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July 17, 2007

ACEH Fuel Leak Case ROOOO041

Thomas & Nancy Gillis
1153 Copper Verde Lane
Modesto, California 95355

Alameda County Health Care Services - Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda California 94502-6577

Subject: **Work Plan for Additional Site Characterization**
1225 Mandela Parkway, Oakland, California

Dear Sirs:

Upon my authorization, Golden Gate Tank Removal, Inc. has prepared a Work Plan for the above-referenced property. This work plan presents GGTR's preliminary findings, opinions, conclusions, and proposed methodology regarding the environmental conditions at the site. Should you have any questions, please contact Mr. Brent Wheeler, Project Engineer of GGTR (415) 512-1555 at your convenience.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

Respectfully Submitted,
Brent Wheeler, Golden Gate Tank Removal, Inc.

For **Thomas & Nancy Gillis**

Distribution: (1) Addressee



WORK PLAN
for
ADDITIONAL SITE CHARACTERIZATION

Commercial Property
1225 Mandela Parkway, Oakland, California

ACHCSA Fuel Leak Case No. R0000041

Prepared For:

Mr. Thomas O. Gillis
1153 Copper Verde Lane
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Prepared By:

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GGTR Project No. 7519
July 17, 2007


Mark Youngkin
Registered Geologist CEG 1380



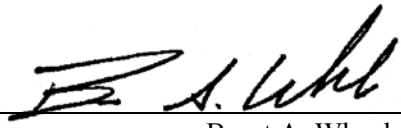

Brent A. Wheeler
Project Manager

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1225 Mandela Parkway, Oakland, California

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WORK PLAN FOR ADDITIONAL SITE CHARACTERIZATION

Commercial Property

1225 Mandela Parkway, Oakland, California

Fuel Leak Case Number ROOOO041



INTRODUCTION

Golden Gate Tank Removal, Inc. (GGTR) is submitting this work plan for additional source and site characterization at the commercial property located at 1225 Mandela Parkway in Oakland, Alameda County, California (called site in this document). This work plan was prepared in response to the January 23, 2007 directive letter issued by the Alameda County Health Care Services Agency (ACHCSA) - Environmental Protection Division requesting additional environmental action at the site. In accordance with the comments presented in the directive letter, the purpose of this work plan is to describe the procedures and methods used to conduct additional source and site characterization followed by limited remedial action. A copy of the ACHCSA directive letter is included in the attachments (Appendix C).

SITE LOCATION AND DESCRIPTION

The site is at the southwest corner of Mandela Parkway (former Cypress Street) and 13th Street in a mixed-use residential, commercial and industrial neighborhood called West Oakland. The site lies approximately 0.54 mile (2,850 feet) south of West Grand Avenue and approximately 1.3 miles southeast of Interstate 80 and the San Francisco Bay. The location of the site is shown on the attached Figure 1, *Site Location Map* (Appendix A). Adjoining properties to the south of the site are residential. A parking lot and church is located adjacent to the site on the west and in the estimated down-gradient direction. A park is located across 13th Street to the north. Across Mandela Parkway to the east is an industrial facility with a sign labeled "Mayway" USA. Figure 2, *Site Vicinity Map*, shows an aerial photograph of the surrounding neighborhood. VA Transportation, Inc. has occupied the site for an office and truck storage lot since 2003. The site is approximately 12,100 square feet in lot area with a 1,100 square foot office building. The building is centrally located and the remaining area is used for truck parking. The ground surface is paved with asphalt except for small areas of concrete on the east and west sides of the building. A 25 x 25 foot overhead canopy covers the existing concrete dispenser island on the east side of the building. The site and existing structures are shown on the attached Figure 3, *Site Plan*. Photographs of the site are presented on Photograph Pages 1 & 2 (Appendix B).

PHYSICAL SETTING

The site lies east of San Francisco Bay and the Oakland Outer Harbor in West Oakland (see Figure 1, *Site Location Map*). West Oakland occupies a broad alluvial plain formed by streams flowing from the Oakland Hills on the east to the San Francisco Bay on the west. GGTR reviewed the United States Geological Survey (USGS) 1980 topographic quadrangle map named Oakland West for physical features. GGTR also reviewed the GeoCheck® – Physical Setting Source Addendum provided by Environmental Data Resources, Inc (EDR). The documents show

surrounding ground surface elevations ranging from sea level to 25 feet. The elevation of the property as reported on these sources is 20 feet above mean sea level. During the site reconnaissance, the site appeared level with no discernable relief. The topographic map depicts the area of the site as dense urban development with no remaining natural landscape. The surrounding neighborhood contains mixed-use residential, commercial and industrial buildings, see Figure 2, *Site Vicinity Map*. The topographic relief in the immediate vicinity of the site is gentle and sloping to the west-northwest toward the Oakland Outer Harbor and San Francisco Bay.

ENVIRONMENTAL HISTORY

The following environmental site history is summarized from previous reports, tables and drawings. This summary is not intended to be a complete narrative of site activities - but rather a cursory review of historical site events. Information in this summary is derived from other sources and GGTR does not guarantee the accuracy of reported events performed by others. Refer to the original documents for source information. Figure 3, *Site Plan* summarizes the approximate and estimated position of site borings and soil sample locations. The tables attached in Appendix B present the laboratory analysis results of soil and grab groundwater sampling.

UST Removal - July 1996

On July 11, 1996, TEC Accutite Environmental Engineering (TEC) of South San Francisco, California, removed two 4,000-gallon diesel underground storage tanks (UST) #1 & 2 and one 4,000-gallon gasoline UST #3 at the approximate positions shown in Figure 3, *Site Plan*. Discrete soil samples collected beneath the ends of each UST at approximately 11 feet below grade (fbg) contained non-detectable and/or insignificant concentrations of TPH as gasoline, BTEX, and MTBE. However, soil samples collected from the south ends of UST #'s 1 & 2 contained 110 and 320 milligrams per kilogram (mg/kg) TPH as diesel, respectively. The soil sample collected from the north end of UST #2 contained 1,300 mg/kg TPH as diesel. The approximate location of each excavation soil sample is shown in Figure 3 and the results of laboratory analyses are presented in Table 1. Apparently, no groundwater samples were recovered during the removal of the USTs.

The common UST excavation was not backfilled following the removal of USTs and three stockpiles of excavated soil were left onsite. The ACHCSA, in a letter dated January 3, 1997, requested additional activities at the site including: 1) Excavation sidewalls on the north and south ends of diesel UST #'s 1 and 2 be scraped and re-sampled for diesel-range hydrocarbon analysis, 2) Subsurface product piping and associated fuel dispensers be removed with confirmation soil sampling, 3) Existing tank excavation be backfilled with the gasoline UST stockpile soil and clean imported fill, 4) Stockpiled soil from diesel UST excavation be transported under uniform waste manifest and disposed at a State-licensed landfill facility, and 5) The inactive 425-gallon waste oil UST located west of the subject site building be removed and underlying soil be sampled for waste oil constituents. On August 11, 1997, the ACHCSA submitted a *Directive and Order Pursuant to Health & Safety Code Section 25299* requiring this work be performed at the site.

Confirmation Soil Sampling - June 1998

On June 17, 1998, as witnessed by the Oakland Fire Department, GGTR collected five discrete soil samples from the four sidewalls (@ 9 fbg) and bottom (@ 10 fbg) of the open gasoline/diesel UST excavation. GGTR also collected one four point composite sample from the three stockpiles of soil generated during the gasoline/diesel UST removal activities in July 1997. The approximate locations of each soil sample are shown in Figure 3, *Site Plan*, as sample locations 7519-B-N, -S, -E, -W & -C. No groundwater was sampled at this time. Except for insignificant detectable concentrations of TPH-G (2.0 mg/kg) and total xylenes (0.030 mg/kg) measured in the soil sample collected from the east sidewall of the excavation, the TPH as gasoline, BTEX, and MTBE concentrations measured in the excavation and stockpile composite sample were below laboratory reporting limits. Results of the soil sampling activities were submitted to both the ACHCSA and Oakland Fire Department in GGTR's July 9, 1998, letter report of *Gasoline Tank Soil Sampling and Analyses*.

Waste Oil UST Removal - June 1998

On June 17, 1998, under the supervision of the Oakland Fire Department, GGTR removed one inactive 425-gallon waste oil UST at the approximate location shown in Figure 3. The bottom of the UST was at approximately 7 fbg. GGTR collected one discrete soil sample from below the UST excavation at approximately 9 fbg and one four point composite sample from the soil stockpile. The soil sample collected beneath the UST contained 70 mg/kg of TPH. The soil stockpile contained 5800 mg/kg of TPH. As requested by the Oakland Fire Department, GGTR, in October 1998, transported the stockpiled soil under Uniform Hazardous Waste Manifest No. 98601044 to the Class I Chemical Waste Management disposal facility in Kettleman City, California. The excavation was backfilled with clean imported fill material and compacted, and repaved. Additional details are presented in GGTR's *Tank Closure Report* dated July 24, 1998.

Over-Excavation of Diesel USTs – April 1999

On October 23, 1998, pursuant to the ACHCSA's August 1997 Directive and Order requirements, GGTR submitted their *Work Plan for Additional Work*, which was approved by the ACHCSA in their letter dated February 1, 1999. On April 22-23, 1999, GGTR over-excavated and removed the diesel-impacted soil from both the north and south sidewalls of the former diesel UST locations. Two discrete confirmation soil samples (Sample ID's 7519D1-S & 7519D2-S) were collected from the south sidewall and one discrete sample (Sample ID 7519D2-N) was collected from the north sidewall at approximately 11 fbg. Soil samples were collected north and south of the previous sample locations reported during the 1996 UST removal activities. No detectable petroleum hydrocarbon was reported in the excavation sidewall samples. GGTR collected one grab groundwater sample (Sample ID 7519) within the open excavation at a depth of 11 fbg. The over-excavation groundwater sample contained 70 ug/l of TPH as gasoline. GGTR also removed three fuel dispensers and collected two additional soil samples (Sample ID's 7519I-S & -N) beneath the north and south ends of the dispenser island at approximately 2 fbg. The approximate locations of each sample are shown on Figure 3, *Site Plan*. The soil samples recovered from beneath the fuel dispensers contained 960 and 12,000

mg/kg of TPH as diesel. GGTR was not authorized to backfill the excavation at this time nor did GGTR remove the associated subsurface piping extending to the dispenser island.

Excavation Backfill – April 2000

On March 30, 2000, GGTR collected a four point composite sample (Sample ID 7519-SP DISP) of the stockpile generated during the over-excavation of the diesel-impacted soil. The TPH-G, TPH-D, BTEX, and MTBE concentrations measured in the composite sample were below the respective laboratory reporting limit. The composite sample contained 140 mg/kg total lead, the results of which were submitted for review of use as appropriate UST excavation backfill material. The ACHCSA, in a letter dated April 4, 2000, approved the soil as acceptable backfill material based upon conditional approval by the OFSA. On April 6, 2000, the Oakland Fire Department verbally approved GGTR's request. Between April 7 and 12, 2000, GGTR returned to the site and backfilled the excavation with stockpiled soil and clean, imported Class II base rock, and compacted the backfill material in 2-foot lifts. GGTR then resurfaced the excavation with asphalt pavement according to the owner's specifications and cleaned the site to its original condition. As requested by the ACHCSA, GGTR, on August 1, 2005, submitted their *UST Removal and Remedial Investigation Summary Report*. The ACHCSA, in a letter dated December 1, 2005, requested a work plan for further soil and water investigation.

Product Line Removal – May 2006

On January 21, 2006, pursuant to the ACHCSA's December 1, 2005, letter requirements, GGTR submitted their *Work Plan for Additional Site Characterization*, which was approved by the ACHCSA in their letter dated April 11, 2006. On May 19, 2006, GGTR conducted excavation and product line removal activities at the subject property. Product lines were exposed beneath each former dispenser and exposed to the vicinity of the former UST excavation where the lines terminated. At approximately every 20 feet, GGTR hand augured approximately 2 feet below the product piping invert into native soil and collected a discrete soil sample for laboratory analysis. About 85 feet of product piping was then removed from the trench. All product piping was found in good condition and void of any residual product. The trench was backfilled with stockpiled overburden soil to grade surface.

Additional Site Characterization – June 2006

On June 7, 2006, GGTR in collaboration with En Probe Environmental Probing (EnProbe) conducted soil boring and sampling activities to further delineate the lateral and vertical extent of soil and groundwater contamination in the vicinity of the former gasoline and waste oil USTs and associated former fuel dispensers. The locations of the soil borings (SB-1 to SB-4) and Hydropunch borings (HB-1 to HB-3) are shown on the attached Figure 3, *Site Plan*. Borings were generally drilled to approximately 12-16 feet below grade where refusal in heaving sands was encountered. Soil samples were collected between 5 and 11 feet fbg. Soil samples were not collected in the Hydropunch borings. Soil sample laboratory results associated with each product line / boring sample are presented in Figure 4, *Soil Sample Hydrocarbon Results*. Table 2, attached, presents the laboratory analysis results of product line and soil boring samples.

Following drilling activities, EnProbe temporarily placed 0.75-inch-diameter, factory-sealed, screened piezometer casing to the approximate total depth of each borehole. EnProbe collected a grab groundwater sample in each borehole using a low-flow peristaltic pump and disposable poly tubing. The laboratory analysis results of grab groundwater samples associated with each soil or Hydropunch boring is presented on Figure 5, *Grab Groundwater Sample Hydrocarbon/Lead Results*. The attached Table 3 presents the laboratory analysis results of the grab groundwater samples. On June 8, 2006, approximately 24 hours following the completion of the boring and sampling activities, GGTR returned to the site and monitored and recorded the depth to water in temporary piezometers HB-1 to HB-3. GGTR surveyed the top of casing elevation of each piezometer to an arbitrary site datum of 15 feet (not to mean sea level). Following the removal of temporary well casing, each borehole was backfilled with neat Portland cement and repaved. Figure 6, *Groundwater Gradient Data* shows the estimated groundwater elevation isocontour lines, gradient, and flow direction across the site.

PREFERENTIAL PATHWAY SURVEY

Based upon the results of previous investigation at the site, the ACHCSA in their January 23, 2007, letter requested that a "Preferential Pathway Survey" be performed within the vicinity of the subject property. The survey describes the potential migration pathways and conduits (utilities, storm drains, etc.) that may be present on and in the vicinity of the site. The purpose of the survey is to locate potential migration pathways / potential conduits and determine the probability of the groundwater plume encountering preferential pathways that could spread the contamination. Of particular concern is the identification of abandoned wells and improperly-destroyed wells that can act as conduits to deeper water bearing zones. The survey is used in conjunction with historical research described in later sections of this document.

Utility Survey

GGTR provided for a subsurface utility survey of the site and adjacent utility corridors. As shown on Figure 7, *Subsurface Utility Plan*, various utility conduits are present in the vicinity of the site. On-site utilities consist of water, gas, electrical and sewer connections to the restroom area located at the northwest corner of the building. The potable water line is believed to cross the site at a depth of 11 inches below grade and connect to the water main within 13th Street at a flow-line depth estimated at 4 fbg. Although several attempts to trace the sanitary sewer lateral at the site failed, the sewer connection is believed to run northward at a shallow depth (<24") across the site. The sanitary sewer then connects to an estimated 10" sanitary sewer line that runs along 13th Street at a flow-line depth estimated at approximately 3 feet. This sewer line flows westward connecting with sanitary sewer lines within Center Street. The PG&E gas line runs along the south margin of 13th Street at a depth of 30 inches. The gas line crosses the northern portion of the site at a depth of about 33 inches.

Electrical service to the building is by overhead wires from the northwest corner of the building. Underground electrical service (11 inch depth) was also traced from the northwest corner of the building to a light pole at the northwest corner of the property. Similar light poles at the northeast and southeast corners of the site are also believed to have underground electrical lines that cross

the site at shallow depths (approx. 12 inches). A large abandoned sign pole located at the southeast corner of the property may also have had electrical power that is presumed to cross the site at a shallow depth (approx. 12 inches).

A shallow storm water catch basin is located at the southeast corner of the site. The catch basin connects beneath the sidewalk to a City storm water catch basin within the gutter of Mandela Parkway. The catch basin line connects to the 16"-diameter storm conduit beneath Mandela Parkway at an invert depth measured at 3.8 feet bsg. Utility maps provided for Mandela Parkway appear to be out-of-date still showing the Cypress Freeway and erroneous flow line depths. As the groundwater table has been preliminary measured on the site varying from 6-8.25 feet bsg, the various utility conduits under 13th Street and Mandela Parkway do not appear to provide preferential pathways for groundwater flowing northwestward (down-gradient) from the site. No obvious preferential utility pathway for groundwater flow within the subject property itself has been identified. Utility maps indicate that storm conduits at the intersection of 13th Street and Center Street (about 220 feet northwest and down-gradient of the site) have invert flow lines deeper than 6 feet and potentially could capture groundwater flow.

Well Survey

As part of the preferential pathway survey, GGTR conducted a survey of recorded water wells. The purpose of the survey was to document whether any water wells exist within area of the site and whether they may potentially act as receptors for offsite migration of the hydrocarbon-affected groundwater. On June 8, 2007, GGTR submitted a well completion report release agreement to the Department of Water Resources (DWR)-Central District and Alameda County Public Works Agency (ACPWA) for all recorded water wells within a 0.25-mile radius of the subject property. A copy of the DWR and ACPWA Well Report Release Agreements is attached in Appendix C. Approximately 304 well completion reports were received on compact disc (CD) for sections 27 and 34 containing information on monitoring wells, production wells, dewatering wells, drainage wells and cathodic protection wells. As per the release agreement, copies of the well completion reports are not provided in this report. The well completion reports provided by the DWR indicate the following properties are located within the region of the site as described on the following table. Only four of these properties have registered wells within an approximately 1320 foot radius of the subject property as shown on Figure 8, Well Survey Radius Map.

