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LETTER OF TRANSMITTAL

DATE April 28, 1993	Job No. 91106
ATTENTION: MR. ROBERT WESTON	
SUBJECT:	
Former Northwest Motor Welding Site	
2100 Orchard Avenue	
San Leandro, CA	

Alameda Co. Health Care Services

Dept. of Environmental Health
Hazardous Materials Program

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PCB-Contaminated Soil Excavation and Additional Well Installation Report

Former Northwest Motor Welding Site

2100 Orchard Avenue
San Leandro, California

April 22, 1993 BEI Job No. 91106

Prepared by:

Blymyer Engineers, Inc.
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Alameda, CA 94501-1396

Client:

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Environmental Engineer

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Senior Geologist

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Overview

Blymyer Engineers, Inc. was retained by Diesel ReCon Company to arrange and oversee the installation of soil bores; the excavation and proper disposal of petroleum-, lead-, and polychlorinated biphenyl (PCB)-contaminated soil; and the installation of two groundwater monitoring wells at the former Northwest Motor Welding site located at 2100 Orchard Avenue in San Leandro, California. This report, documenting the work that has been performed to date, has been prepared for submission to the Alameda County Health Care Services Agency (ACHCSA) and the San Francisco Bay Regional Water Quality Control Board (RWQCB).

Fifteen soil bores (B-1 through B-15) were installed to an approximate depth of 15 feet below grade surface (bgs) from January 9 through 17, 1992. Three of the soil bores (B-1 through B-3) were installed inside the warehouse adjacent to the former location of the diesel underground storage tank (UST) to assess the remaining amount of petroleum-contaminated soil underneath the warehouse. One soil sample was collected from each of the three soil bores at a depth of between 9.5 and 10.5 feet bgs and were analyzed for Extractable Petroleum Hydrocarbons and benzene, toluene, ethylbenzene, and total xylenes (BTEX). Only one sample was collected from each of the three bores because a distinct, 4-inch-thick layer of petroleum-contaminated soil had been encountered at a depth of between 9.5 and 10.5 feet bgs during additional excavation work around the former location of the diesel UST in September 1991. Extractable Petroleum Hydrocarbons in the diesel range and BTEX were not detected above the respective reporting limits in any of the soil samples collected from the three soil bores.

The analytical results from soil bores B-1 through B-3 revealed the areal extent of the remaining petroleum contamination underneath the building adjacent to the diesel UST excavation. The amount of petroleum contamination in the soil was calculated to be less than 1.2 cubic yards.

The remaining soil bores (B-4 through B-15) were installed around the areas containing petroleum-, lead-, and PCB-contaminated soil that were adjacent to the quonset hut on the northeast area of the subject site. Soil samples were collected every 5 feet and were analyzed

for Total Recoverable Petroleum Hydrocarbons (TRPH) and PCBs. Soil samples collected from B-4 through B-8 were also analyzed for total and soluble lead. TRPH and PCBs were detected above the reporting limit in some of the soil samples. This data allowed for the calculation of the amount of soil to be excavated from the areas adjacent to the quonset hut.

Soil excavation work in two areas adjacent to and partially underneath the quonset hut on the northeast perimeter of the subject site and in an area on the south corner of the site commenced on June 24, 1992, and was completed on August 24, 1992. Soil samples were collected from the sidewalls and bottoms of all three excavations. Additional excavation was performed in all three areas until there were no detectable concentrations of PCBs and petroleum hydrocarbons in any of the soil samples collected from the sidewalls or bottoms of the excavations.

Two soil bores (MW-1A and MW-4) were installed at the site on September 17 and 18, 1992. One soil bore was placed approximately 10 feet southwest of the excavation adjacent to the quonset hut, while the other bore was placed approximately 10 feet south of the diesel UST. The soil samples collected at 5-foot intervals from both soil bores were analyzed for Extractable Petroleum Hydrocarbons, BTEX, and PCBs, which were not detected above the respective reporting limits in any of the soil samples.

The two soil bores were converted to 2-inch-diameter groundwater monitoring wells (MW-1A and MW-4) and were sampled together with the existing monitoring wells at the site (MW-2 and MW-3). The groundwater samples collected from all four wells at the site were analyzed for Extractable Petroleum Hydrocarbons, BTEX, and PCBs. Extractable Petroleum Hydrocarbons, BTEX, and PCBs were not detected above the respective reporting limits in any of the groundwater samples.

Groundwater was encountered at a depth of between 19 and 21.5 feet bgs. A spatially-varying direction of groundwater flow was interpreted, based on data collected on October 9, 1992, from two different combinations of wells. A calculated westerly flow was based on data from monitoring wells MW-2 through MW-4, while a calculated southeasterly flow was based on data

from monitoring wells MW-1A, MW-2, and MW-4. This information indicates that monitoring well MW-1A is downgradient of Excavations A and B, while monitoring wells MW-3 and MW-4 are located downgradient of the diesel UST excavation based on the calculated groundwater flow directions for July 1991 and October 1992.

The analytical results of the soil samples collected from the excavations adjacent to the quonset hut indicate that petroleum-, lead-, and PCB-contaminated soil has been successfully excavated, and the analytical results from the groundwater samples collected from the four monitoring wells indicate that the underlying groundwater at the site has not been impacted by the PCB-contaminated soil encountered in the two areas adjacent to the quonset hut.

Approximately 250 to 300 cubic yards of petroleum, lead, and PCB-contaminated soil were excavated from all three excavations and stockpiled at the site with heavy plastic placed underneath and over the stockpiled soil. The excavation was backfilled with Class II aggregate base rock and resurfaced with concrete. Soil samples were collected from the stockpiled soil for profiling purposes. The stockpiled soil sample analytical results revealed that the stockpiled soil was non-hazardous according to 40CFR Part 261, Subpart C, and California Code of Regulations Title 26 §22-66699. The soil was then transported for disposal at the East Carbon Development Landfill in East Carbon City, Utah.

Blymyer Engineers recommends that the four groundwater monitoring wells at the site be monitored quarterly for a period of one year to assess the impact on the underlying groundwater of petroleum and PCB contamination in the soil. The groundwater samples collected from the monitoring wells should be analyzed for Extractable Petroleum Hydrocarbons using Modified EPA Method 8015, BTEX using EPA Method 8020, and PCBs using EPA Method 8080. A request for site closure will be sent to the ACHCSA and RWQCB if Extractable Petroleum Hydrocarbons, BTEX, and PCBs are not detected above the respective reporting limits in the groundwater for four consecutive quarters.

1.0 Introduction

1.1 Background

Blymyer Engineers, Inc. was retained by Diesel ReCon Company to perform a Level I Environmental Site Assessment (ESA) of the subject property. The Level I ESA, dated December 4, 1990, revealed the presence of a diesel underground storage tank (UST) underneath the sidewalk adjacent to the northwest perimeter of the property and numerous areas on the property where hazardous materials may have been stored or disposed of, especially an unsurfaced area on the northeast perimeter of the property where significant oil staining of soil was noted. The Level I ESA recommended the removal of the diesel UST and the performance of a Level II ESA consisting of a subsurface investigation in the areas of concern.

Blymyer Engineers performed the Level II ESA on April 19, 1991, with the installation of 14 soil bores throughout the subject property in the areas of concern. Analysis of soil samples from the soil bores revealed high levels of petroleum hydrocarbons and lead from the shallow soil samples collected from the unsurfaced area on the northeast perimeter of the property. Elevated levels of petroleum hydrocarbons were also discovered in the shallow sample from the soil bores installed adjacent to a storm drain located on the south corner of the subject property. Blymyer Engineers recommended that the upper 5 feet of soil along the northeast perimeter of the property be excavated and properly disposed of, and soil samples collected to verify proper removal of petroleum and lead contamination from the excavation. Specifics of the Level II ESA can be found in Blymyer Engineers' *Level II Environmental Site Assessment*, dated July 3, 1991, and subsequently submitted to the Alameda County Health Care Services Agency (ACHCSA) and the San Francisco Bay Region Regional Water Quality Control Board (RWQCB).

The diesel UST was removed by Golden West Builders on May 9, 1991. Soil samples were collected by Blymyer Engineers from approximately 6 feet below grade surface (bgs) at locations corresponding to the ends of the diesel UST. The soil samples contained Total Petroleum Hydrocarbons (TPH) as diesel concentrations as high as 10,000 milligrams per kilogram (mg/kg).

The excavated backfill material was stockpiled on site with heavy plastic placed underneath and over the stockpiled soil. The UST excavation was temporarily backfilled with imported clean fill material. Specifics of the UST removal can be found in Blymyer Engineers' letter to Mr. Michael Bakaldin of the City of San Leandro Fire Department, dated May 21, 1991, with copies of the letter submitted to the ACHCSA and the RWQCB.

Six soil bores were installed around the UST excavation on June 28, 1991, to assess the horizontal and vertical extent of petroleum contamination in the soil. The soil bores were installed to a depth of 15 feet bgs using a hydraulically-driven sampler. Soil samples were collected at 5-foot intervals and analyzed for TPH as diesel. TPH as diesel was not detected above the reporting limit in any of the soil samples from the six soil bores. The results from the six soil bores defined the outer limits of the proposed excavation around the former location of the diesel UST.

Three soil bores were installed on the subject property and on the neighboring street on July 10 and 11, 1991. These three soil bores were converted to 2-inch-diameter groundwater monitoring wells (MW-1 through MW-3) and sampled to assess the impact on groundwater of the petroleum-contaminated soil from the diesel UST excavation. The underlying groundwater contained no reportable concentrations of Extractable Petroleum Hydrocarbons in the diesel range or benzene, toluene, ethylbenzene, and total xylenes (BTEX). However, the 5-foot-deep soil sample collected during the installation of the monitoring well in the east corner of the subject property (MW-1) contained a diesel range Extractable Petroleum Hydrocarbon concentration of 7,500 mg/kg, while the remaining soil samples collected during the installation of the three monitoring wells did not contain reportable concentrations of Extractable Petroleum Hydrocarbons or BTEX. Specifics of the soil bore installation around the diesel UST excavation and the monitoring well installation at the subject property can be found in Blymyer Engineers' *Phase I Subsurface Investigation,* dated September 11, 1991, with copies submitted to the ACHCSA and the RWQCB.

Monitoring well MW-1 was properly removed on August 20, 1991 to allow for the excavation of petroleum-contaminated soil found at a depth of 5 feet bgs. The excavation of petroleum-contaminated soil from around the former location of the diesel UST and from the northeast perimeter of the subject property was performed from September 5 to September 12, 1991. Soil samples were collected from the sidewalls and bottom of the UST excavation and verified the complete removal of petroleum-contaminated soil, except for a thin layer of contaminated soil in an inaccessible area of the UST excavation. The petroleum-contaminated soil layer was approximately 4 inches thick and 6 feet wide and was found on the southeast wall of the UST excavation, directly underneath one of the warehouse buildings at the subject site, at a depth of approximately 9 feet bgs. A sample of this petroleum-contaminated soil layer was collected and analyzed. The soil sample from the petroleum-contaminated soil layer contained 9,000 mg/kg of Extractable Petroleum Hydrocarbons in the diesel range. Soil samples were also collected from the bottom and sidewalls of the excavation along the northeast perimeter of the subject property. The analytical results of the soil samples collected from the excavation along the northeast perimeter revealed two areas that still contained elevated concentrations of petroleum hydrocarbons and required additional soil excavation in the vertical and horizontal direction.

