		Bottom of Boring at 10.0 feet.							
	12.5									

CORNERSTONE GE LOG DEC192007 - CORNERSTONE 0812.GDT - 1/22/15 12:16 - P:\DRAFTING\GINT FILES\371-5-2 FRIT EAST BAY BRIDGE PROJECT GE.GPJ

BORING NUMBER EB-9

CORNERSTONE EARTH GROUP

PROJECT NAME FRIT East Bay Bridge Project
PROJECT NUMBER 371-5-2
PROJECT LOCATION Emeryville, CA

DATE STARTED 12/23/14 **DATE COMPLETED** 12/23/14
GROUND ELEVATION _____ **BORING DEPTH** 10 ft.
DRILLING CONTRACTOR _____ **LATITUDE** _____ **LONGITUDE** _____
DRILLING METHOD Geoprobe Hydraulic Push
GROUND WATER LEVELS:
LOGGED BY RRB ▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____ ▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	Sample Type and Interval	Sample Submitted for Laboratory Analysis	Percent Recovery (%)	OVM Reading (ppm)	Odors or Discoloration	Notes
	0.0		6 inches asphalt concrete over aggregate base							
			Sandy Lean Clay (CL) [Fill] stiff, moist, light brown					0.5		
	2.5						80		None	
						x		2.7		
						x				
						x				
	5.0		**Sandy Lean Clay (CL)** stiff, moist, brown to light brown, trace fine gravel							
						x		0.7		
								1.4		
	7.5						80		None	
						x				
						x				
	10.0		Bottom of Boring at 10.0 feet.							
	12.5									

CORNERSTONE GE LOG DEC192007 - CORNERSTONE 0812.GDT - 1/22/15 12:16 - P:\DRAFTING\GINT FILES\371-5-2 FRIT EAST BAY BRIDGE PROJECT GE.GPJ

BORING NUMBER EB-10

CORNERSTONE EARTH GROUP

PROJECT NAME FRIT East Bay Bridge Project
PROJECT NUMBER 371-5-2
PROJECT LOCATION Emeryville, CA

DATE STARTED 12/23/14 **DATE COMPLETED** 12/23/14
GROUND ELEVATION _____ **BORING DEPTH** 10 ft.
DRILLING CONTRACTOR _____
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Geoprobe Hydraulic Push
GROUND WATER LEVELS:
LOGGED BY RRB
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

This log is a part of a report by Cornerstone Earth Group, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	Sample Type and Interval	Sample Submitted for Laboratory Analysis	Percent Recovery (%)	OVM Reading (ppm)	Odors or Discoloration	Notes
	0.0		6 inches asphalt concrete over aggregate base							
			Sandy Lean Clay (CL) [Fill] stiff, moist, dark brown					0.2		
	2.5						60		None	
						x		1.5		
						x				
						x				
			Sandy Lean Clay (CL) stiff, moist, dark brown							
	5.0									
			trace gravel					1.7		
						x				
	7.5						90		None	
						x		6.9		
			becomes light brown							
						x				
	10.0		Bottom of Boring at 10.0 feet.							
	12.5									

CORNERSTONE GE LOG DEC192007 - CORNERSTONE 0812.GDT - 1/22/15 12:17 - P:\DRAFTING\GINT FILES\371-5-2 FRIT EAST BAY BRIDGE PROJECT GE.GPJ

CORNERSTONE
EARTH GROUP

APPENDIX C – HEALTH AND SAFETY PLAN

PROJECT HEALTH AND SAFETY PLAN

East Bay Bridge Center Tenant Improvements

Trenching, Fill, and Associated Earthwork in Impacted Soils
East Bay Bridge Center
Emeryville, California

Plan Prepared For:

Cornerstone Earth Group
1259 Oakmead Parkway
Sunnyvale, CA 94085
(408) 245-4600

Prepared By:
Earth Safety Dynamics
70 Rockrose Street
Livermore, CA 94551
(925) 455-6601

(Revision 0)

January 15th, 2015

Limitations

Services provided by Earth Safety Dynamics, Inc. and its subcontractors have been provided in accordance with generally accepted professional practices for the nature and conditions of similar work completed in the same or similar localities, at the time the work was performed. The scope of work for the project was conducted within the limitations prescribed by the client. This Health and Safety Plan reflects conditions as reported to Earth Safety Dynamics at the time of production, and is not meant to represent a legal opinion. This Plan is provided as a framework and may be adopted by tiered subcontractors, or they may develop their own equally protective Plan. No other warranty, expressed or implied, is made. This Plan was prepared for the sole use of Cornerstone Earth Group and their designees and may not be duplicated or used by any other party without the expressed consent of the client.

Kevin R. Braun, CIH
Certified Industrial Hygienist

ABIH Certification # 7029

January 15th, 2015

Contents

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Contents (Continued)

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Appendices

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List of Abbreviations and Acronyms

ACGIH	American Conference of Governmental Industrial Hygienists
A.L.	Action Level
A.P.R.	Air Purifying Respirator
ATCM	Airborne Toxic Control Measure
C	Ceiling Limit (8 CCR 5155)
COPC	Contaminant Of Potential Concern
c.y.	Cubic Yard
bgs	Below Ground Surface
Cal/OSHA	California Department of Labor; Division of Occupational Safety and Health
CHHSL	California Health Hazard Screening Level
C.I.H.	Certified Industrial Hygienist (American Board of Industrial Hygiene)
dBA	Decibels; A-Weighted Range
ESL	Environmental Screening Level
ESLI	End of Service Life Indicator
GFCI	Ground Fault Circuit Interrupter
IDLH	Immediately Dangerous to Life or Health
LEL	Lower Explosive Limit
MSHA	Mine Safety and Health Administration
M.U.C.	Maximum Use Concentration
NIOSH	National Institute for Occupational Safety and Health
NEA	Negative Exposure Assessment
NOA	Naturally Occurring Asbestos
OSHA	Occupational Safety and Health Administration
PCBs	Polychlorinated Biphenyls
PEL	Permissible Exposure Limit (8 CCR 5155)
PID	Photoionization Detector
PNAs	Polynuclear (or Polycyclic) Aromatic Hydrocarbons
PRG	Preliminary Remediation Goal
RCRA	Resource Conservation & Recovery Act
REL	Recommended Exposure Limit; NIOSH
SAR	Supplied Air Respirator
SSO	Site Safety Officer
STLC	Solubility Threshold Limit Concentration
TCLP	Toxicity Characteristic Leaching Procedure
TPH	Total Petroleum Hydrocarbons
TTLC	Total Threshold Limit Concentration
USCG	United States Coast Guard
USEPA	United States Environmental Protection Agency
VOCs	Volatile Organic Compounds
WET	Waste Extraction Test

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SECTION 1
INTRODUCTION

Cornerstone Earth Group, Inc. (Cornerstone) has developed this site Health And Safety Plan (HASP) to inform personnel of potential hazards associated with demolition of pavement and subsurface encumbrances (including existing utilities) as part of tenant improvements at the East Bay Bridge Shopping Center located at 3839 Emery Street in Emeryville, California (Site).

Part of the proposed tenant improvements include landscaping improvements along the front of the building. This work will involve approximately 500 linear feet of trenching both north of the frontage drive aisle (parking lot side), and south of the frontage drive aisle (building side; behind the concrete curbing). The trenches reportedly will extend to an approximate depth of 4 feet and will be backfilled with topsoil and/or Silva Cell product. Approximately 1,200 cubic yards of soil are anticipated to be excavated from these trenches. This soil reportedly will be off-hauled.

A review of the Site Management Plan (SMP) prepared by Levine-Fricke, Inc., dated November 30, 1994, soil beneath portions of the Site may be impacted with petroleum hydrocarbons. During Site development in 1994, petroleum-impacted soil reportedly was placed beneath the proposed building pads and/or in areas to be covered with asphalt or concrete. Soil data from 1993 and 1994 indicates that total petroleum hydrocarbons (TPH) as diesel (TPHd) and oil (TPHo) were detected in the soil samples at concentrations up to 260 milligrams per kilogram (mg/kg) and 4,400 mg/kg, respectively. The SMP includes pavement monitoring measures and other soil management protocols. Cornerstone was recently authorized by FRIT to prepare an addendum to the 1994 SMP.

The potential exists for encountering contaminated/hazardous soils during various phases of the project. Work will not proceed in areas found to be contaminated with gasoline or other VOCs until notification has been made to the Bay Area Air Quality Management District (BAAQMD) under Regulation 8, Rule 40, Section 402. (Notification must be made a minimum of five days before commencement of excavation.)