Map ID #	# Wells	Address	Name	Depth feet	Type
1	10	1340 Cypress St	Coca-Cola Enterprises	<30	Monitoring Extraction
2	1	1708 Wood Street	Roadway Services	15	Boring
3	1	20 & Campbell St	Pacific Gas & Electric	120	Cathodic Protection
4	2	1800 Peralta St	Architectural Emphasis	25	Monitoring
5	172	1310 14 th Street	Carnation Dairy Facility	<57	Monitoring Extraction

					Recovery
6	1	1614 Campbell	General Electric	200	Industrial
7	1	1705 14 St	Right Way Cleaner	0	Abandoned
8	6	1399 Wood St 14 th & Wood	Southern Pacific	<18	Monitoring Test
9	9	1769 13 th Street Wood St. & 15 th Street	Taylor Roof Structures	<34	Piezometer Monitoring Boring
10	3	1545 Willow St	Western Properties Broker	<13	Monitoring
11	1	19 th & Cypress	White	212	Historical 1913
12	3	1345 7 th Street @ Cypress	Chevron	25	Monitoring
13	3	1532 Peralta Street	Fuel Leak Case # RO0000117	15	Monitoring
14	5	1919 Market Street	Fueling Station	25	Monitoring
15	1	28 th & Magnolia	historical	215	Industrial
16	1	2452 Magnolia	Bonta Collins	21	Monitoring
17	3	24 th & Adeline	NW Venetian Blind	30	Monitoring
18	3	2730 Peralta St	Cass-Custom Alloy	20	Monitoring
19	3	2525 Cypress	Kantor's Furniture	25	Monitoring
20	3	1700 20 th St	Anheiser Busch	30	Monitoring
21	7	2230 Willow	Pacific Supply	14	Monitoring
22	3	1700 West Grand Ave	Jorgenson	15	Monitoring
23	1	2210 Union	Guidott-Pacific Cryogenics	19.5	Monitoring
24	>3	3 rd / 5 th & Cypress/Kirkham	Southern Pacific	20	Monitoring
25	>3	Cypress Reconstruction	Multiple sites	20	Monitoring
26	1	537 Kirkham	Historic – Golden West Brewing	277	Industrial
27	1	1384 5 th Street	Historic – Universal Foods	405	Industrial
28	1	7 TH & Linden	Datzell	35	Monitoring

The GeoCheck Physical Setting Source Summary provided by EDR dated June 12, 2007, indicates no listed Federal or State municipal water wells within the search radius of one mile from the site. Based on results of the well survey, no known active domestic and/or irrigation wells exist within the 1320-foot survey radius of the subject property. One cathodic protection well (120

feet deep) reportedly exist approximately 3/8-mile from the site and located cross-gradient of the property. Cathodic protection wells are typically installed to protect metallic objects (i.e., buried petroleum, natural gas, and water pipelines) in contact with the ground or subsurface environment from electrolytic corrosion. One industrial production well is located just over 1/4-mile down-gradient from the site. One historical municipal-industrial well (1913) is shown approximately 3/8-mile cross-gradient of the site. Numerous groundwater monitoring and remedial action wells exist in the vicinity of the site many of them related to leaking underground storage tank (LUST) cases. An active LUST case at 1532 Peralta Street is located about 1000 feet down-gradient of the site. The nearby former Coca Cola and Carnation Dairy sites contain numerous monitoring wells, which appear to have been largely abandoned. The Coca Cola and Carnation Dairy sites are located up-gradient of the site across Mandela Parkway to the east. Because of the distance from the subject property of the listed wells, it appears unlikely that the known wells will act as potential receptors or vertical conduits for contaminant migration.

HISTORICAL RESEARCH

Aerial Photographs

Aerial photographs showing the subject property and surrounding neighborhood were provided by Environmental Data Resources, Inc. (EDR) in their "EDR Aerial Photo Decade Package" dated June 12, 2007. GGTR examined the photographs for features that might give an indication of the past land use of the site. Because of the large size of the electronic files, GGTR has not provided the EDR reports as attachments to this report. GGTR will provide the EDR report upon request. The following aerial photographs were examined and briefly summarized below:

Date	Observations of Aerial Photograph Pertinent to Subject Property
1931	Indistinct photograph that shows the site to contain residential dwellings. The surrounding neighborhood is mixed-use residential, commercial and industrial. A vacant lot occurs across 13 th Street to the northeast at the former location of the Contra Costa Laundry Company facility. Site occurs mid-block on 13 th Street between Center and Kirkham.
1939	Indistinct photograph that shows site occupied by residential dwelling. Cyprus Street has been developed by this time and site is now at the southwest corner of Cypress and 13 th Streets. Former dwellings on eastern portion of the site have been removed during Cypress Street construction.
1946	Indistinct photograph but generally appears similar to the 1939 photograph with residential dwellings located at the site. A large industrial building has been constructed at the northeast corner of Cypress and 13 th Street that may be the Coca Cola Bottling Company facility.
1958	The photo is indistinct at high magnification. The site appears to be present in its existing configuration with one commercial service station building. Residential buildings across 13 th Street to the north have been replaced with the on-ramp for the elevated Nimitz Freeway, which is now adjacent to the site on the east above Cypress Street.
1965	Photograph is distinct with good detail of site. The site is present in existing

configuration a commercial service station building and a canopy over the dispenser island. The site appears as an active gasoline station with several parked vehicles.

- 1982** The photo is indistinct at high magnification. Overall conditions appear similar to 1965 photo. Specific conditions at the site are not discernable in this photo. Neighborhood conditions similar to 1965 photograph.
- 1993** The photo is indistinct at high magnification. The Nimitz Freeway has been removed and a vacant lot now occurs across 13th Street to the north. Specific conditions at the site are not discernable in this photo.
- 1998** The photo is indistinct at high magnification. The vacant lot across 13th Street to the north has been re-developed with a park at the northwest corner of 13th Street and Mandela Parkway. Specific conditions at the site are not discernable in this photo.

A portion of the 1965 aerial photograph for the site is shown in Figure 9, *Historic 1965 Aerial Photograph*. The enlarged aerial photo shows detail of the site with an obvious canopy present over the fuel dispenser island location.

Sanborn Fire Insurance Maps

Sanborn fire insurance rate maps have been prepared on a regular basis for the San Francisco Bay area since 1866. They may identify the location of infrastructure, major structures and their uses, and other related land use information. GGTR examined the EDR “Sanborn Map Report” dated June 12, 2007, for features, structures, and labels that might give an indication of the past land use of the site. Because of the large size of the electronic files, GGTR has not provided the EDR reports as attachments to this report. GGTR will provide the EDR report upon request. The following maps were examined and pertinent features summarized below:

Date	Observations of Sanborn Map Pertinent to Subject Property
1902	The map shows the site consisting of dwellings apparently located at addresses 1407 & 1411 13 th Street and a portion of 1401-1405 13 th Street. The map shows predominantly residential dwellings along the south side of 13 th Street on both sides of the site location. Dwelling located at 1419 13 th Street has an elevated backyard water tank and windmill. Another water tank / windmill is shown at the corner of Kirkham and 12 th Street on the roof of the Oakland Transit Company.
1912	We interpret the map to show the site with three dwellings. The dwellings have addresses of 1405-1411 13 th Street. Even smaller dwelling may exist in backyard out buildings shown with street addresses. The site is surrounded on the south and west by small dwellings. A wagon shed and tenement buildings are located across 13 th Street to the north possibly associated with the Contra Costa Laundry Company facility. Backyard water tanks are shown at the south adjacent dwelling at 1388/1408 12 th Street. Another backyard water tank is shown two lots west of the site at 1417 13 th Street. Northeast of the site across 13 th Street is the large Contra Costa Laundry Company facility. The map shows four industrial water wells

- located on this facility with capacities of 250-400 gallons per minute.
- 1951** The map shows the construction of Cypress Street through the 1401-1405 13th Street portion of the site with the removal of one or two dwellings. The two dwellings at 1407 & 1411 13th Street still exist. The Coca Cola Bottling Company plant is shown to the northeast of the site across Cypress Street on a portion of the former Contra Costa Laundry Company property. Water wells are not shown associated with the bottling plant. Residential apartment buildings and a lumber yard are shown across 13th Street to the north. Dwellings and a church are located west of the site.
- 1952** The map is similar to the 1951 map discussed above.
- 1957** The map shows the site in its existing configuration. The site is labeled "Gas & Oil" with the existing service station building. The location of USTs or dispensers is not shown on this map. The Eastshore Freeway has been added adjacent to the site on the east with an onramp across 13th Street to the north. Dwellings exist adjacent on the south and west of the site.
- 1958** The map shows the site in its existing configuration. The site is labeled "Gas & Oil" with the existing service building shown. The location of USTs or dispensers is not shown on this map. The Nimitz Freeway (formerly called Eastshore Freeway) exists adjacent to the site on the east with an onramp across 13th Street to the north. Dwellings exist adjacent to the site on the south and west.
- 1961** The map is very similar to the 1958 map discussed above.
- 1967** The map is very similar to the 1961 map discussed above. The canopy extending from the service building to the east is now shown on the map. The dwelling to the west of the site has been replaced by a parking lot.
- 1970** The map is very similar to the 1967 map discussed above.

Figure 10, *Historic 1912 Sanborn Fire Insurance Map* shows the former residential use of the site. The enlarged map shows detail of the site with the location of nearby industrial water wells and backyard water wells.

The 1902 through 1951 Sanborn Fire Insurance Maps depict small residential dwellings on the future outline of the subject property. The 1902 through 1951 Sanborn map also shows several residential properties located south and west of the site with elevated water tanks-wind mills presumably associated with backyard water wells. As discussed above, backyard water wells were common in the Merritt sand outcrop of West Oakland during the early 1900s. Apparently, water quality was declining at this time due to septic system contamination and by the 1930s the backyard wells were no longer in use. Such backyard wells were likely shallow uncased wells less than 20 feet deep and entirely completed in Merritt sand formation. Figure 10 also shows the historical location of industrial water wells associated with the former Contra Costa Laundry Company facility – now apparently located within and east of the Mandela Parkway right-of-way. Five industrial wells are shown on the 1912 map with capacities from 240 to 400 gallons per minute. These industrial wells were presumably installed into the deeper aquifers beneath the site at depths of 100 to 400 feet. These historical industrial water wells are significant potential vertical conduits. However, at this time, the known groundwater flow direction (North 39 West) is away from these historic well locations.

City Telephone Directory

Historic telephone directory listings for the subject property and surrounding neighborhood were provided by Environmental Data Resources, Inc. in their “EDR-City Directory Abstract” reports dated June 12 & 21, 2007. GGTR examined the listings for indications of past land use. Because of the large size of the electronic files, GGTR has not provided the EDR reports as attachments to this report. GGTR will provide the EDR reports upon request. According to an EDR representative, the directory abstract is unable to retrieve orphaned (alias) addresses from streets that have changed names and two database searches resulted in incomplete historical listings for the site. Because of this limitation, the historical street address of 1225 Cypress is not listed in the EDR reports for the years 1955 through 1991 when a gas station was active at the site. The historic site address of 1411 13th Street first appears in the year 1933. The address 1225 Mandela Parkway first appears in 1992. The following listings are shown in the EDR reports for the known site addresses:

<i>Date of Listing</i>	<i>Description in Telephone Directory</i>
1933	LOMBARDI DOMINIC GRO (1411 13 TH STREET) LOMBARDI ERNEST BALL PLAYER R (1411 13 TH STREET) LOMBARDI ROSE CLK R (1411 13 TH STREET)
1938	LOMBARDI RR (1411 13 TH STREET)
1943	LOMBARDI DOMINIC H (1411 13 TH STREET) LOMBARDI ERNEST BALL PLAYER R (1411 13 TH STREET) LOMBARDI ROSE R (1411 13 TH STREET) LOMBARDI STELLA R (1411 13 TH STREET) MC ELDERRY RENA A WAITER R (1411 13 TH STREET)
1945	LOMBARDI ER (1411 13 TH STREET)
1950	LOMBARDI ER (1411 13 TH STREET)
1992	GLASPER TRUCKING INC (1225 MANDELA PARKWAY)
1996	MANDELA TRUCKING INC (1225 MANDELA PARKWAY)

The historic telephone directories mainly list individuals living in a residence at the site and the surrounding neighborhood is predominantly a residential neighborhood from 1933 through 1950. The site address is not listed from 1955 through 1990. Glasper Trucking Inc. and Mandela Trucking Inc. are listed at the commercial site address in 1992 and 1996.

Topographical Maps

Historical topographic maps including the site and surrounding neighborhood were provided by Environmental Data Resources, Inc. in their “EDR Historical Topographic Map Report” dated June 12, 2007. GGTR examined the maps for features that might give an indication of the past land use of the site. Because of the large size of the electronic files, GGTR has not provided the EDR reports as attachments to this report. GGTR will provide the EDR report upon request.

Maps for the years 1980, 1973, 1968, 1959, 1949, 1948 and 1915 were examined in the EDR report. The site is shown within a shaded area of urban developed land on the 1948 through 1980 maps inspected. No individual structures are indicated on these maps for the site location or surrounding neighborhood. The site is shown on the 1915 map as possibly containing a visible structure (although the map is indistinct at high magnification) presumed to be one of the small dwellings shown on Sanborn fire insurance maps for this time period.

Environmental Database Information

Environmental Data Resources, Inc. (EDR) provided a computerized database search report of state and federal database records for reported sites within a one mile radius of the site dated June 12, 2007. Because of the large size of the electronic files, GGTR has not provided the EDR reports as attachments to this report. GGTR will provide the EDR report upon request. EDR updates their databases when they receive new information. Generally, the information becomes available quarterly. However, some agencies provide updates semi-annually, annually, or bi-annually. EDR lists the most recent database update on the report. The following table summarizes the properties listed in the EDR report within 500 feet of the site.

<i>Facility/Address</i>	<i>Direction & Elevation</i>	<i>Map ID No.</i>	<i>Databases Listed</i>
MANDELA TRUCKING 1225 MANDELA PKWY	TARGET 20 FEET ELEV.	A1	LUST, HAZNET, Cortese, CS
THOMPSON PROPERTY 1409-1417 12 th ST	110 FEET SW 20 FEET (EQUAL)	A2-3	CS, LUST-Active Case
OAKLAND FISC 845-1 & 2 1300 13 TH STREET	213 FEET NE 15 FEET (LOWER)	5	LUST- Case Closed
CENTER CLEANERS 1224 CENTER ST	405 FEET NW 18 FEET (LOWER)	B7	Historical Cleaners 1933 & 1967
STYLE CLEANERS 1340 12TH	458 FEET ENE 20 FEET (EQUAL)	6	SLIC
HIROTA MASAJIRO 1434 14 TH ST	605 FEET SW 17 FEET (LOWER)	B7	Historical Cleaners 1933

The site address is listed in the records for a leaking underground storage tank (LUST) case and hazardous materials storage associated with a historical gasoline service station at the site. The LUST case at the site address is the subject of this work plan. No adjoining properties are listed in the EDR report. Two other LUST cases are listed within the area of the subject property. A LUST case with a status of “case closed” is shown at a fire station to the northeast and cross-gradient to the site. An active LUST case is shown to the southwest and cross-gradient to the site. Both LUST case do not appear to be significantly impacting the site at this time. One active and two historical dry cleaners exist within the site neighborhood dating from the 1930s and 1960s. The two nearby LUST case properties are shown on Figure 8 – Well Survey Radius Map.

Summary of Historical Property Uses

Sanborn fire insurance maps from 1902 and 1912 show the site containing three residences with addresses of 1405 through 1411, three small backyard dwellings, and a shed. The site is surrounded by other dwellings and outbuildings to the south, east and west. Cypress Street does not extend through 13th Street at this date. Backyard water tanks are located south and west of the site. A large industrial facility called Contra Costa Laundry Company is located north and northeast of the site with five industrial water wells. After the 1906 earthquake, West Oakland experienced rapid growth and by the 1930s was a thriving commercial-residential neighborhood. The 1939 aerial photograph shows a residence at the site with address of 1411 13th Street. Cypress Street has extended through this block and the site is now a corner lot and the dwellings at 1405 and 1407 13th Street appear to have been demolished. The 1933 through 1950 telephone directories list members of the Lombardi family living at the site residence with address of 1411 13th Street. The 1946 aerial photographs show a residence at the site. In the 1951 and 1952 Sanborn Maps, the site contains a residence. The Coca Cola Bottling Company has now developed a portion the former Contra Costa Laundry Company lot across Cypress Street to the northeast.

The 1957 Sanborn Map and 1958 aerial photo show the site in existing configuration with a gasoline service station building labeled Gas & Oil. The Nimitz Freeway has been developed and an on-ramp is located across 13th Street to the north. The site's neighborhood is mainly residential with industrial facilities across the freeway to the east. The site remains in existing condition from 1957 through the present. Prior to 1963, an Arco or Union 76 gasoline station is believed to have operated at the site. Reportedly, Mackey Trucking occupied the site from circa 1963 through 1983. The adjoining Nimitz freeway was removed following the 1989 earthquake and a park is now present across 13th Street to the north. Cypress Street was also renamed Mandela Parkway. The 1992 and 1996 telephone directories list Glasper Trucking Inc. and Mandela Trucking Inc. at the site address. Reportedly, Glasper-Mandela Trucking operated at the site from 1983 until 2003 when VA Transportation occupied the site for an office and truck parking lot.

INITIAL SITE CONCEPTUAL MODEL

GGTR developed an initial site conceptual model (SCM) by identifying the site's physical characteristics, geology, hydrogeology, residual contamination sources, transport and exposure pathways, representative site concentrations, and potential future use of the land. The site layout including building, former UST locations, former dispensers, and soil borings are shown on Figure 3, *Site Plan*. The following sections discuss the components of the initial SCM for the site.