The soil that was excavated from the diesel UST excavation and from the northeast perimeter of the subject property was separately stockpiled and profiled for appropriate disposal. A total of 288 cubic yards of soil that was excavated from the diesel UST excavation was disposed of at a Class III landfill, while the soil excavated from the northeast perimeter was found to contain polychlorinated biphenyls (PCBs). Blymyer Engineers analyzed the soil samples containing reportable concentrations of petroleum hydrocarbons for PCBs and the results revealed the presence of PCBs in the soil in the two areas along the northeast perimeter of the subject property. Blymyer Engineers also analyzed two soil samples collected from the same excavation that did not contain reportable concentrations of petroleum hydrocarbons for PCBs. The results confirmed that PCBs were only present in the soil samples that contained reportable concentrations of petroleum hydrocarbons and that the area of PCB contamination was confined to the two areas on the northeast perimeter of the subject property.

Specifics of the excavation work around the former location of the diesel UST and along the northeast perimeter are described in Blymyer Engineers' letter to Mr. Brian Oliva of the ACHCSA, dated November 12, 1991 (Appendix A). The laboratory analytical results for the soil samples collected from the diesel UST excavation and from the initial excavation work along the northeast perimeter are included as Appendix B. Copies of the disposal manifests and landfill receipts for the petroleum-contaminated soil from the diesel UST excavation are included as Appendix C.

This report covers the installation of soil bores along the two areas on the northeast perimeter of the subject property and around the remaining petroleum-contaminated soil layer on the northwest side of the property adjacent to the diesel UST excavation. Soil samples from these soil bores were analyzed to assess the horizontal and vertical extent of petroleum, PCB, and lead contamination in the soil on the northeast perimeter and to assess the horizontal extent of petroleum contamination in the soil underneath the building on the northwest side of the property. This report also covers the excavation and proper disposal of petroleum-, lead-, and PCB-contaminated soil and the installation of two additional groundwater monitoring wells at the subject property.

This report covers the work performed as outlined in the written workplan and addendum to the workplan, dated November 12 and December 27, 1991, respectively (Appendices A and D). The workplan and the subsequent addendum were written and submitted by Blymyer Engineers to Mr. Brian Oliva, ACHCSA, and subsequently approved by Mr. Oliva in his written responses to Mr. Gordon Redshaw and Mr. Paul Linner of Diesel ReCon Company, dated December 6, 1991, and January 3, 1992, respectively (Appendices E and F).

1.2 Site Conditions

The site was located in a residential and light industrial area in the northwest section of the city of San Leandro, California (Figure 1), approximately ½-mile northeast of the Marina Boulevard

exit on Interstate Highway 880 and 200 feet northwest of the corner of Orchard Avenue and Marina Boulevard. The property was 11,400 square feet in size and contained three steel-framed buildings with corrugated sheet metal siding that were constructed slab-on-grade. The entire property was surfaced with concrete, except for the small strip of soil on the eastern perimeter of the property. The site was unoccupied during the time the work was performed.

1.3 Objectives

The primary objectives of this phase of work were to:

- Assess the horizontal and vertical extent of petroleum, lead, and PCB contamination in the soil adjacent to the quonset hut located northeast of the subject site
- Remove and properly dispose of petroleum-, lead-, and PCB-contaminated soil found in the area adjacent to the quonset hut
- Determine the local direction of groundwater flow
- Determine if the underlying groundwater has been impacted by the petroleum and PCB contamination found in the overlying soil

2.0 Environmental Setting

2.1 Regional Geology

The subject site is located in Alameda County, California, at the southeast corner of the intersection of Orchard Avenue and Estabrook Street in San Leandro. Alameda County is one of the Central Coast Range counties lying on the eastern shore of San Francisco Bay. An alluvial plain of Quaternary age, 3 to 8 miles in width and trending northwestward, constitutes the west border of the county. This plain rises from the tidal waters of San Francisco Bay to an elevation of about 100 feet at its eastern margin. Here, the Hayward fault, a persistent zone of structural weakness, separates the plain from the uplifted Berkeley Hills on the east. The Berkeley Hills are the dominant range in the uplifted block between the Bay and Mt. Diablo in Contra Costa County. Along the southwest flank of the Berkeley Hills, the Franciscan formation of Jurassic age, composed of sandstones, shales, cherts, schists, and associated ultra-basic intrusives of periodotite (altered to serpentine), is exposed. These rocks are overlain conformably by Cretaceous sandstone and shales which extend over the summit of the range to the east (Radbruch, 1957).

The general dip of the Cretaceous units is northeast. The Cretaceous units are flanked by strips of Upper and Middle Miocene marine sediments forming the west limb of a syncline. The Miocene units are covered in places by Pliocene sediments of continental origin which are interbedded with volcanic flows.

Radbruch and Case (1967) describe the general site geology on the geologic map published by the United States Geological Survey that covers the site area. The alluvial deposits mapped by Radbruch and Case are considered to be undifferentiated Cenozoic deposits of Pleistocene and/or Pliocene age. These deposits consist of dark alluvium, irregularly bedded clays, sands, silts, and gravels with organic matter, and admixtures of these materials. In most instances, the alluvial deposits are poorly consolidated.

Alameda County Flood Control and Water Conservation District Report 205-J (1988) classifies geologic units in the "East Bay Plain area" into two groups, consolidated and unconsolidated deposits. Bulletin No. 118, California Department of Water Resources, describes the alluvial sediments underlying the Bay Plain area of southern Alameda County as containing groundwater in permeable sand and gravel layers that are interbedded between clay layers. The consolidated bedrock units consist of marine sedimentary and volcanic rocks in a geosyncline which developed during Jurassic, Cretaceous, and Tertiary times in northern California. The unconsolidated sediments, reported to be 1,000 feet thick, underlying the East Bay Plain make up the groundwater reservoir in the region.

2.2 Climate

The East Bay Plain exhibits a Mediterranean-type climate with cool, wet winters and warmer, dry summers. Mean annual precipitation in the Oakland - San Leandro area is 17.74 inches, with a mean monthly rainfall of 3.30 inches in January and 0.02 inches in August. At the time of this writing, the entire Bay Area had experienced below-normal precipitation for the past six years. The mean monthly temperature at the nearby Oakland Airport varied from 47.2 degrees Fahrenheit in January to 62.9 degrees Fahrenheit in August (U. S. Department of Agriculture, 1981).

3.0 Removal of PCB-Contaminated Soil

3.1 Soil Bore Installation

3.1.1 Data Collection

3.1.1.1 Soil Sample Collection

A total of fifteen 2-inch-diameter soil bores were installed at the site on January 9, 10, 16, and 17, 1992, by Powercore Soil Sampling Inc. Soil bores B-1 through B-3 were installed to assess the horizontal extent of petroleum contamination in the soil underneath the building adjacent to the former location of the diesel UST. Soil bores B-4 through B-15 were installed to assess the vertical and horizontal extent of petroleum, lead, and PCB contamination in the soil in the two areas adjacent to the quonset hut and to determine the amount of lead- and PCB-contaminated soil that would have to be excavated. The locations of the soil bores are shown on Figure 2 and a copy of the approved soil bore installation permit application from Alameda County Flood Control and Water Conservation District is enclosed as Appendix G.

The soil bores were drilled using a hydraulically-operated 70-pound driving hammer that advanced a 2.20-inch tip connected to a 1.75-inch driving rod. When the desired sampling depth was reached, the rod and tip were hydraulically removed and the sample barrel was lowered into the bore. The sample barrel was then hydraulically driven approximately 2 feet. Soil samples were obtained using a split-spoon sampler barrel lined with four 1.5-inch-diameter by 6-inch-long brass liners. Once each soil sample was retrieved, the sample barrel was hydraulically removed from the bore. All drilling equipment coming into contact with each of the bore holes was steam cleaned prior to the start of drilling. The decontamination procedure for the split-spoon sampler that housed the brass liners consisted of washing with an aqueous solution of trisodium phosphate followed by a tap water rinse. After each soil sample was collected, the ends of the brass liners were covered with aluminum foil and plastic end caps and sealed with duct tape. The brass

liners were then individually labeled and placed in an ice chest with blue ice for delivery to the analytical laboratory.

Soil samples were obtained from various depths and field screened using a photoionization detector (PID). All soil bores were logged by a Blymyer Engineers geologist. The bore logs and PID readings from each of the soil bores are presented in Appendix H.

Water-saturated soil was encountered in all of the soil bores at a depth of between 9 and 10 feet bgs.

3.1.1.2 Soil Sample Analytical Methods and Results

The soil samples were delivered to Curtis & Tompkins, Ltd., a California-certified laboratory. The soil samples from soil bores B-1 through B-3 were analyzed for Extractable Petroleum Hydrocarbons using modified EPA Method 8015 and BTEX using EPA Method 8020. Soil samples from soil bores B-4 through B-15 were analyzed for Total Recoverable Petroleum Hydrocarbons (TRPH) using EPA Method 418.1 and PCBs using EPA Method 8080. In addition, the soil samples from soil bores B-4 through B-8 were analyzed for total lead using EPA Method 7420, and soluble lead using the Waste Extraction Test (WET) per California Code of Regulations, Title 26.

The results of the analyses are summarized in Tables I through IV, and copies of the laboratory analytical reports and chain-of-custody documentation are presented in Appendix I. Quality control and quality assurance data are also presented in the laboratory reports and indicate the accuracy of the analytical methods.

3.1.2 Data Interpretation

3.1.2.1 Discussion of Soil Sample Analytical Results

Extractable Petroleum Hydrocarbons and BTEX were not detected above the respective reporting limits in the soil samples collected from soil bores B-1 through B-3. The highest detectable concentration of TRPH was 22 mg/kg in the soil sample collected at 2 feet from soil bore B-14. The soil sample collected at 10 feet from soil bore B-4 initially contained a TRPH concentration of 300 mg/kg. However, the absence of TRPH in the remaining three soil samples from the same soil bore prompted Blymyer Engineers to suspect that the unusually high level of TRPH may be the result of natural organic material; therefore, the soil sample collected at 10 feet was reanalyzed for TRPH with extra silica gel used to extract any natural organic material present in the soil sample. The subsequent analysis revealed a much lower TRPH concentration of 11 mg/kg. TRPH was also not detected above the reporting limit in all of the soil bore samples collected at a depth of 15 feet bgs. All of the soil bore samples that were deeper than the samples collected at a depth of 2 to 3 feet bgs did not contain a TRPH concentration higher than 17 mg/kg.

The highest concentration of PCBs detected in the soil bore samples was 200 micrograms per kilogram (µg/kg) of Aroclor 1260 in the soil sample collected at 2 feet bgs from soil bore B-12. PCBs were not detected above the reporting limit in any of the soil bore samples collected deeper than 5 feet bgs. The concentrations of total and soluble lead detected in the soil samples collected from soil bores B-4 through B-8 were all below the Total Threshold Limit Concentration (TTLC) and Soluble Threshold Limit Concentration (STLC) for lead established by the California Department of Health Services.

3.1.2.2 Petroleum-Contaminated Soil Volume Calculation

Soil bores B-1 through B-3 were installed inside the building adjacent to the location of the former diesel UST on the northwest side of the subject property. The three soil bores were installed around the petroleum-contaminated soil layer that was directly underneath the building adjacent to the diesel UST and was encountered during the removal of petroleum-contaminated soil from the diesel UST excavation. Soil samples were obtained at depths of between 9.5 to 10.5 feet bgs in which the petroleum-contaminated soil layer was found in the diesel UST excavation.