Client and contract EH&S personnel will be contacted by the contractor immediately before work in areas of identified contamination is performed, or if any indications of additional (unforeseen) contamination are encountered, including but not limited to:

- Stained or discolored soil
- Characteristic or unidentified odor
- Visible unidentified residues
- Underground Storage Tank(s)

This HASP establishes the policies and procedures that protect workers and the public from potential hazards posed by work with these materials at this site. Cornerstone considers safety (both worker and environmental) its highest priority, especially during work at a site containing potentially hazardous materials, and has established a policy of maintaining all exposures as low as reasonably achievable, which is in force on all projects. All work performed by Cornerstone and the client's contractors will be executed in a manner that minimizes the probability of injury, accident, or incident.

This HASP is written and all site activities will be conducted in accordance with all applicable Federal OSHA and California Division of Occupational Safety and Health requirements contained respectively in 29 CFR 1910.120 and 1926, and California Title 8, § 1529, and 1500 – 1938, and 5192:

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1) United States Department of Labor, OSHA Standards, specifically:

- Title 29 CFR Part 1910.120 - Hazardous Waste Site Operations and Emergency Response
- Title 29 CFR Part 1926 - Safety and Health Regulations for Construction

2) California Occupational Safety and Health Regulations, specifically:

- Title 8 CCR §1532.1 – Lead in Construction
- Title 8 CCR §5192 - Hazardous Waste Operations and Emergency Response
- Title 8 CCR §5194 - Hazard Communication
- Title 8 CCR §5095-5100 - Hearing Conservation
- Title 8 CCR Chapter 4, Subchapter 4 - Construction Safety Orders
- Title 8 CCR §3203 and §1509 - Injury and Illness Prevention Programs

3) USEPA Standard Operating Safety Guides, July 1988.

4) NIOSH/OSHA/USCG/USEPA: *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*, October 1985

SECTION 2
PROJECT DESCRIPTION

This site, located at 3839 Emery Street in Emeryville, CA currently exists as a retail development. Proposed tenant improvements include landscaping improvements along the front of the building. This work will involve approximately 500 linear feet of trenching both north of the frontage drive aisle (parking lot side), and south of the frontage drive aisle (building side; behind the concrete curbing). The trenches reportedly will extend to an approximate depth of 4 feet and will be backfilled with top soil and/or Silva Cell product. Approximately 1,200 cubic yards of soil are anticipated to be excavated from these trenches. This soil reportedly will be off-hauled. The attached figure shows the approximate site location (Project Location).

The site was used for industrial purposes until redevelopment as part of the Shellmound Area Redevelopment. During site remediation, contaminated soils were removed along with number of underground and aboveground storage tanks (primarily used for fuel storage). Remaining, less-contaminated soils were capped with buildings and paved parking lots areas.

Additional Environmental Site Assessments (Cornerstone Earth Group; December 2014) indicate hazardous material residues in excess of residential (but not industrial) environmental screening levels and/or Site-specific cleanup goals exist in soils and fill materials, including petroleum hydrocarbons and polynuclear aromatic hydrocarbons (PNAs).

The potential for direct contact with hazardous soils and exposure to particulate bound contaminants and volatile organic compounds exists during all demolition and disposal of existing subsurface encumbrances and all excavation and stockpile or disposal of spoils. Normal dust control and decontamination and personal hygiene during site activities are expected to prevent exposure to these substances. Site personnel involved in operations covered by the Hazardous Waste Operations and Emergency Response standard (as defined in 29 CFR 1910.120 and 8 CCR 5192) are bound to satisfy all Cal-OSHA requirements for work in those areas, and they will be

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trained in accordance with that standard. (***Note: No operations governed by HAZWOPER standards are anticipated.***) All others working on site will be trained in accordance with the Hazard Communication (8 CCR 5144). Dust control and other engineering control measures will be strictly enforced to maintain exposures as low as reasonably achievable on site and at neighboring properties.

SECTION 3
ORGANIZATION AND RESPONSIBILITIES

Cornerstone maintains a policy of providing its employees, with information and procedures in accordance with the requirements of the California OSHA Hazard Communication Standard in order to protect them and the adjacent community from any adverse effects that might result from work at a job site involving potentially hazardous substances. All personnel working on this project will follow the health and safety procedures set forth in their HASP. Visitors will not be allowed entry unless they have read and agreed to comply with this plan. The HASP acknowledgment will be signed by all Cornerstone employees who actively participate at this project.

The Cornerstone Earth Group, Inc. Staff Organizational Chart is presented in Figure 1. The responsibilities and authorities for key personnel are discussed below.

3.1 INDUSTRIAL HYGIENIST

Cornerstone Earth Group, Inc. (Cornerstone) has designated Earth Safety Dynamics to provide industrial hygiene support.

Kevin Braun of Earth Safety Dynamics has been designated as the Project Certified Industrial Hygienist (CIH) and shall have the following responsibilities:

- Health surveillance of all Cornerstone's site employees
- Assuring that safety procedures in effect for Cornerstone's activities are in compliance with all appropriate federal, state, and local regulations
- Maintaining personnel exposure air monitoring records (if performed) for Cornerstone's site employees
- Ensuring that appropriate personal protective equipment is used by Cornerstone's site employees

The C.I.H. will maintain a safety log (in the Appendices), which will be kept for Cornerstone's site activities. This log will include safety meeting topics, training records, air monitoring information, and any incidents related to employee health and safety. The C.I.H. has responsibility for implementing and enforcing all aspects of this HASP for Cornerstone's site employees. He will oversee any personnel monitoring and will decide when action levels have been reached which require work stoppage. The C.I.H. establishes and enforces the protective equipment to be used by Cornerstone's site personnel for Cornerstone's site activities.

3.2 SITE SAFETY OFFICER (SSO)

The prime contractor will designate a Site Safety Officer, and he or she shall assume the responsibilities outlined in Section 3.1 when the CIH is not on site, and will determine when a change in conditions warrants consultation with or the additional presence of the CIH. The SSO or designated alternate shall be on site during the execution of work in known contaminated areas.

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3.3 EMPLOYEE SAFETY RESPONSIBILITY

Although the employer is responsible for providing a safe and healthful workplace, each employee is responsible for his/her own safety as well as the safety of those around him/her. All Cornerstone personnel are aware that they are responsible for ensuring that all unsafe conditions and actions are isolated and corrected, either by direct action (fix it themselves) or by alerting their respective supervisors after isolating the problem. All employees shall use provided equipment in a safe and responsible manner as directed by his supervisor.

3.3.1 Buddy System

No work will be performed in any designated exclusion zone without benefit of the "buddy system". Workers will be paired in buddy teams at the start of each shift for any and all hazardous waste operations or emergency response work to be undertaken during the day. Buddy teams will remain in communication for the duration of the shift.

3.4 LOGS, REPORTS, AND RECORD KEEPING

Recordkeeping is a crucial component of any effective health and safety program. Safety records for Cornerstone's activities shall therefore be updated daily. The following logs, reports, and records shall be maintained in the appendices of this HASP:

- Safety meetings;
- Training logs - site specific and visitors;
- Weekly safety inspection logs;
- Employee/visitor sign-in;
- Ambient and personal air monitoring results; and

SECTION 4
JOB HAZARD ANALYSIS

This section discusses chemical, physical, and environmental hazards to workers on the site.

4.1 CHEMICAL HAZARDS

The chemicals listed in Table 4.1 are believed or suspected to be present on this site. This table is based on information summarized in the Site Investigation prepared by Cornerstone.

In addition to concrete dust inherent in demolition, inorganic lead and organic compounds are expected to be the primary contaminants of potential concern (COPC) on site. Low concentrations of petroleum products (motor oil and diesel range) have been found in the top foot of soil beneath the slab. In addition, the site consists in large part of fill material placed in a tidal marsh, so associated gases (hydrogen sulfide and methane) also are a potential hazard. COPCs on site include:

INORGANIC COMPOUNDS

Crystalline Silica

Crystalline silica is a basic component of concrete. Quartz is the most common form of crystalline silica. Cristobalite and tridymite are two other forms of crystalline silica, but are not expected on this job site. All three forms may form respirable dusts during all phases of concrete demolition and loading of debris.

Acute Effects: Acute silicosis occurs after a few months or as long as 2 years following exposures to extremely high concentrations of respirable crystalline silica. Symptoms of acute silicosis include severe disabling shortness of breath, weakness, and weight loss, which often leads to death.

Chronic / Classic Effects: Crystalline silica has been classified as a human lung carcinogen. Additionally, breathing crystalline silica

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dust can cause silicosis, which in severe cases can be disabling, or even fatal. Respirable silica dust enters the lungs and causes the formation of scar tissue, reducing the lungs' gas exchange capacity. Silicosis also increases susceptibility to lung infections. Smoking exacerbates these effects.