Geologic Setting

Geologic information for the site and surrounding area is provided in the "Geologic Map and Map Database of the Oakland Metropolitan Area, Alameda, Contra Costa, and San Francisco

Counties, California, 2000, by R.W. Graymer, U.S. Geological Survey Misc. Field Studies MF-2342. See Figure 11, Geologic Map, for a portion of this geologic map showing the site and vicinity. A cross section showing the known shallow conditions at the site is presented on Figure 12, *Cross Section A-A'*. The subsurface geology and hydrogeology of the site area is also discussed in the document by the California Regional Water Quality Control Board San Francisco Bay Region (RWQCB) Groundwater Committee report dated June 1999 and titled *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report, Alameda and Contra Costa Counties, CA*. According to these sources, the area of the site is on a broad alluvial plain along the margin of San Francisco Bay.

The GeoCheck Physical Setting Source Summary provided by EDR and dated June 12, 2007, indicates that the dominant soil composition in the general area of the target property is called Baywood and consists of loamy sand with high infiltration rates. These loamy sands are deep, well drained to excessively drained sands and gravels. Soils have high hydraulic conductivity and low water holding capacity. Corrosion potential is moderate. Native subsurface soil reported at the site during prior investigation was predominantly a clayey to silty, gravelly sand to a total explored sample depth of 16 fbg where heaving loose sands are encountered. According to the published documents, the site is situated on Pleistocene and Holocene eolian sand deposits called the Merritt sand (Qms). These sands are fine-grained, very well sorted, well-drained eolian (wind-blown) deposits found in western Alameda County. The Merritt sand outcrops in three large areas in Oakland and Alameda. The Merritt sand forms large sheets of shallow sand up to 60 feet thick. Historically, the very shallow Merritt sand was extensively used prior to 1930 for residential backyard water wells. In the 1930s, shallow water quality declined due to widespread use of septic systems and the Merritt sand was abandoned as a residential water supply. Backyard use of the Merritt Sand for irrigation purposes apparently continues.

The Merritt sand is part of a larger formation known as the Alameda Formation. For discussion purposes, shallow groundwater-bearing units are defined as the units above the Yerba Buena Mud called the Alameda Formation including the Merritt sand. Deeper groundwater-bearing units are defined as the units below the Yerba Buena Mud called the Santa Clara Formation. The early Pleistocene Santa Clara formation is continental in origin and includes alluvial fans deposits inter-fingered with lake, swamp, river channel, and flood plain deposits. The formation may be between 300 to 500 feet thick in the site vicinity. Historically, deeper municipal and industrial wells were completed in the Santa Clara formation. This formation is currently of interest to EBMUD for a proposed aquifer storage program. Beneath the Santa Clara Formation is Franciscan Complex bedrock of ancient Cretaceous-Jurassic age (shown as fc, fg, KJfs, Kfgm, Kfn and KJfm on the published geologic map). This bedrock is exposed at the surface to the east of the site in the vicinity of the Hayward Fault and Oakland Hills. The bedrock consists of mélangé (sheared rock), sandstone, greenstone, Serpentine, and quartz diorite. The bedrock is not known to contain extensive water bearing resources and is considered the basement rock for the region. The depth of the Franciscan Complex bedrock below the site is shown in the East Bay Plain Groundwater Basin Beneficial Use Evaluation Report's Figure 11, *Structural Contact Map on Bedrock*, at a depth to bedrock between 500 and 518 feet bsg in the vicinity of the site.

Groundwater Setting

The regional groundwater flow direction in the vicinity of the site is estimated to be toward the west and northwest in the general direction of the San Francisco Bay and decreasing topographic relief. The nearest surface water body is the Oakland Outer Harbor and the San Francisco Bay located over one mile to the west-northwest. The regional groundwater flow in the vicinity of the site is assumed to be towards the west-northwest in the direction of the San Francisco Bay and generally following the natural topographic relief of the area. Groundwater was encountered during the UST over-excavation activities at a depth of 11 fbg. Static water levels measured in three temporary piezometers at the site recorded the depth to groundwater at 6 to 8.25 fbg. On June 8, 2006, GGTR measured a preliminary flow direction in temporary piezometers of North 39 degrees West with a gradient of 0.002 foot per foot.

The following discussion was summarized from the document by the California Regional Water Quality Control Board San Francisco Bay Region (RWQCB) Groundwater Committee report dated June 1999 and titled *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report, Alameda and Contra Costa Counties, CA*. According to the document, the site is within the East Bay Plain groundwater basin and Oakland Sub-Area basin. Existing and potential beneficial uses as designated in the San Francisco Bay Basin Water Quality Control Plan for this regional basin include municipal and domestic water supply, industrial service water supply, industrial process water supply, and agricultural water supply. The Oakland Sub-Area basin generally contains a sequence of alluvial fan deposits. The basement rock is deep and the alluvial fill is thick (about 500 feet at the site). The document states that there are no well-defined aquitard such as estuarine mud within the Oakland Sub-Area. The largest and deepest wells in the Oakland Sub-Area historically pumped 1 to 2 million gallons per day at a depth greater than 200 feet (apparently from the Santa Clara Formation). Overall, sustainable yields are low due to low recharge potential.

Most groundwater in Oakland is currently designated as a potential source of drinking water. The shallow Merritt Sand outcrop in west Oakland was an important part of the early water supply for Oakland. Single family residences historically relied on the Merritt Sand for water supply during the late 1880s and early 1900s. Until the 1930s, the East Bay Plain Groundwater Basin was historically used for drinking water, industrial, and agricultural supply. Contamination from septic systems and some saltwater intrusion resulted in abandonment of the Merritt sand as a water supply. Because of the lack of an adequate and dependable supply for a growing population, the East Bay now relies on imported surface water to satisfy nearly all drinking water and industrial demands. The only known permitted drinking water system in Oakland is located in the Oakland Hills above the East Bay Plain Groundwater Basin.

However, groundwater in the area of the site is shown in the document designated as Zone A – a significant drinking water resource. The most frequent current use of groundwater is for irrigation from “backyard” private shallow wells. Within Zone A, remedial strategies are focused on actively maintaining or restoring groundwater quality to drinking water quality objectives. According to the document, these areas historically supported a municipal beneficial use prior to the 1930's and likely could again with proper management be used as a limited municipal source of drinking water in the future. Historic and abandoned wells may act as vertical conduits and allow shallow contamination to migrate into deeper aquifers. As part of this

study, GGTR reviewed historic Sanborn maps from 1902 to 1912. During this time period backyard water tanks/windmills are shown to the west, south and east of the site location. Five deeper industrial water wells are shown to the northeast of the site at the former Contra Costa Laundry Company location. No backyard wells or industrial wells are shown in the preliminary measured down-gradient direction from the site location.

Residual Constituents of Concern

A primary source of fuel hydrocarbon release was associated with the former diesel USTs that were removed in 1997. Over-excavation of the diesel UST locations was performed in 1999 and the diesel-impacted soil in the area of the former UST locations was removed for off-site disposal. Confirmation soil sampling indicates no significant residual contamination remaining along the excavation limits. In 1998, one waste oil UST was removed from the site and soil sampling revealed no significant contamination beneath the UST. Additional investigation in 2006 included soil boring SB-4 along the north side of the waste oil UST location where TPH as motor oil at 1600 ppm was discovered at a depth of 5.5 feet. A residual source of diesel fuel contamination remains at the location of the fuel dispenser island. Previous soil sampling at the north and south ends of the dispenser island indicate residual diesel soil contamination to depths of 11 feet below grade. Preliminary groundwater flow direction is to the northwest. Grab groundwater sampling indicates extractible TPH in groundwater above 100 ug/L across the central area of the site with higher concentrations at the south end of the dispenser island. Within the area of former fuel dispensers, residual diesel hydrocarbon within the groundwater interface zone may be providing mass to the dissolved hydrocarbon plume. At this time the contaminants of concern consist of TPH as diesel in the dispenser island area and TPH as motor oil in the former waste oil UST area. The petroleum contaminants BTEX, VOCs, lead, and MTBE have not been detected at significant concentrations at the site.

Sensitive Receptors

GGTR searched available government records for evidence of sensitive receptors within the area of the site. A review of well completion records at the Department of Water Resources (DWR) revealed that no active domestic, municipal or irrigation wells exist within a ¼-mile radius of the site. Apparently, there is no surface water within the immediate vicinity of the site. Historic backyard water wells are shown on 1902 and 1912 Sanborn maps to the west and southwest of the site. Historic industrial water wells are shown on the 1912 Sanborn map to the northeast of the site at the former Contra Costa Laundry Company. These backyard water wells and industrial wells are located cross-gradient or up-gradient from the site. Nearby LUST sites are located cross-gradient to the site. The immediate down-gradient property is a parking lot and church facility. About 220 feet down-gradient of the site are storm conduits beneath Center Street that may capture groundwater and discharge to San Francisco Bay.

Potential Exposure Pathways

The exposure pathways considered for this assessment are (1) ingestion of contaminated groundwater or soil, (2) vapor migration of MTBE and hydrocarbon vapors from soil or

groundwater into the commercial garage building on the site, (3) migration of hydrocarbon vapors from shallow groundwater into the adjoining residential building, (4) inhalation of hydrocarbon vapors from shallow soil by construction workers, and (5) direct contact with contaminated soil or groundwater by occupants or construction workers. Residential buildings are located adjacent to the south of the site. According to the estimated groundwater flow direction and monitoring data, the residential buildings are cross-gradient to the former UST locations and significant petroleum contamination does not appear to extend from the site towards these buildings. Directly down-gradient of the site is a parking lot and church facility.

Ingestion Pathway

Incidental soil ingestion for site trespassers or onsite occupants is considered unlikely because the site is largely covered with asphalt / concrete and fenced. Since dissolved-phase diesel fuel and motor oil hydrocarbons have been detected in groundwater beneath the site, groundwater ingestion may be a primary exposure pathway. Groundwater directly beneath the site is not currently used as a drinking water resource and no onsite wells are known. Regulatory agency records do not reveal municipal water wells within 1,320 feet of the site. No suspected backyard wells are known down-gradient of the site. Ingestion for groundwater by humans has not been considered as an exposure pathway because of the lack of currently active domestic or irrigation wells. Future development and use of the Merritt sand aquifer is a potential long-term issue not related to immediate public health concerns.

Inhalation Pathway

Due to elevated shallow saturated soil and groundwater concentrations within the area of former USTs / dispenser island at 5-11 fbg, inhalation of residual petroleum hydrocarbons and volatile chemicals is considered a primary exposure pathway. The existing building is located directly down-gradient of the area of residual contamination at the dispenser island. The former garage building has been remodeled and is now used for office purposes. Apparently, there are no full-time employees utilizing the office space at this time. Grab groundwater sampling does not reveal concentrations of volatile compounds (such as BTEX, MTBE, VOCs) indicative of potential vapor intrusion. Because of the lack of volatile contaminants, vapor intrusion is not considered a significant risk to existing commercial use of the building at this time. For protection of potential future residents from inhalation of outdoor and indoor air, inhalation is considered a potential pathway. Inhalation of vapor in indoor areas is believed to be the most significant exposure pathway at the site under a future re-development scenario involving residential construction.

Direct Contact Pathway

Direct contact with chemicals in soil is assumed to occur during outdoor activities. However, the likelihood of contacting outdoor surface soil is unlikely since the site is covered by asphalt or concrete. Nonetheless, the possibility of direct contact with chemicals in soil is considered for construction workers. To address the possibility of future short-term but intensive exposures to chemicals in subsurface soil, a construction worker is assumed to have skin contact with chemicals in soil ranging from the surface to four feet bsg. Below 4-1/2 feet, excavations contain shoring for worker safety preventing direct contact. Any construction work below 5-6 feet would encounter groundwater and saturated soil contamination. Direct contact with chemicals of concern in groundwater is possible for construction workers during dewatering of handling of excavated soil. Construction workers engaged in utility installation or future site grading

activities could also be exposed to petroleum vapor related to residual soil and groundwater contamination at the site. The duration of exposure would be a one-time event and relatively brief. In general, brief exposure to petroleum vapor is not considered a significant risk hazard. However, the residual contamination would need to be documented and disclosure provided to construction workers of the potential for exposure to petroleum contamination. De-watering of contaminated groundwater would require additional testing, special handling and possible permitting.

Environmental Screening Levels

The following is a summary of maximum residual soil contaminant concentrations known at the site:

TPH as Gasoline - 7,100 mg/Kg (atypical pattern) (boring SB-2-10 at 10 feet)
TPH as Diesel - 13,000 mg/Kg (soil boring sample SB-2-10 at 10 feet)
TPH as Motor Oil - 1,600 mg/Kg (Boring SB-4-5.5 at 5.5 feet)
Total Lead - 350 mg/Kg (UST removal sample G-1-N-11 at 11 feet)
Benzene - ND<25 mg/Kg– no reported detections of Benzene
MTBE - ND<25 mg/Kg – highest reported is 0.035 mg/Kg

These soil samples were all collected in 2006. The concentrations for residual soil contamination significantly exceed the shallow soil screening levels of 100 mg/Kg for TPH as diesel and 500 mg/Kg for TPH as motor oil. However, the soil samples recovered at the site were collected from at or below the known water table (6 feet bsg) and represent interface-saturated zone samples. The shallow soil ESLs do not usually apply to saturated zone soil samples.

The following is a summary of maximum contaminant concentrations in grab groundwater samples:

TPH as Gasoline - 1,100 µg/L (atypical pattern in sample SB-2-W (collected in 2006)
TPH as Diesel - 190,000 µg/L in sample SB-2-W (collected in 2006)
TPH as motor oil - 390 ug/L in sample SB-4-W (collected in 2006)
Benzene - 0.77 µg/L in sample SB-2-W (collected in 2006)
MTBE - ND<1.0 µg/L

The City of Oakland provides Tier 1 and Tier 2 cleanup levels for properties located on Merritt Sand soils as part of the Brownfields redevelopment program. According to the “Oakland RBCA Eligibility Checklist” for the site specific criteria, it appears the site is not eligible for the RBCA cleanup levels because of the shallow depth of groundwater and concern for vapor intrusion. Therefore, the most recent groundwater monitoring concentrations were compared to the conservative California Regional Water Quality Control Board – San Francisco Bay Region, “Screening For Environmental Concerns At Sites With Contaminated Soil and Groundwater, Volume 1: Summary Tier 1 Lookup Tables, Interim Final, February 2005”, as shown in the following table:

Matrix	Contaminant	ESL - Groundwater IS a Potential Drinking Water Source
Groundwater	MTBE	5 µg/L
	TPH as Diesel	100 µg/L
	TPH as Motor Oil	100 µg/L
	TPH as Gasoline	100 µg/L
	Benzene	1 µg/L (groundwater ESL) 540 ug/L (vapor intrusion screening level for benzene in groundwater)
	Ethylbenzene	30 µg/L

The residual total petroleum hydrocarbons in groundwater exceed the environmental screening levels. Groundwater is considered a potential drinking water resource and a deeper groundwater aquifer exists beneath the site. The groundwater contamination may pose a risk to future unlimited land use of the site. Volatile constituents of the groundwater in residual fuel hydrocarbons (benzene) do not exceed screening levels for potential vapor intrusion into future site buildings. The screening levels do not indicate a potential for risk to human health from the former fuel release specifically via inhalation of vapors within the future buildings. Because of the commercial land use of the site and asphalt-concrete cover, the residual saturated soil and groundwater contamination does not appear to pose a significant risk to occupants at this time.

Summary of Site Conditions

All primary fuel and waste oil sources have been stopped at the site. USTs were removed between 1996 and 1998 and fuel is no longer stored or dispensed at the site. The on-site building is built on a concrete slab without a basement. Any residual soil contamination is below grade and covered by asphalt or concrete. The site is used for commercial office and truck parking activities. The site had a long history of fueling activity from circa 1955 through 1996. Because the USTs were installed below the water table (about 6 feet bsg), the UST cavities were in the saturated zone to depths of 9 feet bsg. Saturated zone soil is contaminated with diesel fuel beneath the former fuel dispenser island to a known depth of 10 feet bsg. Residual motor oil soil contamination occurs at a depth of 5.5 feet along the north side of the former UST location. Extractible hydrocarbons reported in groundwater sampling may indicate weathered diesel product. Soil samples at the site have not contained significant Benzene, VOC or MTBE concentrations.

A dissolved total petroleum hydrocarbon plume exists at the site with maximum concentrations centered on the dispenser island. The continuing source of the plume appears to be residual diesel hydrocarbon contained in saturated zone soils beneath the former south dispenser island. Groundwater occurs within fine-grained sands of the Merritt sand. The ground water has been preliminarily measured to flow northwestward toward 13th Street (North 39 West). The measured groundwater gradient is relatively shallow at 0.002 ft/ft. The nearest surface water is over one mile from the site at San Francisco Bay. The known areas of residual soil & groundwater contamination are beneath paved parking areas. Recent grab groundwater sampling does not indicate a vapor intrusion problem beneath the existing office building. Because of the onsite

commercial activities, occupants do not appear to be at risk from vapor intrusion, ingestion or direct contact with contaminated soil or the groundwater plume.

The shallow water-bearing sediments are not currently used for domestic water supply. No local domestic or irrigation wells or sensitive receptors are known to occur within 1320 feet of the site. However, the area of the site is known to have been extensively used prior to 1930 for backyard residential water wells and historic industrial production wells formerly existed across 13th Street to the northeast of the site. Groundwater flow does not appear to be intercepted by utility or storm lines on the site or within 13th Street with an invert above the known groundwater table at about 6 feet bfg. The groundwater contamination is not known to extend off-site at this time. Potential distant capture of petroleum contaminated groundwater by storm conduits along 13th Street at Center Street may be a contributing factor to surface water quality at San Francisco Bay. The immediate down-gradient properties consist of a parking lot and church facility. The following work plan presents the procedures and protocols for performing the additional proposed action.

PLANNED WORK

Based on the findings and conclusion presented in GGTR's report of Product Line Removal and Additional Site Characterization Activities dated July 31, 2006, GGTR recommended additional investigation activities to further assess the extent of source soil contamination in the vicinity of the former fuel dispensers; perform remedial soil excavation of impacted source soil; and groundwater extraction from the open excavation. The ACHCSA in their letter dated January 23, 2007, indicates that significant soil and groundwater contamination issues remain at the site. The ACHCSA directed the submittal of a work plan proposing source and site characterization including the following activities: 1) define soil contamination vertically and laterally by the fuel dispensers followed by excavation of impacted soil and the extraction of impacted groundwater, 2) define the groundwater plume at the site both vertically and laterally, 3) perform a preferential pathway study with a utility survey and well survey, and 4) using a rose diagram include cumulative groundwater gradients in all future reports submitted for this site.

