RECEIVED
By Alameda County Environmental Health 9:44 am, Sep 04, 2015

September 3, 2015

Mr. Jerry Wickham
Alameda County Environmental Health
1131 Harbor Bay Pkwy
Alameda, CA 94502

Re: Certification of Report
2868-2898 Hannah Street
ACEH Case No. RO0003160
Oakland, California

Dear Mr. Wickham:

I have reviewed the attached report dated September 3, 2015.

I agree with the conclusions and recommendations presented in the referenced report. The information in this report is accurate to the best of my knowledge and all local Agency/Regional Board guidelines have been followed. This report was prepared by Roux Associates, upon whose assistance and advice I have relied.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

Sincerely,
2868 HANNAH STREET LLC

John Protoppapas
President of the LLC

September 3, 2015

SOIL REMEDIAL ACTION WORK PLAN

2868 Hannah Street
Oakland, California

Prepared for

2868 HANNAH STREET LLC

ROUX ASSOCIATES, INC.

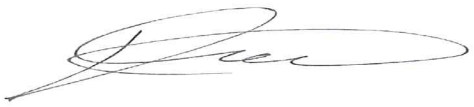
Environmental Consulting & Management

ROUX *555 12th Street, Suite 1725, Oakland, California 94607 ♦ 415-967-6000*

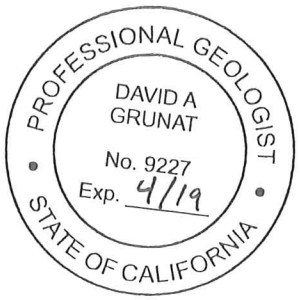
SOIL REMEDIAL ACTION WORK PLAN
2868 Hannah Street
Oakland, California

The material and data in this report were prepared under the supervision and direction of the undersigned.

ROUX ASSOCIATES, INC.



David Grunat, P.G.
Project Geologist



Anglea Liang Cutting, Ph.D., P.E.
Principal Engineer

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On behalf of 2868 Hannah Street LLC, Roux Associates, Inc. (Roux Associates) has prepared this Soil Remedial Action Work Plan (Soil RAWP) for the property located at 2868 Hannah Street in Oakland, California (Site). The purpose of the proposed soil remedial action is to immediately address the identified source area at the Site. This remedial approach focuses on two elements: excavation of residual contaminant mass in the soil and removal of residual contaminant mass through aeration of the excavated soil on site. The procedures to implement the proposed soil remedial action including comments presented by Alameda County Environmental Health in their August 27, 2015 letter are also presented in this Soil RAWP.

Site Location and Current Usage

The Site is located on the northwest corner of 32nd Street and Hannah Street in Oakland, California, approximately 3/4 mile east from San Francisco Bay (Figure 1). This area is mixed residential and commercial/industrial land use, with residences on the north and east side of the Site, commercial and industrial facilities on the west of the Site, and vacant land on the south side of the Site.

The Site is currently vacant; however, a one-story "L" shaped brick building was recently demolished on the corner of 32nd Street and Hannah Street. This building was last occupied by Precision Cast Products, Inc., which heat treated large engines.

Summary of Proposed Redevelopment Plan

The planned redevelopment of the Site entails the construction of a mixed-use development that includes a three story structure with ground floor parking. The building will include approximately 11,913 SF of commercial space and 36 residential units. The southern and eastern portions of the Site will consist of surface parking.

Summary of the Remedy

Based on the CSM, soil excavation and aeration is proposed to address the chlorinated hydrocarbon impacted soil in the southern portion of the Site. The primary constituent of concern is tetrachloroethylene (PCE). Therefore the soil cleanup goal for the Site is achieving the residential ESL for PCE in shallow soil, 550 micrograms per kilogram (ESL Table A-1).

The proposed remedial action is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants and uses standard methods that are well established in the industry.

The proposed remedial action will consist of:

1. Mobilization: Equipment mobilization, marking and staking the proposed excavation and aeration areas; and underground utility survey.

2. Excavation: Approximately 1,625 cubic yards (CY) of soil will be excavated. The approximate excavation area is shown on Figure 8.

3. Excavation Screening: Excavated soil will be inspected for indications of contamination by visual means, odor, and monitoring with a PID.

4. Air Monitoring: Including screening worker breathing zone and perimeter monitoring with a PID. Prior to excavation and immediately following the placement of soil to be aerated, ambient air samples will be collected to confirm the PID results.

5. Soil Management: Excavated soils will be segregated to avoid co-mingling of contaminated material and non-contaminated materials.

6. Confirmation Sampling: Collection and analysis of a minimum of ten confirmation samples to determine the performance of the remedy with respect to applicable ESLs.

7. Onsite Aeration: The contaminated soil will be spread onsite (up to 12 inches in each stockpile) and tilled monthly. Soil samples will be collected to determine completion of remediation with respect to applicable ESLs.

8. Backfill: Reuse of remediated and non-contaminated materials for excavation backfill in compliance with this plan and in accordance with applicable laws and regulations.

9. Storm Water Pollution Prevention Measures: Best Management Practices for storm water pollution prevention measures will be implemented in compliance with applicable laws and regulations.

10. Soil Remediation Completion Report: A Remediation Completion Report will be prepared to document the remedial activities and confirm the remedial requirements have been achieved.

LIST OF ACRONYMS

Acronym	Definition
bgs	Below ground surface
BAAQMD	Bay Area Air Quality Management District
BTEX	Total xylenes (benzene, toluene, and ethylbenzene)
CL	Silty clays
CSM	Conceptual Site Model
CY	Cubic yards
DCE	Dichloroethene
ESL	Establish Soil Cleanup Objective
HASP	Health and Safety Plan
ML	Sandy silts
MSL	Mean sea level
OSHA	Occupational Safety and Health Administration
PAH	Polycyclic aromatic hydrocarbons
PCB	Polychlorinated biphenyls
PCE	Tetrachloroethene
PID	Photoionization detector
RAWP	Remedial Action Work Plan
RCR	Remedial Completion Report
SB	Soil boring
SF	Square foot
TCE	Trichloroethene
TEPH / TPH	Total extractable petroleum hydrocarbons
TPH-d	Total petroleum hydrocarbons as diesel

LIST OF ACRONYMS

Acronym	Definition
TPH-g	Total petroleum hydrocarbons as gasoline
TPH-ho	Total petroleum hydrocarbons as hydraulic oil
TPH-mo	Total petroleum hydrocarbons as motor oil
TRPH	Total recoverable petroleum hydrocarbons
USA	Underground Service Alert
UST	Underground Storage Tank
VOC	Volatile organic compound

1.0 INTRODUCTION

On behalf of 2868 Hannah Street LLC, Roux Associates, Inc. (Roux Associates) has prepared this Soil Remedial Action Work Plan (Soil RAWP) for the property located at 2868 Hannah Street in Oakland, California (Site). The purpose of the proposed soil remedial action is to immediately address the identified source area at the Site. This remedial approach focuses on two elements: excavation of residual contaminant mass in the soil and removal of residual contaminant mass through aeration of the excavated soil on site. The procedures to implement the proposed soil remedial action including comments presented by Alameda County Environmental Health in their August 27, 2015 letter are also presented in this Soil RAWP.

The Site is approximately 34,112 square feet (SF) and is located on the northwest corner of 32nd Street and Hannah Street in Oakland, California, approximately 3/4 mile east from San Francisco Bay (Figure 1). The planned development at the Site includes a three-story mixed use building with ground floor parking, containing approximately 11,913 SF of commercial space and 36 residential units. The southern and eastern portions of the Site will consist of surface parking.

Presented below is a description of the site background, conceptual site model, and the proposed soil remedial action.

2.0 SITE BACKGROUND

2.1 Site Description

The Site is located on the northwest corner of 32nd Street and Hannah Street in Oakland, California, approximately 3/4 mile east from San Francisco Bay (Figure 1). This area is mixed residential and commercial/industrial land use, with residences on the north and east side of the Site, commercial and industrial facilities on the west of the Site, and vacant land on the south side of the Site.

The Site is currently vacant; however, a one-story "L" shaped brick building was recently demolished on the corner of 32nd Street and Hannah Street. This building was last occupied by Precision Cast Products, Inc., which heat treated large engines. Due to previous onsite remediation, the building most recently had earthen floor, which appeared to have been imported from an offsite location. The rest of the former building was individually protected by steel joints, wood columns, beams, trusses and arches. The shell of the building was corrugated sheet metal nailed to a wood framed structure and contained large glass windows.

2.2 Geologic Setting

2.2.1 Regional Geology

The Site is located along the southwestern margin of the Berkeley Alluvial Plain, which is a subarea of the East Bay Plain area (SFBRWQCB, 1999). Alluvial deposits that generally consist of silts and clays containing thin sandy and gravelly lenses underlie the area. Estuarine mud, known as "Bay Mud," extends east of the San Francisco Bay where it interfingers with the surficial fluvial deposits.

Important regional sands, such as the Merritt Sand, appear to exist intermittently beneath the Site. The depth to bedrock in the Berkeley Alluvial Plain varies from near zero on the north to 500 feet on the south end of the Plain. The Hayward Fault defines the eastern boundary of the Berkeley Alluvial Plain and forms a geologic discontinuity. Bedrock in the East Bay Area is mostly Franciscan Complex melange, which includes marine sandstone and shale, chert, metavolcanics, serpentinized ultramafic rocks, and limestone.

2.2.2 Site Lithology

According to ERAS, soils at the Site consisted primarily of silt (ML) to 15 to 19 feet bgs. At 15 to 19 feet, sand and gravel stringers were encountered in a number of soil borings. According to Enrest, soils at the Site primarily consisted of medium plasticity silty clays (CL) and low plasticity sandy silts (ML) to 16 feet bgs. Logged soil borings advanced at the Site did not depict any significantly thick zones of higher permeability to a minimum depth of approximately 16.5 feet bgs.

During remedial soil excavation activities, native soils encountered beneath the vaults consisted of brown silty clays to approximately 10 feet bgs. Sand lenses were noted from 9 to 11 feet bgs and groundwater was generally encountered at 10 to 15 feet bgs. Some soils exhibited a characteristic blue-green color and mild to strong petroleum hydrocarbon odor. These field indications of TPH impact were used to help determine the limits of remedial soil excavation.

2.2.3 Site Hydrogeology

Groundwater has generally been observed at approximately 10 to 15 feet bgs and at 20 to 25 feet bgs. The estimated groundwater flow direction east of the Site is west and the previously calculated groundwater flow direction beneath the Site is west-northwest. Groundwater gradient was estimated at 0.001 to 0.008 foot per foot (ft/ft).

The State Water Resources Control Board GeoTracker GAMA website includes approximate locations of water supply wells in California. No water supply wells are shown within the immediate Oakland, Emeryville, or Berkeley areas. However, Roux Associates is currently conducting a water supply well search to identify the locations of the nearest supply wells, if any. The closest surface water body is San Francisco Bay, located approximately 0.75 miles northwest from the Site.

2.3 Previous Investigations

Historic soil, groundwater, and soil vapor data are included in Tables 1, 2, and 3 respectively.

In 1988, Property Contamination Control, Inc. (PCC) conducted a soil investigation consisting of four exploratory soil borings. PCC reported relatively minor concentrations of ethanol,

methanol, 1,1-dichloroethene (1,1-DCE), and metals in soil. Soil sample locations and depths are unknown (ERS, 2009).

In 2002, two environmental consulting firms were retained to perform investigations at the Site: ERAS Environmental, Inc. (ERAS) and Environmental Restoration Services (Enrest).

In March 2002, ERAS advanced four soil borings with a hand auger and reported "elevated" concentrations of total recoverable petroleum hydrocarbons (TRPH) and relatively minor concentrations of benzene, toluene, ethylbenzene and total xylenes (BTEX) in soil at approximately 3 feet below ground surface (bgs) in three of the four soil borings. In November 2002, ERAS analyzed a sample of oil from an excavation pit located near the southeast corner of the building and reported the oil resembled mineral oil, foundry quenching oil, or similar material (ERS, 2009).

In April 2002, Enrest advanced seven Geoprobe soil borings and free-floating oil in one soil boring (SB-6) was reported. In addition, Enrest determined that a pipe identified by ERAS was potentially a waste percolation well. The suspected percolation well was 7 feet deep, the casing was perforated from 5.5 to 7 feet, and drain rock surrounded the well from approximately 5 to 10 feet bgs. On April 26, 2002, Enrest demolished the concrete lining of Pit B and excavated soil to 12 feet bgs. Enrest also excavated casting sand backfill from Pit A and Pit C, and identified another suspect percolation well near the southeast corner of the building (ERS, 2009).

In May 2002, Enrest excavated soil in the vicinity of soil boring SB-6 and in the vicinity of the southeast corner suspect percolation well. Enrest also advanced three soil borings to collect grab groundwater samples north, west, and south of soil boring SB-6, designated as borings SP-1, SP-2, and SP-3. Grab groundwater sample analytical results reported elevated concentrations of motor oil range petroleum hydrocarbons, relatively minor concentrations of BTEX, 1,2-dichlorobenzene, and naphthalene (ERS, 2009).

In May 2003, ERAS advanced eleven continuously-cored, Geoprobe soil borings to depths of approximately 16 to 20 feet bgs, collected soil and grab groundwater samples, and converted three of the soil borings to temporary piezometers. Soil samples were analyzed for volatile

organic compounds (VOCs), total petroleum hydrocarbons as gasoline (TPH-g), total extractable petroleum hydrocarbons (TEPH or TPH), and chromium, copper, and nickel metals. Grab groundwater samples were analyzed for VOCs, TPH-g, TPH, and chromium, copper, and nickel metals. The piezometers were surveyed and the calculated groundwater flow direction and gradient were west to northwest at 0.03 ft/ft. Soil sample analysis generally reported minor to elevated TPH concentrations, varying minor VOC concentrations, and concentrations of chromium, copper, and nickel at typical of background naturally-occurring concentrations. Grab groundwater sample analysis reported relatively low TPH concentrations in soil borings E-6, E-9, and E-10, no VOCs above laboratory reporting limits, and minor to low concentrations of dissolved metals (ERS, 2009).

Concurrently, ERAS sampled the contents of six subsurface concrete vaults. Vault contents were described as poorly-graded sand. These soil samples were analyzed for VOCs, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and TPH. Laboratory analysis reported that the sandy contents of the concrete vaults contained TPH concentrations only (ERS, 2009).

In April 2005, Enrest advanced 15 exploratory soil borings primarily around the perimeter of the building. The purpose was to collect representative verification soil and groundwater samples at the perimeter of the property to evaluate the effectiveness of remedial soil excavation performed in September 2003 to January 2004. Soil samples were generally collected at 4 and 9 feet bgs and grab groundwater samples were collected in each soil boring at approximately 15 and 25 feet bgs. In addition, Enrest collected representative soil samples from imported material to be used to backfill the remedial soil excavations and analyzed the samples for constituents of concern. Imported soil samples are designated with "IMP" in the sample identification (ERS, 2009).

Enrest also collected two soil vapor samples and analyzed for VOCs by EPA Method TO-15. Sample B-1SV was collected at the north end of the Site adjacent to the "north" excavation and sample B-5SV was collected at the south end of the Site adjacent to the "south" excavation. Soil vapor sample analytical results indicated minor VOC constituent concentrations just above their respective laboratory reporting limits, as shown in Table 3. The VOC concentrations reported in

the two soil vapor samples did not indicate a significant source of residual VOCs or BTEX exist in the subsurface (ERS, 2005).

In September 2008, ERS advanced nine exploratory soil borings EB1 through EB9 at selected locations across the Site and at one neighboring residential property located at 2859 Helen Street to further characterize the vertical and lateral extent of constituents of concern (COCs) in soil and groundwater. Soil borings EB1 and EB2 were advanced within two restored excavations and sampled to confirm the general soil quality of backfill. The analytical results were consistent with the soil profiling results at the time it was generated in Berkeley by Affordable Housing Associates. Soil borings EB5 and EB9 were advanced at an approximate angle of 20 degrees from vertical to further assess soil and groundwater at adjacent neighboring properties 2851 Helen Street and 2863 Helen Street. With the exception of soil borings EB3 and EB4, the continuously cored borings were advanced using a four-foot long, hydraulically driven, truck-mounted Geoprobe® sampling tool equipped with 2-inch inside-diameter clear acetate liners. Soil borings EB3 and EB4 were continuously cored using limited access Geoprobe® equipment. Sample locations are shown on Figure 3. Grab groundwater samples were collected in soil borings EB3 through EB9 (ERS, 2009).

Select soil samples were analyzed for TPH as diesel (TPH-d) and TPH as motor oil (TPH-mo) and halogenated VOCs. TPH soil sample analytical results are summarized in Table 1. Figure 2 shows an aerial view of the Site and the surrounding residential properties (ERS, 2009).

2.4 Previous Remediation Activities

In April 2002, Enrest demolished the concrete lining of Pit B and excavated soil to 12 feet bgs. An oil sheen was noted on groundwater that entered the excavation pit. Enrest also excavated sand backfill from Pit A and Pit C. The volume of removed soil is unknown. In or before May 2002, Enrest excavated soil in the vicinity of soil boring SB-6 and around the second 4-inch diameter pipe identified as a waste percolation well (ERS, 2009).

In September 2003 to January 2004, ERAS oversaw remedial soil excavation designed to remove soil containing TPH as hydraulic oil (TPH-ho) above 500 milligrams per kilogram (mg/kg). The limits of soil excavation are shown on Figure 3. Soil was removed in three locations:

1) inside the northeast corner of the building (designated “north”); 2) inside the southeast portion of the building to the building perimeter (designated “middle”); and 3) outside the building on the south side (designated “south”).

Approximately 845, 1,950, and 407 cubic yards (CY) of soil were removed from the “north”, “middle”, and “south” excavations, respectively, for a total of approximately 3,202 cubic yards (4,800 tons). Following remedial soil excavation, confirmation sidewall and bottom soil samples were collected and analyzed for TPH-ho and select confirmation soil samples were analyzed for VOCs.

Soil remediation was performed to the satisfaction of Barney Chan, caseworker with the Alameda County Environmental Health (ACEH), and verification soil and grab groundwater testing was requested following remedial soil removal (ERS, 2009). Excavated soil was properly profiled and disposed of at Forward Landfill, Manteca, California. Verification sampling was performed as described above by Enrest in April 2005.

3.0 NATURAL AND EXTENT OF CONTAMINATION

3.1 Product Releases and Potential Source Areas

3.1.1 North Area – Former Metal Heat-Treating Facility

The source of the heavy petroleum hydrocarbons in shallow soils beneath the former metal heat-treating facility building appears to have been related to historical industrial activities at the Site, including two potential percolation wells. Previous inspections of the Site revealed the presence of various vaults and pipes in the ground inside the Former Metal Heat-Treating building. The release scenario is unknown but according to the 2008 Investigation Work Plan (ACC, 2008) two 4-inch-diameter pipes were located in the middle excavation part of the property, near Pit B and Pit D (Figure 3). The pipes extended approximately 7 to 10 feet bgs and groundwater in that area was observed at approximately 11 feet bgs. The pipes appear to have been used to dispose of used quenching oil. The two areas appear to be the primary source of petroleum hydrocarbon impact to subsurface soil and groundwater, in the area that was remediated in 2003 and 2004. The quenching oil would have been able to migrate 1 to 3 feet vertically downward and then spread laterally on groundwater in higher permeability soils adjacent to the first-encountered water bearing zone. Fluctuating groundwater levels further "smeared" residual quenching oil in the subsurface and impacted a greater volume of soil.

A 700-gallon gasoline UST under the Hannah Street sidewalk was removed in February 2002, and soil sample results indicated no significant petroleum hydrocarbon releases from this former UST. Soil sample results are included in Table 1.

3.1.2 South Area – Putty and Paint Factory

The exact nature and extent of hazardous waste related activities associated with former paint and putty factory is unknown. However, PCE impacts in soil and groundwater at borings B-18 and EB6 may have originated from activities related to the former paint and putty factory which operated from the 1930s to the 1980s. Due to the lack of degradation breakdown products such as trichloroethylene (TCE) and cis- or trans-dichloroethylene (DCE) in groundwater and solvents were not used at the former facility, a more recent release following the closure of the facility is likely responsible for the PCE reported in groundwater. In addition, the lack of elevated photoionization detector (PID) readings in soil borings EB6 and EB7, the lack of any significant PCE in groundwater samples EB7-W and EB8-W, and the general lack of VOCs in soil vapor

sample B-5SV (collected approximately 45 feet north of EB6) suggest that historical Site practices are not the source of the PCE reported in groundwater in soil boring EB6.

3.1.3 Potential Offsite Source

Historical records indicate that a former dry cleaner was located at 1546 32nd Street, 40 feet northwest of the Site. This facility was present for several decades, beginning in approximately 1925. PCE from this adjacent site may have impacted groundwater beneath the Site.

3.2 Petroleum Hydrocarbon Distribution

Elevated heavy petroleum hydrocarbons (TPH-D, TPH-HO, TPH-MO) were detected primarily in the vicinity of the former metals heat treating/metals foundry building. No significant VOCs including BTEX or Naphthalene constituents were encountered in soil or groundwater samples.

3.2.1 Soil

North Area – Former Metal Heat-Treating Facility

As a former metal heat-treating facility, quenching oil was the primary constituent of concern. Minor concentrations of metals and volatile organic compound (most likely contained within proprietary quenching oil mixtures) were identified in given soil and groundwater samples but mineral oil-range petroleum hydrocarbons (TEPH) were the primary contaminant. Due to relatively fine grain soils at the Site, vertical and lateral TPH migration was limited. Excavation and offsite disposal of approximately 3,247 cubic yards of hydrocarbon-impacted soil was conducted between October 2003 and January 2004.

Soil samples from post-excavation borings, EB3 and EB4, located in adjacent east residential back yards, indicate very limited migration of heavy petroleum hydrocarbons; with values ranging from 2.3 to 12 mg/kg. Significant vertical attenuation of petroleum hydrocarbons was noted in fine grain silty clay soils observed in soil borings EB5 from approximately 7 to 16 feet bgs (TPH-d decreased from 5,500 mg/kg at 7.4 feet bgs to 11 mg/kg at 16 feet bgs), and similar decreases were noted in silty clay soils in boring EB9 (TPH-d decreased from 1,700 mg/kg at 7.4 feet to 290 mg/kg at 15.5 feet bgs). TEPH attenuation in the vertical direction is reinforced by the generally low concentrations of TEPH reported in grab groundwater samples collected in soil borings EB5 and EB9. The vertical and horizontal TEPH attenuation in the subsurface is

fairly typical and the information obtained in soil borings EB3 and EB4 (advanced at 2859 Helen Street that previously provided physical access) should be applicable on the neighboring properties on both side of 2859 Hellen Street (i.e., 2851 and 2863 Helen Street).

South Area – Putty and Paint Factory

Total petroleum hydrocarbons as gasoline, diesel, and motor oil (TPH-g, TPH-d, and TPH-mo) were observed in all borings. However, these results were flagged by the laboratory due to the high concentration of PCE causing false detections. This is supported by the relatively low concentrations of TPH-d and TPH-mo, and the lack of TPH-g in borings RB-2 and RB-4.

3.2.2 Groundwater

North Area – Former Metal Heat-Treating Facility

TPH impacts in groundwater are generally low to below laboratory reporting limits. Groundwater analytical results do not indicate any significant source of TPH for groundwater and the identified TPH impacts in groundwater are generally from motor oil-range or mineral oil-based petroleum hydrocarbons.

The post 2003 to 2004 remediation excavation grab groundwater sample collected in soil boring EB5 reported 150 micrograms per liter (µg/L) TPH-d, and the grab groundwater sample from soil boring EB9 reported 51 µg/L TPH-d. In the horizontal direction, significant petroleum hydrocarbon attenuation was reported in the grab groundwater samples collected in soil borings EB3 and EB4. Grab groundwater sample EB3-W reported 730 µg/L TPH-d and 610 µg/L TPH-mo and grab groundwater sample EB4-W reported 69 µg/L TPH-d.

South Area – Putty and Paint Factory

Total petroleum hydrocarbons as gasoline, diesel, and motor oil (TPH-g, TPH-d, and TPH-mo) were observed in all borings. However, these results were flagged by the laboratory due to the high concentration of PCE causing false detections. This is supported by the relatively low concentrations of TPH-d and TPH-mo, and the lack of TPH-g in borings RB 2 and RB 4.

3.3 Chlorinated Hydrocarbon Distribution

The primary constituent of concern is PCE. Only low concentrations of PCE degradation products have been detected onsite.

3.3.1 Soil

North Area – Former Metal Heat Treating Facility

PCE impacts in soil at the North Area of the Site are minimal and generally insignificant.

South Area – Putty and Paint Factory

Soil concentrations found to be exceeding residential ESLs for shallow soil are limited to PCE in RB-1 and RB-3 and a low estimated concentration of cis-1,2-dichloroethylene (cis-1,2-DCE). In borings RB-2 and RB-4, no PCE or daughter products were detected above the laboratory reporting limits. PCE concentrations in RB-1and RB-3 are generally ubiquitous throughout the soil column. Concentrations slightly increase with depth as they approach the groundwater table. Samples were erroneously analyzed from within the saturated zone at 20 ft bgs and are likely representative of dissolved phase concentrations.

3.3.2 Groundwater

North Area – Former Metal Heat Treating Facility

Grab groundwater samples from pre-excavation borings outside the excavation areas and from post-excavation borings inside the excavation areas showed PCE impacts in groundwater are generally low to below laboratory reporting limits. Chlorinated solvents were not used at the facility.

South Area – Putty and Paint Factory

Grab groundwater samples from borings B-18 and EB6 showed elevated concentrations of PCE. Grab groundwater samples from north and northeast borings B-8, B-5, and EB7 showed no significant detections of PCE, indicating that the PCE source is not within the Site building.

Based on the March 2015 remedial investigation sample results, the highest PCE concentration was detected in RB-3 (11,500 µg/L) located approximately 40 feet east of boring RB-1. The lowest PCE concentration was observed in boring RB-5 (499 µg/L) located across Hannah Street

from the site. Currently PCE concentrations are bounded to the north and south, however; are not fully delineated to the east. Concentrations to the west likely continue to decrease similar to the observed groundwater concentrations.

3.4 Soil Vapor

Historic soil and groundwater investigations indicate that residual heavy petroleum hydrocarbons do not present a vapor intrusion.

Following the completion of soil excavation, all VOCs associated with petroleum in soil and grab groundwater samples have been low and generally one to three orders of magnitude below applicable Environmental Screening Levels (ESLs). According to RWQCB Table E-1a, *Groundwater Screening Levels for Evaluation of Potential Vapor Intrusion Concerns*, residual petroleum concentrations in groundwater are generally three to five orders of magnitude below their applicable ESL. Shallow soils beneath the site are clay-dominated, and two previous soil vapor samples, B-1SV and B-5SV, showed no significant VOC impacts, as shown in Table 3.

Following the completion of soil and groundwater remediation, vapor intrusion concerns associated with observed PCE in soil and groundwater will be evaluated.

3.5 Evaluation of Preferential Pathways

Roux Associates has obtained and reviewed available utility drawings for the Site to determine if any subsurface conduits (e.g., sewer laterals) may have acted as preferential pathways. A file review was conducted at the City of Oakland on August 13, 2015 but no documents were available. Available maps are presented in Appendix A. Based on available drawings, it does not appear that any utilities remain on site

Based on available maps, the City of Oakland sanitary sewer line is located in the center of Hannah Street at approximately 2.07 feet above mean sea level (MSL). Comparing this elevation to site elevations (generally 6 feet MSL), the sanitary sewer is approximately 4 feet bgs. As groundwater is encountered generally between 10 and 15 ft bgs, it is unlikely that the sanitary sewer system is acting as a preferential pathway for groundwater impacts at the Site.

If the historic utilities are encountered during the proposed soil remediation, the utility location will be noted and this conduit study will be revised.

3.6 Conceptual Site Model

This section details the current and future land use at the Site and the potential exposure pathways.

The Site is located in an area with mixed residential and commercial/industrial land use, with residences on the north and east side of the Site, commercial and industrial facilities on the west of the Site, and a large uncapped vacant land on the south side of the Site. The Site is currently vacant and the proposed development is a three-story mixed use building with ground floor parking.

Figure 4 presents the Conceptual Site Model (CSM) for the Site under current conditions based on the available data. The CSM will be updated following the completion of the remedial action.

3.7 Evaluation of Low Threat Closure Criteria

To evaluate the status of this site, Roux Associates has reviewed the Low Threat Closure Assessment Tool (RWQCB, 2014). Based on this guidance, three main factors are necessary to achieve low threat closure: development of a complete CSM, control sources and mitigate risks and threats, and demonstrate that residual pollution in all media will not adversely affect present and anticipated land and water uses. Each of these topics is described in detail below.

3.7.1 Conceptual Site Model

According to the Low Threat Closure Assessment Tool, three steps are necessary to evaluate if the CSM is complete. The first is the identification of potential sources. As described above, the source of hydrocarbons in the northern portion of the site are suspected percolation wells removed during previous remedial efforts. On the southern portion of the property, a source has not been identified for PCE; however, shallow soil impacts in RB-1 and RB-3 indicate the source was located surrounding this area. Therefore, the current source for PCE is residual PCE concentrations in shallow soil.

The second criteria to be evaluated, is adequately characterizing the Site. To date nearly 60 borings have been advanced at the site with approximately 30 borings being conducted following the completion of soil remediation on the northern portion of the site. Currently the extent of petroleum hydrocarbons is well characterized. However, PCE concentrations have yet to be fully delineated to the east. Roux Associates' August 10, 2015 *Phase II Environmental Site Assessment Results* included a work plan to collect additional samples to further investigate the extent of PCE in soil. Additionally in ACEH's August 13, 2015 conditional approval of the proposed investigation, it was requested that a deeper soil boring be advanced to determine if PCE is present above screening levels in deeper groundwater. Following the completion of this investigation, the Site will be adequately characterized.

Finally, an evaluation of exposure pathways will be necessary to complete the CSM. Following the completion of proposed soil and groundwater remediation, Roux Associates will evaluate the potential receptors and associated risk with any residual concentrations, if any, that remain following remediation. This will include an evaluation of potential vapor intrusion concerns.

3.7.2 Control Sources and Mitigate Risks and Threats

Remedial activities performed at the northern portion of the Site include the removal of the petroleum hydrocarbon source. Remedial activities for the PCE impacts in soil are presented in Section 4 and a work plan describing the proposed groundwater remediation will be submitted under separate cover.

3.7.3 Media Will Not Adversely Affect Land and Water Uses

Currently the Site is vacant; therefore, the only potential receptor is onsite construction workers. Roux Associates is currently proposing soil and groundwater remediation. Following the completion of the remediation, the concentration trends will be evaluated against screening standards to ensure that further regulatory oversight for the Site is no longer necessary.

4.0 PROPOSED SOIL REMEDIAL ACTION

Based on the CSM, soil excavation and aeration is proposed to address the chlorinated hydrocarbon impacted soil in the southern portion of the Site. The proposed remedial action is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants and uses standard methods that are well established in the industry.

4.1 Soil Remedial Action Goal

As described in the CSM, the primary constituent of concern is PCE. Therefore the soil cleanup goal for the Site is achieving the residential ESL for PCE in shallow soil, 550 micrograms per kilogram (ESL Table A-1).

4.2 Description of Proposed Soil Remedial Action

The proposed remedial action will consist of:

1. Mobilization: Equipment mobilization, marking and staking the proposed excavation and aeration areas; and underground utility survey.

2. Excavation: Approximately 1,625 cubic yards (CY) of soil will be excavated. The approximate excavation area is shown on Figure 8.

