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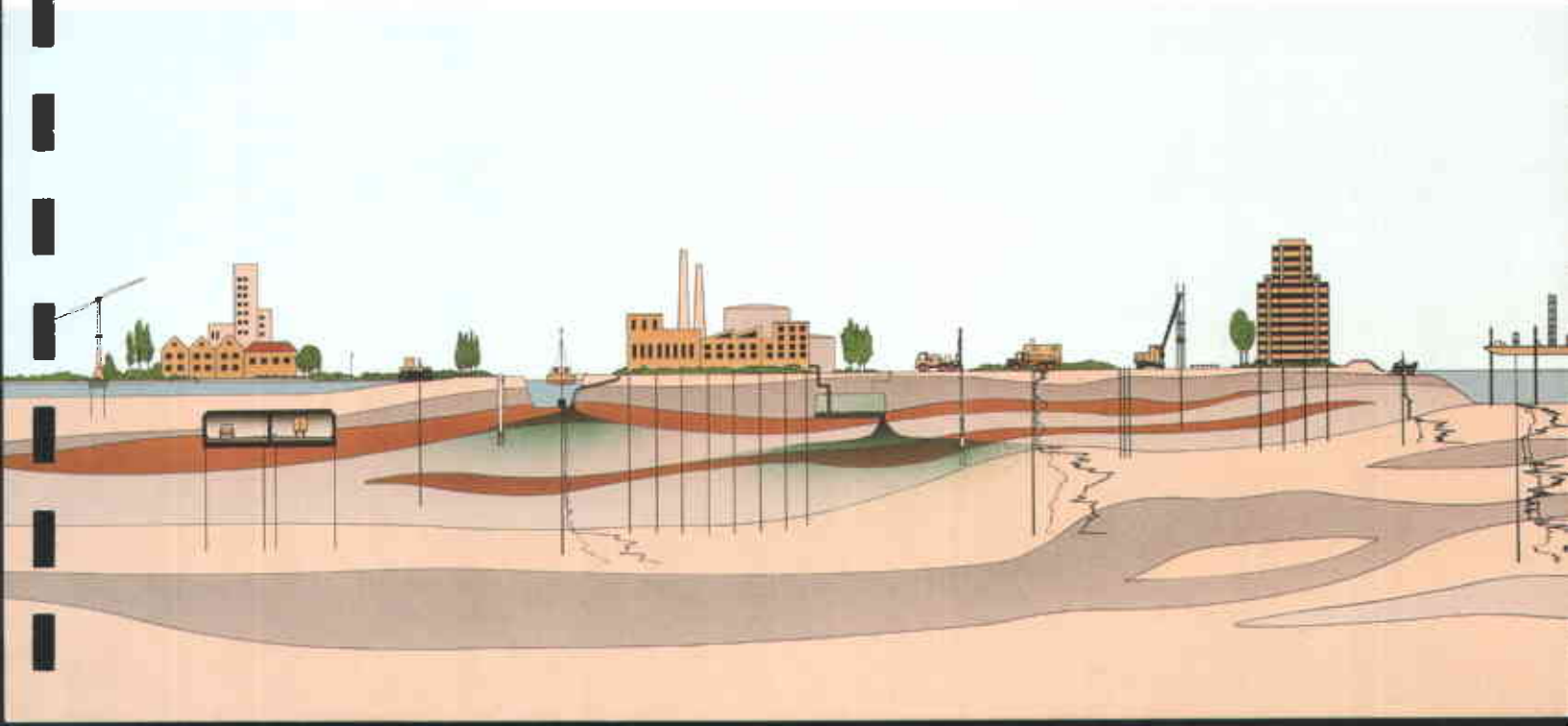
FUGRO WEST, INC.

SUMMARY OF SITE ACTIVITIES PREFERENTIAL PATHWAY SURVEY, WELL SURVEY, and PRELIMINARY RISK EVALUATION

WORKPLAN FOR ADDITIONAL SITE STUDY
2250 TELEGRAPH AVENUE
OAKLAND, CALIFORNIA
Project No. 609.004

Prepared for:
MR. DONALD HWANG
HAZARDOUS MATERIALS SPECIALIST
ALAMEDA COUNTY HEALTH CARE SERVICES AGENCY

February 2004



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February 19, 2004
Project No. 609.004

Mr. Donald Hwang
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1161 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Subject: Summary of Site Studies
Preferential Pathway Survey, Well Survey and Preliminary Risk Evaluation
Work Plan for Additional Site Study
2250 Telegraph Avenue
Oakland, California

Dear Mr. Hwang:

Fugro West, Inc. (Fugro) is pleased to present this report in response to various Alameda County Health Care Services Agency (ACHCSA) requests for additional data and characterization at the referenced property. The enclosed report summarizes the results of studies conducted to date including UST removal, soil remediation, site characterization and groundwater monitoring studies, and presents the results and evaluation of a preferential pathway survey, a well survey and a preliminary risk evaluation. In addition, we present a work plan comprised of a soil vapor study to further characterize the former waste oil tank area and annual groundwater monitoring activities, for your review.

Please call if you have any questions regarding the information contained in this report.

REGISTERED PROFESSIONAL ENGINEER
JERIANN N. ALEXANDER
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Sincerely:

FUGRO WEST INC.

Obiajulu Nzewi
Project Geologist

REGISTERED ENVIRONMENTAL ASSESSOR
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1.0 INTRODUCTION

The purpose of this report is to address concerns raised by the Alameda County Health Care Service Agency (ACHCSA) for the property located at 2250 Telegraph Avenue, Oakland, California (Plate 1). This report summarizes past studies and presents the results of a Preferential Pathway Survey, a Well Survey and Preliminary Risk Evaluation. The report also presents a Work Plan for additional study to provide current information regarding the extent and stability of the groundwater plume, which exists below the property.

In their letter dated January 16, 2002, the ACHCSA recommended that a risk assessment and sensitive receptor survey be conducted to determine whether the site may be considered a "low risk" and as such require no further action. Subsurface Consultants, Inc. (SCI, a wholly owned subsidiary of Fugro West, Inc, since 2001) was retained to commence the required studies in December 2002. A risk assessment was underway when the property owner received a subsequent letter dated April 4, 2003, wherein ACHCSA requested additional source and site characterization studies, a preferential pathway study and well survey to assess the potential human health risks associated with chemicals of concern in soil and groundwater onsite. In July 2003, the San Francisco Regional Water Quality Control Board issued revisions to their risk guidance document, which resulted in revising sections of the risk evaluation described herein.

2.0 SITE DESCRIPTION

The Site is situated at the northeast corner of Telegraph Avenue and West Grand Avenue in Oakland. (Plate 1). The Site and immediately adjacent properties have been zoned commercial for quite some time. The general terrain in the Site vicinity is flat with a gradual surface gradient to the southeast, toward Lake Merritt. Groundwater studies conducted onsite and in the vicinity have shown that the groundwater flow direction is toward the southeast.

The Site is currently a motor repair shop, and is occupied by a one-story building; that includes a servicing area and an office. Exterior areas are paved and used mainly as a staging area for automobiles before and after repairs are conducted. A chain link fence and two rolling gates located along Telegraph Avenue and West Grand Avenue encompass the entire Site.

The Site was formerly occupied by gasoline service station. Three underground storage tanks (USTs) associated with the Site station were removed in 1990, as described in Section 3.0 of this report.

Four monitoring wells (MW-1, MW-2, MW-3, and MW-4) exist onsite having been installed at the request of the ACHCSA. Two additional wells (MW-5 and MW-6), also installed at the request of the ACHCSA, were located offsite in areas along West Grand Avenue deemed to represent down gradient from the former UST improvements. A recent inspection of West Grand Avenue revealed that wells MW-5 and MW-6 have been paved over during road improvement activities conducted by the City of Oakland along West Grand Avenue.

The property is bounded on the west by Telegraph Avenue and to the south by West Grand Avenue. The adjacent property to the east, also owned by Buttner Properties, is occupied by a nursery school (460 West Grand Avenue). The outdoor paved play area used by the school abuts the eastern fence line of the Site. The nursery school building is situated about 90 feet to the east or cross gradient of the former waste oil tank location. The adjacent property to the north or up gradient is an office building. A Chevron service station (2200 Telegraph Avenue) is located across West Grand Avenue to the south, a Valero service station (2225 Telegraph Avenue) is located southwest of the site and a Taco Bell restaurant (2255 Telegraph Avenue) is to the west across Telegraph Avenue.

3.0 OVERVIEW OF UST REMOVAL, REMEDIATION AND INVESTIGATIONS

In August 1990, two 10,000-gallon underground gasoline storage tanks (UST) and one 280-gallon waste oil UST were removed from the Site. Approximately 500 cubic yards of gasoline-impacted soil were subsequently removed from the gasoline UST area following the ACHCSA review of the UST data. The soil was disposed of at the Zanker Road landfill and the Vasco Road landfill. The gasoline-impacted soil was aerated onsite in 1990 and 1991, and subsequently disposed of at a Class III sanitary landfill. The gasoline UST pit was backfilled with clean imported fill and the area was resurfaced. The waste oil UST area was backfilled with the limited soils, which were removed to provide access to the UST, and then the area was resurfaced. The results of the activities summarized above are presented in the Underground Tank Closure and Future Services Work Plan report dated July 1, 1991. Pertinent excerpts including the sample location maps and data summary tables are presented in Appendix A. Data representative of concentrations left-in place are summarized in Tables 1 and 2.

In February 1994, SCI observed the re-excavation of contaminated soils from the former waste oil UST area. Approximately 70 cubic yards of waste oil-impacted soils were removed and disposed of at the Keller Canyon landfill. The excavation was backfilled with clean imported fill and the areas was resurfaced. SCI then installed four groundwater-monitoring wells at the Site in areas approved by the ACHCSA. The results of the activities summarized above are presented in the Former Waste Oil Tank Area Remediation and Groundwater Investigation report dated May 4, 1994. Pertinent excerpts including the sample location maps and the data summary tables are presented in Appendix A. Data representative of concentrations left-in place are summarized in Tables 1 and 2. Historic groundwater elevation data is presented in Table 3.

In May 1996, SCI installed five temporary well points and collected grab groundwater samples as part of a supplemental investigation to assist in determining locations for the installation of additional monitoring wells (Supplemental Groundwater Investigation report dated October 4, 1996). In June 1997, SCI installed two monitoring wells (MW-5 and MW-6) at offsite locations, down gradient from the former UST excavations (Groundwater Monitoring Well Installation report dated August 8, 1997). In letters dated June 16, 1998 and November 8, 1999, ACHCSA requested that all groundwater-monitoring wells (MW-1 through MW-6) be monitored and sampled on a semi-annual basis. Pertinent excerpts including the sample location maps and the data summary tables are presented in Appendix A. Data representative

of concentrations left-in place are summarized in Tables 1 and 2. Historic groundwater elevation data is presented in Table 3.

SCI conducted groundwater monitoring at the Site from 1994 to 2001; the last event was conducted in April 2001 (April 2001 Groundwater Monitoring Event report dated August 23, 2001). The depth to groundwater during the study has varied from about 9 to 12 feet as measured below the ground surface (BGS). The groundwater flow direction has historically varied from the south to the southeast, and the gradient has been consistently flat.

The 2001 results indicated that detected chemicals of concern in the onsite wells MW-1, MW-2, MW-3 and MW-4 continued to show steady decreases when groundwater fluctuation was within the average range. When the groundwater level has been elevated due to higher than normal seasonal rainfall (2000), concentrations of some of the constituents were shown to be elevated. With the exception of 120 μg/L of TPH-g detected in MW-5 after the well was initially sampled during the June 1997 sampling, no chemicals of concern have been detected in this well which is located in the down gradient, southeast direction from the Site. Concentrations detected historically in well MW-6 located in the south down gradient direction from the Site have been shown to be relatively unchanged since the well was installed.

4.0 SOURCE AREA CHARACTERIZATION

Two petroleum hydrocarbon source areas exist at the Site; one associated with the former gasoline USTs and the other associated with the former waste oil UST. These source areas have resulted in impacts to both soil and groundwater as described in the following sections. Concentrations of contaminants measured in soil and groundwater during these studies are presented in Tables 1 and 2. A generalized Site cross-section showing the relationship between the UST source areas, soil types encountered during the studies and groundwater elevation data is presented on Plate 2. The section is produced to reflect conditions along the predominate groundwater flow direction, to the southeast.

4.1 FORMER GASOLINE UST AREA AND DISPENSER ISLANDS

The former gasoline USTs were situated beneath an asphalt-paved area near the southwest corner of the Site. Upon removal no visible deterioration of the gasoline USTs were noted, and no free product was observed in the excavation. The two dispensing islands, which were in use at the Site and all related piping, were removed coincident with the UST removal project.

To characterize this potential source area, SCI collected nine soil samples and one groundwater sample from within the gasoline tank excavation (Sample locations are shown in Appendix A). Samples were analyzed for the following in accordance with the approved Tank Removal Permit:

- Total Volatile Hydrocarbons within the gasoline range (TVHg) and
- Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX).

Analysis of samples collected from the tank excavation indicated that elevated levels of gasoline and BTEX were present in soil beneath the former USTs and beneath the former dispenser islands. Subsequently, soil remediation was conducted in an attempt to remove significantly impacted materials within accessible limits. The final excavation measured approximately 31 by 35 feet in plan view and was extended to a depth of about 17 feet below the adjacent ground surface. During removal activities, groundwater was encountered at about 10.5 feet below the adjacent surface. A thin layer of contaminated soil was observed to exist within the groundwater fluctuation zone, which appears to extend from about 9 to 12 feet bgs.

Fourteen (14) additional soil samples were collected from the former UST area, as well as from the former dispenser locations, following soil remediation activities. Sample locations were selected to characterize the lateral and vertical extent of residual impacts to soil. No TVHg or BTEX were detected in any of the samples collected from the former dispenser locations. This indicated that excavation was successful in removing TVHg and BTEX impacted soils from the former dispenser areas. Analytical results of samples collected from the extended limits of the former UST excavation indicated that although soil remediation removed about 500 cubic yards of impacted soil, low levels of residual hydrocarbons including TVHg and BTEX appeared to exist in a thin layer within the groundwater fluctuation zone at the limits of the excavation.

Soil samples were also obtained from monitoring wells MW-1, MW-2 and MW-3 installed in the immediate vicinity of the gasoline UST area. The samples were obtained from a depth of 10 feet bgs within about 5 feet of the limits of the excavation. The concentrations of contaminants of concern in these samples showed a marked decrease when compared to the sidewall samples from the excavation. The soil sample from well boring MW-3 also suggested that the gasoline UST source area may be impacted by an offsite chlorinated solvent plume.

Review of the analytical results indicates that very low concentrations of hydrocarbons and their volatile constituents have been left in-place in soil at the limits of the excavation. The contamination appears to exist in a thin layer within the groundwater fluctuation zone observed between depths of 9 and 11 feet bgs. Maximum contaminant concentrations left in-place in the gasoline UST source area are summarized below. Maps showing the sample locations and summaries of test results are presented in Appendix A.

Maximum Soil Concentrations Left-In Place

	Gasoline UST Pit	Well Boring Samples
TPHg	310 mg/kg	620 mg/kg, some unidentified peaks contribute (chlorinated)
TPHd	100 mg/kg	5.6 mg/kg
Benzene	820 µg/kg	<90 µg/kg
Toluene	59 µg/kg	<90 µg/kg
Ethylbenzene	1,300 µg/kg	970 µg/kg
Xylene	1,600 µg/kg	2,700 µg/kg

Groundwater monitoring data from wells MW-1, MW-2 and MW-3 indicated that the releases from the gasoline UST source area had impacted groundwater, and that the plume

may extend offsite. Given that the area directly above the plume was paved and used as a parking lot and that the area adjacent to the Site in the down gradient direction was in use as a major thoroughfare there were no immediate risks of exposure posed to human health, which would have required further remediation. Semi-annual monitoring was proposed to track changes in the plume over time and as will be discussed in Section 5, further offsite characterization of the plume appeared warranted.