The calculation of the amount of petroleum-contaminated soil underneath the building is based on the measured thickness of 4 inches for the petroleum-contaminated soil layer multiplied by the areal extent of petroleum contamination. The extent of the petroleum-contaminated layer is defined by soil bores B-1 through B-3, because of the absence of reportable concentrations of diesel range Extractable Petroleum Hydrocarbons in the soil samples collected from the soil bores. Blymyer Engineers has assumed a semi-circular shape for the areal extent of petroleum contamination, with the maximum radius being the distance from the edge of the building to soil bore B-2 (approximately 8 feet).

The amount of petroleum contamination left in the soil underneath the building is calculated as follows:

$$\text{Volume of soil} = \tfrac{1}{2} \times \pi \times r^2 \times t$$

where:

r = radius of semi-circle

t = thickness of petroleum-contaminated soil layer

Therefore:

Volume of soil	=	$\frac{1}{2}(\pi)(8 \text{ feet})^2(0.33 \text{ feet})$
	=	33.2 feet^3
	=	$33.2 \text{ feet}^3 \times 0.037 \text{ yard}^3/\text{feet}^3$
	=	**$\underline{1.2 \text{ yard}^3}$**

A diagram of the estimated areal extent of the petroleum-contaminated layer underneath the building on the northwest perimeter of the subject site is shown on Figure 2.

3.2 Soil Excavation

3.2.1 Data Collection

On August 20, 1991, Gregg Drilling & Testing, Inc. used a mobile hollow stem-auger drill rig to properly remove monitoring well MW-1. The well casing of monitoring well MW-1 was extracted, and the remaining borehole was sealed with a cement slurry. A copy of the approved well destruction permit application from Alameda County Flood Control and Water Conservation District is enclosed as Appendix J. On June 16 to 19, 1992, Foundation Constructors, Inc. installed hollow, steel pipe piles into the soil and bolted the piles to the foundation of the neighboring quonset hut. These tasks were accomplished to allow for the excavation of lead and PCB-contaminated soil adjacent to and underneath the neighboring quonset hut. The hollow pipe pile design was performed by a California-registered structural engineer and a copy of the design and the accompanying City of San Leandro Building Department permit approval are enclosed as Appendix K.

The excavation of soil was performed by Golden West Environmental Services, beginning on June 24, 1992, and completed on August 24, 1992. The excavated areas, Excavations A, B, and C, are shown on Figure 3. Verification soil samples were collected from the bottom and sidewalls of the excavations. Additional soil excavation was performed in areas that contained PCB concentrations above the method reporting limit or TRPH concentrations greater than 100 mg/kg. Soil samples were also collected from the newly-excavated areas to verify the complete removal of PCB-contaminated soil from the excavation. The final depth of Excavations A and B was approximately 11 feet bgs, while the final depth of Excavation C was approximately 5.5 feet bgs. No groundwater was encountered in either excavation during the soil removal work.

Approximately 250 cubic yards of PCB-contaminated soil were excavated and stockpiled at the site together with the approximately 100 cubic yards of soil that had been previously excavated

from the same locations. Heavy plastic sheeting was placed underneath and over the stockpiled soil. Disposal of the stockpiled soil is discussed in Section 4.0 of this report.

The three excavations were backfilled with Class II aggregate base rock and the remaining void spaces in the portions of the excavations underneath the quonset hut were filled with a concrete slurry. All excavations were resurfaced with concrete.

3.2.1.1 Soil Sample Collection

A total of 45 soil samples (VS2-1 through VS2-45), as shown on Figures 4 and 5, were collected from June 24 through August 24, 1992, after the removal of petroleum-, lead-, and PCB-contaminated soil from the excavations adjacent to the quonset hut (Excavations A and B) and from the excavation around the storm drain on the southern corner of the property (Excavation C). Soil samples VS2-1 through VS2-40 were collected in native soil from the bottom and sidewalls of Excavations A and B, while soil samples VS2-41 through VS2-45 were collected in native soil from the bottom and sidewalls of Excavation C.

Most of the soil samples were obtained using a backhoe. A rubber mallet was used to drive a clean, 2-inch-diameter brass sleeve into the soil in the backhoe bucket after the initial 6 inches of topsoil was scraped away. In areas where the excavation depth was less than 5 feet bgs, the soil samples were collected by using the rubber mallet to drive the brass sleeve directly into the desired sampling location. In areas where the excavation depth was greater than 5 feet bgs and the backhoe was not able to obtain soil from the desired sampling location, the soil samples were collected using a hand sampler attached to a sliding hammer with 5-foot extensions added to the hand sampler to enable the sampler to reach the desired sampling location. All soil sampling equipment was decontaminated with an aqueous solution of Alconox® followed by a deionized water rinse prior to sampling at each location.

Upon retrieval of the soil samples, the ends of the brass sleeve were covered with Teflon® tape and plastic end caps and then sealed with silicone tape. The soil samples were labeled, placed in a cooler with ice, and delivered to the analytical laboratory by courier with proper chain-of-custody documentation.

3.2.1.2 Soil Sample Analytical Methods and Results

All soil samples were analyzed by Curtis & Tompkins, Ltd. Soil samples collected from Excavation A and B were analyzed for TRPH and PCBs. Soil samples collected from Excavation A were additionally analyzed for the total and soluble concentration of lead. Soil samples from Excavation C were analyzed for Extractable Petroleum Hydrocarbons.

The soil sample analytical results from all three excavations are summarized in Tables V through VII. Copies of the laboratory reports, chain-of-custody documentation, and quality assurance data for the soil samples collected from Excavations A through C are included as Appendix L.

3.2.2 Data Interpretation

3.2.2.1 Discussion of Soil Sample Analytical Results

PCBs and TRPH were detected in varying concentrations in Excavations A and B, with the highest concentration of 1,550 µg/kg of Aroclor 1260 found in soil sample VS2-12-7' collected from Excavation A and 1,900,000 µg/kg of Aroclor 1260 found in soil sample VS2-5-6' collected from Excavation B. Additional excavation of soil was performed in the areas from which soil samples that contained detectable levels of PCBs and TRPH concentrations above 100 mg/kg were collected. Soil samples were again collected from the same areas upon completion of additional soil excavation to determine whether the cleanup goals for PCBs and TRPH had been

achieved. If not, the same process was repeated until the cleanup goals for PCBs and TRPH were achieved.

The initial soil samples collected from Excavations A and B that contained detectable concentrations of PCBs contained moderately low TRPH concentrations. Thus, TRPH was not analyzed in any of the subsequent soil samples collected from Excavations A and B until the soil samples did not contain detectable concentrations of PCBs.

Total and soluble lead concentrations in the soil samples collected from Excavation A were all below the TTLC and STLC values established by the California Department of Health Services. The total and soluble lead concentrations found in the initial soil samples collected from Excavation A, VS2-11-7' and VS2-12-7', were already less than the TTLC and STLC levels, therefore for economic considerations, total and soluble lead were not analyzed in any of the subsequent soil samples collected from Excavation A until the soil samples did not contain detectable concentrations of PCBs.

Extractable Petroleum Hydrocarbons were not detected above the method reporting limit in any of the soil samples collected from Excavation C, which indicated that the areal extent of petroleum contamination around the storm drain was very limited.

4.0 Disposal of Stockpiled Soil

Approximately 250 to 300 cubic yards of PCB-contaminated soil were excavated and stockpiled at the site with heavy plastic placed underneath and over the stockpiled soil. The excavations were backfilled with Class II aggregate base rock and resurfaced with concrete.

Three soil samples were collected from approximately 50 cubic yards of stockpiled soil and another two soil samples were collected from the remaining 50 cubic yards of stockpiled soil after the completion of excavation work in September 1991. The first three soil samples were composited by the laboratory into one composite soil sample, while the remaining two soil samples were composited by the laboratory into another composite soil sample. The two composite soil samples were analyzed for Extractable Petroleum Hydrocarbons, Volatile Organics (VOCs) using EPA Method 8240, PCBs, reactivity using releasable cyanide and releasable sulfide in SW846 Chapter 7, corrosivity using EPA Method 9045, ignitability using CCR, Title 26, Sec 20-66702 (a)(2), aquatic toxicity using the fish bio-assay, and toxicity using the Toxicity Characteristic Leaching Procedure (TCLP) for the 8 RCRA Metals.

Four soil samples were collected from approximately every 50 cubic yards of stockpiled soil generated during the excavation of soil from June 24 through August 24, 1992. The four soil samples from each 50 cubic yards of stockpiled soil were composited in the laboratory and analyzed for Extractable Petroleum Hydrocarbons, VOCs, PCBs, the soluble concentration of the Title 26 List of Metals using the WET Procedure, reactivity using releasable cyanide and releasable sulfide, corrosivity, ignitability, aquatic toxicity using the fish bio-assay, and toxicity using the TCLP for the 8 RCRA Metals. A copy of the laboratory analytical results for the stockpiled soil are included as Appendix M.

The stockpiled soil sample analytical results revealed that the stockpiled soil generated on September 1991 and June through August 1992 was non-hazardous according to 40CFR Part 261, Subpart C, and CCR Title 26 §22-66699. All stockpiled soil was loaded into containers that were placed on railroad cars and transported for disposal at the East Carbon Development Corporation

(ECDC) Landfill in East Carbon City, Utah. Copies of the disposal documentation are included as Appendix N and a copy of a brochure describing the ECDC Landfill is included as Appendix O. The entire site was swept after the removal of the stockpiled soil, and the soil sweepings were drummed, profiled, and disposed of at the Chemical Waste Management, Inc., Kettleman Hills Facility in Kettleman City, California. Copies of the laboratory analytical results, the accompanying Uniform Hazardous Waste Manifests, and the certificates of disposal for the drummed soil are included as Appendices P through R.

5.0 Installation of Two Additional Monitoring Wells

5.1 Data Collection

5.1.1 Soil Investigation

5.1.1.1 Soil Sample Collection

Gregg Drilling & Testing, Inc., under the supervision of Blymyer Engineers, installed two soil bores (MW-1A and MW-4 on Figure 6) to an approximate maximum depth of 30 feet each using a SIMCO mobile hollow-stem auger drill rig on September 17 and 18, 1991. A copy of the approved well installation permit application from the Alameda County Flood Control and Water Conservation District is enclosed as Appendix S. One soil bore, MW-1A, was placed approximately 10 feet southwest of Excavation B, while the other soil bore, MW-4, was placed inside the adjacent building approximately 10 feet south of the former location of the diesel UST. These soil bores were later converted into 2-inch-diameter groundwater monitoring wells to monitor the groundwater and determine if it has been impacted by the petroleum or PCB contamination in the soil that was removed from the excavations at the site.

Soil samples were collected at approximately 5-foot intervals below grade surface in each soil bore. The augers were advanced to the desired sampling depth and a California split-spoon sampler, lined with three clean 6-inch-long brass liners, was driven 18 inches ahead of the augers. The sampler was retrieved and the brass liners removed. The desired sample was sealed in its brass liner with Teflon® tape, plastic end caps, and silicone tape. The samples were then labeled and placed on ice for transportation to the analytical laboratory under proper chain-of-custody procedures. The soils were logged using the Unified Soil Classification System and were field-screened for organic vapors using a photoionization detector (PID). The bore logs are presented as Appendix T.

All augers were cleaned with a high-pressure, hot water washer prior to the installation of and between the soil bores. The split-spoon sampler was decontaminated between sample intervals with a trisodium phosphate (TSP) wash and clean water rinse.

Drill cuttings were stored on-site in labeled, closed-top, DOT-approved, 55-gallon drums for later disposal by the client.

5.1.1.2 Soil Sample Analytical Methods and Results

The soil samples were sent to Curtis & Tompkins, Ltd., a California-certified laboratory, and were analyzed for Extractable Petroleum Hydrocarbons, BTEX, and PCBs. The soil sample analytical results are summarized in Table VIII and a copy of the laboratory analytical report is included as Appendix U.