3. Excavation Screening: Excavated soil will be inspected for indications of contamination by visual means, odor, and monitoring with a photo ionization detector (PID).

4. Air Monitoring: Including screening worker breathing zone and perimeter monitoring with a PID. Prior to excavation and immediately following the placement of soil to be aerated, ambient air samples will be collected to confirm the PID results.

5. Soil Management: Excavated soils will be segregated to avoid co-mingling of contaminated material and non-contaminated materials.

6. Confirmation Sampling: Collection and analysis of a minimum of ten confirmation samples to determine the performance of the remedy with respect to applicable ESLs.

7. Onsite Aeration: The contaminated soil will be spread onsite (up to 12 inches in each stockpile) and tilled monthly. Soil samples will be collected to determine completion of remediation with respect to applicable ESLs.

8. Backfill: Reuse of remediated and non-contaminated materials for excavation backfill in compliance with this plan and in accordance with applicable laws and regulations.

9. Storm Water Pollution Prevention Measures: Best Management Practices for storm water pollution prevention measures will be implemented in compliance with applicable laws and regulations.

10. Soil Remediation Completion Report: A Remediation Completion Report will be prepared to document the remedial activities and confirm the remedial requirements have been achieved.

4.3 Soil Management and Sampling during Remediation

Soil and materials management onsite, including excavation, handling, and aeration, will be conducted in accordance with this Soil RAWP. Excavation is planned in the southern portion of the Site as shown on Figure 8.

Estimated Soil Removal Quantities

The total quantity of soil expected to be excavated is approximately 1,625 CY, of which approximately 875 CY and 750 CY are anticipated to be impacted and non-impacted, respectively. Non-impacted material will be stockpiled separately. Impacted material will be placed onsite for aeration (Figure 10).

Confirmation Sampling

Removal actions will be performed in conjunction with remedial confirmation sampling. Confirmation sampling will consist of the following:

1. Minimum of two (2) samples from each sidewall with a horizontal distance of no greater than 20 feet between sidewall samples.
2. Minimum of two (2) samples from the excavation bottom.
3. Post excavation soil samples for laboratory analysis will be taken immediately after contaminated soil removal. If the excavation is enlarged horizontally, additional soil samples will be collected.

Post-excavation sample locations and depth will be biased towards the areas and depths of highest contamination identified during previous investigations unless field indicators such as field instrument measurements or visual impacted soils identified during the remedial action indicate that other locations and depths may be more heavily impacted.

Samples will be collected by exposing fresh soil using the excavator bucket. Samples will be immediately collected from the teeth of the excavator using a TerraCore sampler and properly for TPHg and VOC analysis and placing fresh soil in laboratory provided glassware for THP-d and TPH-mo analysis. No personnel will be permitted to enter the excavation when depths

exceed four feet below ground surface per California Occupational Safety and Health Administration rules (California Code of Regulations, Title 8 Section 1541).

Confirmation samples will be analyzed by a California certified laboratory for the following parameters:

- TPH-d and TPH-mo by U.S. EPA Method 8015M.
- TPH-g and VOCs by U.S. EPA Method 8260B.

Aeration Monitoring Samples

Aeration monitoring sampling will consist of samples collected in accordance with the California Department of Toxic Substances Control's Information Advisory Clean Imported Fill Material, four discrete samples for the first 1000 cubic yards of soil and 1 discrete sample for each additional 500 cubic yards of soil.

Aeration monitoring samples will be analyzed by a California certified laboratory for the following parameters:

- TPH-d and TPH-mo by U.S. EPA Method 8015M.
- TPH-g and VOCs by U.S. EPA Method 8260B.

For TPHg and VOC analysis, samples will be collected using TerraCores and properly preserved sample containers to minimize volatilization of compounds from soil during sampling.

Air Monitoring During Excavation, Soil Handling, and Aeration

The primary constituent of concern is PCE. The only potential exposure route to the surrounding occupants is through the volatilization of PCE from site soils. All air emissions will be regulated under a BAAQMD permit for soil aeration. Roux Associates permit application presenting the potential emission calculations is presented as Appendix C.

In addition to the BAAQMD permit, air monitoring will be conducted using a PID. If dust is generated during site work, PCE would likely volatilize prior to respiration of dust particles. Therefore air monitoring using a PID is sufficient to assess potential exposure of site

contaminants during excavation and aeration activities. Dust monitoring is not necessary. However, all soil disturbing activities will be suspended if visible dust is observed during work.

As the greatest contaminant emissions from the soil will occur immediately following soil disturbance, this monitoring will reflect the worst case scenario for emissions. All soil disturbing activities will be suspended if elevated PID readings are observed during work. Additionally, ambient air confirmation sampling will be performed to ensure there is no human health risk to the neighboring residences. An initial baseline sample will be collected adjacent to the nearest residence to the site prior to the start of remedial excavation. Another sample will be collected in the same location at the completion of the remedial excavation, which will coincide with the start of soil aeration. Samples will be collected over an 8 hour period and will be analyzed by a California certified laboratory for VOCs by U.S. EPA Method TO-15. As the highest concentrations of PCE are expected immediately following excavation and initial aeration, subsequent air monitoring samples are not necessary during additional air monitoring events unless concentrations are found to exceed a health risk during the initial sampling event.

5.0 REMEDIAL CONSTRUCTION MANAGEMENT

5.1 Construction Health and Safety Plan

Roux Associates will prepare a site-specific Health and Safety Plan. Remedial work performed under the Soil RAWP will be in full compliance with applicable health and safety laws and regulations, including Site and OSHA worker safety requirements and HAZWOPER requirements. Confined space entry, if any, will comply with OSHA requirements and industry standards and will address potential risks. The parties performing the remedial construction work will ensure that performance of work is in compliance with the HASP and applicable laws and regulations.

All field personnel involved in remedial activities will participate in training required under 29 CFR 1910.120, including 40-hour hazardous waste operator training and annual 8-hour refresher training. Site Safety Officer will be responsible for maintaining workers training records.

Personnel entering any exclusion zone will be trained in the provisions of the HASP and be required to sign an HASP acknowledgment. Site-specific training will be provided to field personnel. Additional safety training may be added depending on the tasks performed. Emergency telephone numbers will be posted at the site location before any remedial work begins. A safety meeting will be conducted before each shift begins. Topics to be discussed include task hazards and protective measures (physical, chemical, environmental); emergency procedures; PPE levels and other relevant safety topics. Meetings will be documented in a log book or specific form.

An emergency contact sheet with names and phone numbers is included in the HASP. That document will define the specific project contacts for use in case of emergency.

5.2 Permitting

All permits or approvals required for remediation have been or will be obtained prior to the start of remediation.

5.3 Site Preparation

Pre-Construction Meeting

A pre-construction meeting will be held at the Site with all parties involved in the remedial process prior to the start of remedial construction activities.

Mobilization

Mobilization includes field personnel orientation, equipment mobilization, marking/staking excavation limits and utility mark-outs. Each field team member will attend an orientation meeting to become familiar with the general operation of the Site, health and safety requirements, and field procedures.

Utility Marker Layouts, Easement Layouts

Roux Associates will contact Underground Service Alert (USA) a minimum of two days prior to subsurface activities to notify utility operators of the planned work and to request marking of nearby utilities. Additionally, Roux Associates will retain a private utility locator to clear proposed excavation area prior to excavation.

Proper safety and protective measures pertaining to utilities and easements, and compliance with all laws and regulations will be employed during invasive and other work contemplated under this RAP.

Equipment and Material Staging

Equipment and materials will be stored and staged in a manner that complies with applicable laws and regulations. The location of proposed equipment and material staging areas and stockpile areas is shown in Figure 10.

Excavation Security and Stabilization

Currently, the entire site is surrounded by existing security fencing to prevent access to the site. Upon completion of remedial excavation activities, additional orange safety fencing will be installed around the perimeter of the excavation area.

The remedial excavation, which will remain open for the duration of soil aeration activities, will be stabilized in accordance with Caltrans Construction BMP Manual Detail SS-07 (Appendix B).

Additionally, a tarp will be tented over the excavation to minimize the accumulation of storm water within the excavation. The excavation area will be inspected during aeration monitoring events and BMPs will be repaired as necessary to protect the integrity of the excavation area. Any storm water that accumulated within the excavation will also be pumped out into drums and disposed of at an appropriate disposal facility.

5.4 Soil Aeration

Contaminated soil will be placed onsite for aeration as shown in Figure 10. This soil will be tilled every two weeks for the duration of the aeration process to encourage volatilization of contaminants. Aeration will continue until aeration monitoring sampling indicates attainment of ESLs.

5.5 Backfill

Upon completion of soil aeration, all excavated materials will be used to backfill the excavation area. Aerated soils will be used to backfill the lower portion of the excavation area, while clean stockpiled material will be used to backfill the upper portion of the excavation.

5.6 Demobilization

Demobilization will include:

- As necessary, restoration of temporary access areas and areas that may have been disturbed to accommodate support areas (e.g., staging areas, storage areas, and access area);
- Removal of sediment from erosion control measures and disposal of materials in accordance with applicable laws and regulations;
- Equipment decontamination; and
- General refuse disposal.

Equipment will be decontaminated and demobilized at the completion of all field activities.

5.7 Reporting and Record Keeping

Daily Reports

Daily reports providing a general summary of activities for each day of *active remedial work* will be completed by the Roux field manager. Those reports will include:

- Project number and statement of the activities and an update of progress made and locations of work performed;
- Quantities of material handled at the Site;
- Status of soil stockpiles; and
- Photograph of notable Site conditions and activities.

Daily reports will be included as an Appendix in the RCR.

Record Keeping and Photo-Documentation

Job-site record keeping for all remedial work will be performed. These records will be maintained on-Site during the project. Representative photographs will be taken of the Site prior to any remedial activities and during major remedial activities to illustrate remedial program elements. Photographs will be submitted at the completion of the project in the RCR in digital format (i.e., jpeg files).

6.0 SCHEDULE

The remedial excavation activities will occur immediately following the receipt of approval from ACEH and the receipt of a grading permit from the City of Oakland. A Preliminary schedule is included in Figure 11.

7.0 REFERENCES

ACC Environmental Consultants, Inc. (ACC), 2008. *Revised Work Plan – Subsurface Investigation, 1549 32nd Street, Oakland, California.* April 4.

Applied Remedial Services, Inc. (ARS Inc.), 2015a. *Phase I Environmental Site Assessment, 1549 32nd Street and 2868 Hannah Street, Oakland, California, 94607.* February 3.

ARS Inc., 2015b. *Site Conceptual Model, 1549 32nd Street, Oakland, California.* February 16.

Environmental Risk Specialties Corporation (ERS), 2005. *Investigative Report, 1549 32nd Street, California*. December 14.

ERS, 2009. *Work Plan for Additional Subsurface Investigation, 1549 32nd Street, California*. March 13.

San Francisco Bay Regional Water Quality Control Board (SFBRWQCB), 1999. *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report.* June.

TABLES

1. Historical Analytical Data for Soil
2. Historical Analytical Data for Groundwater
3. Historical Analytical Data for Soil Vapor
4. Grab Groundwater Results for Phase II Investigation
5. Soil Results for Phase II Investigation

Table 1. Historical Analytical Data for Soil
2868 Hannah Street, Oakland, California

Sample ID	Consultant	Sample Date	Sample Depth (feet)	Units	TEPH	TPH-MO	TPH-D	TPH-HO	TPH-G	Benzene	Toluene	EB	Xylenes	PCE	TCE	VC	Acetone	cis-1,2-Dichloroethylene (cis-1,2-DCE)	trans-1,2-Dichloroethylene
ESL Table A-1 - Shallow Soils (<3m bgs) GW is a source or potential source of drinking water				**mg/kg**	**--**	**100**	**100**	**100**	**100**	**0.04**	**2.86**	**3.28**	**2.26**	**0.55**	**0.46**	**0.032**	**0.50**	**0.19**	**0.67**
SB-1-2.5	ERAS	3/27/2002	2.5	mg/kg	--	**8300**	--	--	11	0.053	0.065	0.046	0.17	--	--	--	--	--	--
SB-2-2.5	ERAS	3/27/2002	2.5	mg/kg	--	<50	--	--	<1.0	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--
SB-3-3	ERAS	3/27/2002	3	mg/kg	--	<50	--	--	17	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--
SB-4-3	ERAS	3/27/2002	3	mg/kg	--	**2100**	--	--	5.3	<0.005	0.0071	<0.005	0.020	--	--	--	--	--	--
SS-N	Enrest	4/26/2002	10.0	mg/kg	--	**3,300**	--	--	--	--	--	--	--	--	--	--	--	--	--
Pit A	Enrest	4/26/2002	--	mg/kg	--	--	--	--	--	<0.020	<0.020	<0.020	<0.060	--	--	--	--	--	--
Oil	Enrest	4/26/2002	--	mg/kg	--	--	--	--	--	**5.81**	3.62	<2.5	10.74	--	--	--	--	--	--
Source Pt@7	Enrest	5/21/2002	7.0	mg/kg	--	**20,800**	--	--	--	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
PZ-1	ERAS	4/1/2003	3.0-3.5	mg/kg	--	<13	8.1	<13	<0.050	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
PZ-1	ERAS	4/1/2003	11.0-12.0	mg/kg	--	<13	12	<13	<0.050	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
PZ-2	ERAS	4/3/2003	1.0-2.0	mg/kg	--	<13	<1.0	80	<0.050	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
PZ-2	ERAS	4/3/2003	11.5-12.5	mg/kg	--	<13	<1.0	20	<0.050	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
E-5	ERAS	4/2/2003	2.5-3.5	mg/kg	--	<1,300	<100	**3,400**	0.31	<0.0125	<0.0125	<0.0125	0.023	<0.0125	<0.0125	--	--	--	--
E-5	ERAS	4/2/2003	11.0-12.0	mg/kg	--	<13	3.8	<13	<0.050	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
E-6	ERAS	4/1/2003	4.0-5.0	mg/kg	--	<260	<20	**640**	<0.050	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
E-6	ERAS	4/1/2003	8.5-9.0	mg/kg	--	<260	<20	**2,000**	<0.050	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
E-7	ERAS	4/1/2003	4.0-5.0	mg/kg	--	<13	4.8	<13	0.068	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
E-7	ERAS	4/1/2003	11.0-12.0	mg/kg	--	<13	<1	<13	<0.050	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
E-8	ERAS	4/1/2003	4.0-5.0	mg/kg	--	<312.5	<25	<312.5	0.051	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
E-8	ERAS	4/1/2003	11.0-12.0	mg/kg	--	<13	9.6	<13	<0.050	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
E-9	ERAS	4/2/2003	1.0-2.0	mg/kg	--	<650	<50	**1,500**	<0.050	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
E-9	ERAS	4/2/2003	11.0-12.0	mg/kg	--	<13	<1	<13	<0.050	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
E-10	ERAS	4/1/2003	3.0-4.0	mg/kg	--	<1,300	<100	**3,700**	0.28	<0.005	0.015	<0.005	0.013	<0.005	<0.005	--	--	--	--
E-10	ERAS	4/1/2003	11.0-12.0	mg/kg	--	<13	<1	26	<0.050	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
E-11	ERAS	4/2/2003	4.0-4.5	mg/kg	--	<130	<10	**220**	0.12	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
E-11	ERAS	4/2/2003	10.0-11.0	mg/kg	--	<13	9.0	<13	<0.050	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
E-12	ERAS	4/2/2003	2.0-3.0	mg/kg	--	<13	<1	<13	<0.050	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
E-12	ERAS	4/2/2003	11.0-12.0	mg/kg	--	<13	<1	<13	<0.050	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
E-13	ERAS	4/2/2003	2.0-3.0	mg/kg	--	<13	2.6	<13	<0.050	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
E-13	ERAS	4/2/2003	11.0-12.0	mg/kg	--	<13	<1	<13	<0.050	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
NSW3@7'	ERAS	1/21/2004	7	mg/kg	--	--	--	**160**	--	--	--	--	--	--	--	--	--	--	--
SE-2-7'	ERAS	12/30/2003	7	mg/kg	--	--	--	<13	--	--	--	--	--	--	--	--	--	--	--
SS-1-7'	ERAS	12/30/2003	7	mg/kg	--	--	--	**130**	--	--	--	--	--	--	--	--	--	--	--
SW4-7	ERAS	12/30/2003	7	mg/kg	--	--	--	<13	--	--	--	--	--	--	--	--	--	--	--
SWB-7'	ERAS	8/23/2003	7	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
XX@7'	ERAS	1/21/2004	7	mg/kg	--	--	--	**300**	--	--	--	--	--	--	--	--	--	--	--
YY@7'	ERAS	1/21/2004	7	mg/kg	--	--	--	32	--	--	--	--	--	--	--	--	--	--	--
SW-D-7A	ERAS	12/8/2003	7	mg/kg	--	--	--	66	--	--	--	--	--	--	--	--	--	--	--
SW-E-7A	ERAS	12/8/2003	7	mg/kg	--	--	--	<13	--	--	--	--	--	--	--	--	--	--	--
SW-F-7A	ERAS	12/8/2003	7	mg/kg	--	--	--	<13	--	--	--	--	--	--	--	--	--	--	--
OT2@7'	ERAS	1/21/2004	7	mg/kg	--	--	--	**830**	--	--	--	--	--	--	--	--	--	--	--
OT1@7'	ERAS	1/21/2004	7	mg/kg	--	--	--	**440**	--	--	--	--	--	--	--	--	--	--	--
OT6@7'	ERAS	1/21/2004	7	mg/kg	--	--	--	<13	--	--	--	--	--	--	--	--	--	--	--
OT5@7'	ERAS	1/21/2004	7	mg/kg	--	--	--	<13	--	--	--	--	--	--	--	--	--	--	--
OT4@7'	ERAS	1/21/2004	7	mg/kg	--	--	--	15	--	--	--	--	--	--	--	--	--	--	--
OT3@7'	ERAS	1/21/2004	7	mg/kg	--	--	--	<13	--	--	--	--	--	--	--	--	--	--	--
WB2-9'	ERAS	1/21/2004	9	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SC-5-8'	ERAS	12/30/2003	8	mg/kg	--	--	--	<13	--	--	--	--	--	--	--	--	--	--	--
OTB1@10'	ERAS	1/21/2004	10	mg/kg	--	--	--	24	--	--	--	--	--	--	--	--	--	--	--
OTB2@10'	ERAS	1/21/2004	10	mg/kg	--	--	--	26	--	--	--	--	--	--	--	--	--	--	--

Table 1. Historical Analytical Data for Soil
2868 Hannah Street, Oakland, California

Sample ID	Consultant	Sample Date	Sample Depth (feet)	Units	TEPH	TPH-MO	TPH-D	TPH-HO	TPH-G	Benzene	Toluene	EB	Xylenes	PCE	TCE	VC	Acetone	cis-1,2-Dichloroethylene (cis-1,2-DCE)	trans-1,2-Dichloroethylene
ESL Table A-1 - Shallow Soils (<3m bgs) GW is a source or potential source of drinking water				**mg/kg**	**--**	**100**	**100**	**100**	**100**	**0.04**	**2.86**	**3.28**	**2.26**	**0.55**	**0.46**	**0.032**	**0.50**	**0.19**	**0.67**
SWA-1@4'	ERAS	10/6/2003	4	mg/kg	--	--	--	**2,200**		<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
OT1@7'	ERAS	1/21/2004	7	mg/kg	--	--	--	**440**	--	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
OT2@7'	ERAS	1/21/2004	7	mg/kg	--	--	--	**830**	--	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
SWB-1@4'	ERAS	10/6/2003	4	mg/kg	--	--	--	**1,100**	--	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
SWC-1@4'	ERAS	10/6/2003	4	mg/kg	--	--	--	**140**	--	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
SWD-1@4'	ERAS	10/6/2003	4	mg/kg	--	--	--	**1,000**	--	--	--	--	--	--	--	--	--	--	--
SWE-1@4'	ERAS	10/6/2003	4	mg/kg	--	--	--	**2,800**	--	--	--	--	--	--	--	--	--	--	--
SWF-1@4'	ERAS	10/6/2003	4	mg/kg	--	--	--	**1,400**	--	--	--	--	--	--	--	--	--	--	--
SWG-1@4'	ERAS	10/6/2003	4	mg/kg	--	--	--	<13	--	--	--	--	--	--	--	--	--	--	--
SWH-1@4'	ERAS	10/6/2003	4	mg/kg	--	--	--	**3,800**	--	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
BH-1@9'	ERAS	10/6/2003	9	mg/kg	--	--	--	**600**	--	--	--	--	--	--	--	--	--	--	--
BH-2@6'	ERAS	10/6/2003	6	mg/kg	--	--	--	**4,200**	--	--	--	--	--	--	--	--	--	--	--
BH-3@9'	ERAS	10/6/2003	9	mg/kg	--	--	--	**470**	--	--	--	--	--	--	--	--	--	--	--
BH-4@10'	ERAS	10/6/2003	10	mg/kg	--	--	--	**160**	--	--	--	--	--	--	--	--	--	--	--
SW-A-7	ERAS	10/23/2003	7	mg/kg	--	--	--	**910**	--	--	--	--	--	--	--	--	--	--	--
SW-B-7	ERAS	10/23/2003	7	mg/kg	--	--	--	**1,300**	--	--	--	--	--	--	--	--	--	--	--
SW-D-7	ERAS	10/23/2003	7	mg/kg	--	--	--	**5,900**	--	--	--	--	--	--	--	--	--	--	--
SW-E-7	ERAS	10/23/2003	7	mg/kg	--	--	--	**3,800**	--	--	--	--	--	--	--	--	--	--	--
SW-F-7	ERAS	10/23/2003	7	mg/kg	--	--	--	**5,900**	--	--	--	--	--	--	--	--	--	--	--
BH-1-9	ERAS	10/23/2003	7	mg/kg	--	--	--	**440**	--	--	--	--	--	--	--	--	--	--	--
BH-2-9	ERAS	10/23/2003	7	mg/kg	--	--	--	61	--	--	--	--	--	--	--	--	--	--	--
SWI@7'	ERAS	12/15/2003	7	mg/kg	--	--	--	**670**	--	--	--	--	--	--	--	--	--	--	--
SWJ@7'	ERAS	12/15/2003	7	mg/kg	--	--	--	**3,400**	--	--	--	--	--	--	--	--	--	--	--
B5,9'-9.5'	ERAS	12/15/2003	9-9.5	mg/kg	--	--	--	**1,900**	--	--	--	--	--	--	--	--	--	--	--
B6,9'9.5'	ERAS	12/15/2003	9-9.5	mg/kg	--	--	--	98	--	--	--	--	--	--	--	--	--	--	--
B7,9'-90.5'	ERAS	12/15/2003	9-9.5	mg/kg	--	--	--	<13	--	--	--	--	--	--	--	--	--	--	--
SN3-3	ERAS	12/30/2003	3	mg/kg	--	--	--	<13	--	--	--	--	--	--	--	--	--	--	--
SN3-7	ERAS	12/30/2003	7	mg/kg	--	--	--	**1,700**	--	--	--	--	--	--	--	--	--	--	--
SW4-9	ERAS	12/30/2003	9	mg/kg	--	--	--	<13	--	--	--	--	--	--	--	--	--	--	--
NSW2@7'	ERAS	1/12/2004	7	mg/kg	--	--	--	**2,400**	--	--	--	--	--	--	--	--	--	--	--
WB2@9'	ERAS	1/12/2004	9	mg/kg	--	--	--	<13	--	--	--	--	--	--	--	--	--	--	--
B4@4'	Enrest	4/21/2005	4	mg/kg	<50	--	--	--	<0.5							--	--	--	--
B4@9'	Enrest	4/21/2005	9	mg/kg	--	--	--	--	--	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
B10@4'	Enrest	4/21/2005	4	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B10@9'	Enrest	4/21/2005	9	mg/kg	60	--	--	--		<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
B11@4'	Enrest	4/21/2005	4	mg/kg	--	--	--	--	????	--	--	--	--	--	--	--	--	--	--
B11@9	Enrest	4/21/2005	9	mg/kg	--	--	--	--	<0.5	--	--	--	--	--	--	--	--	--	--
B5@4'	Enrest	4/21/2005	4	mg/kg	<50	--	--	--	<0.5	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
B5@9'	Enrest	4/21/2005	9	mg/kg	<50	--	--	--	<0.5	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
B8@4'	Enrest	4/21/2005	4	mg/kg	<50	--	--	--	<0.5	--	--	--	--	--	--	--	--	--	--
B8@9'	Enrest	4/21/2005	9	mg/kg	<50	--	--	--	<0.5	--	--	--	--	--	--	--	--	--	--
B2@4'	Enrest	4/21/2005	4	mg/kg	--	--	--	--	<0.5	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
B2@9'	Enrest	4/21/2005	9	mg/kg	--	--	--	--	<0.5	????	????	????	????	????	????	--	--	--	--
B1@4'	Enrest	4/21/2005	4	mg/kg	<50	--	--	--	<0.5	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
B1@9'	Enrest	4/21/2005	9	mg/kg	**120**	--	--	--	<0.5	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	--	--	--	--
B14@4'	Enrest	4/22/2005	4	mg/kg	<50	--	--	--	<0.5	--	--	--	--	--	--	--	--	--	--
B14@9'	Enrest	4/22/2005	9	mg/kg	<50	--	--	--	<0.5	--	--	--	--	--	--	--	--	--	--
B7@4'	Enrest	4/22/2005	4	mg/kg	<50	--	--	--	<0.5	--	--	--	--	--	--	--	--	--	--
B7@9'	Enrest	4/22/2005	9	mg/kg	70	--	--	--	3.44	--	--	--	--	--	--	--	--	--	--
B18@4'	Enrest	4/22/2005	4	mg/kg	<50	--	--	--	<0.5	--	--	--	--	--	--	--	--	--	--
B18@9'	Enrest	4/22/2005	9	mg/kg	<50	--	--	--	<0.5	--	--	--	--	--	--	--	--	--	--

Table 1. Historical Analytical Data for Soil
2868 Hannah Street, Oakland, California

Sample ID	Consultant	Sample Date	Sample Depth (feet)	Units	TEPH	TPH-MO	TPH-D	TPH-HO	TPH-G	Benzene	Toluene	EB	Xylenes	PCE	TCE	VC	Acetone	cis-1,2-Dichloroethylene (cis-1,2-DCE)	trans-1,2-Dichloroethylene
ESL Table A-1 - Shallow Soils (<3m bgs) GW is a source or potential source of drinking water				**mg/kg**	**--**	**100**	**100**	**100**	**100**	**0.04**	**2.86**	**3.28**	**2.26**	**0.55**	**0.46**	**0.032**	**0.50**	**0.19**	**0.67**
EB1-4.0	ERSC	9/18/2008	4	mg/kg	--	**370**	52	--	--	--	--	--	--	<4.8	<4.8	--	--	--	--
EB1-8.0	ERSC	9/18/2008	8	mg/kg	--	**230**	**250**	--	--	--	--	--	--	<5.0	<5.0	--	--	--	--
EB1-12.0	ERSC	9/18/2008	12	mg/kg	--	<5.0	<0.99	--	--	--	--	--	--	--	--	--	--	--	--
EB2-4.0	ERSC	9/18/2008	4	mg/kg	--	**130**	22	--	--	--	--	--	--	<4.9	<4.9	--	--	--	--
EB2-8.0	ERSC	9/18/2008	8	mg/kg	--	**140**	33	--	--	--	--	--	--	<4.7	<4.7	--	--	--	--
EB2-12.0	ERSC	9/18/2008	12	mg/kg	--	<5.0	<0.99	--	--	--	--	--	--	--	--	--	--	--	--
EB8-7.5	ERSC	9/18/2008	7.5	mg/kg	--	8.8	3.3	--	--	--	--	--	--	<4.8	<4.8	--	--	--	--
EB8-16.0	ERSC	9/18/2008	16	mg/kg	--	<5.0	1.7	--	--	--	--	--	--	--	--	--	--	--	--
EB7-7.5	ERSC	9/18/2008	7.5	mg/kg	--	<5.0	2.2	--	--	--	--	--	--	<4.6	<4.6	--	--	--	--
EB7-15.0	ERSC	9/18/2008	15	mg/kg	--	<5.0	2.4	--	--	--	--	--	--	--	--	--	--	--	--
EB6-7.5	ERSC	9/18/2008	7.5	mg/kg	--	<5.0	<1.0	--	--	--	--	--	--	**48**	<4.6	--	--	--	--
EB6-16.0	ERSC	9/18/2008	16	mg/kg	--	<5.0	<1.0	--	--	--	--	--	--	--	--	--	--	--	--
EB5-7.4	ERSC	9/18/2008	7.4	mg/kg	--	**2,500**	**5,500**	--	--	--	--	--	--	<4.9	<4.9	--	--	--	--
EB5-16.0	ERSC	9/18/2008	16	mg/kg	--	<5.0	11	--	--	--	--	--	--	--	--	--	--	--	--
EB9-7.4	ERSC	9/18/2008	7.4	mg/kg	--	**670**	**1,700**	--	--	--	--	--	--	<4.9	<4.9	--	--	--	--
EB9-15.5	ERSC	9/18/2008	15.5	mg/kg	--	**130**	**290**	--	--	--	--	--	--	--	--	--	--	--	--
EB3-9.0	ERSC	9/18/2008	9	mg/kg	--	7.3	12	--	--	--	--	--	--	<4.9	<4.9	--	--	--	--
EB3-15.5	ERSC	9/18/2008	15.5	mg/kg	--	<5.0	2.7	--	--	--	--	--	--	--	--	--	--	--	--
EB4-9.0	ERSC	9/18/2008	9	mg/kg	--	<5.0	2.3	--	--	--	--	--	--	<5.0	<5.0	--	--	--	--
EB4-16.5	ERSC	9/18/2008	16.5	mg/kg	--	<5.0	4.3	--	--	--	--	--	--	--	--	--	--	--	--
Vault E	ERAS	4/1/2003	--	mg/kg	--	<6,500	<500	**18,000**	--	--	--	--	--	--	--	--	--	--	--
Vault F	ERAS	4/1/2003	--	mg/kg	--	93	<5	<65	--	--	--	--	--	--	--	--	--	--	--
Vault G	ERAS	4/1/2003	--	mg/kg	--	<13	<1	18	--	--	--	--	--	--	--	--	--	--	--
Vault H	ERAS	4/1/2003	--	mg/kg	--	<13,000	<1,000	**29,000**	--	--	--	--	--	--	--	--	--	--	--
Vault I	ERAS	4/1/2003	--	mg/kg	--	<13,000	<1,100	**43,000**	--	--	--	--	--	--	--	--	--	--	--
Vault J	ERAS	4/1/2003	--	mg/kg	--	<65	<5	**110**	--	--	--	--	--	--	--	--	--	--	--
RB-1	Roux	27/3/2015	5	µg/kg	--	15,100 J	1,810 J	--	503 [c]	--	--	--	--	**559**	4.8 J	<1.0	<10	<1.2	<0.52
RB-1	Roux	27/3/2015	10	µg/kg	--	6,910 J	1,170 J	--	2,340 E [a]	--	--	--	--	**2,640**	46.9	1.3 J	<10	46.1	1.7 J
RB-1	Roux	27/3/2015	15	µg/kg	--	2,650 J	1,158 J	--	2,690 E [b]	--	--	--	--	**3,270**	42.4	7.2	<10	45.1	5.1 J
RB-1	Roux	27/3/2015	20	µg/kg	--	2.510 J	1,260 J	--	7,040 [c]	--	--	--	--	**4,050**	<33	<65	<650	<72	<33
RB-2	Roux	27/3/2015	5	µg/kg	--	<2000	<990	--	<57	--	--	--	--	<0.68	<0.57	<1.1	<11	<1.2	<0.57
RB-2	Roux	27/3/2015	10	µg/kg	--	<2100	<1000	--	<52	--	--	--	--	<0.63	<0.52	<1.0	<10	<1.2	<0.52
RB-2	Roux	27/3/2015	15	µg/kg	--	<2100	1,270 J	--	<60	--	--	--	--	<0.72	<0.60	<1.2	<12	<1.3	<0.60
RB-2	Roux	27/3/2015	20	µg/kg	--	<2100	1,050 J	--	<56	--	--	--	--	<0.67	<0.56	<1.1	<11	<1.2	<0.56
RB-3	Roux	27/3/2015	5	µg/kg	--	<2000	<1000	--	4,150 J [c]	--	--	--	--	**1,140**	<31	<61	<610	<67	<31
RB-3	Roux	27/3/2015	10	µg/kg	--	<2000	1,140 J	--	16,900 J [c]	--	--	--	--	**9,640**	116 J	<220	<2,200	**243 J**	<110
RB-3	Roux	27/3/2015	15	µg/kg	--	<2100	1,280 J	--	22,300 J [c]	--	--	--	--	**11,800**	213 J	<230	<2,300	**325 J**	<120
RB-3	Roux	27/3/2015	20	µg/kg	--	<2100	<1100	--	12,800 [c]	--	--	--	--	**6,300**	69.9 J	<110	<1,100	<130	<57
RB-4	Roux	27/3/2015	5	µg/kg	--	5,050 J	1,860 J	--	<55	--	--	--	--	<0.67	<0.55	<1.1	<11	<1.2	<0.55
RB-4	Roux	27/3/2015	10	µg/kg	--	<2000	<1000	--	<48	--	--	--	--	<0.58	<0.48	<0.97	<9.7	<1.1	<0.48
RB-4	Roux	27/3/2015	15	µg/kg	--	<2100	1,210 J	--	<59	--	--	--	--	<0.70	<0.59	<1.2	<12	<1.3	<0.59
RB-4	Roux	27/3/2015	20	µg/kg	--	<2100	<1000	--	52.1 J	--	--	--	--	<0.62	<0.51	<1.0	<10	<1.1	<0.51
RB-5	Roux	27/3/2015	5	µg/kg	--	3900 J	2640 J	--	59.8 J	--	--	--	--	<0.67	<0.56	3.1 J	15.9 J	<1.2	<0.56
RB-5	Roux	27/3/2015	10	µg/kg	--	<2100	1400 J	--	3,690 J [c]	--	--	--	--	**1,110**	89.2	11.9	<9.5	80.7	3.7 J
RB-5	Roux	27/3/2015	15	µg/kg	--	<2000	1530 J	--	316 [c]	--	--	--	--	209 J	13	3.8 J	<9.3	17.9	1.2 J
RB-5	Roux	27/3/2015	20	µg/kg	--	<2000	1160 J	--	164 [c]	--	--	--	--	114	2.2 J	<0.96	<9.6	2.3 J	<0.48

Notes:

(--): Results were not analyzed or unavailable

???: Laboratory analytical results could not be interpreted

j = Estimated value

E = value exceeds calibration range

a = Result reported as an estimated value from low-level run (exceeded calibration range). Compound was < RL in methanol extract run due to dilution for a single peak (Tetrachloroethene).

b = Result reported as an estimated value from low-level run (exceeded calibration range). Compound was < RL in methanol due to dilution for a single peak (Tetrachloroethene).

c = Atypical pattern; value primarily due to a single peak(s).