4.2 FORMER WASTE OIL TANK AREA

The former waste oil UST was situated beneath an asphalt-paved area adjacent to the east side of the existing former station building on the east side of the Site. During tank removal activities, numerous holes were observed in the top of the waste oil UST, and its bottom had been corroded through. Oil was observed in the pit following tank removal.

To characterize this potential source area, SCI collected a total of 6 soil samples from within the waste oil excavation (sample locations are shown in Appendix A). Two soil samples were obtained of the soils present within the tank pit and 4 samples were obtained of the material removed from the tank pit. Samples were analyzed for the following in accordance with the approved Tank Removal Permit:

- Total Volatile Hydrocarbons within the gasoline range (TVHg),
- Total Extractable Hydrocarbons within the diesel range (TEHd),
- Total Extractable Hydrocarbons within the oil and grease range,
- Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX),
- Volatile organic compounds (EPA 8010),
- Semi volatile organic compounds, and
- 6 LUFT metals including; lead, cadmium, chromium, copper, nickel and zinc.

Results of these analysis indicated that elevated levels of gasoline, extractable hydrocarbons, oil and grease were present in residual soil within the former tank excavation. The excavation was backfilled with the soil, which had been removed with the UST. The soil was encapsulated in plastic and the area was resurfaced.

In February 1994, soil remediation was conducted in an attempt to remove significantly impacted materials within accessible limits in the area of the former waste oil UST. The final excavation measured approximately 10 by 15 feet in plan view and was extended to a depth of about 12 feet below the adjacent ground surface. During removal activities, groundwater was encountered at about 11.5 feet below the adjacent surface. A thin layer of residual soil possessing a green hue and strong hydrocarbon odor was observed between depths of 9 and 11 feet bgs, which coincides with the groundwater fluctuation zone observed onsite.

Nine (9) additional soil samples were collected from the former UST area following soil remediation activities. Sample locations were selected to characterize the lateral and vertical extent of residual impacts to soil. The data suggests that significantly impacted soil observed within a 13-foot depth of the groundsurface and within a lateral distance of about 5 feet from the former UST have been removed. Analytical results of samples collected from the extended

limits of the former UST excavation indicated that although soil remediation removed about 70 cubic yards of soil, impacted soil still remains in-place and may extend below the existing repair shop building.

Soil samples were also obtained from monitoring well MW-4 installed immediately adjacent to the extended excavation. The concentrations of contaminants of concern in the sample from a depth of 10 feet showed a marked decrease when compared to the sidewall samples from the excavation, which suggested that the release was limited to soil in the immediate vicinity of the UST. Maximum contaminant concentrations left in place in the waste oil UST source area are summarized in the following table. Maps showing the sample locations and summaries of test results are presented in Appendix A.

Maximum Soil Concentrations Left-In Place

	Waste Oil UST Pit	Well Boring Sample
TPHg	240 mg/kg	1.9 mg/kg
TPHd	680 mg/kg	8.9 mg/kg
TPHog	3900 mg/kg	64 mg/kg
Benzene	580 µg/kg	<20 µg/kg
Toluene	1800 µg/kg	<20 µg/kg
Ethylbenzene	2500 µg/kg	<5 µg/kg
Xylene	16,000 µg/kg	<5 µg/kg

Groundwater monitoring data from well MW-4 indicated that releases from the waste oil UST source area had impacted groundwater, and that the plume may extend offsite to the east. Given that the area directly above the plume was paved and used as a repair shop and as a parking lot there were no immediate risks of exposure posed to human health, which would have required further remediation. However, since the property to the east was in use as a nursery, further characterization was required to determine the horizontal extent of impacts. Semi-annual monitoring was proposed to track changes in the plume over time.

5.0 1996 AND 1997 SITE CHARACTERIZATION INVESTIGATIONS

The results of soil remediation, well installation, soil and groundwater analysis assist to define the extent of impacts to soil and groundwater located within the two source areas. However, as described in SCI's May 5, 1994 report the Site had not been fully characterized and further investigation would be required to investigate the potential offsite impacts. In their letter dated November 8, 1995, the ACHCSA concurred. SCI submitted a work plan dated February 8, 1996 detailing the installation and sampling of several temporary well points, as well as the installation of two wells to be located offsite and down gradient of the former UST source areas. On March 6, 1996, the ACHCSA accepted the work plan for implementation.

Field activities completed in May 1996, included the installation and sampling of 5 temporary well points (TWP) located as shown on Plates 1 and 2. Installation of the TWP located within the right-of-way required that Buttner Properties obtain excavation and encroachment permits and post a bond.

Grab groundwater samples from the TWP were analyzed for the following constituents of concern:

- TPHg,
- TPHd,
- Benzene, toluene, ethylbenzene, and total xylenes, and
- Halogenated volatile organic compounds (HVOC's by EPA 8010).

Based on our review of the data, SCI determined that a dissolved phase hydrocarbon plume had migrated offsite as indicated by results from samples collected from TWP 1 and 4. Lower contaminant concentrations were detected in TWP 2, 3 and 5. SCI proposed installing 2 groundwater-monitoring wells to define the extent of the plume in the southern and eastern directions. This proposal was approved by the ACHCSA in their letter dated November 26, 1996.

In June 1997, SCI installed monitoring wells MW-5 and MW-6 at locations down gradient of the former UST source areas (Plate 1). Monitoring well MW-5 was located in the eastbound parking lane of West Grand Avenue while MW-6 was located in the westbound lanes, close to the median. MW-5 and MW-6 were completed to depths of 20 and 21.5 feet bgs, respectively.

Soil and groundwater samples from the well borings were analyzed for the following:

- TPHg,
- TPHd,
- Benzene, toluene, ethylbenzene, and total xylenes,
- Halogenated Volatile organic compounds, (HVOCs by EPA 8010), and
- Total organic carbon (TOC)

Results of chemical testing on soil samples collected from the two wells detected no significant concentrations of any petroleum hydrocarbons, BTEX or VOCs. Detectable concentrations of TPHg and TPHd were found in the groundwater samples. In addition, 11 μg/l of ethylbenzene and 1.7 μg/l of chlorobenzene were found in MW-6 and 1.6 μg/L of PCE was found in MW-5 samples.

Taking into consideration the current Site conditions and its commercial use, SCI petitioned the ACHCSA to consider the Site as a "low risk" since the source of the hydrocarbon releases had been removed in 1990, and soil remediation activities performed in 1990 and 1994 further reduced the potential for groundwater impact. Further, it was becoming common knowledge that once a petroleum hydrocarbon source area had been remediated, then naturally occurring compounds in the subsurface environment would continue to further degrade and diminish the impacts resulting from hydrocarbon releases. Regulatory agencies had found

increasing favor with allowing natural attenuation to further remediate a site, as long as no significant risk was posed to human health and the environment. SCI recommended semi-annual groundwater monitoring for all the wells onsite to monitor plume stability, and that after sufficient monitoring had occurred then a risk evaluation would be conducted. The ACHCSA concurred with ongoing groundwater monitoring requirements for the Site.

6.0 REGULATORY INTERACTION IN 2002/2003

Groundwater monitoring continued on a semi-annual/annual basis through April 2001, and numerous discussions were conducted with the various ACHCSA hazardous materials specialists to determine the appropriate plan of action for the Site. It was made clear to the ACHCSA that the property owner had no plans to change the use of the Site, and risk evaluation seemed most appropriate. These discussions culminated with the receipt of the ACHCSA letter dated January 16, 2002 in which the ACHCSA recommended that a risk assessment and sensitive receptor survey be conducted. SCI and the property owner understood that this latest requirement was to provide data to evaluate whether the Site might finally be considered a "low risk" case, and as such that no further action would be required until such time that the Site's use changed.

Fugro was retained to begin the study in late 2002 and assumed that using the existing data would be appropriate and representative for the Site. While in the process of conducting the risk assessment study, the ACHCSA issued another letter dated April 4, 2003 in which they requested that the risk assessment be postponed and requested that a Work Plan be prepared to further define the lateral and vertical extent of contamination. Fugro contacted the ACHCSA and indicated that at a minimum a preliminary risk assessment was necessary to assist in evaluating what further definition is required for the Site.

In July 2003, the standards used for risk assessment comparison purposes provided by the San Francisco Regional Water Quality Control Board (SFRWQCB) were revised. The revision substantially changed the way that soil and groundwater data should be interpreted to reflect the potential risks posed to indoor air environments. Specifically, screening values for comparison of soil and groundwater data are no longer provided for petroleum hydrocarbon ranges. The guidance now requires comparison of soil vapor data to soil vapor screening levels. While the soil and groundwater data for the volatile constituents of fuel products including BTEX are still considered valid, most regulatory agencies are now requiring the collection of soil vapor data to complete risk assessments. As a result the risk evaluation provided herein reflects this change in data evaluation.

7.0 PREFERENTIAL PATHWAY SURVEY

FUGRO conducted a survey of underground utilities in the vicinity of the Site, conducted a registered well survey, and reviewed and discussed data for nearby UST sites. The results of this research are described in this section.

7.1 EVALUATION OF UNDERGROUND UTILITIES

Fugro contacted the City of Oakland Engineering and Building Department and reviewed available maps of subsurface utility lines in the area. A copy of one of the maps from the City of Oakland is presented in Appendix B. The City maps show a 16-inch diameter sanitary sewer main and a 12-inch storm drain conduit located beneath Telegraph Avenue. Also shown are a 16-inch diameter storm drain conduit and a 16-inch sanitary sewer line located (between 7.2 and 6.0 feet above sea level) underneath Valley Street, with a single 10-inch lateral line connecting to the property block near the eastern block line. The approximate location and orientation of the utility lines are shown on Plate 2.

Fugro walked the Site and observed that the sanitary sewer line exits toward Telegraph Avenue. We also observed that a small storm drain catch basin exists along the West Grand Avenue curb line just beyond the southeast corner of the Site. This under-curb drain is not shown on the City maps we reviewed. The drain is apparently shallow and connected to a shallow-bedded pipeline, which conveys flow into the storm drain collector at Valley Street. This pipeline is shown on the Site Plan.

Based on our review of underground utilities, we judge that it is unlikely that preferential contaminant migration along utility lines is occurring. By the time that the contaminant plume reaches the property lines to the east and south, the depth of the plume varies from 9 to 12 feet. The closest pipeline to the Site is a shallow under-curb drain along West Grand Avenue and a sanitary sewer pipeline below Telegraph Avenue about 30 feet away from the Site. The flow lines of these pipelines are situated above the plume depth. The closest storm drain line is situated more than 60 feet away from the Site in a cross gradient direction from the plume, and therefore judged not to be acting as a preferential pathway from the Site.

An underground utility of interest, which may be influencing groundwater flow patterns in the area is a BART tunnel, which extends below the Chevron service station property located south of the Site. The BART alignment runs from northwest to southeast below the Chevron site. Due to encroachment permit restrictions drilling at the Chevron station within the BART right-of-way is limited to a depth of 10 feet. The construction and operation of the tunnel should be viewed as a contributing influence on changing groundwater flows in the area.

7.2 REGISTERED WELL SURVEY

To complete the registered well survey, Fugro requested that the California Department of Water Resources (DWR) complete a search of wells within close proximity of the subject Site. The DWR identified 9 registered wells and the well information is summarized in Appendix C. For the purposes of this report, Fugro assigned a number to each well and illustrated the approximate location of each well on Plate 3. The Water Well Drillers Reports provided by the DWR well search are presented in Appendix C.

Fugro also requested a well search from the Alameda County Public Works Agency's Water Resource Section. Results of this search detected numerous monitoring wells in the area. Five monitoring wells within the 0.25 mile radius of the Site are also shown on Plate 3. A

review of regulatory files at the ACHCSA, as well as our reconnaissance of the Site surroundings indicated that monitoring wells exist at 2200 and 2225 Telegraph Avenue.

Of the 9 registered wells detected in the DWR search, 2 wells are listed as irrigation wells, and 7 are listed as unknown. Other than the monitoring wells MW-1 through MW-6, no registered wells were identified for the subject Site. Additionally, no known municipal, domestic, industrial, or irrigation wells are located within 1,000 feet of the Site. The closest well (Well 3) is located approximately 1,000 feet up gradient of the Site; the reported use of this well is unknown. Two wells, (Well 4 and 8) are located approximately down gradient of the site. Well 4 is located about 1,300 ft southeast of the site. The reported use of this well is unknown. Well 8, which was reported as an irrigation well, is located down gradient and approximately 2,500 ft south-southeast of the site.

The closest surface body of water to the Site is Lake Merritt, which is located about 2,000 ft southeast of the site. Lake Merritt is a tidally influenced lake into which stormwater drains from upland areas. The proximity of the Site to Lake Merritt is shown on Plate 3.

7.3 SURROUNDING PROPERTY SURVEY

The Site is located in a predominantly commercial section of Oakland, California. The property to is bounded on the west and south by Telegraph and West Grand Avenues, respectively. The adjacent property to the east, also owned by Buttner Properties, is occupied by a nursery school (460 West Grand Avenue). The outdoor paved play area used by the school abuts the eastern fence line of the Site. The nursery school building is situated about 90 feet to the east or cross gradient of the former waste oil tank location. The adjacent property to the north or up gradient is an office building. A Chevron service station (2200 Telegraph Avenue) is located across West Grand Avenue to the south, a Valero service station (2225 Telegraph Avenue) is located southwest of the site and a Taco Bell restaurant (2255 Telegraph Avenue) is to the west across Telegraph Avenue.

Fugro conducted a review of available files located at the Alameda County for some of the surrounding properties of environmental interest including the adjacent service station properties. Results of this file review are presented below.

7.3.1 2200 Telegraph Avenue – Chevron Service Station

This property is located down gradient from the Site. Available records for this property indicate that the site has had at least two different locations for USTs, and one of the BART tunnels was constructed directly below this site. Studies have been periodically conducted to evaluate the UST locations and have documented two unauthorized releases of petroleum product, which have impacted groundwater. In 1986 Blaine Tech detected TPHg and benzene at concentrations of 480,000 μg/L and 10,000 μg/L, respectively in a water sample obtained from one of the tank pits. In 1992 Groundwater Technology detected TPHg and benzene at concentrations of 42,000μg/L and 3,300 μg/L, respectively in a grab groundwater sample from a vadose well. In 2000 Gettler Ryan detected TPHg and benzene at concentrations of 29,000μg/L and 180 μg/L, respectively in a grab groundwater sample obtained from a boring

located on the north side of the station. This sample also contained 730 µg/L of MTBE and 380 µg/L of TBA, both of which have not been detected at the 2250 Telegraph Avenue site. It is not clear from the file review whether any of these groundwater releases were cleaned up and what groundwater monitoring requirements were enforced.

7.3.2 2225 Telegraph Avenue - Valero (formerly Exxon) Service Station

This property is located cross and down gradient of the site. Available records for this property indicate that a 1,000-gallon UST was removed from the site in 1997. Groundwater samples following tank removal detected elevated levels of TPHg, benzene and MTBE onsite. The plume as depicted by Environmental Resolutions, Inc., in maps dated August 2000, was inferred to extend a limited distance into the adjacent streets. A pump and treat remediation system was installed onsite to remediate impacted groundwater and treated water was discharged to the sanitary sewer. The operation of the groundwater remediation system may have temporarily influenced groundwater flow patterns in the area.