5.1.2 Groundwater Investigation

5.1.2.1 Monitoring Well Installation

The 4.5-inch-diameter soil bores were converted to 2-inch-diameter monitoring wells at the locations indicated in Figure 6. Monitoring well MW-4 was located within 10 feet of the former diesel UST excavation, and monitoring well MW-1A was located within 10 feet of Excavation B. Both wells were located downgradient of the aforementioned excavations based on the calculated groundwater flow direction (south-southwest) on July 15, 1991. The well construction details are found as Appendix V.

The wells were constructed of schedule 40 PVC casing in threaded, 10-foot-long sections. The casing was factory slotted with 0.010-inch slots from the bottom of the soil bore to approximately

1 foot above the water table. The remainder of the casing was blank. A threaded cap or a slip cap with machine screws was attached to the bottom of the casing.

The annulus between the borehole wall and the casing was backfilled with #2-12 silica sand from the bottom of the borehole to at least 1 foot above the screened interval. One foot of bentonite pellets was placed in the annulus and then hydrated to form a seal. The remainder of the annulus was backfilled to approximately 1 foot below grade with a neat cement slurry. The top of the casing was secured with a locking well cap, and a flush-mounted traffic box was concreted in place over each well.

Each well was developed by surging and pumping approximately 6 to 10 well casing volumes of water. Development water was stored on-site in labeled, closed-top, DOT-approved, 55-gallon drums for later disposal by the client.

5.1.2.2 Groundwater Sample Collection

Groundwater samples MW-2 through MW-5 were collected from wells MW-1A, MW-2, MW-3, and MW-4, on October 9, 1992. Groundwater sample MW-5 was collected from well MW-1A, while the other groundwater samples were collected from the wells corresponding to their labels. At least three well volumes were removed prior to sampling using a decontaminated PVC hand pump. Water temperature, pH, and conductivity were measured prior to and after the removal of each well volume. The well was sampled using a Teflon® bailer only after these measurements were within 15% of each other for three consecutive well volumes. The groundwater samples were placed in appropriate containers provided by the laboratory, labeled, and placed on ice for transportation to the analytical laboratory with proper chain-of-custody procedures being observed. The well purging and sampling data are found in Appendix W.

5.1.2.3 Groundwater Sample Analytical Methods and Results

The groundwater samples were delivered by courier to Curtis & Tompkins, Ltd. and analyzed for Extractable Petroleum Hydrocarbons, BTEX, and PCBs. The groundwater sample analytical results are summarized in Table IX and a copy of the laboratory analytical report is included as Appendix X. Quality control and quality assurance data are also presented in the laboratory report.

5.1.2.4 Groundwater Elevation Survey

The water levels in all of the wells at the site were measured from the top of the casing (TOC). The TOC elevation for each well was surveyed with a rod and level to a City of San Leandro benchmark located at the corner of Marina Boulevard and Orchard Avenue. The results of the groundwater elevation survey are found in Table X. The water surface elevation was calculated by subtracting the depth to water from the surveyed TOC elevation, allowing the determination of the local groundwater flow direction on October 9, 1992, which is depicted in Figure 7.

5.2 Data Interpretation

5.2.1 Site Geology

The soils at the subject site are considered to be alluvial deposits of Quaternary age. Soils underlying the site, based on bore logs generated by Blymyer Engineers, consist of an upper topsoil layer of black silty clay (MH-CH) which is underlain by brown sandy clays (CL), silty sand (SM) and clayey sand (SC). The topsoil layer ranged in thickness from 1.5 to 3.5 feet and the sandy clay varied in thickness from 3 to 6.5 feet. Silty sand and clayey sand layers underlying the sandy clay were on the order of 1 to 2 feet thick. A gravelly, silty, clayey sand layer bearing water was encountered at a depth of approximately 19 to 20 feet bgs.

The sandy and gravelly layers located above 20 feet bgs were dry on the date the soil bores were drilled. It appears, based on measurements recorded on the date the soil bores were drilled, that groundwater at the site is confined by the overlying clay layers to the gravelly, silty clayey sand layer at an average depth of approximately 20 feet bgs. Characteristics of the site geology are detailed on Geologic Section A - A' (Figure 8).

5.2.2 Discussion of Soil Sample Analytical Results

Extractable Petroleum Hydrocarbons were not detected above the reporting limit in any of the soil samples collected from soil bores MW-1A and MW-4, except in soil samples MW-1A-3 and MW-4-1, where Extractable Petroleum Hydrocarbons in the diesel range were detected at the reporting limit. BTEX and PCBs were not detected above the respective reporting limits in any of the soil samples. These laboratory analytical results confirm that the petroleum and PCB contamination in the soil that was in the northeast area of the subject site and underneath the building adjacent to the location of former diesel UST was confined to the areas mentioned earlier in the report.

5.2.3 Discussion of Groundwater Sample Analytical Results

Extractable Petroleum Hydrocarbons, BTEX, and PCBs were not detected above the respective reporting limits in any of the groundwater samples. These laboratory analytical results indicate that soil contamination found at the site has not impacted the underlying groundwater.

5.2.4 Groundwater Gradient and Flow Direction

Figure 7 illustrates the calculated direction of groundwater flow based on data collected on October 9, 1992. The calculated westerly flow was based on water elevation data from

monitoring wells MW-2 through MW-4, while the calculated southeasterly flow was based on water elevation data from monitoring wells MW-1A, MW-2, and MW-4. This information indicates that monitoring well MW-1A is downgradient of Excavations A and B, while monitoring wells MW-3 and MW-4 are located downgradient of the diesel UST excavation based on the calculated groundwater flow directions for July 1991, as shown on Figure 9, and October 1992.

6.0 Summary and Conclusions

- Three soil bores, B-1 through B-3, defined the areal extent of petroleum-contamination underneath the building on the northwest area of the property resulting from the diesel UST. The volume of petroleum-contaminated soil underneath the building was calculated to be no greater than 1.2 cubic yards of soil.

- Twelve soil bores, B-4 through B-15, were installed in two areas alongside and inside the adjacent quonset on the northeast area of the subject site to assess the horizontal and vertical extent of petroleum-, lead-, and PCB-contaminated soil. Excavation of petroleum-, lead-, and PCB-contaminated soil from the areas adjacent to the quonset hut was performed and removal was confirmed by soil samples collected from the sidewalls and bottoms of the excavations.

- Excavation of petroleum-contaminated soil adjacent to the storm drain on the south corner of the property was performed, and soil samples collected from the sidewalls and bottom of the excavation verified that petroleum contamination in the soil was limited to the immediate vicinity of the storm drain.

- Two groundwater monitoring wells, MW-1A and MW-4, were installed and sampled together with the two existing monitoring wells at the subject site. The groundwater samples revealed that the underlying groundwater had not been impacted by the petroleum and PCB contamination in the soil.

7.0 Recommendations

- Blymyer Engineers recommends that a copy of this report be submitted to:

  Mr. Robert Weston
  Alameda County Health Care Services Agency
  Department of Environmental Health
  Hazardous Materials Program
  80 Swan Way, Room 200
  Oakland, California 94621

  Mr. Eddy So
  Regional Water Quality Control Board
  2101 Webster Street, 5th Floor
  Oakland, California 94612

- The analytical results from the verification soil samples from the excavations indicate that all PCB-contaminated soil has been removed from the areas adjacent to the quonset hut. Furthermore, the analytical results from the groundwater samples collected from the four monitoring wells indicate that the underlying groundwater has not been affected by the petroleum and PCB contamination in the overlying soil.

  Therefore, Blymyer Engineers recommends that the four groundwater monitoring wells at the site be monitored for a period of four quarters and the groundwater samples collected from the monitoring wells be analyzed for Extractable Petroleum Hydrocarbons, BTEX, and PCBs. A request for site closure will be sent to the ACHCSA and RWQCB if Extractable Petroleum Hydrocarbons, BTEX, and PCBs are not detected above the respective reporting limits in the groundwater for four consecutive quarters.

8.0 References

Alameda County Flood Control and Water Conservation District, 1988, *Geohydrology and Groundwater Quality Overview, East Bay Plain Area, Alameda County, California*, Report 205(J) and Appendix.

California Department of Water Resources, 1967, *Evaluation of Ground Water Resources, South Bay*, Appendix A: Geology, Bulletin No. 118-01.

Radbruch, Dorothy H., 1957, *Areal and Engineering Geology of the Oakland West Quadrangle, California*, U. S. Geological Survey Miscellaneous Geologic Investigations Map, I-239.

Radbruch, Dorothy H. and J. E. Case, 1967, *Preliminary Geologic Map and Engineering Geology Information, Oakland and Vicinity, California*, U. S. Geological Survey Open File Report, O. F. R. 67-183.

United States Department of Agriculture, 1980, *Soil Survey of Alameda County, California*, U. S. Soil Conservation Service.

Tables

TABLE 1: Summary of Soil Bore Sample Analytical Results
(Northwest Area)
Diesel ReCon Company
2100 Orchard Avenue, San Leandro, California
BEI Job No. 91106

Sample Identification	Sampling Date	Modified EPA Method 8015 (mg/kg)	EPA Method 8020 (µg/kg)			
		TPH as diesel	Benzene	Ethylbenzene	Toluene	Total Xylenes
B-1 10.0-10.5	1/9/92	<1.0	<5.0	<5.0	<5.0	<5.0
B-2 9.5-10.0	1/9/92	<1.0	<5.0	<5.0	<5.0	<5.0
B-3 9.5-10.0	1/9/92	<1.0	<5.0	<5.0	<5.0	<5.0

TPH = Total Petroleum Hydrocarbons
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram

For results presented as <x, x represents the reporting limit.

TABLE II: Summary of Soil Bore Sample Analytical Results
(Northeast Area, B-4 through B-9, PCBs and TRPH)
Diesel ReCon Company
2100 Orchard Avenue, San Leandro, California
BEI Job No. 91106

Sample Identification	Sampling Date	EPA Method 418.1	EPA Method 8080
		Total Recoverable Petroleum Hydrocarbons (mg/kg)	Polychlorinated Biphenyls (µg/kg)
B-4 2.5-3.0	1/9/92	<10	ND
B-4 4.5-5.0	1/9/92	<10	ND
B-4 9.5-10.0	1/9/92	11*	ND
B-4 14.5-15.0	1/9/92	<10	ND
B-5 2.5-3.0	1/9/92	19	ND
B-5 4.5-5.0	1/9/92	<10	ND
B-5 9.5-10.0	1/9/92	<10	ND
B-5 14.5-15.0	1/9/92	<10	ND
B-6 1.5-2.0	1/17/92	<10	ND
B-6 4.5-5.0	1/17/92	<10	ND
B-6 9.0-10.0	1/17/92	11	ND
B-6 14.5-15.0	1/17/92	<10	ND
B-7 2.0-2.5	1/17/92	20	ND
B-7 4.5-5.0	1/17/92	<10	ND
B-7 9.5-10.0	1/17/92	<10	ND
B-7 14.5-15.0	1/17/92	<10	ND
B-8 2.0-2.5	1/16/92	17	ND
B-8 4.5-5.0	1/16/92	12	ND
B-8 9.5-10.0	1/16/92	<10	ND
B-8 14.5-15.0	1/16/92	<10	ND
B-9 1.0-1.5	1/16/92	<10	ND
B-9 4.5-5.0	1/16/92	<10	ND
B-9 9.5-10.0	1/16/92	<10	ND
B-9 14.5-15.0	1/16/92	<10	ND

mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
ND = None detected above the reporting limit
* = Final analytical result

For results listed as <x, x represents the reporting limit.