<x.xx = Concentration not detected above x.xx reporting limit

TPH-HO: Total Petroleum Hydrocarbons as Hydaulic Oil, PCE: Tetrachloroethylene, TCE: Trichloroethylene, VC: Vinyl Chloride

Concentration exceeds environmental screening level (ESL)

Volatile Organic Compounds (VOCs) and TPHg by EPA Method 8260

TPHd and TPHmo by EPA Method 8015

Table 2. Historical Analytical Data for Groundwater
2868 Hannah Street, Oakland, California

Sample ID	Consultant	Sample Date	Sample Depth (feet)	Units	TEPH	TPH-MO	TPH-D	TPH-HO	TPH-G	Benzene	Toluene	Ethylbenzene	Xylenes	PCE	TCE	VC	Acetone	cis-1,2-Dichloroethylene (cis-1,2-DCE)
ESL Table E-1 - GW Screening Levels for Evaluation of Potential Vapor Intrusion (volatile chemicals only)				**µg/L**	**--**	**--**	**--**	**--**	**--**	**27**	**95,000**	**310**	**37,000**	**63**	**130**	**1.8**	**--**	**--**
SB-1	Enrest	4/26/2002	(-11)	µg/L	--	<500	--	--	--	--	--	--	--	--	--	--	--	--
SB-2	Enrest	4/26/2002	(-11)	µg/L	--	<500	--	--	--	--	--	--	--	--	--	--	--	--
SB-3	Enrest	4/26/2002	(-11)	µg/L	--	<500	--	--	--	--	--	--	--	--	--	--	--	--
SB-4	Enrest	4/26/2002	(-11)	µg/L	--	<500	--	--	--	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	--	--	--
SB-5	Enrest	4/26/2002	(-11)	µg/L	--	<500	--	--	--	<1.0	21	<1.0	2	<1.0	<2.0	--	--	--
SB-6	Enrest	4/26/2002	(-11)	µg/L	--	<500	--	--	--	--	--	--	--	--	--	--	--	--
SP1	Enrest	5/21/2002	(-11)	µg/L	--	77,000	--	--	--	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	--	--	--
SP2	Enrest	5/21/2002	(-11)	µg/L	--	74,000	--	--	--	<1.0	<1.0	<1.0	3.0	<1.0	<2.0	--	--	--
SP3	Enrest	5/21/2002	(-11)	µg/L	--	5,780,000	--	--	--	**87**	94	<1.0	82	<1.0	2.0	--	--	--
Source Pt	Enrest	5/21/2002	(-11)	µg/L	--	--	--	--	--	<1.0	<1.0	<1.0	<2.0	<5.0	<10	--	--	--
PZ-1	ERAS	4/1/2003	(8.8)	µg/L	--	<250	<50	<250	<50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	--	--
PZ-2	ERAS	4/3/2003	--	µg/L	--	<556	<50	<556	<50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	--	--
E-5	ERAS	4/2/2003	(~10)	µg/L	--	<10	<570	5,300	<50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	--	--
E-6	ERAS	4/1/2003	(~10)	µg/L	--	<338	130	<338	<50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	--	--
E-7	ERAS	4/1/2003	(14.5)	µg/L	--	<250	<50	<250	<50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	--	--
E-8	ERAS	4/1/2003	(6.7)	µg/L	--	<385	<77	<385	<50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	--	--
E-9	ERAS	4/2/2003	(~10)	µg/L	--	<291	<50	890	<50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	--	--
E-10	ERAS	4/1/2003	(~10)	µg/L	--	<313	<63	670	<50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	--	--
E-11	ERAS	4/2/2003	(~10)	µg/L	--	<588	<118	890	<0.050	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	--	--
E-12	ERAS	4/2/2003	(12.0)	µg/L	--	<250	<50	<250	<0.050	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	--	--
E-13	ERAS	4/2/2003	(14.0)	µg/L	--	<333	<67	<333	<0.050	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	--	--
B4-GW	Enrest	4/21/2005	(~10)	µg/L	<10,000	--	--	--	<50	????	????	????	????	????	????	--	--	--
B9-GW	Enrest	4/21/2005	(~10)	µg/L	<10,000	--	--	--	<50	--	--	--	--	--	--	--	--	--
B12-GW	Enrest	4/21/2005	(~10)	µg/L	--	--	--	--	<50	--	--	--	--	--	--	--	--	--
B10-GW	Enrest	4/21/2005	(~10)	µg/L	<10,000	--	--	--	<50	????	????	????	????	????	????	--	--	--
B13-GW	Enrest	4/21/2005	(~10)	µg/L	<10,000	--	--	--	<50	--	--	--	--	--	--	--	--	--
B11-GW	Enrest	4/21/2005	(~10)	µg/L	--	--	--	--	<50	--	--	--	--	--	--	--	--	--
B5-GW	Enrest	4/21/2005	(~10)	µg/L	<10,000	--	--	--	<50	????	????	????	????	????	????	--	--	--
B8-GW	Enrest	4/21/2005	(~10)	µg/L	--	--	--	--	<50	--	--	--	--	--	--	--	--	--
B6-GW	Enrest	4/21/2005	(~10)	µg/L	<10,000	--	--	--	<50	--	--	--	--	--	--	--	--	--
B2-GW	Enrest	4/21/2005	(~10)	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B1-GW	Enrest	4/21/2005	(~10)	µg/L	--	--	--	--	<50	--	--	--	--	--	--	--	--	--
B8-GW	Enrest	4/22/2005	(~10)	µg/L	???	--	--	--	--	--	--	--	--	--	--	--	--	--
B12-GW	Enrest	4/22/2005	(~10)	µg/L	???	--	--	--	--	--	--	--	--	--	--	--	--	--
B2-GW	Enrest	4/22/2005	(~10)	µg/L	<10,000	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 2. Historical Analytical Data for Groundwater
2868 Hannah Street, Oakland, California

Sample ID	Consultant	Sample Date	Sample Depth (feet)	Units	TEPH	TPH-MO	TPH-D	TPH-HO	TPH-G	Benzene	Toluene	Ethylbenzene	Xylenes	PCE	TCE	VC	Acetone	cis-1,2-Dichloroethylene (cis-1,2-DCE)
ESL Table E-1 - GW Screening Levels for Evaluation of Potential Vapor Intrusion (volatile chemicals only)				**µg/L**	**--**	**--**	**--**	**--**	**--**	**27**	**95,000**	**310**	**37,000**	**63**	**130**	**1.8**	**--**	**--**
B11-GW	Enrest	4/22/2005	(~10)	µg/L	<10,000	--	--	--	--	--	--	--	--	--	--	--	--	--
B8-GW@25'	Enrest	4/22/2005	(25)	µg/L	<17,000	--	--	--	62	--	--	--	--	--	--	--	--	--
B5-GW@25'	Enrest	4/22/2005	(25)	µg/L	<10,000	--	--	--	<50	--	--	--	--	--	--	--	--	--
B10-GW@25'	Enrest	4/22/2005	(25)	µg/L	<10,000	--	--	--	<50	--	--	--	--	--	--	--	--	--
B11-GW@25'	Enrest	4/22/2005	(25)	µg/L	<10,000	--	--	--	<50	--	--	--	--	--	--	--	--	--
B9-GW@25'	Enrest	4/22/2005	(25)	µg/L	<10,000	--	--	--	<50	--	--	--	--	--	--	--	--	--
B13-GW@25'	Enrest	4/22/2005	(25)	µg/L	<10,000	--	--	--	<50	--	--	--	--	--	--	--	--	--
B6-GW@25'	Enrest	4/22/2005	(25)	µg/L	<10,000	--	--	--	<50	--	--	--	--	--	--	--	--	--
B4-GW@25'	Enrest	4/22/2005	(25)	µg/L	<10,000	--	--	--	853	--	--	--	--	--	--	--	--	--
B18-GW	Enrest	4/22/2005	(~10)	µg/L	<10,000	--	--	--	1,640	--	--	--	--	--	--	--	--	--
B7-GW	Enrest	4/22/2005	(~10)	µg/L	<20,000	--	--	--	<50	--	--	--	--	--	--	--	--	--
B18-GW@25'	Enrest	4/22/2005	(25)	µg/L	<10,000	--	--	--	285	--	--	--	--	--	--	--	--	--
B7-GW@25'	Enrest	4/22/2005	(25)	µg/L	<19,000	--	--	--	<50	--	--	--	--	--	--	--	--	--
B3-GW@25'	Enrest	4/22/2005	(25)	µg/L	<10,000	--	--	--	<50	--	--	--	--	--	--	--	--	--
B1-GW	Enrest	4/22/2005	(~10)	µg/L	<10,000	--	--	--	<50	--	--	--	--	--	--	--	--	--
B1-GW@25'	Enrest	4/22/2005	(25)	µg/L	<10,000	--	--	--	<50	--	--	--	--	--	--	--	--	--
B14-GW	Enrest	4/22/2005	(~10)	µg/L	???	--	--	--	<50	--	--	--	--	--	--	--	--	--
B14-GW@25'	Enrest	4/22/2005	(25)	µg/L	<10,000	--	--	--	<50	--	--	--	--	--	--	--	--	--
B2-GW@25'	Enrest	4/22/2005	(25)	µg/L	<10,000	--	--	--	<50	--	--	--	--	--	--	--	--	--
EB3-W-18.5	ERSC	9/18/2008	(18.5)	µg/L	--	610	730	--	--	--	--	--	--	<0.5	<0.5	--	--	--
EB4-W-21.0	ERSC	9/18/2008	(21.0)	µg/L	--	<300	69	--	--	--	--	--	--	<0.5	<0.5	--	--	--
EB5-W-21.0	ERSC	9/18/2008	(21.0)	µg/L	--	<300	150	--	--	--	--	--	--	1.6	<0.5	--	--	--
EB6-W-21.0	ERSC	9/18/2008	(21.0)	µg/L	--	<300	73	--	15000*	<83	<83	<83	<83	**11000.0**	<83	--	--	--
EB7-W-15.5	ERSC	9/18/2008	(15.5)	µg/L	--	1,600	1,400	--	<50	<0.5	<0.5	<0.5	<0.5	7.1	4.3	--	--	--
EB8-W-8.5	ERSC	9/18/2008	(8.5)	µg/L	--	650	3,100	--	460	<0.5	<0.5	5.0	1.3	<0.5	<0.5	--	--	--
EB9-W-15.5	ERSC	9/18/2008	(15.5)	µg/L	--	<300	51	--	--	--	--	--	--	2.1	<0.5	--	--	--
RB-1	Roux	3/27/2015	--	µg/L	--	273	294	--	7200[d]	--	--	--	<46	**4220.0**	121	<20	<400	163
RB-2	Roux	3/27/2015	--	µg/L	--	234	264	--	<25	--	--	--	<0.46	<0.30	<0.20	<0.20	<4.0	<0.20
RB-3	Roux	3/27/2015	--	µg/L	--	187 J	320	--	19500[d]	--	--	--	<120	**11500.0**	**252**	**56.4 J**	<1000	396
RB-4	Roux	3/27/2015	--	µg/L	--	80.8 J	79.8 J	--	<25	--	--	--	0.86 J	<0.30	<0.20	<0.20	6.0 J	<0.20
RB-5	Roux	3/27/2015	--	µg/L	--	110 J	164	--	924[d]	--	--	--	<4.6	**499.0**	35.1	**4.6 J**	<40	48.6

Notes:

(--): Results were not analyzed or unavailable

???: Laboratory analytical results could not be interpreted

* Result flagged by the laboratory as primarily due to single spike and not resembling TPHg

TPH-HO: Total Petroleum Hydrocarbons as Hydaulic Oil, PCE: Tetrachloroethylene, TCE: Trichloroethylene, VC: Vinyl Chloride

j = Estimated value

d = Atypical pattern; value primarily due to a single peak(s).

<x.xx = Concentration not detected above x.xx reporting limit

Concentration exceeds environmental screening level (ESL)

Volatile Organic Compounds (VOCs) and TPHg by EPA Method 8260

TPHd and TPHmo by EPA Method 8015

Table 3. Historical Analytical Data for Soil Vapor
2868 Hannah Street, Oakland, California

Sample ID	Consultant	Sample Date	Sample Depth (feet)	Units	TEPH	TPH-MO	TPH-D	TPH-HO	TPH-G	Benzene	Toluene	Ethylbenzene	Xylenes	PCE	TCE	VC
ESL Table E-2 - Soil Vapor Screening Levels for Evaluation of Potential Vapor Intrusion Concerns - Residential				$\mu g/m^3$	--	--	--	--	--	**42**	**160,000**	**490**	**52,000**	**210**	**300**	**16**
B-5SV	Enrest	5/25/2005	3.5	$\mu g/m^3$	--	--	--	--	--	5	33	9.1	52	<7.3	<5.8	<4.4
B-1SV	Enrest	5/25/2005	3.5	$\mu g/m^3$	--	--	--	--	--	<3.6	30	6.9	36	<7.8	<6.2	6.2

Notes:
(--): Results were not analyzed or unavailable

Table 4. Grab Groundwater Results for Phase II Investigation
2868 Hannah Street, Oakland, California

Boring ID	Date	Acetone	cis-1,2-Dichloroethylene (cis-1,2-DCE)	Tetrachloroethylene (PCE)	Trichloroethylene (TCE)	Vinyl chloride	Xylene (total)	Other VOCs	Total Petroleum Hydrocarbons as Gasoline (TPHg)	Total Petroleum Hydrocarbons as Diesel (TPHd)	Total Petroleum Hydrocarbons as Motor Oil (TPHmo)
		micrograms per liter (µg/L)									
RB-1	**3/27/2015**	<400	**163**	**4,220**	**121**	<20	<46	ND	**7200[d]**	**294**	**273**
RB-2	**3/27/2015**	<4.0	<0.20	<0.30	<0.20	<0.20	<0.46	ND	<25	**264**	**234**
RB-3	**3/27/2015**	<1000	**396**	**11,500**	**252**	**56.4 J**	<120	ND	**19500[d]**	**320**	**187 J**
RB-4	**3/27/2015**	**6.0 J**	<0.20	<0.30	<0.20	<0.20	**0.86 J**	ND	<25	**79.8 J**	**80.8 J**
RB-5	**3/27/2015**	<40	**48.6**	**499**	**35.1**	**4.6 J**	<4.6	ND	**924[d]**	**164**	**110 J**
ESLs											
Table E-1	**Groundwater Screening Levels for Evaluation of Potential Vapor Intrusion (Residential)**	130,000,000	3,100	63	130	2	37,000	NA	No Value	No Value	No Value
Table E-1	**Groundwater Screening Levels for Evaluation of Potential Vapor Intrusion (Commercial)**	Sample Soil Gas	26,000	640	1,300	18	Sample Soil Gas	NA	No Value	No Value	No Value

Notes:

j = Estimated value

d = Atypical pattern; value primarily due to a single peak(s).

<x.xx = Concentration not detected above x.xx reporting limit

Concentration exceeds environmental screening level (ESL)

Volatile Organic Compounds (VOCs) and TPHg by EPA Method 8260

TPHd and TPHmo by EPA Method 8015

Table 5. Soil Results for Phase II Investigation
2868 Hannah Street, Oakland, California

Client Sample ID:	Depth	Date Sampled:	Acetone	cis-1,2-Dichloroethylene (cis-1,2-DCE)	trans-1,2-Dichloroethylene	Tetrachloroethylene (PCE)	Trichloroethylene (TCE)	Vinyl chloride	Other VOCs	Total Petroleum Hydrocarbons as Gasoline (TPHg)	Total Petroleum Hydrocarbons as Diesel (TPHd)	Total Petroleum Hydrocarbons as Motor Oil (TPHmo)	Moisture, Percent
			micrograms per kilogram (µg/kg)										%
RB-1	**5**	**3/27/2015**	<10	<1.2	<0.52	**559**	**4.8 J**	<1.0	ND	**503** [c]	**1,810 J**	**15,100 J**	18.2
RB-1	**10**	**3/27/2015**	<10	**46.1**	**1.7 J**	**2,640**	**46.9**	**1.3 J**	ND	**2,340 E** [a]	**1,170 J**	**6,910 J**	20.3
RB-1	**15**	**3/27/2015**	<10	**45.1**	**5.1 J**	**3,270**	**42.4**	**7.2**	ND	**2,690 E** [b]	**1,158 J**	**2,650 J**	19.8
RB-1	**20**	**3/27/2015**	<650	<72	<33	**4,050**	<33	<65	ND	**7,040** [c]	**1,260 J**	**2.510 J**	21.7
RB-2	**5**	**3/27/2015**	<11	<1.2	<0.57	<0.68	<0.57	<1.1	ND	<57	<990	<2000	15.7
RB-2	**10**	**3/27/2015**	<10	<1.2	<0.52	<0.63	<0.52	<1.0	ND	<52	<1000	<2100	20.1
RB-2	**15**	**3/27/2015**	<12	<1.3	<0.60	<0.72	<0.60	<1.2	ND	<60	**1,270 J**	<2100	20.2
RB-2	**20**	**3/27/2015**	<11	<1.2	<0.56	<0.67	<0.56	<1.1	ND	<56	**1,050 J**	<2100	19.4
RB-3	**5**	**3/27/2015**	<610	<67	<31	**1,140**	<31	<61	ND	**4,150 J** [c]	<1000	<2000	18.4
RB-3	**10**	**3/27/2015**	<2,200	**243 J**	<110	**9,640**	**116 J**	<220	ND	**16,900 J** [c]	**1,140 J**	<2000	14.7
RB-3	**15**	**3/27/2015**	<2,300	**325 J**	<120	**11,800**	**213 J**	<230	ND	**22,300 J** [c]	**1,280 J**	<2100	20.2
RB-3	**20**	**3/27/2015**	<1,100	<130	<57	**6,300**	**69.9 J**	<110	ND	**12,800** [c]	<1100	<2100	21.9
RB-4	**5**	**3/27/2015**	<11	<1.2	<0.55	<0.67	<0.55	<1.1	ND	<55	**1,860 J**	**5,050 J**	19.1
RB-4	**10**	**3/27/2015**	<9.7	<1.1	<0.48	<0.58	<0.48	<0.97	ND	<48	<1000	<2000	17.6
RB-4	**15**	**3/27/2015**	<12	<1.3	<0.59	<0.70	<0.59	<1.2	ND	<59	**1,210 J**	<2100	19.7
RB-4	**20**	**3/27/2015**	<10	<1.1	<0.51	<0.62	<0.51	<1.0	ND	**52.1 J**	<1000	<2100	19.9
RB-5	**5**	**3/27/2015**	**15.9 J**	<1.2	<0.56	<0.67	<0.56	**3.1 J**	ND	**59.8 J**	**2640 J**	**3900 J**	20.7
RB-5	**10**	**3/27/2015**	<9.5	**80.7**	**3.7 J**	**1,110**	**89.2**	**11.9**	ND	**3,690 J** [c]	**1400 J**	<2100	21.6
RB-5	**15**	**3/27/2015**	<9.3	**17.9**	**1.2 J**	**209 J**	**13**	**3.8 J**	ND	**316** [c]	**1530 J**	<2000	19.5
RB-5	**20**	**3/27/2015**	<9.6	**2.3 J**	<0.48	**114**	**2.2 J**	<0.96	ND	**164** [c]	**1160 J**	<2000	19.6
ESLs													
Table A-1	**Shallow Soil Screening Levels- Residential Land Use (Groundwater is a current or potential drinking water resource)**		0.5	190	670	550	460	32	NA	100,000	100,000	100,000	NA
Table A-2	**Shallow Soil Screening Levels- Commercial Land Use (Groundwater is a current or potential drinking water resource)**		0.5	190	760	700	460	85	NA	500,000	110,000	500,000	NA

Notes:

j = Estimated value

E = value exceeds calibration range

a = Result reported as an estimated value from low-level run (exceeded calibration range). Compound was < RL in methanol extract run due to dilution for a single peak (Tetrachloroethene).

b = Result reported as an estimated value from low-level run (exceeded calibration range). Compound was < RL in methanol due to dilution for a single peak (Tetrachloroethene).

c = Atypical pattern; value primarily due to a single peak(s).

<x.xx = Concentration not detected above x.xx reporting limit

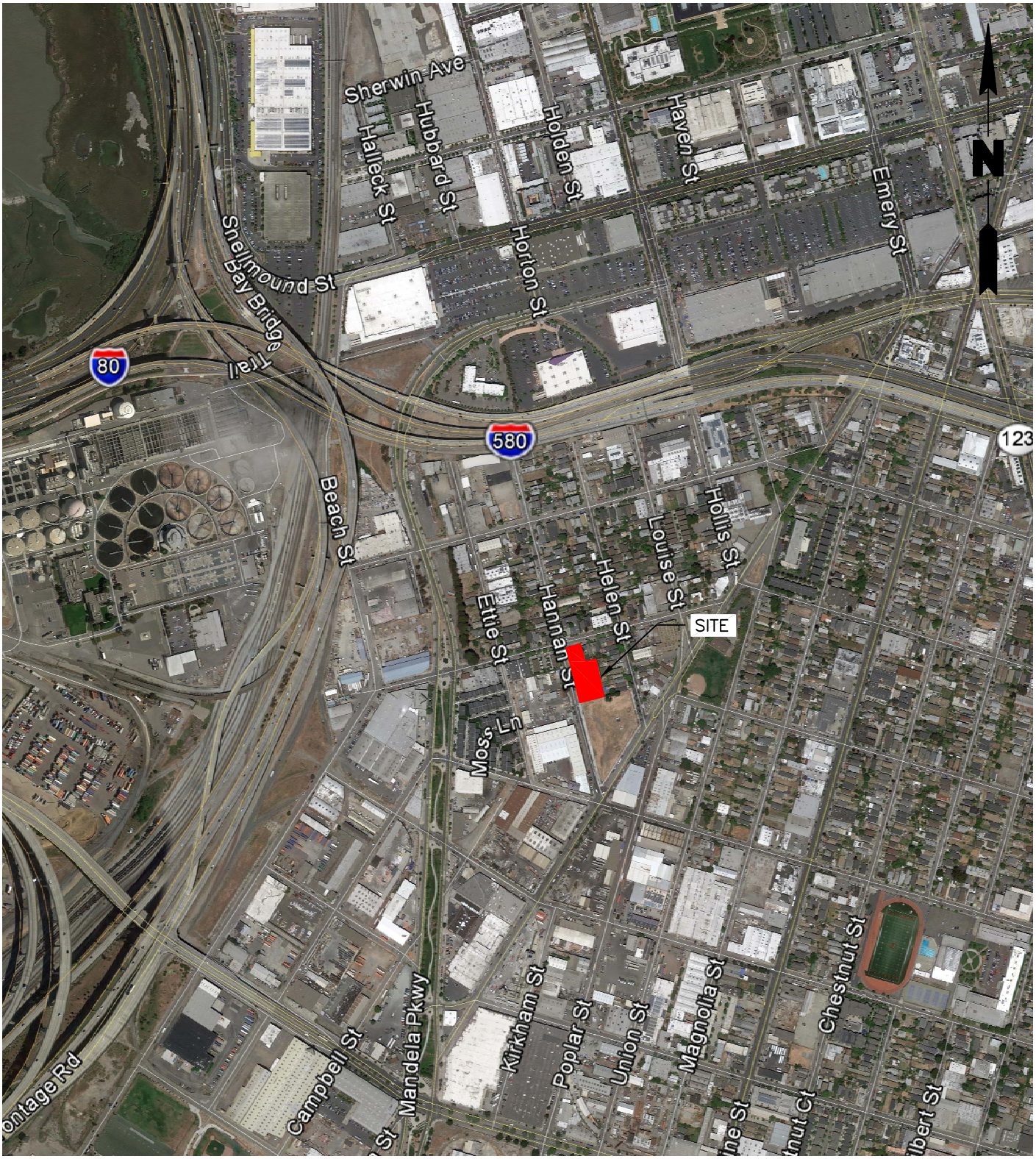
Concentration exceeds environmental screening level (ESL)

Volatile Organic Compounds (VOCs) and TPHg by EPA Method 8260

TPHd and TPHmo by EPA Method 8015

FIGURES

1. Site Location Map
2. Site Map
3. Previous Remedial Activities
4. Conceptual Site Model
5. Phase II Investigation Distribution of PCE and TCE in Groundwater
6. Phase II Investigation Distribution of PCE and TCE in Soil
7. Groundwater Monitoring Wells and Supplemental Soil Borings
8. Soil Excavation Site Plan
9. Soil Excavation Details
10. Soil Aeration and Erosion Control Plan
11. Preliminary Schedule



LEGEND

SITE LOCATION

750' 0 750'

Title:

SITE LOCATION MAP

2868 HANNAH STREET
OAKLAND, CALIFORNIA

Prepared For:

2868 HANNAH STREET, LLC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: NR	Date: 31JUL15	FIGURE
Prepared by: NR	Scale: AS SHOWN	
Project Mgr: DG	Project: 2463.0003S000	1
File: 2463.0003S103.01.DWG		

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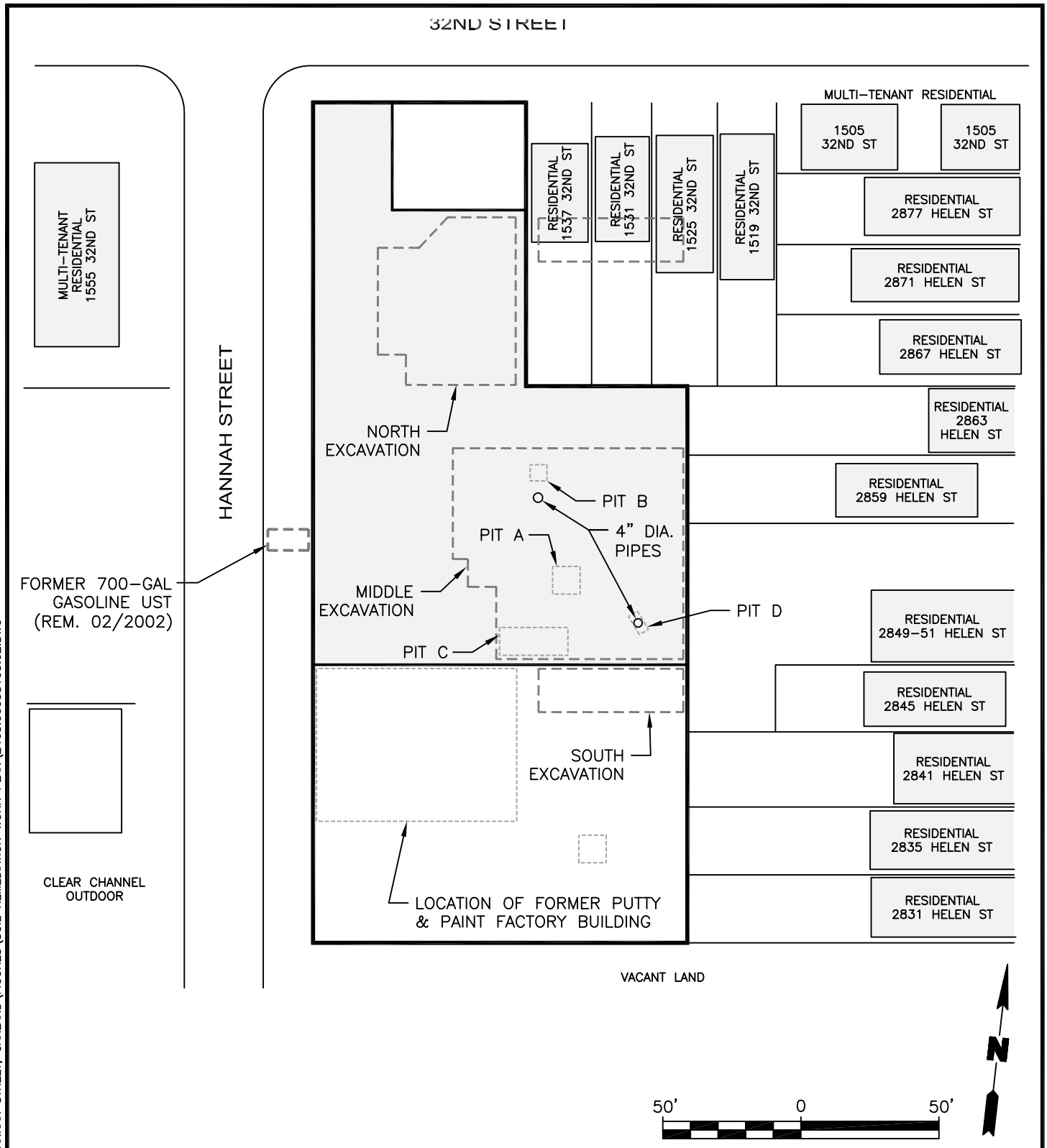