Scope of Work

The following is the planned sequence of activities at the site:

- Notify all representative parties of scheduled field activities
- Obtain Drilling Permit from Alameda County Public Works Agency
- Obtain site Excavation Permit from City of Oakland Department of Public Works Engineering for any work conducted in public right of way
- Mark out work area and notify Underground Service Alert for utility clearance
- Conduct GeoProbe soil sampling to delineate lateral extent of source soil in direct vicinity of former waste oil UST and fuel dispensers
- Backfill borings with neat Portland cement and surface concrete
- Conduct excavation, removal, and confirmation soil sampling of contaminated source soil in vicinity of fuel dispenser island and waste oil UST

- Perform a limited extraction of contaminated groundwater from dispenser island excavation
- Backfill excavations with appropriate fill material; restore original surface conditions
- Submit all samples to State-licensed environmental laboratory for analysis
- Profile, transport, and dispose of all impacted solid/liquid waste
- Interpret all field and analytical data and prepare summary report
- Submit data to Geotracker database system

Pre-Field Work Activities

GGTR will obtain a drilling permit from the County of Alameda Public Works Agency and an excavation permit from the City of Oakland Department of Engineering. GGTR will notify all property owners and tenants as well as the ACHCSA of all scheduled work activities. At least 72 hours before commencing field activities, GGTR will visit the site and outline the proposed work areas in white surface paint and subsequently notify Underground Service Alert (USA) to locate and mark any subsurface utilities extending through the designated work areas. Also, GGTR will prepare a traffic control plan should partial or complete closure of the parking lane and/or sidewalk along the 13th Street frontage of the property be warranted.

Additional Source Characterization Activities

Proposed Boring Locations

Based on review of the findings of the historical site investigation activities discussed above, GGTR proposes drilling additional direct push soil borings in the immediate vicinity of the former waste oil UST and fuel dispensers to further define the lateral and vertical extent of source soil contamination at the site. GGTR provides the following rationale for the proposed additional boring locations, which are shown in the attached Figure 13, *Proposed Work*.

GeoProbe Borings SB5-SB8 will be located at the south end of the dispenser island to further define the lateral and vertical extent of soil contamination reported at boring SB-2 and beneath the dispenser location at product line sample P-1-3. Results will be used to determine the approximate lateral limits of excavation during subsequent removal of impacted source soil at this location. GeoProbe borings will be drilled to approximately 10 fbg and sampled in continuous intervals (discussed below). GGTR will recover soil samples from 5 and 10 feet or from zones of obvious contamination for laboratory analysis of TPH as diesel and BTEX.

GeoProbe Borings SB9-SB10 will be located at the north end of the dispenser island to further define the lateral and vertical extent of soil contamination reported at the location of product line sample P-3-3 and beneath the dispenser location. Results will be used to determine the approximate lateral limits of excavation during subsequent removal of impacted source soil at this dispenser location. GeoProbe borings will be drilled to approximately 10 fbg and sampled in continuous intervals (discussed below). GGTR will recover soil samples from 3 and 10 feet or from zones of obvious contamination for laboratory analysis of TPH as diesel and BTEX.

GeoProbe Borings SB11-SB14 will be located surrounding the former waste oil UST location to assess the lateral and vertical extent of soil contamination reported at boring SB-4. Results will be used to determine the approximate lateral limits of excavation during subsequent removal of impacted source soil at this UST location. Hand auger borings or GeoProbe borings will be drilled to approximately 5 fbg and sampled in continuous intervals (discussed below). GGTR will recover soil samples from 5 fbg or from zones of obvious contamination for laboratory analysis of TPH as motor oil and BTEX.

Drilling and Soil Sampling Activities

GGTR will direct the subcontracted driller to initially hand auger each proposed soil boring location up to approximately 4 fbg to confirm clearance of any unmarked subsurface utilities. GGTR will drill each boring using a trailer-mounted, Geoprobe[®] direct push technology rig equipped with 1- and 2-inch-diameter, flush-threaded, dual-cased drill rods and split spoon sampler. A dual-cased rod assembly is recommended to minimize potential sidewall soil from cross contaminating deeper zone soil and/or groundwater in each borehole.

Each boring will be drilled to approximately 10 fbg. Soil samples will be collected in each boring using a butyrate plastic tube-lined remote core sampler (2 to 4 feet in length) beginning at approximately 5 fbg and continuing to the maximum proposed sample depth. Soil samples will be collected continuously, specifically at changes of lithology, at the soil/groundwater interface, and at areas showing obvious contamination. At the anticipated drill depth, the inner drill rods will be extracted and the inner rod/split spoon sampler assembly will be re-advanced through the cased borehole to depth and subsequently pushed approximately 24 additional inches into relatively undisturbed soil. All soil samples retained for laboratory analysis will be sealed with Teflon and plastic end caps, appropriately labeled, and transferred to a cooler chilled to approximately 4° Centigrade. Soil boring samples will also be screened using a PID-type organic vapor field meter and described using the Unified Soil Classification System and Munsell Soil Color Chart.

Geoprobe[®] drilling will be conducted by a California-licensed Water Well Drilling Contractor (C57). Boreholes will be logged under the supervision of a Registered Civil Engineer/Geologist. Hand auger soil cuttings generated during drilling activities will be stockpiled or transferred to a 55-gallon, D.O.T.-approved steel drum. GGTR will collect a four point composite soil sample from the drummed or stockpiled soil cuttings for analysis and waste disposal characterization. All down-hole drilling and sampling equipment will be decontaminated between each boring location using an Alconox[®] solution and double rinsed with potable water. Equipment wash and rinse water will be transferred directly to a separate 55-gallon drum. All drilling and sampling activities will be conducted under oversight of a representative of the ACHCSA. Immediately following soil sampling in all soil borings, the driller will extract drill tubes from each borehole and tremie grout each with neat Portland cement up to 0.5 fbg. The balance of each borehole will be backfilled with appropriate surface material to restore original site conditions.

Continued Source Soil Removal

Proposed Excavation Locations

Based on review of the findings of the historical site investigation activities discussed above, GGTR proposes additional source soil removal in the direct vicinity of the former waste oil UST and fuel dispensers. GGTR provides the following rationale for the proposed additional excavation locations, which are shown in the attached Figure 13, *Proposed Work*.

South End of Dispenser Island: GGTR is proposing to excavate contaminated source soil associated with the diesel fuel dispenser located at the south end of the concrete dispenser island as shown on Figure 13. Using the results of proposed Geoprobe soil sampling to assess the extent of soil contamination, GGTR will excavate soils to a depth of 11 fbg using backhoe equipment and shoring if required. Heaving soils encountered at and below this depth appear to prevent deeper excavation of saturated soils. GGTR will recover confirmation soil samples from 5 and 10 feet in each sidewall and the bottom or from zones of obvious contamination for laboratory analysis of TPH as diesel and BTEX. If contaminated groundwater and/or free petroleum product recharges the excavation, GGTR proposes to pump out up to 1000 gallons of contaminated water for off-site disposal using contracted truck equipment. A grab groundwater sample would be collected following the removal of water from the excavation for the laboratory analysis of TPH as diesel and BTEX. The excavation would then be backfilled with clean imported base rock, compacted to grade, and resurfaced with concrete. Should obvious contaminated groundwater remain in the excavation following pumping, then GGTR may elect to install pea gravel in the bottom five feet of the excavation with a 4-6-inch sump pipe for subsequent additional pumping of contaminated groundwater.

North End of Dispenser Island: GGTR is proposing to excavate contaminated soils associated with the diesel fuel dispenser located at the north end of the dispenser island as shown on Figure 13, *Proposed Work*. Using the results of Geoprobe soil sampling to assess the extent of soil contamination, GGTR will excavate soils to a proposed depth of 5 fbg using backhoe equipment and shoring if required. GGTR will recover confirmation soil samples from 3 and 5 feet in each sidewall and the bottom or from zones of obvious contamination for laboratory analysis of TPH as diesel and BTEX. Should prior Geoprobe soil sampling indicate deeper soil contamination greater than 5 feet, then procedures similar to the excavation at the south end of the dispenser island discussed above would be utilized.

Waste Oil UST: GGTR is proposing to excavate contaminated soils associated with the waste oil UST as shown on Figure 13, *Proposed Work*. Using the results of Geoprobe soil sampling to assess the extent of soil contamination, GGTR will excavate soils from the north sidewall of the former UST location to a depth of 5 fbg using backhoe equipment. GGTR will recover confirmation soil samples from 5 feet in each sidewall and the bottom or from zones of obvious contamination for laboratory analysis of TPH as motor oil and BTEX. If groundwater is encountered in the excavation, then procedures similar to the excavation at the south end of the dispenser island discussed above would be utilized.

Laboratory Analyses of Samples

Laboratory Analysis of Soil Samples

A Chain-of-Custody form will be initiated by GGTR personnel at the time of sampling and will accompany the soil samples to Entech Analytical Labs Inc. (Entech) of Santa Clara, California. Entech is licensed by the California Department of Health Services under Environmental Laboratory Certificate No. 2346. Entech is instructed to analyze the samples using California Department of Health Services approved analytical methods. Soil samples will be analyzed using the following methods:

Soil Borings SB-4 thru SB-10 and dispenser island excavation confirmation samples:

Total Petroleum Hydrocarbons as Diesel (TPH Extractable: EPA 8015M)
Benzene, Toluene, Ethylbenzene and Total Xylenes (VOCs: EPA 8021B)

Soil Borings SB-11 thru SB-14 and waste oil UST confirmation samples:

Total Petroleum Hydrocarbons as Motor Oil (TPH Extractable: EPA 8015M)
Benzene, Toluene, Ethylbenzene and Total Xylenes (VOCs: EPA 8021B)
Other VOCs as reported by EPA method 8260B

Laboratory Analysis of Groundwater Samples

The groundwater samples obtained from grab groundwater samples will be analyzed using the following California Department of Health Services approved methods:

Grab groundwater samples at dispenser island excavation:

Total Petroleum Hydrocarbons as Gasoline (TPH-Purgeable: GC/MS)
TPH as Diesel (TPH-Extractable: EPA 3510C / EPA method 8015B(M))
VOCs, including BTEX and MTBE (EPA method 8260B)
Fuel Oxygenates, including EDB & EDC (EPA method 8260B)

Grab groundwater samples at waste oil UST excavation:

TPH as Motor Oil (TPH-Extractable: EPA 3510C / EPA method 8015B(M))
VOCs, including BTEX and MTBE (EPA method 8260B)
Fuel Oxygenates, including EDB & EDC (EPA method 8260B)

A sample trip blank will accompany all groundwater samples to the State-certified laboratory, Entech in Santa Clara, California, and be analyzed for VOCs only. GGTR will request that all associated laboratory analytical reports be reported in Electronic Deliverable Format in general accordance with the State Water Resources Control Board's GeoTracker Database System.

GGTR will subsequently upload all analytical data to the State Water Resources Control Board's GeoTracker Database System.

Waste Management

Hydrocarbon-affected soil generated during the additional excavation and soil boring activities will be drummed and/or stockpiled and temporarily stored onsite in a secure area. Pending receipt of the composite stockpile soil sample analysis, GGTR will subsequently profile and transport the waste to an appropriate licensed disposal facility under uniform waste manifest. Equipment wash-rinse water, purge and development water generated from the decontamination of soil boring-sampling equipment will be transferred to 55-gallon, D.O.T.-approved steel drum(s), labeled, and stored onsite. The liquid waste will be profiled for disposal/recycling under uniform waste manifest following receipt of the laboratory results of soil boring grab groundwater sample analysis.

GeoTracker Uploading

Pursuant to Title 23 Division 3 Chapter 30 and Title 27 Division 3 Subdivisions 1 and 2, 2004, all soil/groundwater sample analytical data, wellhead elevation and coordinate data, and well fluid-level data collected at the site since September 2001 are required to be uploaded in Electronic Deliverable Format to the State Water Resources Control Board's GeoTracker Database System. Also, geologic boring logs of each existing and newly-installed boring, as well as a copy of all letters, work plans, and reports prepared during current and future phases of this site investigation, are required to be uploaded in PDF format to the GeoTracker Database System.

Data Interpretation and Report Preparation

Following the completion of all field work, GGTR will review all field and analytical data and prepare a technical report, discussing the activities and findings of the investigation and present recommendations. The report will be submitted to the ACHCSA for regulatory review.

Schedule

GGTR anticipates beginning the additional field activities within two to three weeks of receiving client authorization to proceed and based upon scheduling and driller availability. The aforementioned report should be available within 60 days following receipt of all soil and groundwater analytical results.

Report Distribution

All reports that are prepared during the continuing work on this project will be sent to:

Alameda County Health Care Services Agency
Environmental Health Services
Environmental Protection (LOP)
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
Attention: Ms. Donna Drogos (1 PDF Copy via ACHCSA FTP & GeoTracker)

Mr. Thomas O. Gillis
1153 Copper Verde Lane
Modesto, California 95355 *(1 Hard Copy, Bound)*

Clarence & Virginia Glasper
P.O. Box 245160
Sacramento, California 95824 *(1 Hard Copy, Bound)*

Mr. Dominick Yee
P.O. Box 23431
Oakland, California 94623 *(1 Hard Copy, Bound)*

REFERENCES

- ACHCSA 2007, letter from Don Hwang requesting Work Plan for additional source and site characterization, dated January 23, 2006.
- ACHCSA 2006, Work Plan approval letter from Don Hwang, dated April 11, 2006.
- ACHCSA 2005, letter from Don Hwang requesting Work Plan, dated December 1, 2005.
- ACHCSA 2000, letter from Larry Seto approving use of stockpile as backfill, dated April 4, 2000.
- ACHCSA 1999, letter from Larry Seto approving Work Plan, letter dated February 1, 1999.
- ACHCSA 1997, Directive and Order from Alameda County Environmental Enforcement Review Panel requiring site owner to perform further work and sampling, August 11, 1997.
- ACHCSA 1997, letter by Jennifer Eberlie requesting over-excavation of UST, January 3, 1997.
- California Division of Mines & Geology, 1990. Geologic Map of the San Francisco-San Jose Quadrangle, Wagner, D.L., Bortugno, E.J., and McJunkin, R.D.
- California Regional Water Quality Control Board San Francisco Bay Region (RWQCB), 1999, East Bay Plain Groundwater Basin Beneficial Use Evaluation Report, Alameda and Contra Costa Counties, CA, Groundwater Committee report dated June 1999.
- California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) Application of Environmental Screening Levels and Decision Making at Sites With Impacted Soil and Groundwater; Vol 1: Summary Tier 1 Lookup Tables, Interim Final February 2005.
- California RWQCB 1990. Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Storage Tanks, August 10, 1990.
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- Geological Society of America, 1991. Munsell Rock Color Chart
- GGTR 2006, Report of Product Line Removal and Additional Site Characterization Activities, dated July 31, 2006.
- GGTR 2006. Work Plan for Additional Site Characterization, dated January 21, 2006.
- GGTR 2006. Proposed Additional Soil Boring, Waste Oil Tank Cavity, dated April 6, 2006.
- GGTR 2005, UST Removal and Remedial Investigation Summary Report, dated August 1, 2005.
- GGTR 1998, Work Plan for Additional Work, dated October 23, 1998.
- GGTR 1998, Tank Closure Report for waste oil UST, dated July 24, 1998.
- GGTR 1998, Gasoline Tank Soil Sampling and Analyses letter report, dated July 9, 1998.
- Praetzellis, Mary & Adrian Praetzellis, editors, 2004, Putting The "There" There: Historical Archaeologies of West Oakland, I-880 Cypress Freeway Replacement Project, Chap 2, A Brief History of West Oakland (adapted from Olmsted-Olmsted 1994), pp 31-46, June 2004.
- U.S. Geological Survey, 2000, Geologic Map and Map Database of the Oakland Metropolitan Area, Alameda, Contra Costa, and San Francisco Counties, California, 2000, by R.W. Graymer, U.S. Geological Survey Misc. Field Studies MF-2342.

LIMITATIONS

This report has been prepared in accordance with generally accepted environmental practices exercised by professional environmental scientists. No warranty, either expressed or implied, is made as to the professional opinions presented herein. The findings contained in this report are based upon information contained in previous reports of corrective action activities performed at the subject property by others. GGTR relied upon such information and was not contracted to verify previous findings. Findings are also based upon site conditions as they exist at the time of the investigation and such conditions are constantly changing. The findings in the report are strictly applicable to the status of property conditions and regulatory guidelines existing when GGTR performs the study. The opinions expressed herein are subject to revision in light of new information and such revisions may require additional investigation or research to evaluate such changed conditions at the site.

GGTR neither expresses nor implies any warranties that the property is free of environmental impairment. GGTR warrants only that our services conform to generally accepted and existing environmental practices. The scope of services conducted in execution of this phase of investigation may not be appropriate to satisfy the needs of other users and any use or reuse of this document and any of its information presented herein is at the sole risk of said user. All figures, plates, maps, photographs, and diagrams in this report are considered sketches or schematic drawings that are provided for illustrative purposes only. GGTR does not warranty the accuracy of these sketch drawings and the drawings are not suitable for any engineering, mechanical, appraisal, real estate, remodeling, utility installation, re-development or construction-related purposes whatsoever.

Golden Gate Tank Removal, Inc.



