R0161

Summary of Environmental Investigations, including Site Conceptual Model with Preferential Pathway Study for
3744 Depot Road
Hayward, California

11/05

Prepared For:
Mr. Amir Gholami
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Prepared By:
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November 2005
Project No: 05338

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November 7, 2005

Mr. Amir Gholami
Alameda County Health Services Agency
Environmental Protection Division
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

RE: Summary of Environmental Investigations, including Site Conceptual Model with Preferential Pathway Study
3744 Depot Road
Hayward, CA

Dear Mr. Gholami:

In response to your recent request, PIERS Environmental Services, Inc. (PIERS) is pleased to present this Summary of Environmental Investigations Report for a "stand alone document" which includes a Site Conceptual Model (SCM) with Preferential Pathway Study (PPS) for the subject property at 3744 Depot Road, Hayward, CA, (hereinafter referred to as the "Property"). PIERS had previously submitted this SCM/PPS in a "Work Plan for Additional Soil and Groundwater Investigation and Site Conceptual Model with Preferential Pathway Study", which was transmitted to Mr. Scott Seery of your office in June 2004. The SCM presented in this report is the same except for the additional figures, per your request. The results of the preferential pathway study previously completed for the June 2004 work plan/report are also summarized herein.

SITE DESCRIPTION AND BACKGROUND

The Property is located on the south side of Depot Road, between the intersections of Depot Road with Cabot Boulevard and Foley Street, in the City of Hayward, Alameda County, California. A Property Vicinity Map is included with this report (Figure 1A – Property Vicinity Map and Figure 1B – Property Parcel Map). The present tenant is American Auto Dismantler, an automobile salvage operation. The current use of the Property involves the storage and demolition of automobiles. The vicinity of the Property is comprised of heavy industrial usage, with similar scrap yards adjacent to the Property. The Property is at an approximate elevation of 10 feet above mean sea level (MSL) and located approximately one-quarter mile east of the salt evaporators on the edge of the San Francisco Bay.

SUMMARY LIST OF PREVIOUS WORK AND AGENCY CORRESPONDENCE

The following table summarizes all of the previous reports and correspondence for the Property, which are discussed in the following section.

Reports/Correspondence	*Date*	*Author*	*Description*
Letter requiring submission of reports	January 27, 1995	ACDEH	Requirement of submission of Tank Closure Rpt & PSA
Letter: Notice of Violation to Jack Lotz/ Jesse Allen/ Kenneth & Patricia Hein	May 18, 1995	ACDEH PIERS	Letter of Notice of Violation, failure to submit Tank Closure Rpt & PSA
Site Reconnaissance Workplan for: 3744 Depot Road, Hayward, California	August 28, 1995		Workplan to reconstruct tank history and to install soil borings
Work plan acceptance letter	August 28, 1995	ACDEH	ACDEH reviewed and accepted Work Plan w/comments
Limited Phase II Site Assessment for 3744 Depot Road, Hayward, CA	September 12, 1995	PIERS	Tank removal report & soil borings
Work Plan for Preliminary Site Assessment for 3744 Depot Road, Hayward, CA	June 1996	PIERS	Work plan for PSA
Memorandum on Guidance on MTBE	August 22, 1996	SWRCB	New guidance on GW monitoring of MTBE from active LUFT cases
Well Survey Report	December 30, 1996	JW Rasp, PE	Surveyed monitoring well elevations
Preliminary Site Assessment, Groundwater Well Installation and 1st Quarterly Report	February 10, 1997	PIERS	PSA, well installation and sampling report
Letter reviewed PSA Report	April 9, 1997	ACDEH	Reviewed PIERS' PSA report, and ordered 2 quarters of GW monitoring & sampling
Groundwater Monitoring Well Sampling Report and Request for No Further Action Status	May 27, 1997	PIERS	GW sampling report and request for NFA status
Amendment Letter to the ACDEH	November 3, 1998	PIERS	Letter amending previous groundwater flow direction of 0.002 ft/ft to the south
Letter requesting an additional round of sampling	March 1, 1999	ACDEH	Request for an additional round of well sampling before closure
GW Monitoring Wells Sampling Report	March 30, 1999	PIERS	All results were non-detect
Storm Water Pollution Prevention Plan	April 1999	PIERS	Storm water plan
First Rainfall Event Storm Water Sampling Report	April 1999	PIERS	Storm water sampling report
Final 1999 Groundwater Monitoring Well Sampling Report and Request for No Further Action Status	April 1999	PIERS	Qtrly GW sampling report & request for NFA
Amendment to Final 1999 Report	July 12, 1999	PIERS	Amended lab report, now quantifies MTBE in results.
Phase I Environmental Site Assessment of 3744 Depot Road, Hayward, California	August 2000	PIERS	Phase I ESA
Site Closure Summary and Request for Case Closure for 3744 Depot Road, Hayward, California	August 2000	PIERS	Site closure summary and formal request for No Further Action status
Letter: Comments to Request for Case Closure	March 6, 2001	ACDEH	Comments on case closure request
Letter: Case Closure Summary Additional Data	March 30, 2001	PIERS	Response to ACDEH comments on case closure
Letter response to Case Closure Summary Add. Data	April 4, 2001	ACDEH	Response to letter by PIERS dated March 30, 2001
Letter response to ACDEH on GW gradient	May 9, 2001	PIERS	Response to ACDEH letter dated April 4, 2001
Comments on Case Closure request	May 14, 2001	ACDEH	Response to PIERS letter dated May 9, 2001
Response to Comments and Case Closure Request	February 10, 2003	PIERS	Synopsis of previous work done on-site
Report of Additional Soil and Groundwater Investigation	March 1, 2004	PIERS	Additional soil and groundwater sampling and analysis
Work Plan for Additional Soil and Groundwater Investigation and Site Conceptual Model with Preferential Pathway Study for 3744 Depot Road Hayward, California	July 19, 2004	PIERS	Work plan with SCM and Preferential Pathways study
Re-submission of work plan	November 12, 2004	PIERS	Re-submission of work plan with SCM and PPS, at request of Ms.

Reports/Correspondence	Date	Author	Description
			Drogo
Letter from Property owner to ACHSA	August 2, 2005	Eric Freeberg, owner	Request by owner for ACHSA to respond to work plan

SUMMARY OF PREVIOUS WORK

According to previous investigations by PIERS, a 500-gallon waste oil underground storage tank (UST) located near the southern boundary of the Property, and a 1,000-gallon gasoline UST located near the northern boundary of the Property, were apparently excavated sometime in 1990 and 1991. The tanks were left on the surface of the site for years, and finally disposed of in 1994 by a previous tenant, without a permit. The locations of the tank pits are shown on the figures attached to this report. The tank excavation pits were also left open for approximately two years before being backfilled, apparently with the aerated soils from the excavations. The Alameda County Health Services Agency (ACHSA) was informed of the tank removals in 1991 and required the owner to provide soil sample analytical results. Samples were later collected by an environmental consultant, TAT Environmental, in May 1992, but no report was ever issued, and the consultant is now out of business. The Property went into foreclosure, and was sold in 1996 to River Bend Properties, the present Responsible Party (RP).

PIERS completed a "Limited Phase II Environmental Assessment" at the Property in August 1995 (report dated September 12, 1995). Five exploratory soil borings were installed at the site. The locations of the borings are shown on Figures 2 through 6. Soil samples and grab groundwater samples were collected from borings located down-gradient of the two tank pits. Copies of the boring logs are presented in Appendix A of this report. Up to 3,300 parts per million (ppm) of oil and grease and 2,795 parts per billion (ppb) of semi-volatile organic compounds (SVOCs) were present in soil collected from the vicinity of the former waste oil tank. Oil and grease at concentrations of 390 ppm and up to 600 ppb of volatile organic compounds (VOCs) were detected in a grab groundwater sample from the boring located down-gradient of the former waste oil tank pit. The grab groundwater sample collected from the boring located down-gradient from the former gasoline tank pit contained 43,000 ppb of Total Petroleum Hydrocarbons (TPH) as gasoline and 300 ppb of benzene. The analytical results of the soil and grab groundwater samples are summarized in Tables 1 and 3, and are depicted on the figures accompanying this report.

To meet the requirements of the ACHSA and the Regional Water Quality Control Board (RWQCB), PIERS performed a Preliminary Site Assessment to delineate and assess the extent of soil and groundwater impacts. This work was outlined in a work plan submitted to the ACHSA on July 2, 1996. Two groundwater monitoring wells were subsequently installed at the site on November 25, 1996. Boring logs for the wells are presented in Appendix A. Soil samples were obtained from the wells during drilling. The two newly installed monitoring wells and the one on-site existing well were developed and sampled. The locations of the wells are shown on the figures accompanying this report. The analytical results of the groundwater monitoring well samples are summarized in Table 2, and the well monitoring data is presented in Table 4. The analytical results of the soil samples are summarized in Table 1.

On April 29, 1997, PIERS performed another sampling event of the three groundwater wells at the request of Ms. Amy Leech, the ACHSA case worker. No detectable chemical constituents were present in water from any of the three wells during this sampling event.

On March 1, 1999, the ACHSA requested an additional round of sampling before closure. The sampling results were again non-detected. In the report "Final 1999 Groundwater Monitoring Well Sampling Report and Request for No Further Action Status", dated April 20, 1999, PIERS recommended that the site be granted a "no further action" status, and that case closure be granted.

In August 2000, PIERS prepared and submitted a Phase I Environmental Site Assessment for the Property, and a separate "Site Closure Summary and Request for Case Closure for 3744 Depot Road, Hayward, California".

In March, April and May of 2001, a series of letters were generated between the ACHSA and PIERS, as a response to comments to various aspects of the Site Closure Summary and Request for Case Closure. The letters discussed the hydraulic gradient on-site, and whether the flow direction was clearly defined. Apparently, the final letter from the ACHSA dated May 14, 2001, was not received by PIERS, and work didn't proceed until a phone call in January 2003. PIERS then responded to the last set of comments by ACHSA, and again requested Case Closure on February 10, 2003.

In a number of phone calls over the intervening months, after February 10 through November of 2003, PIERS was told by the ACHSA case worker, Mr. Scott Seery, that the file for Depot Road had not been reviewed, for either closure or additional work for closure.

In December 2003, in an effort to advance the Property towards closure, PIERS prepared a work plan to conduct additional sampling in the vicinity of each of the former UST pits. The work plan summarized all of the previous work at the Property, including analytical data. The investigative work (six borings) proposed in the December 2003 work plan was completed in February 2004, and was summarized in a report by PIERS dated March 2004. The work is also summarized in the following section.

RECENT INVESTIGATIONS IN FEBRUARY 2004

On February 4, 2004, six soil borings were completed at the Property, and the three groundwater wells were sampled. Three borings, designated as EB-1 through EB-3, were completed around the former gasoline underground storage tank (UST) pit. Three additional borings, designated as EB-4 through EB-6, were completed around the former waste oil UST pit. The locations of the borings and wells are shown on Figures 2 through 4. The groundwater at the Property appears to occur in confined or semi-confined conditions. During drilling, groundwater was not observed in the soil cores until approximately 12 feet below grade, but later was measured in several of the borings at 5.5 to 6.0 feet below grade, consistent with the depth to water in monitoring wells MW-1 and MW-2.

Former Gas Tank Pit

In 1995, up to 43,000 ppb of TPH as gasoline and 300 ppb benzene were detected in a grab groundwater sample from a boring at the northwestern corner of the former gas UST pit. In the February 2004 sampling event (borings EB-1 through EB-3), dissolved hydrocarbons in groundwater were non-detectable, except for methyl-tertiary-butyl-ether (MTBE) which was detected in all three of the samples at concentrations ranging between 3.9 ppb and 6.0 ppb. MTBE was also detected in MW-1 at a concentration of 3.4 ppb.

Former Waste Oil Tank Pit

During this work, up to 350,000 ppb of TPH as diesel and 120 ppb of benzene were measured in grab groundwater samples collected from the area of the former waste oil in borings EB-4 and EB-5, respectively. Up to 2,000 ppm of Total Recoverable Petroleum Hydrocarbons (TRPH) were detected in soil at 11.5 feet below grade. Shallower soil samples collected between 4.5 and 5.5 feet below grade had non-detectable results. These findings were relatively similar to the 1995 results, except for MTBE and TBA in groundwater. MTBE concentrations of 7.5 and 37 ppb were detected in EB-5 and EB-6, respectively, and 32 ppb of TBA was detected in EB-5. MTBE was also detected in nearby wells MW-2 and MW-3 at concentrations of 84 ppb and 8.5 ppb, respectively. The analytical results of the soil and groundwater samples are summarized in Tables 1 through 3, and are depicted on the accompanying figures. Copies of the boring logs are resented in Appendix A.

PREFERENTIAL PATHWAY STUDY

In June 2004, PIERS contacted the City of Hayward Public Works-Engineering Department and the Alameda County Public Works Agency and obtained available utility maps for the Property and vicinity. The utilities at and in the vicinity of the Property are shown on Figure 1B. The majority of these utilities are located along Depot Road, seventy feet or more from the former gasoline underground storage tank (UST) pit. These utilities include, from south to north, a 12-inch-diameter water line, a 60-inch-diameter storm drain, a 10-inch-diameter sewer line, and an 8-inch-diameter Shell Oil pipeline. In addition, there is a 24-inch-diameter sewer line at about fifteen feet below grade that crosses the Property obliquely between the gasoline UST pit and the former waste oil UST pit, trending northwest. Also, it is assumed that there are sewer and water laterals on the down-gradient parcels to the west.

The utilities at the Property itself consist of a sewer lateral. The Property does not use Alameda County Water District (ACWD) water. The exact location of the sewer lateral from the existing shop building is not shown on the maps, but is located up-gradient of the former tank pits. Also, as the bottom of the sewer line is approximately 2.2 feet below grade, above the highest stands of groundwater; the sewer line, and any laterals from other parcels west of (down-gradient from) the Property, would not be expected to act as preferential pathways.

The direction of groundwater flow at the Property, as measured during previous monitoring events, has varied widely. Over time, the hydraulic gradient at the site has been measured as 0.0017 feet per foot (ft/ft), 0.002 ft/ft, and 0.0009 ft/ft, all essentially flat gradients. The groundwater elevation is approximately 5 feet below grade; however, there are fluctuations of up to 5 feet in elevation over time. It is reasonable to assume that, based on the flat gradient, shallow water depth and nearby San Francisco Bay, that the groundwater at the site may be tidally influenced; in which case, the gradient fluctuates. The relative flatness of the gradient also allows us to assume that any contaminants may have migrated back and forth around the point source. The direction of flow has been measured over time as southerly and northerly; however, as well MW-3 is constructed differently than the other two wells, these measurements may not reflect true groundwater conditions. However, based on a regional direction of groundwater flow of southwest, and measured groundwater elevations at nearby LUST sites, migration of hydrocarbons is assumed to diverge slightly from Depot Road, towards the southwest.