Title:

SITE MAP

2868 HANNAH STREET
OAKLAND CALIFORNIA

Prepared For:

2868 HANNAH STREET, LLC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: D.F.	Date: 14AUG15	FIGURE
Prepared by: N.R.	Scale: AS SHOWN	2
Project Mgr: A.C.	Project: 2463.0003S000	
File: 2463.0003S103.02.DWG		

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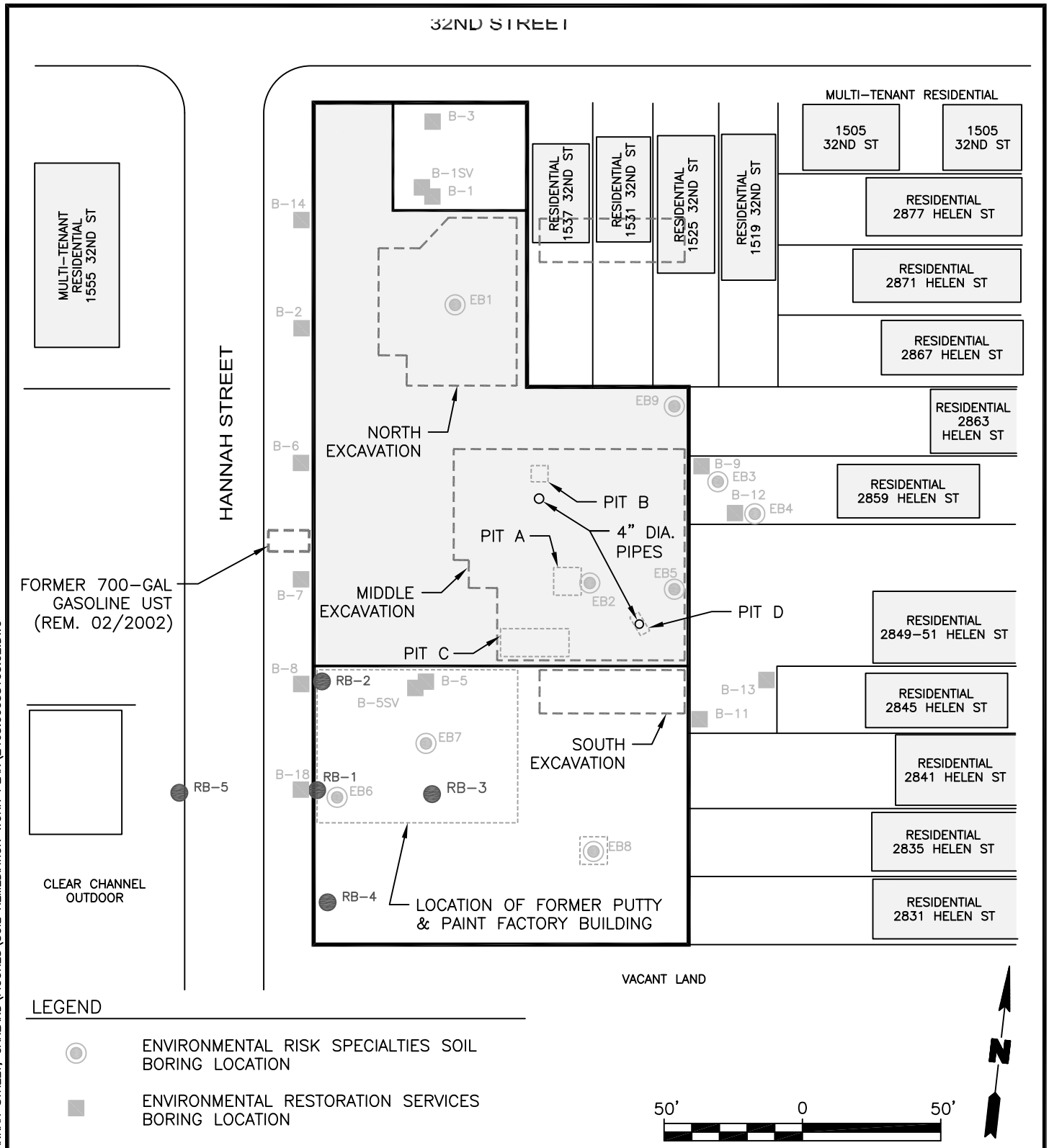

Title:

PREVIOUS REMEDIAL ACTIVITIES

2868 HANNAH STREET
OAKLAND CALIFORNIA

Prepared For:

2868 HANNAH STREET, LLC

ROUX ASSOCIATES, INC. *Environmental Consulting & Management*	Compiled by: D.F.	Date: 14AUG15	FIGURE 3
	Prepared by: N.R.	Scale: AS SHOWN	
	Project Mgr: A.C.	Project: 2463.0003S000	
	File: 2463.0003S103.02.DWG		

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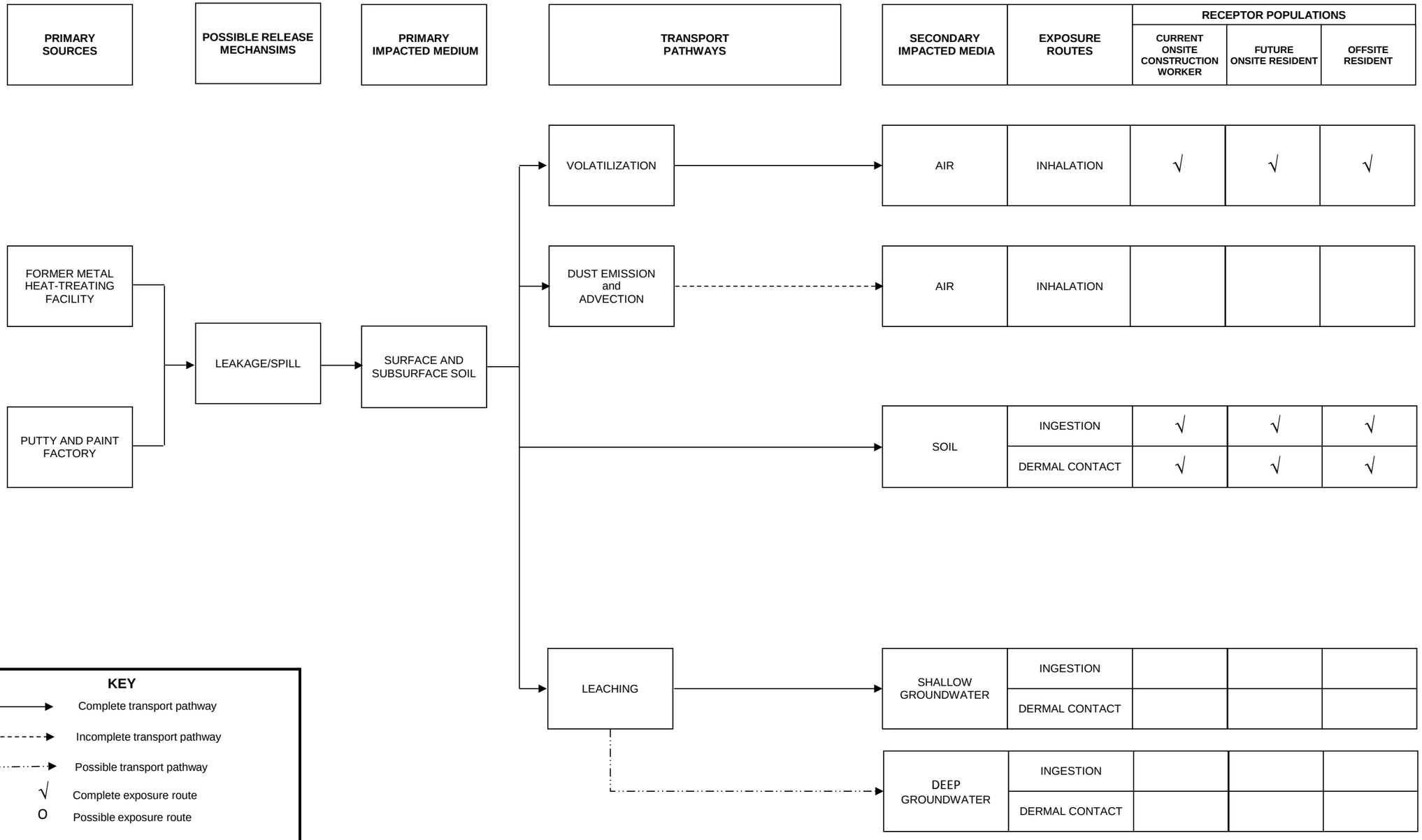


KEY

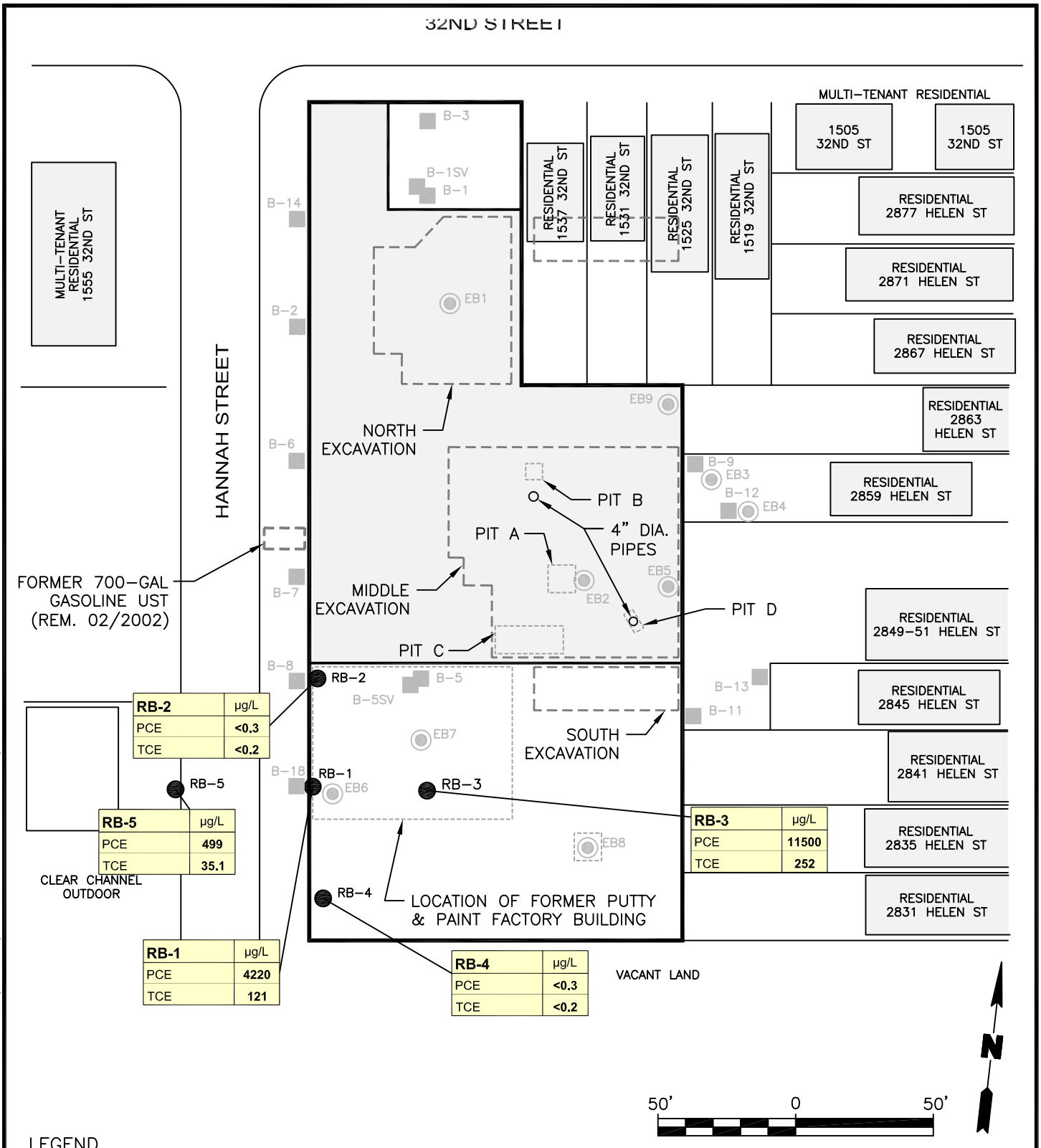
- Complete transport pathway
- Incomplete transport pathway
- Possible transport pathway
- √ Complete exposure route
- o Possible exposure route

ROUX ASSOCIATES, INC.
Environmental Consulting & Management
555 12th Street, Suite 1725
Oakland, California 94607

Conceptual Site Model

2868 Hannah Street
Oakland, California

Figure
4



LEGEND

- ENVIRONMENTAL RISK SPECIALTIES SOIL BORING LOCATION
- ENVIRONMENTAL RESTORATION SERVICES BORING LOCATION
- ROUX PHASE II SOIL BORING LOCATION

Title:

PHASE II INVESTIGATION DISTRIBUTION OF PCE AND TCE IN GROUNDWATER

2868 HANNAH STREET
OAKLAND CALIFORNIA

Prepared For:

2868 HANNAH STREET, LLC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: D.F.	Date: 07AUG15	FIGURE
Prepared by: N.R.	Scale: AS SHOWN	5
Project Mgr: A.C.	Project: 2463.0003S000	
File: 2463.0003S103.05.DWG		

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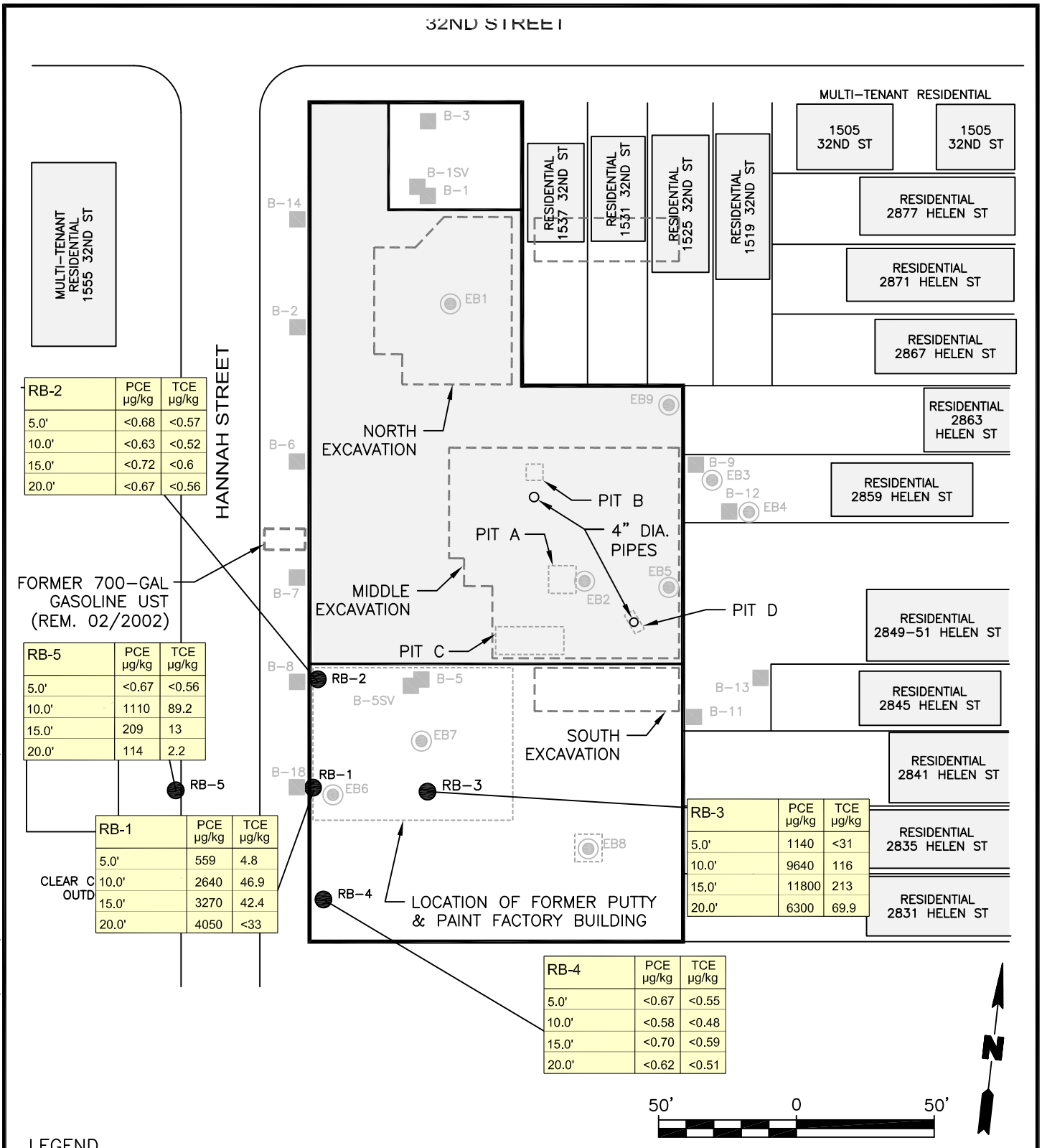

RB-2	PCE µg/kg	TCE µg/kg
5.0'	<0.68	<0.57
10.0'	<0.63	<0.52
15.0'	<0.72	<0.6
20.0'	<0.67	<0.56

RB-5	PCE µg/kg	TCE µg/kg
5.0'	<0.67	<0.56
10.0'	1110	89.2
15.0'	209	13
20.0'	114	2.2

RB-1	PCE µg/kg	TCE µg/kg
5.0'	559	4.8
10.0'	2640	46.9
15.0'	3270	42.4
20.0'	4050	<33

RB-3	PCE µg/kg	TCE µg/kg
5.0'	1140	<31
10.0'	9640	116
15.0'	11800	213
20.0'	6300	69.9

RB-4	PCE µg/kg	TCE µg/kg
5.0'	<0.67	<0.55
10.0'	<0.58	<0.48
15.0'	<0.70	<0.59
20.0'	<0.62	<0.51

LEGEND

- ENVIRONMENTAL RISK SPECIALTIES SOIL BORING LOCATION
- ENVIRONMENTAL RESTORATION SERVICES BORING LOCATION
- ROUX PHASE II SOIL BORING LOCATION

Title:

PHASE II INVESTIGATION DISTRIBUTION OF PCE AND TCE IN SOIL

2868 HANNAH STREET
OAKLAND CALIFORNIA

Prepared For:

2868 HANNAH STREET, LLC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: D.F.	Date: 07AUG15	FIGURE
Prepared by: N.R.	Scale: AS SHOWN	6
Project Mgr: A.C.	Project: 2463.0003S000	
File: 2463.0003S103.05.DWG		

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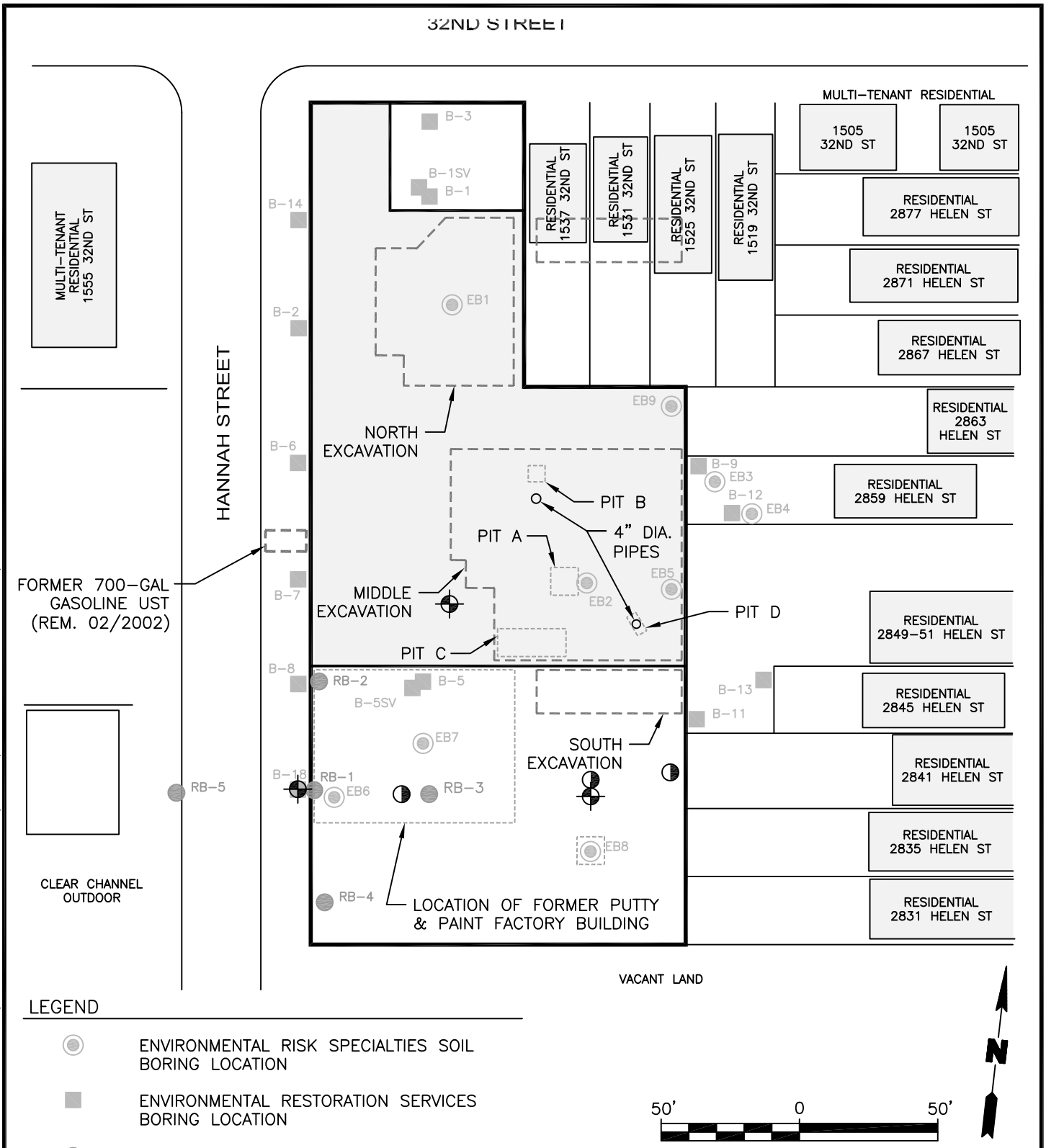

Title:

GROUNDWATER MONITORING WELLS AND SUPPLEMENTAL SOIL BORINGS

2868 HANNAH STREET
OAKLAND CALIFORNIA

Prepared For:

2868 HANNAH STREET, LLC

ROUX ASSOCIATES, INC. *Environmental Consulting & Management*	Compiled by: D.F.	Date: 18AUG15	FIGURE 7
	Prepared by: N.R.	Scale: AS SHOWN	
	Project Mgr: A.C.	Project: 2463.0003S000	
	File: 2463.0003S103.02.DWG		

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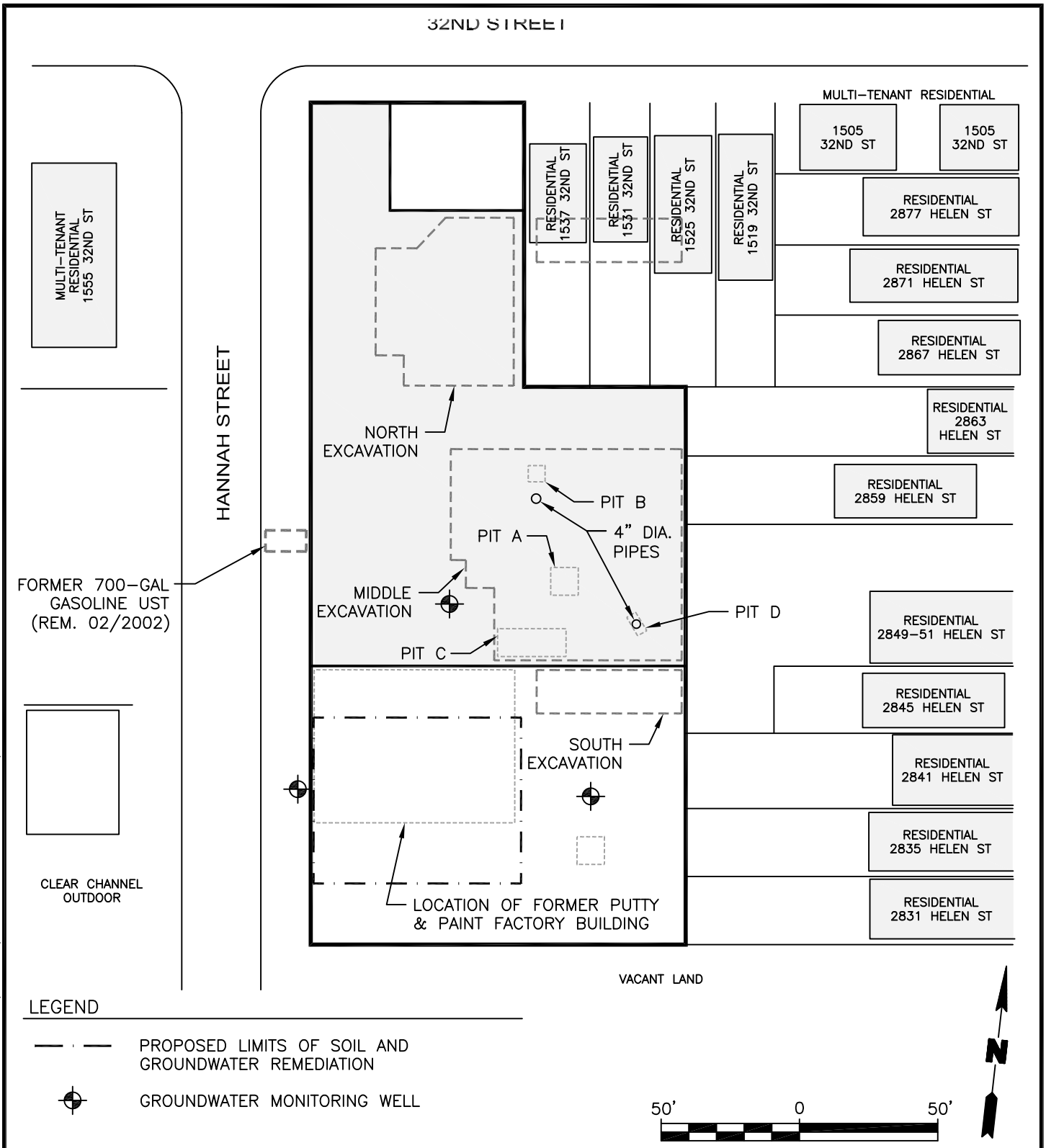


Title:

SOIL EXCAVATION SITE PLAN

2868 HANNAH STREET
OAKLAND CALIFORNIA

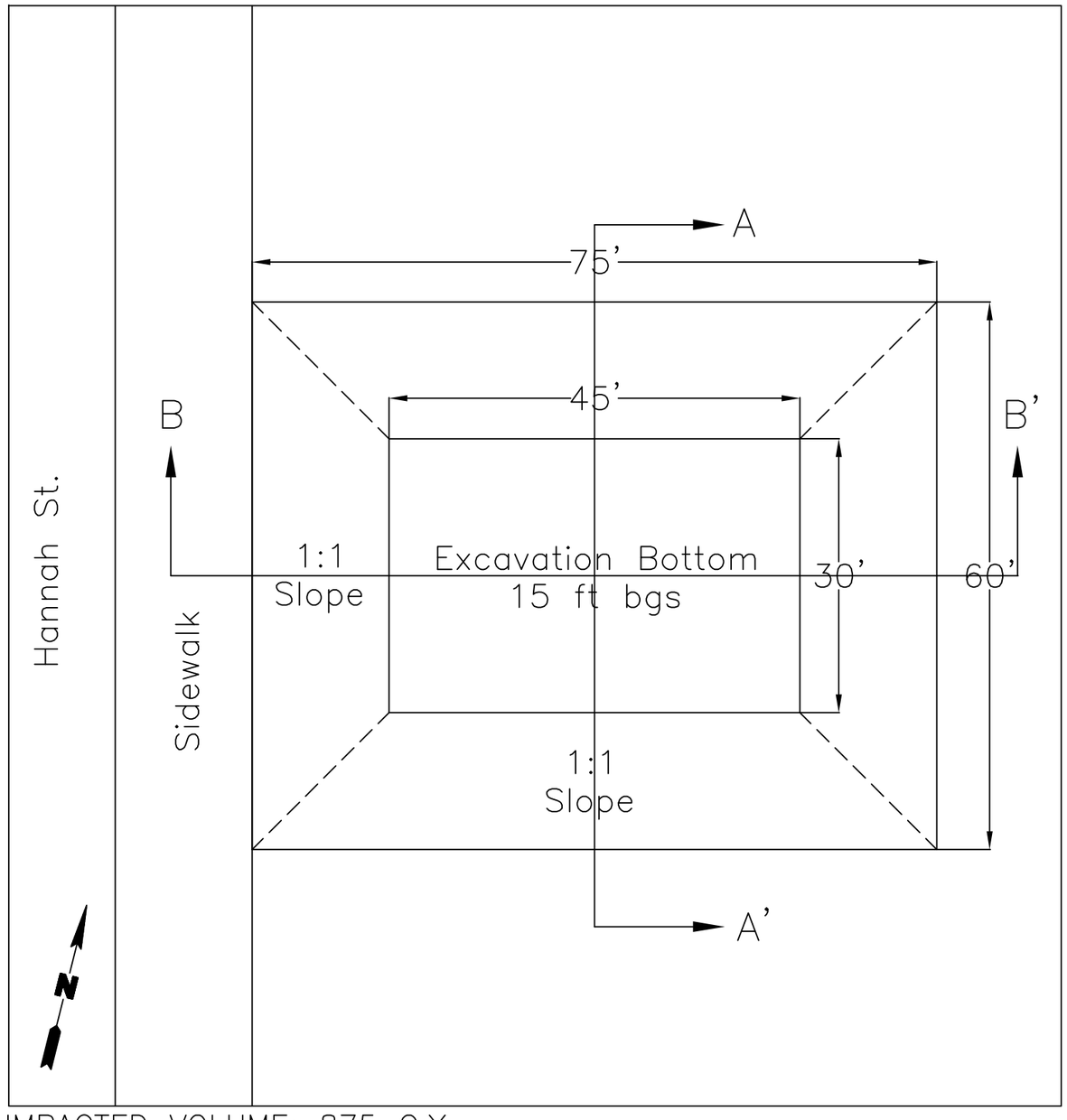
Prepared For:

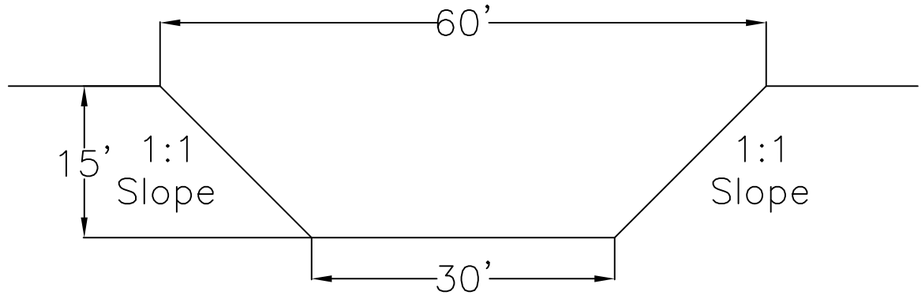
2868 HANNAH STREET, LLC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: D.F.	Date: 14AUG15	FIGURE
Prepared by: N.R.	Scale: AS SHOWN	8
Project Mgr: A.C.	Project: 2463.0003S000	
File: 2463.0003S103.02.DWG		

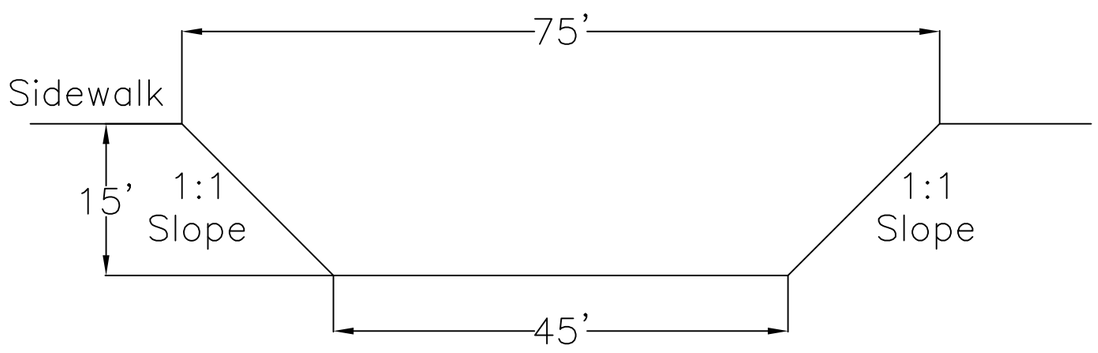
O:\CLIENTS\MADISON PARK FINANCIAL\2868 HANNAH STREET, OAKLAND\FIGURES\SOIL REMEDIATION WORK PLAN\2463.0003S103.02.DWG





1 SECTION A–A’

SCALE: 1”=15’



2 SECTION B–B’

SCALE: 1”=15’

IMPACTED VOLUME: 875 C.Y.
UNIMPACTED VOLUME: 750 C.Y.