WORK PLAN
ADDITIONAL SITE CHARACTERIZATION

Commercial Property
1225 Mandela Parkway, Oakland, California

Fuel Leak Case No. ROOOO041

APPENDIX A
FIGURES

Figure 1 – Site Location Map

Figure 2 – Site Vicinity Map

Figure 3 – Site Plan

Figure 4 – Soil Sample Hydrocarbon Results

Figure 5 – Groundwater Sample Hydrocarbon/Lead Results

Figure 6 – Groundwater Gradient Data

Figure 7 – Subsurface Utility Plan

Figure 8 – Well Survey Radius Map

Figure 9 - Historic 1965 Aerial Photograph

Figure 10 – Historic 1912 Sanborn Fire Insurance Map

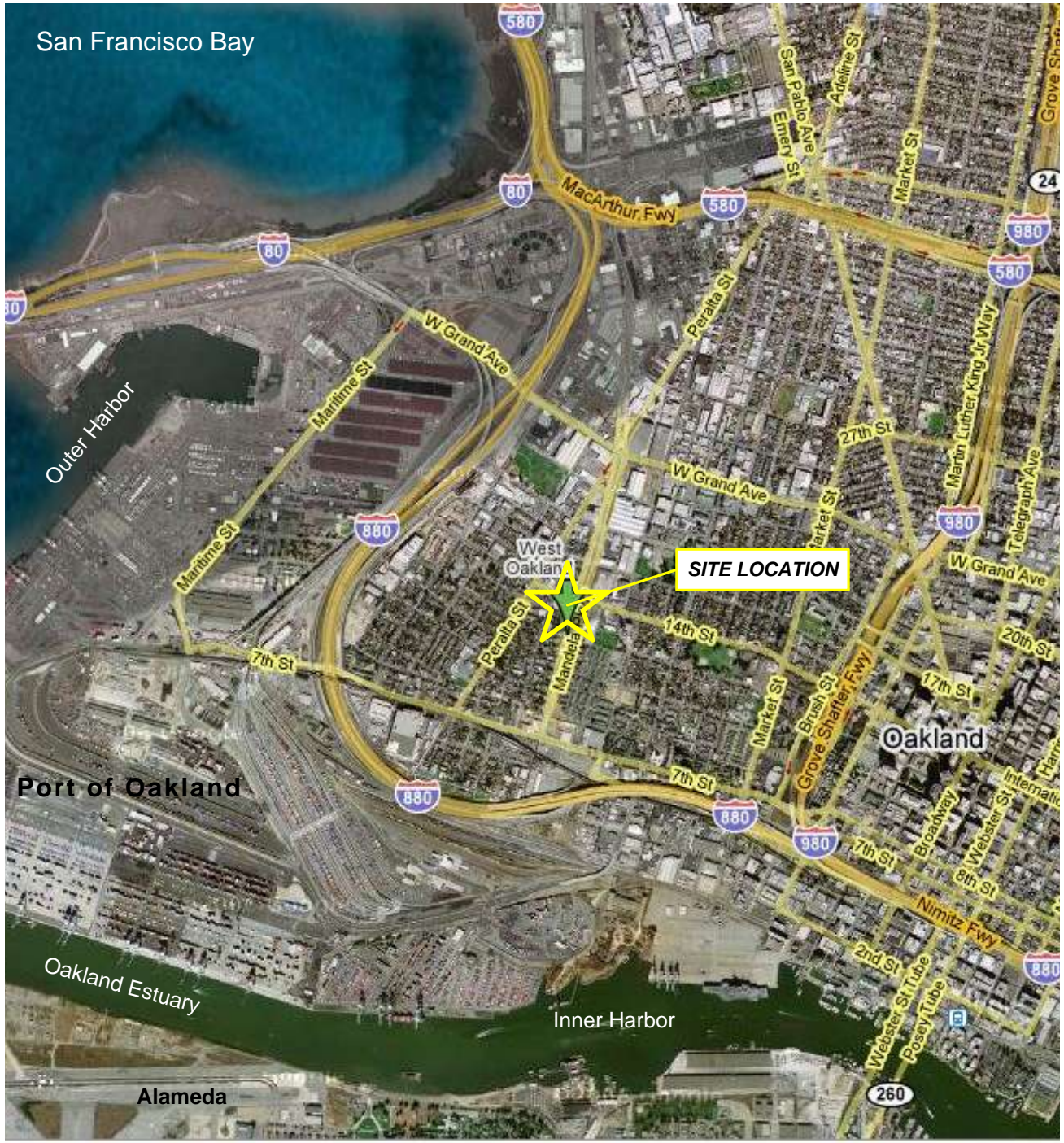
Figure 11 – Geologic Map

Figure 12 – Cross Section A-A'

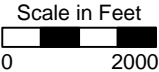
Figure 13 – Proposed Work

Golden Gate Tank Removal, Inc.
3730 Mission Street
San Francisco, CA 94110

Project Number 7519



Base map from Google Maps 2007. North to top of map.



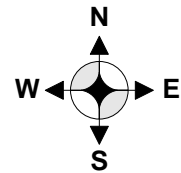
GOLDEN GATE TANK REMOVAL, INC.
 3730 Mission Street, San Francisco, CA 94110
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SITE LOCATION MAP
 1225 Mandela Parkway
 Oakland, California



Base aerial photograph from Google Maps 2007

Approximate
Scale in Feet
0 100



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SITE VICINITY MAP

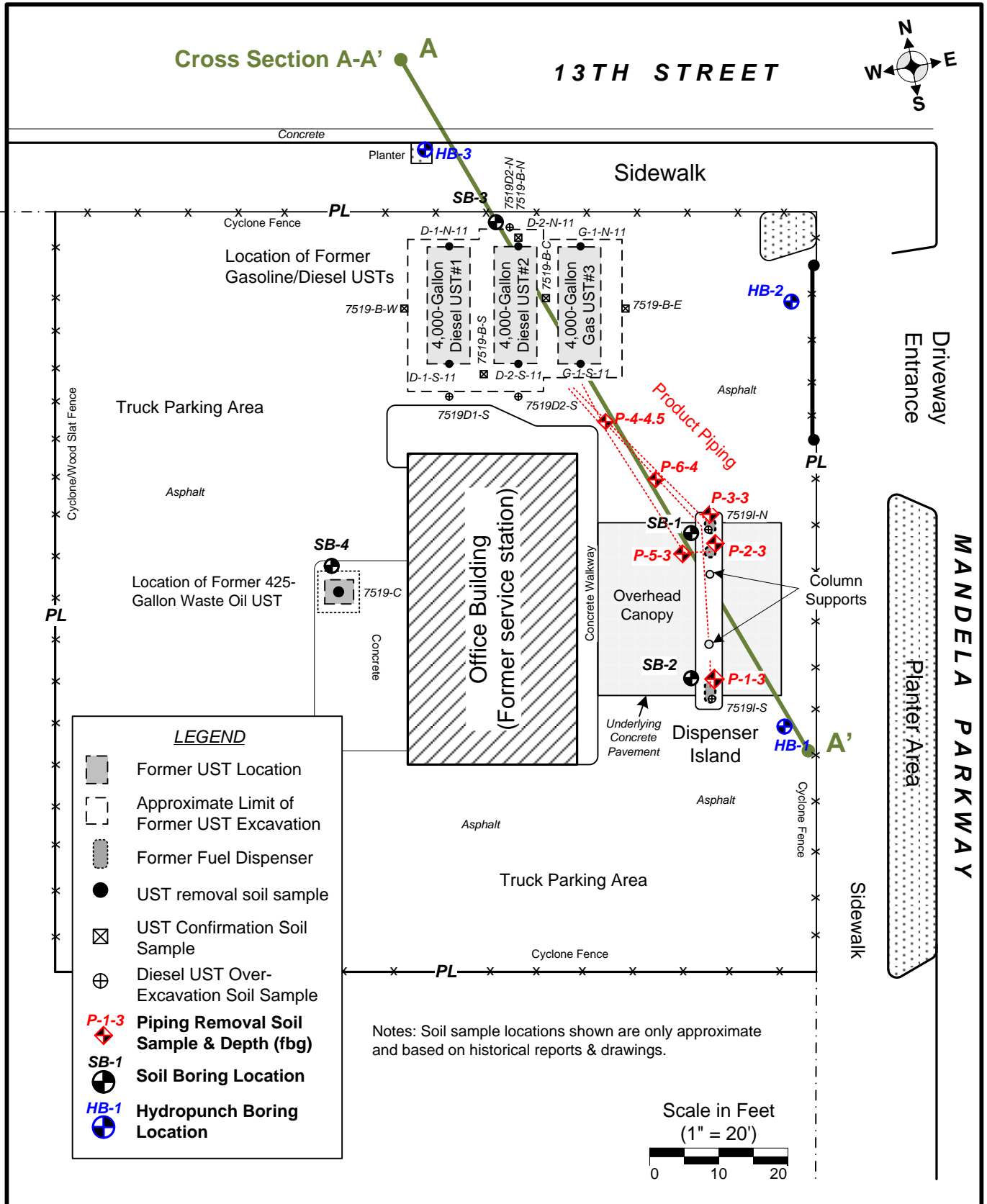
Commercial Property
1225 Mandela Parkway, Oakland, California

GGTR Project No. 7519

7519_Fig 2_Site_Vicinity_Map.vsd

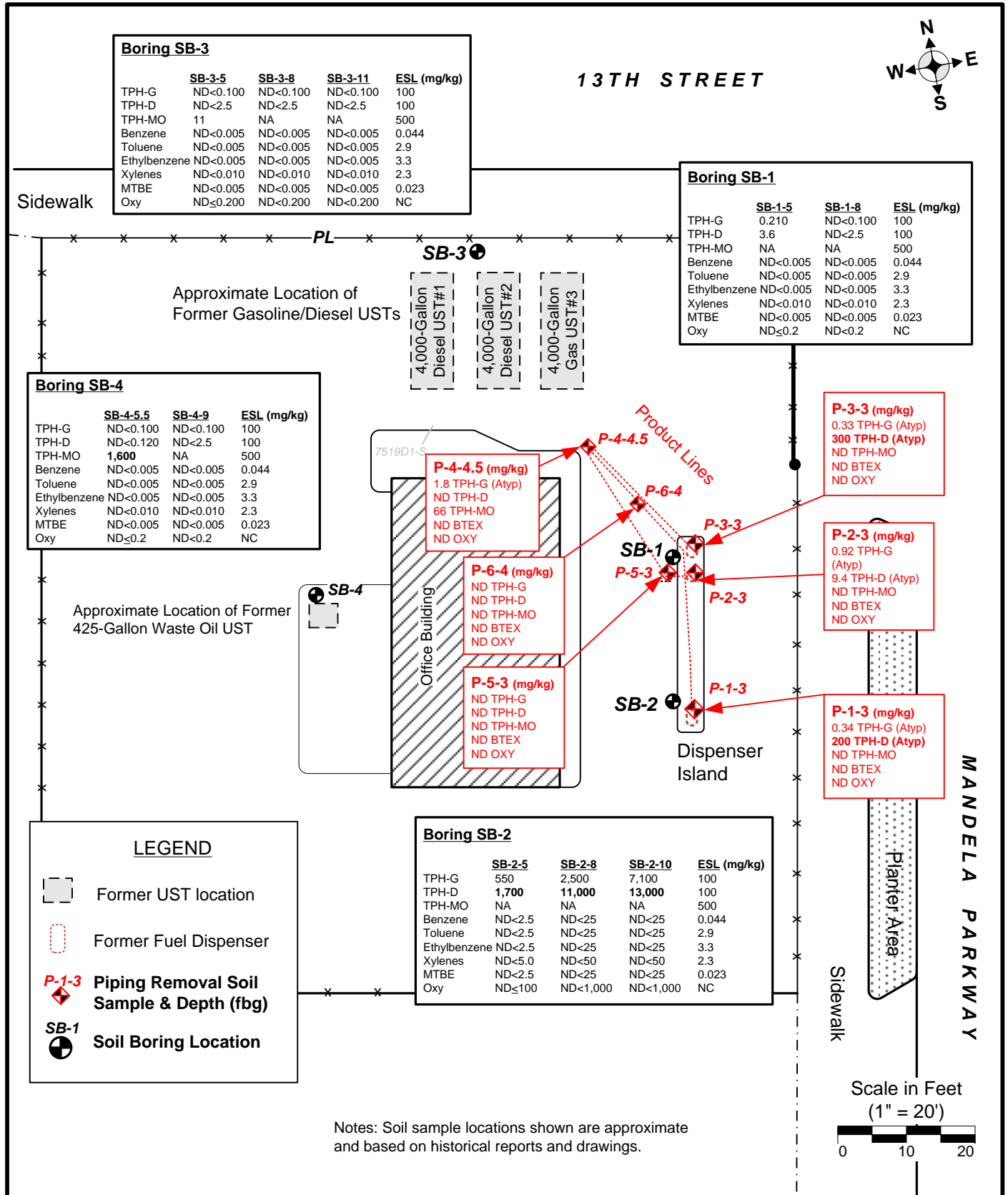
Figure By: my/06.07

Figure 2



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SITE PLAN
 1225 Mandela Parkway, Oakland, California

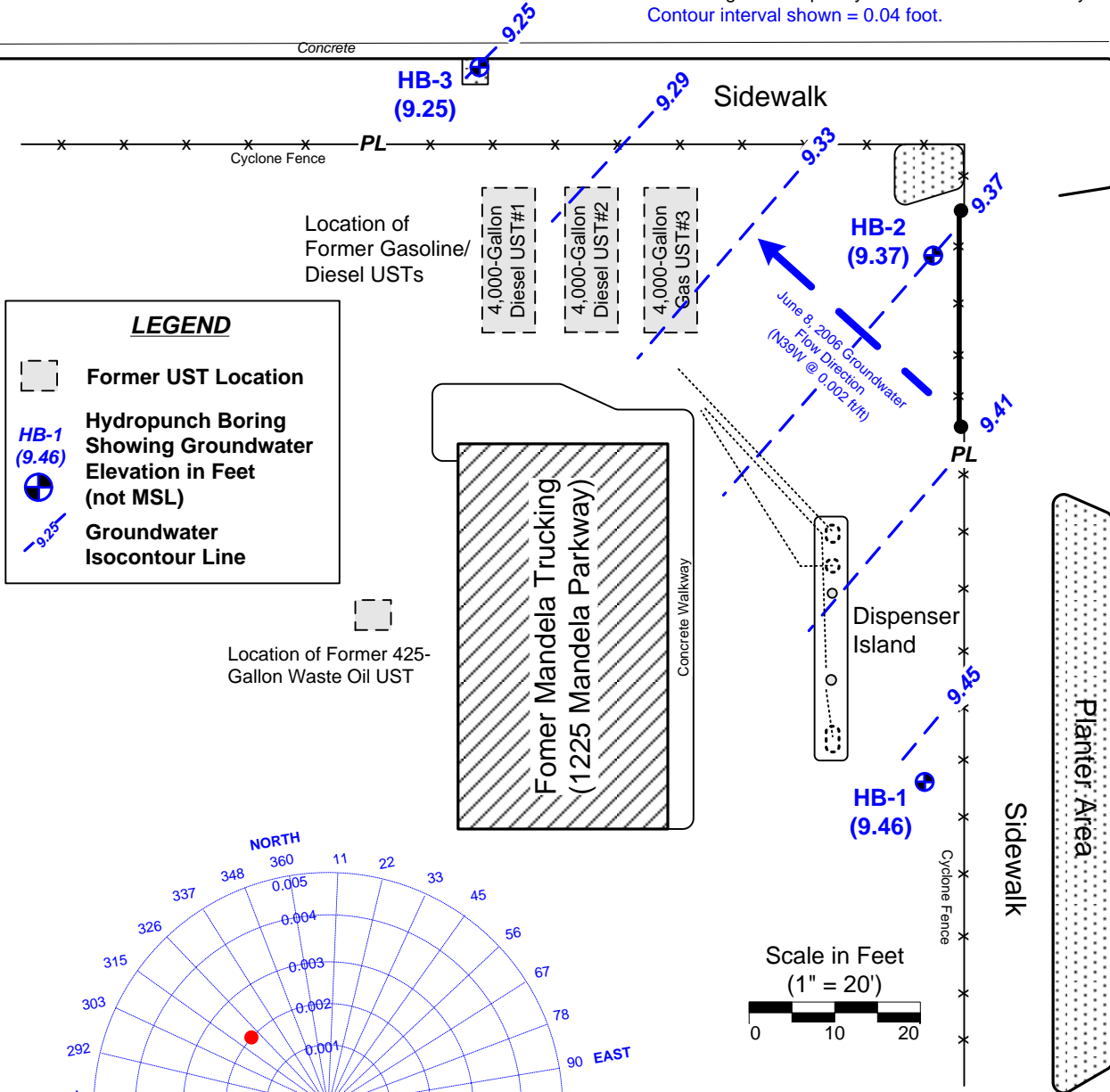


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Soil Sample Hydrocarbon Results
 1225 Mandela Parkway, Oakland, California

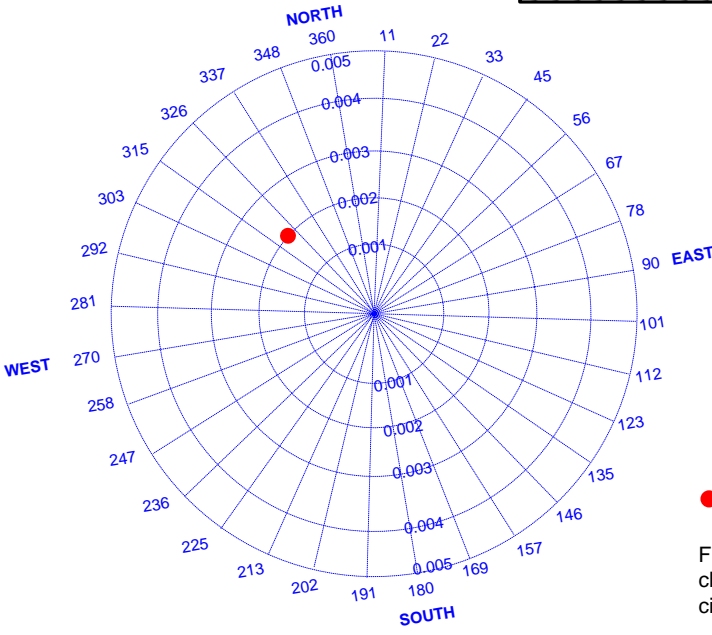
13TH STREET

Notes: Groundwater gradient data based on June 8, 2006 monitoring and temporary wellhead elevation survey activities; Contour interval shown = 0.04 foot.