TABLE III: Summary of Soil Bore Sample Analytical Results
(Northeast Area, B-10 through B-15, PCBs and TRPH)
Diesel ReCon Company
2100 Orchard Avenue, San Leandro, California
BEI Job No. 91106

Sample Identification	Sampling Date	EPA Method 418.1	EPA Method 8080
		Total Recoverable Petroleum Hydrocarbons (mg/kg)	Polychlorinated Biphenyls (µg/kg)
B-10 1.5-2.0	1/16/92	<10	ND
B-10 4.5-5.0	1/16/92	11	Aroclor 1260 (23)
B-10 9.5-10.0	1/16/92	<10	ND
B-10 14.5-15.0	1/16/92	<10	ND
B-11 4.5-5.0	1/16/92	<10	ND
B-11 9.5-10.0	1/16/92	<10	ND
B-11 14.5-15.0	1/16/92	<10	ND
B-12 2.0-2.5	1/9/92	11	Aroclor 1260 (200)
B-12 4.5-5.0	1/9/92	<10	Aroclor 1260 (22)
B-12 9.5-10.0	1/9/92	<10	ND
B-12 14.5-15.0	1/9/92	<10	ND
B-13 2.0-2.5	1/9/92	11	Aroclor 1260 (55)
B-13 4.5-5.0	1/9/92	14	Aroclor 1260 (58)
B-13 9.5-10.0	1/9/92	<10	ND
B-13 14.5-15.0	1/9/92	<10	ND
B-14 2.0-2.5	1/9/92	22	Aroclor 1260 (33)
B-14 4.5-5.0	1/9/92	<10	ND
B-14 9.5-10.0	1/9/92	<10	ND
B-14 14.5-15.0	1/9/92	<10	ND
B-15 1.5-2.0	1/10/92	<10	ND
B-15 4.5-5.0	1/10/92	17	Aroclor 1260 (130)
B-15 9.5-10.0	1/10/92	14	ND
B-15 14.5-15.0	1/10/92	<10	ND

mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
ND = None detected above the reporting limit

Value listed within the parenthesis is the concentration of the listed PCB.
For results listed as <x, x represents the reporting limit.

TABLE IV: Summary of Soil Bore Sample Analytical Results
(Northeast Area, B-4 through B-8, Total and Soluble Lead)
Diesel ReCon Company
2100 Orchard Avenue, San Leandro, California
BEI Job No. 91106

Sample Identification	Sampling Date	EPA Method 7420	
		Total Lead (mg/kg)	Soluble Lead (µg/L)
B-4 2.5-3.0	1/9/92	3.9	<60
B-4 4.5-5.0	1/9/92	<3.0	<60
B-4 9.5-10.0	1/9/92	<3.0	70
B-4 14.5-15.0	1/9/92	<3.0	190
B-5 2.5-3.0	1/9/92	46	1,200
B-5 4.5-5.0	1/9/92	7.0	90
B-5 9.5-10.0	1/9/92	<3.0	60
B-5 14.5-15.0	1/9/92	<3.0	60
B-6 1.5-2.0	1/17/92	20	460
B-6 4.5-5.0	1/17/92	3.5	<60
B-6 9.0-10.0	1/17/92	<3.0	<60
B-6 14.5-15.0	1/17/92	3.4	<60
B-7 2.0-2.5	1/17/92	12	200
B-7 4.5-5.0	1/17/92	3.9	<60
B-7 9.5-10.0	1/17/92	2.9	<60
B-7 14.5-15.0	1/17/92	<10	<60
B-8 2.0-2.5	1/16/92	13	460
B-8 4.5-5.0	1/16/92	4.4	<60
B-8 9.5-10.0	1/16/92	3.0	<60
B-8 14.5-15.0	1/16/92	<3.0	<60

mg/kg = milligrams per kilogram
µg/L = micrograms per liter

For results listed as <x, x represents the reporting limit.

TABLE V: Summary of Soil Sample Analytical Results From Excavations A & B
Diesel Recon Company
2100 Orchard Avenue, San Leandro, CA
BEI Job No. 91106

Sample Identification	Sampling Date	EPA Method 8080	EPA Method 418.1	EPA Method 7420	
		PCBs (µg/kg)	TRPH (mg/kg)	Total Lead (mg/kg)	Soluble Lead (µg/L)
VS2-1-3.5'	6/24/92	<20	<10		
VS2-2-4'	6/24/92	Aroclor 1260 (26)	<10		
VS2-3-4'	6/24/92	<20	<10		
VS2-4-4'	6/24/92	Aroclor 1260 (570)	<10		
VS2-5-6'	6/24/92	Aroclor 1260 (1,900,000)	<10		
VS2-6-6'	6/24/92	Aroclor 1260 (320,000)	82		
VS2-7-4'	6/25/92	<20	<10		
VS2-8-4'	6/25/92	Aroclor 1260 (52)	180		
VS2-9-6'	6/25/92	Aroclor 1260 (25)	<10		
VS2-10-4'	6/25/92	<20	<10		
VS2-11-7'	6/25/92	<20	<10	3.0	100
VS2-12-7'	6/25/92	Aroclor 1260 (1,550)	410	7.0	230
VS2-13-7'	6/30/92	Aroclor 1260 (60)			
VS2-14-11'	6/30/92	<20	<10	5.0	<200
VS2-15-7.5'	6/30/92	<20	<10	3.9	<200
VS2-16-7'	6/30/92	Aroclor 1260 (330)			
VS2-17-7'	6/30/92	<20	<10	4.4	<200
VS2-18-6'	6/30/92	<20	<10		
VS2-19-6'	6/30/92	<20	<10		
VS2-20-5'	6/30/92	Aroclor 1260 (430)			

PCBs = Polychlorinated Biphenyls
TRPH = Total Recoverable Petroleum Hydrocarbons
µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram

Value listed within the parenthesis is the concentration of the listed PCB.
Sample Identification listed in boldface indicates a final verification sample.
Shaded cells indicate that the sample was not analyzed for the listed method.
For values listed as <x, x represents the reporting limit.

TABLE VI: Summary of Soil Sample Analytical Results From Excavations A & B (continued)
Diesel Recon Company
2100 Orchard Avenue, San Leandro, CA
BEI Job No. 91106

Sample Identification	Sampling Date	EPA Method 8080	EPA Method 418.1	EPA Method 7420/7421	
		PCBs (µg/kg)	TRPH (mg/kg)	Total Lead (mg/kg)	Soluble Lead (µg/L)
VS2-21-7'	6/30/92	<20	<10		
VS2-22-10'	6/30/92	Aroclor 1260 (110)	<10		
VS2-23-10'	6/30/92	<20	<10		
VS2-24-9'	7/7/92	<20	<10		
VS2-25-8'	7/7/92	Aroclor 1260 (570)			
VS2-26-9'	7/7/92	Aroclor 1260 (180)			
VS2-27-7.5'	7/7/92	Aroclor 1260 (120)			
VS2-28-8'	7/7/92	Aroclor 1260 (55)			
VS2-29-8'	7/7/92	Aroclor 1260 (54)			
VS2-30-7.5'	7/13/92	Aroclor 1260 (440)			
VS2-31-11'	7/13/92	<20	<10		
VS2-32-9'	7/13/92	<20	<10		
VS2-33-7'	7/15/92	<20	<10		
VS2-34-7'	7/15/92	<20	<10		
VS2-35-9.5'	7/15/92	<20	<10		
VS2-36-10.5'	7/15/92	<20	<10		
VS2-37-8'	7/15/92	Aroclor 1260 (50)			
VS2-38-8'	7/15/92	<20	<10	3.9	<200
VS2-39-8'	7/21/92	<20	<10	<3.0	70
VS2-40-7.5'	7/21/92	<20	<10		

PCBs = Polychlorinated Biphenyls
TRPH = Total Recoverable Petroleum Hydrocarbons
µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram

Value listed within the parenthesis is the concentration of the listed PCB.
Sample Identification listed in boldface indicates a final verification sample.
Shaded cells indicate that the sample was not analyzed for the listed method.
For values listed as <x, x represents the reporting limit.

TABLE VII: Summary of Soil Sample Analytical Results From Excavation C
Diesel Recon Company
2100 Orchard Avenue, San Leandro, CA
BEI Job No. 91106

Sample Identification	Sampling Date	Modified EPA Method 8015
		Extractable Petroleum Hydrocarbons in the Diesel Range (mg/kg)
VS2-41-5.5'	8/17/92	<1
VS2-42-4'	8/24/92	<1
VS2-43-4'	8/24/92	<1
VS2-44-4'	8/24/92	<1
VS2-45-4'	8/24/92	<1

mg/kg = milligrams per kilogram

For values listed as <x, x represents the reporting limit.

TABLE VIII: Summary Of Well Installation Soil Sample Analytical Results
Diesel ReCon Company
2100 Orchard Avenue, San Leandro, California
BEI Job No. 91106

Sample Identification	Sampling Date	Modified EPA Method 8015 (mg/kg)	EPA Method 8080 (µg/kg)	EPA Method 8020 (µg/kg)			
		TPH as diesel	PCBs	Benzene	Ethylbenzene	Toluene	Total Xylenes
MW-1A-1 5.0-5.5'	9/18/92	<1	ND	<5	<5	<5	<5
MW-1A-2 9.5-10.0'	9/18/92	<1	ND	<5	<5	<5	<5
MW-1A-3 14.5-15.0'	9/18/92	1	ND	<5	<5	<5	<5
MW-1A-4 20.0-20.5'	9/18/92	<1	ND	<5	<5	<5	<5
MW-4-1 5.0-5.5'	9/17/92	1	ND	<5	<5	<5	<5
MW-4-2 9.5-10.0'	9/17/92	<1	ND	<5	<5	<5	<5
MW-4-3 14.5-15.0'	9/17/92	<1	ND	<5	<5	<5	<5
MW-4-4 19.0-19.5'	9/17/92	<1	ND	<5	<5	<5	<5

TPH = Total Petroleum Hydrocarbons
mg/kg = milligrams per kilogram
PCBs = Polychlorinated Biphenyls
µg/kg = micrograms per kilogram
ND = not detected above the respective reporting limits

For results presented as <x, x represents the reporting limit.

TABLE IX, Summary Of Groundwater Sample Analytical Results
Diesel ReCon Company
2100 Orchard Avenue, San Leandro, California
BEI Job No. 91106

Location	Sampling Date	Modified EPA Method 8015 (µg/L)	EPA Method 8080 (µg/L)	EPA Method 602 (µg/L)			
		TPH as diesel	PCBs	Benzene	Toluene	Ethylbenzene	Total Xylenes
MW-1	7/15/91	<50		<0.5	<0.5	<0.5	<0.5
MW-1A	10/9/92	<50	ND	<0.5	<0.5	<0.5	<0.5
MW-2	7/15/91	<50		<0.5	<0.5	<0.5	<0.5
	10/9/92	<50	ND	<0.5	<0.5	<0.5	<0.5
MW-3	7/15/91	<50		<0.5	<0.5	<0.5	<0.5
	10/9/92	<50	ND	<0.5	<0.5	<0.5	<0.5
MW-4	10/9/92	<50	ND	<0.5	<0.5	<0.5	<0.5

µg/L = micrograms per liter
TPH = Total Petroleum Hydrocarbons
PCBs = Polychlorinated Biphenyls
ND = None detected above the reporting limit

MW-1A results are listed as MW-5 in the laboratory analytical results.
Shaded areas indicate that samples were not analyzed for the listed method.
For results presented as <x, x represents the reporting limit.