15’ 0 15’

North, South, and East boundaries may extend based on confirmation sampling results

Title: **SOIL EXCAVATION DETAILS**

2868 HANNAH STREET
OAKLAND, CALIFORNIA

Prepared For:
2868 HANNAH STREET, LLC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: DRF	Date: 14AUG15	FIGURE
Prepared by: NR	Scale: AS SHOWN	9
Project Mgr: DG	Project: 2463.0003S002	
File: 2463.0003S103.03.DWG		

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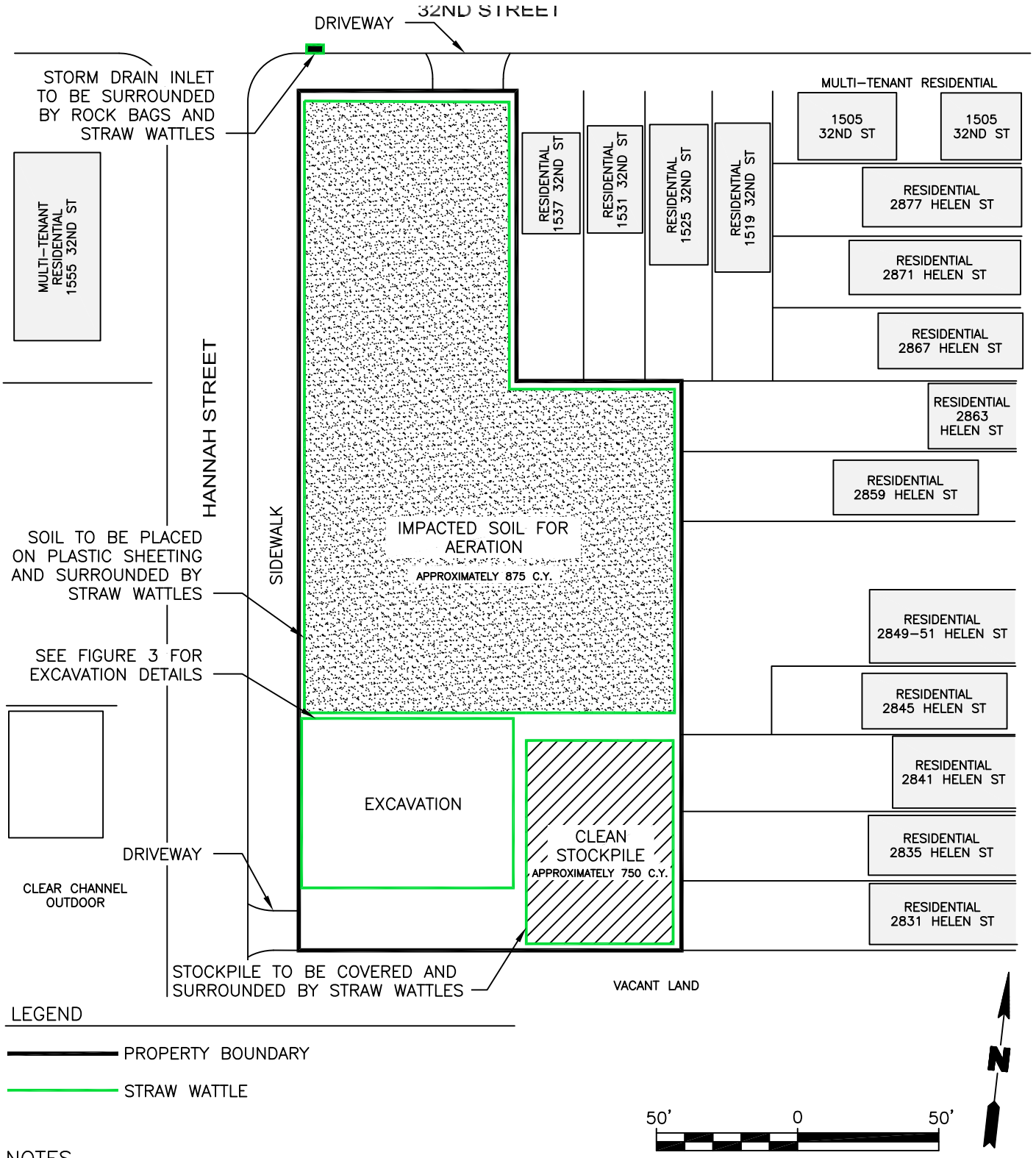


NOTES

1. EXCAVATION WILL REMAIN COVERED AND SURROUNDED BY STRAW WATTLES DURING AERATION.
2. STORM DRAIN INLET TO BE PROTECTED IN ACCORDANCE WITH CALTRANS CONSTRUCTION BMP MANUAL DETAIL SC-10.
3. EXCAVATION AND STOCKPILES WILL BE PROTECTED IN ACCORDANCE WITH CALTRANS CONSTRUCTION BMP MANUAL DETAILS SS-07 AND WM-03, RESPECTIVELY.
4. HOURS OF OPERATION: 7:00 AM – 5:30 PM.

Title:

SOIL AERATION AND EROSION CONTROL PLAN

2868 HANNAH STREET
OAKLAND, CALIFORNIA

Prepared For:

2868 HANNAH ST., LLC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

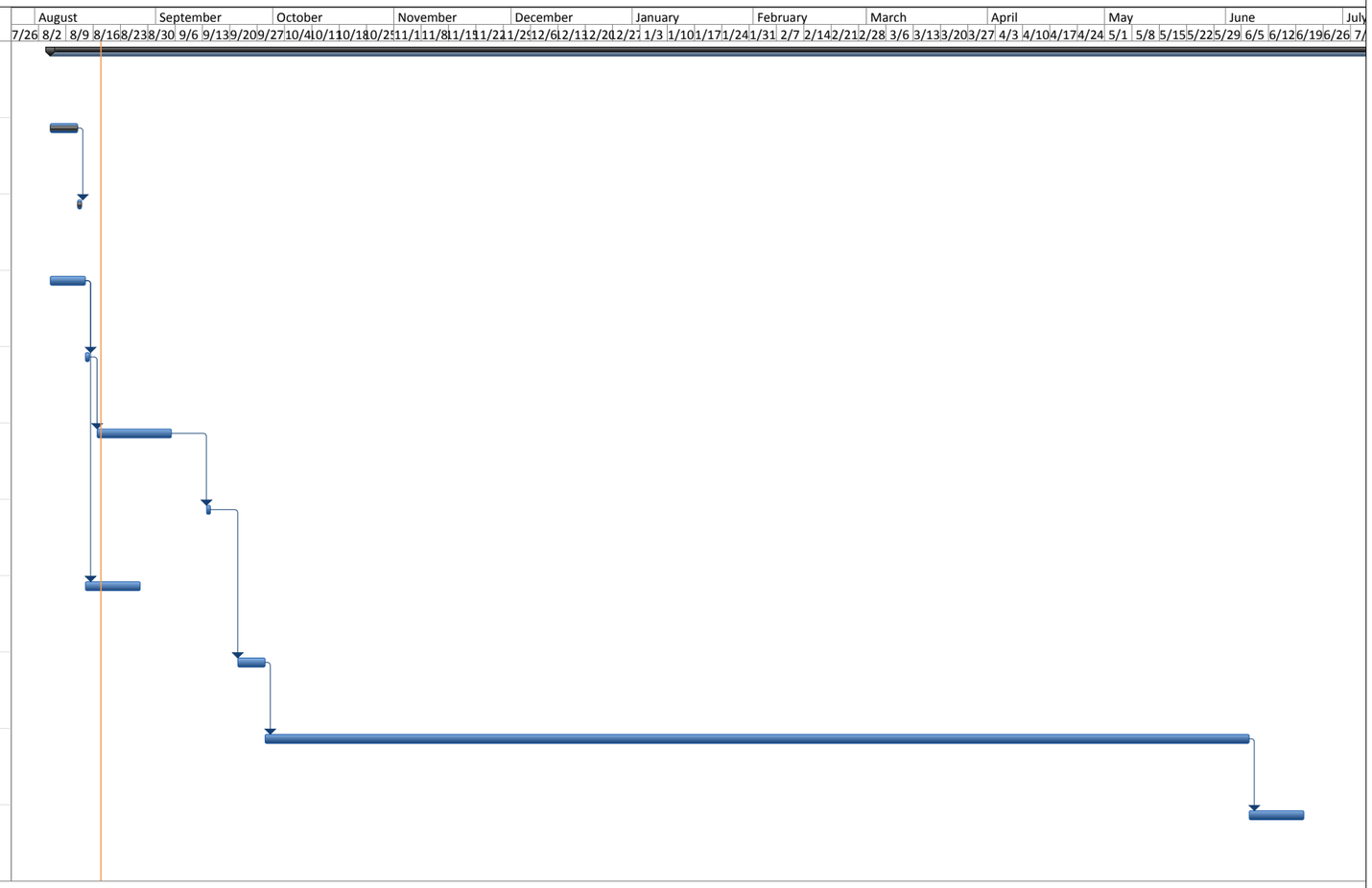
Compiled by: N.R.	Date: 14AUG15
Prepared by: N.R.	Scale: AS SHOWN
Project Mgr: A.C.	Project: 2463.0003S000
File: 2463.0003S103.04.DWG	

FIGURE 10

0:\CLIENTS\MADISON PARK FINANCIAL\2868 HANNAH STREET, OAKLAND\FIGURES\SOIL REMEDIATION WORK PLAN\2463.0003S103.04.DWG

Draft Remediation Schedule (Augst 10, 2015)

ID		% Complete	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names
1		**3%**		**2868 Hannah Street Remediation Soil Remediation**	**264 days**	**Wed 8/5/15**	**Mon 8/8/16**		
2	✓	100%		Prepare Application for City of Oakland Grading Permit	5 days	Wed 8/5/15	Tue 8/11/15		
3	✓	100%		Submit Grading Permit Application	1 day	Wed 8/12/15	Wed 8/12/15	2FS+1 day	
4		0%		Prepare Excavation Work Plan	7 days	Wed 8/5/15	Thu 8/13/15		
5		0%		Submit Excavation Work Plan	1 day	Fri 8/14/15	Fri 8/14/15	4	
6		0%		ACEH Review and Approval of Excavation Work Plan	15 days	Mon 8/17/15	Fri 9/4/15	5	
7		0%		Receive Grading Permit	1 day	Mon 9/14/15	Mon 9/14/15	6FS+5 days	
8		0%		Prepare BAAQMD Permit Application for Aeration	10 days	Fri 8/14/15	Thu 8/27/15	4	
9		0%		Soil Excavation	1 wk	Tue 9/22/15	Mon 9/28/15	7FS+5 days	
10		0%		Soil Aeration	9 mons	Tue 9/29/15	Mon 6/6/16	9	
11		0%		Excavation Backfilling and Compaction	10 days	Tue 6/7/16	Mon 6/20/16	10	

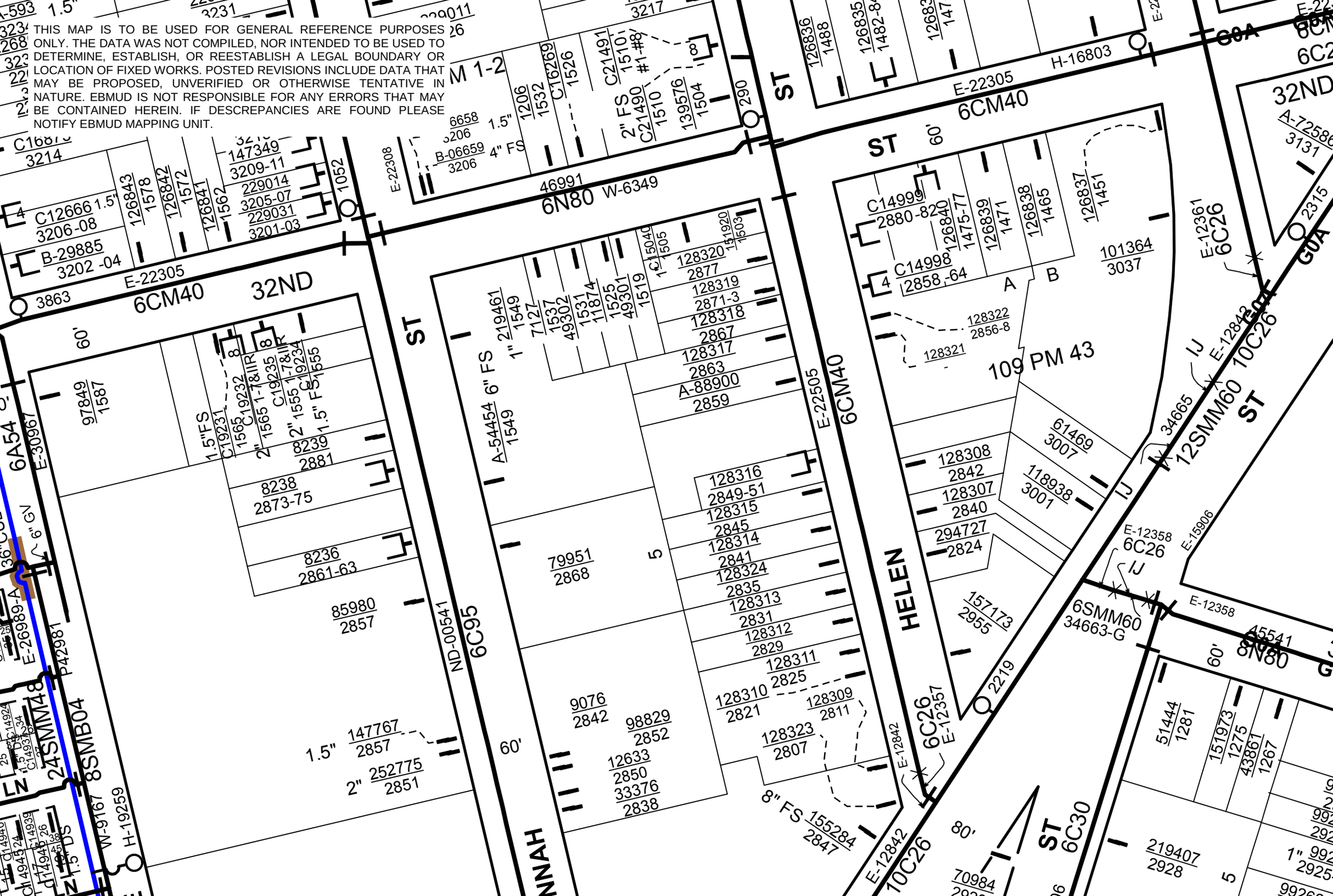


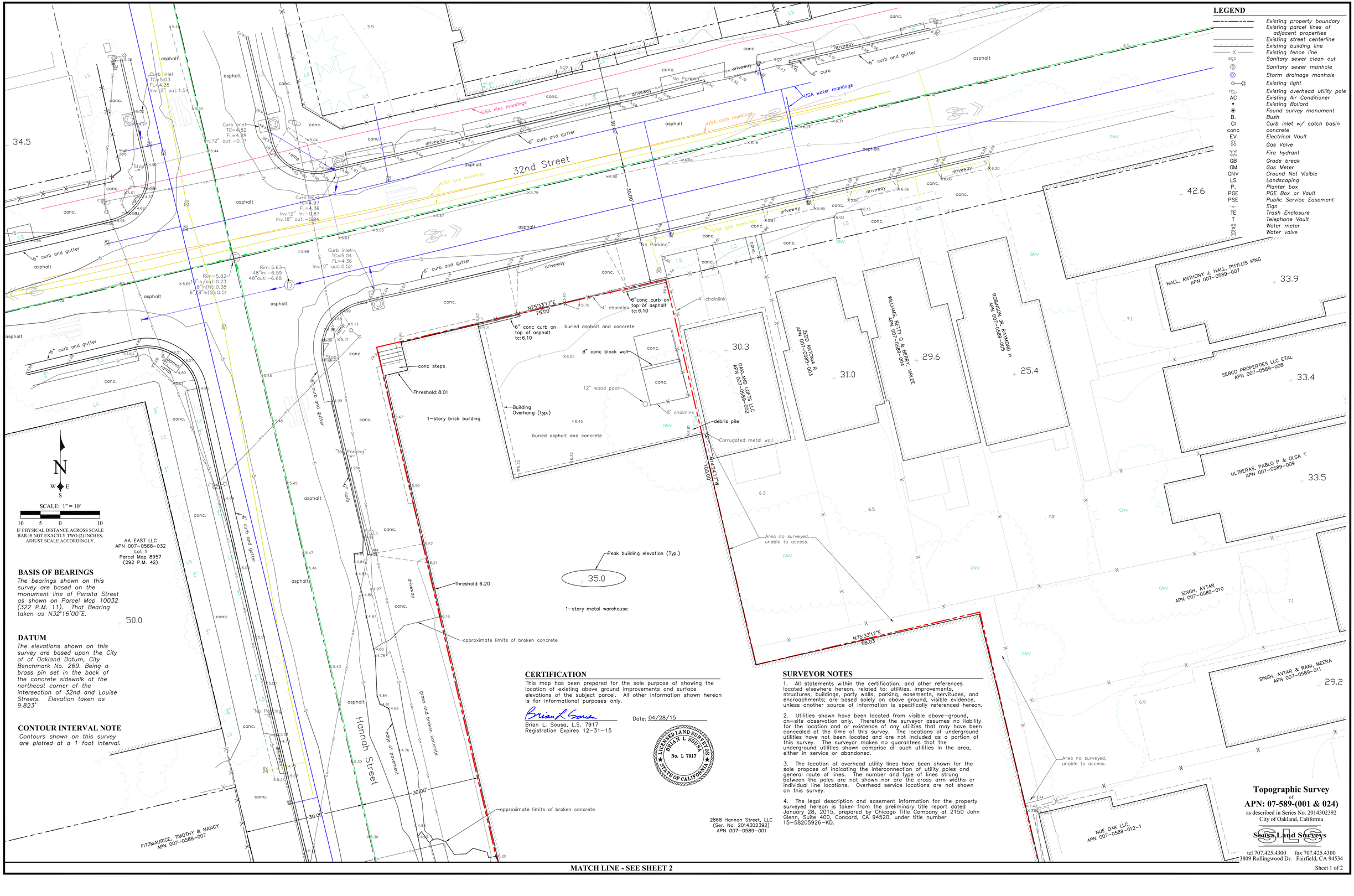
Project: 2868 Hannah Street Remediation Schedule
Date: 5/1/15

Task	Summary	External Milestone	Inactive Summary	Manual Summary Rollup	Finish-only
Split	Project Summary	Inactive Task	Manual Task	Manual Summary	Deadline
Milestone	External Tasks	Inactive Milestone	Duration-only	Start-only	Progress

APPENDICES

Utility Site Maps





BASIS OF BEARINGS

The bearings shown on this survey are based on the monument line of Peralta Street as shown on Parcel Map 10032 (322 P.M. 11). That Bearing taken as N32°16'00"E.

DATUM

The elevations shown on this survey are based upon the City of of Oakland Datum, City Benchmark No. 269. Being a brass pin set in the back of the concrete sidewalk at the northeast corner of the intersection of 32nd and Louise Streets. Elevation taken as 9.823'

CONTOUR INTERVAL NOTE

Contours shown on this survey are plotted at a 1 foot interval.

CERTIFICATION

This map has been prepared for the sole purpose of showing the location of existing above ground improvements and surface elevations of the subject parcel. All other information shown hereon is for informational purposes only.

Brian L. Sousa, L.S. 7917
Registration Expires 12-31-15

Date: 04/28/15

LICENSED LAND SURVEYOR BRIAN L SOUSA No. L 7917 STATE OF CALIFORNIA

SURVEYOR NOTES

1. All statements within the certification, and other references located elsewhere hereon, related to: utilities, improvements, structures, buildings, party walls, parking, easements, servitudes, and encroachments; are based solely on above ground, visible evidence, unless another source of information is specifically referenced hereon.

2. Utilities shown have been located from visible above-ground, on-site observation only. Therefore the surveyor assumes no liability for the location and or existence of any utilities that may have been concealed at the time of this survey. The locations of underground utilities have not been located and are not included as a portion of this survey. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities in the area, either in service or abandoned.

3. The location of overhead utility lines have been shown for the sole propose of indicating the interconnection of utility poles and general route of lines. The number and type of lines strung between the poles are not shown nor are the cross arm widths or individual line locations. Overhead service locations are not shown on this survey.

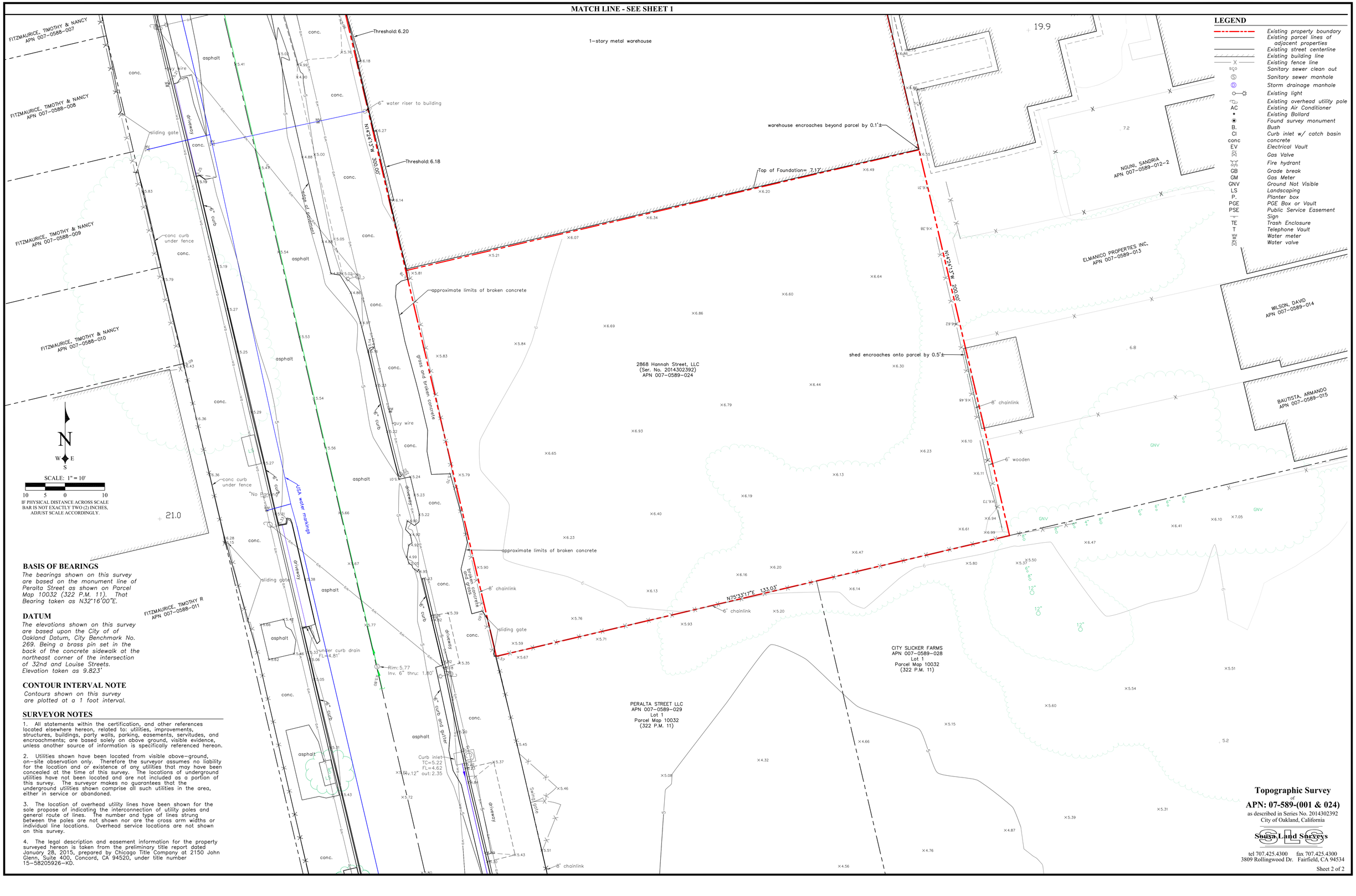
4. The legal description and easement information for the property surveyed hereon is taken from the preliminary title report dated January 28, 2015, prepared by Chicago Title Company at 2150 John Glenn, Suite 400, Concord, CA 94520, under title number 15-58205926-KD.

Topographic Survey
of
APN: 07-589-(001 & 024)
as described in Series No. 2014302392
City of Oakland, California

Sousa Land Surveys
tel 707.425.4300 fax 707.425.4300
3809 Rollingwood Dr. Fairfield, CA 94534

MATCH LINE - SEE SHEET 2

MATCH LINE - SEE SHEET 1



LEGEND

- Existing property boundary
- Existing parcel lines of adjacent properties
- Existing street centerline
- Existing building line
- Existing fence line
- SSCO Sanitary sewer clean out
- (S) Sanitary sewer manhole
- (D) Storm drainage manhole
- Existing light
- Existing overhead utility pole
- AC Existing Air Conditioner
- Existing Bollard
- Found survey monument
- B. Bush
- CI Curb inlet w/ catch basin
- conc concrete
- EV Electrical Vault
- GV Gas Valve
- FH Fire hydrant
- GB Grade break
- GM Gas Meter
- GNV Ground Not Visible
- LS Landscaping
- P. Planter box
- PGE PGE Box or Vault
- PSE Public Service Easement
- Sign
- TE Trash Enclosure
- T Telephone Vault
- WM Water meter
- WV Water valve