Symptoms: Silicosis is classified into three types: Chronic/classic, accelerated, and acute. Chronic/classic silicosis, the most common, occurs after 15–20 years of moderate to low exposures to respirable crystalline silica. Symptoms associated with chronic silicosis may or may not be obvious; therefore, workers need to have a chest x-ray to determine if there is lung damage. As the disease progresses, the worker may experience shortness of breath upon exercising and have clinical signs of poor oxygen/carbon dioxide exchange. (Cyanosis, clubbed fingers.)

Cancer Risk: Classified as probable human carcinogen.

METALS

Hazardous building materials or coatings potentially present on site include:

- Inorganic Lead

Inorganic Lead

Lead is a ductile, soft, grey heavy metal used extensively in paint products. Lead has been used historically in a number of surface coatings as well as motor fuel additives (most notably TEL) that could result in aerial deposition of lead fume with combustion products, and may be present along the former rail spur due to its use in herbicides. Lead poisoning can cause weakness, lassitude, constipation and abdominal distress, anemia, peripheral neuropathy, and kidney damage. External signs include partial wrist paralysis and visible gingival lines. Secondary exposure of children to lead contamination brought from work place is a significant cause of childhood lead poisoning. Lead is also a fetotoxin and at higher doses can also cause gastrointestinal disturbances and anemia.

ORGANIC (PETROLEUM BASED) COMPOUNDS

Volatile Organic Compounds (VOCs):

Fuel oils (primarily diesel) and waste lubricants are the primary organic contaminants identified as possibly existing on site that present potential exposure.

Hazardous components and subcomponents of these wastes are expected to include:

- Diesel Fuel

Diesel

Diesel fuel is a colorless, pale brown, or pink combustible liquid. Typically, it is a mix of aliphatic (non-aromatic) straight-chain hydrocarbons between 8-12 and 24-26 carbons long with a number of stabilizers and other additives. The exact formulation of the fuel determines which chemicals are present in the mixture and how much of each is present. The actual composition varies with the source of the crude petroleum, the manufacturer, and the time of year.

Diesel vapors can irritate eyes, nose, throat and lungs. Excessive short-term exposure can lead to dizziness, drowsiness, loss of coordination, blood pressure elevation, headaches, nausea, asphyxiation and lung damage. Breathing diesel vapors for long periods of time can cause kidney damage and reduce the clotting ability of blood. Diesel fuel can irritate the skin and aggravate any existing skin condition. A large skin exposure can lead to severe redness, pain and chemical burn blisters. If the fuel is not cleaned from the skin quickly, it is absorbed into the blood stream where it can cause symptoms identical to inhalation exposure. There is not enough information available to determine if diesel causes birth

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defects or affects reproduction. Automotive diesel is currently undergoing review by the EPA for cancer classification.
Monitoring will be done for organics any time that odors are detected or stained soils are encountered. Sustained reading of ≥ 10 ppm total VOCs (measured with a PID or other organic vapor monitor) in a worker breathing zone will require work stoppage and/or use of respiratory protection as directed by the CIH.

Semi - Volatile Organic Compounds (SVOCs):

PNAs (or PAHs); Cresols

A number of coal tar products were used as wood preservatives, particularly in structures erected in marshy areas. Hazardous components of these products thought possible in the area include:

- Polynuclear Aromatic Hydrocarbons

Polynuclear Aromatic Hydrocarbons
Polynuclear Aromatic Hydrocarbons (Coal-tar pitch volatiles or PNAs) belong to a class of benzene-derived semi-volatile compounds that are absorbed readily through the skin and lungs. Exposure causes skin, eye, and respiratory irritation; absorption through skin and mucus membranes and through inhalation produces damage to the central nervous system, cardiovascular system, liver, and kidneys resulting acutely in nausea, disorientation, convulsions, and coma. A number of compounds in this family also act as sensitizers to ultraviolet light, significantly increasing the potential for sunburn and associated dermal damage. Several members of this chemical family have been identified as confirmed or suspected human carcinogens.

GASES

Hydrogen Sulfide (H2S)
Hydrogen sulfide is a clear, colorless gas with a characteristic odor of rotten eggs, although the olfactory intoxication occurs quickly at higher concentrations, resulting in loss of sensitivity to the smell. H_2S is the result of anaerobic bacterial metabolism and is associated with sewers, landfills, and bay mud. The most likely source is infiltration from mud or nearby sewers. Respiratory paralysis and death can result from concentrations as low as .03% (300 ppm).

Methane
Methane is a clear, odorless, colorless gas resulting from bacterial decomposition of organic material and is associated primarily with landfills and soils with extremely high organic content (marshes, etc.). Methane is a simple asphyxiant that results in explosive atmospheres above approximately 1% in air.

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TABLE 4.1 MAJOR CONTAMINANTS OF CONCERN ON-SITE				
Compound or Class	Description	Exposure Limits	Exposure Routes	Exposure Signs and Symptoms
Inorganic Lead	Grey, lustrous ductile metal.	PEL = 50 $\mu g/m^3$ AL = 30 $\mu g/m^3$ *	Inhalation Ingestion	Gingival lines, peripheral neuropathy evidenced in wrist drop, cognitive impairment / learning disabilities. Known fetotoxin.
Crystalline Silica * (Quartz,); Total	Fine dust generated by demolition and processing activities	PEL = 300 $\mu g/m^3$	Inhalation	Respiratory irritation; Impaired pulmonary function (silicosis); lung cancer
Crystalline Silica * (Quartz,); Respirable		PEL = 100 $\mu g/m^3$		
Concrete Dust	Fine dust generated by demolition and processing activities	PEL = 450 $\mu g/m^3$ ††	Inhalation	Respiratory irritation; Impaired pulmonary function (silicosis); lung cancer
Diesel	Yellow-brown, oily liquid with a mild petroleum odor.	PEL = 5 mg/m^3 STEL = 10 mg/m^3	Inhalation Ingestion Contact	Skin rash, allergic dermatitis. CNS depressant; poisoning also may affect liver and kidneys.
Polynuclear Aromatic Hydrocarbons (PNAs; general)	Dark, viscous liquid with sweet or creosote-like odor	PEL = 0.1 mg/m^3 **	Ingestion Absorption	CNS depression, eye and membrane irritation, skin uv sensitizer. Suspected human carcinogens in this class
Hydrogen Sulfide (H_2S)	Clear, colorless gas with rotten-egg odor.	PEL = 10 ppm	Inhalation	Respiratory distress, paralysis. Possible carcinogen
Methane (CH_4)	Clear, colorless, odorless, explosive gas	N.A. (LEL ≤ 10%)	Inhalation	Simple asphyxiant; causes torpor, headache, respiratory distress

Notes

Units: mg/m^3 = milligrams per cubic meter
$\mu g/m^3$ = micrograms per cubic meter

PEL Permissible Exposure Limit; 8 CCR 5155
STEL Short-Term Exposure Limit; 8 CCR 5155
AL Action Level; 8 CCR 1532.1
* California Action Level as defined in 8 CCR 1532.1 or Project Action Level
** Exposure to carcinogens maintained As Low As Reasonably Achievable
†† Action Level for respirable dust based on 20% Quartz; Dust PEL = 10 / % Silica + 2
† Recommended Exposure Limit; National Institute for Occupational Safety and Health (NIOSH)

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4.2 Exposure Prevention

Engineering controls (consisting primarily of an aggressive dust control program) are expected to be sufficient to control all exposures to particulate and particulate-bound contaminants. Assuming that inorganic lead (the highest concentrated COPC with respect to its lowest published exposure limit) is represented in all generated dust in concentrations equal to its maximum detected concentration in soil, the calculation for airborne lead content of dust on site is:

$$[Pb] = [(mg/m^3 \text{ dust}) \times (mg/kg \text{ Pb})]/10^6$$

Using a lead concentration of 120 mg/kg (the maximum detected value) in generated dust, the action level of 0.030 mg/m^3 (8 CCR 1532.1; Lead in Construction) would be reached at total dust concentrations of approximately 230 mg/m^3, a value well in excess of the PEL for total nuisance dust.

Dust becomes visible (depending on lighting, reflectivity, background, etc.) generally at or below a concentration of 2 mg/m^3. Specifications call for no visible fugitive dust evolution during earthwork, so the PEL for dust and particulate-bound contaminants is unlikely to be reached or exceeded. Required engineering controls (No earthwork will be performed without active dust suppression, achieved through application of water before and during soil-disturbing activities.) and personal protective equipment (PPE) requirements combined with general hygiene requirements (wash arms, face, and hands before eating or smoking) will prevent exposures due to inhalation or ingestion of contaminated dust. Screening for organic vapors will be performed during initial disturbance of contaminated soils and should any visibly stained soil, odor, or other indication of petroleum contamination become evident. A wash facility will be located on site at all times. In addition, the Site Safety Officer and Site Supervisor shall observe and warn the crew members to be aware of the initial symptoms of chemical exposure. The severity of exposure depends primarily on the specific activities undertaken and the care with which the activities are performed.