LEGEND

- Former UST Location
- HB-1 (9.46)**
Hydropunch Boring Showing Groundwater Elevation in Feet (not MSL)
- 9.25**
Groundwater Isocontour Line



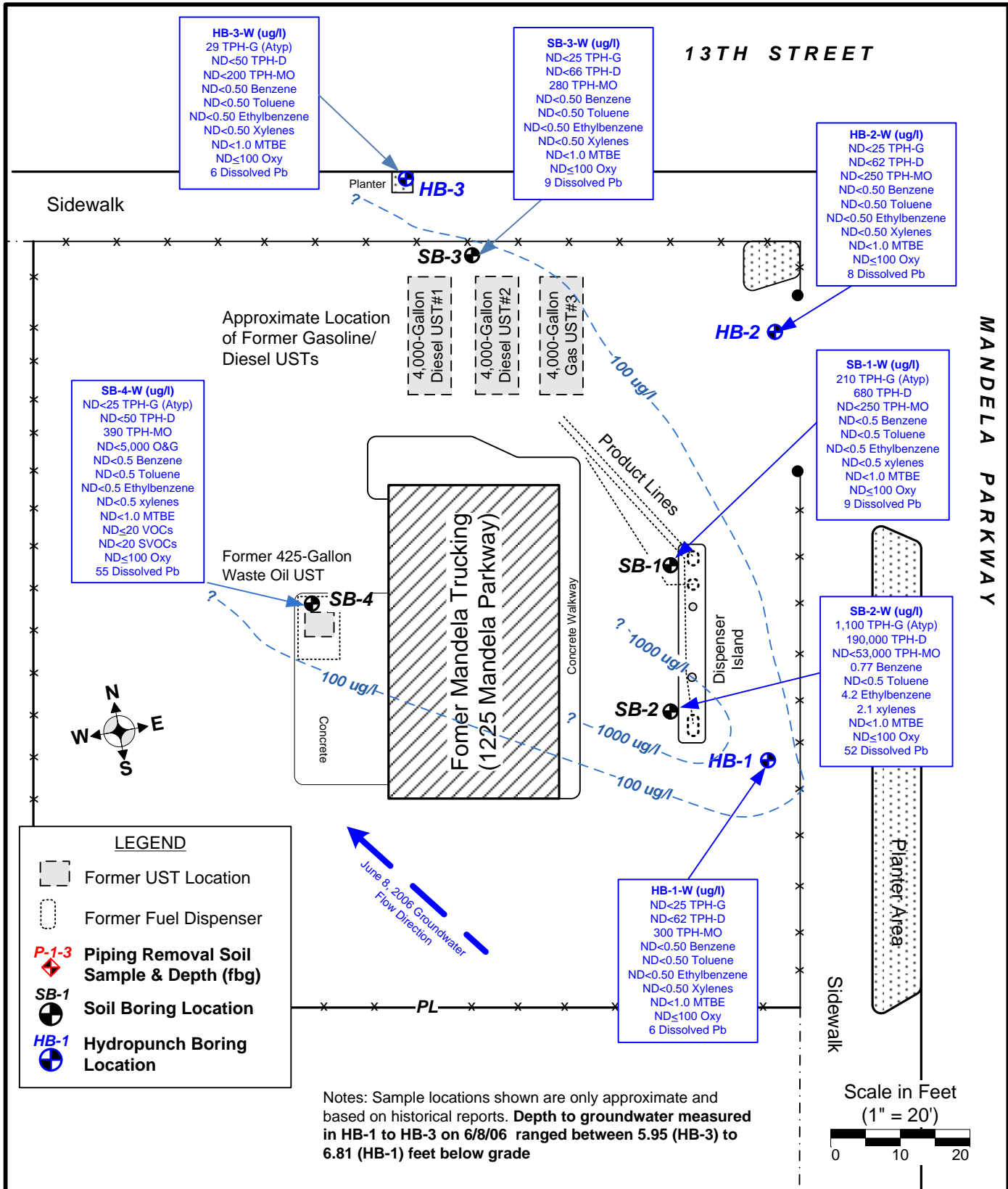
Rose Diagram of Historical Groundwater Measurements

- Preliminary flow direction & gradient (HB1-HB3) on June 8, 2006

Flow direction shown on circumference in degrees clockwise from north. Gradient shown by concentric circles from 0.001 to 0.005 foot per foot.

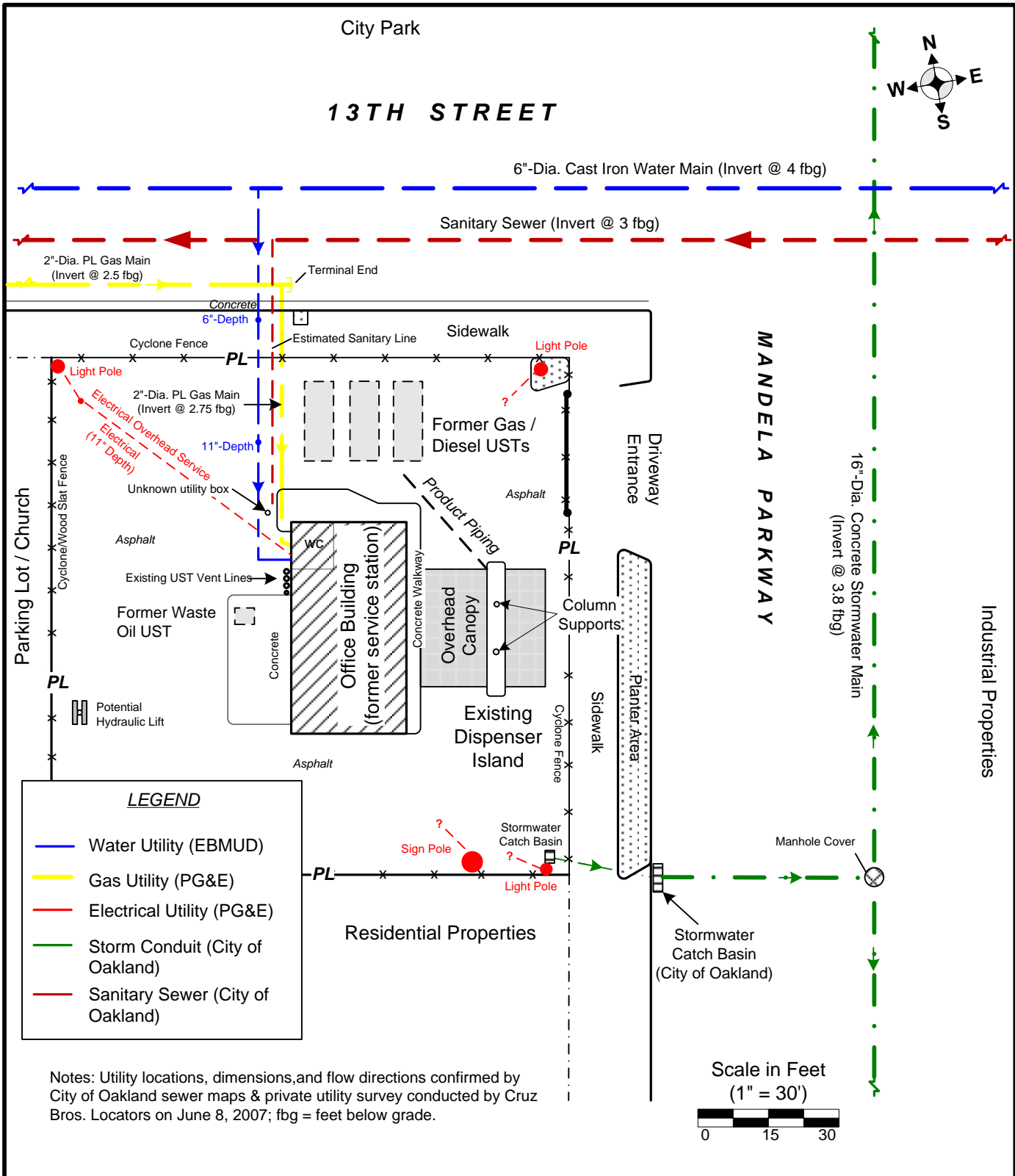
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Groundwater Gradient Data
1225 Mandela Parkway, Oakland, California



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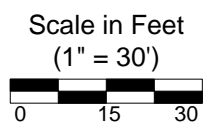
Groundwater Sample Hydrocarbon/Lead Results
 1225 Mandela Parkway, Oakland, California



LEGEND

- Water Utility (EBMUD)
- Gas Utility (PG&E)
- Electrical Utility (PG&E)
- Storm Conduit (City of Oakland)
- Sanitary Sewer (City of Oakland)

Notes: Utility locations, dimensions, and flow directions confirmed by City of Oakland sewer maps & private utility survey conducted by Cruz Bros. Locators on June 8, 2007; fbg = feet below grade.

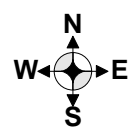
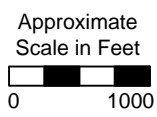


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SUBSURFACE UTILITY PLAN
 1225 Mandela Parkway, Oakland, California



Base aerial photograph from Google Maps 2007



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Well Survey Radius Map
 1225 Mandala Parkway, Oakland, California

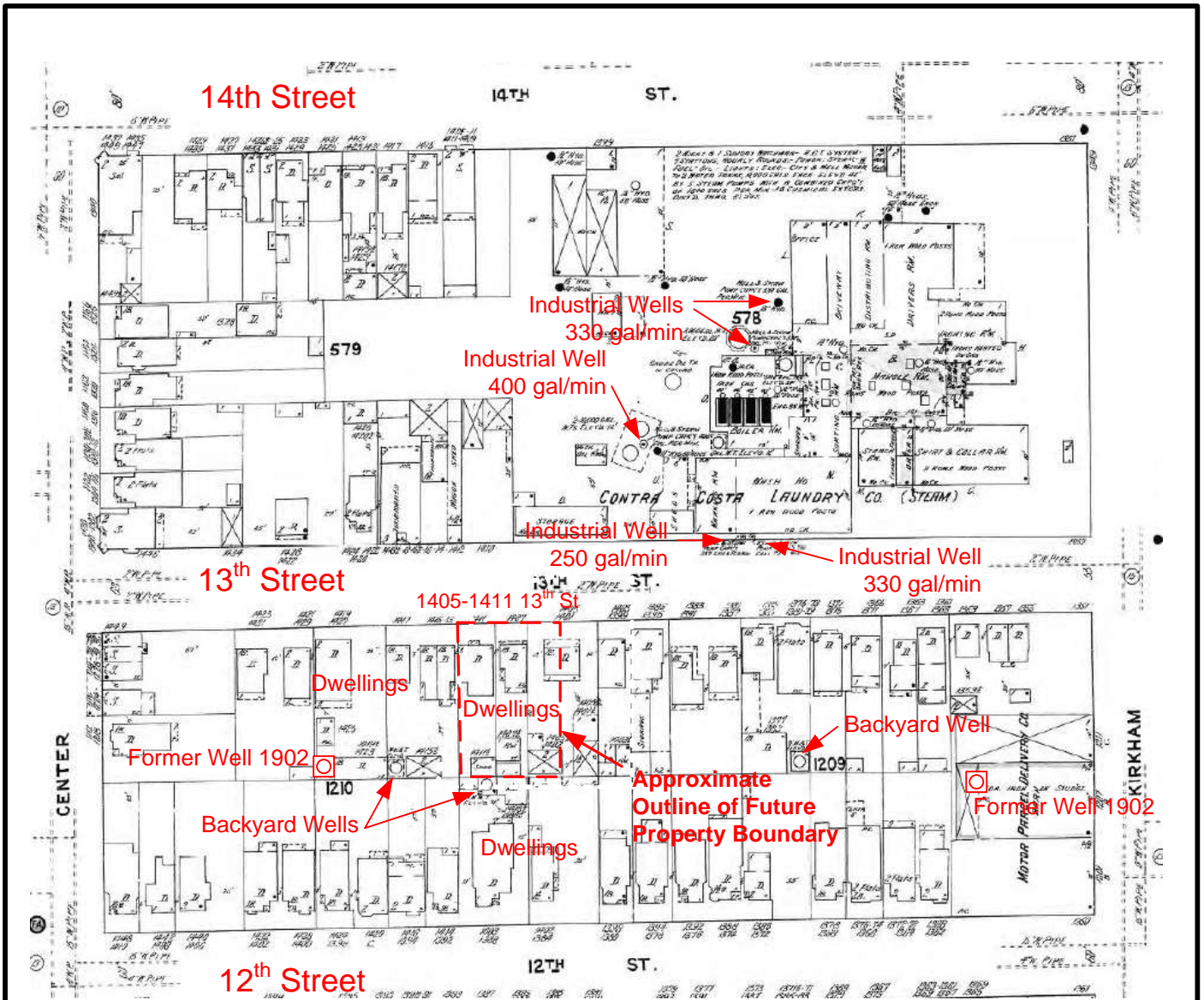
HISTORIC 1965 AERIAL PHOTOGRAPH



Enlarged historic aerial photograph dated 1965 at an original scale of 1"=333 feet by Cartwright. North is to top of photograph. Subject property at 1225 Mandela Parkway is shown by dashed line. Garage building in center of lot with canopy shown over location of dispenser island. Mandela Parkway was formerly called Cypress Street. Elevated Freeway (Eastshore-Nimitz-Cypress Freeway) with on-ramp is shown to north and east of site. Aerial photo from The EDR Aerial Photo Decade Package dated June 12, 2007.

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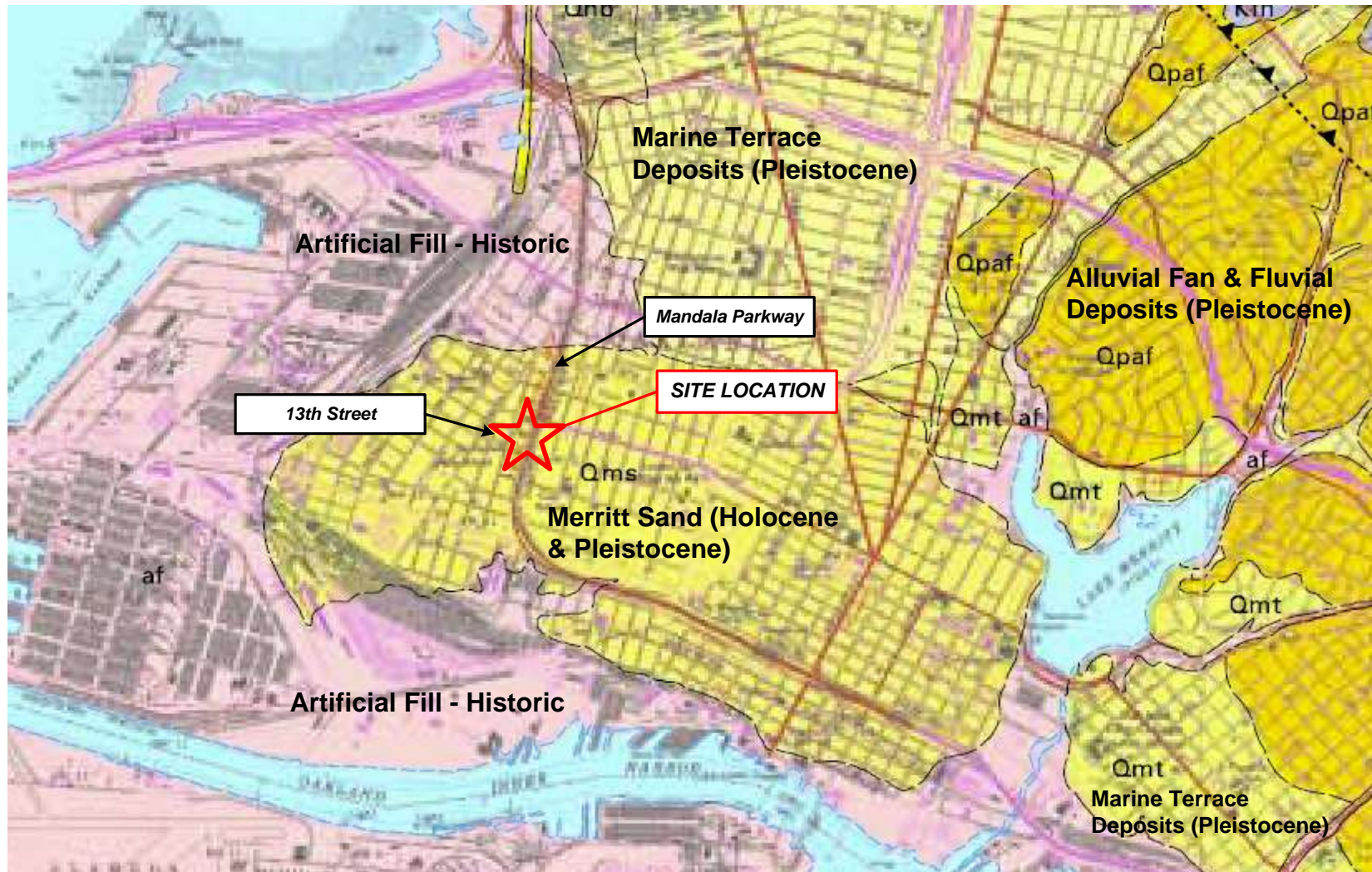
HISTORIC 1965 AERIAL PHOTOGRAPH
 1225 Mandela Parkway, Oakland, California



Enlarged and annotated portion of historic Sanborn fire insurance map dated 1912. North is to top of map. Subject property at 1225 Mandela Parkway is shown in historical configuration with small dwellings at 1405, 1407 & 1411 13th Street. Much of the surrounding neighborhood is residential with a wagon shop across 13th Street to the north. Industrial water wells at Contra Costa Laundry Company and backyard water wells annotated on map. Map from The EDR Sanborn Map Report dated June 12, 2007.