8.0 PRELIMINARY RISK EVALUATION

To assist in the evaluation of the Site data and risks that may be posed by the contaminants of concern, we have summarized the pertinent Site constraints and the exposure pathways, which in our opinion, would be considered driving forces when considering the risks posed.

8.1 SUBSURFACE CONDITIONS

Soils encountered during excavation activities and installation of monitoring wells and temporary well points provide a vast amount of data regarding subsurface conditions. The data suggest that the site is underlain by interbedded alluvial deposits consisting of varying gradations of sandy and silty clay. The deposit could be characterized as an unconsolidated, moderately sorted mixture of sandy, silty, and clayey sediments, with both fine-grained and coarse-grained material present. This deposit is determined a "Sandy Silt" by the City of Oakland ULR Program[1].

Residual soils impacted by UST source area releases are present predominantly in a thin layer of soil within a thin layer of the Sandy Silt alluvial material which is coincident with the groundwater fluctuation zone situated between depths of 9 and 12 feet bgs. Based on the studies conducted to date, only one area of shallower impacted soil remains onsite and is associated with releases from the former waste oil tank. The shallow impacted soil appears to extend below the east side of the existing repair shop building. In this area the impacted soil may be within 5 feet of the ground surface. The extent of the shallow soil is judged to be limited to the former waste oil tank system.

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[1] Oakland Risk Based Corrective Action Technical Background Document, 1999, page 6.

Groundwater has been measured in the existing onsite wells at depths ranging from about 9 to 12 feet bgs. No free product has ever been observed floating on the groundwater surface in any of the existing wells. Groundwater flow directions may be influenced by construction of the BART tunnel, which extends below the Chevron site at 2200 Telegraph Avenue. In 2001 the gradient was relatively flat (0.003 feet/foot) to the southeast, which appears to parallel the orientation of the BART tunnel in the area.

As shown on Cross-Section A-A' presented on Plate 2, no utility lines are present along West Grand Avenue in a location where they may otherwise have created preferential pathways and conduits to spread contamination. The primary subsurface conduits extend below Telegraph Avenue situated to the west of the Site.

8.2 CONTAMINANTS OF CONCERN

Contaminants of concern include those chemicals typically associated with service stations and automobile repair garages. This Site previously contained underground gasoline tanks and one waste oil tank. The contaminants of concern would include the full range of petroleum hydrocarbon products, as well as products used to service automobiles including chlorinated solvents which would have been used to solubilize oils and greases, antifreeze, and fuel additives. Since the service station was not in operation when the gasoline additive MTBE was in use, MTBE is not judged to represent a contaminant of concern. Testing for MTBE was conducted at the Site and shown to not be present within the onsite wells. MTBE is present in the furthest down gradient well, MW-6. This well is located in the middle of West Grand Avenue, equidistant from the subject Site and the existing Chevron service station. It is our opinion that the groundwater data collected to date from well MW-6 may suggest a commingling of the plumes from both Sites, primarily due to the lack of MTBE use onsite and the significant fuel releases that have occurred at the Chevron site which do contain MTBE.

Automotive chemical usage is ongoing with the operation of the existing repair shop onsite. This facility uses lubricants and greases, and other chemicals in smaller quantities. The repair shop is following appropriate storage and disposal practices with respect to the chemicals in use, and is not expected to have contributed to the underlying petroleum based plumes of concern.

Contaminants of concern detected in soil and groundwater to date include those listed below. Concentrations for TPHg, TPHd and benzene in groundwater are summarized on Plate 4.

- TPHg = Total petroleum hydrocarbons within the gasoline range, this range is present due to the former gasoline and waste oil tank releases.
- TPHd = Total petroleum hydrocarbons within the diesel range, this range is present due to the biodegradation of the gasoline and waste oil plumes.
- TPHog and mo = Total petroleum hydrocarbons within the oil and grease range and the motor oil range, these ranges are due to the waste oil plume.

- BTEX, present in both source areas as a result of releases of refined petroleum products
- 111 TCA, 12DCA, PCE, and chlorobenzene, present due to its use of solvents onsite in the past. 12DCA as a gasoline additive may also contribute.
- Lead, as a gasoline additive and due to its elevated presence in the initial soil samples collected from the waste oil tank pit. The presence of other LUFT metals were also tested for in the initial waste oil tank pit samples and their concentrations were not deemed to reflect contamination. Dissolved lead was not detected in groundwater samples.
- Various semi volatile organics, present due to the nature of waste oil product degradation and as a byproduct of combustion. The concentrations detected did not warrant further investigation in groundwater.

8.3 RISK SCREENING EVALUATION

To conduct the risk screening evaluation we elected to compare the maximum concentrations detected to date with the screening levels established by the San Francisco RWQCB in 2003 (Environmental Screening Levels-ESL's) and those established by the City of Oakland Urban Land Redevelopment Program (URL) in 1999. Although the Site is in an area zoned commercial, there are concerns raised with respect to what the Site may be used for in the future, and further concerns related to the adjacent site's use as a nursery school. As a result, we elected to compare the onsite contaminant maximums to the screening levels for a potential residential reuse.

With respect to selecting the various screening level goals for comparison, the following site selection criteria was used. The selection criteria is viewed as providing added conservatism in that the Site is zoned commercial not residential and the majority of the impacted soil is situated between depths of 9 to 12 feet.

SFRWQCB ESL 2003

- Shallow soil (0-10 feet bgs) is impacted in the area of the former waste oil tank area;
- TPH impacted soil is present in the groundwater fluctuation zone from 9 to 12 feet bgs;
- Surface water environment of potential concern is a marine estuary, tidally influenced Lake Merritt;
- Non-drinking water beneficial use;
- Future residential receptors potentially located over the plume; and
- Construction worker receptors potentially working within plume.

City of Oakland ULR Program 1999

- Sandy silt soil is present

A description of the apparent risks posed for each contaminant of concern is presented in the subsequent sections. Cumulative risks were not evaluated.

8.3.1 Petroleum Hydrocarbons

TPH within the gasoline, diesel, and motor oil ranges have been detected in soil samples from the Site. Soil ESL's and ULR levels have not been established to assist in putting the TPH exposure impacts to indoor air into perspective. Further study is required to (1) determine the lateral extent of impacts and (2) to evaluate whether soil vapors are actually a concern. For comparison purposes the following table shows the highest measured remnant TPH concentrations to the 50 percentile odor thresholds. These thresholds may be encountered in the event that soil in the former waste oil tank area or deeper soils with the groundwater fluctuation zone are ever exposed.

Compound	Highest Concentration (mg/kg)	ESL (mg/kg)	ULR (mg/kg)
TPHg	620	100 (Odor Threshold) Not established for indoor air	Not established
TPHd	680	500 (Odor Threshold) Not established for indoor air	Not established
TPHmo/og	3,900	500 (Odor Threshold) Not established for indoor air	Not established

TPH within the gasoline and diesel ranges have been detected in groundwater samples from the Site. ESL's and ULR levels have not been established to assist in putting the TPH exposure impacts to indoor air into perspective. Further study is required to evaluate whether volatilization from the impacted water is actually a concern from a human health standpoint. The water in this downtown region of Oakland is not used for human consumption, so it is the potential risk due to volatilization, which represents a human health concern. Another potential risk is due to intake by an aquatic receptor. However, since well MW-5, the furthest downgradient well has not been shown to be significantly impacted, this risk is viewed as low.

8.3.2 BTEX Compounds

The highest concentrations of BTEX compounds in soil are at the limits of the excavations for both the former gasoline UST and the waste oil UST. As presented in the following summary table, the maximum benzene concentrations exceed the corresponding ESL for a potential residential reuse scenario with an indoor air impact and/or for a direct contact scenario in the event that the Site is redeveloped. The maximum benzene concentrations would not exceed the City of Oakland ULR Program levels for an indoor air impact. Further study is required to (1) determine the lateral extent of impacts, (2) to obtain soil samples to determine the appropriateness of using the City of Oakland ULR Program levels and (3) to evaluate whether soil vapors are actually a concern.

Compound	Highest Concentration (µg/kg)	ESL (µg/kg)	ULR (µg/kg)
Benzene	820 (GAS UST) 580 (WO UST)	180 (Indoor Air and Direct exposure)	1,400 (Indoor Air)
Toluene	59 (GAS UST) 1,800 (WO UST)	130,000 (Direct Exposure)	710,000 (Indoor Air)
Ethylbenzene	1,300 (GAS UST) 2,500 (WO UST)	4,700 (Indoor Air)	Level exceeds saturated soil concentration of chemical
Xylenes	1,600 (GAS UST) 16,000 (WO UST)	45,000 (Indoor Air)	Level exceeds saturated soil concentration of chemical

The highest concentrations of benzene in groundwater were detected in well MW-3 in 1998 (410 µg/L) and in well MW-4 in 1994 (220 µg/L). These concentrations have decreased significantly overtime with the highest concentration in 2001 being detected in well MW-1 (3.3 µg/L). As shown in the following table, even the highest concentrations detected would not exceed the residential ESL (530 µg/L).

The highest concentration of toluene, ethylbenzene and xylenes were detected in TWP 1 and TWP4 in 1996. Significantly lower concentrations have been periodically measured in the samples obtained from the monitoring well over time. As shown in the following table, even the highest concentrations detected would not exceed their respective residential ESLs.

Compound	Highest Concentration (µg/L)	ESL (µg/L)	ULR (µg/L)
Benzene	410 (1998) 3.3 (2001)	530 (Indoor Air)	3,600 (Indoor Air)
Toluene	20	500,000 (Indoor Air)	530,000 (Indoor Air)
Ethylbenzene	42	14,000 (Indoor Air)	52,000 (Indoor Air)
Xylenes	69	150,000 (Indoor Air)	160,000 (Indoor Air)
MTBE	27	24,000 (Indoor Air)	48,000 (Indoor Air)

8.3.3 Volatile Organic Compounds (VOC's)

Analysis has detected various VOC's including chlororbenzene, 1,1,1-trichloroethane (1,1,1-TCA), 1,2-dichloroethane (1-2-DCA), and tetrachloroethane (PCE) in residual soil and groundwater samples from the Site. The concentrations detected are relatively low, hence the reason that the ACHCSA recommended that the analysis for Halogenated VOC's be dropped from the groundwater testing program in 1998. None of the highest detected concentrations

exceed their respective indoor air ESL's established by the RWQCB for a residential reuse scenario.

9.0 SUMMARY OF FINDINGS

Considering the current commercial use of the Site, the areas of impacted soil and groundwater do not appear to pose a significant risk to human health or the environment, and as a result the site should be handled as a "low risk" Site. The rationale for this consideration is summarized below:

- The site is zoned and used for commercial purposes;
- There is no known or proposed beneficial use of groundwater at the site;
- No water wells, sensitive receptors or surface water bodies are likely to be exposed;
- No preferential migration pathways exist;
- Onsite source areas have been remediated to the extent feasible given the Site's current and continued commercial use;
- Residual impacted soil is situated at least 9 ft bgs except for a limited area near the former waste oil tank;
- The entire site is paved with concrete, which sufficiently limits vertical migration of vapor; and
- Detected chemicals of concern in residual soil and in groundwater do not appear to pose a significant risk to human health via an inhalation pathway considering that the site is paved and is under current commercial use.

10.0 WORK PLAN FOR ADDITIONAL SITE STUDIES

A review of soil and groundwater data collected from source removal activities, site characterization and monitoring well installation studies, and groundwater monitoring events indicates that the plume(s) is stable, that no significant offsite migration has occurred (MW-6 appears to be impacted by another offsite source), and that no significant risks are posed to the commercial use of the property. The data however, does suggest that the lateral extent of impacted soil in the vicinity of the former waste oil tank and the east side of the former UST excavation should be further defined, and soil vapor data should be collected to compare with established screening levels. This additional study should be conducted coincident with an annual groundwater monitoring event to check that the plume remains stable.

10.1 LIMITED SITE INVESTIGATION

We propose to conduct a soil gas survey and limited soil sampling activities at the locations shown on Plate 5. The selected areas will provide necessary data to further define the

limits of impacted soil and address whether or not the impacted soils pose a risk to human health due to volatilization of vapors into indoor air spaces.

Before beginning field work, we will obtain drilling permits from Alameda County Public Works Agency, and we will clear all sampling boring locations by contacting Underground Service Alert and contracting with a private utility locator. We will then measure the depth to water in the nearby monitoring wells to set the depth of soil vapor sample collection. In general we will collect soil samples and soil vapor samples from companion probes extended at each of the 11 locations shown on Plate 5. A Geoprobe direct push type rig will be used to obtain the soil and vapor samples.

10.2 SOIL VAPOR SAMPLING

Using a Geoprobe direct push type rig the temporary vapor probes will then be set, and we will log the soils encountered. The probes will extend to one foot above the water level measured in the adjacent wells. The area of the soil gas survey is distant from subsurface structures such as USTs, sumps, and clarifiers, and therefore only one depth of soil gas testing is proposed per each location.

The drilling subcontractor will begin purging the borehole within a few minutes of reaching the depth of the probe in order to capture the petroleum vapors that are relatively close to the ground surface. The subcontractor will collect soil vapor samples at discrete depths using an expendable point, an expendable point holder, a PRT adapter and tubing. The expendable point is placed in the expendable point holder, which in turn is attached to the drive rod, and driven to depth. The drive rod and expendable point holder are retracted, separating the expendable point from the point holder, and creating the desired void in the soil. A PRT adapter and tubing are advanced down the inner rods and secured to the expendable point holder. The tubing at the surface is attached to the Vacuum/Volume System on the Geoprobe rig to purge the line and draw a sample. Our subcontractor uses polyethylene tubing to draw samples. The used tubing is discarded after each sample. A regulator is placed in-line to maintain a 200 cc (ml) per min flow rate while purging or collecting soil gas samples. Once the line has been purged, our subcontractor will collect a sample from the line in a summa canister.

After each sample collection, our subcontractor will decontaminate the drive rods and other components before the next reuse. He will wash the equipment with a non-phosphate detergent, rinse with tap water, and finally rinse with distilled water. Prior to sampling, we will calculate the dead space volume that includes the volume of tubing and the annular space around the probe tip. Our subcontractor will purge at least three dead space volumes before collecting the sample.

Our subcontractor will collect the air sample on the intake side of the vacuum pump and record the vacuum reading at the time of collection. We will not collect the soil gas samples within 24-hours of a significant rain event.

We will provide for quality assurance/quality control samples that consist of the following:

- The laboratory will analyze one method blank per day of field sampling to confirm the effectiveness of the decontamination procedures.
- The laboratory will provide one trip blank per day of field sampling.
- The laboratory will perform one duplicate sample for each day of field operation. The duplicate sample will be collected at the same depth and location as the primary sample, and in a separate sample container.

A state-certified laboratory will analyze all air samples in accordance with EPA Test Method T0-14 GC/MS SIM for concentrations of TPHg, TPHd, benzene, toluene, ethlybenzene, xylenes, and MTBE. We cannot guarantee the attainment of reporting limits, which are below the respective ESL because of the potential for matrix interference.

10.3 SOIL SAMPLING

Following collection of the soil vapor samples, soil samples will be collected from companion probe locations. When collecting the soil samples, the Geoprobe subcontractor will push the sampling rod equipped with sample tubes. Once extracted and logged the ends of the sample tubes will be wrapped with Teflon tape and capped, and then placed into an ice-filled chest.