BASIS OF BEARINGS

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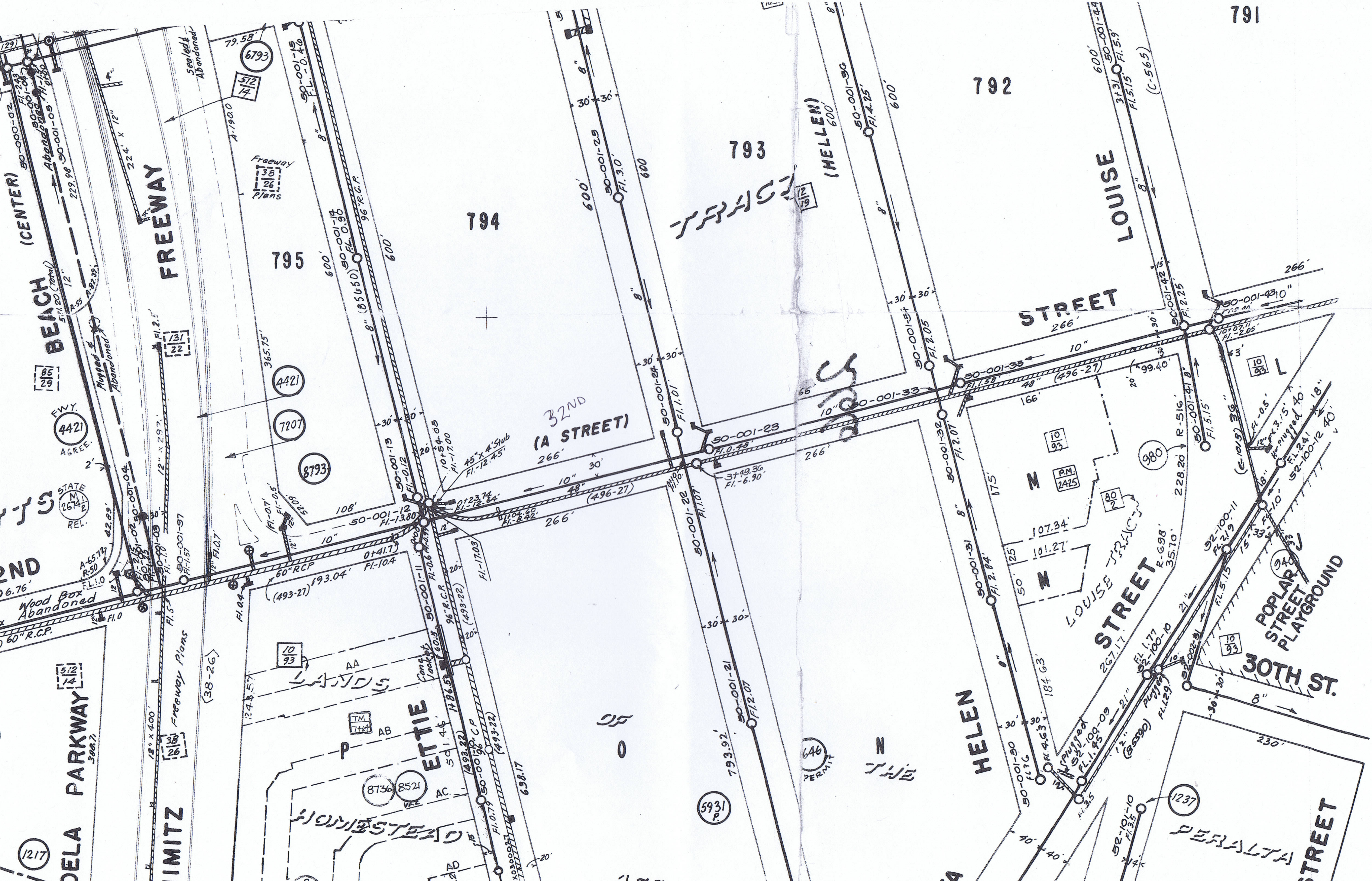
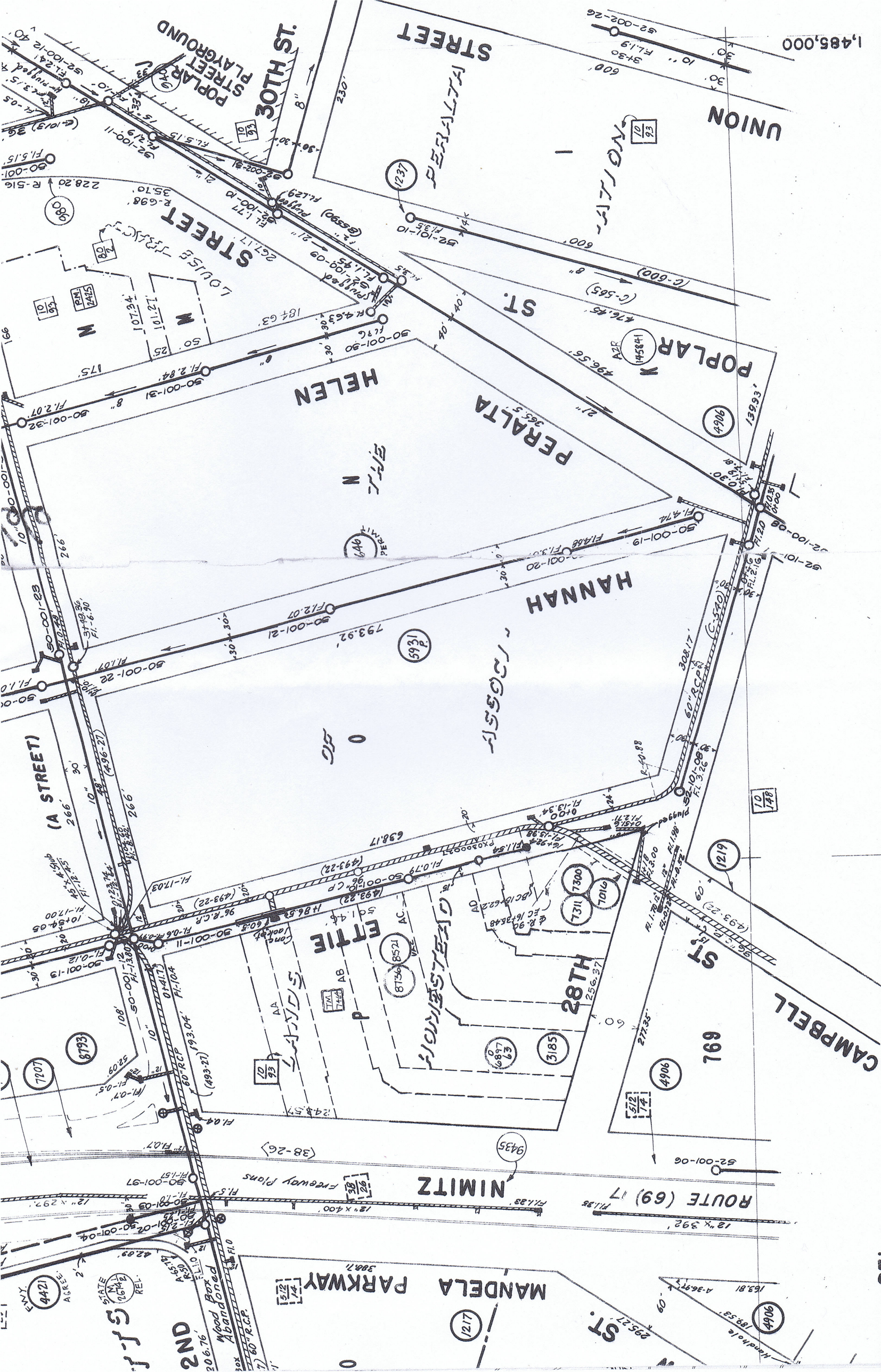
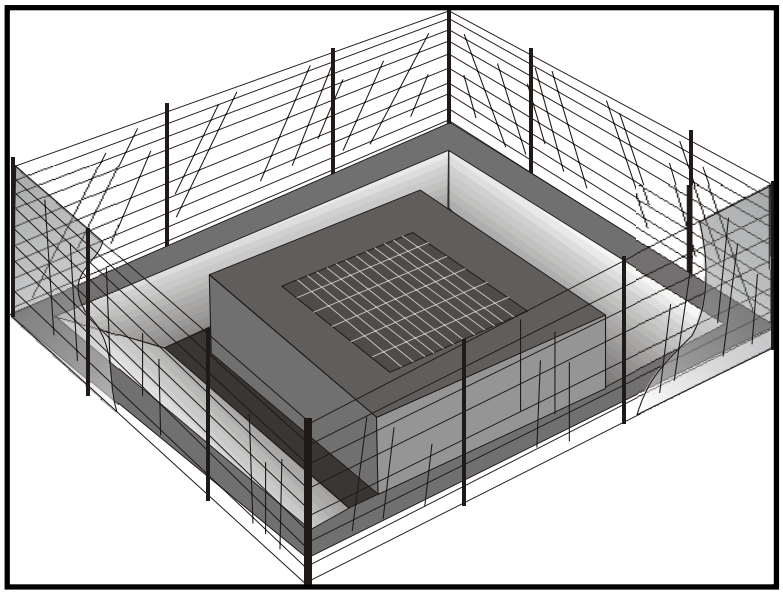

791
792
793
794
795
LOUISE
STREET
TRACT
(HELLEN)
FREEWAY
BEACH
(CENTER)
32ND
(A STREET)
ETTIE
HELEN
LOUISE TRACT
STREET
30TH ST.
POPLAR STREET PLAYGROUND
PERALTA
STREET
PARKWAY
LANDS
OF
THE
HOMESTEAD
Wood Box Abandoned
60" R.C.P.
60" RCP
Freeway Plans
Sealed & Abandoned
Plugged & Abandoned
50-001-12
50-001-13
50-001-22
50-001-23
50-001-24
50-001-25
50-001-30
50-001-31
50-001-32
50-001-33
50-001-35
50-001-41
50-001-42
50-001-43
52-100-09
52-100-10
52-100-11
52-100-12
(496-27)
(493-27)
(493-22)
266'
600'
8"
10"
48"
96" R.C.P.

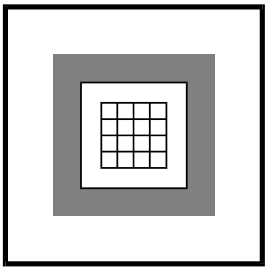

30TH ST.
POPLAR STREET PLAYGROUND
UNION STREET
POPLAR ST.
PERALTA
HELEN
HANNAH
ETTIE
28TH ST
CAMPBELL
NIMITZ FREEWAY
ROUTE (69) 17
MANDELA PARKWAY
2ND
(A STREET)
1,485,000

Caltrans Construction BMP Manual Details

Storm Drain Inlet Protection

SC-10





Standard Symbol

BMP Objectives

- ○ Soil Stabilization
- ● Sediment Control
- ○ Tracking Control
- ○ Wind Erosion Control
- ○ Non-Storm Water Management
- ○ Materials and Waste Management

Definition and Purpose

Devices used at storm drain inlets that are subject to runoff from construction activities to detain and/or to filter sediment-laden runoff to allow sediment to settle and/or to filter sediment prior to discharge into storm drainage systems or watercourses.

Appropriate Applications

- Where ponding will not encroach into highway traffic.
- Where sediment laden surface runoff may enter an inlet.
- Where disturbed drainage areas have not yet been permanently stabilized.
- Where the drainage area is 0.4 ha (1 ac) or less.
- Appropriate during wet and snow-melt seasons.

Limitations

- Requires an adequate area for water to pond without encroaching upon traveled way and should not present itself to be an obstacle to oncoming traffic.
- May require other methods of temporary protection to prevent sediment-laden storm water and non-storm water discharges from entering the storm drain system.
- Sediment removal may be difficult in high flow conditions or if runoff is heavily sediment laden. If high flow conditions are expected, use other on-site sediment trapping techniques (e.g. check dams) in conjunction with inlet protection.
- Frequent maintenance is required.
- For drainage areas larger than 0.4 ha (1 ac), runoff shall be routed to a sediment trapping device designed for larger flows. See BMPs SC-2, “Sediment/Desilting Basin,” and SC-3 “Sediment Trap.”

- Filter fabric fence inlet protection is appropriate in open areas that are subject to sheet flow and for flows not exceeding 0.014 m3/s (0.5 cfs).
- Gravel bag barriers for inlet protection are applicable when sheet flows or concentrated flows exceed 0.014 m3/s (0.5 cfs), and it is necessary to allow for overtopping to prevent flooding.
- Fiber rolls and foam barriers are not appropriate for locations where they cannot be properly anchored to the surface.
- Excavated drop inlet sediment traps are appropriate where relatively heavy flows are expected and overflow capability is needed.

Standards and Specifications

Identify existing and/or planned storm drain inlets that have the potential to receive sediment-laden surface runoff. Determine if storm drain inlet protection is needed, and which method to use.

Methods and Installation

- ***DI Protection Type 1 - Filter Fabric Fence -*** The filter fabric fence (Type 1) protection is illustrated on Page 5. Similar to constructing a silt fence. See BMP SC-1, "Silt Fence." Do not place filter fabric underneath the inlet grate since the collected sediment may fall into the drain inlet when the fabric is removed or replaced.
- ***DI Protection Type 2 - Excavated Drop Inlet Sediment Trap -*** The excavated drop inlet sediment trap (Type 2) is illustrated in Page 6. Similar to constructing a temporary silt fence, See BMP SC-1, "Silt Fence." Size excavated trap to provide a minimum storage capacity calculated at the rate of 130 m3/ha (67 yd3/ac) of drainage area.
- ***DI Protection Type 3 – Gravel bag -*** The gravel bag barrier (Type 3) is illustrated in Page 7. Flow from a severe storm shall not overtop the curb. In areas of high clay and silts, use filter fabric and gravel as additional filter media. Construct gravel bags in accordance with BMP SC-6, "Gravel Bag Berm." Gravel bags shall be used due to their high permeability.
- ***DI Protection Type 4 – Foam Barriers and Fiber Rolls –*** Foam barrier or fiber roll (Type 4) is placed around the inlet and keyed and anchored to the surface. Foam barriers and fiber rolls are intended for use as inlet protection where the area around the inlet is unpaved and the foam barrier or fiber roll can be secured to the surface. RE or Construction Storm Water Coordinator approval is required.

Maintenance and Inspection

General

- Inspect all inlet protection devices before and after every rainfall event, and weekly during the rest of the rainy season. During extended rainfall events, inspect inlet protection devices at least once every 24 hours.

- Inspect the storm drain inlet after severe storms in the rainy season to check for bypassed material.
- Remove all inlet protection devices within thirty days after the site is stabilized, or when the inlet protection is no longer needed.
  - Bring the disturbed area to final grade and smooth and compact it. Appropriately stabilize all bare areas around the inlet.
  - Clean and re-grade area around the inlet and clean the inside of the storm drain inlet as it must be free of sediment and debris at the time of final inspection.

Requirements by Method

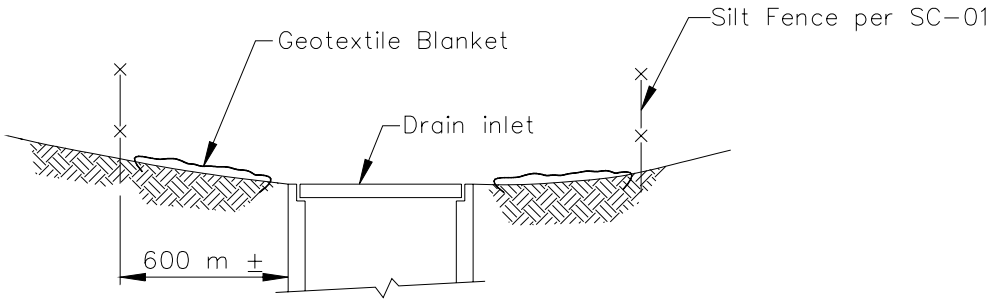
- ***Type 1 - Filter Fabric Fence***
  - This method shall be used for drain inlets requiring protection in areas where finished grade is established and erosion control seeding has been applied or is pending.
  - Make sure the stakes are securely driven in the ground and are structurally sound (i.e., not bent, cracked, or splintered, and are reasonably perpendicular to the ground). Replace damaged stakes.
  - Replace or clean the fabric when the fabric becomes clogged with sediment. Make sure the fabric does not have any holes or tears. Repair or replace fabric as needed or as directed by the RE.
  - At a minimum, remove the sediment behind the fabric fence when accumulation reaches one-third the height of the fence or barrier height. Removed sediment shall be incorporated in the project at locations designated by the RE or disposed of outside the highway right-of-way in conformance with the Standard Specifications Section 7-1.13.
- ***Type 2 – Excavated Drop Inlet Sediment Trap***
  - This method may be used for drain inlets requiring protection in areas that have been cleared and grubbed, and where exposed soil areas are subject to grading.
  - Remove sediment from basin when the volume of the basin has been reduced by one-half.
- ***Type 3 - Gravel Bag Barrier***
  - This method may be used for drain inlets surrounded by AC or paved surfaces.
  - Inspect bags for holes, gashes, and snags.

- Check gravel bags for proper arrangement and displacement. Remove the sediment behind the barrier when it reaches one-third the height of the barrier. Removed sediment shall be incorporated in the project at locations designated by the RE or disposed of outside the highway right-of-way in conformance with the Standard Specifications Section 7-1.13.

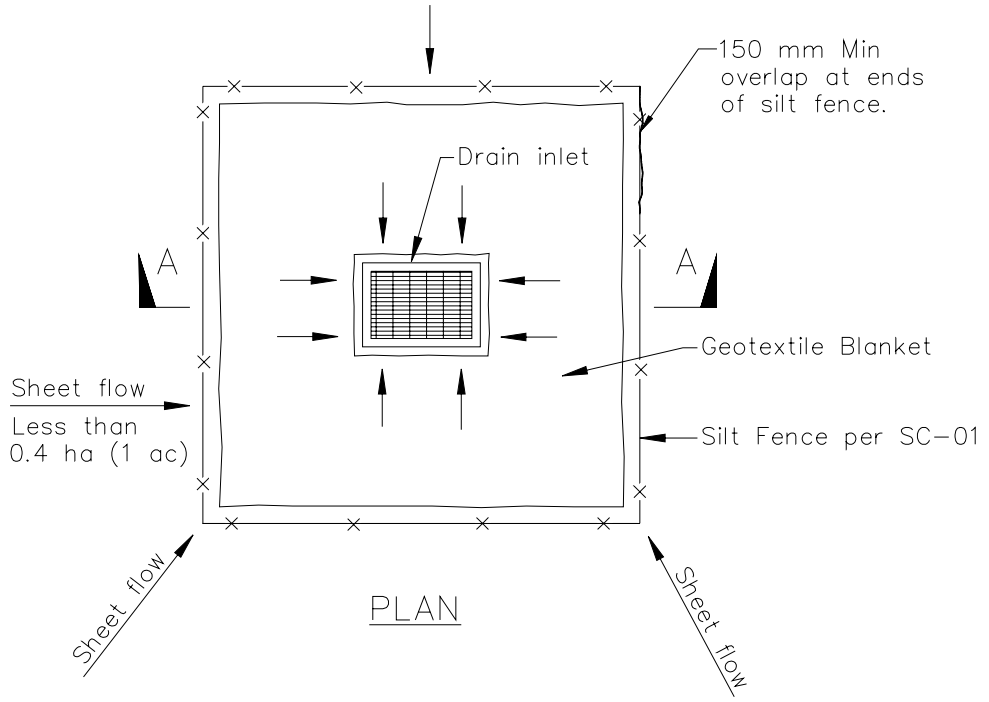
■ ***Type 4 Foam Barriers and Fiber Rolls***

- This method may be used for drain inlets requiring protection in areas that have been cleared and grubbed, and where exposed soil areas subject to grading. RE or Construction Storm Coordinator approval is required.

- Check foam barrier or fiber roll for proper arrangement and displacement. Remove the sediment behind the barrier when it reaches one-third the height of the barrier. Removed sediment shall be incorporated in the project at locations designated by the RE or disposed of outside the highway right-of-way in conformance with the Standard Specifications.



SECTION A–A

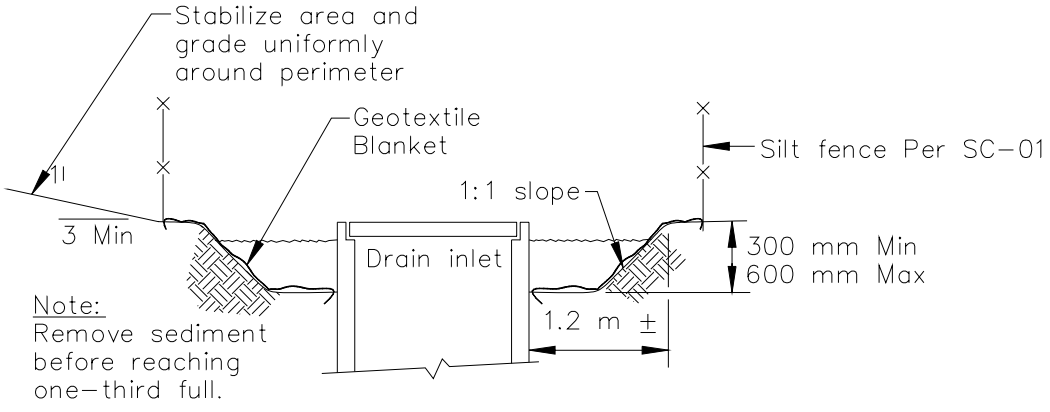


PLAN

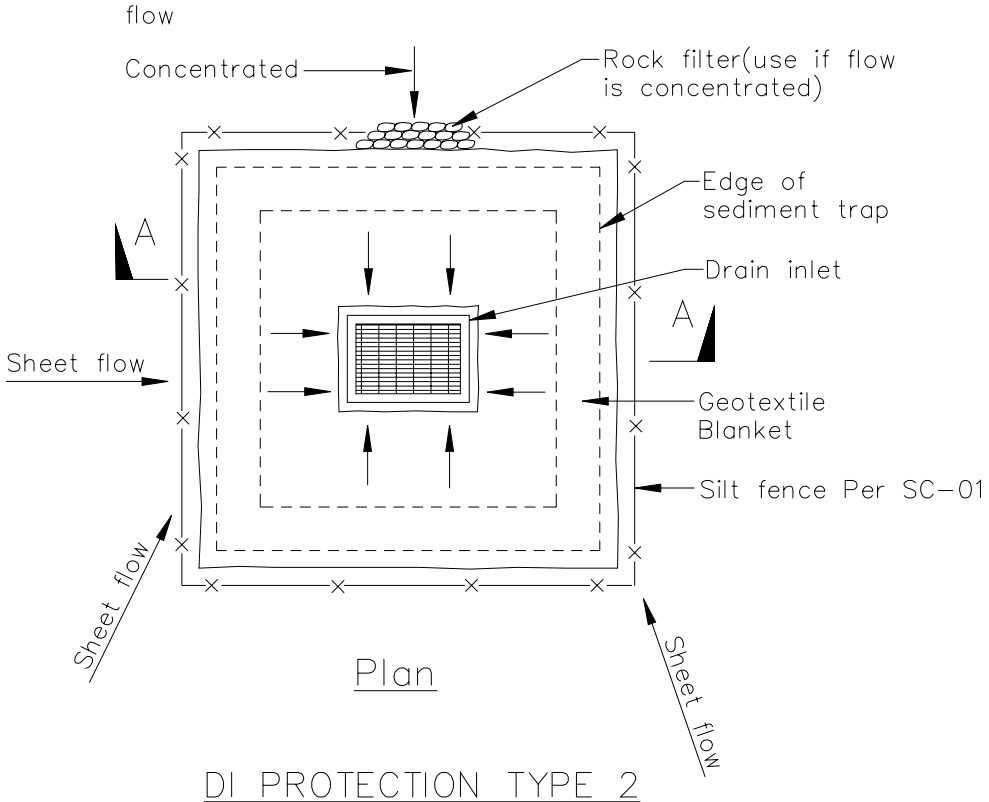
DI PROTECTION TYPE 1
NOT TO SCALE

NOTES:

1. For use in areas where grading has been completed and final soil stabilization and seeding are pending.
2. Not applicable in paved areas.
3. Not applicable with concentrated flows.



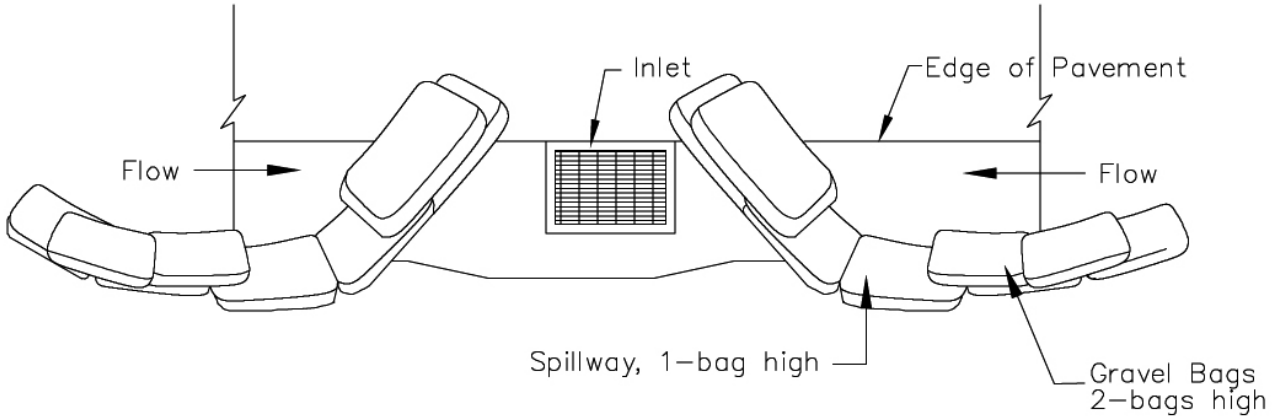
Section A–A



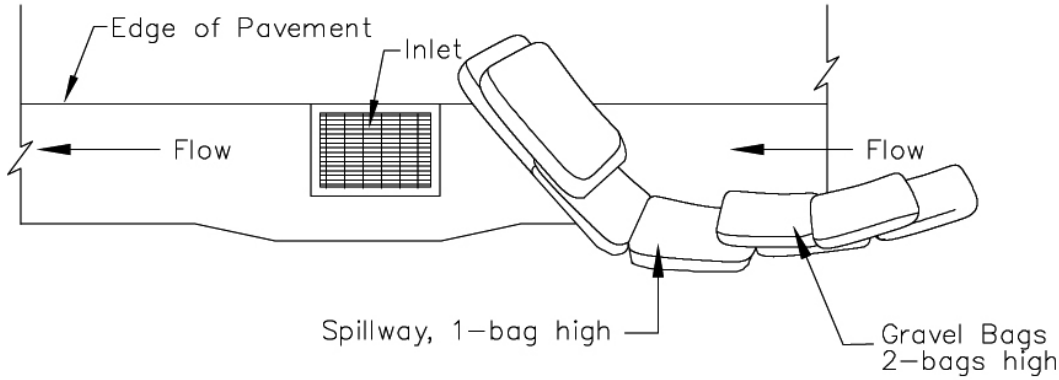
Plan

DI PROTECTION TYPE 2
NOT TO SCALE

Notes
1. For use in cleared and grubbed and in graded areas.
2. Shape basin so that longest inflow area faces longest length of trap.
3. For concentrated flows, shape basin in 2:1 ratio with length oriented towards direction of flow.



TYPICAL PROTECTION FOR INLET WITH OPOSING FLOW DIRECTIONS



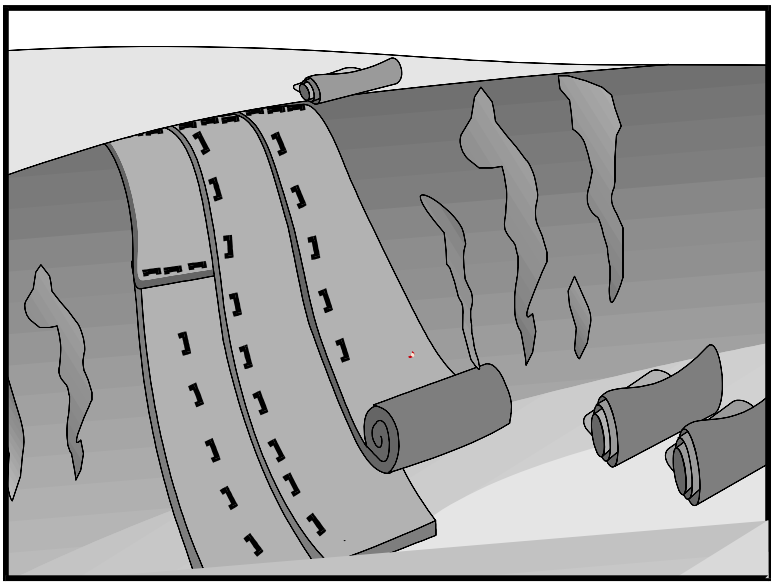
TYPICAL PROTECTION FOR INLET WITH SINGLE FLOW DIRECTION

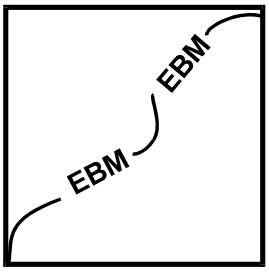
NOTES:

1. Intended for short–term use.
2. Use to inhibit non–storm water flow.
3. Allow for proper maintenance and cleanup.
4. Bags must be removed after adjacent operation is completed
5. Not applicable in areas with high silts and clays without filter fabric.

Geotextiles, Mats, Plastic Covers and Erosion Control Blankets

SS-7





Standard Symbol

BMP Objectives

- ● Soil Stabilization
- ○ Sediment Control
- ○ Tracking Control
- ● Wind Erosion Control
- ○ Non-Storm Water Management
- ○ Materials and Waste Management

Definition and Purpose

This Best Management Practice (BMP) involves the placement of geotextiles, mats, plastic covers, or erosion control blankets to stabilize disturbed soil areas and protect soils from erosion by wind or water. This is one of five temporary soil stabilization alternatives to consider.

Appropriate Applications

These measures are used when disturbed soils may be particularly difficult to stabilize, including the following situations:

- Steep slopes, generally steeper than 1:3 (V:H).
- Slopes where the erosion potential is high.
- Slopes and disturbed soils where mulch must be anchored.
- Disturbed areas where plants are slow to develop.
- Channels with flows exceeding 1.0 m/s (3.3 ft/s).
- Channels to be vegetated.
- Stockpiles.
- Slopes adjacent to water bodies of Environmentally Sensitive Areas (ESAs).

Limitations

- Blankets and mats are more expensive than other erosion control measures, due to labor and material costs. This usually limits their application to areas inaccessible to hydraulic equipment, or where other measures are not applicable, such as channels.
- Blankets and mats are generally not suitable for excessively rocky sites, or areas where the final vegetation will be mowed (since staples and netting can catch in mowers).
- Blankets and mats must be removed and disposed of prior to application of permanent soil stabilization measures.
- Plastic sheeting is easily vandalized, easily torn, photodegradable, and must be disposed of at a landfill.
- Plastic results in 100% runoff, which may cause serious erosion problems in the areas receiving the increased flow.
- The use of plastic shall be limited to covering stockpiles, or very small graded areas for short periods of time (such as through one imminent storm event), until alternative measures, such as seeding and mulching, may be installed.
- Geotextiles, mats, plastic covers, and erosion control covers have maximum flow rate limitations; consult the manufacturer for proper selection.

Standards and Specifications

Material Selection

There are many types of erosion control blankets and mats, and selection of the appropriate type shall be based on the specific type of application and site conditions. Selection(s) made by the Contractor must be approved by the Resident Engineer (RE); certification of compliance shall be in accordance with Standard Specifications Section 6-1.07.

Geotextiles

- Material shall be a woven polypropylene fabric with minimum thickness of 1.5 mm (0.06 inch), minimum width of 3.7 m (12 ft) and shall have minimum tensile strength of 0.67 kN (warp) 0.36 kN (fill) in conformance with the requirements in ASTM Designation: D 4632. The permittivity of the fabric shall be approximately 0.07 sec –1 in conformance with the requirements in ASTM Designation: D4491. The fabric shall have an ultraviolet (UV) stability of 70 percent in conformance with the requirements in ASTM designation: D4355. Geotextile blankets shall be secured in place with wire staples or sandbags and by keying into tops of slopes and edges to prevent infiltration of surface waters under Geotextile. Staples shall be made of 3.05-mm (0.12-inch) steel wire and shall be U-shaped with 200-mm (8-inch) legs and 50-mm (2-inch) crown.
- Geotextiles may be reused if, in the opinion of the RE, they are suitable for the use intended.

Plastic Covers

- Plastic sheeting shall have a minimum thickness of 6 mil, and shall be keyed in at the top of slope and firmly held in place with sandbags or other weights placed no more than 3 m (10 ft) apart. Seams are typically taped or weighted down their entire length, and there shall be at least a 300 mm to 600 mm (12 to 24 inches) overlap of all seams. Edges shall be embedded a minimum of 150 mm (6 inches) in soil.

- All sheeting shall be inspected periodically after installation and after significant rainstorms to check for erosion, undermining, and anchorage failure. Any failures shall be repaired immediately. If washout or breakages occurs, the material shall be re-installed after repairing the damage to the slope.

Erosion Control Blankets/Mats

- Biodegradable rolled erosion control products (RECPs) are typically composed of jute fibers, curled wood fibers, straw, coconut fiber, or a combination of these materials. For an RECP to be considered 100% biodegradable, the netting, sewing or adhesive system that holds the biodegradable mulch fibers together must also be biodegradable.

  – **Jute** is a natural fiber that is made into a yarn, which is loosely woven into a biodegradable mesh. It is designed to be used in conjunction with vegetation and has longevity of approximately one year. The material is supplied in rolled strips, which shall be secured to the soil with U-shaped staples or stakes in accordance with manufacturers' recommendations.

  – **Excelsior (curled wood fiber)** blanket material shall consist of machine produced mats of curled wood excelsior with 80 percent of the fiber 150 mm (6 inches) or longer. The excelsior blanket shall be of consistent thickness. The wood fiber shall be evenly distributed over the entire area of the blanket. The top surface of the blanket shall be covered with a photodegradable extruded plastic mesh. The blanket shall be smolder resistant without the use of chemical additives and shall be non-toxic and non-injurious to plant and animal life. Excelsior blanket shall be furnished in rolled strips, a minimum of 1220 mm (48 inches) wide, and shall have an average weight of 0.5 kg/m^2 (12 lb/ft^2), ±10 percent, at the time of manufacture. Excelsior blankets shall be secured in place with wire staples. Staples shall be made of 3.05-mm (0.12 inch) steel wire and shall be U-shaped with 200-mm (8-inch) legs and 50-mm (2-inch) crown.

- **Straw blanket** shall be machine-produced mats of straw with a lightweight biodegradable netting top layer. The straw shall be attached to the netting with biodegradable thread or glue strips. The straw blanket shall be of consistent thickness. The straw shall be evenly distributed over the entire area of the blanket. Straw blanket shall be furnished in rolled strips a minimum of 2 m (6.5 ft) wide, a minimum of 25 m (80 ft) long and a minimum of 0.27 kg/m2 (6.4 lb/ft2). Straw blankets shall be secured in place with wire staples. Staples shall be made of 3.05-mm (0.12 inch) steel wire and shall be U-shaped with 200-mm (8-inch) legs and 50-mm (2-inch) crown.

- **Wood fiber blanket** is composed of biodegradable fiber mulch with extruded plastic netting held together with adhesives. The material is designed to enhance revegetation. The material is furnished in rolled strips, which shall be secured to the ground with U-shaped staples or stakes in accordance with manufacturers' recommendations.