Any crew member will be removed from the work site and placed under watch immediately if these initial symptoms are noted:

- Dizziness or stupor
- Nausea, headaches, or cramps
- Irritation of the eyes, nose, or throat
- Euphoria
- Chest pains and coughing
- Rashes or burns

Level C protection may be required only in the event that unexpected contaminant concentrations are encountered or dust control efforts prove ineffective. Action levels for respiratory protection are established for the site based on maximum known concentrations. Respiratory protection will be utilized in accordance with Section 6.4 – 6.10 if the following sustained (≥ 5 minutes) breathing zone concentrations are recorded:

Contaminant	**Action Level**
Nuisance Dust (total)	5.0 mg/m^3
Organic Vapor (total VOC)	10 ppm
COPCs (other)	0.5 x PEL

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4.2.1 Hazard Communication Program

A written hazard communication program has been established for Cornerstone. The purpose of this program is to transmit information about the various chemical hazards in the workplace to the workers using various media. The transmittal of information will be accomplished by means of a comprehensive hazard communication program, which will include container labeling and other forms of warning, Material Safety Data Sheets, and employee training in accordance with Title 8 CCR §5194. The program will be available at the Cornerstone office for review by all employees. Cornerstone will fulfill the hazard communication requirements through formal safety training, departmental safety meetings, and job site safety meetings. Material Safety Data Sheets for all chemicals likely to be encountered on this job will be maintained and available on site.

4.3 PHYSICAL HAZARDS

In order to minimize physical hazards, Cornerstone has developed standard safety protocols that will be followed at all times. Hazard analyses are produced, updated frequently, and reviewed daily with all affected crew members for every jobsite operation. Failure to follow safety protocols or continued negligence of these policies will result in expulsion of a crew member from the site as well as possible termination of employment.

All Cornerstone personnel are familiar with the field activities that will be conducted at the site. They are trained to work safely under various field conditions. In addition, Cornerstone personnel will use work practices designed to minimize physical hazards.

Hard hats, safety vests, and leather work boots will be required in all areas of the site.

4.3.1 Tripping, Slipping, and Falling Hazards

Cornerstone personnel will be reminded daily to maintain sure footing on all surfaces. Use of safety harnesses and fall arrest/restraint will be required for any personnel working 6 or more feet above any surface, including on manlifts, and whenever they are exposed to impalement hazards.

In order to minimize tripping hazards caused by construction debris, material will be removed daily from the work areas and stockpiled in appropriate designated storage areas. This "house cleaning" effort will be enforced by the SSO at the end of each day.

4.3.2 Head, Eye, and Back Injuries

As minimum requirements, hard hats and safety glasses will be donned prior to entering any active work area or performing any related job tasks. (This includes visitors, outside service contractors, etc.) Personnel will be trained in and required to use proper lifting techniques for all lifts.

4.3.3 Falling Objects

Cornerstone believes that all tasks can be accomplished without any object free-falling to the ground. No personnel shall work under equipment or elevated loads at any time. Areas beneath elevated work will be barricaded and posted with warning signs.

4.3.4 Heavy Equipment and Traffic

The use of heavy excavators, scrapers, and other equipment on site presents the greatest potential for injury to personnel. In order to minimize these hazards, designated routes will be established for transport of material through the site and specific traffic patterns will be established. All trucks will be equipped with operable backup alarms and shall use spotters for backing procedures.

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Personnel needing to approach heavy equipment during operation will observe the following protocols:

1. Make eye contact with the operator.
2. Signal the operator to cease heavy equipment activity.
3. Approach the equipment and inform the operator of intentions.

Only qualified personnel, as determined by the Site Superintendent, will operate heavy equipment. Those crew members directly involved with spotting for the operator will be the only personnel allowed within the operating radius of the heavy equipment. All other personnel will remain a safe distance away from these operations.

Cornerstone personnel and subcontractors will follow all Client traffic rules and instructions, including use of reflective safety vests. Barricades will be erected around any work sites within an open right-of-way, and all personnel will remain within barricaded area. Road and lane closures will be permitted by the City of Newark. Only trained flaggers will be used to direct traffic around and through the work area.

4.3.5 Site Pre-inspection of Equipment

Only equipment that is in safe working order will be permitted on site. To maintain this policy, all equipment brought onto the project site will be inspected for structural integrity, smooth operational performance, and proper functioning of all critical safety devices in accordance with the manufacturer's specifications. This inspection will be performed by a qualified equipment operator. Also, every operator will perform and document a Daily Equipment Inspection at the start of each work shift and turn the form in to the foreman by the end of shift.

Equipment found during this inspection not conforming to operational and safety requirements will not be put into service until all necessary repairs are made to the satisfaction of the inspection group.

4.3.6 Operator Qualifications

Only qualified operators familiar with the equipment to be used will be permitted to operate. Subcontractors will supply proof of operators' qualifications to operate in a safe manner, including certification for any equipment requiring it (lift trucks, etc.).

4.3.7 Electrical Hazards

Cornerstone will implement an Assured Grounding Program for the project. In order to prevent accidents caused by electric shock, the SSO will inspect all electrical connections on a daily basis. He will shut down and lock out any equipment that is found to have frayed wiring or loose connections until a qualified electrician can be contacted and repairs effected.

Electrical equipment will be de-energized and tested by qualified personnel before any electrical work is done. All equipment will be properly grounded before and during all work.

Due to expected wet conditions, ground fault circuit interrupters (GFCIs) will be used for all power cords between the power source and tool, unless the presence of a potentially explosive atmosphere precludes this procedure. Generators used to supply power will be grounded and equipped with GFCIs.

4.3.8 Welding Hazards

Personnel who will be performing or observing welding operations are required to use approved welding shields or glasses. Welding shields and glasses are to be inspected prior to each use for scratches and pits that would inhibit their ability to shield harmful ultraviolet light.

Workers will be required to wear protective clothing to shield the skin from slag and

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harmful ultraviolet light produced by welding operations. Persons working near welding operations that could ignite chemical protective clothing must wear flame retardant outer apparel (Nomex or equivalent).

4.3.9 Fire and Explosion

All flammable liquids will be stored in UL-Approved safety containers in designated areas. Oxygen and acetylene cylinders will be stored secured upright in separate areas except when on carts for immediate use. All high-pressure cylinders will be transported with caps in place, and all valves and gauges will be inspected before each use. Monitoring for explosive vapors will be performed before any hot work undertaken in exclusion zone(s), and no hot work will be permitted if combustible gas or vapor concentrations at the lowest point exceed 10 percent of the Lower Explosive Limit (LEL).

4.4 ENVIRONMENTAL HAZARDS

4.4.1 Weather and Heat Stress

With the possible combination of ambient factors such as high air temperature, high relative humidity, low air movement, high radiant heat, and protective clothing use, the potential for heat stress is a concern. The potential exists for:

- Heat Rash is caused by continuous exposure to hot and humid air and aggravated by chafing clothes. Heat rash decreases ones ability to tolerate heat.

- Heat Cramps are caused by profuse perspiration with inadequate fluid intake and chemical replacement (especially salts). Signs of heat cramps include muscle spasm and pain in the extremities and abdomen.

- Heat Exhaustion is caused by increased stress on various organs to meet increased demands to cool the body. Signs of heat exhaustion include shallow breathing; pale, cool, moist skin; profuse sweating; dizziness; and listlessness.

- Heat Stroke is the most severe form of heat stress. The body must be cooled immediately to prevent severe injury or death. Signs and symptoms of heat stroke are red, hot, dry skin; no perspiration; nausea; dizziness and confusion; strong, rapid pulse; and coma.

Daytime temperatures at the Site may be expected to range from 2° C to 27° C (35° F to 80° F). Wearing an impermeable suit with rubber boots, gloves, hard hat, and full-face respirator imposes an additional 6° C to 11° C (10° F to 20° F) burden on the worker. For the purposes of this Environmental Health and Safety Plan, it is assumed that workers at the Site wearing Level C protective gear (if required) with impermeable suits will experience the same additional temperature burdens as described above. It is therefore possible that workers wearing Level C safety gear, with an impermeable suite, could be exposed to working temperatures inside their suits of approximately 8° C to 38° C (45° F to 100 °F). Cornerstone's action level for heat stress observation is set at 70° F. Whenever the ambient temperature is greater than or equal to this action level, the SSO will alert his crew to be vigilant for symptoms of heat stress. The SSO will also advise the crew to increase the amount of water intake.