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HISTORIC 1912 SANBORN FIRE INSURANCE MAP
 1225 Mandela Parkway, Oakland, California



A portion of Geologic Map and Map Database of the Oakland Metropolitan Area, Alameda, Contra Costa, and San Francisco Counties, California, 2000, by R.W. Graymer, U.S. Geological Survey Misc. Field Studies MF-2342; North to top; See report text for explanation of geologic units shown on map; Scale about 3 inches per mile.

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GEOLOGIC MAP

1225 Mandela Parkway, Oakland, California

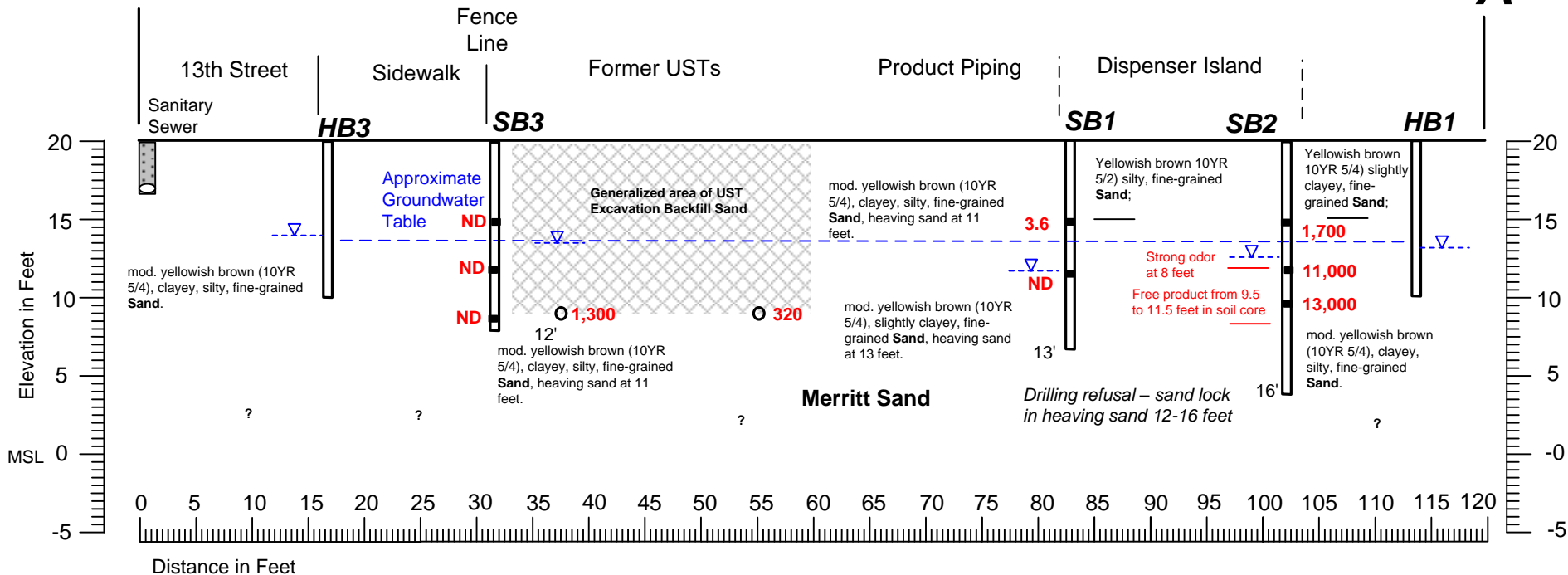
CROSS SECTION A - A'

North

South

A

A'



1,300 - Concentration in ppm of TPH Diesel in soil sample as reported by analytical laboratory

Horizontal Scale: 1 inch = 10 feet
 Vertical Scale: 1 inch = 5 feet
 Vertical exaggeration = x 2

Notes: Location of Cross Section A-A' referenced in Figure 3 Site Plan; MSL = Mean Sea Level; fbg = feet below grade; Trench backfill and utility invert depths are approximate and based on information provided by city utility maps and site reconnaissance; Utility invert is estimated and should be verified: sketch drawing not for construction purposes - approximation only.

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CROSS SECTION A-A'

1225 Mandela Parkway, Oakland, California

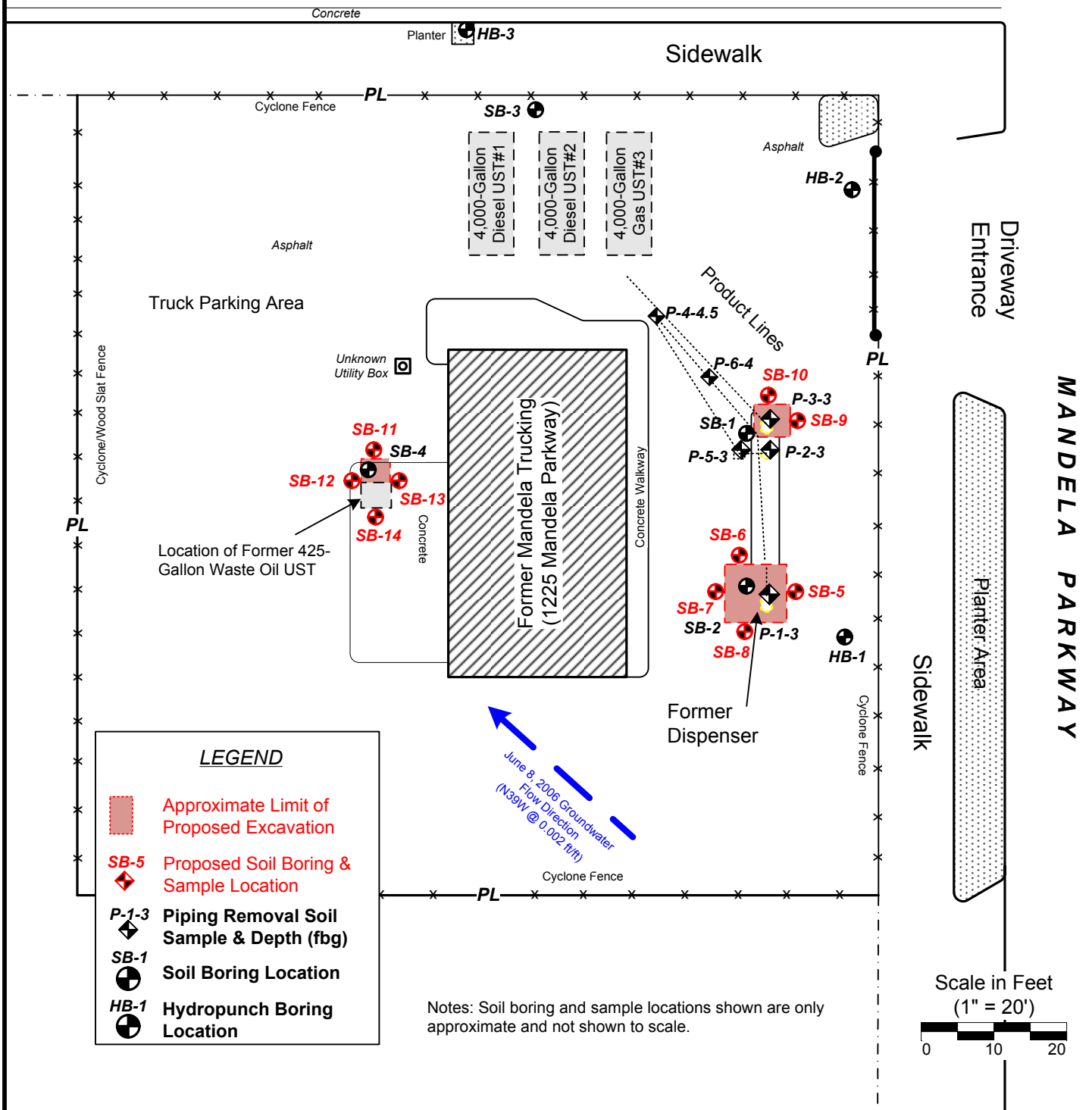
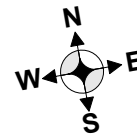
GGTR Project No. 7519

File: 7519_Fig 12_X Sect A-A'.vsd

Figure By: MY/06.07

FIGURE 12

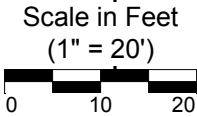
13TH STREET



LEGEND

- Approximate Limit of Proposed Excavation
- SB-5 ◆ Proposed Soil Boring & Sample Location
- P-1-3 ◆ Piping Removal Soil Sample & Depth (fbg)
- SB-1 ● Soil Boring Location
- HB-1 ● Hydro-punch Boring Location

Notes: Soil boring and sample locations shown are only approximate and not shown to scale.



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 255 Shipley Street, San Francisco, CA 94107
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PROPOSED WORK
 1225 Mandela Parkway, Oakland, California

WORK PLAN
ADDITIONAL SITE CHARACTERIZATION

Former Mandela Trucking
1225 Mandela Parkway, Oakland, California

Fuel Leak Case No. ROOOO041

APPENDIX B
TABLES & PHOTOGRAPHS

Table 1 – Results of Soil Sample Hydrocarbon & Lead Analyses

Table 2 – Results of Soil Sample Metals Analyses

Table 3 – Results of Grab Groundwater Sample Hydrocarbon Analyses

Photographs Page 1

Photographs Page 2

Golden Gate Tank Removal, Inc.
3730 Mission Street
San Francisco, CA 94110

Project Number 7519

Table 1 - Results of UST Removal Soil Samples 1996-1999

1225 Mandela Parkway, Oakland, CA

Sample ID	Sample Depth (fbg)	Sample Date	TPH-G (mg/kg)	TPH-D (mg/kg)	B/T/E/X (mg/kg)	MTBE (mg/kg)	Total Pb (mg/kg)
Gasoline/Diesel UST Removal Soil Sample Analytical Results – July 1996							
D-1-N-11	11	7/11/1996	--	ND<1	ND<0.005/ND<0.005/ND<0.005/0.015	0.014	--
D-1-S-11	11		--	110	ND<0.005/ND<0.005/ND<0.005/0.015	ND<0.005	--
D-2-N-11	11		--	1,300	ND<0.005/ND<0.005/ND<0.005/0.061	ND<0.005	--
D-2-S-11	11		--	320	ND<0.005/ND<0.005/ND<0.005/0.063	ND<0.005	--
G-1-N-11	11		0.68	--	0.005/0.013/0.005/0.021	0.035	350
G-1-S-11	11		ND<0.005	--	ND<0.005/ND<0.005/ND<0.005/ND<0.01	0.07	91
Confirmation Soil Sample Analytical Results – June 1998							
7519-B-N	9	6/17/1998	ND<0.5	--	ND<0.005/ND<0.005/ND<0.005/ND<0.01	ND<0.005	--
7519-B-S	9	6/17/1998	ND<0.5	--	ND<0.005/ND<0.005/ND<0.005/ND<0.01	ND<0.005	--
7519-B-E	9	6/17/1998	ND<0.5	--	ND<0.005/ND<0.005/ND<0.005/ND<0.01	ND<0.005	--
7519-B-W	9	6/17/1998	ND<0.5	--	ND<0.005/ND<0.005/ND<0.005/ND<0.01	ND<0.005	--
7519-B-C	10	6/17/1998	ND<0.5	--	ND<0.005/ND<0.005/ND<0.005/ND<0.01	ND<0.005	--
Waste Oil UST Removal Soil Sample Analytical Results – June 1998							
7519-C*	9	6/17/1998	ND<0.5	ND<1.0	ND<0.005/ND<0.009/0.008/0.03	ND<0.005	33
Gasoline/Diesel UST Over-Excavation Soil Sample Analytical Results – April 1999							
7519D1-S	11	4/23/1999	--	ND<1.0	ND<0.005/ND<0.005/ND<0.005/ND<0.01	ND<0.005	4
7519D2-S	11		--	ND<1.0	ND<0.005/ND<0.005/ND<0.005/ND<0.01	ND<0.005	4
7519D2-N	11		--	ND<1.0	ND<0.005/ND<0.005/ND<0.005/ND<0.01	ND<0.005	7
7519I-S	2 (dispenser)		85 (Atyp)	12,000	ND<0.02/0.074/1.4/5.0	ND<0.02	6
7519I-N	2 (dispenser)		1.8 (Atyp)	960 (Atyp)	ND<0.005/0.009/ND<0.005/ND<0.010	ND<0.005	100

NOTES:

TPH-G = Total Petroleum Hydrocarbons as gasoline

TPH-D = Total Petroleum Hydrocarbons as diesel

BTEX = benzene, toluene, ethylbenzene, and total xylenes; MTBE = methyl tertiary-butyl ether; Pb = Lead

fbg = feet below grade surface; mg/kg = milligrams per kilogram; Atyp = atypical pattern on lab chromatogram (See Specific Lab Report)

-- not analyzed for this constituent; not detected

* Sample also analyzed for following constituents, in mg/kg: VOCs (0.012 - 1,2,4-trimethylbenzene), Semi-VOCs (ND≤1.7), cadmium (ND<1), Chromium (37), lead (33), nickel (40), and zinc (430)

TABLE 2
Results of UST/Product Line Soil Sampling - May-June 2006
1225 Mandela Parkway, Oakland, CA

Sample ID	Sample Depth	Sample Date	TPH-G (mg/kg)	TPH-D (mg/kg)	TPH-MO (mg/kg)	B/T/E/X (mg/kg)	MTBE (mg/kg)	Oxy (mg/kg)
Product Line Removal Sample Analytical Results – May 2006								
P-1-3	3	5/19/2006	0.340 (Atyp)	200 (Atyp)	ND<50	ND<0.005/ND<0.005/ND<0.005/ND<0.01	ND<0.005	ND≤0.2
P-2-3	3	5/19/2006	0.920 (Atyp)	9.4 (Atyp)	ND<50	ND<0.005/ND<0.005/ND<0.005/ND<0.01	ND<0.005	ND≤0.2
P-3-3	3	5/19/2006	0.330 (Atyp)	300 (Atyp)	ND<100	ND<0.005/ND<0.005/ND<0.005/ND<0.01	ND<0.005	ND≤0.2
P-4-4.5	4.5	5/19/2006	1.8 (Atyp)	ND<5.0	66	ND<0.005/ND<0.005/ND<0.005/ND<0.01	ND<0.005	ND≤0.2
P-5-3	3	5/19/2006	ND<0.100	ND<2.5	ND<10	ND<0.005/ND<0.005/ND<0.005/ND<0.01	ND<0.005	ND≤0.200
P-6-4	4	5/19/2006	ND<0.100	ND<2.5	ND<10	ND<0.005/ND<0.005/ND<0.005/ND<0.01	ND<0.005	ND≤0.200
Soil Boring Sample Analytical Results – June 2006								
SB-1-5	5	6/7/2006	0.210 (Atyp)	3.6	--	ND<0.005/ND<0.005/ND<0.005/ND<0.01	ND<0.005	ND≤0.2
SB-1-8	8	6/7/2006	ND<0.100	ND<2.5	--	ND<0.005/ND<0.005/ND<0.005/ND<0.01	ND<0.005	ND≤0.2
SB-2-5	5	6/7/2006	550 (Atyp)	1,700	--	ND<2.5/ND<2.5/ND<2.5/ND<5	ND<2.5	ND<100
SB-2-8	8	6/7/2006	2500 (Atyp)	11,000	--	ND<25/ND<25/ND<25/ND<50	ND<25	ND<1,000
SB-2-10	10	6/7/2006	7,100 (Atyp)	13,000	--	ND<25/ND<25/ND<25/ND<50	ND<25	ND<1,000
SB-3-5	5	6/7/2006	ND<0.100	ND<2.5	11	ND<0.005/ND<0.005/ND<0.005/ND<0.01	ND<0.005	ND≤0.2
SB-3-8	8	6/7/2006	ND<0.100	ND<2.5	--	ND<0.005/ND<0.005/ND<0.005/ND<0.01	ND<0.005	ND≤0.2
SB-3-11	11	6/7/2006	ND<0.100	ND<2.5	--	ND<0.005/ND<0.005/ND<0.005/ND<0.01	ND<0.005	ND≤0.2
SB-4-5.5	5.5	6/7/2006	ND<0.100	ND<120	1,600	ND<0.005/ND<0.005/ND<0.005/ND<0.01	ND<0.005	ND≤0.2
SB-4-9	9	6/7/2006	ND<0.100	ND<2.5	--	ND<0.005/ND<0.005/ND<0.005/ND<0.01	ND<0.005	ND≤0.2

Table Notes:

TPH-G = Total Petroleum Hydrocarbons as gasoline

TPH-D = Total Petroleum Hydrocarbons as diesel w/ silica gel cleanup

TPH-MO = Total Petroleum Hydrocarbons as motor oil

BTEX = benzene, toluene, ethylbenzene, and total xylenes; MTBE = methyl tertiary-butyl ether

Oxy = Fuel Oxygenates

fbg = feet below grade surface; mg/kg = milligrams per kilogram; Atyp = atypical pattern on lab chromatogram (See Specific Lab Report)

-- not analyzed for this constituent or not detected; NC = no criteria established

TABLE 3
Results of Grab Groundwater Sampling - June 2006
1225 Mandela Parkway, Oakland, CA

Sample ID	GW Sample Depth (fbg)	Sample Date	TPH-G (ug/l)	TPH-D (ug/l)	TPH-MO (ug/l)	B/T/E/X (ug/l)	MTBE (ug/l)	Oxy (ug/l)	Pb (ug/l)
SB-1-W	8.25	6/7/2006	210 (Atyp)	680	ND<250	ND<0.5/ND<0.5/ND<0.5/ND<0.5	ND<1.0	ND _≤ 100	9
SB-2-W	7.35	6/7/2006	1,100 (Atyp)	190,000	ND<53,000	0.77/ND<0.5/4.2/2.1	ND<1.0	ND _≤ 100	52
SB-3-W	6.75	6/7/2006	ND<25	ND<66	280	ND<0.5/ND<0.5/ND<0.5/ND<0.5	ND<1.0	ND<100	9
SB-4-W*	7.45	6/7/2006	ND<25	ND<50	390	ND<0.5/ND<0.5/ND<0.5/ND<0.5	ND<1.0	ND<100	55 (Total)
HB-1-W	6.99	6/7/2006	ND<25	ND<62	300	ND<0.5/ND<0.5/ND<0.5/ND<0.5	ND<1.0	ND<100	6
HB-2-W	6.65	6/7/2006	ND<25	ND<62	ND<250	ND<0.5/ND<0.5/ND<0.5/ND<0.5	ND<1.0	ND<100	8
HB-3-W	6	6/7/2006	29 (Atyp)	ND<50	ND<200	ND<0.5/ND<0.5/ND<0.5/ND<0.5	ND<1.0	ND<100	8

Table Notes:

TPH-G = Total Petroleum Hydrocarbons as gasoline

TPH-D = Total Petroleum Hydrocarbons as diesel w/ silica gel cleanup

TPH-MO = Total Petroleum Hydrocarbons as motor oil

BTEX = benzene, toluene, ethylbenzene, and total xylenes; MTBE = methyl tertiary-butyl ether

Oxy = Fuel Oxygenates; Pb = Lead (Dissolved)

fbg = feet below grade surface; ug/l = micrograms per liter; Atyp = atypical pattern on lab chromatogram (See Specific Lab Report)

-- not analyzed for this constituent; not detected

* = Sample also analyzed for Oil & Grease (ND<500 ug/l), VOCs (All ND<50 ug/l), and SVOCs (All ND<50 ug/l)

Static groundwater levels measured in HB-1 to HB-3 on June 8, 2006



Photograph No. 1 - view southward of subject property from corner of Mandela Parkway and 13th Street. Office building and fenced lot used for truck power unit storage. Fuel dispenser canopy on left side of building at former fuel dispenser locations.