The soil samples will be submitted to a State of California certified analytical laboratory for the following analysis:

- Total Petroleum Hydrocarbons within the gasoline range (TPHg) using EPA Method 8015m;
- Total Petroleum Hydrocarbons within the diesel range (TPHd) using EPA Method 8015m with silica gel clean up;
- Total Petroleum Hydrocarbons within the motor oil range (TPHmo) using EPA Method 8015m with silica gel clean up; and
- Benzene, toluene, ethylbenzene, and total xylenes, (BTEX)and MTBE using EPA Method 8020.

Six selected soil samples will also be submitted to a certified laboratory for various soil properties testing including grain-size distribution, bulk density, moisture content and porosity. These samples will be selected to be representative of the vadose zone soil. In addition, 4 samples will be submitted for organic carbon in soil.

10.4 ADDITIONAL SITE RESEARCH AND REPORTING

We will conduct additional research as deemed appropriate to establish background petroleum concentrations in the area. We will evaluate the local background air data that the California Air Resources Board (CARB) collects in the vicinity of the Site. The West Grand

Avenue and Telegraph Avenue area is highly trafficked, and the automobiles generate significant volumes of petroleum vapors. The closest CARB monitoring station in a heavily trafficked area may provide background data for the site and may indicate if the measured concentrations are typical of background concentrations.

We will evaluate the soil property data and provide comment on whether the data justifies the use of the Tier 2 City of Oakland ULR Tier 2 site screening values for a sandy silt.

We will then compare the soil vapor data collected to the soil vapor ESLs and appropriate ULRs and provide comments and conclusions on risks posed. The data will be provided along with the annual monitoring event report, and the groundwater monitoring data will also be compared to the groundwater screening ESLs and ULRs. We will present plates with the contours of the results for the most significant concentrations, and we will describe the lateral extent of these compounds in the soil gas and compare this extent with the groundwater monitoring results. The report will include the analytical data reports, tabulated analytical data and a discussion of the site activities.

10.5 ANNUAL GROUNDWATER MONITORING EVENT

Initially the six wells will be located and checked to determine whether they will need to be rehabilitated prior to the study. The wells located in the right-of-way (MW-5 and MW-6) may have been paved over in the past. The wells will be rehabilitated and redeveloped, as necessary and then resurveyed to a known benchmark.

For each well sampling event, the depth to water will be measured, and at least three casing volumes of water will be removed while monitoring pH, temperature, and conductivity parameters. The wells will be sampled with clean disposable bailers. Groundwater samples will be placed in the laboratory-prepared containers, stored in cooled ice-chests, and transported to a State-certified analytical laboratory under chain-of-custody protocol. Groundwater samples will be analyzed for the following:

- Total Petroleum Hydrocarbons within the gasoline range (TPHg) using EPA Method 8015m.
- Total Petroleum Hydrocarbons within the diesel range (TPHd) using EPA Method 8015m with silica gel clean up.
- Benzene, toluene, ethylbenzene, and total xylenes, (BTEX)and MTBE using EPA Method 8020.

We will document the results of the initial event along with the soil vapor study; each subsequent event will then be in a stand-alone report. The groundwater-monitoring event will be documented with site photographs and a summary of the field methodology undertaken, tabulated chemical test data, chain-of-custody documents, and sample collection forms. During each event, observations will be made to document general site-upkeep practices for the file.

11.0 CLOSING STATEMENT

On behalf of Buttner Properties, and in light of the data presented, Fugro requests that the ACHCSA consider the site as a "low risk" Site with the acknowledgement that it is Buttner Properties intention to (1) conduct the recommended additional study to show that the plume is stable, and (2) deal with the impacted material coincident with Site redevelopment. Remediation activities required to remove shallow impacted soils would result in the displacement of a viable Oakland business, which is not desired by Buttner Properties at this time.

TABLES

Table 2. Contaminant Concentrations in Groundwater
2250 Telegraph Avenue, Oakland, California

			Petroleum Hydrocarbons				Volatile Organics										
Location	Date	Groundwater Elevation MSL (feet)	TPH, Gasoline Range µg/l	TPH, Kerosene Range µg/l	TPH, Diesel Range µg/l	TPH, Motor Oil Range mg/l	Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	Xylenes µg/l	MTBE-8020 µg/l	MTBE-8260 µg/l	1,1,1-TCA µg/l	1,2-DCA µg/l	PCE µg/l	Chloro-Benzene µg/l	Dissolved Lead mg/l
Temp. Well 1	5/31/96	--	13,000	--	37,000	--	<50	<50	<50	360	--	--	<1	<1	<1	<1	--
Temp. Well 2	5/30/96	--	250	--	<50	--	<0.5	<0.5	13	3.4	--	--	<1	<1	<1	<1	--
Temp. Well 3	5/30/96	--	<50	--	83	--	<0.5	<0.5	<0.5	<0.5	--	--	<1	20	<1	<1	--
Temp. Well 4	5/31/96	--	11,000	--	1,900	--	130	86	340	280	--	--	<1	<1	<1	<1	--
Temp. Well 5	5/30/96	--	70	--	180	--	<0.5	<0.5	<0.5	<0.5	--	--	<1	<1	<1	<1	--
MW-1	3/3/94	10.16	300	<50	<50	<1	1.3	<0.5	2.7	3.1	--	--	<0.5	5.5	<0.5	<0.5	<0.01
	6/6/94	9.19	430	180	<50	0.5	10	2.2	6.1	7.6	--	--	<0.5	<0.5	<0.5	<0.5	--
	9/7/94	8.63	410	<50	<50	<0.5	6.4	0.8	2.8	3.8	--	--	<0.5	3.8	<0.5	<0.5	--
	12/22/94	9.72	130	<50	<50	<0.5	0.7	<0.5	0.8	0.8	--	--	<0.5	3.4	<0.5	<0.5	--
	3/17/95	10.82	1,600	170	<50	<0.5	29	<0.5	9.1	6.9	--	--	<0.5	<0.5	<0.5	<0.5	--
	6/27/95	10.04	1,100	<50	<50	<0.5	14	<0.5	7.1	5	--	--	<0.5	3.3	<0.5	<0.5	--
	9/18/95	9.43	370	--	110	--	4.4	0.6	2	1.4	--	--	<0.5	2.4	<0.5	<0.5	--
	8/21/98	9.55	170	--	82	--	<0.5	0.78	0.79	<0.5	<2.0	--	--	--	--	--	--
	2/24/99	10.81	20	--	280	--	<0.5	<0.5	<0.5	<0.5	--	<2.0	--	--	--	--	--
	6/30/00	9.27	240	--	<50	--	0.7	0.8	<0.5	0.74	4.0	--	--	--	--	--	--
	4/27/01	9.99	160	--	<50	--	3.3	<0.5	0.86	<0.50	<2.0	--	--	--	--	--	--
MW-2	3/3/94	9.66	110	<50	<50	<0.5	<0.5	1.7	0.58	2.7	--	--	<0.5	<0.5	<0.5	<0.5	<0.01
	6/6/94	8.88	100	<50	<50	<0.5	11	<0.5	0.7	1.1	--	--	<0.5	<0.5	<0.5	<0.5	--
	9/7/94	8.31	<50	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	<0.5	<0.5	<0.5	<0.5	--
	12/22/94	8.76	<50	<50	<50	<0.5	0.8	<0.5	<0.5	0.8	--	--	<0.5	<0.5	<0.5	<0.5	--
	3/17/95	10.18	180	100	<50	<0.5	31	<0.5	1	1.8	--	--	<0.5	<0.5	<0.5	<0.5	--
	6/27/95	9.33	80	<50	<50	<0.5	6	<0.5	<0.5	<0.5	--	--	<0.5	<0.5	<0.5	<0.5	--
	9/18/95	8.36	<50	--	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	<0.5	<0.5	<0.5	<0.5	--
	8/21/98	8.12	<50	--	<50	--	<0.5	<0.5	<0.5	<0.5	<2.0	--	--	--	--	--	--
	2/24/99	10.12	<50	--	<50	--	<0.5	<0.5	<0.5	<0.5	--	<2.0	--	--	--	--	--
	6/30/00	8.67	<50	--	<50	--	<0.5	<0.5	<0.5	<0.5	2.0	--	--	--	--	--	--
	4/27/01	8.71	<50	--	<50	--	<0.5	<0.5	<0.5	<0.5	<2.0	--	--	--	--	--	--
MW-3	3/3/94	9.47	85	<50	<50	<0.5	<0.5	0.77	<0.5	3.7	--	--	<0.5	<0.5	<0.5	<0.5	<0.01
	6/6/94	8.69	100	110	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	2.5	0.8	2.1	<0.5	--
	9/7/94	8.22	220	<50	<50	<0.5	11	1.8	2.6	3.5	--	--	<0.5	<0.5	0.6	<0.5	--
	12/22/94	9.23	130	95	<50	<0.5	3.8	0.5	0.8	1.2	--	--	<0.5	<0.5	<0.5	<0.5	--
	3/17/95	10.12	1,500	270	<50	<0.5	83	6	10	15	--	--	<0.5	<0.5	<0.5	<0.5	--
	6/27/95	9.03	2,500	<50	<50	<0.5	330	8.9	8.1	20	--	--	<0.5	<0.5	<0.5	<0.5	--
	9/18/95	8.43	1,500	--	770	--	400	11	2.2	3.3	--	--	<0.5	<0.5	<0.5	<0.5	--
	8/21/98	8.61	2,300	--	600	--	410	9.3	36	25	<10	--	--	--	--	--	--
	2/24/99	10.39	55	--	110	--	<0.5	<0.5	<0.5	<0.5	--	<2.0	--	--	--	--	--
	6/30/00	8.76	110	--	83	--	<0.5	<0.5	0.51	<0.5	<2.0	--	--	--	--	--	--
	4/27/01	9.12	<50	--	690	--	<0.5	<0.5	<0.5	<0.5	<2.0	--	--	--	--	--	--
MW-4	3/3/94	8.99	4,300	<50	240	<0.5	220	20	7.5	17	--	--	<0.5	5.9	<0.5	4.4	<0.01
	6/6/94	8.03	4,400	<50	800	<0.5	140	<0.5	<0.5	<0.5	--	--	<0.5	<0.5	<0.5	<0.5	--
	9/7/94	7.02	10,000	490	280	<0.5	84	<0.5	42	69	--	--	<0.5	4.4	0.5	4.3	--
	12/22/94	7.62	2,400	450	54	<0.5	11	<0.5	7.1	11	--	--	<0.5	3.6	3.6	<0.5	--
	3/17/95	9.78	2,200	380	160	<0.5	<0.5	<0.5	7.9	10	--	--	<0.5	1.7	<0.5	4.5	--
	6/27/95	8.83	3,100	<50	82	<0.5	<0.5	<0.5	13	19	--	--	<0.5	2.3	<0.5	4.8	--
	9/18/95	8.04	3,000	--	1,231	--	12	<0.7	6.9	8.3	--	--	<0.5	1.9	<0.5	4.0	--
	8/21/98	8.02	1,700	--	600	--	8.2	12	13	5.2	<2.0	-	--	--	--	--	--
	2/24/99	9.09	2,700	--	2,100	--	4.3	0.64	<0.5	0.54	--	<2.0	--	--	--	--	--
	6/30/00	7.49	6,700	--	3,200	--	3.1	1.7	11	16.7	27	--	--	--	--	--	--
	4/27/01	8.62	1,900	--	710	--	<0.5	<0.5	<0.5	<0.5	14	--	--	--	--	--	--
MW-5	6/26/97	7.58	120	--	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	<0.5	<0.5	1.6	<0.5	
	8/21/98	7.70	<50	--	<50	--	<0.5	<0.5	<0.5	<0.5	<2.0	--	--	--	--	--	--
	2/24/99	9.16	<50	--	<50	--	<0.5	<0.5	<0.5	<0.5	--	<2.0	--	--	--	--	--
	6/30/00	8.39	<50	--	<50	--	<0.5	<0.5	<0.5	<0.5	5.1	--	--	--	--	--	--
	4/27/01	8.42	<50	--	<50	--	<0.5	<0.5	<0.5	<0.5	<2.0	--	--	--	--	--	--
MW-6	6/26/97	7.47	1,500	--	450	--	<0.5	<0.5	11	<0.5	-	-	<0.5	<0.5	<0.5	1.7	
	8/21/98	7.36	1,400	--	540	--	<0.5	3.6	5.6	0.4	5.7	3.2	--	--	--	--	--
	2/24/99	9.04	1,600	--	600	--	<0.5	<0.5	0.56	<0.5	--	2.3	--	--	--	--	--
	6/30/00	7.99	1,900	--	360	--	0.56	3	5.4	3.5	30	--	--	--	--	--	--
	4/27/01	8.26	1,600	--	440	--	<0.5	<0.5	<0.5	<0.5	3.3	--	--	--	--	--	--
SF RWQCB ESLs 2003 - Residential Land Use																	
Indoor Air Impacts (Table E-1a)			NV	NV	NV	NV	530	500,000	14,000	150,000	24,000	24,000	130,000	200	130	13,000	NE
Groundwater Screening Levels (Table F-1b)			500	640	640	640	46	130	290	13	1,800	1,800	62	200	120	25	2.5
GW Driver			AHG	AHG	AHG	AHG	AHG	AHG	AHG	AHG	CV	CV	AHG	IAI	AHG	AHG	AHG
City of Oakland ULR Tier 2 SSLTs, 1999 Sandy Silt Soil - Residential Land Use																	
Inhalation Indoor Air			NE	NE	NE	NE	3,600	>sol	>sol	>sol	3.60E+08	3.60E+08	>sol	13,000	>sol	21,000	NE
Inhalation of Outdoor Air			NE	NE	NE	NE	1.0E+06	>sol	>sol	>sol	>sol	>sol	>sol	1.80E+06	>sol	>sol	NE

Notes

TPH = Total petroleum hydrocarbons
Temp. Well 1 = Temporary Well Points
DCA = Dichloroethane
TCA = Trichloroethane
PCE = Tetrachloroethene
- = Chemical not tested for
AHG = Aquatic Habitat Goal
>sol = SSTL exceeds solubility in water
IAI = Indoor Air Impact
NR = Hydrocarbon range not reported by laboratory
mg/l = milligrams per liter = parts per million
µg/l = micrograms per liter = parts per billion
<1 = Chemical not present at a concentration greater than the laboratory detection limit shown or stated on test reports
NE = No value established
ESL = Environmental Screening Levels
NV = No Value (use soil gas data to evaluate potential indoor air impact concerns)
CV = Ceiling Value

FUGRO

Table 3
Groundwater Elevation Data
2250 Telegraph Avenue
Oakland, California

Monitoring Well	Date	TOC Elevation (feet) MSL	DTW (feet)	Elevation (feet) MSL
MW-1	3/3/1994	20.55	10.39	10.16
	3/10/1994		10.54	10.01
	6/6/1994		11.36	9.19
	9/7/1994		11.92	8.63
	12/22/1994		10.83	9.72
	3/17/1995		9.73	10.82
	6/27/1995		10.51	10.04
	9/18/1995		11.12	9.43
	5/30/1996		10.49	10.06
	7/9/1997		11.79	8.76
	8/21/1998		11.00	9.55
	10/6/1998		11.84	8.71
	2/24/1999		9.74	10.81
	6/30/2000		11.28	9.27
	4/27/2001		10.56	9.99
MW-2	3/3/1994	20.03	10.37	9.66
	3/10/1994		10.53	9.50
	6/6/1994		11.15	8.88
	9/7/1994		11.72	8.31
	12/22/1994		11.27	8.76
	3/17/1995		9.85	10.18
	6/27/1995		10.70	9.33
	9/18/1995		11.67	8.36
	5/30/1996		11.56	8.47
	7/9/1997		11.52	8.51
	8/21/1998		11.91	8.12
	10/6/1998		11.57	8.46
	2/24/1999		9.91	10.12
	6/30/2000		11.16	8.87
	4/27/2001		11.32	8.71