The utilities that could potentially act as preferential pathways, based on an assumed southwesterly flow, would include the 24-inch diameter sewer line at about 15 feet below grade, approximately 130 feet southwest of the former gasoline UST pit. Also, the water lateral on the next parcel to the west, which would be expected to be at about six feet below grade, could potentially act as preferential pathways. The nearest water lateral is estimated to be approximately 90 feet to the west.

The 24-inch-diameter sewer line at approximately 15 feet below grade is located approximately thirty feet up-gradient of the former waste oil UST pit. Permeable backfill around the sewer could potentially act as a preferential pathway for lateral migration, although it would require some migration up-gradient before contacting this feature.

Well Survey

In June 2004, a one-half mile radius well survey was completed for the Property using data provided by the Alameda County Public Works Agency – Water Resources Section. A copy of the data used is included in Appendix B. For the purposes of this well survey, the half-mile radius located towards the west and down-gradient of the Property was evaluated. Three wells were identified in this area. Two of these are monitoring wells, one of which has been abandoned (H1). The other monitoring well (J1) is located approximately 700 feet to the west-northwest. The third well (R3) is located at 8200 Depot Road, approximately 800 feet to the southwest. The use of this well, which was installed in 1950, is reportedly for industrial use.

Based on the fact that there are no identified domestic wells within one half-mile down-gradient of the Property, there does not appear to be a potential pathway of exposure to contaminants originating at the Property through ingestion of groundwater. As the site is entirely paved and all of the soil impacts identified are up to seven feet below grade, no pathway for contact with impacted soils is active.

Volatilization of hydrocarbons to indoor air is the potentially active pathway for human health risk. At the site itself, the building is an open bay door structure located on a paved surface up-gradient of the gas UST pit. As this building is up-gradient of the source and is open to outdoor air during use, this pathway does not appear to be active on site. Down-gradient sites consist of similar wrecking yards with similar structures, or with mobile office structures not founded directly on the surface.

Site Geology and Hydrogeology

The Property is located on the eastern margins of San Francisco Bay, approximately 3,800 feet east of the bay waters (US Geological Survey 7.5-minute "San Leandro" Topographic Quadrangle) and approximately 1,000 feet west of a number of salt evaporators. Marsh lands lie between the salt evaporators and the bay waters. The Property lies at approximately ten feet above mean sea level (msl).

According to Helley et al (1979), the Property and vicinity are underlain by fine-grained alluvium (map symbol Qhaf). The fine-grained alluvium is described as organic rich silt and clay, which grades towards the bay waters into marsh deposits.

Based on the previous subsurface investigations, including six borings to sixteen feet in the most recent phase, the subsurface soils consist predominantly of clayey silt (ML). On the most recent drilling event in February 2004, the first water was encountered in the borings below 12 feet, and later rose to approximately six feet, which correlated with the depth to water measured in wells MW-1 and MW-2. The total depth explored was sixteen feet below grade. The first water encountered was observed in four of the borings (EB-2 through EB-5) to correspond with a slightly sandier silt zone or a thin (two- to six-inch-thick) sandy silt zone.

There have been five monitoring events at the Property. These events took place on November 25, 1996, November 26, 1996, April 27, 1997, March 30, 1999, and on February 4, 2004. The depth to water as measured during these events has ranged from as shallow as 5.17 feet below the top of the casing (MW-2 on February 4, 2004) to 7.11 feet below the top of the casing (TOC) (MW-2 on November 26, 1996). However, if not considering the November 1996 monitoring events for MW-2, at the time of installation, the depth to water has fluctuated from 5.46 feet to 5.96 feet below TOC in MW-1 over all five events, and from 5.17 feet to 5.63 feet below TOC in MW-2 (last three events).

There is apparently some fluctuation seasonally, although there is only the November 1996 event to contrast with three spring events. The November 1996 events were the lowest groundwater stands for both MW-1 and MW-2.

Wells MW-1 and MW-2 are monitoring wells screened from five to fifteen feet below grade. Existing well MW-3 is a steel-cased well that extends to at least 30.5 feet below grade, with an unknown screen interval. Because of the very poor triangulation on the long narrow parcel between the three wells, and possibly because of the differing construction of well MW-3, the previous measurements of the direction of groundwater flow have been inconsistent. Regionally, the direction of groundwater flow is assumed to be following the topography to the southwest, towards San Francisco Bay.

Over time, the hydraulic gradient at the site has been measured as 0.0017 feet per foot (ft/ft), 0.002 ft/ft, and 0.0009 ft/ft, all essentially flat gradients. The direction of flow has been measured over time as southerly and northerly. The groundwater elevation is approximately 5 feet below grade; however, there are fluctuations of at least up to two feet in elevation over time.

SITE CONCEPTUAL MODEL (SCM)

The SCM developed for the Property is based on site investigations to a depth of approximately sixteen feet below grade. Within this interval, the subsurface soils consist predominantly of low permeability clayey silt. A more permeable zone which varied from gradationally sandier to a distinct sandy "stringer" several inches thick was identified in a number of borings at approximately twelve feet below grade. Groundwater is confined or semi-confined and has varied historically from 5.17 to 7.11 feet below grade, but is generally five to six feet below grade. Both tank pits were apparently backfilled with aerated soils that also appear to be of low permeability and appear to be identical to the native soils

Waste Oil UST Pit

Residual heavy hydrocarbons (primarily TRPH) have been identified in soil between seven and 11.5 feet below grade. Gas, diesel, benzene, toluene, ethylbenzene, and xylenes (BTEX), oxygenates and VOCs concentrations are relatively low or non-detectable. The concentrations of hydrocarbons in soil in the vicinity of this source are depicted on Figures 3 through 6. The geological cross-section is presented in Figure 11.

Elevated concentrations of gasoline, diesel, TRPH, MTBE, and BTEX are present in groundwater, and a sheen was observed during the most recent investigation. TBA was detected in one grab water sample (32 ppb). Nearby wells MW-2 and MW-3 show relatively low or non-detectable concentrations except for MTBE, however, the wells may not reflect conditions directly down-gradient. The dissolved concentrations of hydrocarbons in groundwater encountered during this investigation are depicted on Figures 7 through 10.

For the waste oil UST pit, where significant residual hydrocarbons remain in soil, the low permeability soils can allow residual hydrocarbons to remain in a "smear zone". The extent of the "smear zone' can be prohibitive for excavation, yet it continues to provide a source of contamination.

Gasoline UST Pit

Elevated residual hydrocarbons in soil have not been detected in previous investigations in the vicinity of the former gas tank. The nearby well (MW-1) has shown entirely non-detectable results, except for 3.4 ppb of MTBE detected on the last event (February, 2004). However, the well may not reflect conditions directly down-gradient. A grab groundwater sample collected in 1995 from the northwestern corner of the pit area indicated elevated concentrations of gas and BTEX. In February 2004, three grab water samples from borings yielded non-detectable results, except for MTBE, which varied from 3.9 to 6.0 ppb. The residual concentrations of hydrocarbons in soil encountered during this and previous investigations, and the dissolved concentrations of hydrocarbons in groundwater encountered during this investigation, are depicted on Figures 3 through 10.

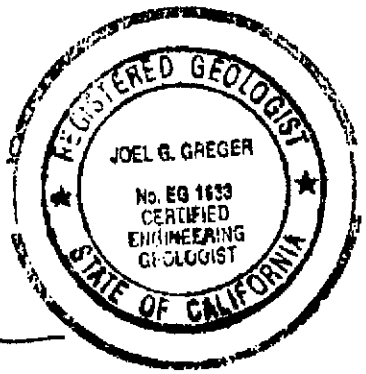
At both release sources, lateral migration of hydrocarbons, with the exception of MTBE, would be expected to stabilize at some point within approximately 250 feet from the source. Vertical migration (downward), with the exception of MTBE, would not be expected with the contaminants of concern unless vertical conduits are encountered. No vertical conduits are known to exist. Existing well MW-3 on site appears to be a driven steel casing without a permeable filter pack.

DISCUSSION

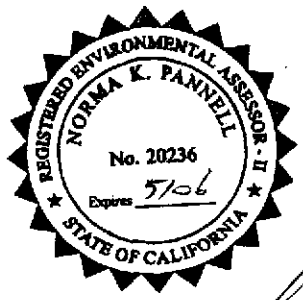
Based on this SCM, additional vertical and lateral delineation was previously proposed by PIERS, in a work plan submitted to Mr. Scott Seery in June 2004. PIERS is awaiting review of this work plan by your agency.

If you have any questions regarding this report, please do not hesitate to contact our office.

Sincerely,
PIERS Environmental Services, Inc.



Joel G. Greger
Senior Project Manager
CEG # EG1633, REA # 07079



Kay Pannell
Chief Operations Officer
REP #5800, REA-II #20236

Attachments
Figures 1A through 11
Tables 1 through 4
Appendix A - Boring Logs
Appendix B – Water Well Survey Data