Heat stroke, heat cramps, and heat exhaustion are covered in detail during general and site-specific training program. In addition, this information is discussed during safety "tailgate" meetings. Workers are encouraged to increase consumption of water and electrolyte-containing beverages such as Gatorade during warm weather. Water and electrolyte-containing beverages will be provided on-site and will be

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available for consumption during work breaks.

Protective Measures

Regular monitoring and other precautions relating to heat stress have been prescribed by NIOSH. The following protective measures will be taken by workers at the Site if ambient temperatures exceed 75˚ F.

1) Workers will take rest periods every two to four hours. Rest periods will be a minimum of fifteen minutes. Liquids (particularly electrolyte-replenishing fluids) will be available to all workers during rest periods.

2) Workers will wear lightweight clothing under impervious suits (i.e. short sleeve shirts are acceptable depending on anticipated chemical exposure levels).

3) NIOSH recommends that workers wearing impervious clothing receive physiological monitoring at regular intervals when the ambient air temperature approaches or exceeds 70ºF. Physiological monitoring will consist of the following measurements (taken during prescribed rest periods):

a) Measure heart rate (HR) as early as possible in the rest period and record.

b) Check for the physical reactions related to heat stress. Physical reactions include fatigue, irritability, anxiety, and decreased concentration, dexterity or movement.
If the measured heart rate exceeds 110 beats per minute, or any of the above physical symptoms are noted, the work period will be shortened by 30 percent (NIOSH 1985). Work may resume after the heart rate and physical condition of the worker has returned to normal.

Cold Stress

Cool and wet conditions are possible during the execution of this work. The Site Safety Officer (SSO) and workers will be alert for signs and symptoms of cold stress (hypothermia). This is commonly caused by prolonged exposure to cool / windy conditions while wearing clothing that has become wet, either from precipitation, dust control measures, or paradoxically by perspiration caused by heavy work in protective suits.

The SSO will monitor the ambient air temperature using a thermometer in the support zone. At temperatures below 40° F, actual temperature or corrected for wind chill, the most current published ACGIH cold stress standard will be followed.

Field personnel will be observed for the following signs and symptoms:

- Pain in the extremities
- Uncontrolled shivering
- Malaise or reduced responsiveness

Any team member who exhibits these signs will be monitored for cold stress. Any individual with an oral temperature of less than 97° F will be taken immediately to a warming shelter.

A warming shelter will be provided on any job site where the ambient temperature is less than 40° F. Breaks will be taken in the shelter as needed according to ACGIH TLV for cold stress.

4.4.2 Hearing Conservation Program

Cornerstone has a comprehensive Hearing Conservation Program and requires use of hearing protection for all personnel working on or within 50 feet of heavy equipment or within any areas designated by

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management. Cornerstone's hearing conservation program complies with both the California and Federal Hearing Conservation Standards.

4.4.3 Confined Space Entry

All trenches deeper then five feet into contaminated soils will be treated as Non-Permit-Required Confined Spaces in accordance with Cornerstone's Confined Space Entry Program. Initial and hourly monitoring will be performed throughout the work area for flammable gases or vapors, oxygen, carbon monoxide, and total VOCs. Continuous monitoring will be performed during all hot work and work involving use of internal combustion engines of any type in or around occupied spaces.

Work will cease and all spaces will be evacuated immediately in the event any meter goes into "alarm" mode, or any of the following parameters for acceptable entry is exceeded:

Parameter	**Acceptable Range**
Oxygen	19.5% - 23%
Combustible Gas	≤ 10% LEL
H_2S	≤ 2 ppm
CO	≤ 10 ppm
VOCs	≤ 10 ppm

The space will not be re-entered for any reason until the condition has abated or the condition has been further evaluated and deemed safe by the Site Safety Officer in consultation with the project Industrial Hygienist.

4.5 HAZARD ANALYSIS SUMMARY

This work involves significant risk from several sources. Physical hazards and construction activity present a higher than normal risk due to the confined work areas, use of protective equipment, and proximity to traffic. These risks will be minimized by adequate traffic control, planning, and worker education.

Excavation work at the site presents two principal exposure routes: ingestion and inhalation of dust contaminated with metals and particulate-bound organics. These risks will be minimized by use of engineering controls as well as appropriate personal protective equipment and personal hygiene. Aggressive dust control measures required by the management plan as well as this site safety plan are expected to prevent potential overexposures to particulate and particulate-bound contaminants. A requirement for Level C respiratory protection is therefore not anticipated unless unanticipated contaminant concentrations are encountered or vapors accumulate in the work area in excess of project action levels. Dust monitoring will be performed only as dictated by dust observations noted in the work area using a real-time aerosol monitor (MIE PDRAM or equivalent), and organic vapor screening and representative personal and ambient air sampling will be performed as detailed in Section 8 to confirm compliance with the Permissible Exposure Limits. Perimeter monitoring also may be performed in order to evaluate site engineering and administrative controls.

Potential for generation of airborne contamination is expected to occur during all earthwork activities that disturb or aerate contaminated soils. Monitoring equipment may be used to identify downwind releases and upwind (background) concentrations. Respirators may be used to minimize exposure of workers in these areas only in the event that dusty conditions or air monitoring data indicate such a need. Otherwise, work will proceed without respiratory protection unless or until additional soil sampling or air monitoring results indicate protection is required or advisable. Protective clothing

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ensembles for each of the levels of protection are described in Section 6.

4.6 TASK SPECIFIC RISK ASSESSMENT

TASK: Excavation, Grading and Loading/Offhaul of Contaminated Soils
SPECIFIC HAZARDS: Utilities, noise, heavy equipment and truck/scraper operations, vehicular traffic, particulate contaminants and projectiles, hazardous vapor.
CONTROL MEASURES: A survey for underground utilities shall be conducted prior to any excavation. Personnel will use care when walking around excavation edges. Level "D" personal protection will be used unless otherwise specified by Client or Cornerstone Site Safety Officers. The work area will be clearly marked. Ground personnel shall maintain eye contact with the equipment operator and wear hearing protection while inside the operating radius of the equipment, and shall otherwise maintain a minimum distance of 40 feet from the equipment unless spotting for the operator. Only qualified and experienced operators will operate equipment. Hard hats, safety glasses, gloves and work boots are mandatory for all personnel, and rubber overboots and tyvek suits (or equivalent) will be worn by all personnel performing job tasks with potential for contact with contaminated materials as required to facilitate decontamination. An aggressive program of dust control will be utilized to prevent any visible dust generation and will thereby reduce the potential for airborne contaminants. Sufficient water will be applied to all exposed soils to maintain surfaces above 70 percent of soil capacity, thereby preventing dust suspension. Spotters/flaggers will be used to direct traffic and spot trucks and flag other traffic across or through scraper spreads. Haul trucks will be securely tarped before transport of hazardous or contaminated material on any public road outside of project limits. Spilled material will be cleaned immediately from vehicles and (open) road surface and returned to excavation.
TASK: Saw- Cutting of Pavement; Demolition of subsurface encumbrances
SPECIFIC HAZARDS: Utilities, equipment, slips, trips, & falls, noise, contact with contaminated materials, atmospheric hazards, fire and explosion
CONTROL MEASURES: All utilities will be disconnected and disconnect verified by SSO or his designee before commencement of any demolition activity. The work area will be surrounded by a barricade to exclude ground personnel from projectile and impalement hazards. All potentially exposed personnel shall wear hearing protection. Only qualified and experienced operators (as detailed in Section 4.3.6 of this HASP) will operate equipment. Hard hats and safety glasses will be required at all times. All hazardous building materials (asbestos, etc.) will have been removed and removal verified in writing by "soft demolition" subcontractor before commencement of demolition. Dust control will be utilized to reduce the potential for airborne concrete or asphalt dust. Disturbance of structures coated with lead-based paint will be performed in accordance with this HASP, 8 CCR 1532.1, and Cornerstone 's lead protection program. Air monitoring and sampling will be conducted in accordance with Section 8 of this HASP.

Any USTs encountered will have contents evacuated and internal atmosphere completely inerted (0% LEL) before any permitted removal is performed.

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SECTION 5
WORK AND SUPPORT AREAS

To help prevent migration of contamination caused by personnel or equipment, work areas and personal protective equipment are clearly specified prior to beginning operations. The following designated work areas or zones are suggested by the NIOSH/ OSHA/USCG/EPA document, "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities". The work area will be divided into three zones: an exclusion (or "hot") zone (EZ), a contamination reduction zone (CRZ), and a support zone. The excavation and/or shoring contractor is responsible for establishing these work zones; the recommended zones are summarized below.

5.1 EXCLUSION ZONE

The exclusion zones will consist of areas where inhalation, oral contact, or dermal contact with contaminants is considered to be possible.