FUGRO

Table 3
Groundwater Elevation Data
2250 Telegraph Avenue
Oakland, California

Monitoring Well	Date	TOC Elevation (feet) MSL	DTW (feet)	Elevation (feet) MSL
MW-3	3/3/1994	18.97	9.50	9.47
	3/10/1994		9.51	9.46
	6/6/1994		10.28	8.69
	9/7/1994		10.75	8.22
	12/22/1994		9.74	9.23
	3/17/1995		8.85	10.12
	6/27/1995		9.94	9.03
	9/18/1995		10.54	8.43
	5/30/1996		9.69	9.28
	7/9/1997		10.60	8.37
	8/21/1998		10.36	8.61
	10/6/1998		10.64	8.33
	2/24/1999		8.58	10.39
	6/30/2000		10.21	8.76
	4/27/2001		9.85	9.12
MW-4	3/3/1994	19.88	10.89	8.99
	3/10/1994		11.19	8.69
	6/6/1994		11.85	8.03
	9/7/1994		12.86	7.02
	12/22/1994		12.26	7.62
	3/17/1995		10.10	9.78
	6/27/1995		11.05	8.83
	9/18/1995		11.84	8.04
	5/30/1996		10.97	8.91
	7/9/1997		12.08	7.80
	8/21/1998		11.86	8.02
	10/6/1998		12.84	7.04
	2/24/1999		10.79	9.09
	6/30/2000		12.39	7.49
	4/27/2001		11.26	8.62

Table 3
Groundwater Elevation Data
2250 Telegraph Avenue
Oakland, California

Monitoring Well	Date	TOC Elevation (feet) MSL	DTW (feet)	Elevation (feet) MSL
MW-5	6/26/1997	16.02	8.44	7.58
	7/9/1997		8.48	7.54
	8/21/1998		8.32	7.70
	10/6/1998		8.51	7.51
	2/24/1999		6.86	9.16
	6/30/2000		7.63	8.39
	4/27/2001		7.60	8.42
MW-6	6/26/1997	18.36	10.89	7.47
	7/9/1997		10.98	7.38
	8/21/1998		11.00	7.36
	10/6/1998		10.79	7.57
	2/24/1999		9.32	9.04
	6/30/2000		10.37	7.99
	4/27/2001		10.10	8.26

TOC = Top of Casing
DTW = Depth to Water
Elevation Reference: USGS benchmark W1197, 1969 with a reported elevation of +21.06 feet MSL datum.

PLATES

Plate 3 Backup Information
Summary of DWR and Monitoring Well Locations
2250 Telegraph Avenue, Oakland California
Job No. 609.004

Key ID	ADDRESS	Township/Range/Section	Well ID	Comments	Reported Use
1	-	1 South/04 West/ 26-	W1	No given address	--
2	30th St @ Webster St	1 South/04 West/ 26-G	W2		--
3	22nd and Grove (currently MLK Jr BLvd)	1 South/04 West/ 26-L	W3	No given address	--
4	327 22nd St	1 South/04 West/ 26-N	W4		--
5	-	1 South/04 West/ 26-	W5	No given address	--
6	-	1 South/04 West/ 26-	W6	No given address	--
7	-	1 South/04 West/ 26-C4	W7		Irrigation
8	300 Lakeside Dr	1 South/04 West/ 26-R4	W8		Irrigation
9	-	1 South/04 West/ 26-	W9	No given address	--
10	2200 Telegraph Ave	1 South/04 West/ 26-	10		Monitoring
11	2225 Telegraph Ave	1 South/04 West/ 26-	11		Monitoring
12	2250 Telegraph Ave	1 South/04 West/ 26-	12		Monitoring
13	17th Street and Broadway	1 South/04 West/ 26-Q5	13		Test well
14	19th st and Telegraph ave	1 South/04 West/ 26-Q7	14		Test well
15	1 Kaiser Plaza	1 South/04 West/ 26-R11	15		Monitoring
16	2330 Webster st	1 South/04 West/ 26-J11	16		Monitoring
17	1975 Webster st	1 South/04 West/ 26-R711	17		Monitoring

Notes
-- = -- = No given well use

Table 1. Contaminant Concentrations in Soils Left In-Place
2250 Telegraph Avenue, Oakland, California

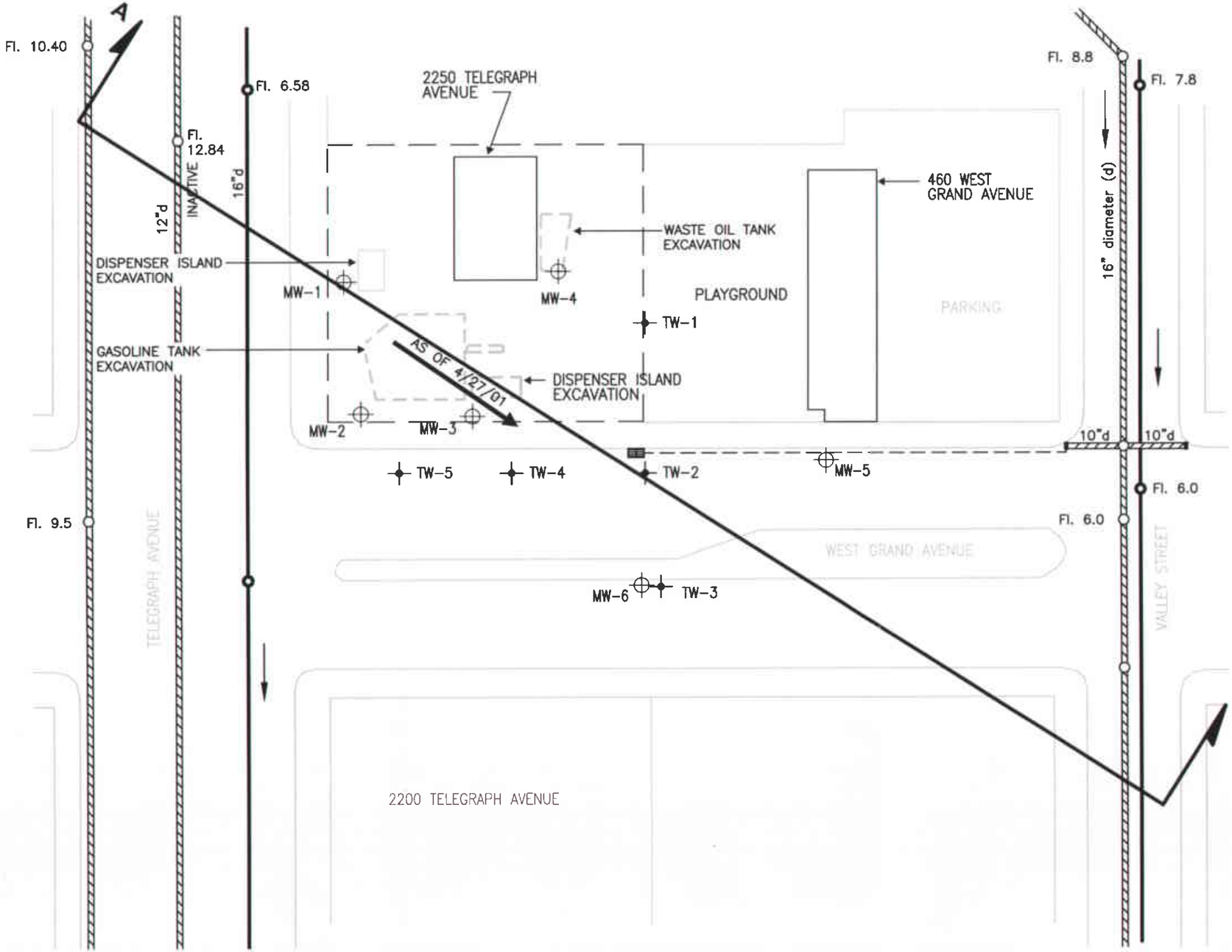
		Petroleum Hydrocarbons					Volatile Organics								Semivolatile Organics												
Sample Location and Depth in Feet	Sample Date	TPH, Gasoline Range	TPH, Kerosene Range	TPH, Diesel Range	TPH, Motor Oil Range	Total Oil Grease	Benzene	Toluene	Ethylbenzene	Xylenes	1,1,1-TCA	1,2-DCA	PCE	ChloroBenzene	Lead	2-Methylnaphthalene	Anthracene	Bis-2-ethylhexyl Phthalate	Butylbenzylphthalate	Di-N-Butyl Phthalate	Fluoranthene	Fluorene	Naphthalene	Nitrobenzene	N-Nitrosodiphenylamine	Phenanthrene	Pyrene
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Gasoline Tank and Dispenser Area																											
G10@ 17	10/10/90	<2.5	--	<5	<50	--	73	<5	<5	<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
G12@ 10	10/5/90	52	--	110	<50	--	110	45	480	140	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
G13@ 10	10/8/90	12	--	<5	<50	--	220	43	60	130	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
G14@ 7.5	10/8/90	<2.5	--	<5	100	--	<5	<5	<5	<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
G15@ 9.5	10/8/90	310	--	<5	<50	--	820	59	1,300	1,600	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
G16@ 11	10/8/90	19	--	<5	<50	--	200	41	210	46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
G17@ 6	10/10/90	24.0	--	<5	<50	--	38	20	12	18	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
G18@ 8	10/17/90	<2.5	--	<5	<50	--	<5	<5	<5	<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
G19@ 10	10/17/90	<2.5	--	<5	<50	--	<5	<5	<5	<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
G20@ 17	10/17/90	<2.5	--	<5	<50	--	<5	<5	<5	<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
G21@ 10	10/17/90	<2.5	--	<5	<50	--	<5	<5	<5	<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
G22@ 10	10/17/90	<2.5	--	<5	87	--	<5	<5	<5	<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D2@ 4.5	10/8/90	<2.5	--	<5	<50	--	<5	<5	<5	<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D3@ 4.5	10/4/90	<2.5	--	<5	<50	--	<5	<5	<5	<5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Waste Oil Tank Area																											
3@ 6	2/9/94	<1	<1	<1	27	<50	<5	<5	<5	<5	--	--	--	--	8	--	--	--	--	--	--	--	--	--	--	--	--
4@ 11	2/9/94	<1	<1	<1	20	80	<5	<5	<5	<5	--	--	--	--	11	--	--	--	--	--	--	--	--	--	--	--	--
5@ 6	2/9/94	240	<1	560	1,700	3,900	300	1,800	2,500	16,000	<5	36	29	16	590	2.7	0.13	<0.05	<0.05	<0.05	0.14	0.12	1.8	0.39	<0.05	0.45	0.26
6@ 11	2/9/94	31	<1	250	640	1,700	580	670	550	2,700	<5	<5	8	8.4	45	3.7	0.18	<0.05	<0.05	1.6	0.15	0.14	2.5	<0.05	0.21	0.39	0.27
7@ 6	2/9/94	<1	<1	<1	<10	<50	<5	<5	<5	31	<5	<5	<5	<5	19	<0.05	<0.05	0.32	0.93	1.7	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
8@ 11.5	2/9/94	100	<1	680	1,100	2,700	360	300	1,300	6,700	--	--	--	--	21	--	--	--	--	--	--	--	--	--	--	--	--
9@ 6	2/9/94	<1	<1	<1	<10	<50	<5	<5	<5	<5	--	--	--	--	8.6	--	--	--	--	--	--	--	--	--	--	--	--
10@ 11.5	2/9/94	6.5	<1	210	360	470	100	7.3	100	160	--	--	--	--	14	--	--	--	--	--	--	--	--	--	--	--	--
11@ 13	2/9/94	15	<1	210	450	780	430	45	350	960	<5	<5	<5	7.6	60	0.39	<0.05	<0.05	<0.05	2	0.05	0.08	0.34	<0.05	<0.05	0.2	0.1
Well Boring Samples																											
MW1 @10	3/2/94	260	<1	<1	<10	--	<20	<20	970	770	<5	<5	<5	<5	--	--	--	--	--	--	--	--	--	--	--	--	--
MW2 @10	3/1/94	<1	<1	<1	<10	--	<90	<90	<5	<5	<5	<5	<5	<5	--	--	--	--	--	--	--	--	--	--	--	--	--
MW3 @10	3/1/94	620	<1	5.6	<10	--	<90	<90	840	2,700	7.4	<5	11	<5	--	--	--	--	--	--	--	--	--	--	--	--	--
MW4 @10	3/2/94	1.9	<1	8.9	22	--	<20	<20	<5	<5	<5	<5	<5	<5	--	--	--	--	--	--	--	--	--	--	--	--	--
MW5 @4	6/23/97	<1	--	<1	--	--	<5	<5	<5	<5	<5	<5	<5	<5	--	--	--	--	--	--	--	--	--	--	--	--	--
MW5 @8	6/23/97	3.1	--	5.1	--	--	<5	<5	5.7	17	<5	<5	<5	<5	--	--	--	--	--	--	--	--	--	--	--	--	--
MW6 @6	6/23/97	<1	--	<1	--	--	<5	<5	<5	<5	<5	<5	<5	<5	--	--	--	--	--	--	--	--	--	--	--	--	--
MW6 @10	6/23/97	4.4	--	6.5	--	--	<5	<5	26	<5	<5	<5	<5	<5	--	--	--	--	--	--	--	--	--	--	--	--	--
SF RWQCB ESLs Table B-1, 2003 Residential Land Use																											
Indoor Air Impact		NV	NV	NV	NV	NE	180	180,000	4,700	45,000	98,000	25	80	2,700	NE	110	6.1	NE	NE	NE	NE	160	4.5	NE	NE	NV	85
Direct Exposure		100	500	500	500	NE	180	130,000	8,700	54,000	43,000	350	480	30,000	255	290	4,400	160	NE	NE	460	550	11	NE	NE	550	460
City of Oakland ULR TIER 2 SSTLs, 1999 Sandy Silt Soil Residential Land Use																											
Indoor Air Impact		NE	NE	NE	NE	NE	1,400	710,000	SAT	SAT	500,000	3,700	5,800	1,300	NE	SAT	SAT	SAT	NE	SAT	SAT	SAT	SAT	SAT	NE	SAT	SAT
Outdoor Air Impact		NE	NE	NE	NE	NE	20,000	SAT	SAT	SAT	SAT	55,000	86,000	23,000	NE	SAT	SAT	SAT	NE	SAT	SAT	SAT	SAT	SAT	NE	SAT	SAT

Notes

TPH = Total petroleum hydrocarbons
DCA = Dichloroethane
TCA = Trichloroethane
PCE = Tetrachloroethene
NV = No value (use soil gas data to evaluate potential indoor air impact concerns)
NE = No value established

mg/kg = milligrams per kilogram = parts per million
µg/kg = micrograms per kilogram = parts per billion
<1 = Chemical not present at a concentration greater than the laboratory detection limit shown or stated on test reports
- = Chemical not tested for
SAT = SSTL exceeds saturated soil concentration of chemical

February 2004
Project No. 609.004



EXPLANATION

- STRUCTURE
- LIMITS OF EXCAVATION
- MONITORING WELL LOCATION
- SHALLOW CURB DRAIN
- TEMPORARY WELL LOCATION
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- STORM DRAIN
- SHALLOW CURB PIPE
- SANITARY SEWER
- Fl. 10.40 — PIPELINE FLOW LINE DEPTH REFERENCE TO CITY OF OAKLAND DATUM NGVD ELEVATIONS +3FT MEAN SEA LEVEL