IDENTIFIED HAZARDOUS MATERIALS SITES
RADIUS REPORT
Site Vicinity Map

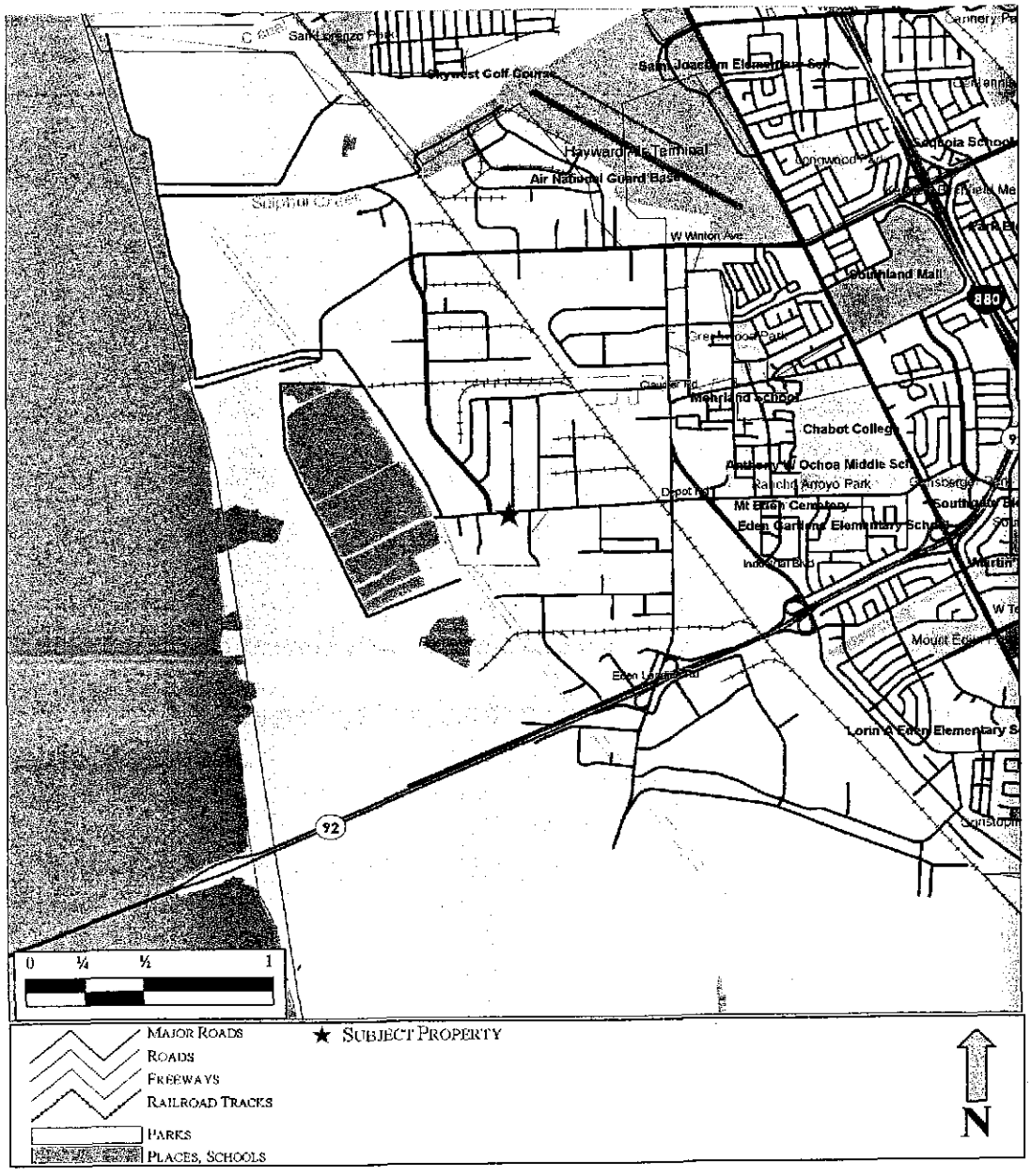


FIGURE 1A
PROPERTY VICINITY MAP

3744 DEPOT ROAD
HAYWARD, CALIFORNIA

NOT TO SCALE
SEPTEMBER 2005

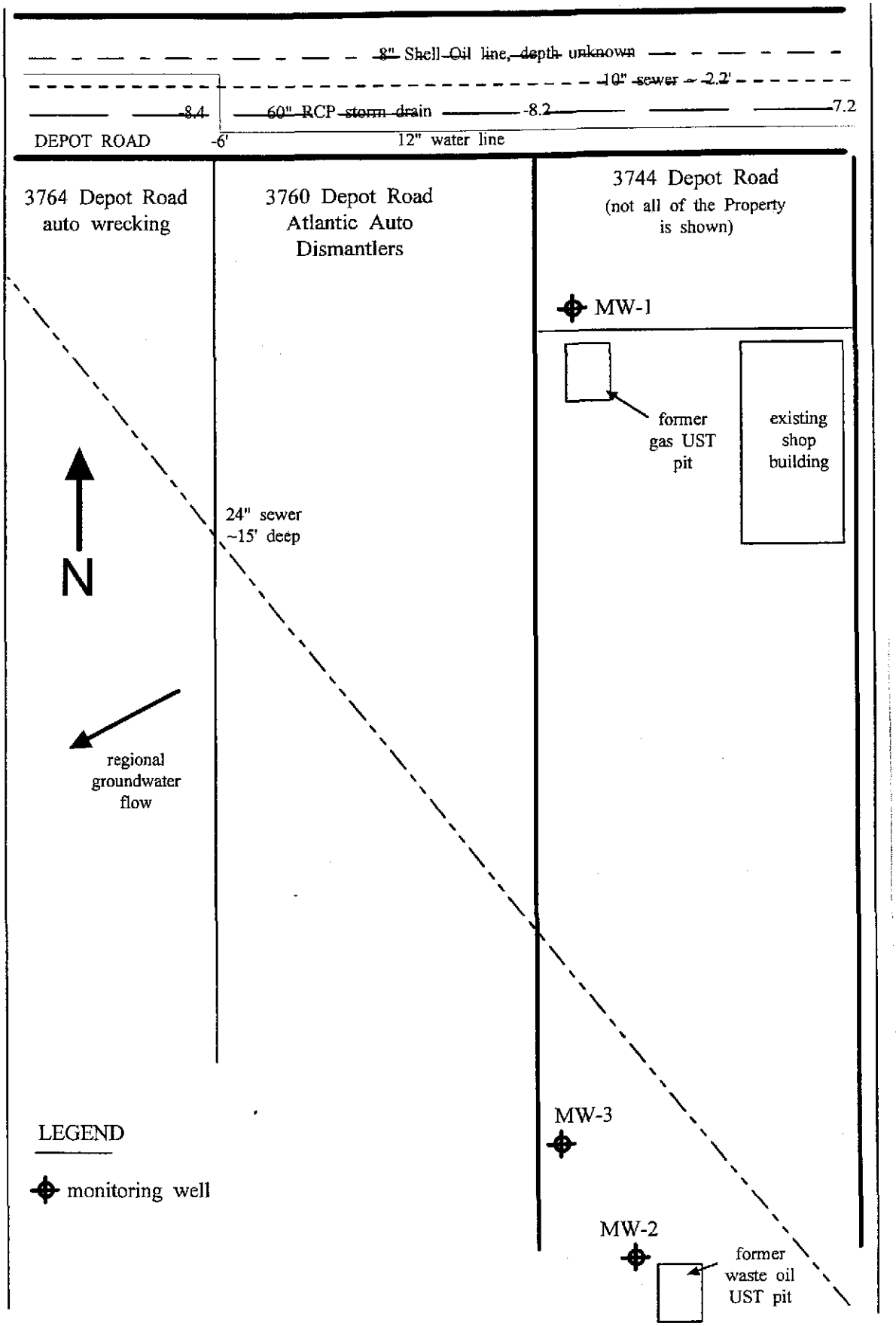


FIGURE 1B

PROPERTY PARCEL MAP

3744 DEPOT ROAD
HAYWARD, CALIFORNIA

SCALE: 1" = 50 FT
SEPTEMBER 2005

PIERS ENVIRONMENTAL SERVICES, INC. 1330 S. BASCOM AVE., SUITE F, SAN JOSE, CA 95128
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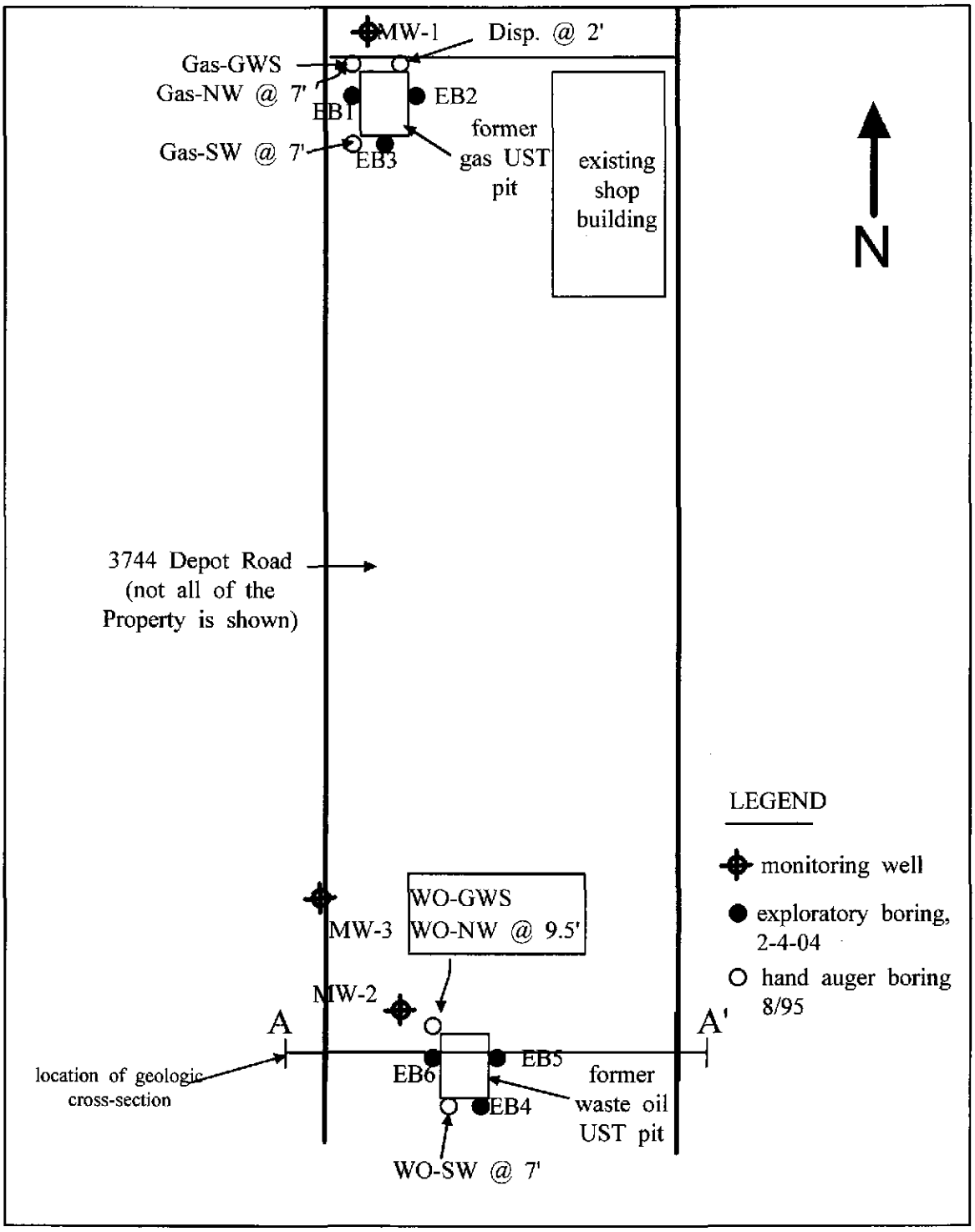
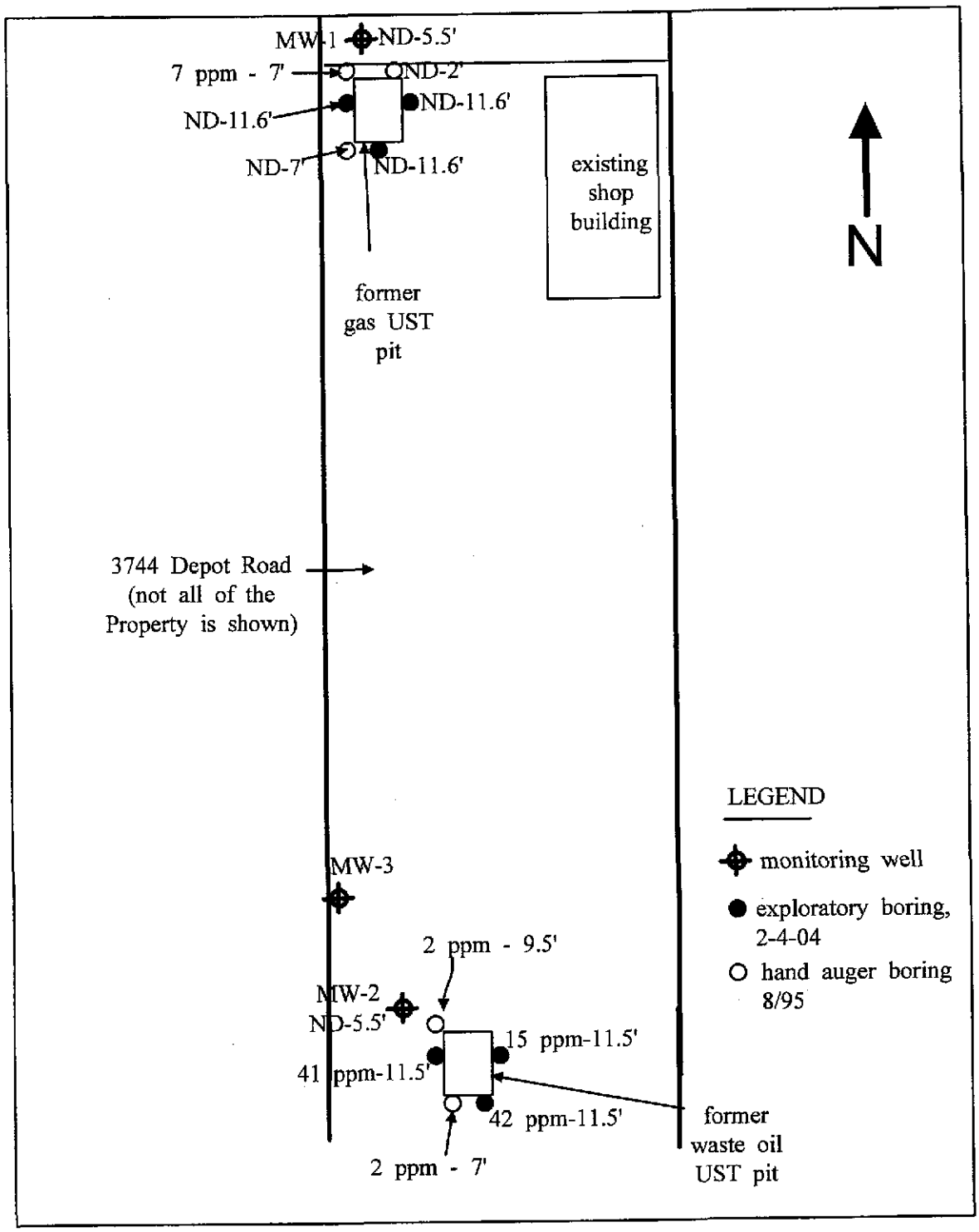


3744 DEPOT ROAD HAYWARD, CA	***FIGURE 2*** ***SITE PLAN SHOWING SAMPLING LOCATIONS***	SEPTEMBER 2005 SCALE: 1" = 50'

PIERS ENVIRONMENTAL SERVICES, INC. 1330 BASCOM AVE. SUITE F SAN JOSE, CA 95128
PHONE: 408-559-1248 FAX: 408-559-1224 WEB: PIERSES.COM