It is anticipated that each EZ will encompass open excavations in contaminated (known or suspected) areas of the site prior to installation of clean topsoil as well as the immediate confines of any stockpiles. The size and configuration of each area may vary according to air monitoring results. Each exclusion zone boundary will be clearly and conspicuously marked. A single entry and exit point will be established at each zone. Entry shall be limited to essential personnel or pre-approved visitors.

5.2 CONTAMINATION REDUCTION ZONE

The CRZ will be established between the exclusion zone and support zone. In this area, personnel will begin the sequential decontamination process required to exit the exclusion zone. To prevent off-site migration of contamination and to facilitate personnel accountability, all personnel will enter and exit the exclusion zone through the CRZ. All vehicles and equipment exiting contaminated areas will traverse a trackout prevention area consisting of a minimum 50 foot paved area. Alternatively, rumble strips or a 20-foot pad of 6-inch minus rock may be used to dislodge materials from wheels and undercarriage. In no event will visible trackout to public roadways be permitted. Potentially contaminated material that is removed will be added to stockpile area, and rinsates generated by decontamination activities will be used for dust control on the contaminated stockpiles, which will be located in lined and bermed areas.

5.3 SUPPORT ZONE

The support zone will consist of a clearly marked area where the administrative area, break areas, and changing facilities are located. Smoking, drinking, and eating will be allowed only in designated areas. Sanitation facilities (with hand wash) are provided in the support zone.

5.4 ACCESS CONTROLS

The contractor shall establish the physical boundaries of each zone and shall instruct all workers and visitors on the limits of the restricted areas. No one shall be allowed to enter a restricted area without the required protective equipment for that area. The contractor's SSO shall ensure compliance with all restricted area entry and exit procedures.

The contractor's SSO shall also designate a decontamination corridor through which personnel may exit from a contaminated area and enter into adjacent clean break areas.

Visitors should check in immediately upon arrival. Only authorized visitors will be

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allowed access to active work areas. Each visitor will be required to provide and wear the necessary protective equipment for use during site visits and shall be escorted by the Supervisor while on site. All visitors, subcontractors and other personnel will be required to sign a safety plan acknowledgement sheet to certify that they have read and will comply with this site health and safety plan. Failure to comply with this site entry procedure will result in expulsion from the site.

SECTION 6
PROTECTIVE EQUIPMENT

The following lists define the required personal protective equipment for each work location and task within a specific zone.

6.1 EXCLUSION ZONE(S)

Tasks: Excavation / Offhaul
EPA Level: D/C *
Respiratory Protection: None *
Head: Hard hat
Hand: Work Gloves
Suit: Work Clothing
Foot: ANSI – Approved Steel-Toed Work Shoes
Eye: Safety Glasses; Face Shields**
Special Requirements: None
Comments: Hearing protection is required within 50 feet of operating power tools and all other areas found to present noise levels in excess of 85 dBA.

* Routine use of respiratory protection will be necessary only in the event that engineering controls are unable to maintain airborne dust concentrations below established action levels. Respiratory protection will be used in accordance with State and Federal respiratory protection standards as well as EBI's Respiratory Protection Program.

** Face shields required for operations presenting projectile hazards as detailed in Section 4.6.

Tasks: All Cornerstone employees
EPA Level: D/C *
Respiratory Protection: None *
Head: Hard hat
Hand: Work Gloves
Suit: None †
Foot: Work Boots; Rubber boots or work boots with overboots only as needed to facilitate decontamination
Eye: Safety Glasses
Special Requirements: † Coveralls and gloves needed only as required to prevent contact with and soiling by contaminated materials. Workers not in direct contact with soils may substitute work clothes and gloves for coveralls and Nitrile/Liner system.

Comments: Hearing protection is required within 50 feet of operating heavy equipment and all other areas found to present noise levels in excess of 85 dBA.

* Respiratory protection will be necessary only in the event that sustained levels of contaminants in worker breathing zones exceed project action levels or sampling results indicate individual components in excess of respective Permissible Exposure Limits (PELs). Respirators will also be necessary if areas of higher than expected concentrations of soil contaminants are encountered or engineering controls are unable to maintain airborne dust concentrations below established action levels. Respiratory protection will be used in accordance with State and Federal respiratory protection standards as well as Cornerstone's Respiratory Protection Program.

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6.2 CONTAMINATION REDUCTION ZONE

Tasks: All decontamination procedures
EPA Level: D
Respiratory Protection: None.
Head: Hard hat.
Hand: Work gloves.
Suit: None *
Feet: Work Boots
Eye: Safety Glasses / Face Shield**
Special Requirements: Coveralls will be available on site for use in unusual tasks that would otherwise result in excess soiling of work clothing. Waterproof suit, rubber boots, and face shield required for pressure washing of tools and equipment.
Comments: See Section 4.6

** Face shields required only as needed for splash hazards from contaminated ground water and other free liquids.

6.3 SUPPORT ZONE

Personnel working in the support zone will use the following Level "D" protective gear:

- Rubber boots or work boots with rubber overboots
- Hard hat
- Safety glasses
- Safety Vest

6.4 RESPIRATOR CARTRIDGES

Should conditions require an upgrade to Level "C" protection for some tasks, crew members working in Level "C" will wear NIOSH/MSHA-approved respirators equipped with combination organic vapor and P-100 HEPA air purifying cartridges. These cartridges hold approval for:

- Dusts, fumes and mists with a TLV of 0.05 mg/m^3 or greater
- Asbestos containing dusts and mists
- Radon daughters and radionuclides
- Organic Vapors

6.5 CARTRIDGE CHANGES

All cartridges will be changed a minimum of once daily or more frequently as indicated by increased breathing resistance or End of Service Life Indicator (ESLI). However, water saturation of the HEPA filter or extremely dusty conditions may necessitate more frequent changes. Changes will occur whenever personnel begin to experience increased breathing resistance, notice any unusual odor inside the respirator, or experience excessive heat generation in the cartridges.

6.6 INSPECTION AND CLEANING

Respirators will be inspected daily before use by the individual user(s) and will be checked periodically by the Cornerstone SSO. All respirators and associated equipment will be decontaminated, cleaned, and disinfected by the user after each shift using materials that will be provided on site.

6.7 FIT TESTING

Annual respirator fit tests are required of all personnel wearing negative pressure respirators. Qualitative fit tests will utilize isoamyl acetate or irritant smoke. Fit tests must incorporate the style and size of respirator to be used. Additionally, a positive and negative pressure seal check shall be conducted each time any tight-fitting respirator is donned.

6.8 FACIAL HAIR

No personnel with facial hair that interferes with the respirator's sealing surface will be permitted to wear a respirator.

6.9 CORRECTIVE LENSES

Normal eyeglasses cannot be worn under full-face respirators because the temple bars

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interfere with the respirator's sealing surfaces. For workers requiring corrective lenses who also must don full-face respiratory protection, special spectacles designed for use with respirators will be provided. Eyeglasses rated as safety glasses (ANSI Approval Z87 displayed on frame) are acceptable provided they are fitted with rigid side shields.

6.10 MEDICAL CERTIFICATION

In accordance with the Respiratory Protection Standard and Cornerstone's and Contractor's Respiratory Protection Programs, only workers who have been certified by a physician as being physically capable of respirator use will be issued a respirator. Documentation of this approval will be maintained on site.

SECTION 7
DECONTAMINATION PROCEDURES

This section describes the procedures necessary to ensure that both personnel and equipment are free from contamination when they leave the work site.

7.1 PERSONNEL DECONTAMINATION

Decontamination of personnel shall be accomplished to ensure that any material that they may have contacted in the exclusion zone is removed in the contamination reduction zone:

Step 1: Segregated equipment drop
Deposit equipment used on-site on plastic drop cloths or in containers with plastic liners.

Step 2: Overboot and glove wash
Scrub overboots and gloves with soap and water if visibly soiled.

Step 3: Overboot and glove rinse
Rinse boots and gloves with water.

Step 4: Outer glove removal
Remove outer gloves and deposit in container with plastic liner.

Step 5: Suit and boot removal
Remove Tyvek suit with assistance of helper or buddy as needed. Deposit in container with plastic liner. Pull off rubber boots.

Step 6: Respirator removal (Level C)
Remove respirator. Avoid touching face with gloves. Place respirator in wash basin.

Step 7: Inner glove removal (if used)
Remove inner gloves and dispose of in container with plastic liner.

Step 8: Wash
Wash hands, face, and neck before breaks and lunch.

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All rinsates and dislodged soils and other potentially contaminated material will be added to fill or directly to haul trucks for disposal.