NORTH

0 40 80
FEET

SITE PLAN
2250 Telegraph Avenue
Oakland, California

PLATE 1

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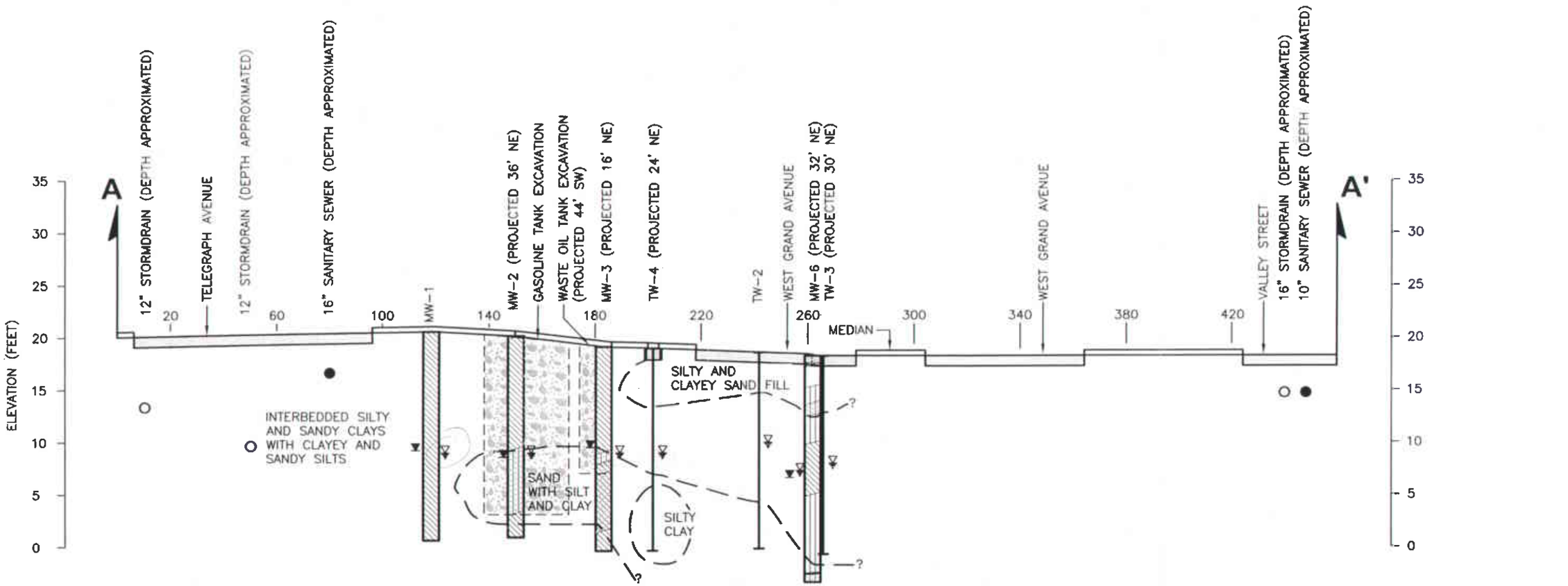

NOTES: 1. ENTIRE SITE IS PAVED.

2. PAVEMENT THICKNESS SCHEMATICALLY SHOWN.

LEGEND

- GROUND WATER LEVEL DURING BORING INSTALLATION
- GROUNDWATER LEVEL APRIL 2001
- ROAD PAVEMENT SECTION
- TANK EXCAVATION
- STORM DRAIN
- SANITARY SEWER

▼ GROUNDWATER DEPTHS AS MEASURED BELOW TOP OF CASINGS. TOP OF CASING SCHEMATICALLY SHOWN TO BE DIRECTLY BELOW PAVEMENT THICKNESS.

USGS BENCHMARK W1197, 1969
(REPORTED ELEVATION OF
21.06 FEET MSL DATUM)

HORIZONTAL SCALE
0 40 80
FEET
VERTICAL SCALE
0 10 20
FEET

CROSS SECTION A-A'
2250 Telegraph Avenue
Oakland, California

PLATE 2

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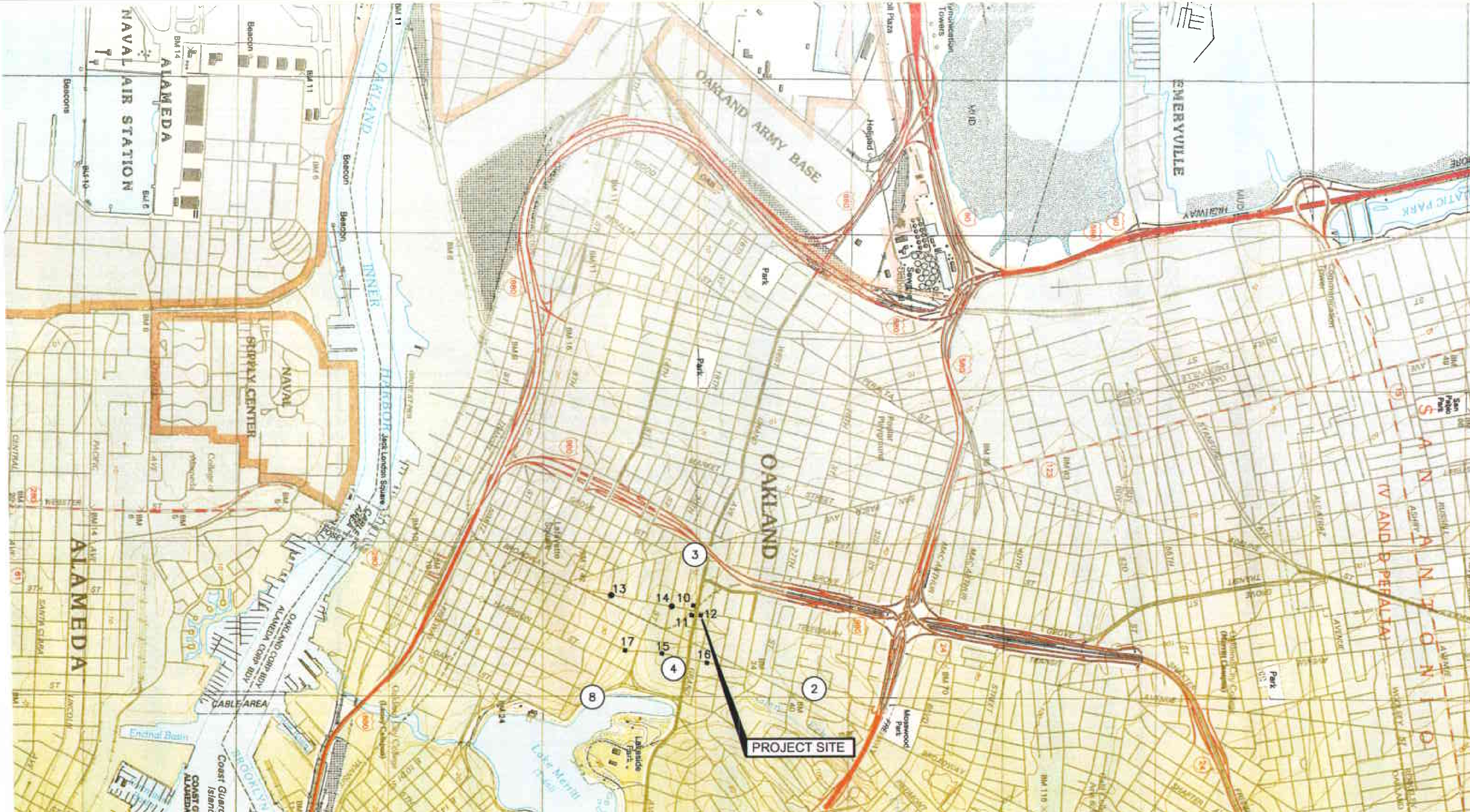
February 2004
Project No. 609.004

FUGRO



BASE MAP SOURCE: This Vicinity Map is based on a U.S. Geologic Map.

LEGEND

(8) DWR REGISTERED WELL

● TEST WELL SITES

■ MONITORING WELL SITES

VICINITY MAP - APPOXIMATE WELL LOCATIONS

2250 Telegraph

Oakland, California

PLATE 3

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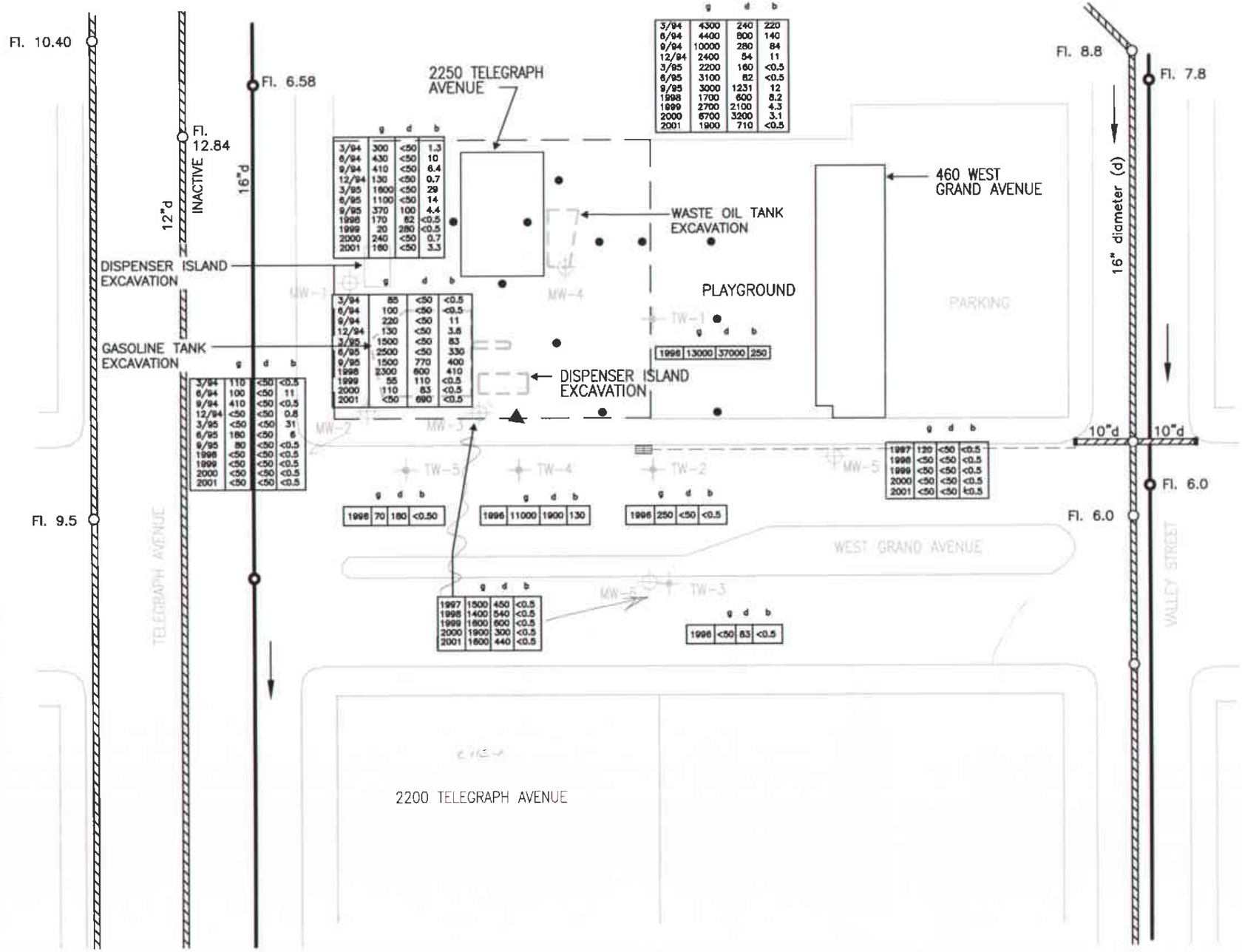
February 2004
Project No. 609.004



EXPLANATION

g	d	b	
1998	<50	83	<0.5

TPH within gasoline range (ug/l)
TPH within diesel range (ug/l)
Benzene (ug/l)

PROPOSED SAMPLING LOCATIONS, 2004

STRUCTURE

LIMITS OF EXCAVATION

MONITORING WELL LOCATION

SHALLOW CURB DRAIN

TEMPORARY WELL LOCATION

APPROXIMATE GROUNDWATER FLOW DIRECTION

STORM DRAIN

SHALLOW CURB PIPE

SANITARY SEWER

Fl. 10.40 PIPELINE FLOW LINE DEPTH REFERENCE TO CITY OF OAKLAND DATUM NGVD ELEVATIONS +3FT MEAN SEA LEVEL

NORTH

0 40 80

FEET

TPH and Benzene Concentrations in Groundwater
2250 Telegraph Avenue
Oakland, California

PLATE 4

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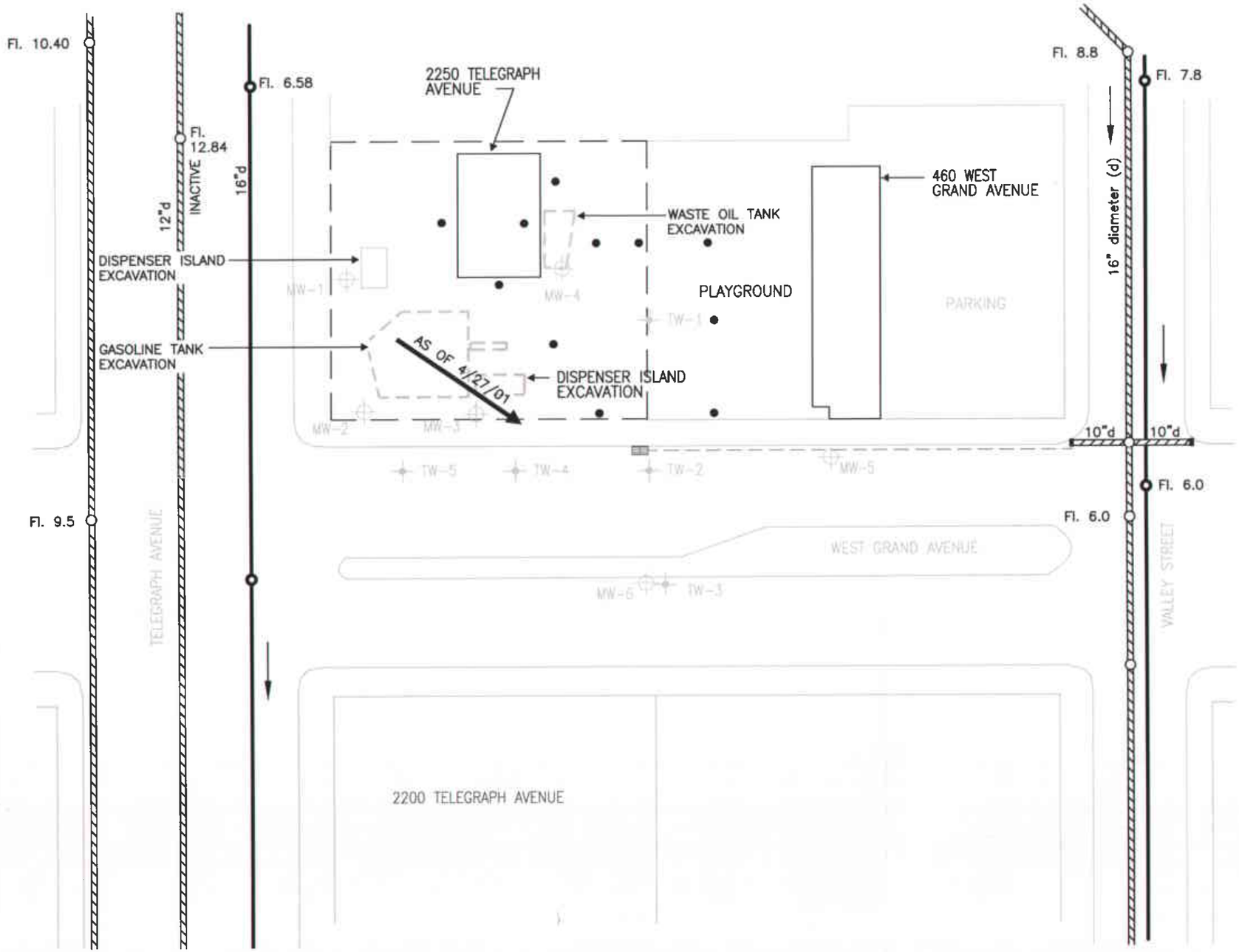
February 2004
Project No. 609.004