3744 DEPOT ROAD HAYWARD, CA	***FIGURE 3*** ***TPH AS GASOLINE IN SOIL***	SEPTEMBER 2005 SCALE: 1" = 50'

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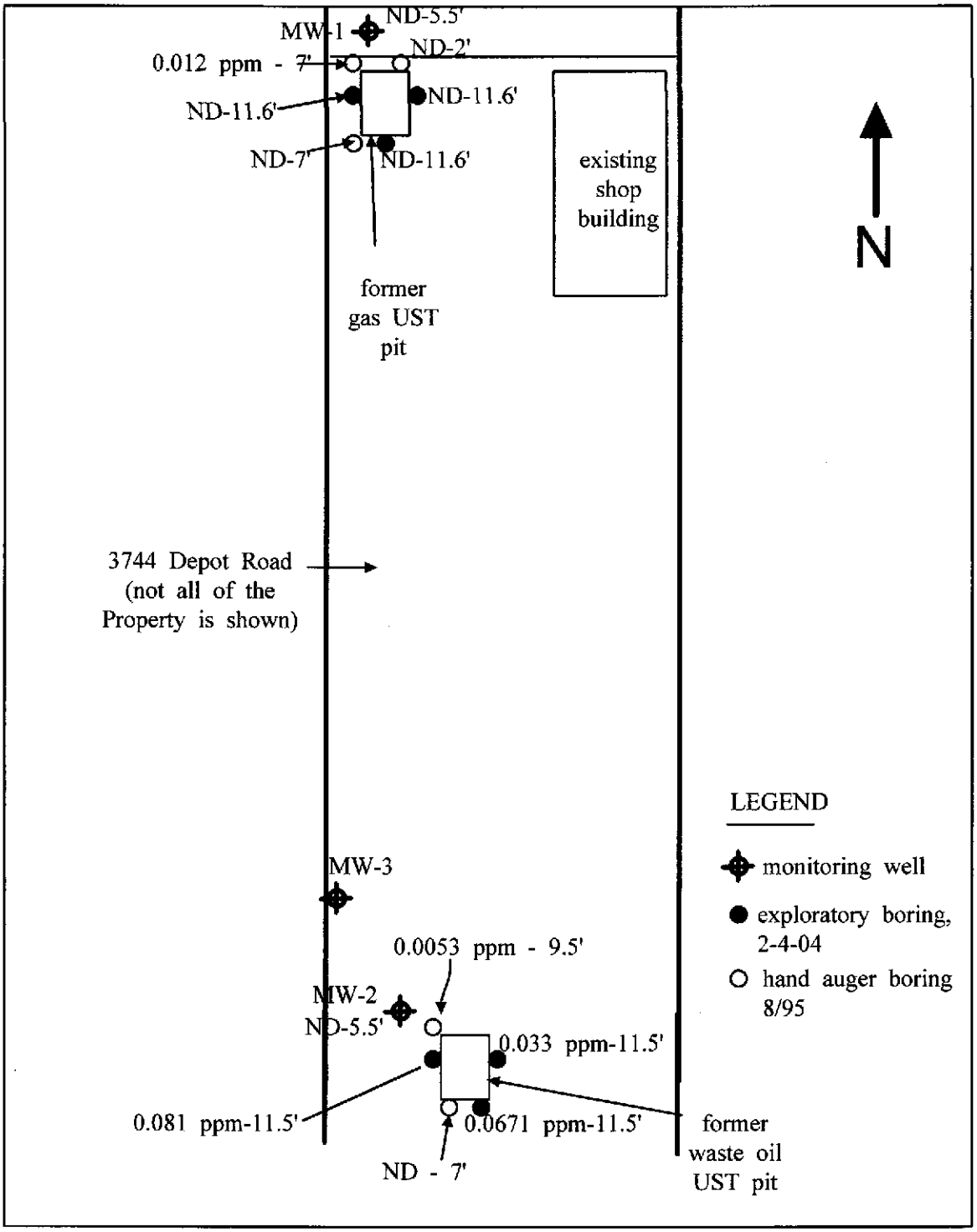
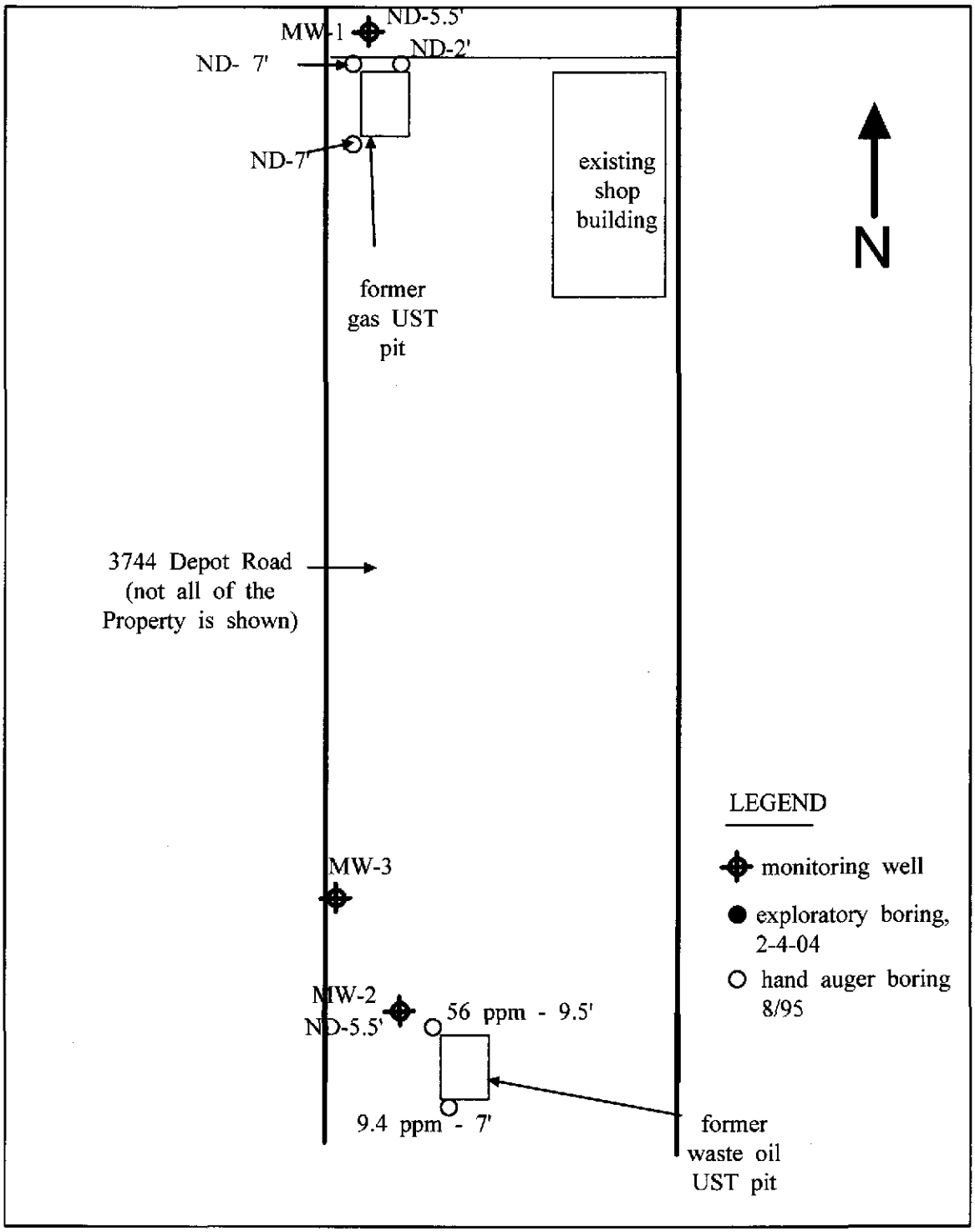
PHONE: 408-559-1248 FAX: 408-559-1224 WEB: PIERSES.COM



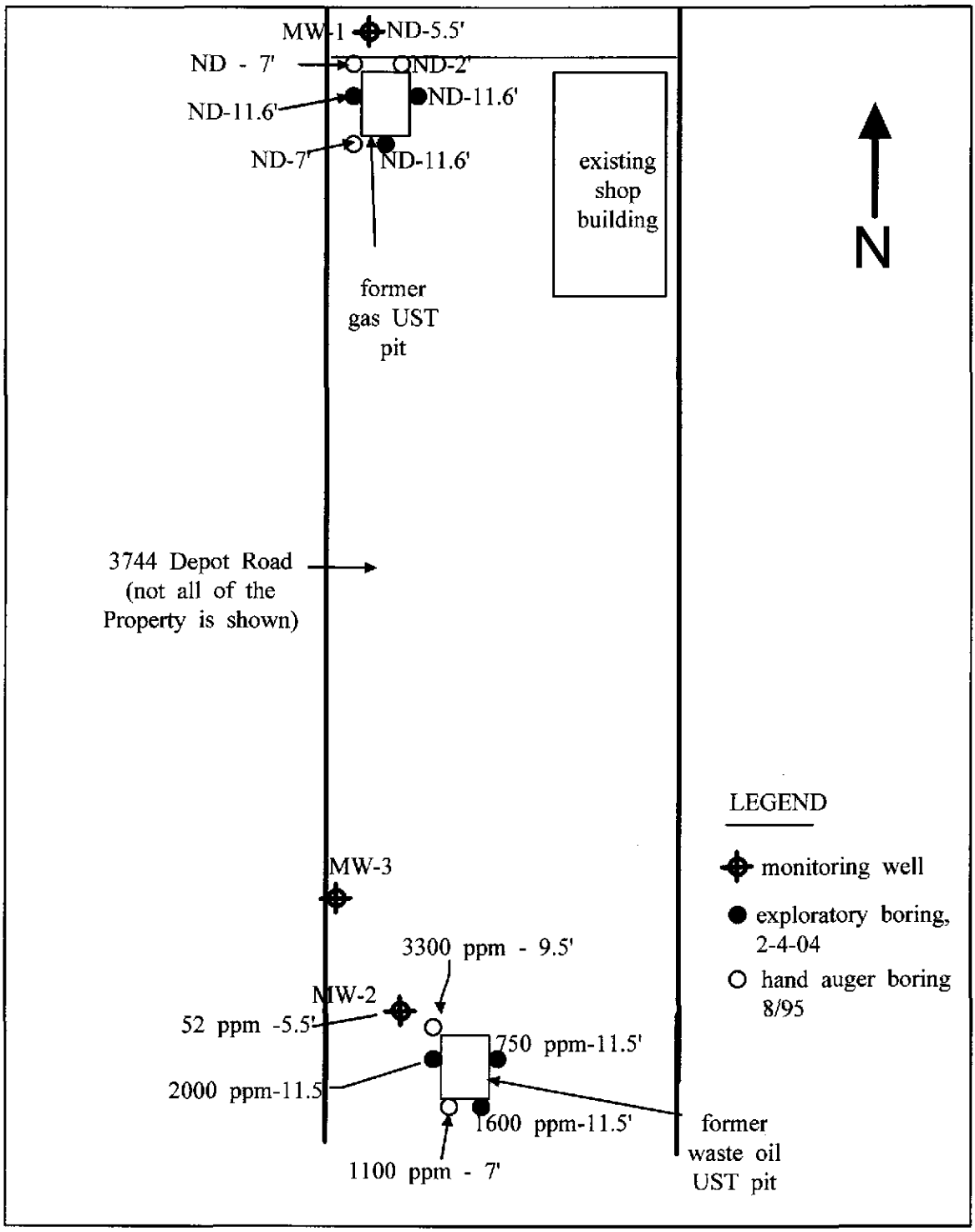
3744 DEPOT ROAD HAYWARD, CA	***FIGURE 4*** ***BENZENE IN SOIL***	SEPTEMBER 2005 SCALE: 1" = 50'

PIERS ENVIRONMENTAL SERVICES, INC. 1330 BASCOM AVE. SUITE F SAN JOSE, CA 95128
PHONE: 408-559-1248 FAX: 408-559-1224 WEB: PIERSES.COM



3744 DEPOT ROAD HAYWARD, CA	***FIGURE 5*** ***DIESEL*** ***IN SOIL***	SEPTEMBER 2005 SCALE: 1" = 50'

PIERS ENVIRONMENTAL SERVICES, INC. 1330 BASCOM AVE. SUITE F SAN JOSE, CA 95128
PHONE: 408-559-1248 FAX: 408-559-1224 WEB: PIERSES.COM



3744 DEPOT ROAD HAYWARD, CA	***FIGURE 6*** ***TRPH*** ***IN SOIL***	SEPTEMBER 2005 SCALE: 1" = 50'

PIERS ENVIRONMENTAL SERVICES, INC. 1330 BASCOM AVE. SUITE F SAN JOSE, CA 95128
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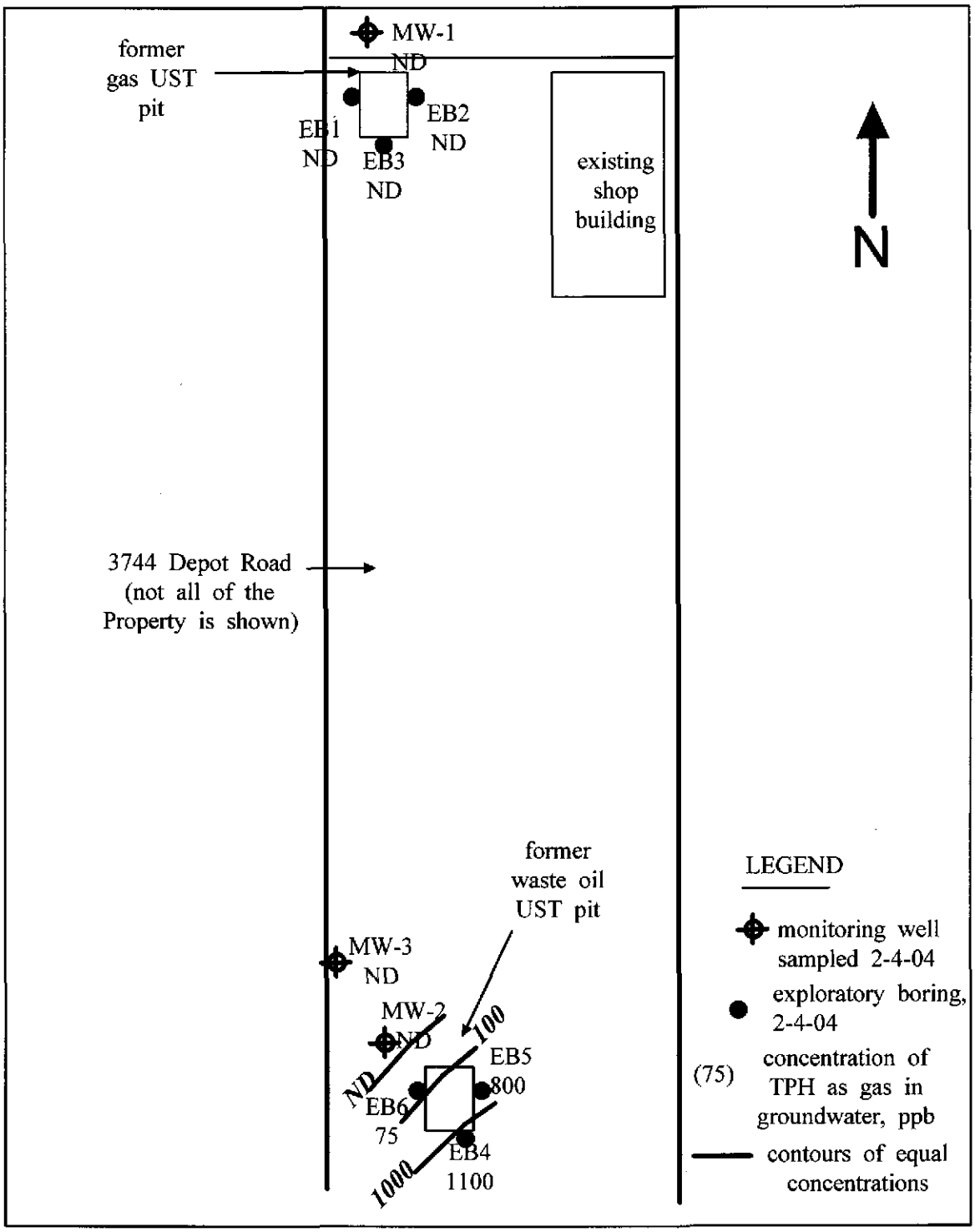
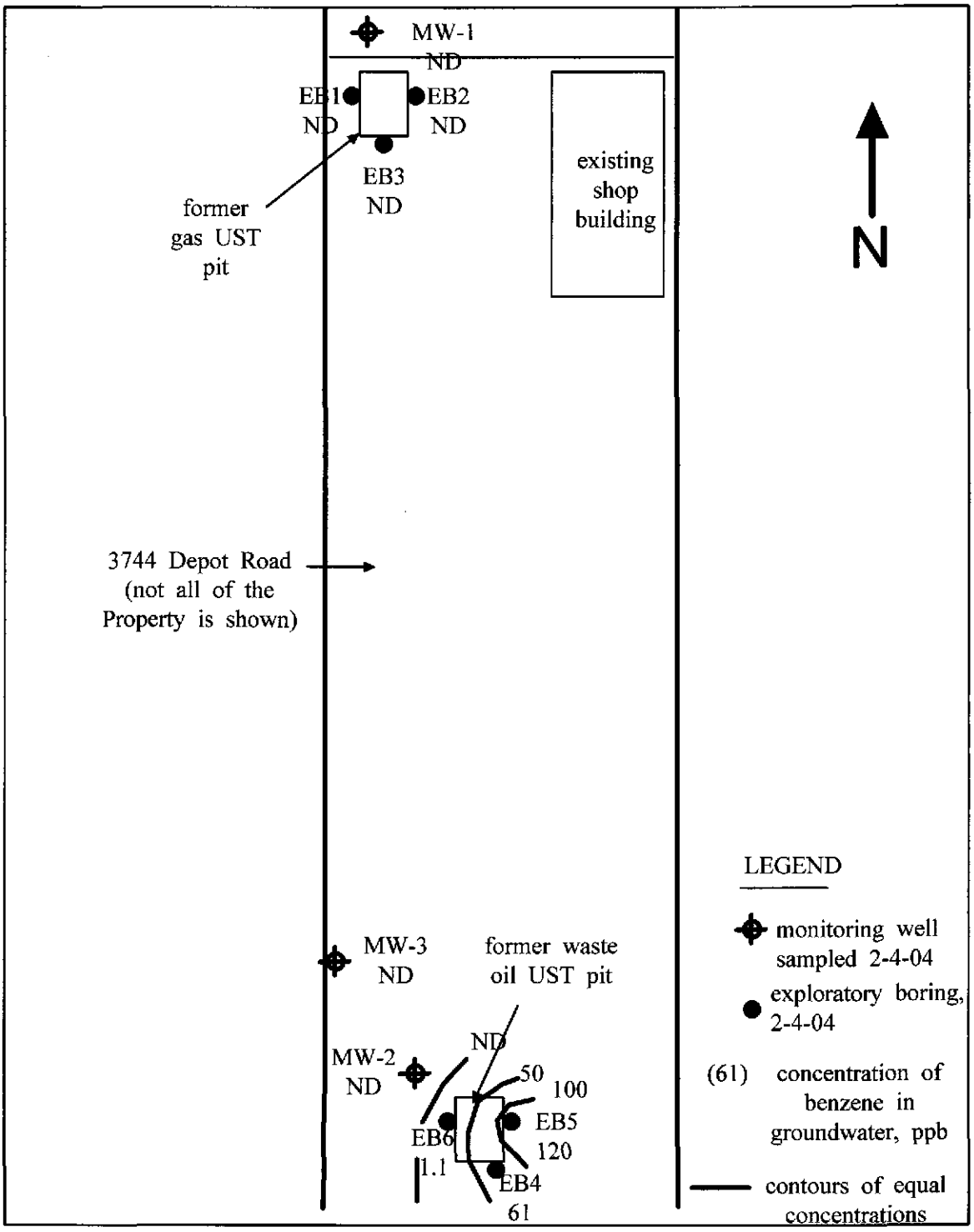