- **Coconut fiber blanket** shall be machine-produced mats of 100% coconut fiber with biodegradable netting on the top and bottom. The coconut fiber shall be attached to the netting with biodegradable thread or glue strips. The coconut fiber blanket shall be of consistent thickness. The coconut fiber shall be evenly distributed over the entire area of the blanket. Coconut fiber blanket shall be furnished in rolled strips with a minimum of 2 m (6.5 ft) wide, a minimum of 25 m (80 ft) long and a minimum of 0.27-kg/m2 (6.4 lb/ft2). Coconut fiber blankets shall be secured in place with wire staples. Staples shall be made of 3.05-mm (0.12 inch) steel wire and shall be U-shaped with 200-mm (8-inch) legs and 50-mm (2-inch) crown.

- **Coconut fiber mesh** is a thin permeable membrane made from coconut or corn fiber that is spun into a yarn and woven into a biodegradable mat. It is designed to be used in conjunction with vegetation and typically has longevity of several years. The material is supplied in rolled strips, which shall be secured to the soil with U-shaped staples or stakes in accordance with manufacturers' recommendations.

- **Straw coconut fiber blanket** shall be machine-produced mats of 70% straw and 30% coconut fiber with a biodegradable netting top layer and a biodegradable bottom net. The straw and coconut fiber shall be attached to the netting with biodegradable thread or glue strips. The straw coconut fiber blanket shall be of consistent thickness. The straw and coconut fiber shall be evenly distributed over the entire area of the blanket. Straw coconut fiber blanket shall be furnished in rolled strips a minimum of 2 m (6.5 ft) wide, a minimum of 25 m (80 ft) long and a minimum of 0.27 kg/m2 (6.4 lb/ft2). Straw coconut fiber blankets shall be secured in place with wire staples. Staples shall be made of 3.05-mm (0.12-inch) steel wire and shall be U-shaped with 200-mm (8-inch) legs and 50-mm (2-inch) crown.

- Non-biodegradable RECPs are typically composed of polypropylene, polyethylene, nylon or other synthetic fibers. In some cases, a combination of biodegradable and synthetic fibers is used to construct the RECP. Netting used to hold these fibers together is typically non-biodegradable as well.

  - **Plastic netting** is a lightweight biaxially-oriented netting designed for securing loose mulches like straw to soil surfaces to establish vegetation. The netting is photodegradable. The netting is supplied in rolled strips, which shall be secured with U-shaped staples or stakes in accordance with manufacturers' recommendations.

  - **Plastic mesh** is an open-weave geotextile that is composed of an extruded synthetic fiber woven into a mesh with an opening size of less than 0.5 cm (0.2 inch). It is used with revegetation or may be used to secure loose fiber such as straw to the ground. The material is supplied in rolled strips, which shall be secured to the soil with U-shaped staples or stakes in accordance with manufacturers' recommendations.

  - **Synthetic fiber with netting** is a mat that is composed of durable synthetic fibers treated to resist chemicals and ultraviolet light. The mat is a dense, three-dimensional mesh of synthetic (typically polyolefin) fibers stitched between two polypropylene nets. The mats are designed to be revegetated and provide a permanent composite system of soil, roots, and geomatrix. The material is furnished in rolled strips, which shall be secured with U-shaped staples or stakes in accordance with manufacturers' recommendations.

  - **Bonded synthetic fibers** consist of a three-dimensional geomatrix nylon (or other synthetic) matting. Typically it has more than 90% open area, which facilitates root growth. Its tough root-reinforcing system anchors vegetation and protects against hydraulic lift and shear forces created by high volume discharges. It can be installed over prepared soil, followed by seeding into the mat. Once vegetated, it becomes an invisible composite system of soil, roots, and geomatrix. The material is furnished in rolled strips that shall be secured with U-shaped staples or stakes in accordance with manufacturers' recommendations.

  - **Combination synthetic and biodegradable RECPs** consist of biodegradable fibers, such as wood fiber or coconut fiber, with a heavy polypropylene net stitched to the top and a high-strength continuous-filament geomatrix or net stitched to the bottom. The material is designed to enhance revegetation. The material is furnished in rolled strips, which shall be secured with U-shaped staples or stakes in accordance with manufacturers' recommendations.

Site Preparation

- Proper site preparation is essential to ensure complete contact of the blanket or matting with the soil.
- Grade and shape the area of installation.
- Remove all rocks, clods, vegetation or other obstructions so that the installed blankets or mats will have complete, direct contact with the soil.
- Prepare seedbed by loosening 50 mm (2 in) to 75 mm (3 in) of topsoil.

Seeding

Seed the area before blanket installation for erosion control and revegetation. Seeding after mat installation is often specified for turf reinforcement application. When seeding prior to blanket installation, all check slots and other areas disturbed during installation must be re-seeded. Where soil filling is specified, seed the matting and the entire disturbed area after installation and prior to filling the mat with soil.

Anchoring

- U-shaped wire staples, metal geotextile stake pins or triangular wooden stakes can be used to anchor mats and blankets to the ground surface.
- Staples shall be made of 3.05 mm (0.12 inch) steel wire and shall be U-shaped with 200-mm (8-inch) legs and 50-mm (2-inch) crown.
- Metal stake pins shall be 5 mm (0.188 in) diameter steel with a 40 mm (1.5 in) steel washer at the head of the pin.
- Wire staples and metal stakes shall be driven flush to the soil surface.
- All anchors shall be 150 mm (6 in) to 450 mm (18 in) long and have sufficient ground penetration to resist pullout. Longer anchors may be required for loose soils.

Installation on Slopes

Installation shall be in accordance with the manufacturer's recommendations. In general, these will be as follows:

- Begin at the top of the slope and anchor the blanket in a 150 mm (6 in) deep by 150 mm (6 in) wide trench. Backfill trench and tamp earth firmly.
- Unroll blanket downslope in the direction of water flow.

- Overlap the edges of adjacent parallel rolls 50 mm (2 in) to 75 mm (3 in) and staple every 1 m (3 ft).

- When blankets must be spliced, place blankets end over end (shingle style) with 150 mm (6 in) overlap. Staple through overlapped area, approximately 300 mm (12 in) apart.

- Lay blankets loosely and maintain direct contact with the soil. Do not stretch.

- Staple blankets sufficiently to anchor blanket and maintain contact with the soil. Staples shall be placed down the center and staggered with the staples placed along the edges. Steep slopes, 1:1 (V:H) to 1:2 (V:H), require a minimum of 2 staples/m2 (2 staples/yd2). Moderate slopes, 1:2 (V:H) to 1:3 (V:H), require a minimum of 1½ staples/m2 (1 ½ staples/yd2), placing 1 staple/m (1 staple/yd) on centers. Gentle slopes require a minimum of 1 staple/m2 (1 staple/yd2).

Installation in Channels

Installation shall be in accordance with the manufacturer's recommendations. In general, these will be as follows:

- Dig initial anchor trench 300 mm (12 in) deep and 150 mm (6 in) wide across the channel at the lower end of the project area.

- Excavate intermittent check slots, 150 mm (6 in) deep and 150 mm (6 in) wide across the channel at 8 m to 10 m (25 ft to 30 ft) intervals along the channels.

- Cut longitudinal channel anchor slots 100 mm (4 in) deep and 100 mm (4 in) wide along each side of the installation to bury edges of matting, whenever possible extend matting 50 mm (2 in) to 75 mm (3 in) above the crest of the channel side slopes.

- Beginning at the downstream end and in the center of the channel, place the initial end of the first roll in the anchor trench and secure with fastening devices at 300 mm (12 in) intervals. Note: matting will initially be upside down in anchor trench.

- In the same manner, position adjacent rolls in anchor trench, overlapping the preceding roll a minimum of 75 mm (3 in).

- Secure these initial ends of mats with anchors at 300 mm (12 in) intervals, backfill and compact soil.

- Unroll center strip of matting upstream. Stop at next check slot or terminal anchor trench. Unroll adjacent mats upstream in similar fashion, maintaining a 75 mm (3 in) overlap.

- Fold and secure all rolls of matting snugly into all transverse check slots. Lay mat in the bottom of the slot then fold back against itself. Anchor through both layers of mat at 300 mm (12 in) intervals, then backfill and compact soil. Continue rolling all mat widths upstream to the next check slot or terminal anchor trench.

- Alternate method for non-critical installations: Place two rows of anchors on 150 mm (6 in) centers at 8 m (25 ft) to 10 m (30 ft) intervals in lieu of excavated check slots.

- Shingle-lap spliced ends by a minimum of 300 mm (12 in) apart on 300 mm (12 in) intervals.

- Place edges of outside mats in previously excavated longitudinal slots, anchor using prescribed staple pattern, backfill and compact soil.

- Anchor, fill and compact upstream end of mat in a 300 mm (12 in) by 150 mm (6 in) terminal trench.

- Secure mat to ground surface using U-shaped wire staples, geotextile pins, or wooden stakes.

- Seed and fill turf reinforcement matting with soil, if specified.

Soil Filling (if specified for turf reinforcement)

- Always consult the manufacturer's recommendations for installation.

- Do not drive tracked or heavy equipment over mat.

- Avoid any traffic over matting if loose or wet soil conditions exist.

- Use shovels, rakes or brooms for fine grading and touch up.

- Smooth out soil filling, just exposing top netting of mat.

Temporary Soil Stabilization Removal

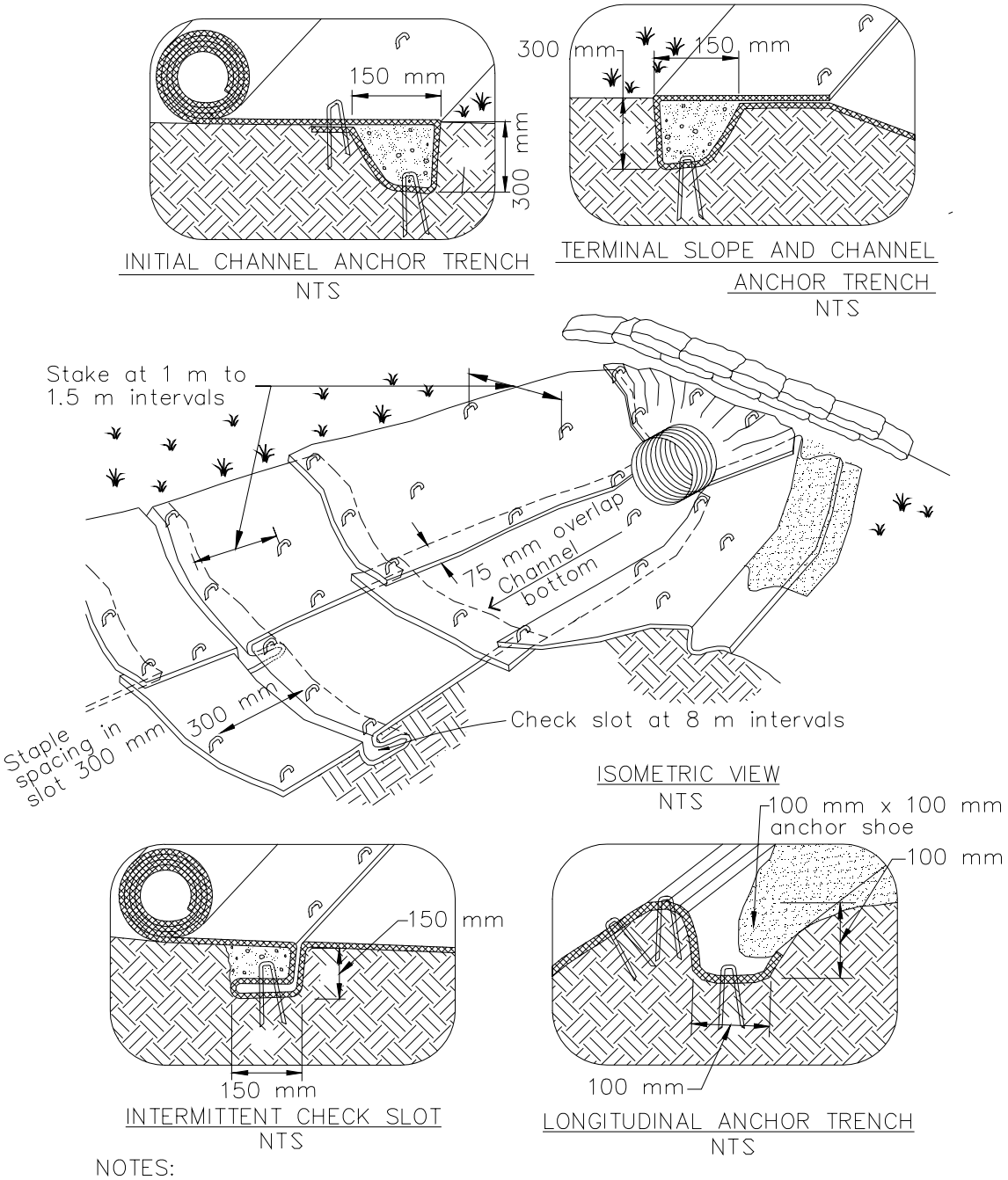
- When no longer required for the work, temporary soil stabilization shall become the property of the Contractor. Temporary soil stabilization removed from the site of the work shall be disposed of outside the highway right-of-way in conformance with the provisions in Standard Specifications Section 7-1.13. If approved by the RE, the contractor may leave the temporary soil stabilizer in place.

Maintenance and Inspection

Areas treated with temporary soil stabilization shall be inspected as specified in the special provisions. Areas treated with temporary soil stabilization shall be maintained to provide adequate erosion control. Temporary soil stabilization shall be reapplied or replaced on exposed soils when area becomes exposed or exhibits visible erosion.

- All blankets and mats shall be inspected periodically after installation.
- Installation shall be inspected after significant rain storms to check for erosion and undermining. Any failures shall be repaired immediately.
- If washout or breakage occurs, re-install the material after repairing the damage to the slope or channel.

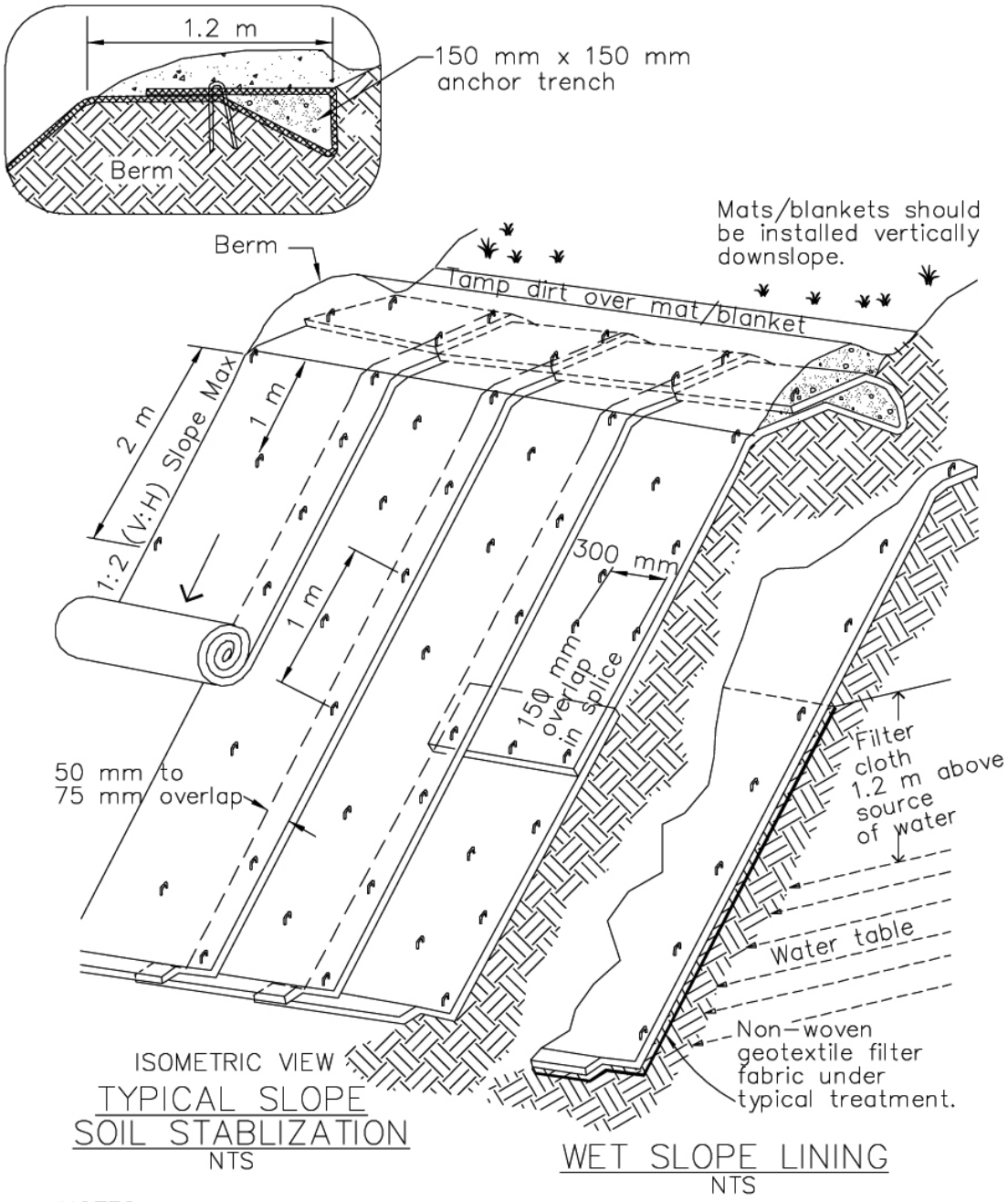
Typical Installation Detail



NOTES:

1. Check slots to be constructed per manufacturers specifications.
2. Staking or stapling layout per manufacturers specifications.
3. Install per manufacturer's recommendations

Typical Installation Detail

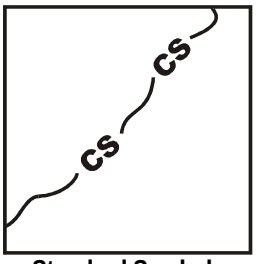


NOTES:

1. Slope surface shall be free of rocks, clods, sticks and grass. Mats/blankets shall have good soil contact.
2. Lay blankets loosely and stake or staple to maintain direct contact with the soil. Do not stretch.
3. Install per manufacturer's recommendations

Stockpile Management

WM-3



Standard Symbol

BMP Objectives

- ● Soil Stabilization
- ● Sediment Control
- ○ Tracking Control
- ○ Wind Erosion Control
- ○ Non-Storm Water Management
- ● Materials and Waste Management

Definition and Purpose

Stockpile management procedures and practices are designed to reduce or eliminate air and storm water pollution from stockpiles of soil, and paving materials such as portland cement concrete (PCC) rubble, asphalt concrete (AC), asphalt concrete rubble, aggregate base, aggregate subbase or pre-mixed aggregate, asphalt binder (so called “cold mix” asphalt) and pressure treated wood.

Appropriate Applications

Implemented in all projects that stockpile soil and other materials.

Limitations

- None identified

Standards and Specifications

- Protection of stockpiles is a year-round requirement.
- Locate stockpiles a minimum of 15 m (50 ft)away from concentrated flows of storm water, drainage courses, and inlets.
- Implement wind erosion control practices as appropriate on all stockpiled material. For specific information see BMP WE-1, “Wind Erosion Control.”
- Stockpiles of contaminated soil shall be managed in accordance with BMP WM-7, “Contaminated Soil Management.”
- Bagged materials should be placed on pallets and under cover.

Protection of Non-Active Stockpiles

Non-active stockpiles of the identified materials shall be protected further as follows:

- ***Soil stockpiles:***

  - During the rainy seasons, soil stockpiles shall be covered or protected with soil stabilization measures and a temporary perimeter sediment barrier at all times.

  - During the non-rainy season, soil stockpiles shall be covered and protected with a temporary perimeter sediment barrier prior to the onset of precipitation.

- ***Stockpiles of portland cement concrete rubble, asphalt concrete, asphalt concrete rubble, aggregate base, or aggregate subbase:***

  - During the rainy season, the stockpiles shall be covered or protected with a temporary perimeter sediment barrier at all times.

  - During the non-rainy season, the stockpiles shall be covered or protected with a temporary perimeter sediment barrier prior to the onset of precipitation.

- ***Stockpiles of "cold mix":***

  - During the rainy season, cold mix stockpiles shall be placed on and covered with plastic or comparable material at all times.

  - During the non-rainy season, cold mix stockpiles shall be placed on and covered with plastic or comparable material prior to the onset of precipitation.

- ***Stockpiles/Storage of pressure treated wood with copper, chromium, and arsenic or ammonical, copper, zinc, and arsenate:***

  - During the rainy season, treated wood shall be covered with plastic or comparable material at all times.

  - During the non-rainy season, treated wood shall be covered with plastic or comparable material and shall be placed on pallets prior to the onset of precipitation.

Protection of Active Stockpiles

Active stockpiles of the identified materials shall be protected further as follows:

- All stockpiles shall be covered, stabilized, or protected with a temporary linear sediment barrier prior to the onset of precipitation.

- Stockpiles of "cold mix" shall be placed on and covered with plastic or comparable material prior to the onset of precipitation.

Maintenance and Inspections

- Repair and/or replace perimeter controls and covers as needed, or as directed by the RE, to keep them functioning properly. Sediment shall be removed when sediment accumulation reaches one-third (1/3) of the barrier height.

BAAQMD Permit

ENVIRONMENTAL CONSULTING & MANAGEMENT
ROUX ASSOCIATES INC
555 12TH STREET, SUITE 1725
OAKLAND, CALIFORNIA 94607 TEL 415-967-6000 FAX 415-967-6001

August 26, 2015

Flora Chan
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

Re: Air Permit Application for Soil Aeration
2868-2898 Hannah Street, Oakland, California

Dear Flora Chan:

On behalf of the 2868 Hannah Street, LLC, Roux Associates (Roux) is submitting the permit application for aeration of soil for soil remediation at the property located at 2868 Hannah Street, in Oakland, California (the "Site"). A site location map is provided in Figure 1. Soil aeration will be utilized to remediate excavated soils for onsite reuse.

PROJECT DESCRIPTION

The Site is located on the northwest corner of 32nd Street and Hannah Street in Oakland, California, approximately 3/4 mile east from San Francisco Bay. This area is mixed residential and commercial/industrial land use, with residences on the north and east side of the Site, commercial and industrial facilities on the west of the Site, and vacant land on the south side of the Site. The closest church is the Convergence Covenant Church located approximately 0.75 miles to the south. The closest school is McClymonds High School located approximately 0.5 miles to the southeast. The property is bordered on the north and east sides by single family homes.

The Site is currently a vacant lot. The most recent development consisted of a warehouse space on the northern portion of the property. The Site was cleared of all above ground improvements in June 2015.

The planned redevelopment of the Site entails the construction of a mixed-use development that includes a three story structure with ground floor parking. The building will include approximately 11,913 SF of commercial space and 36 residential units. The southern and eastern portions of the Site will consist of surface parking.

REMEDIATION DESCRIPTION

The total quantity of soil expected to be excavated is approximately 1,625 CY, of which approximately 875 CY and 750 CY are anticipated to be impacted and non-impacted, respectively. Non-impacted material will be stockpiled separately. Impacted material will be placed onsite for aeration. Figure 2 illustrates anticipated stockpiling and aeration areas onsite.

POTENTIAL EMISSIONS CALCULATIONS

Potential emissions of PCE & TCE from the remedial soil aeration were calculated based on the assumption that aeration would achieve 90% removal of VOCs from the soil over an 18 month period. As a conservative assumption, the maximum soil gas concentrations at approximately 5 feet below ground surface were used for the emission calculations. Table 1 presents the potential emission estimates for each compound from the remedial soil aeration and its corresponding acute and chronic trigger levels specified in Table 2-5-1. The estimated total VOC emission from the remedial soil aeration is approximately 17.82 pounds per year.

SCHEDULE

Remedial soil excavation is anticipated to begin on September 22, 2015 with soil aeration to follow. Soil aeration is anticipated to begin on September 29, 2015.

This remediation is eligible for the accelerated permitting program from permitting program based on the following criteria:

- Uncontrolled emissions of any single pollutant are each less than 10 lbs/highest day (Table 1).
- Emissions of toxic compounds do not exceed the trigger levels identified in Table 2-1-316 (as shown in Table 1).
- The project is not subject to public notice requirements because the source is more than 1000 feet from the nearest school.

If you have any questions, please call Angela Cutting at (415) 967-6014.

Sincerely,

ROUX ASSOCIATES, INC.

Angela Liang Cutting, Ph.D., P.E.
Principal Engineer

Nicole Rodriguez, E.I.T.
Staff Engineer

Enclosure

cc:

Attachments: Form 101-B
Form G
Table 1 Potential VOC Emission Estimates
Figure 1 Vicinity Map
Figure 2 Soil Aeration Site Plan

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
939 Ellis Street, San Francisco, CA 94109
Engineering Division (415) 749-4990
www.baaqmd.gov fax (415) 749-5030

Form P-101B
Authority to Construct/
Permit to Operate

1. Application Information

BAAQMD Plant No. N/A Company Name 2868 Hannah Street LLC

Equipment/Project Description Remedial Soil Aeration

2. Plant Information *If you have not previously been assigned a Plant Number by the District or if you want to update any plant data that you have previously supplied to the District, please complete this section.*

Equipment Location 2868 Hannah Street

City Oakland Zip Code 94608

Mail Address 155 Grand Avenue, Suite 1025

City Oakland State CA Zip Code 94612

Plant Contact John Protoppapas Title President

Telephone (510) 452-2944 Fax ( ) Email john@mpfcorp.com

NAICS (North American Industry Classification System) see www.census.gov/eos/www/naics/ N/A

3. Proximity to a School (K-12)

The sources in this permit application (*check one*) ☐ Are ☒ Are not within 1,000 ft of the outer boundary of the nearest school.

4. Application Contact Information *All correspondence from the District regarding this application will be sent to the plant contact unless you wish to designate a different contact for this application.*

Application Contact John Protoppapas Title President

Mail Address 155 Grand Avenue, Suite 1025

City Oakland State CA Zip Code 94612

Telephone (510) 452-2944 Fax ( ) Email john@mpfcorp.com

5. Additional Information *The following additional information is required for all permit applications and should be included with your submittal. Failure to provide this information may delay the review of your application. Please indicate that each item has been addressed by checking the box. Contact the Engineering Division if you need assistance.*

☐ If a new Plant, a local street map showing the location of your business

☒ A facility map, drawn roughly to scale, that locates the equipment and its emission points

☐ Completed data form(s) and a pollutant flow diagram for each piece of equipment.
(See www.baaqmd.gov/Forms/Engineering.aspx)

☐ Project/equipment description, manufacturer's data

☒ Discussion and/or calculations of the emissions of air pollutants from the equipment

6. Trade Secrets *Under the California Public Records Act, all information in your permit application will be considered a matter of public record and may be disclosed to a third party. If you wish to keep certain items separate as specified in Regulation 2, Rule 1, Section 202.7, please complete the following steps.*

☐ Each page containing trade secret information must be labeled "trade secret" with the trade secret information clearly marked.

☐ A second copy, with trade secret information blanked out, marked "public copy" must be provided.

☐ For each item asserted to be trade secret, you must provide a statement which provides the basis for your claim.

7. Small Business Certification *You are entitled to a reduced permit fee if you qualify as a small business as defined in Regulation 3. In order to qualify, you must certify that your business meets all of the following criteria:*

☐ The business does not employ more than 10 persons and its gross annual income does not exceed $750,000.

☐ And the business is not an affiliate of a non-small business. (Note: a non-small business employs more than 10 persons and/or its gross income exceeds $750,000.)

8. Green Business Certification *You are entitled to a reduced permit fee if you qualify as a green business as defined in Regulation 3. In order to qualify, you must certify that your business meets all of the following criteria:*

☐ The business has been certified under the Bay Area Green Business Program coordinated by the Association of Bay Area Governments and implemented by participating counties.

☐ A copy of the certification is included.

9. Accelerated Permitting *The Accelerated Permitting Program entitles you to install and operate qualifying sources of air pollution and abatement equipment* ***without waiting for the District to issue a Permit to Operate****. To participate in this program you must certify that your project will meet all of the following criteria. Please acknowledge each item by checking each box.*

☒ Uncontrolled emissions of any single pollutant are each less than 10 lb/highest day, or the equipment has been precertified by the BAAQMD.

☒ Emissions of toxic compounds do not exceed the trigger levels identified in Table 2-5-1 (see Regulation 2, Rule 5).

☒ The source is not a diesel engine.

☒ The project is not subject to public notice requirements (the source is either more than 1000 ft. from the nearest school, or the source does not emit any toxic compound in Table 2-5-1).

☐ For replacement of abatement equipment, the new equipment must have an equal or greater overall abatement efficiency for all pollutants than the equipment being replaced.

☐ For alterations of existing sources, for all pollutants the alteration does not result in an increase in emissions.

☒ Payment of applicable fees (the minimum permit fee to install and operate each source). See Regulation 3 or contact the Engineering Division for help in determining your fees.

10. CEQA *Please answer the following questions pertaining to CEQA (California Environmental Quality Act).*

A. Has another public agency prepared, required preparation of, or issued a notice regarding preparation of a California Environmental Quality Act (CEQA) document (initial study, negative declaration, environmental impact report, or other CEQA document) that analyzes impacts of this project or another project of which it is a part or to which it is related? ☐YES ☒NO If no, go to section 10B.

Describe the document or notice, preparer, and date of document or expected date of completion:

B. List and describe any other permits or agency approvals required for this project by city, regional, state or federal agencies:

City of Oakland Grading Permit

Alameda County Environmental Health – Voluntary Remedial Action Agreement

C. List and describe all other prior or current projects for which either of the following statements is true: (1) the project that is the subject of this application could not be undertaken without the project listed below, (2) the project listed below could not be undertaken without the project that is the subject of this application:

11. Certification *I hereby certify that all information contained herein is true and correct. (Please sign and date this form)*

Name of person certifying (print) | Title of person certifying | Signature of person certifying | Date

Send all application materials to the **BAAQMD Engineering Division, 939 Ellis Street, San Francisco, CA 94109.**

DATA FORM G
General Air Pollution Source

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

939 Ellis Street San Francisco, CA 94109 (415) 749-4990 FAX (415) 749-5030 www.baaqmd.gov

Form G is for general air pollution sources. Use specific forms when applicable. If this source burns fuel, then also complete Form C.

1. Business Name: 2868 Hannah Street LLC Plant No: N/A (if unknown, leave blank)
2. SIC No.: N/A Date of Initial Operation 9/29/2015 (est)
3. Name or Description: Remedial Soil Aeration Source No.: S-
4. Make, Model, and Rated Capacity of Equipment: _____
5. Process Code[1] 7156 Material Code[2] _____ Usage Unit[2] _____
6. Total throughput, last 12 mos. _____usage units[2] Maximum operating rate:_____usage units[2] /hr
7. Typical % of total throughput: Dec-Feb_____% Mar-May_____% Jun-Aug_____% Sep-Nov_____%
8. Typical operating times: 24 hrs/day 7 days/week 52 weeks/year
9. For batch or cyclic processes: _____ minutes/cycle _____ minutes between cycles
10. Exhaust gases from source: (*at maximum operation*) Wet gas flowrate _____ cfm at _____ °F
    Approximate water vapor content _____ volume%

EMISSION FACTORS *(at maximum operating rate)*

If this form is being submitted as part of an application for an **authority to construct**, completion of the following table is mandatory. If not, and the Source is *already in operation*, completion of the table is requested but not required.