TABLE X, Groundwater Elevation Survey Results
Diesel ReCon Company
2300 Orchard Avenue, San Leandro, California
BEI Job No. 91106

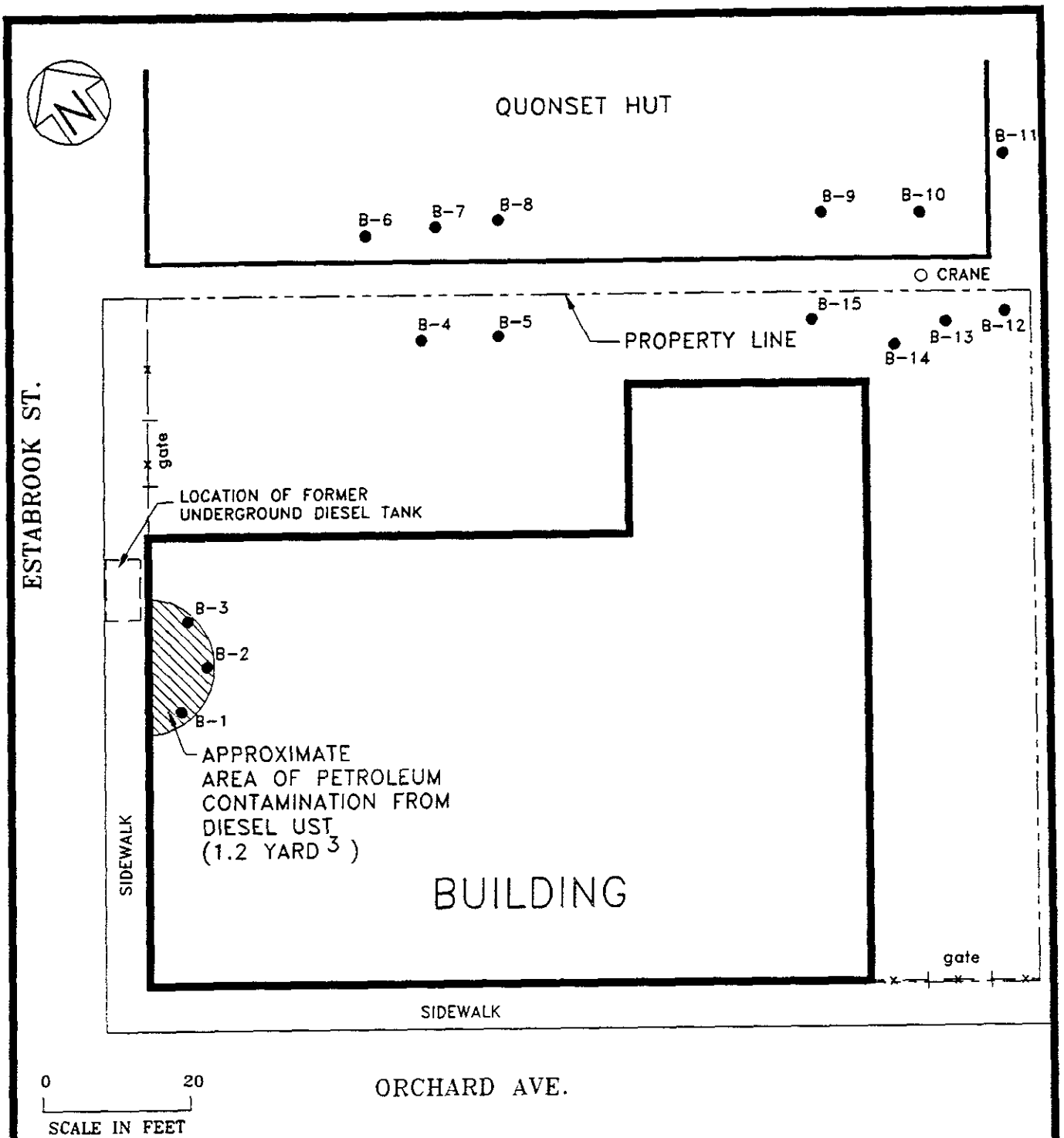
Well Identification	Date	TOC Elevation (feet)*	Depth to Water (feet from TOC)	Groundwater Surface Elevation (feet)*
MW-1	7/15/91	35.60	17.50	18.10
MW-1A	10/9/92	35.38	17.77	17.61
MW-2	7/15/91	35.99	17.88	18.11
	10/9/92		18.26	17.73
MW-3	7/15/91	35.29	17.23	18.06
	10/9/92		17.60	17.69
MW-4	10/9/92	35.49	17.78	17.71

TOC = Top of Well Casing * = Based on City of San Leandro Datum

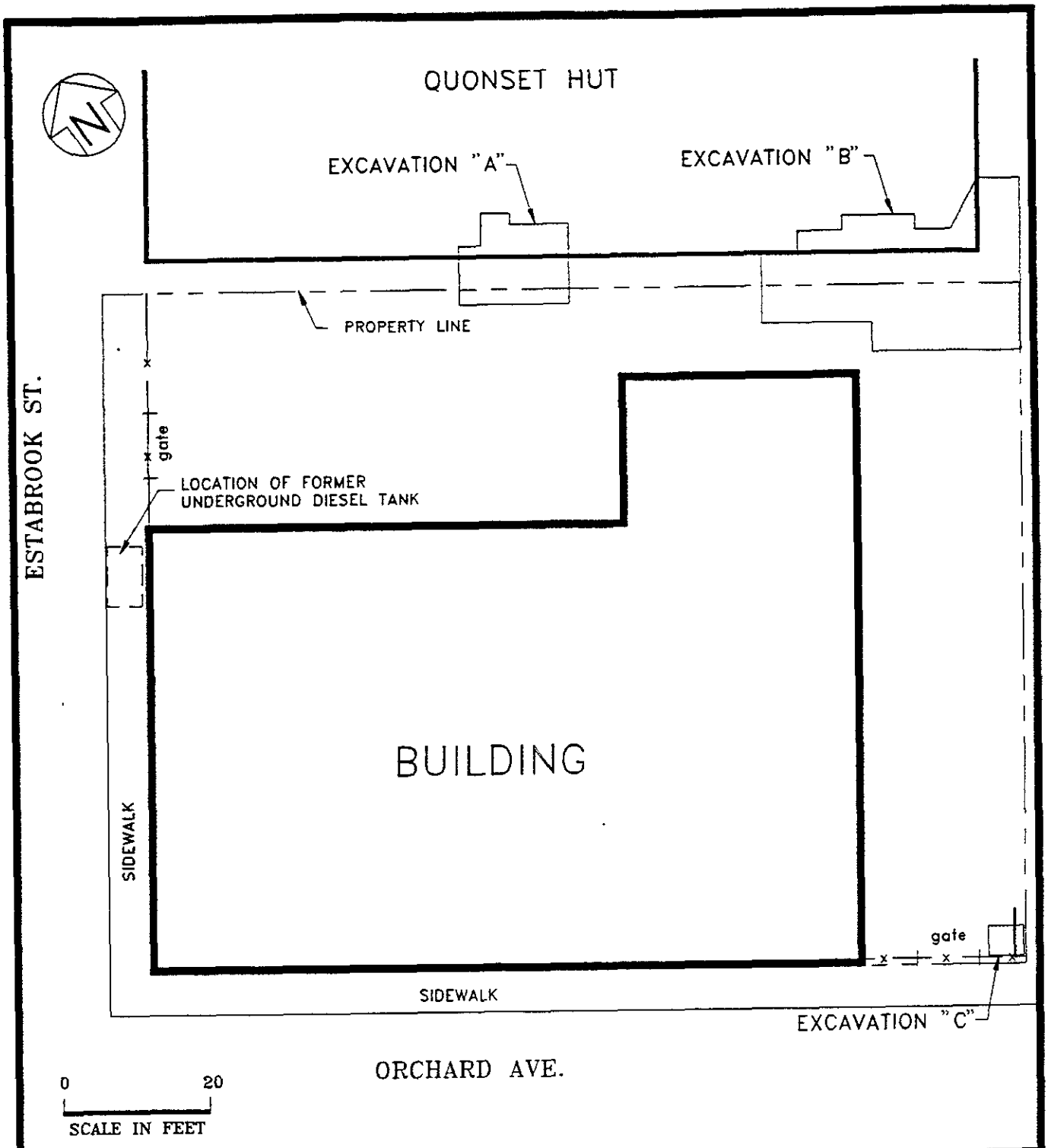
Figures

SOURCE: UNITED STATES GEOGRAPHICAL SURVEY 7.5' QUAD. 'SAN LEANDRO, CA' PHOTOREVISED 1980.

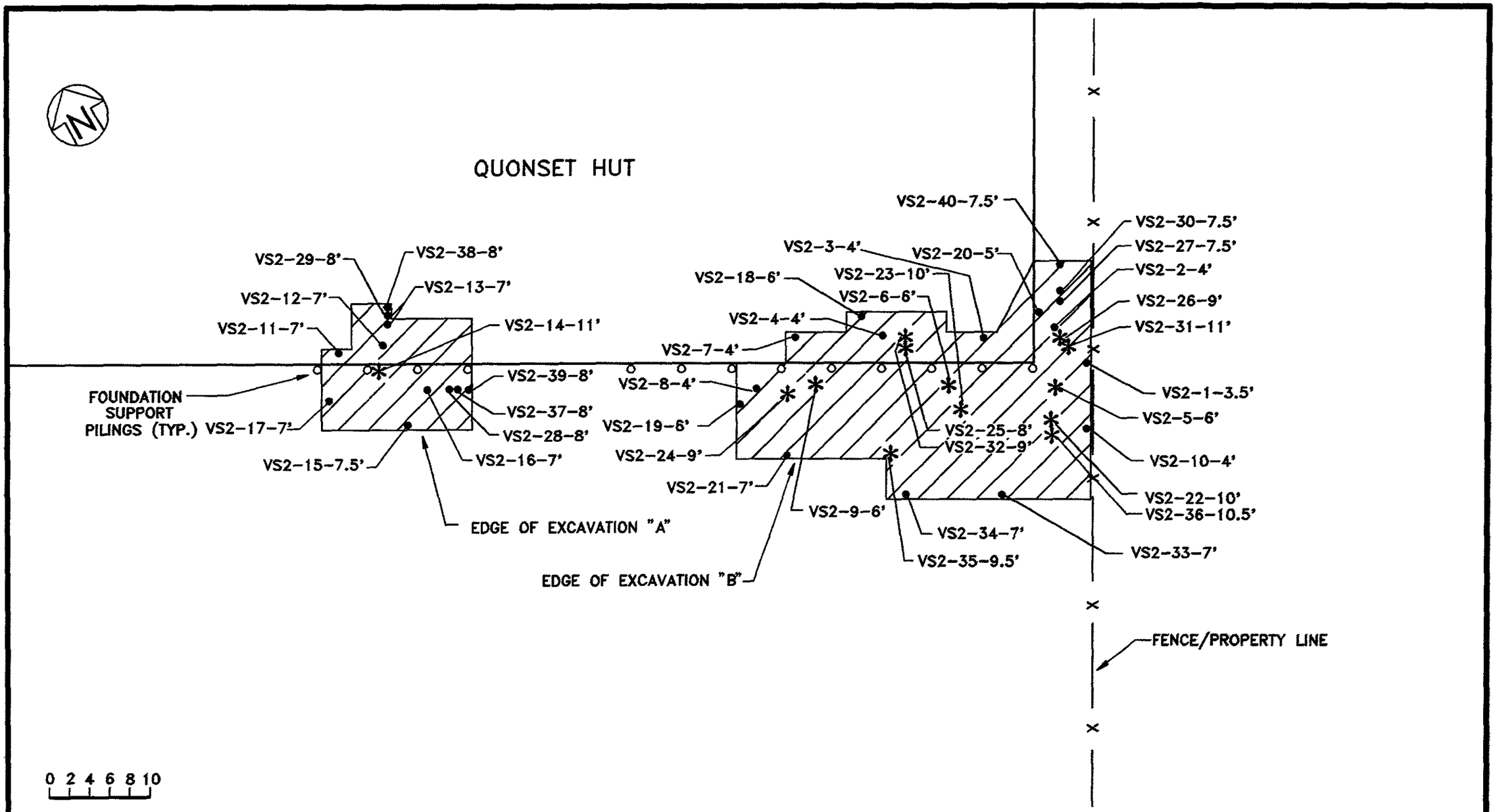
BLYMYER ENGINEERS, INC.	0 1000 2000 SCALE IN FEET	SITE LOCATION MAP DIESEL RECON CO. 2100 ORCHARD AVE. SAN LEANDRO, CA	FIGURE 1
BEI JOB NO. 91106 / DATE 1/93			