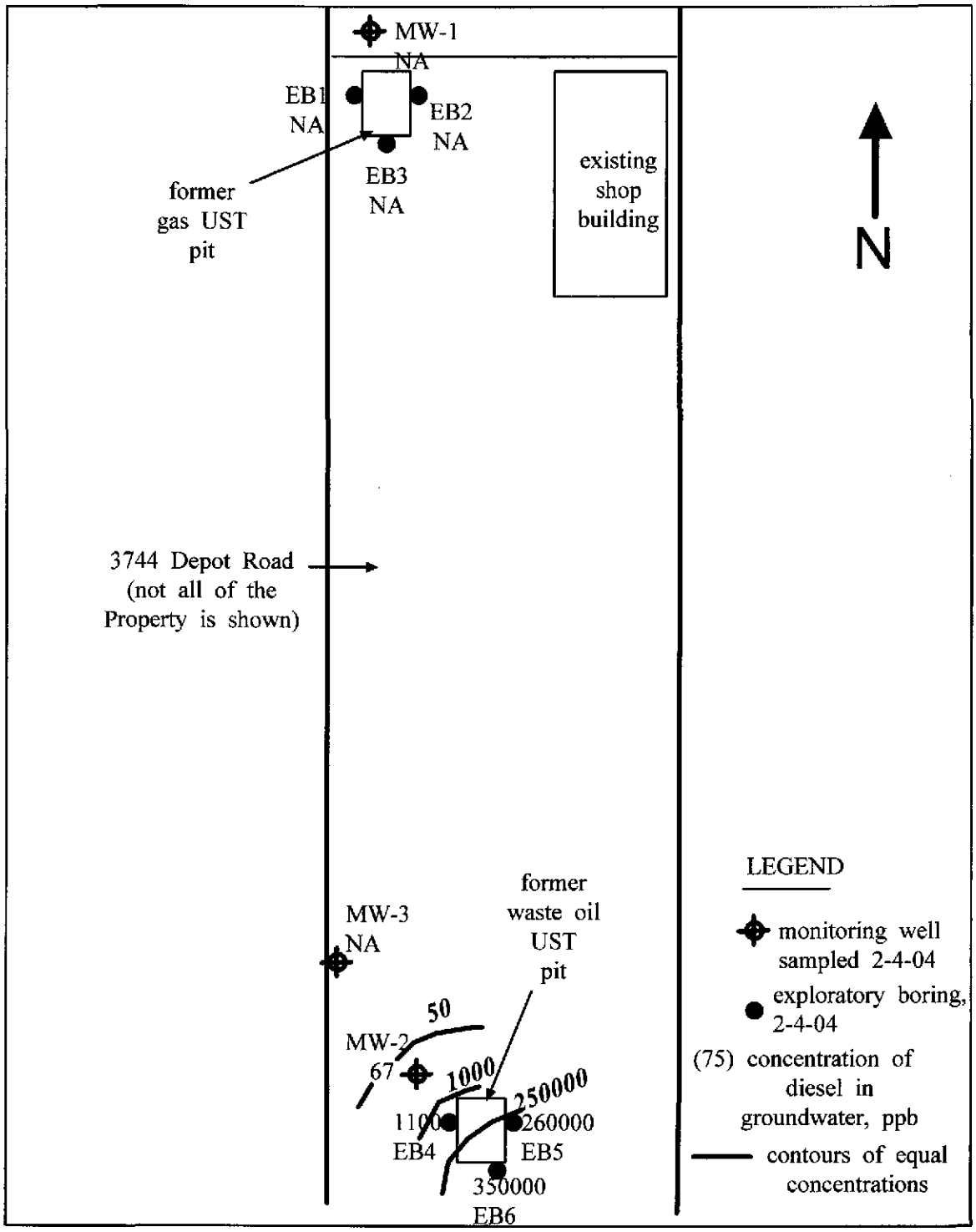
3744 DEPOT ROAD HAYWARD, CA	***FIGURE 7*** ***GASOLINE IN GROUNDWATER***	SEPTEMBER 2005 SCALE: 1" = 50'

PIERS ENVIRONMENTAL SERVICES, INC. 1330 BASCOM AVE. SUITE F SAN JOSE, CA 95128
PHONE: 408-559-1248 FAX: 408-559-1224 WEB: PIERSES.COM



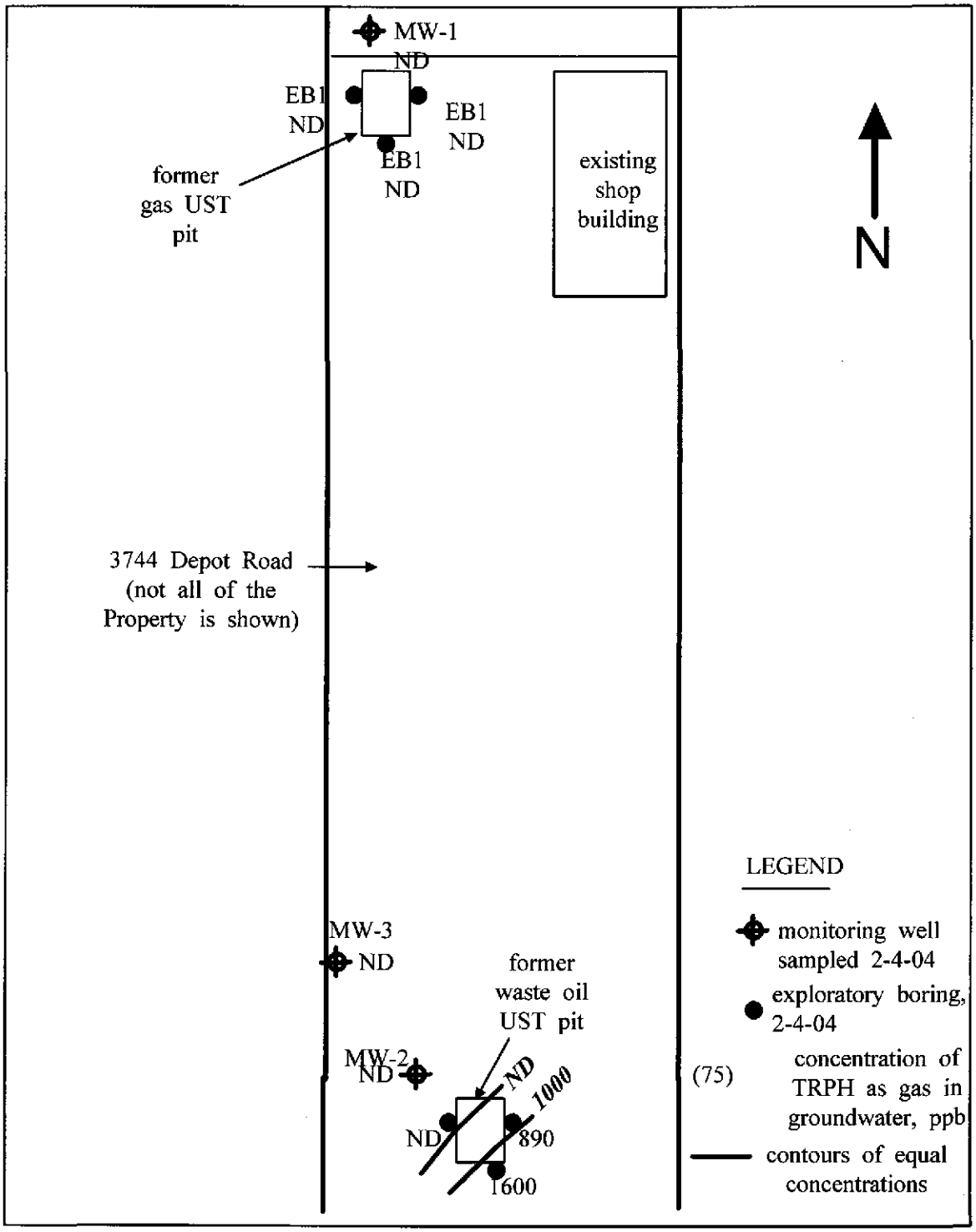
3744 DEPOT ROAD HAYWARD, CA	***FIGURE 8*** ***BENZENE IN GROUNDWATER***	SEPTEMBER 2005 SCALE: 1" = 50'

PIERS ENVIRONMENTAL SERVICES, INC. 1330 BASCOM AVE. SUITE F SAN JOSE, CA 95128
PHONE: 408-559-1248 FAX: 408-559-1224 WEB: PIERSES.COM



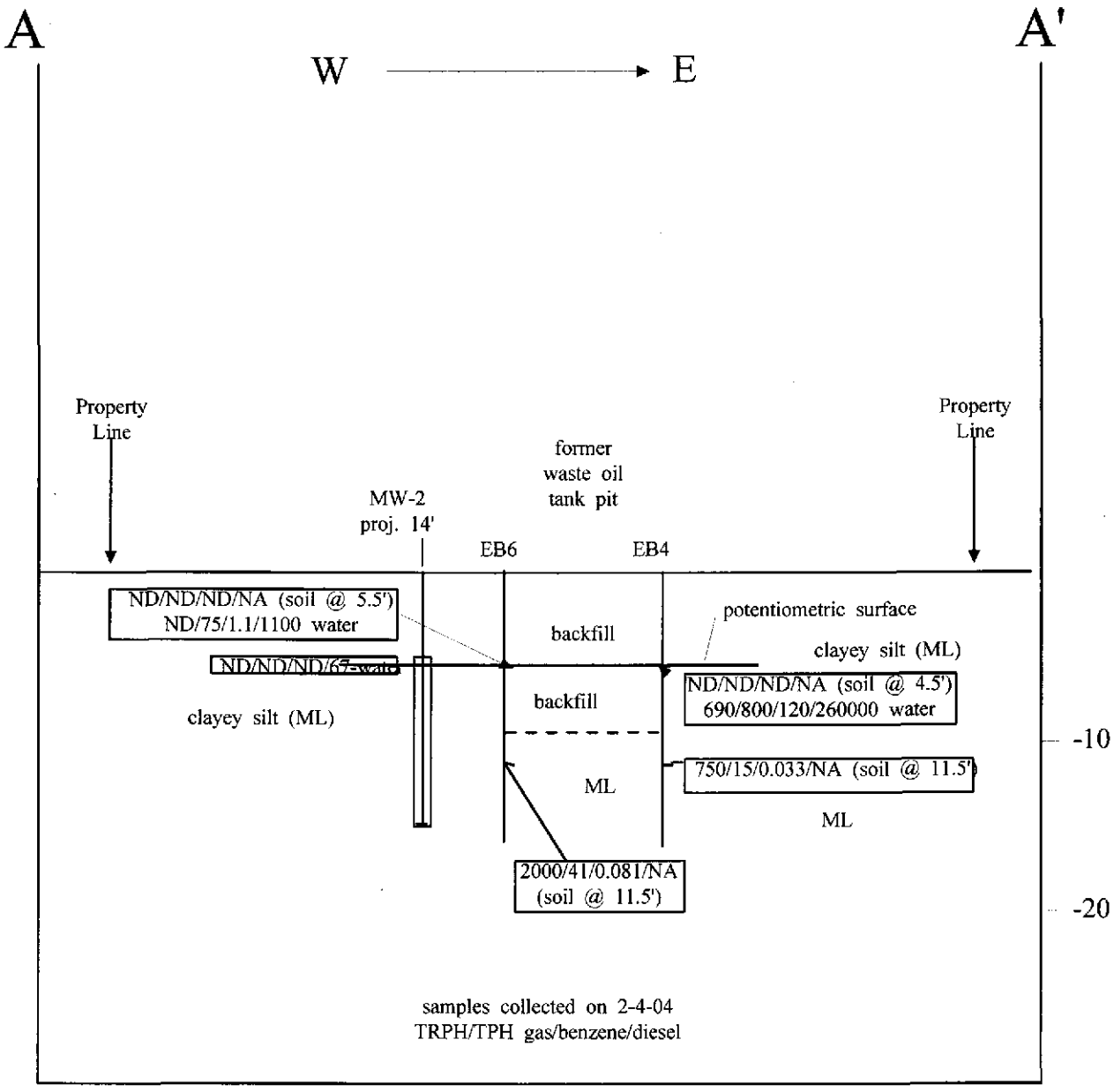
3744 DEPOT ROAD HAYWARD, CA	***FIGURE 9*** ***DIESEL IN GROUNDWATER***	SEPTEMBER 2005 SCALE: 1" = 50'

PIERS ENVIRONMENTAL SERVICES, INC. 1330 BASCOM AVE. SUITE F SAN JOSE, CA 95128
PHONE: 408-559-1248 FAX: 408-559-1224 WEB: PIERSES.COM



3744 DEPOT ROAD HAYWARD, CA	***FIGURE 10*** ***TRPH IN*** ***GROUNDWATER***	SEPTEMBER 2005 SCALE: 1" = 50'

PIERS ENVIRONMENTAL SERVICES, INC. 1330 BASCOM AVE. SUITE F SAN JOSE, CA 95128
PHONE: 408-559-1248 FAX: 408-559-1224 WEB: PIERSES.COM



SCALE: 1" = 20' - HORIZ.
1" = 10' - VERT.