Photograph No. 2 - view northward of fuel dispenser island beneath overhead canopy. Intersection of Mandela Parkway and 13th Street in background. Former USTs located in background where power unit is parked.



Photograph No. 3 - view westward of canopy area showing trench from dispenser and product piping removal. Former USTs located under location of power unit parked in background.

GOLDEN GATE TANK REMOVAL, INC.
 3730 Mission Street, San Francisco, CA 94110
 Phone (415) 512-1555 Fax (415) 512-0964

PHOTOGRAPHS PAGE 1
 1225 Mandela Parkway, Oakland, California



Photograph No. 4 - view southward of subject property from 13th Street. Vacant building with open restroom door shown. Four UST vent stacks on right side of building. Former waste oil UST location behind power unit.

Photograph No. 5 - view eastward of former waste oil UST location. Interior of building remodeled into two office suites – both largely vacant. UST vent stacks visible at left margin of photo behind power unit.



Photograph No. 6 - view southward of former waste oil UST area with unidentified utility box visible in foreground marked with question mark. Vent pipes from former USTs visible on wall of building behind dumpster.

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 3730 Mission Street, San Francisco, CA 94110
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PHOTOGRAPHS PAGE 2
 1225 Mandela Parkway, Oakland, California

WORK PLAN
ADDITIONAL SITE CHARACTERIZATION

Former Mandela Trucking
1225 Mandela Parkway, Oakland, California

Fuel Leak Case No. ROOOO041

APPENDIX C
ADDITIONAL DOCUMENTATION

January 23, 2007 Letter from Don Hwang
Well Completion Release Agreement Form
City of Oakland Sewer Monument Maps

Golden Gate Tank Removal, Inc.
3730 Mission Street
San Francisco, CA 94110

Project Number 7519

ALAMEDA COUNTY
HEALTH CARE SERVICES

AGENCY
DAVID J. KEARS, Agency Director



ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

January 23, 2007

Thomas O. Gillis
1153 Copper Verde Lane
Modesto, CA 95355

Clarence & Virginia Glasper
PO Box 245160
Sacramento, CA 95824-5160

Dear Mr. Gillis, Mr. & Mrs. Glasper:

Subject: Fuel Leak Case No. R0000041, Mandela Trucking,
1225 Mandela Parkway, Oakland, CA

Alameda County Environmental Health (ACEH) staff has reviewed "Product Line Removal and Additional Site Characterization" dated July 31, 2006, prepared by Golden Gate Tank Removal, Inc. (GGTR). Additional soil samples (SB-1 to SB-4) by the dispenser island, former gasoline/diesel underground storage tank (UST) and former waste oil UST pits, soil samples (P-1 - P-6) along the product line, and hydropunch groundwater samples (HB-1 - HB-3) at locations upgradient and downgradient of the dispenser island and the former gasoline/diesel UST pit, were collected. We request that you address the following comments and send us the reports requested below.

TECHNICAL COMMENTS

- 1) Source characterization - Up to 13,000 mg/kg TPH-D and 7,100 mg/kg TPH-G were detected beneath the dispensers in soil samples SB-2, P-1, and P-3. Therefore, the soil by the dispensers have not been vertically nor laterally delineated. We concur with GGTR's recommendation to place additional borings around SB-2 for delineation followed by the excavation of impacted soil and the extraction of impacted groundwater. Please submit a Work Plan, which will include source and site characterization, followed by remediation.
- 2) Site Characterization - Up to 190,000 ug/l TPH-D and 1,100 ug/l TPH-G were detected beneath the dispensers in groundwater sample SB-2-W. Thus, the plume has not been defined vertically and laterally. We concur with GGTR's recommendation for delineation. See above. Please submit a Work Plan, which will include source and site characterization, followed by remediation.

- 3) Preferential Pathway Survey – We request that you perform a preferential pathway study that details the potential migration pathways and potential conduits (wells, utilities, pipelines, etc.) for horizontal and vertical migration that may be present in the vicinity of the site.
 - a) Utility Survey - Please submit map(s) and cross-sections showing the location and depth of all utility lines and trenches (including sewers, storm drains, pipelines, trench backfill, etc.) within and near the site and plume area(s). Evaluate the probability of the contaminant plumes encountering preferential pathways and conduits that could spread the contamination, particularly in the vertical direction to deeper water aquifers. Please submit with the Work Plan requested below.
 - b) Well Survey – Locate wells within a quarter mile radius of the site. Show the location of the wells and the site on a map and tabulate well construction details for each well. Please submit with the Work Plan requested below.

- 4) Historical Hydraulic Gradients – Please show using a rose diagram with magnitude and direction; include cumulative groundwater gradients in all future reports submitted for this site. Please submit with the Work Plan requested below.

TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Attention: Don Hwang), according to the following schedule:

- March 23, 2007 - Work Plan

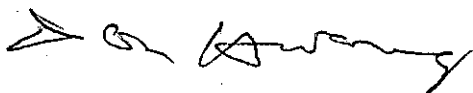
These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 -through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

If you have any questions, please call me at (510) 567-6746.

Sincerely,

A handwritten signature in black ink, appearing to read "Don Hwang". The signature is written in a cursive style with a large initial "D".

Don Hwang
Hazardous Materials Specialist
Local Oversight Program

c: Brent A. Wheeler, Golden Gate Tank Removal, Inc., 255 Shipley Street,
San Francisco, Ca. 94107
Donna Drogos
File

482,000

1,432,000

UNDERGROUND SEWER MAP



REVISED 6-14-89






APPROX.
SCALE:
1" = 100'

NORTH



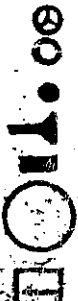
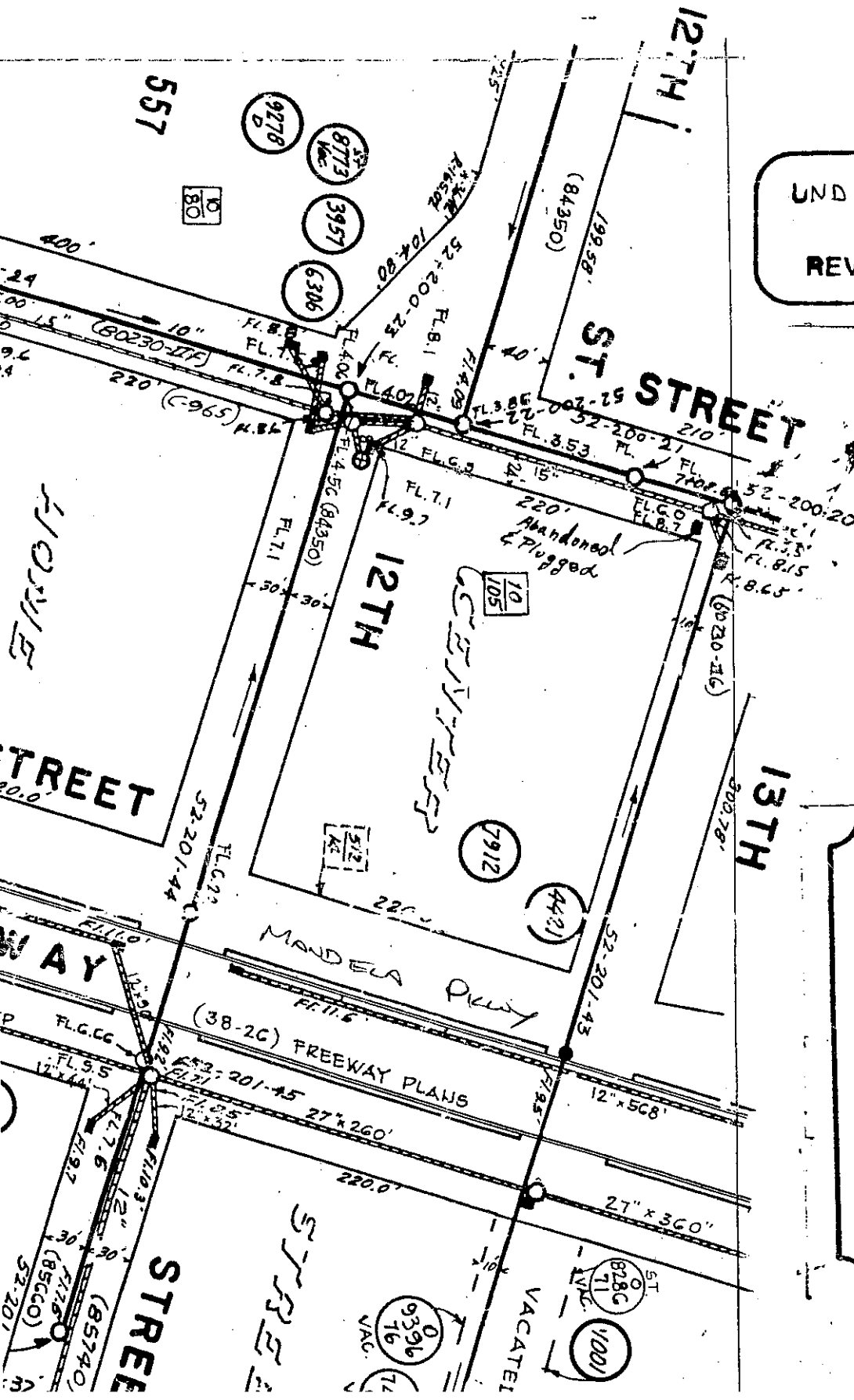
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SANIT & SEWER 
STORM CONDUIT 

FLOW MONITOR 
MANHOLE 
LAMPHOLE 
CLEAN OUT 
INLET 

DEED REFERENCE 

MAP REFERENCE 



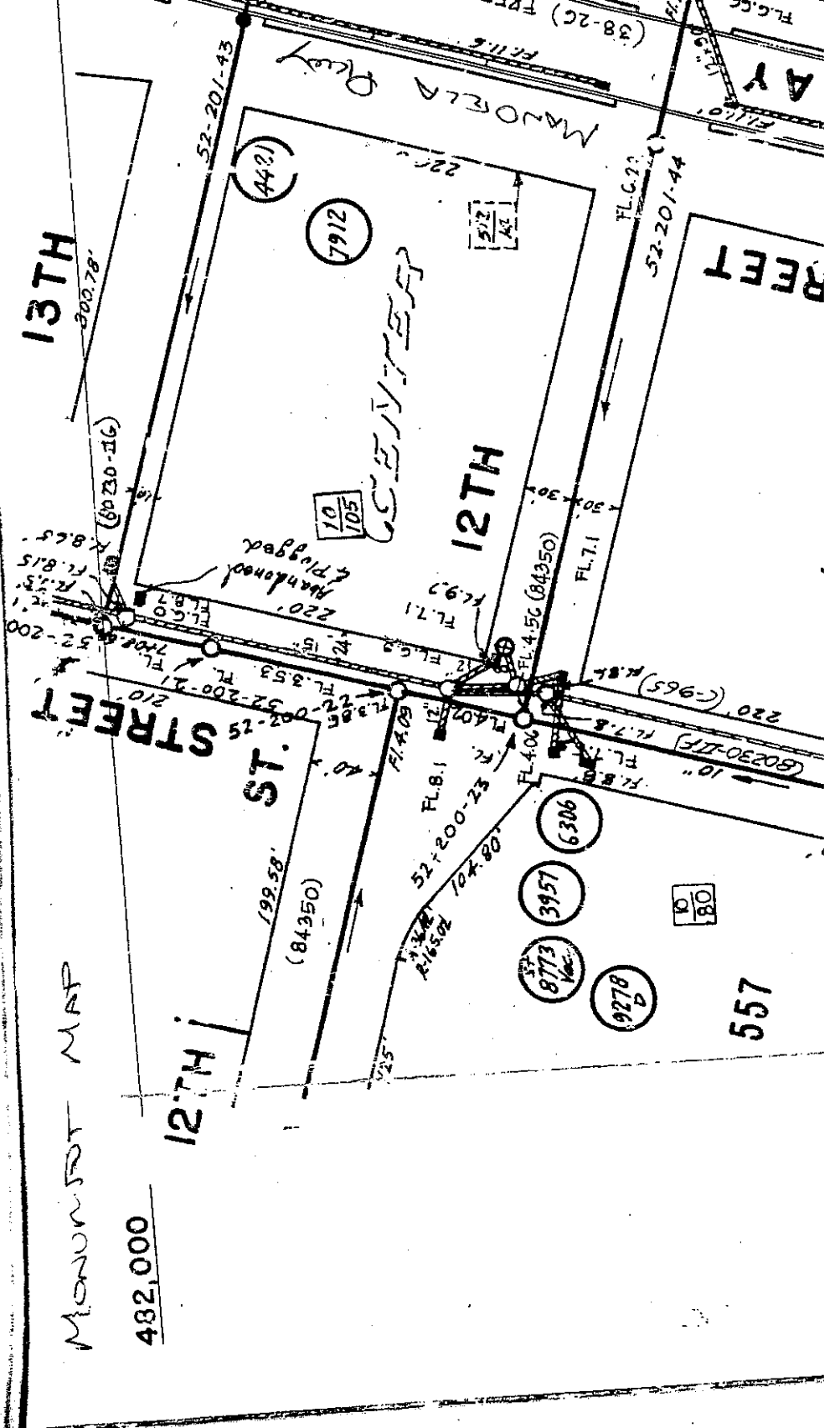
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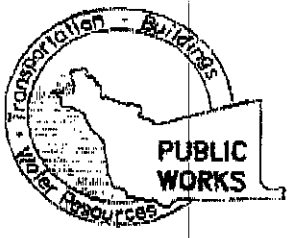
- △ TRIANGULATION STATION
- CIRCUMSCRIBED MONUMENT
- CITY MONUMENT
- ▲ AZIMUTH MARK
- (—) BM CITY OF OAKLAND BENCHMARK
- MONUMENT LINE
- COORDINATED INTERSECTION STATION
- COORDINATED REVD - ORDINANCE (97) UMS

- SOILS FILE REFERENCE
- * GR - GRADING PERMIT
- - GEOTECHNICAL REPORTS
- - LAND STABILITY
- M - MISCELLANEOUS

- MAP REFERENCE
- RETURN

(97) UMS





COUNTY OF ALAMEDA
PUBLIC WORKS AGENCY
WATER RESOURCES SECTION
399 Elmhurst Street, Hayward, CA 94544-1395
James Yoo PH: (510) 670-6633 FAX: (510) 782-1939
FOR GENERAL DRILLING PERMIT INFO:
www.acgov.org/pwa/wells

WELL COMPLETION REPORT RELEASE AGREEMENT—AGENCY
(Government and Regulatory Agencies and their Authorized Agents)

GGTR PROJECT # 7519

Project No/ Site Address: 1225 MANDELA BLVD City OAKLAND

Township, Range, and Section SEE ATTACHED MAP Radius 0.25 MILE
(Must include entire study area and a map that shows the area of interest.)

Under California Water Code Section 13752, the agency named below requests permission from Department of Water Resources to inspect or copy, or for our authorized agent named below to inspect or copy, Well Completion Reports filed pursuant to Section 13751 to (check one):

- Make a study, or.
- Perform an environmental cleanup study associated with an unauthorized release of a contaminant within a distance of 2 miles.

In accordance with Section 13752, information obtained from these reports shall be kept confidential and shall not be disseminated, published, or made available for inspection by the public without written authorization from the owner(s) of the well(s). The information shall be used only for the purpose of conducting the study. Copies obtained shall be stamped **CONFIDENTIAL** and shall be kept in a restricted file accessible only to agency staff or the authorized agent.

GOLDEN GATE TANK REMOVAL, INC.
Authorized Agent

ACNCSA - ENVIRONMENTAL HEALTH
Government or Regulatory Agency

3730 MISSION ST.
Address

113 HARBOUR BAY PKWY, STE 250
Address

SAN FRANCISCO, CA 94110
City, State, and Zip Code

ALAMEDA, CA 94502-6577
City, State, and Zip Code

Brent A. Wheeler
Signature

Donna Drogo
Signature

PROJECT ENGINEER
Title

SUP. HWS
Title

Telephone () 415-512-1555

Telephone () 510-527-6721

Fax () 415-512-0964

Fax () 510-527-6700

6/4/07
Date

6/18/07
Date

B.WHEELER@GGTR.COM
E-mail

donna.drogo@acgov.org
E-mail