BLYMYER ENGINEERS, INC.	LEGEND ● SOIL BORE LOCATIONS	PROJECT DIESEL RECON CO. SAN LEANDRO, CA SOIL BORE LOCATIONS	FIGURE 2
BEI JOB NO. 91106	DATE 2/23/93		

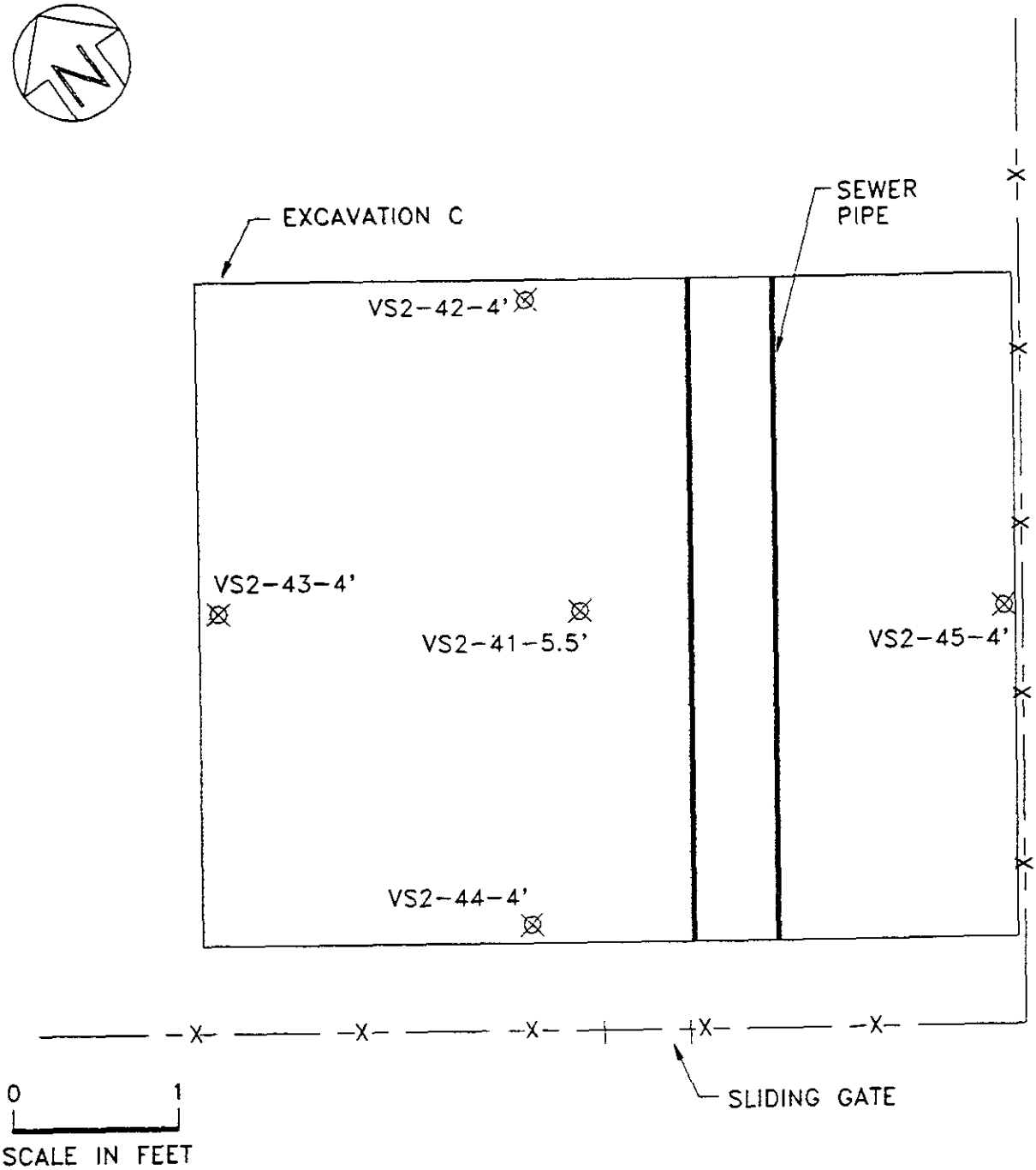


BLYMYER ENGINEERS, INC. (BEI)	LEGEND ⊕ MONITORING WELL	PROJECT DIESEL RECON. SAN LEANDRO, CA SITE PLAN & EXCAVATION LOCATIONS	FIGURE 3
BEI JOB NO. 91106 / DATE 2/23/93			

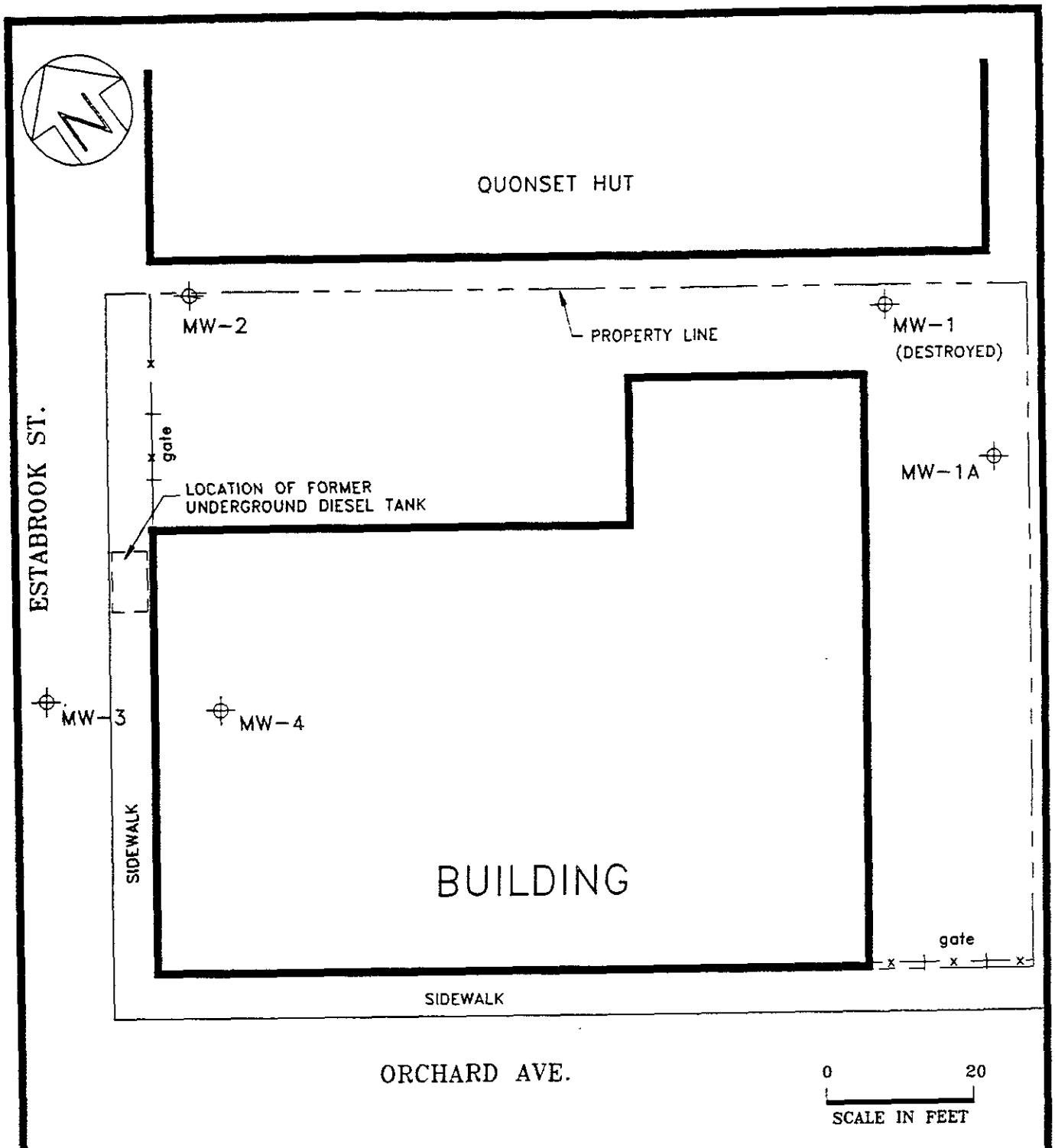


NOTE: SAMPLES IN GREEN ARE FINAL VERIFICATION SOIL SAMPLES
SAMPLES IN RED ARE INTERIM VERIFICATION SOIL SAMPLES.