7.2 EQUIPMENT DECONTAMINATION

Brushing and establishment of a track-out zone will suffice for decontamination of vehicles. No visible trackout will be permitted onto public roadways, and any visible tracked material must be removed at least twice daily through wet sweeping or use of a HEPA- filtered vacuum system. A separate decontamination pad will be established for the decontamination of all equipment leaving hazardous waste exclusion zones (if any). The following steps will be performed sequentially:

Step 1: Gross Contamination Removal
Gross soil deposits will be removed manually from tracks, tires, drives, etc. using digging bars, scrapers, etc. before moving onto decontamination pad.

Step 2: Pressure Wash
All surfaces that cannot be sufficiently decontaminated manually and by track out buffer will be pressure washed with surfacted water to remove any remaining adhering contamination.

Step 3: Final water rinse
A final rinse is performed to remove dissolved contaminant, water, and surfactant residues.

7.3 SUSPECTED CONTAMINATION

Any employee suspected of sustaining skin contact with hazardous materials will proceed to the contamination reduction zone and wash off the contamination. If chemical contact causes injury, the employee will remove clothing, shower, don clean clothing, and immediately be taken to the First Aid Station.

7.4 SANITATION / HYGIENE

Before any eating, smoking, or drinking, personnel will exit exclusion zones and wash hands, arms, neck, and face. Separate - sex sanitation facilities will be available in the support zone if ten or more employees are to be accommodated.

7.5 OTHER DECONTAMINATION PROCEDURES

All decontamination liquids and disposable clothing will be handled as contaminated waste and disposed of properly at the direction of the client.

SECTION 8
EXPOSURE MONITORING

Personal and ambient air monitoring will be conducted by Earth Safety Dynamics and/or Site Safety personnel as necessary in order to determine airborne contamination levels. Air sampling to ensure and document that exposure control measures in use are adequate to protect personnel against the contaminants present on site will be conducted in accordance with 8 CCR Sections 5155 and 5192.

Screening for total VOCs in order to confirm compliance with project action levels will be performed only in the event that stained soils, odors, or other indication of unanticipated contamination are encountered.

Objective data (site characterization data and visual and integrated aerosol measurements) may be used to document the lack of airborne hazard as long as dust control measures are implemented in accordance with Construction Safety Orders and this Plan and no odors or other indication of contaminant levels exceeding those anticipated are encountered.

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All personal and ambient sampling will be performed in accordance with either NIOSH/OSHA or EPA methods, and results will be shared with full crew at the next scheduled safety meeting.

Noise levels will be evaluated and safe (85 dBA or less) perimeters established for all operations and equipment. Dosimetry will be performed for non-routine job tasks and those requiring frequent transit of areas requiring hearing protection to determine requirements for these tasks.

All exposure monitoring records will be kept in the appendices of this Plan and made available to all employees and their designated representatives on request.

SECTION 9
EMERGENCY RESPONSE

Prior to start of field activities, the SSO shall plan emergency egress routes and discuss them with all personnel who will be conducting the field work. Initial planning includes establishing and posting of emergency warning signals and evacuation routes in case of an emergency.

9.1 EMERGENCY SERVICES

A tested system shall exist for rapid and clear distress communication. All personnel shall be provided concise and clear directions and accessible transportation to local emergency services. A map outlining directions to the nearest hospital will be posted on site.

The following emergency equipment shall be present on the site:

- Fire extinguishers
- Industrial first aid kit
- Portable eye washes, capable of supplying 15 minutes of water

9.2 EMERGENCY EVACUATION FROM EXCLUSION AND CONTAMINATION REDUCTION ZONES

Any personnel requiring emergency medical attention shall be evacuated immediately from exclusion and contamination reduction zones. Personnel shall not enter the area to attempt a rescue if their own lives would be threatened. The decision whether or not to decontaminate a victim prior to evacuation is based on the type and severity of the illness or injury and the nature of the contaminant. For some emergency victims, immediate decontamination may be an essential part of life saving first aid. For others, decontamination may aggravate the injury or delay life saving treatment. If decontamination does not interfere with essential treatment, it should be performed.

If decontamination can be performed:
- Wash external clothing and cut it away.

If decontamination cannot be performed:
- Wrap the victim in blankets or plastic to reduce contamination of other personnel.
- Alert emergency and off-site medical personnel to potential contamination; instruct them about specific decontamination procedures.
- Send along site personnel familiar with the incident

9.3 FIRST AID

Only qualified personnel shall give first aid and stabilize an individual needing assistance. Life support techniques such as CPR and treatment of life threatening problems such as airway obstruction and shock will be given top priority. Professional medical assistance shall be obtained at the earliest possible opportunity.

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At least two persons currently certified in first aid and CPR will be on site at all times during site activity. To provide first-line assistance to field personnel in the case of sickness or injury, the following items will be immediately available:

- First aid kit
- Portable emergency eye wash
- Supply of clean water

9.4 EMERGENCY ACTIONS

Only individuals with minor injuries requiring minor medical attention (beyond first aid provided at the job site) will be transported to the hospital in company vehicles. If actual or suspected serious injury occurs, these steps shall be followed:

- Remove the exposed or injured person(s) from immediate danger.
- Render first aid if necessary. Affected personnel will be decontaminated after critical first aid is give.
- Obtain paramedic services or ambulance transport to local hospital. This procedure shall be followed even if there is no visible injury.
- Other personnel in the work area shall be evacuated to a safe distance until the site supervisor determines that it is safe for work to resume. If there is any doubt regarding the condition of the area, work shall not commence until all hazard control issues are resolved.
- Notify SSO and Project Manager of incident.
- Notify Cal/OSHA within 8 hours of serious injury or death.

9.5 GENERAL EVACUATION PLAN

In the general case of a large fire, explosion, or toxic vapor release, a site evacuation shall be ordered and shall follow these steps:

- Sound alarm (repeated long blast) and advise SSO and client representative.
- Evaluate the immediate situation and wind direction. All personnel will evacuate in the upwind or crosswind direction to the designated assembly area immediately outside the main gate. (Specific routes will depend on wind direction – check wind directions on site and choose route that will avoid areas downwind of any release.)
- All personnel will assemble in a designated upwind area when the situation permits, and a head count will be taken.
- Determine the extent of the problem.
- Coordinate with emergency response personnel to dispatch or direct a response team in protective clothing and self-contained breathing apparatus on site to evacuate any missing personnel or to correct the problem. If no trained Emergency Response Team is available on site, the off site emergency response provider designated below will be summoned immediately and directed by SSO upon arrival.

9.6 EMERGENCY PHONE NUMBERS

Fire /Medical Emergency 911

Emeryville Police / Emergency Dispatch
(510) 596-3700

Large Spill Response (800) 800-7472
Philip Services Corporation
60 22nd St # 688
Oakland, CA 94612

Spill Release: Office of Emergency Services
State O.E.S. (800) 852-7550

Cal/OSHA (Regional): (415) 703-5210

Site Safety Officer/Project Manager: Chris Heiny, P.G.
Mobile (925) 705-5063

Client Representative: Michael Strahs
Mobile (408) 551-2248

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Project CIH: Kevin Braun
Mobile (925) 980-0568

Medical Services (510) 437-4800
Highland General Hospital
1411 East 31st Street
Oakland, CA 94602

Note: Each contractor will have own designated Medical Service provider.

Directions to Hospital:
Leaving the site, head south on Emery St. toward West MacArthur Blvd. Emery becomes Peralta; follow one more block and turn left onto 35th Street. Follow for 0.5 miles and mergo onto I-580 East via the ramp to the left. Follow 580 East through the "maze" for 1.9 miles and take the Park Blvd. exit. Merge onto MacArthur Blvd. and follow for 0.2 miles. Turn right onto 13th Ave., follow for one block and turn left onto East 31st St. The hospital will be on the right; follow signs for Emergency Department. A map and is provided in Figure 2.

Note: Only those individuals with minor (non life-threatening) injuries are to be transported by project personnel. Emergency medical services will be summoned for all other injuries and illnesses.

9.7 STANDARD PROCEDURES FOR REPORTING EMERGENCIES

When calling for assistance in an emergency situation, the following information should be provided:

1. Call the appropriate emergency phone number (Posted on site; see above).

2. Provide the following information upon request:
- Name of person making the call.
- Telephone number at location of person making call.
- Name of person(s) exposed or injured.
- Nature of emergency.
- Actions already taken.

3. Remain on line until instructed by dispatch to hang up.

Note: When calling 911 from a cell phone, calls are routed through CHP central dispatch. Additional information regarding nature of emergency, appropriate response agency and measure, etc. may be required. When practical, use the Emeryville emergency dispatch number listed above.

SECTION 10
TRAINING REQUIREMENTS

All workers using respiratory protection will be trained in accordance with 8 CCR 5144. All field employees engaged in Hazardous Waste Operations (as outlined in the Scope and Application of the HAZWOPER Standards; 29 CFR 1910.120 and 8 CCR 5192) take a training class and pass a written examination in compliance with Federal and State Hazardous Waste Operations and Emergency Response standards).