3744 DEPOT ROAD
HAYWARD, CA

FIGURE 11
GEOLOGIC CROSS-SECTION
A-A'

SEPTEMBER 2005

PIERS ENVIRONMENTAL SERVICES, INC. 1330 BASCOM AVE. SUITE F SAN JOSE, CA 95128
PHONE: 408-559-1248 FAX: 408-559-1224 WEB: PIERSES.COM

TABLE 1
Laboratory Analytical Results - Soil
3744 Depot Road, Hayward, CA

Sample No./ Depth	Date	TPHG	TPHD	TRPH	MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes (Total)	VOCs 8240	VOCs 8270
GAS-SW@7	8-29-95	ND	ND	ND	NA	ND	ND	0.014	ND	ND	ND
GAS-NW@7	8-29-95	7.0	ND	ND	NA	0.012	0.014	0.089	1.0	ND	ND
DISP@2	8-29-95	ND	ND	ND	NA	ND	ND	ND	0.073	ND	ND
WO-SW@7	8-29-95	2	9.4	**1,100**	NA	0.0091	ND	ND	ND	ND	ND
WO-NW@9.5*	8-29-95	2	56	**3,300**	NA	**0.063**	0.0093	0.171	0.055	*	*
MW1@5.5	10-28-96	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
MW2@5.5	10-28-96	ND	ND	52	NA	ND	ND	ND	ND	ND	ND
EB1 (11.7')	2-4-04	<1.0	NA	<50	<0.05	<0.005	<0.005	<0.005	<0.005	NA	NA
EB2 (11.6')	2-4-04	<1.0	NA	<50	<0.05	<0.005	<0.005	<0.005	<0.005	NA	NA
EB3 (11.5')	2-4-04	<1.0	NA	<50	<0.05	<0.005	<0.005	<0.005	<0.005	NA	NA
EB4 (5.5')**	2-4-04	<1.0	NA	<50	<0.05	<0.005	<0.005	<0.005	<0.005	NA	NA
EB4 (11.5')	2-4-04	42	NA	**1,600**	<0.25	**0.067**	0.066	0.11	0.92	NA	NA
EB5 (4.5')	2-4-04	<1.0	NA	<50	<0.05	<0.005	<0.005	<0.005	<0.005	NA	NA
EB5 (11.5')	2-4-04	15	NA	**750**	<0.17	0.033	0.036	<0.017	0.032	NA	NA
EB6 (5.5')	2-4-04	<1.0	NA	<50	<0.05	<0.005	<0.005	<0.005	<0.005	NA	NA
EB6 (11.5')	2-4-04	41	NA	**2,000**	<0.10	**0.081**	0.083	0.14	0.064	NA	NA
ESL - Commercial		100	100	100	0.023	0.044	2.9	3.3	1.5		

ND = not detected, NA = not analyzed
Results are in parts per million.

TPHD analyzed by EPA Method 8015M.
TPHG and BTEXanalyzed by EPA Method 8020.

TPHG = Total Petroleum Hydrocarbons as gasoline
TPHD = Total Petroleum Hydrocarbons as diesel
TRPH = Total Recoverable Petroleum Hydrocarbons, by EPA 418.1 or SW 9071B.
* Acetone was also detected at a concentration of 0.098 ppm, napthalene at 0.825 ppm, and 2-methyl-napthalene at 1.970 ppm. The commercial ESLs for acetone, napthalene, and 2-methyl-napthalene in shallow soils are 0.24, 4.2 and 0.25 ppm, respectively.
BTEX constituents were also detected by EPA Method 8240 at slightly lower concentrations than those shown (by EPA Method 8020).

** This sample is erronously reported as EB4 (3.5') on the laboratory data sheets.

TABLE 2
GROUNDWATER - MONITORING WELLS
Laboratory Analytical Results
3744 Depot Road, Hayward, CA

Well No.	Date	Depth	TPHG	TPHD	TRPH	MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes (Total)	VOCs 8240	VOCs 8270
MW-1	11-26-96	5.93	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
MW-1	4-29-97	5.96	ND	NA	ND	NA	ND	ND	ND	ND	NA	NA
MW-1	3-30-99	5.46	NA	NA	NA	NA	ND	ND	ND	ND	*	NA
MW-1	2-4-04	5.51	<50	NA	<5.0	3.4	<0.5	<0.5	<0.5	<0.5	NA	NA
MW-2	11-26-96	7.11	ND	ND	ND	NA	ND	ND	ND	ND	ND	32**
MW-2	4-29-97	5.61	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND
MW-2	3-30-99	5.63	NA	NA	NA	NA	ND	ND	ND	ND	NA	NA
MW-2	2-4-04	5.17	<50	67	<5.0	84	<0.5	<0.5	<0.5	<0.5	NA	NA
MW-3	11-26-96	6.62	ND	ND	ND	NA	ND	ND	ND	ND	NA	NA
MW-3	2-4-04	overflow	<50	NA	<5.0	8.5	<0.5	<0.5	<0.5	0.79	NA	NA
ESL (comm.)			100	100	100	5.0	1.0	40	30	13		

ND = not detected NA = not analyzed Results are in parts per billion (ppb).

TPHD analyzed by EPA Method 8015M.
TPHG and BTEX analyzed by EPA Method 8020.
MTBE analyzed by 8260. All other fuel oxygenates were non-detectable on the 2-4-04 sampling event.
TPHG = Total Petroleum Hydrocarbons as gasoline.
TPHD = Total Petroleum Hydrocarbons as diesel.
TRPH = Total Recoverable Petroleum Hydrocarbons, by EPA 418.1 or SW 9070A.

* 5.5 ppb of bromodichloromethane and 8.4 ppb of dibromochloromethane were detected. The ESL for these compounds in ground water is 100 ppb.

** 32 ppb of di-n-butylphthalate (no ESL).

TABLE 3
GRAB GROUNDWATER SAMPLES
Laboratory Analytical Results
3744 Depot Road, Hayward, CA

Sample No.	Date	TPHG	TPHD	TRPH	MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes	VOCs 8240	VOCs 8270
GAS-GWS	8-29-95	43,000	ND	ND	NA	300	360	1,400	10,000	ND	ND
WO-GWS	8-29-95	ND	600	390	NA	103	ND	17	21	141*	57**
MW1-GWS	8-29-95	ND	ND	2.9	NA	ND	ND	ND	ND	ND	ND
EB-1 water	2-4-04	<50	NA	<5.0	4.3	<0.5	<0.5	<0.5	<0.5	NA	NA
EB-2 water	2-4-04	<50	NA	<5.0	3.9	<0.5	<0.5	<0.5	<0.5	NA	NA
EB-3 water	2-4-04	<50	NA	<5.0	6.0	<0.5	<0.5	<0.5	<0.5	NA	NA
EB-4 water*	2-4-04	1,100	350,000	1,600	<2.5	61	3.0	11	66	NA	NA
EB-5 water*	2-4-04	800	260,000	890	7.5 **	120	1.9 (8020)	4.4	11	NA	NA
EB-6 water*	2-4-04	75	1,100	<5.0	37	1.1	<0.5	1.1	0.70	NA	NA
ESL (comm.)		100	100	100	5.0	1.0	40	30	13		

ND = not detected NA = not analyzed

TPHD analyzed by EPA Method 8015M.
TPHG analyzed by EPA Method 8020.
BTEX and MTBE by EPA Method 8260.

Results are in parts per billion (ppb).
TPHG = Total Petroleum Hydrocarbons as gasoline
TPHD = Total Petroleum Hydrocarbons as diesel
TRPH = Total Recoverable Petroleum Hydrocarbons, by EPA 418.1 or SW 9070A.

* Cadmium, chromium, lead and zinc were non-detectable. Nickel was detected at concentrations of 5.5, 8.5, and 13 ppb in EB-4, EB-5, and EB-6, respectively. The ESL for nickel in groundwater is 8.2 ppb.

Except for MTBE, fuel oxygenates were non-detectable in EB-1 through EB-6, except for in EB-5, where 32 ppb of TBA was detected. The ESL for TBA in groundwater is 12 ppb.

TABLE 4
GROUNDWATER MONITORING DATA
3744 Depot Road, Hayward, CA

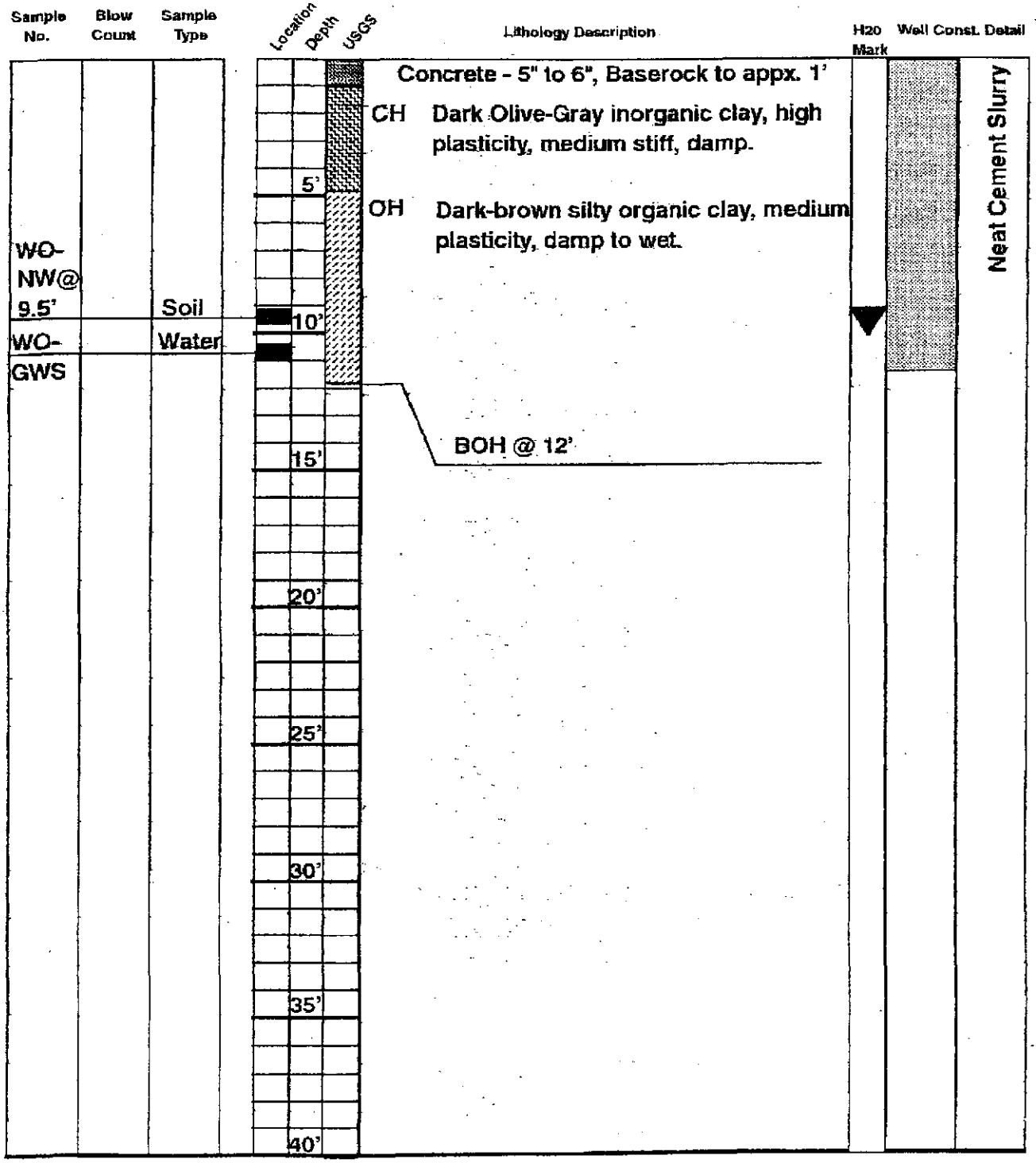
Well Number	Date Sampled	Depth to Water	Top of casing Elevation	Groundwater Elevation
MW1	11/25/96	5.93	10.56	4.63
	11/26/96	5.96		4.60
	4/27/97	5.46		5.10
	3/30/99	5.76		4.26
	2/4/04	5.51		5.05
MW2	11/25/96	6.94	11.27	4.33
	11/26/96	7.11		4.16
	4/27/97	5.61		5.66
	3/30/99	5.63		4.82
	2/4/04	5.17		6.10
MW3	11/26/96	6.62	10.06	3.44
	4/27/97	5.22		4.84
	3/30/99	5.33		4.73
	2/4/04	overflow		