If this source also burns fuel, do not include those combustion products in the emission factors below; they are accounted for on Form C. If source test or other data are available for composite emissions only, estimate from those data the emissions attributable to just the general process and show below.

☐ Check box if factors apply to emissions ***after*** Abatement Device(s).

	Emission Factors lb/Usage Unit [2]	***Basis Code*** [3]
11. Particulate		
12. Organics	Table 1	4
13. Nitrogen Oxides (as NO_2)		
14, Sulfur Dioxide		
15. Carbon Monoxide		
16. Other:_____		
17. Other:_____		

18. With regard to air pollutant flow from this source, what sources(s), abatement device(s) and/or emission point(s) are **immediately** downstream?

S- _____ **S-** _____ **S-** _____ **A** _____ **A-** _____ **A-** _____
P- _____ **P-** _____ **P-** _____ **P-** _____ **P-** _____

[1]See Tables G-1 through G-7 for code
[2]See Table G5 or the Material Codes Table (available upon request)
[3]See Basis Code Table below

Person completing this form: Date:

Basis Code

Codes	Method
0	Not applicable for this pollutant
1	Source Testing or other measurement *by plant*
2	Source Testing or other measurement *by BAAQMD*
3	Specification from vendor
4	Material balance *by plant* using engineering expertise and knowledge of process
5	Material balances *by BAAQMD* using engineering expertise and knowledge of process
6	Taken from AP-42 ("Compilation of Air Pollutant Emission Factors," E.P.A.)
7	Taken from literature, other than AP-42
8	Guess

Process Code Tables for General Air Pollution Sources (Data Form G)

Table	Process
G-1	Food & Agricultural
G-3	Metallurgical (Secondary Metals)
G-4	Mineral
G-5	Petroleum Refining
G-7	Chemical/Other
G-8	Miscellaneous
G-9	Fugitive Emissions

TABLE G-1

FOOD AND AGRICULTURAL PROCESSES

CODE	PROCESS
1028	Aging
1001	Brewing
1022	Cleaning
1021	Conveying/transferring
1003	Cooking
1020	Cooling/stoning
1004	Cotton ginning - cleaner
1005	Cotton ginning - stick/burr machine
1006	Cotton ginning - unloading fan
1026	Dehydration
1007	Direct fired kiln
1008	Direct fired roaster
1016	Dryer - rotary
1019	Dryer - spray
1023	Dryer - other
1009	Drying tower
1030	Extraction - mechanical
1029	Extraction - solvent
1027	Fermentation
1014	Grinding
1010	Indirect fired kiln
1011	Indirect fired roaster
1007	Kiln - direct fired
1010	Kiln - indirect fired
1012	Liquor aging
1013	Meat smoker
1024	Milling
1036	Mixing/blending
1025	Oven baking
1035	Packaging
1030	Pressing - extraction
1031	Pressing - other
1015	Prilling
1008	Roaster - direct fired
1011	Roaster - indirect fired
1016	Rotary dryer
1017	Screening
1018	Shipping & receiving
1019	Spray dryer
1032	Sterilization - food/pharmaceutical products
1020	Stoning/cooling
1034	Storage
1033	Sulfuring - fruit/food stuff
1021	Transferring/conveying
1999	Other/not specified

TABLE G-3

METALLURGICAL (SECONDARY METALS)

DRYING (Kilns/Dryers/Ovens)

3002 Calcining kiln
3003 Concentrate dryer
3004 Oxide kiln
3005 Other/not specified

FURNACES

3030 Bake furnace
3007 Blast furnace
3008 Casting furnace
3009 Crucible furnace
3010 Cupola
3011 Cupola furnace
3012 Electric arc furnace
3013 Flux furnace
3014 Heat treating furnace
3015 Horizontal muffle furnace
3016 Induction furnace
3017 Open hearth furnace
3018 Open hearth furnace w/ oxygen lance
3019 Pot furnace
3020 Retort furnace
3059 Reverberatory - rotary
3022 Reverberatory - sweat
3021 Reverberatory - other
3023 Rotary furnace - non-reverberatory
3024 Smelt-crucible furnace
3025 Smelt-reverberatory furnace
3026 Sweating furnace
3027 Other/not specified

MATERIAL HANDLING/MISCELLANEOUS

3062 Abrasives blasting
3078 Alodyning
3029 Annealing
3065 Annealing - continuous
3063 Anodizing
3069 Buffing/polishing
3031 Can making operations
3046 Casting - miscellaneous
3033 Chlorination station
3062 Cleaning - abrasives blasting
3034 Cleaning - chemical
3076 Conveying
3068 Crushing/shredding
3035 Drawing
3036 Drilling
3037 Extruding
3047 Fabricating - miscellaneous
3039 Finishing - soak pit
3038 Finishing - other/not specified
3040 Foil converting
3041 Foil rolling
3042 Galvanizing
3043 Grinding
3044 Honing
3045 Lead oxide manufacturing
3067 Machine shop operations
3061 Milling/turning
3046 Miscellaneous casting
3047 Miscellaneous fabricating
3048 Mixing
3064 Non-destructive coating
3049 Paste mixer (lead batteries)
3072 Pickling
3050 Pitch treating (furnace electrode mfg)
3051 Plating (not chrome)
3070 Plating dec chrome-hexavalent <=500,000 amphr
3080 Plating dec chrome-hexavalent >500,000 amphr
3079 Plating dec chrome-trivalent
3071 Plating hard chrome-hexavalent
3081 Plasma metal application (thermal spraying)
3052 Reaming
3073 Refining
3053 Rolling
3054 Sand handling
3055 Sanding
3056 Sawing
3077 Screening
3060 Sintering
3075 Soldering
3057 Storage
3074 Ventilation
3066 Welding
3999 Other/not specified

TABLE G-4

MINERAL PROCESSES

DRYING (Kilns/Dryers/Ovens)

4002 Calcimatic kiln
4082 Cement calcining kiln
4003 Coke dryer
4004 Curing oven
4005 Fluidized bed kiln
4006 Rotary dryer
4070 Rotary kiln
4007 Vertical kiln
4008 Other/not specified

FURNACES

4010 Cupola
4012 Electric furnace
4011 Electric induction furnace
4013 Reverberatory furnace - other
4014 Reverberatory furnace - recupex
4015 Reverberatory furnace - regenex
4071 Rotary - non-reverberatory
4016 Soda lime genl furnace (glass manufacturing)
4072 Vertical furnace - other
4017 Other/not specified

MATERIAL HANDLING/MISCELLANEOUS

4073 Abrasives blasting
4019 Asphalt blowing
4020 Asphalt dipping
4077 Asphalt mixing - batch/continuous
4078 Asphalt mixing - rotary drum
4021 Asphalt spraying
4022 Bagging
4073 Blasting - abrasives cleaning
4023 Blasting - quarry
4024 Blow chamber
4075 Calcining
4025 Coal cleaning - therm/flash
4026 Coal cleaning - therm/fluid bed
4027 Coal cleaning - therm/multi low pd
4028 Concrete batching - asbestos/cement products
4029 Concrete batching - other
4030 Conveying
4031 Cooling
4032 Crushing
4033 Drying (open air)
4034 Electric arc melting
4035 Fiberizing
4036 Forming line (fiberglass manufacturing)
4037 Furnace room venting
4074 Glass enamel spraying
4038 Glass manufacturing - batching
4039 Glass manufacturing - material receiving
4040 Glass manufacturing - material storage
4041 Glass manufacturing - mixing
4042 Glass manufacturing - molten holding tanks
4043 Glass manufacturing - other/not specified
4044 Grinding
4045 Hold/shakeout
4046 Hydrator
4079 Loading - feed/surge/weigh bins
4080 Loading/unloading (non-mining/quarry)
4047 Milling
4048 Mining/quarry - cobbing
4053 Mining/quarry - crushing (primary)
4054 Mining/quarry - crushing (secondary)
4069 Mining/quarry - crushing (tertiary)
4061 Mining/quarry - loading/unloading
4049 Mining/quarry - open pit blasting
4050 Mining/quarry - open pit cobbing
4051 Mining/quarry - open pit drilling
4052 Mining/quarry - ore concentrating
4055 Mining/quarry - stockpiling
4056 Mining/quarry - stripping
4057 Mining/quarry - surface blasting
4058 Mining/quarry - surface drilling
4059 Mining/quarry - tailing piles
4060 Mining/quarry - tailings
4062 Mining/quarry - ventilating
4068 Mining/quarry - other
4081 Mixing operations
4063 Road surfacing
4073 Sand blasting
4064 Screening
4065 Sintering
4066 Stone cutting
4067 Storage - contained
4076 Storage - open
4037 Venting - furnace room
4099 Other/not specified

TABLE G-5

PETROLEUM REFINING PROCESSES

CODE	PROCESS	CODE	MATERIAL	USAGE UNITS
5040	Air Stripping/DAF processing	300	Waste Water	1000 barrels
5030	Alkylation	195	Hydrocarbons - olefinic	1000 barrels feed
5001	Asphalt oxidizer	30	Asphalt	tons processed
5002	Blow-down system - w/ controls	340	Crude oil *	1000 bbl/day ref cap
5003	Blow-down system - w/o controls	340	Crude oil *	1000 bbl/day ref cap
5004	Catalytic reforming	342	Cat reformer fresh feed	1000 barrels fresh feed
5023	Chemical treating - other	239	Feedstock	1000 barrels
5038	Coke storage piles (open)	80	Coke	tons
5025	Converting - other/not specified	239	Feedstock	1000 barrels
5005	Cooling tower	428	Water - brackish/sea	1000 gallons
5005	Cooling tower	415	Water - fresh	1000 gallons
5005	Cooling tower	300	Waste Water	1000 barrels
5018	Delayed coking	343	Delayed coke product	tons produced
5027	Distillation - crude	89	Crude oil	1000 barrels
5032	Distillation - vacuum	339	Vacuum distillation feed	1000 barrels
5028	Distillation - other	239	Feedstock	1000 barrels
5034	Flexicoking	346	Coker fresh feed	1000 barrels fresh feed
5007	Fluid cat cracker	344	FCC fresh feed	1000 barrels fresh feed
5008	Fluid coking - cooling	345	Fluid coke product	tons produced
5009	Fluid coking - general	346	Coker fresh feed	1000 barrels fresh feed
5010	Fluid coking - storage	345	Fluid coke product	tons produced
5011	Fluid coking - transportation	345	Fluid coke product	tons produced
5021	Hydrocracking	239	Feedstock	1000 barrels
5026	Hydrogen manufacturing	50	C1-C2 paraffins	million cubic feet
5026	Hydrogen manufacturing	52	C3+ paraffins	1000 barrels feed
5026	Hydrogen manufacturing	188	Naphtha	1000 barrels feed
5022	Hydrotreating/hydrofining	239	Feedstock	1000 barrels
5031	Isomerization	52	C3+ paraffins	1000 barrels feed
5039	Marine loading/unloading berths	80	Coke	tons
5017	Oil-water separator	300	Waste water	1000 barrels
5017	Oil-water separator	427	Process water	1000 gallons
5024	Polymerization	195	Hydrocarbons - olefinic	1000 barrels feed
5012	Process drain - w/controls	442	Waste water - sour	1000 barrels
5012	Process drain - w/controls	300	Waste water	1000 barrels
5013	Process drain - w/o controls	442	Waste water - sour	1000 barrels
5013	Process drain - w/o controls	300	Waste water	1000 barrels
5017	Separator - oil/water	300	Waste water	1000 barrels
5017	Separator - oil/water	427	Process water	1000 gallons
5014	Sludge converter	347	Sludge	tons produced
5029	Solvent extraction	***	(use specific Materials Code)	
5037	Sour water stripping	442	Waste water - sour	1000 barrels
5035	Sulfur removal - other/caustic	238	Refinery fuel gas	million cubic feet
5019	Thermal cracking	446	Thermal cracker fresh feed	1000 barrels feed
5020	Thermal processing - other	446	Thermal cracker fresh feed	1000 barrels feed
5032	Vacuum distillation	339	Vacuum distillation feed	1000 barrels
5015	Vacuum jet - w/ controls	339	Vacuum distillation feed	1000 barrels
5016	Vacuum jet - w/o controls	339	Vacuum distillation feed	1000 barrels
5033	Wastewater storage - ponds	300	Waste water	1000 gallons
5036	Wastewater storage - tanks	300	Waste water	1000 gallons
5993	Other/not specified	80	Coke	tons
5994	Other/not specified	89	Crude oil	1000 barrels
5995	Other/not specified	239	Feedstock	1000 barrels feed
5997	Other/not specified	339	Vacuum distillation feed	1000 barrels
5998	Other/not specified	338	Waste gases	million cubic feet
5999	Other/not specified	321	Other petroleum products	1000 gallons

NOTE: Each process listed in Table G-5 has a specific material associated with it for use on the G-Form.
*****Code 340 for crude oil for these processes must be used; emissions are dependent on total refinery capacity rather than on throughput. Use code 89 for crude oil in any other process.

TABLE G-7

CHEMICAL PROCESSES

7019	Air blow ml brine
7020	Ammoniating
7016	Ammonium sulfate mfg - NH_3/H_2SO_4 proc
7018	Ammonium sulfate mfg - coke oven byprdcts
7131	Biological oxidation
7021	Bodying oil
7022	Boiling tub
7023	Brine evaporation
7096	Calcining - rotary kiln
7024	Calcining - other
7030	Carbon black manufacturing - other process
7132	Carbon dioxide liquifaction plant
7031	Carpet operation
7032	Caulking
7998	Chemical reaction - other/not specified
7173	Chemical reactor – greater than 1000 gallons
7073	Chemical reactor - other/not specified
7055	Claus - modified 2 stage
7056	Claus - modified 3 stage
7057	Claus - modified 4 stage
7033	Condensing
7155	Contaminated ground water stripping
7156	Contaminated soil remediation
7034	Cooking
7035	Creosote pressure treating
7114	Crystallizing
7036	Cyclohex - general
7151	Dipping/cleaning tank
7037	Distillation
7133	Etching
7038	Ethylene dichloride mfg - direct chlorination
7039	Ethylene dichloride mfg - oxychlorination
7023	Evaporation - brine
7110	Evaporation - other
7040	Fabrics manufacturing - bleaching
7041	Fabrics manufacturing - yarn prep
7042	Fabrics manufacturing - other/not specified
7152	Feed/holding tank
7158	Gas collection system
7044	Gas purging
7046	Gypsum pond
7130	Hydrochloric acid manufacturing
7148	Hydrochloric acid regeneration
7043	Injection – NOx control system
7144	Laboratory
7145	Landfill with gas collection system
7159	Landfill without gas collection system
7132	Liquifaction - CO2 plant
7053	Liquifaction - diaphragm
7054	Liquifaction - merc cell
7055	Mod-Claus 2 stage
7056	Mod-Claus 3 stage
7057	Mod-Claus 4 stage
7097	Neutralizing
7062	Nitration reactors
7051	Nitric acid - paraxylen gen
7052	Nitric acid concentrators
7063	Nitric acid mfg - ammonia oxid new
7064	Nitric acid mfg - ammonia oxid old
7131	Oxidation, biological
7065	Phosphoric acid manufacturing - thermal
7066	Phosphoric acid manufacturing - wet process
7147	Phosphoric acid manufacturing - other
7154	Photographic equipment
7067	Pressure treating - other
7068	Prilling
7153	Process tank
7071	Pulpboard manufacturing
7072	Pyrolysis
7073	Reactor - other/not specified
7074	Regenerator
7075	Rubberized fabric mfg - hot melt coating
7076	Rubberized fabric mfg - impregnation
7077	Rubberized fabric mfg - wet coating
7078	Rubberized fabric mfg - other/not spec
7080	Scrubber
7081	Seelite exhaust
7160	Separating – DAF processing
7103	Separating - oil/water
7098	Separating - other
7290	Sewage - Digesters
7270	Sewage - Disinfection
7230	Sewage - Flow equalization
7210	Sewage - Preliminary treatment
7220	Sewage - Primary treatment
7300	Sewage - Reclamation
7250	Sewage - Secondary clarifiers
7240	Sewage - Secondary treatment
7280	Sewage - Sludge handling processes
7260	Sewage - Tertiary treatment
7200	Sewage - Wastewater treatment plant
7058	Sodium carbonate Solvay - NH3 recovery
7059	Sodium carbonate Solvay - handling
7060	Sodium carbonate Trona - calcining
7061	Sodium carbonate Trona - dryer
7146	Sterilization - medical equipment
7089	Sulfate pulping - other/not specified
7082	Sulfate pulping - blow tank accumulator
7083	Sulfate pulping - fluidbed calciner
7084	Sulfate pulping - liquor oxidation tower
7085	Sulfate pulping - mult-effect evaporation
7086	Sulfate pulping - smelt dissolv tank
7087	Sulfate pulping - turpentine condenser
7088	Sulfate pulping - washer/screen
7090	Sulfite pulping - digester
7091	Sulfite pulping - evaporator
7092	Sulfite pulping - liquor recovery
7093	Sulfite pulping - pulp digester
7094	Sulfite pulping - smelt tank
7095	Sulfite pulping - other/not specified
7047	Sulfuric acid mfg - chamber process
7048	Sulfuric acid mfg - contact process
7050	Sulfuric acid mfg - other/not specified
7049	Sulfuric acid regenerators
7157	Tank/drum/container cleaning
7073	Other chemical - reactor
7998	Other chemical reaction - other/not spec
7999	Other process/not specified

TABLE G-8

MISCELLANEOUS PROCESSES

DRYING (Dehydration/Kilns/Dryers/Ovens)

7006 Natural gas dehydrating
7002 Pigment drying
7003 Spray drying
7004 Veneer drying
7005 Drying - other/not specified

MATERIAL HANDLING

7116 Bagging/packaging
8007 Coke storage pile
7007 Drying
7045 Granulating
7008 Grinding
7009 Loading - storage tank
7010 Loading - tank car
7108 Milling
7011 Mixing
7115 Pelletizing
7017 Pumping facility - organic liquids
7012 Sanding
7014 Storage
7013 Material handling - other/not spec

MISCELLANEOUS

7109 Abrasives blasting
7109 Cleaning - abrasives blasting
8001 Coating operation - powder, other non-solvent
8010 Conveying
7164 Composting - windows
7165 Composting - aerated static piles
7166 Composting - in-vessel
7105 Cooling - pond
7104 Cooling - tower
7106 Cooling - other
8011 Crematory retort
8003 Expanders - plastics, other
8004 Extruders - plastics, other
7045 Granulating
7143 Insulation stripping - wire
7143 Laser-stripping - wire insulation
7170 Latex dipping
8005 Material working equipment - plastics, other
7111 Molding/curing - plastics
7112 Molding/curing - rubber
7113 Molding/curing - other/not specified
8002 Oven
8006 Paper/paperboard handling equipment
7109 Sand blasting
7079 Sawmill operation
8008 Screening/Separating
8009 Shredding/Mangling/Cutting
8012 Waste material grinding
7161 Wastewater – industrial storage ponds
7143 Wire insulation stripping - laser
7107 Woodworking - other/not specified
8999 Other process - not specified

TABLE G-9

FUGITIVE EMISSION SOURCES

FUGITIVE EMISSIONS

9000 Combined fugitive emission sources
9010 Refinery flaring/blowdown
9070 Refinery pressure relief valves
9080 Refinery process drains
9040 Refinery process vessels
9060 Refinery pumps/compressors
9030 Refinery vacuum products
9050 Refinery valves/flanges

Table 1 Potential VOC Emission Estimates for Soil Aeration
2868 Hannah St. in Oakland, California

Sample Location	Sample Depth	PCE	TCE	cis-1,2-DCE	Vinyl chloride
RB-1 5.0'	5	559	4.8	1.2	1
RB-1 10.0'	10	2640	46.9	46.1	1.3
RB-1 15.0'	15	3270	42.4	45.1	7.2
RB-1 20.0'	20	4050	33	72	65
RB-2 5.0'	5	0.68	0.57	1.2	1.1
RB-2 10.0'	10	0.63	0.52	1.2	1
RB-2 15.0'	15	0.72	0.6	1.3	1.2
RB-2 20.0'	20	0.67	0.56	1.2	1.1
RB-3 5.0'	5	1140	31	67	61
RB-3 10.0'	10	9640	116	243	220
RB-3 15.0'	15	11800	213	325	230
RB-3 20.0'	20	6300	69.9	130	110
RB-4 5.0'	5	0.67	0.55	1.2	1.1
RB-4 10.0'	10	0.58	0.48	1.1	0.97
RB-4 15.0'	15	0.7	0.59	1.3	1.2
RB-4 20.0'	20	0.62	0.51	1.1	1

Maximum Concentration (ug/kg)	11800	213	325	230
Average Concentration (ug/kg)	2463	35	59	44

Total Mass of VOC based on Maximum Concentration (lbs)	27.88	0.50	0.77	0.54
Total Mass of VOC based on Average Concentration (lbs)	5.82	0.08	0.14	0.10

Air Emision Rate based on Maximum Concentration (lbs/hr)	1.91E-03	3.45E-05	5.26E-05	3.72E-05
Air Emision Rate based on Average Concentration (lbs/hr)	3.99E-04	5.68E-06	9.50E-06	7.12E-06
Acute Trigger Level (lbs/hr)	4.40E+01	7.00E-03	--	4.00E+02

Air Emission Rate based on Maximum Concentration (lbs/yr)	16.73	0.30	0.46	0.33
Air Emission Rate based on Average Concentration (lbs/yr)	3.49	0.05	0.08	0.06
Chronic Trigger Level (lbs/yr)	18.00	54.00	--	1.40

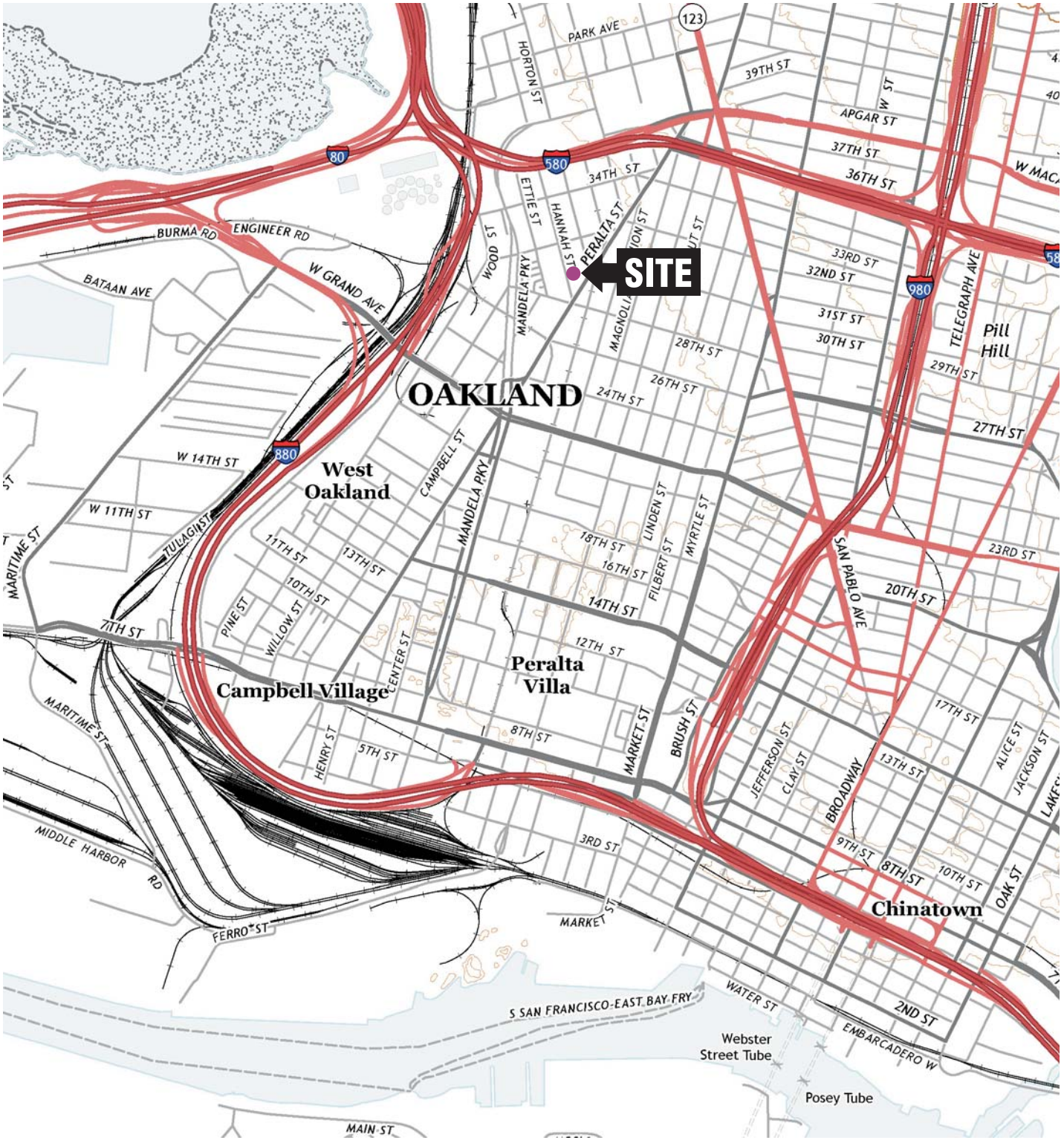
Total VOC Load based on Maximum Concentration (lbs)	**29.69**
Total VOC Air Emission Rate Load based on Maximum Concentration (lbs/yr)	**17.82**
Total VOC Load based on Average Concentration (lbs)	**6.14**
Total VOC Air Emission Rate Load based on Average Concentration (lbs/yr)	**3.69**

Assumptions:

Assume soil weight of 100 pcf.
Assume 90% removal of VOCs over a 18 month period.

Notes:
Soil concentration units are micrograms per liter **(µg/kg)**
The laboratory reporting limit was used when the concentration was below the reporting limit.

Acronyms:
PCE - Tetrachloroethene
TCE - Trichloroethene
cis-1,2-DCE - cis-1,2-Dichloroethene
trans-1,2-DCE - trans-1,2-Dichloroethene
1,1-DCE - 1,1-Dichloroethene



QUADRANGLE LOCATION

SOURCE:
USGS; 2015, Oakland West, CA
7.5 Minute Topographic Quadrangle

N

0 2000’

Title:

VICINITY MAP

2868 HANNAH STREET
OAKLAND, CALIFORNIA

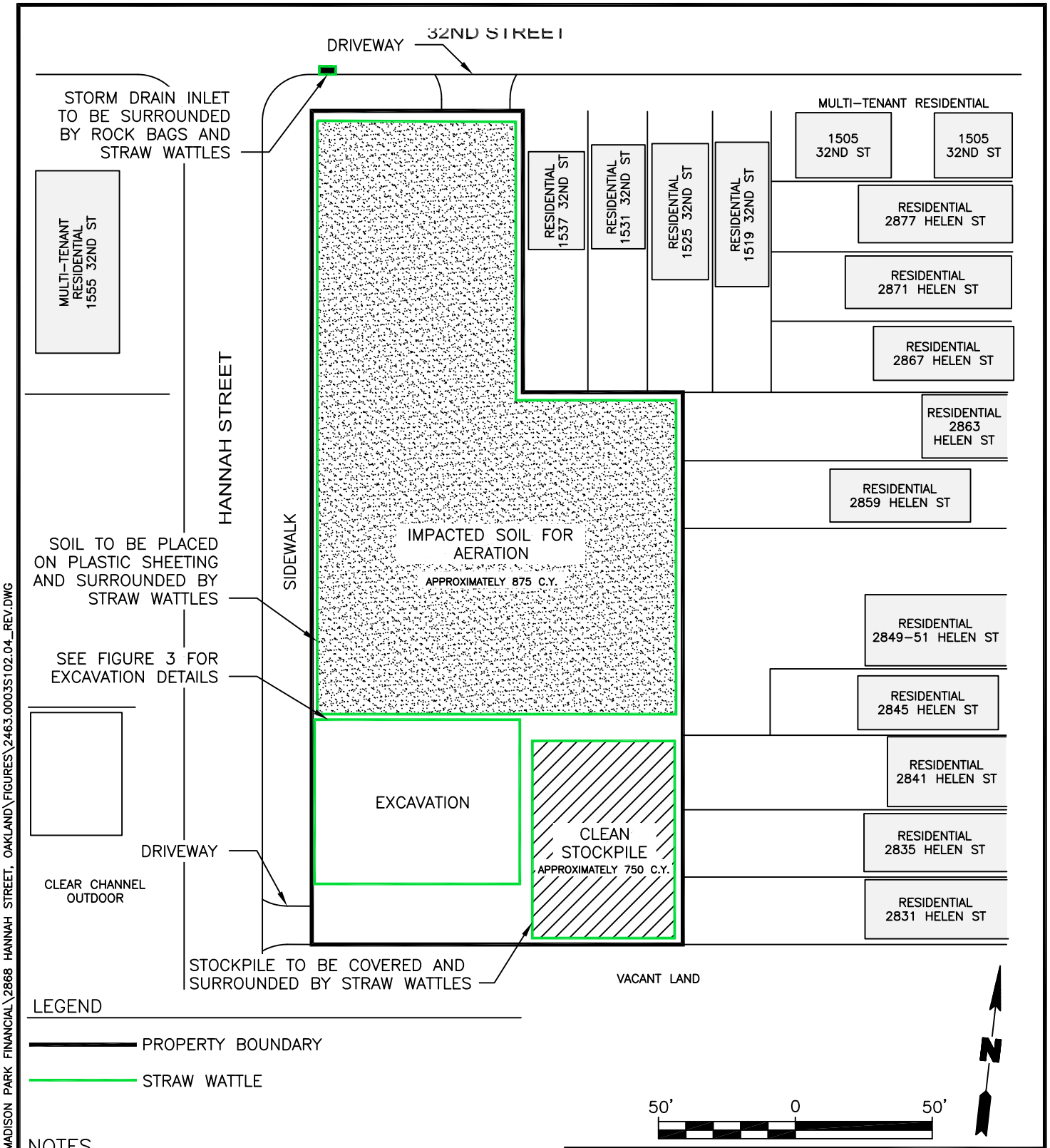
Prepared for:

MADISON PARK FINANCIAL

ROUX
ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: U.P.	Date: 17APR15	FIGURE
Prepared by: B.H.C.	Scale: AS SHOWN	1
Project Mgr.: A.C	Project No.: X-7748	
File: X7748.01.CDR		

\PROPOSALS\X-7748\7748.01.CDR



NOTES

1. EXCAVATION WILL REMAIN COVERED AND SURROUNDED BY STRAW WATTLES DURING AERATION.
2. STORM DRAIN INLET TO BE PROTECTED IN ACCORDANCE WITH CALTRANS CONSTRUCTION BMP MANUAL DETAIL SC-10.
3. EXCAVATION AND STOCKPILES WILL BE PROTECTED IN ACCORDANCE WITH CALTRANS CONSTRUCTION BMP MANUAL DETAILS SS-07 AND WM-03, RESPECTIVELY.
4. HOURS OF OPERATION: 7:00 AM – 5:30 PM.

Title:

SOIL AERATION SITE PLAN

2868 HANNAH STREET
OAKLAND, CALIFORNIA

Prepared For:

2868 HANNAH ST., LLC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: N.R.	Date: 30JUL15	FIGURE
Prepared by: N.R.	Scale: AS SHOWN	2
Project Mgr: A.C.	Project: 2463.0003S000	
File: 2463.0003S102.04_REV.DWG		

\\ROUXNYFP01\OAKLAND SHARED\CLIENTS\MADISON PARK FINANCIAL\2868 HANNAH STREET, OAKLAND\FIGURES\2463.0003S102.04_REV.DWG