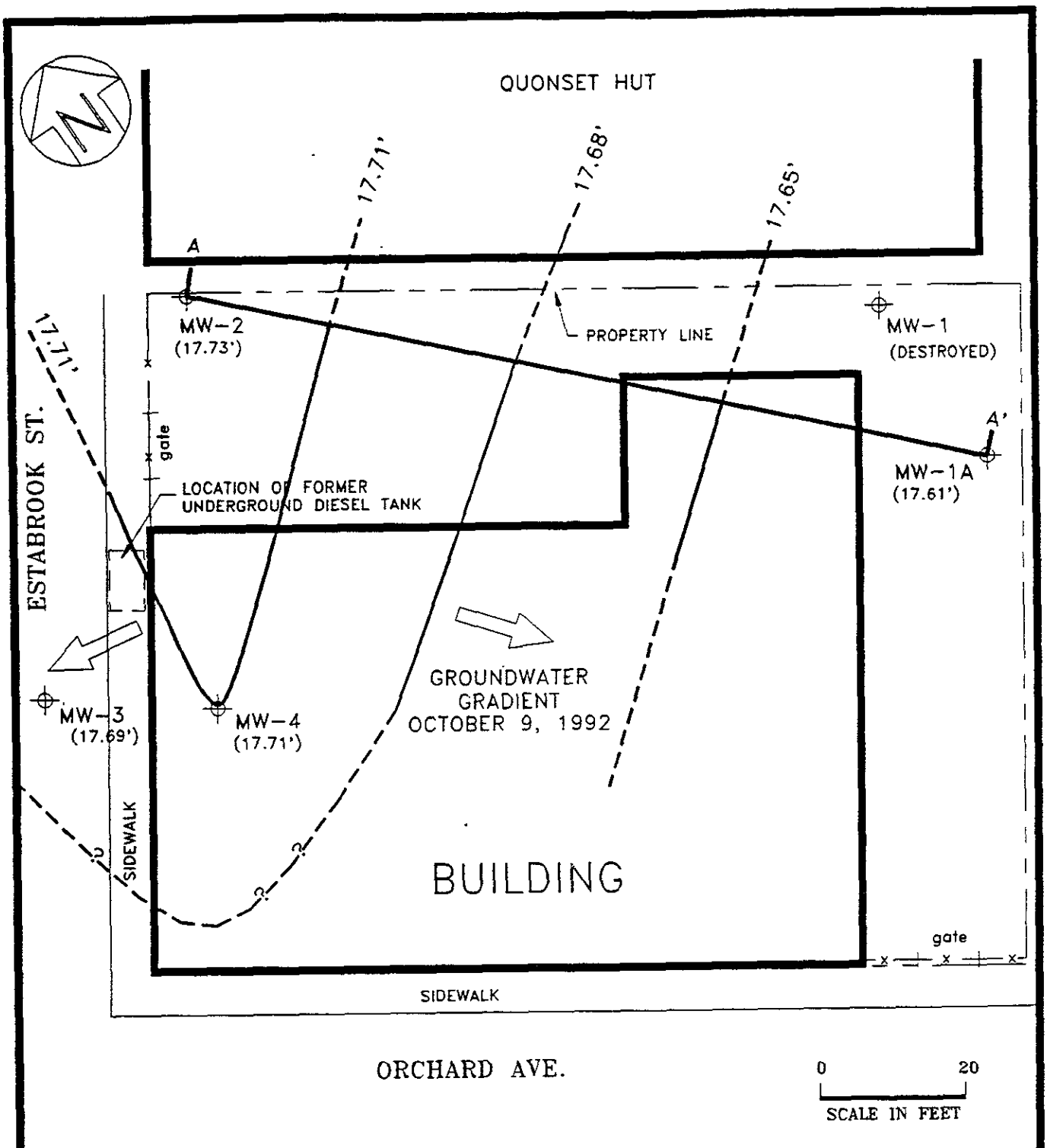
BLYMYER ENGINEERS, INC. (BEI)	LEGEND	PROJECT	FIGURE
BEI JOB NO. 91106 / DATE 2/22/93	○ FOUNDATION SUPPORT PILING ✱ FLOOR SAMPLE • WALL SAMPLE	DIESEL RECON SAN LEANDRO, CA SOIL SAMPLE LOCATIONS EXCAVATIONS A & B	4



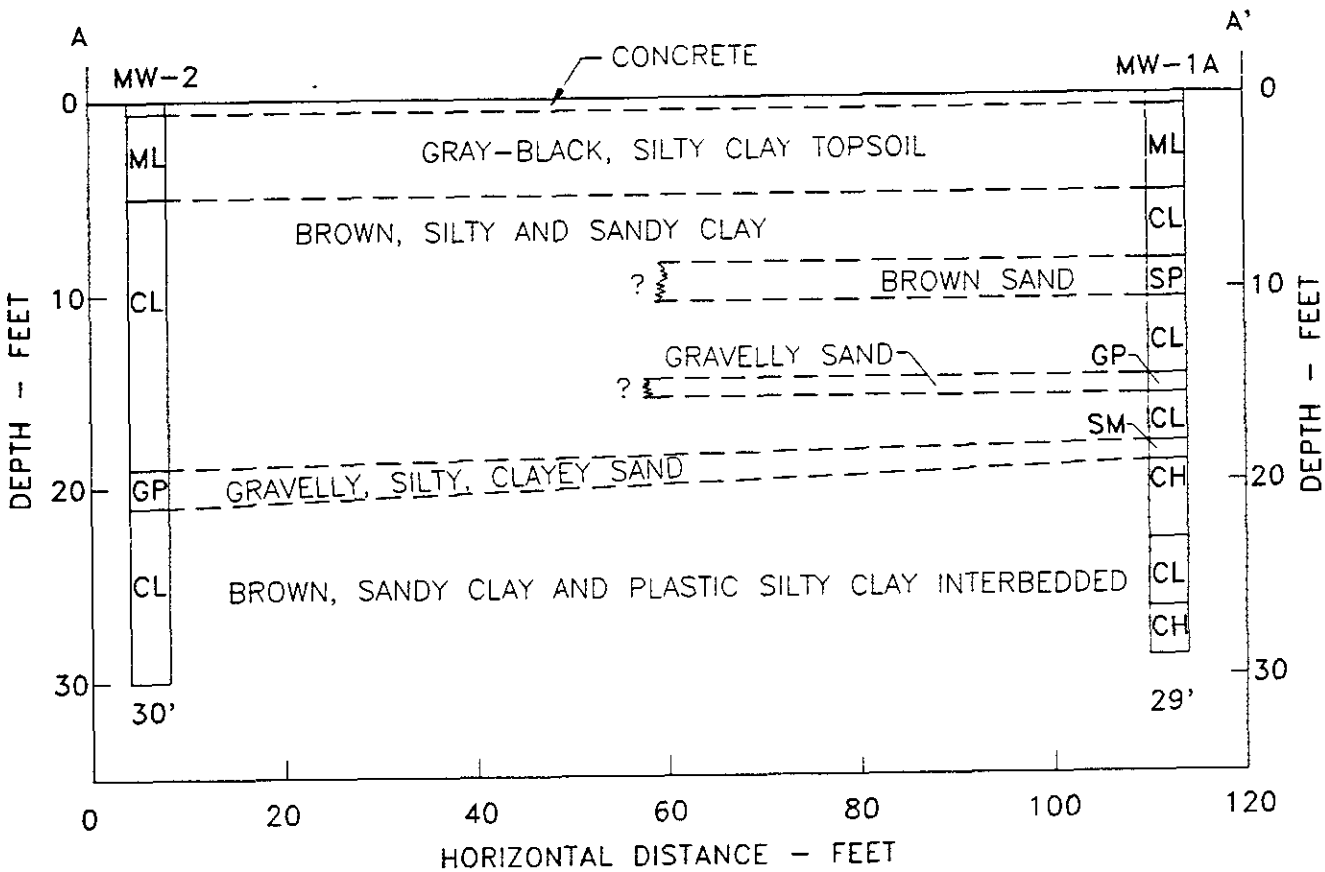
BLYMYER ENGINEERS, INC. (BEI)	LEGEND ⊠ SOIL SAMPLE LOCATION	PROJECT DIESEL RECON. CO. SAN LEANDRO, CA SOIL SAMPLE LOCATIONS EXCAVATION C	FIGURE 5
BEI JOB NO. 91106	DATE 2/23/93		



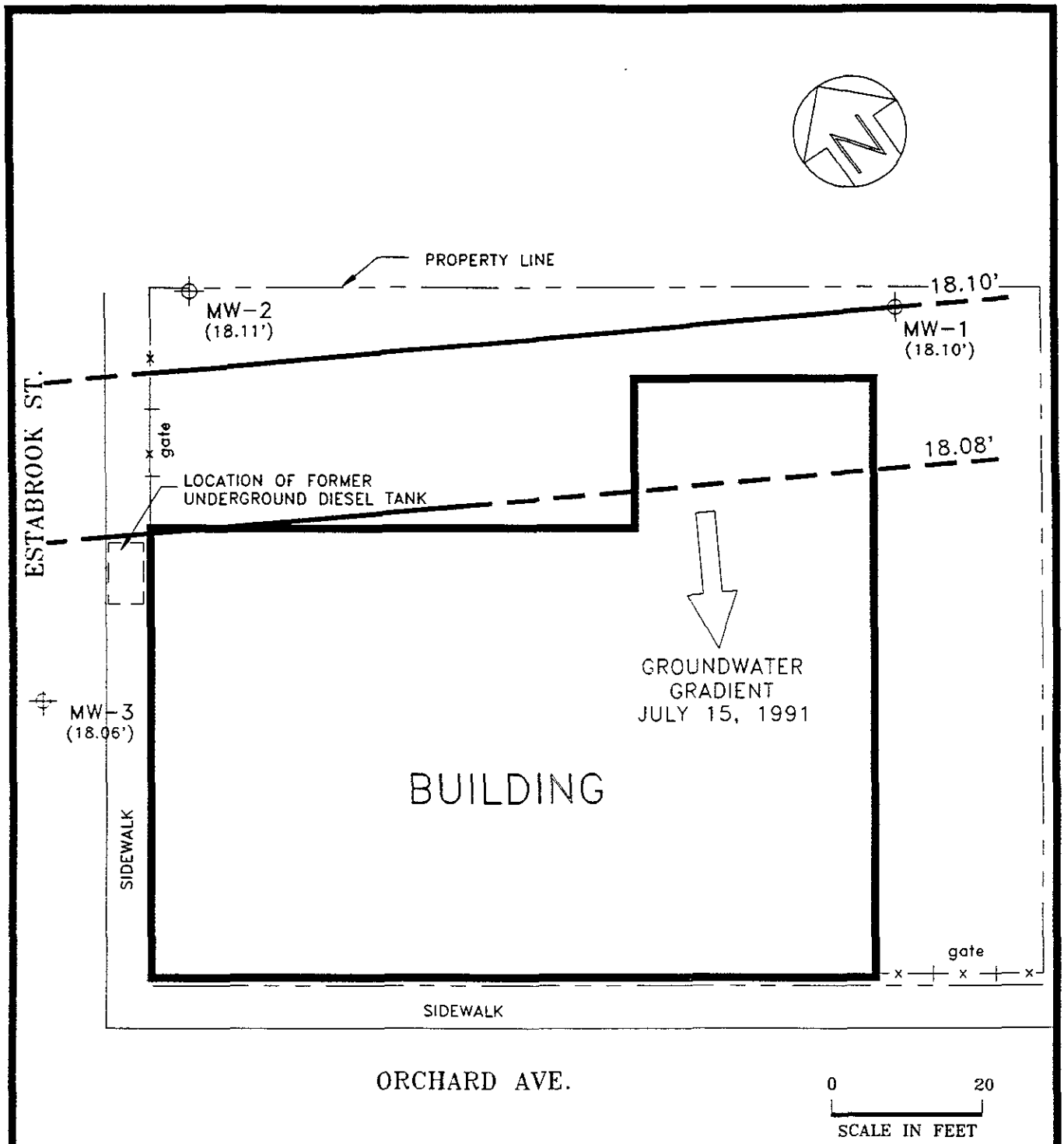
BLYMYER ENGINEERS, INC. (BEI)	LEGEND	PROJECT	FIGURE
BEI JOB NO. 91106 / DATE 2/23/93	⊕ MONITORING WELL	DIESEL RECON. SAN LEANDRO, CA MONITORING WELL LOCATIONS	6



BLYMYER ENGINEERS, INC. (BE I)	LEGEND		PROJECT	FIGURE
	⊕	MONITORING WELL	DIESEL RECON. SAN LEANDRO, CA GROUNDWATER GRADIENT OCTOBER 9, 1992	7
	(17.71')	GROUNDWATER SURFACE ELEVATION		
	A — A'	GEOLOGIC SECTION		
BEI JOB NO. 91106	DATE 2/23/93			



BLYMYER ENGINEERS, INC. (BEI)	LEGEND	PROJECT DIESEL RECON. SAN LEANDRO, CA GEOLOGIC SECTION A - A'	FIGURE 8
BEI JOB NO. 91106	DATE 2/22/93		



BLYMYER ENGINEERS, INC. (BEI)	LEGEND ⊕ MONITORING WELL (18.11') GROUNDWATER SURFACE ELEVATION	PROJECT DIESEL RECON. SAN LEANDRO, CA GROUNDWATER GRADIENT JULY 15, 1991	FIGURE 9
BEI JOB NO. 91106	DATE 2/23/93		