EXPLANATION

- PROPOSED SAMPLING LOCATIONS, 2004
- STRUCTURE
- LIMITS OF EXCAVATION
- MONITORING WELL LOCATION
- SHALLOW CURB DRAIN
- TEMPORARY WELL LOCATION
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- STORM DRAIN
- SHALLOW CURB PIPE
- SANITARY SEWER
- Fl. 10.40 PIPELINE FLOW LINE DEPTH REFERENCE TO CITY OF OAKLAND DATUM NGVD ELEVATIONS +3FT MEAN SEA LEVEL

NORTH

0 40 80
FEET

PROPOSED SAMPLING LOCATIONS 2004
2250 Telegraph Avenue
Oakland, California

PLATE 5

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APPENDIX A

Selected Tables from Previous SCI Reports

Excerpts from SCI Report:
Underground Tank Closure and Future Services Work Plan
220 Telegraph Avenue, Oakland, California
dated July 1, 1991

Table 2.
Contaminants In Soil And Water From
Gasoline Tank And Dispenser Areas

Tank Excavation	Gasoline (ppm)[1]	Benzene (ppb)[2]	Toluene (ppb)	Ethyl-benzene (ppb)	Xylene (ppb)	Lead (ppm)
G3 @ 10'	120	820	560	2300	4000	9.07
G4 @ 10'	18	89	11	150	520	19.2
G5 @ 10'	270	2300	220	3400	410	5.43
G6 @ 15'	8.3	320	6.3	170	220	4.93
G7 @ 11'	6.3	270	34	ND	160	8.45
G8 @ 16'	ND[3]	19	5.6	ND	ND	6.65
G9 @ 10'	ND	ND	ND	ND	ND	5.54
G10 @ 16'	260	1600	670	1300	460	8.36
G11 @ 10'	52	ND	ND	ND	ND	6.01
Water in Excavation						
W	69	4500	2200	1600	3800	2.34
Dispenser Areas						
D1 @ 0.5'	ND	ND	ND	ND	ND	201
D2 @ 0.5'	1700	2300	9500	35000	77000	107
D3 @ 0.5'	200	850	1600	3800	18000	91.7
D4 @ 0.5'	ND	ND	ND	ND	9.1	537

[1] ppm = parts per million = milligrams per kilogram or milligrams per liter

[2] ppb = parts per billion = micrograms per kilogram or micrograms per liter

[3] ND = None detected, chemicals not present at concentrations above detection limits.

B. Waste Oil Tank Area

Two soil samples were obtained from the waste oil tank excavation. In addition, 4 samples were obtained of the soil removed from the tank pit. The samples were analyzed for gasoline (EPA 8015/5030), diesel (EPA 8015/3550), oil and grease (SMWW 5520), BTEX (EPA 8020/5030), purgeable halocarbons (EPA 8010),

semivolatile organics including PCBs (EPA 8270), lead, cadmium, chromium, copper, nickel, and zinc. Test results are summarized in Table 3.

Table 3.
Hydrocarbon And Metal Concentrations
In Soil From Waste Oil Tank Area

	WO-1 (ppm)[1]	WO-2 (ppm)	Stockpile[2] (ppm)
Hydrocarbons			
Gasoline	40	740	130
Total Extractable Hydrocarbons	4090	5740	5800
Total Oil and Grease	1700	3600	3200
Metals			
Cadmium	0.431	0.522	0.482
Chromium	23.4	25.6	26
Copper	88.4	32.5	23.3
Lead	151	112	85.9
Nickel	32.5	30.2	27.5
Zinc	167	140	70.6
Volatiles and Semi Volatiles			
Benzene	1.8	12.0	1.10
Toluene	0.88	15.0	1.70
Ethylbenzene	0.80	10.0	2.10
Xylene	1.2	18.0	3.90
PCB's	ND[3]	--[4]	--
Tetrachloroethane	0.039	0.470	0.066
Chlorobenzene	0.040	ND	ND
2-Methylnaphthalene	2.4	--	--
2-Methylphenol	0.90	--	--
Naphthalene	1.30	--	--
Di-n-butylphalate	0.50	--	--

[1] ppm = parts per million = milligrams per kilogram
[2] Stockpile sample composed of 4 individual samples representing 10 cubic yards of material
[3] ND = None detected, chemicals not present at concentrations above detection limits
[4] -- = Test not requested

Additional soil samples were obtained and analyzed to document contaminant concentrations following excavation. The samples were analyzed for gasoline and BTEX. In addition, the samples were analyzed for extractable hydrocarbons (EPA 8015/3550) since our experience has been that some weathered gasoline problems are better quantified using this method of analysis. Test results are summarized in Table 4.

Table 4.
Contaminants In Soil Left In Place In Gasoline Tank and Dispenser Areas

Tank Area	Gasoline (ppm)[2]	TEH[1] (ppm)	Benzene (ppb)[3]	Toluene (ppb)	Ethyl-benzene (ppb)	Xylene (ppb)
G10 @ 17'	ND	ND	73	ND	ND	ND
G12 @ 10'	52	ND	110	45	480	140
G13 @ 10'	12	ND	220	43	60	130
G14 @ 7.5'	ND	100	ND	ND	ND	ND
G15 @ 9.5'	310	ND	820	59	1300	1600
G16 @ 11'	19	ND	200	41	210	46
G17 @ 6'	24	ND	38	20	12	18
G18 @ 8'	ND	ND	ND	ND	ND	ND
G19 @ 10	ND	ND	ND	ND	ND	ND
G20 @ 17'	ND	ND	ND	ND	ND	ND
G21 @ 10'	ND	ND	ND	ND	ND	ND
G22 @ 10'	ND	87	ND	ND	ND	ND
Dispenser Area						
D2 @ 4.5	ND	ND	ND	ND	ND	ND
D3 @ 4.5	ND	ND	ND	ND	ND	ND

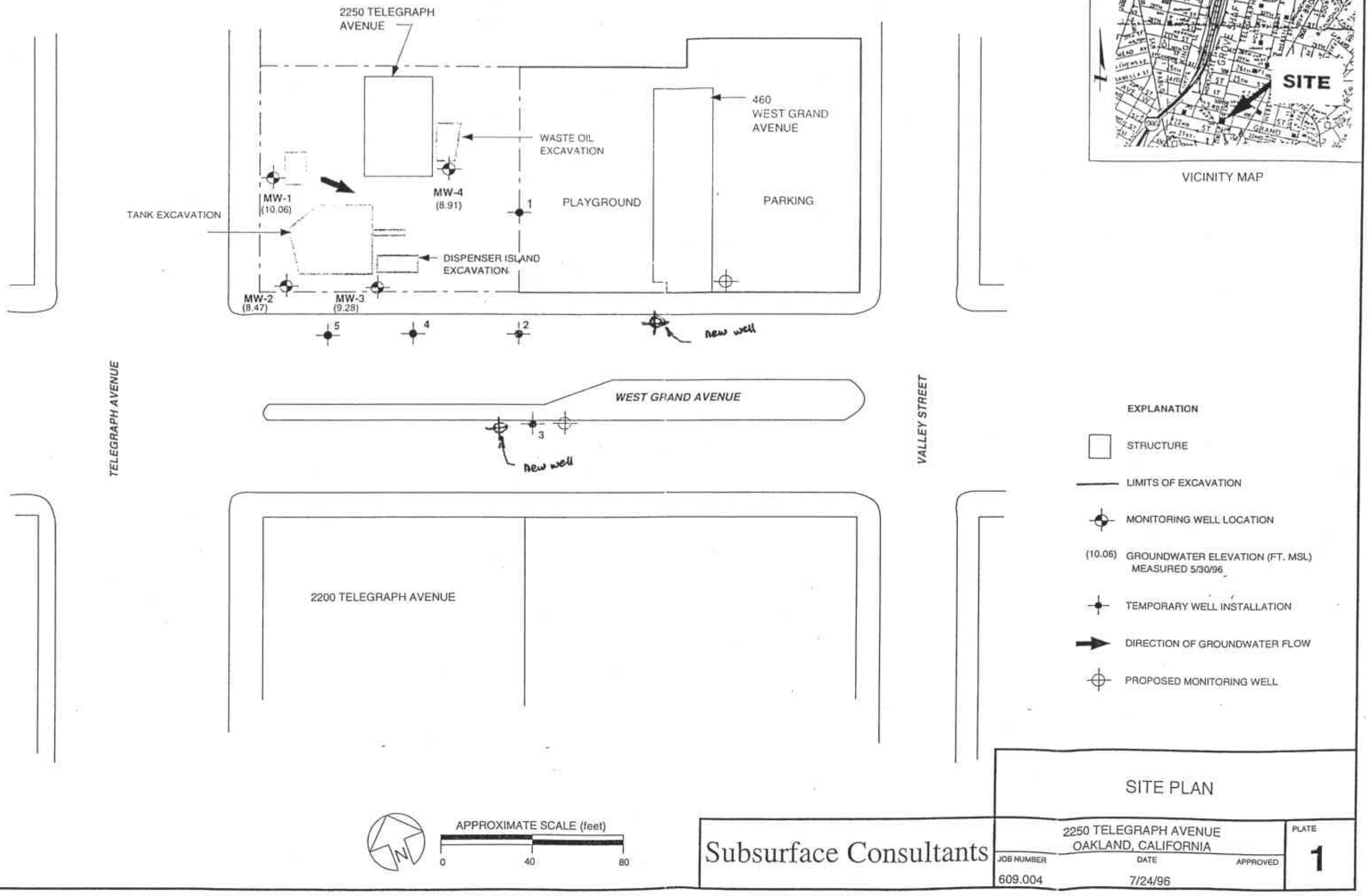
1 TEH = Total Extractable Hydrocarbons
2 ppm = Parts per million = milligrams per kilogram
3 ppb = Parts per billion = micrograms per kilogram
4 ND = None detected = chemicals not present at concentrations above detection limits

Excerpts from SCI Report:
Supplemental Groundwater Investigation
220 Telegraph Avenue, Oakland, California
dated October 4, 1996

Table 1 Summary of Groundwater Analytical Results
Temporary Well Points and Recent Quarterly Monitoring Data
2250 Telegraph Avenue, Oakland, California, May 30 and 31, 1996

Temporary Well Point	Date Sampled	Diesel (ug/L)	TVH (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-benzene (ug/L)	Total Xylenes (ug/L)	Other EPA 8010 (ug/L)
1	5/31/96	37,000 [2,3]	13,000 [1]	<50	<50	<50	380	ND
2	5/30/96	<50	250	<0.5	<0.5	13	3.4	ND
3	5/30/96	83 [1,2]	<50	<0.5	<0.5	<0.5	<0.5	20 (Freon)
4	5/31/96	1,900 [1,2]	11,000	130 [4]	66	340	260	ND
5	5/30/96	180 1,2	70 1	<0.5	<0.5	<0.5	<0.5	ND
MW-1	9/18/95	110	370	4.4	0.6	2	1.4	2.4 (1,2-DCE)
MW-2	9/18/95	<50	<50	<0.5	<0.5	<0.5	<0.5	ND
MW-3	9/18/95	770 [1]	1,500	400	11	2.2	33	ND
MW-4	9/18/95	1,231 1	3,000	12	<0.7	6.9	8.3	1.9 (1,1-DCE) 4 (chlorobenzene)

ND Not detected
ug/L Micrograms per liter
<50 Not detected at concentrations greater than laboratory reporting limit, i.e. 50 ug/L
1,1-DCE 1,1-dichloroethene
1,2-DCE 1,2-dichloroethene
1 Sample exhibits fuel pattern which does not resemble standard
2 Lighter hydrocarbons than indicated standard
3 Heavier hydrocarbons than indicated standard
4 Presence of this compound confirmed by second column, however, the confirmation concentration differed from the reported result by more than a factor of two



SITE PLAN

Subsurface Consultants

2250 TELEGRAPH AVENUE
OAKLAND, CALIFORNIA

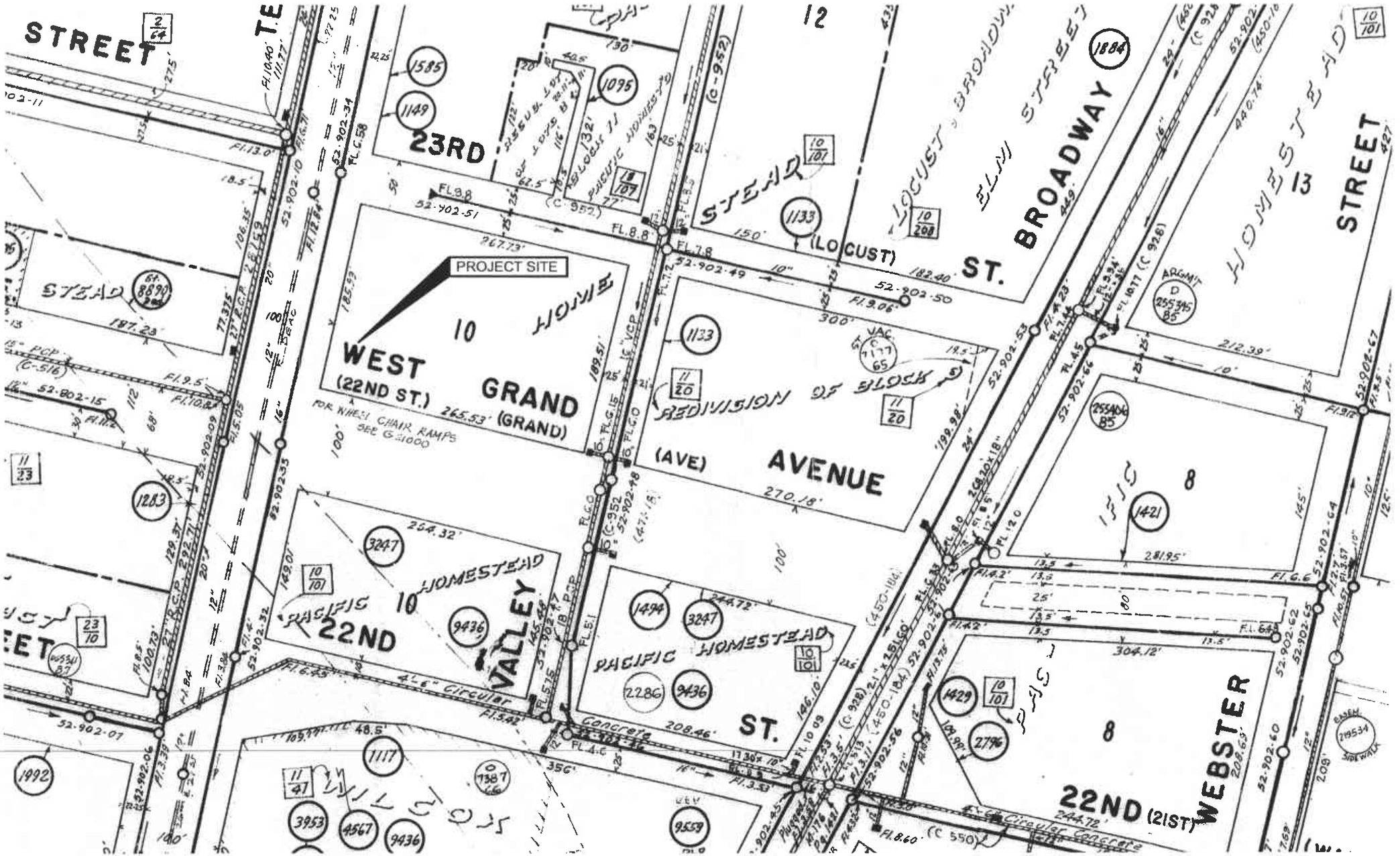
JOB NUMBER	DATE	APPROVED
609.004	7/24/96	

PLATE 1

APPENDIX B

Vicinity Plan with Location of Storm Drains and Sanitary Sewers

July 2003
Project No. 609.004



BASE MAP SOURCE: This Vicinity Map is based on a City of Oakland Department of Engineering drawing, number 1488B482-238, dated 12/31/96.