All personnel entering exclusion zones or other regulated areas will be trained in Hazard Awareness and Control and the provisions of this site Health and Safety Plan and will be required to sign the Health and Safety Plan Acknowledgement Page.

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SECTION 11
MEDICAL SURVEILLANCE PROGRAM

All workers using respiratory protection will receive clearance by a Physician or Licensed Healthcare Practitioner (PLHCP) prior to such use.

All personnel working in areas where they may be exposed to any contaminant or combination of contaminants in concentrations at or above permissible exposure limits (without regard to use of respiratory protection) are required to participate in the Company's Medical Surveillance Program. This program is initiated when the employee starts work on the project with a complete physical and medical history and is continued as required. Other medical consultants will be retained if additional expertise is required.

Medical Surveillance Elements

Item	Initial	Annual
Medical History	X	X
Work History	X	X
Visual Acuity	X	X
Pulmonary Function *	X	X
Audiometry	X	X
Chest X-Ray	X	
Complete Blood Count	X	X
Blood Chemistry (SMAC)	X	X
Blood Lead / ZPP	X	X
Urinalysis	X	X
Dermatology Exam	X	X

* Pulmonary function test at discretion of physician after review of Pulmonary Fitness Questionnaire.

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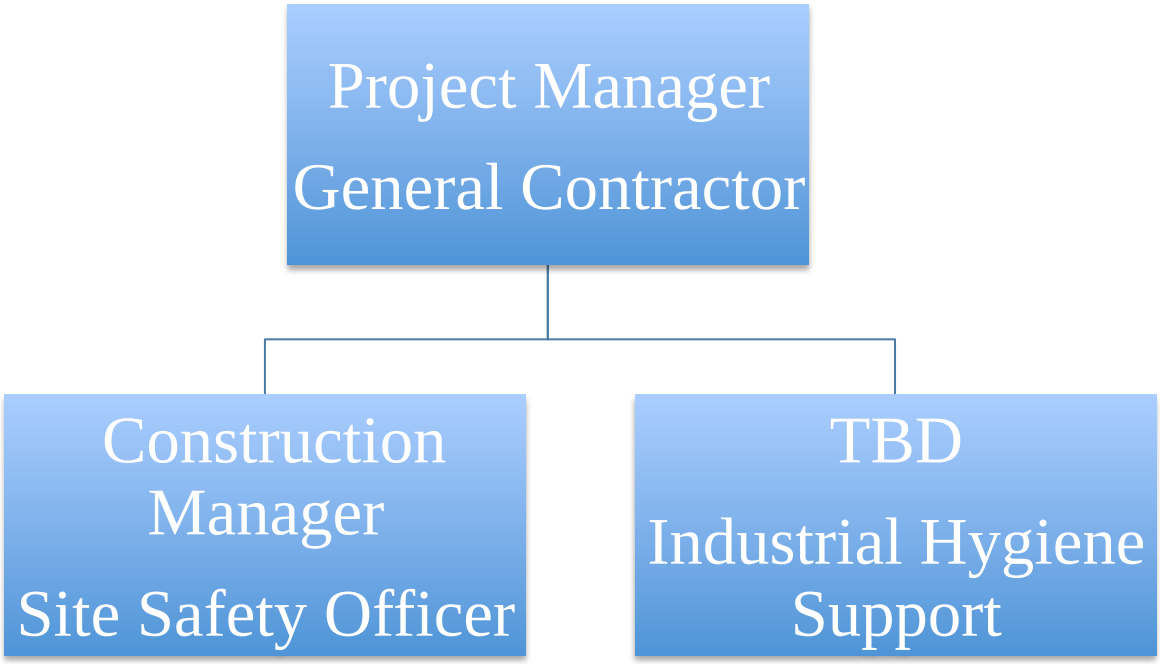
Figure 1:
Cornerstone Earth Group Project Health and Safety Organization

General Project Health and Safety Organization



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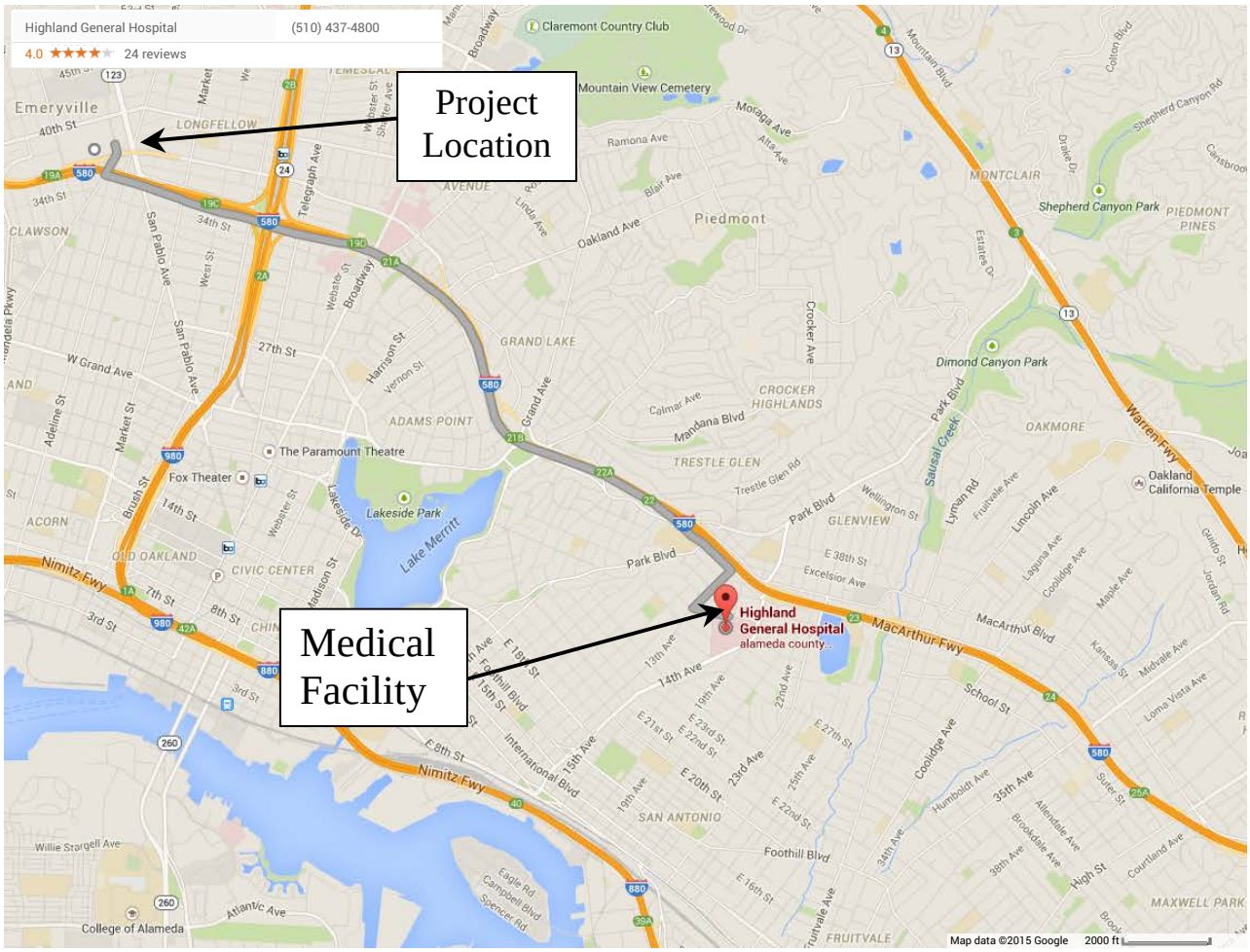

Figure 2: Hospital Directions

Health and Safety Plan Acknowledgement

I have read, understand, accept and will abide by all provisions of this Health and Safety Plan. I also agree to inform my supervisor and/or the Site Safety Officer of any conditions which are or appear to be unsafe.

Date	Time	Name (Print)	Signature

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APPENDIX A: CHANGES TO THIS HEALTH AND SAFETY PLAN

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APPENDIX B: SAFETY INSPECTION REPORTS

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APPENDIX C: EMPLOYEE EXPOSURE MONITORING RECORDS

APPENDIX D: OSHA LOG 300 SUMMARY

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APPENDIX E: EMPLOYEE MEDICAL SURVEILLANCE AND IMMUNIZATION RECORDS

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APPENDIX F: RESPIRATOR FIT TEST RECORDS

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APPENDIX G: EMPLOYEE TRAINING RECORDS

APPENDIX H: SAFETY MEETING FORMS

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APPENDIX I: INCIDENT REPORTS

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