APPENDIX A

BORING LOGS

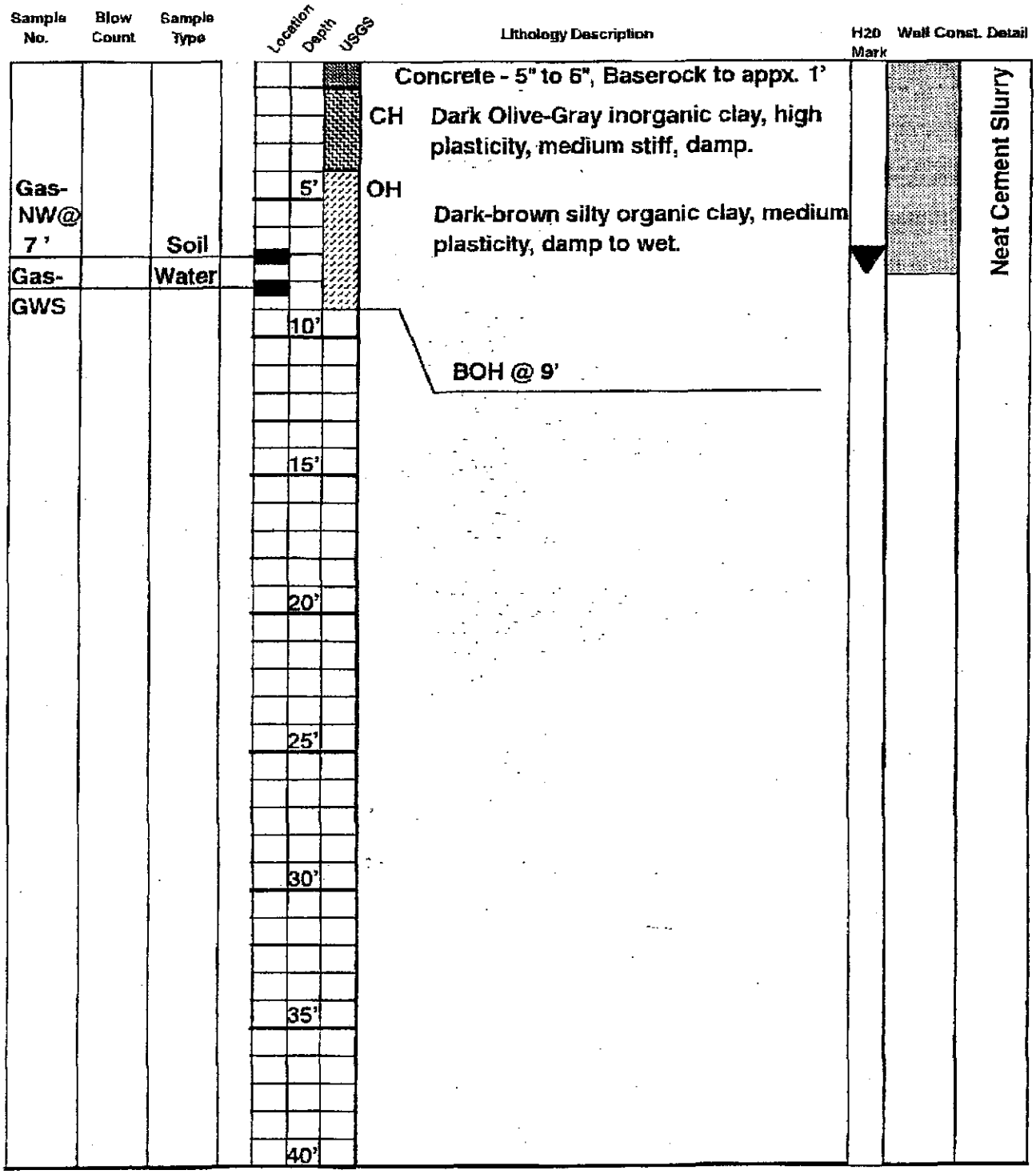
PIERS Environmental Services — Exploratory Boring Log

Project No. 95253 Client: Letz and Associates Boring # WO-NW Date: 6-1-95
Location: 3744 Depot Rd., Hayward, CA Logged By: B. Halsted
Drilling Method: 3.5 inch Hand Auger Permit: Amy Leech - ACDEH Page 1 of 1



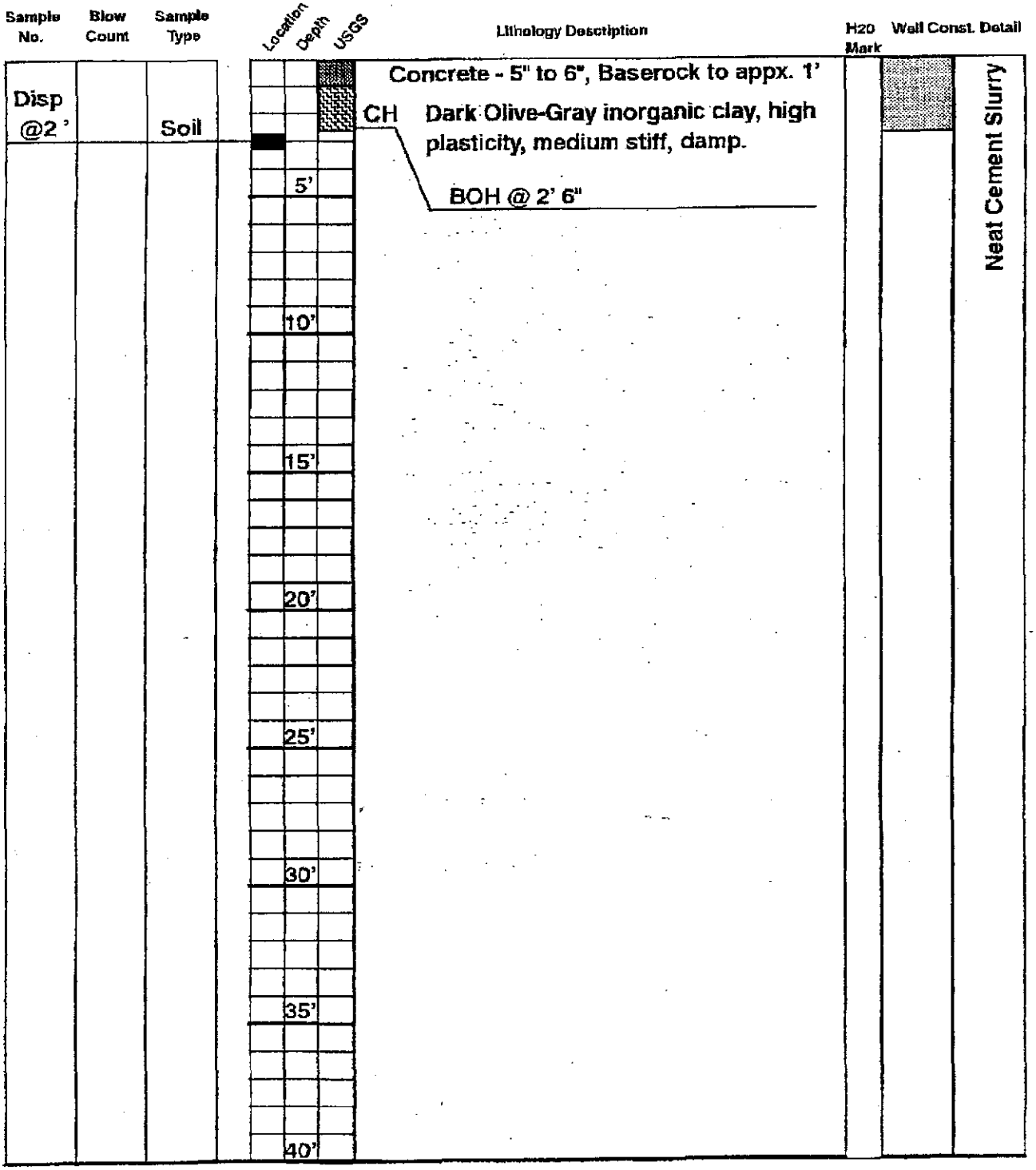
PIERS Environmental Services *Exploratory Boring Log*

Project No. 95253 Client: Lotz and Associates Boring # Gas-NW Date: 6-1-95
Location: 3744 Depot Rd., Hayward, CA Logged By: B. Halsted
Drilling Method: 3.5 inch Hand Auger Permit: Amy Leech - ACDEH Page 1 of 1



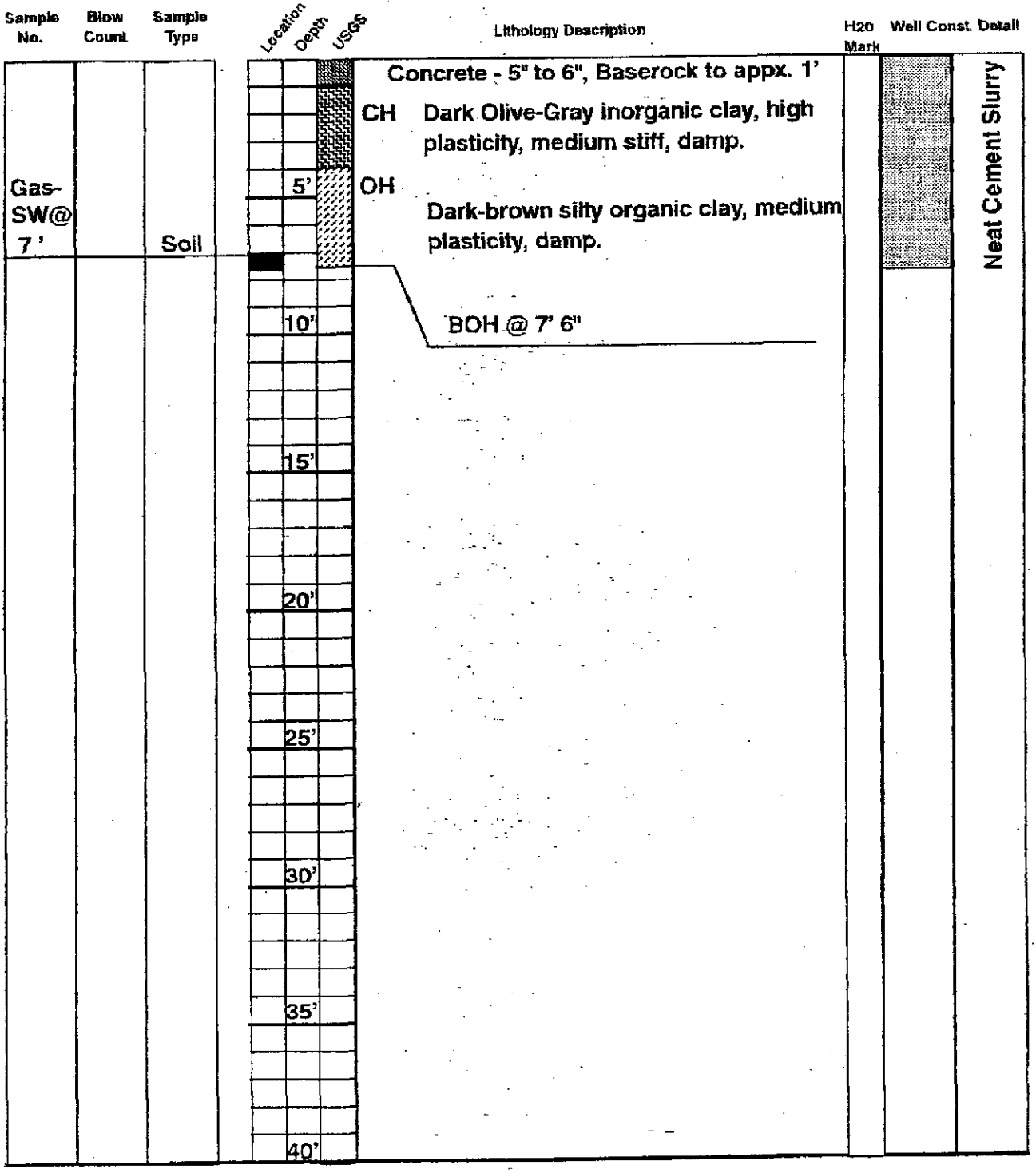
PIERS Environmental Services — Exploratory Boring Log

Project No. 95253 Client: Lotz and Associates Boring # Disp. Date: 6-1-95
Location: 3744 Depot Rd., Hayward, CA Logged By: B. Halsted
Drilling Method: 3.5 inch Hand Auger Permit: Amy Leech - ACDEH Page 1 of 1



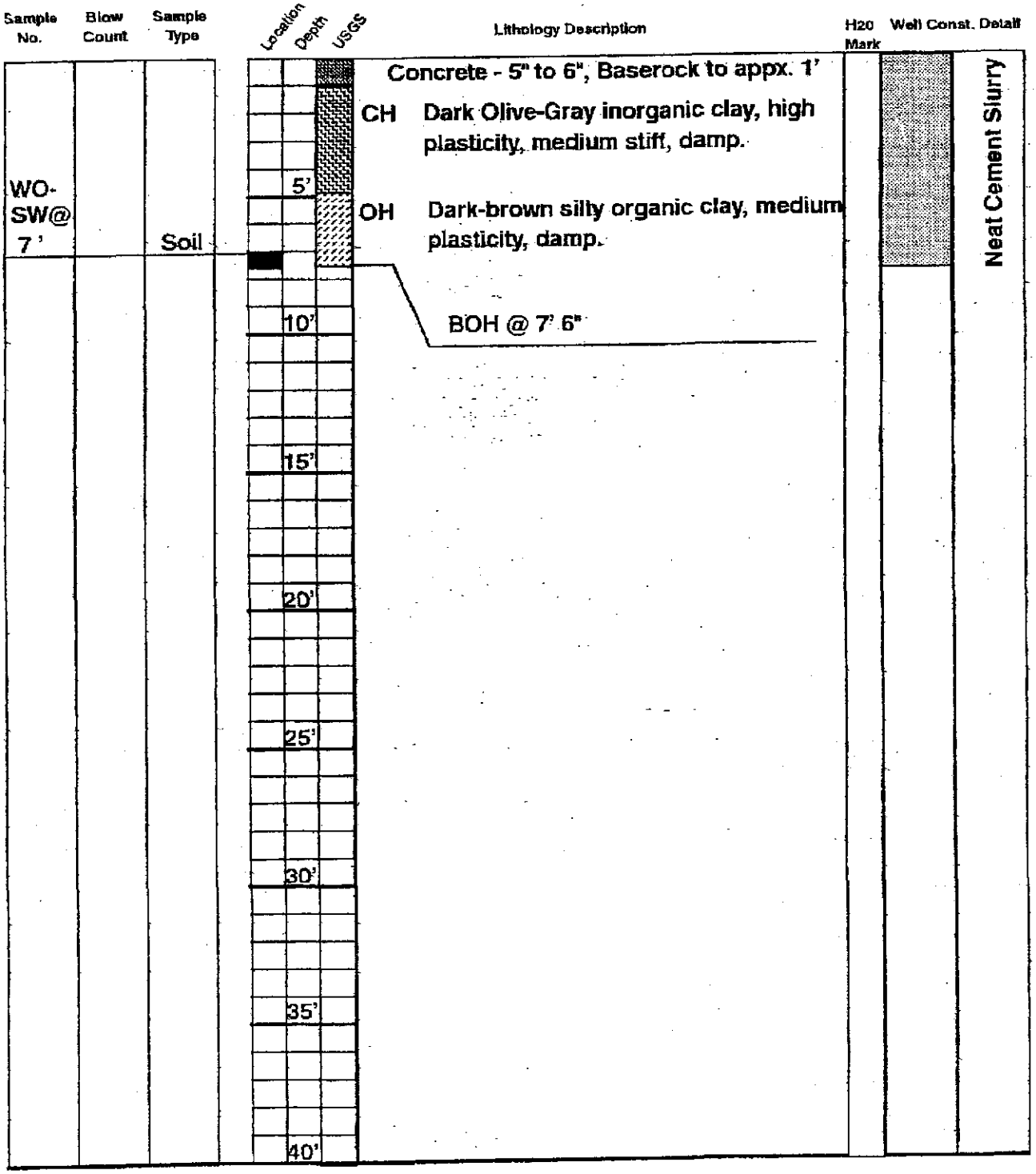
PIERS Environmental Services — Exploratory Boring Log