VICINITY PLAN WITH LOCATION FOR STORM DRAINS AND SANITERY SEWER
2250 Telegraph
Oakland, California

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APPENDIX C

Results of Department of Water Resource (DWR) Well Search

STATE OF CALIFORNIA - THE RESOURCES AGENCY

GRAY DAVIS, *Governor*

DEPARTMENT OF WATER RESOURCES
CENTRAL DISTRICT
3251 S STREET
SACRAMENTO, CA 95816-7017

JUN 17 2003

Mr. Obi Nzewi
Fugro West, Incorporated
1000 Broadway, Suite 200
Oakland, California 94607

Dear Mr. Nzewi:

In response to your request, enclosed is the well location information for the sites in the following area:

A one-quarter mile radius of 2250 Telegraph Avenue, Oakland
Township 01 South, Range 04 West, Sections 25 and 26

Your data request required one-half hour of staff time. We located nine well drillers reports as a result of this search. The total charge to reproduce the copies is $27.50 ($50 per hour of staff time plus 25 cents per page for ten pages). Your remittance should be made payable to the Department of Water Resources, General Accounting Office, Post Office Box 942836, Sacramento, California 94236-0001. Please show **"Invoice JUN 16-3"** on your remittance and return it with the enclosed copy of this letter to our Accounting Office.

If you need additional information or have any questions, please contact Anne Roth at (916) 227-7632 or fax (916) 227-7600.

Sincerely,

Robert L. Niblack, Chief
Geology and Groundwater Section

Enclosures

15/4 in. 5 6.

01-815

Job #1050. Providence Hospital, Oakland.

LOG OF WELL.

Top soil			4 feet
Cement Gravel	4	to 12	"
Sandy clay	12	" 60	"
Yellow clay	60	" 74	"
Sand	74	" 78	"
Sandy clay	78	" 93	"
Sand	93	" 100	"
Blue clay	100	" 125	"
Sand	125	" 127	"
Gravel	127	" 131	"
Cement Gravel	131	" 136	"
Yellow clay	136	" 150	"

150 feet of 10" No. 12 R. H. Double Casing, including,
1 Starter 10" No. 12 R. H. Double,
30 feet of machine perforations, Shisel Slot 1/8" open,
1 - 10" Shoe 5/7" x 6"

01-825

15/4W-35A
26 S

Job #1050. Providence Hospital, Oakland.
3 at 1 Webster

LOG OF WELL No. 3.

Dry sand, little gravel			57	feet
Sandy clay	57	to	69	"
Sand & gravel	69	"	72	"
Yellow sandy clay	72	"	85	"
Blue clay, soft	85	"	93	"
Blue sandy clay	93	"	127	"
Brown clay	127	"	142	"
Reddish clay & lime rock	142	"	155	"
Soft lime rock	155	"	160	"
Hard lime	160	"	162	"
Lime and Blue clay	162	"	168	"
White clay & lime	168	"	172	"
Hard Lime	172	"	174	"
White clay & lime	174	"	176	"
Brown clay	176	"	177	"
Black water sand & small gravel	177	"	178	"
Yellow sandy clay	178	"	185	"
Soft lime	185	"	192	"
Blue clay & sand	192	"	202	"
Hard lime rock	202	"	204	"
Blue sandy clay, some lime	204	"	257	"
Hard brown clay & lime	257	"	262	"
Black water sand	262	"	264	"
Lime and clay	264	"	272	"
Yellow water sand	272	"	275	"
Hard sand, clay, lime	275	"	279	"
Cementy gravel & loose rocks	279	"	286	"
Sand cementy gravel, yellow clay	286	"	298	"
Sand, clay & lime, a little gravel	298	"	341	"
Sand, red rock & clay, cement	341	"	360	"
Yellow clay	360	"	365	"
Hard sandy red rock, clay	365	"	368	"

13 4
1 4 6
16
31

01-843

Well No. 1 - At 22nd and Grove Streets.

100 ft. of 15" surface casing.

16 ft. Gal Starter

15 ft. of perforator (900)

Filled in ground	8
Yellow Sand	11-19
Blue Clay	14-33
Yellow Clay	7-40
Yellow Cement	48-88
Yellow Clay	78-166
Yellow Sand Clay	6-172
Sand & Gravel	4-176
Gravel	8-184
Yellow Clay	4-192
Sand & Gravel	4-196
Yellow Clay	197 =10½"

Tools measured up by L. D. Bissell

Water table.....50 ft.

Water table pumping 1200 gals. per hour = 80 ft.

01-857

Job . 1660. Banner Bros. [illegible]. 327 - 21st.
Boring Test Holes.

LOG OF TEST HOLE #1.

Black soil			3 feet
Hard yellow sandy clay	3	to 16	"
Dry gray water sand	16	" 21	"
Hard brown sandy clay	21	" 29	"
Hard red cement clay	29	" 33	"
Soft dirty water gravel	33	" 38	"
Hard yellow sand clay	38	" 43	"

10 ft. of water in hole.

LOG OF TEST HOLE #2.

Black soil			3 feet
Brown sandy clay	3	to 10	"
Hard dry gray sand	10	" 15	"
Hard yellow sand clay	15	" 27	"
Soft yellow clay, some rock mixed with clay	27	" 34	"
Soft yellow sand	34	" 42	"
Hard yellow sandy clay	42	" 43	"

6 ft. of water in hole.

01-858

20 Ext 5?
Oakland

Job #649. Great Western Power Co.

LOG OF WELL

Sahd			16	feet
Blue Clay	16	to	32	"
Cement Gravel	32	"	35	"
Sandy Clay	35	"	43	"
Gravel	43	"	45	"
Sandy Clay	45	"	49	"
Cement Gravel	49	"	69	" ✓
Yellow Clay	59	"	75	"
Cement Gravel	75	"	90	" ✓
Yellow Clay	90	"	110	"
Sandy Clay	110	"	118	"
Gravel	118	"	123	" ✓
Yellow Clay	123	"	134	"
Sandy Clay	134	"	152	"
Gravel	152	"	156	" ✓
Sandy Clay	156	"	159	"
Blue Clay	159	"	177	"
Sandy Clay	177	"	180	"
Shale	180	"	189	"
Sandy Clay	189	"	204	"
Blue Clay	204	"	226	"
Brown Clay	226	"	233	"
Blue Clay	233	"	250	"
Clay	250	"	265	"
Blue sandy clay	265	"	266	"
Blue clay	266	"	289	"
Blue clay with limestone ✓	289	"	325	"
Brown clay	325	"	327	"
Yellow clay	327	"	340	"
Red cement	340	"	347	"
Blue clay	347	"	350	"
Yellow clay with limestone	350	"	374	"
Sandy clay	374	"	378	"
Yellow clay	378	"	388	"
Blue Clay	388	"	420	" ✓
Sand and gravel	420	"	428	"
Red cement gravel	428	"	436	"
Yellow clay	436	"	442	"
Cement gravel	442	"	447	"
Yellow clay	447	"	450	"
Cement gravel	450	"	456	"
Yellow clay	456	"	458	"

Job # 715. Oakland Lodge #171, B.P.O.E.

SE corner of [illegible]

LOG OF WELL.

Brown Clay			2	feet
Sandy clay	2	to	13	"
Blue clay, streaked	13	"	18	"
Heavy Gravel	18	"	22	"
Hardpan	22	"	26	"
Lime clay	26	"	37	"
Heavy red sand & light gravel	37	"	41	"
Hardpan	41	"	43	"
Clay, hard & dry	43	"	45	"
Hardpan	45	"	48	"
Sand & clay	48	"	49	"
Heavy gravel(some water)	49	"	50	"
Clay	50	"	56	"
Sand & clay	56	"	71	"
Sand & Gravel(Not much water)	71	"	75	"
Clay	75	"	85	"
Water gravel	85	"	87	"
Hard dry brown clay	87	"	95	"
Hard clay	95	"	103	"
Dry sand	103	"	106	"
Sand, some water	106	"	109	"
Clay & sand	109	"	118	"
Black sand & gravel	118	"	119	"
Clay, yellow	119	"	121	"
Gravel, heavy	121	"	124	"
Dry gray clay	124	"	126	"
Sandy clay	126	"	132	"
Cement gravel	132	"	136	"
Blue shale & clay	136	"	142	"
Cement gravel	142	"	145	"
Heavy sand	145	"		

Casing landed in Blue clay at 153'

Water test 100' ---- 6.78
Water tests 50' ---- 8.62

01-859

Job #733. Deepening Well put down under Job #649 and # 714.

Log of Well. From 285'

Blue clay with Limestone	285	to	325	feet
Blue clay	325	"	327	"
Yellow clay	327	"	340	"
Red cement	340	"	347	"
Blue clay	347	"	350	"
Yellow clay with limestone	350	"	374	"
Sandy clay	374	"	378	"
Yellow clay	378	"	388	"
Blue clay	388	"	420	"
Sand and Gravel	420	"	428	"
Red cement	428	"	436	"
Yellow clay	436	"	442	"
Red cement	442	"	447	"
Yellow clay	447	"	450	"
Red cement	450	"	456	"
Yellow clay	456	"	470	"
Blue clay	470	"	480	"
Red cement	480	"	485	"
Yellow clay	485	"	498	"
Red cement	498	"	500	"
Yellow clay	500	"	510	"
Red cement	510	"	528	"
Yellow clay	528	"	545	"
Red cement	545	"	556	"

2

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

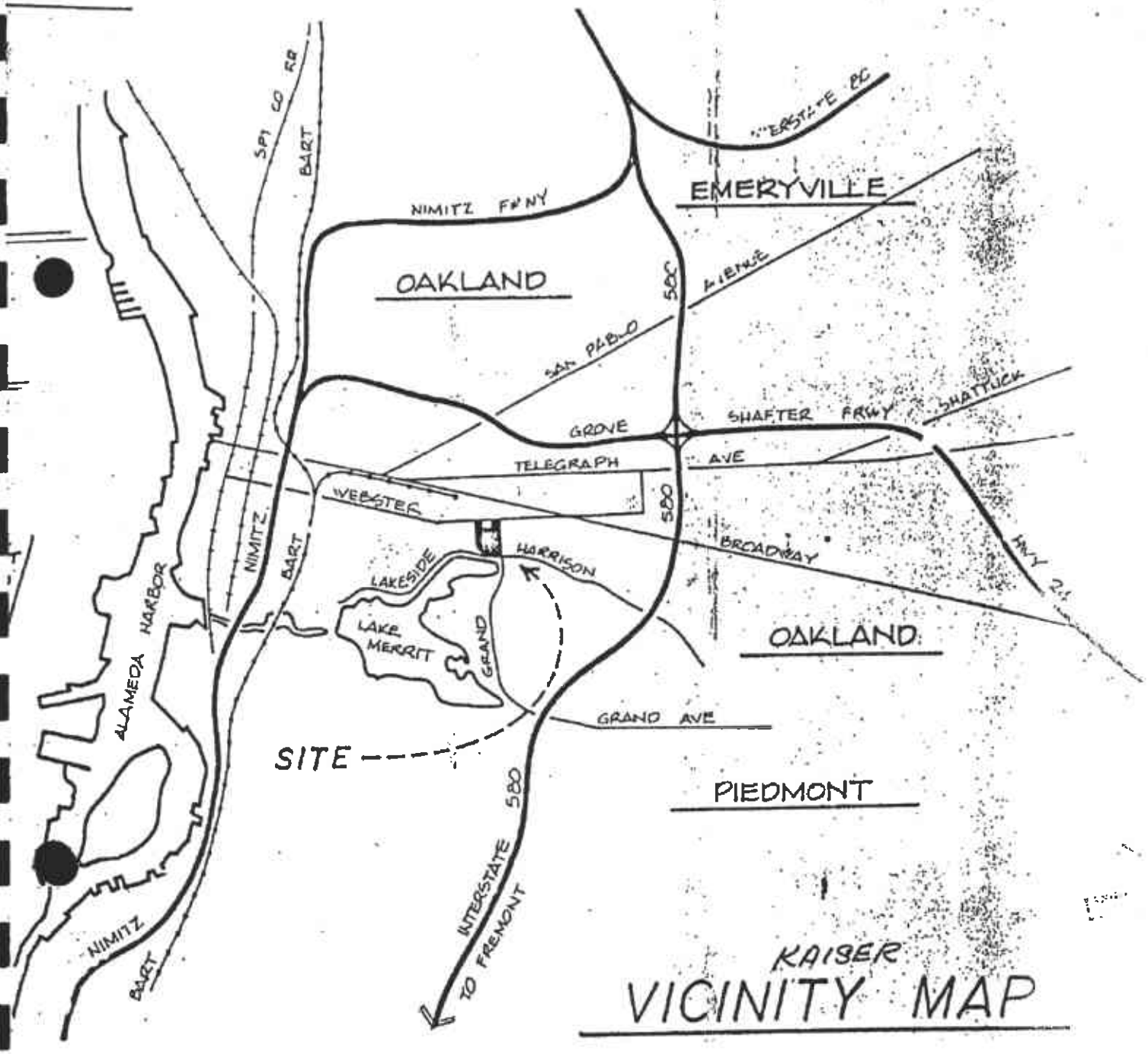
REMOVED

LEGAL DESCRIPTION

345857

REAL PROPERTY IN THE CITY OF OAKLAND, COUNTY OF ALAMEDA, STATE OF CALIFORNIA DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE NORTH LINE OF TWENTY-FIRST (21ST) STREET WITH THE WEST LINE OF HARRISON STREET; THENCE FROM SAID POINT OF BEGINNING, ALONG SAID NORTH LINE, NORTH 73° 56' 58" WEST, 198.80 FEET; THENCE DEPARTING SAID NORTH LINE, NORTH 13° 02' 54" EAST, 262.00 FEET TO THE SOUTH LINE OF TWENTY-SECOND (22ND) STREET; THENCE ALONG SAID SOUTH LINE, SOUTH 73° 56' 58" EAST, 212.39 FEET TO THE WEST LINE OF HARRISON STREET; THENCE ALONG SAID WEST LINE, SOUTH 16° 01' 04" WEST, 262.35 FEET TO THE POINT OF BEGINNING.



KAISER

VICINITY MAP