Project No. 95253 Client: Lotz and Associates Boring # Gas-SW Date: 6-1-95
Location: 3744 Depot Rd., Hayward, CA Logged By: B. Halsted
Drilling Method: 3.5 inch Hand Auger Permit: Amy Leech - ACDEH Page 1 of 1



PIERS Environmental Services — Exploratory Boring Log

Project No. 95253 Client: Lotz and Associates Boring # WO-SW Date: 6-1-95
Location: 3744 Depot Rd., Hayward, CA Logged By: B. Halsted
Drilling Method: 3.5 inch Hand Auger Permit: Amy Leech - ACDEH Page 1 of 1



Field Log of Boring EB-1

Location of Boring

See Site Plan

Approximate scale: 1" =

Logged by	Joel Greger
Weather	clear, mild
Conditions	
Drilling Contractor	Vironex
Drilling Equipment	Geoprobe
Driller's Name	Stan
Drilling Method	Direct push
Sampling Methods	coring
Hammer Weight	— Drop —
Start Time	Date 2/4/04
Completion Time	Date 2/4/04
Time of Backfilling pm	Date 2/4/04 By Vironex
Boring Depth, feet	16'
Casing Depth, feet	—
Water Depth, feet	12'
Time	
Date	2/4/04
Surface Elevation	Datum

Drilling Rate (minutes per foot)	Sampler Type	Blows per 6 inches	Inches Driven	Inches Recovered	Sample Condition	Sample No./Depth	Penetrometer (tsf)	Standard Penetration Blow Count	Depth in Feet	Graphic Log
				continuously cored →					1	ML
									2	
									3	
									4	
									5	
									6	
									7	
									8	
									9	
									10	

4" of concrete over 4" of sand & gravel base

0-8" V. dark brown clayey silt (ML), moist, v. stiff

@ 5' brown clayey silt (ML)

@ 7' olive clayey silt (ML), mottled, some pores, no odor.

@ 8' brown odor

Call above excavated material placed back into excavation after aeration?)

Project Name 3744 Depot Rd. Hayward

Project No. 04028 Sheet 1 of 2

Field Log of Boring EB-1
(continued)

Drilling Rate (minutes per foot)	Sampler Type	Blows per 6 inches	Inches Driven	Inches Recovered	Sample Condition	Sample No./Depth	Penetrometer (tsf)	Standard Penetration Blow Count	Depth in Feet	Graphic Log	Description
										ML ?	@10.7 Olive Clayey silt (ML)
				(Continuous)					11	N	appears undisturbed (native)
						EB-1 11.7					
									12	▽	@12' Abundant water, fairly clear
									13		
										ML	@13.7 grades to olive silt (ML)
									14		
									15		
									16		
									7		TD - 16' -
											Sampled water Immediately
									8		Back filled later same day with bentonite
									9		& neat cement grout.
											using tremie
									0		
									1		
									2		
									3		
									4		
									5		
									6		
									7		
									8		
									9		
									0		

Project Name 3744 Depot Rd Hayward

Project No. 04028 Sheet 2 of 2

Field Log of Boring EB-2

Location of Boring

See site map

Approximate scale: 1" =

Logged by	Joel Gregar
Weather	clear & mild
Conditions	
Drilling Contractor	Vironex
Drilling Equipment	Geoprobe
Driller's Name	Stan
Drilling Method	Direct push
Sampling Methods	Coring
Hammer Weight —	Drop —
Start Time	Date 2/4/04
Completion Time	Date 2/4/04
Time of Backfilling	Date 2/4/04 By Vironex
Boring Depth, feet	16'
Casing Depth, feet	—
Water Depth, feet	12.5'
Time	
Date	2/4/04
Surface Elevation	Datum

Drilling Rate (minutes per foot)	Sampler Type	Blows per 6 inches	Inches Driven	Inches Recovered	Sample Condition	Sample No./Depth	Penetrometer (tsf)	Standard Penetration Blow Count	Depth in Feet	Graphic Log
				→					1	
									2	ML
									3	
									4	
									5	
									6	
									7	
									8	
									9	
									10	

4" of pavement, 4" sand + gravel base

2' of brown clayey silt (ML) v. moist to sl. moist, stiff

Conditions appear identical to EB-1

Project Name 3744 Depot Rd Hayward

Project No. 04028

Sheet 1 of 2

Field Log of Boring EB-2
(continued)

Drilling Rate (minutes per foot)	Sampler Type	Blows per 6 inches	Inches Driven	Inches Recovered	Sample Condition	Sample No./Depth	Penetrometer (tsf)	Standard Penetration Blow Count	Depth in Feet	Graphic Log
				Continuous		EB-2 11.6'			11 12 13 14 15 16	

@ 10.6' appears undisturbed (native), olive clayey silt (ML)

@ 11.6 wet to saturated but no free water

@ 12.5 - 14' slightly sandier, saturated, abundant water

@ 14' - Clayey silt (ML), as above

TD - 16' sampled water immediately

Backfilled w/ bentonite chips Same Day + neat cement grout using tremie

Project Name 3744 Depot Rd Hayward

Project No. 04028

Sheet 2 of 2

Field Log of Boring EB-3

Location of Boring	See site plan
Approximate scale: 1" =	

Logged by	Joel Greger		
Weather	clear & mild		
Conditions			
Drilling Contractor	Vironex		
Drilling Equipment	Geoprobe		
Driller's Name	Stan		
Drilling Method	Direct push		
Sampling Methods	coring		
Hammer Weight	—	Drop	—
Start Time		Date	2/4/04
Completion Time	~1040 AM	Date	2/4/04
Time of Backfilling		Date 2/4/04	By Vironex
Boring Depth, feet	16		
Casing Depth, feet	—		
Water Depth, feet	5.61		
Time	2:50PM		
Date	2/4/04		
Surface Elevation	Datum		

Drilling Rate (minutes per foot)	Sampler Type	Blows per 6 inches	Inches Driven	Inches Recovered	Sample Condition	Sample No./Depth	Penetrometer (tsf)	Standard Penetration Blow Count	Depth in Feet	Graphic Log	Description
				continuous (w/ core) ↕ (0–10+)							@0 - DK. brown clayey silt (ML)
									1		
									2	ML	
									3		
									4		
									5	▽	
						EB3 5.5'			6		
									7		~ clayey silt (ML), color @7.6 grades to lt. brown to olive, mottled, plant remains, moist, v. stiff
									8		
									9		@8-9.3 - DK. brown to brown w/ a few angular gravels
									10		@10.3 - olive clayey silt (ML)

Project Name 3744 Depot Rd Hayward Project No. 04028 Sheet 1 of 2

Field Log of Boring EB-3
(continued)

Drilling Rate (minutes per foot)	Sampler Type	Blows per 6 inches	Inches Driven	Inches Recovered	Sample Condition	Sample No./Depth	Penetrometer (tsf)	Standard Penetration Blow Count	Depth in Feet	Graphic Log
				9		EB3(10.5			1	
						EB3(11.5')			2	
				continuous					3	ML
									4	Sandy ML
									5	ML
									6	
									7	
									8	
									9	
									0	
									1	
									2	
									3	
									4	
									5	
									6	
									7	
									8	
									9	
									0	

@14.2-14.7 sandy silt (ML) but no free water, tighter than EB2 as it was beyond edge of former tank pit, then clayey silt as above

TD 16

Backfilled w bentonite & neat cement grout using tremie

No free water upon completion installed casing water v. slow to accumulate, sampled 4 hrs. later @ 2:50 PM, wat @ 5.6'

Note:
DTW in MW1 1043 AM
5.51' below TOC

Project Name 3744 Depot Rd Investment Project No. 04028 Sheet 2 of 2

Field Log of Boring EB-4

Location of Boring	See site map
Approximate scale: 1" =	

Logged by	Joel Greger		
Weather	Clear & mild		
Conditions			
Drilling Contractor	Vironex		
Drilling Equipment	Geoprobe		
Driller's Name	Stan		
Drilling Method	direct push		
Sampling Methods	Coring		
Hammer Weight	—	Drop	—
Start Time	11 AM	Date	2/4/04
Completion Time		Date	2/4/04
Time of Backfilling		Date 2/4/04	By Vironex
Boring Depth, feet	16		
Casing Depth, feet	—		
Water Depth, feet	6.9		
Time			
Date	2/4/04		
Surface Elevation	Datum		

Drilling Rate (minutes per foot)	Sampler Type	Blows per 6 inches	Inches Driven	Inches Recovered	Sample Condition	Sample No./Depth	Penetrometer (tsf)	Standard Penetration Blow Count	Depth in Feet	Graphic Log	Description
				continuously cored					0–1		4" of concrete, then 1 foot of mottled clayey silt (fill)
									1		@1' Dk. brown clayey silt (ML)
									2		
									3		
									4		
						EB4 (4.5')			5		(ML) Clayey silt, as above
									6		@6.3 odor of hydrocarbons, becomes grayish-brown (stained?), some plant remains
									7	▽	
						EB4 (7.5')			8		
									9	F?	@9.5' change from dk brown to olive gray, appears undisturbed (native?) @9.7'
									10	N	

Project Name 3744 Depot Rd Hayward

Project No. 04028

Sheet 1 of 2

Field Log of Boring EB-4
(continued)

Drilling Rate (minutes per foot)	Sampler Type	Blows per 6 inches	Inches Driven	Inches Recovered	Sample Condition	Sample No./Depth	Penetrometer (tsf)	Standard Penetration Blow Count	Depth in Feet	Graphic Log	Description
									11	ML	Clayey silt (ML), as above; >11.5' - odor of hydrocarbons, slightly gray (stained?)
						EB4(11.5')			12	sandy	olive-gray color; @12' - wet
									13		@12.8' 2" sandy silt zone, water has a sheen, odor of hydrocarbons
									14		
									15		
									16		
									7		TD - 16' odor 6-16' sheen on water
									8		
									9		sampled ground water immediately
									0		water later rose to 6.9'
									1		Backfilled later same day w bentonite + neat cement grout using tremie
									2		
									3		
									4		
									5		
									6		
									7		
									8		
									9		
									0		

Project Name 3744 Depot Rd Hayward   Project No. 04028   Sheet 2 of 2

Field Log of Boring EB-5

Location of Boring

See site plan

Approximate scale: 1" =

Logged by	Joel Gregar		
Weather	clear & mild		
Conditions			
Drilling Contractor	Vironex		
Drilling Equipment	Geoprobe		
Driller's Name	Stan		
Drilling Method	Direct Push		
Sampling Methods	coring		
Hammer Weight	—	Drop	—
Start Time		Date	2/4/04
Completion Time		Date	2/4/04
Time of Backfilling		Date	2/4/04 By Vironex
Boring Depth, feet	16'		
Casing Depth, feet	—		
Water Depth, feet	6.2 after completion of sampling (10 minutes)		
Time			
Date	2/4/04		
Surface Elevation	Datum		

Drilling Rate (minutes per foot)	Sampler Type	Blows per 6 inches	Inches Driven	Inches Recovered	Sample Condition	Sample No./Depth	Penetrometer (tsf)	Standard Penetration Blow Count	Depth in Feet	Graphic Log
				cont. next page		EB5(5.5')			1 2 3 4 5 6 7 8 9 10	
						EB5(7.5')				

0-4' DK brown clayey silt (ML), sl. moist, v. stiff

lithology identical to EB-4

@ 5.5' possible sl. odor?

@ 7.5' little to no odor

@ 9.5 - definite odor below 9.5

Project Name 3744 Depot Rd Hayward

Project No. 04028

Sheet 1 of 2

Field Log of Boring EB-5
(continued)

Drilling Rate (minutes per foot)	Sampler Type	Blows per 6 inches	Inches Driven	Inches Recovered	Sample Condition	Sample No./Depth	Penetrometer (tsf)	Standard Penetration Blow Count	Depth in Feet	Graphic Log
				CONTINUOUS		EB5(11.5)			1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0	

Lithology identical to EB4

@11.5 slight odor of hydrocarbons but less than in EB4

@12-16' Clayey silt, ML Free water @ 13.4 with heavy sheen, s.l. sandy zone

TD-16

collected sample immediately

Sheen on Sample

Backfilled later same day w bentonite & neat cement grout, Grout thru tremie

Project Name 3744 Depot Rd Hayward

Project No 64028

Sheet 2 of 2

Field Log of Boring EB-6

Location of Boring

see site plan

Approximate scale: 1" =

Logged by	Joel Grayer		
Weather	Clear, mild		
Conditions			
Drilling Contractor	Vironex		
Drilling Equipment	Geoprobe		
Driller's Name	Stan		
Drilling Method	direct push		
Sampling Methods	coring		
Hammer Weight	—	Drop	—
Start Time		Date	2/4/04
Completion Time		Date	2/4/04
Time of Backfilling	right after	Date	2/4/04 By Vironex
Boring Depth, feet	16'		
Casing Depth, feet	—		
Water Depth, feet	6.3 after sampling (10 min. later)		
Time			
Date	2/4/04		
Surface Elevation	Datum		

Drilling Rate (minutes per foot)	Sampler Type	Blows per 6 inches	Inches Driven	Inches Recovered	Sample Condition	Sample No./Depth	Penetrometer (tsf)	Standard Penetration Blow Count	Depth in Feet	Graphic Log
				Continuously cored		EB6 (5.5)			1 2 3 4 5 6 7 8 9 10	
						EB6 (8)				

0-4' Brown clayey silt (ML) as in EB4+5

@ 4-8' Brn - Dk brn. clayey silt (ML). mod. odor

@5.5 - mod - odor
Note - says 4.5' on COC

@9.3' becomes gray stained

Project Name 3744 Depot Rd. Hayward

Project No. 04028 Sheet 1 of 2

Field Log of Boring EB-6
(continued)

Drilling Rate (minutes per foot)	Sampler Type	Blows per 6 inches	Inches Driven	Inches Recovered	Sample Condition	Sample No./Depth	Penetrometer (tsf)	Standard Penetration Blow Count	Depth in Feet	Graphic Log
				Continuous		EB6 @11.5			1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0	

@ 11-12' – mottled w gravelly stringers

>12-14 strong odor, lessening below 14', clayey silt (mtc), no sand or zones or free water observed.

TD -16'

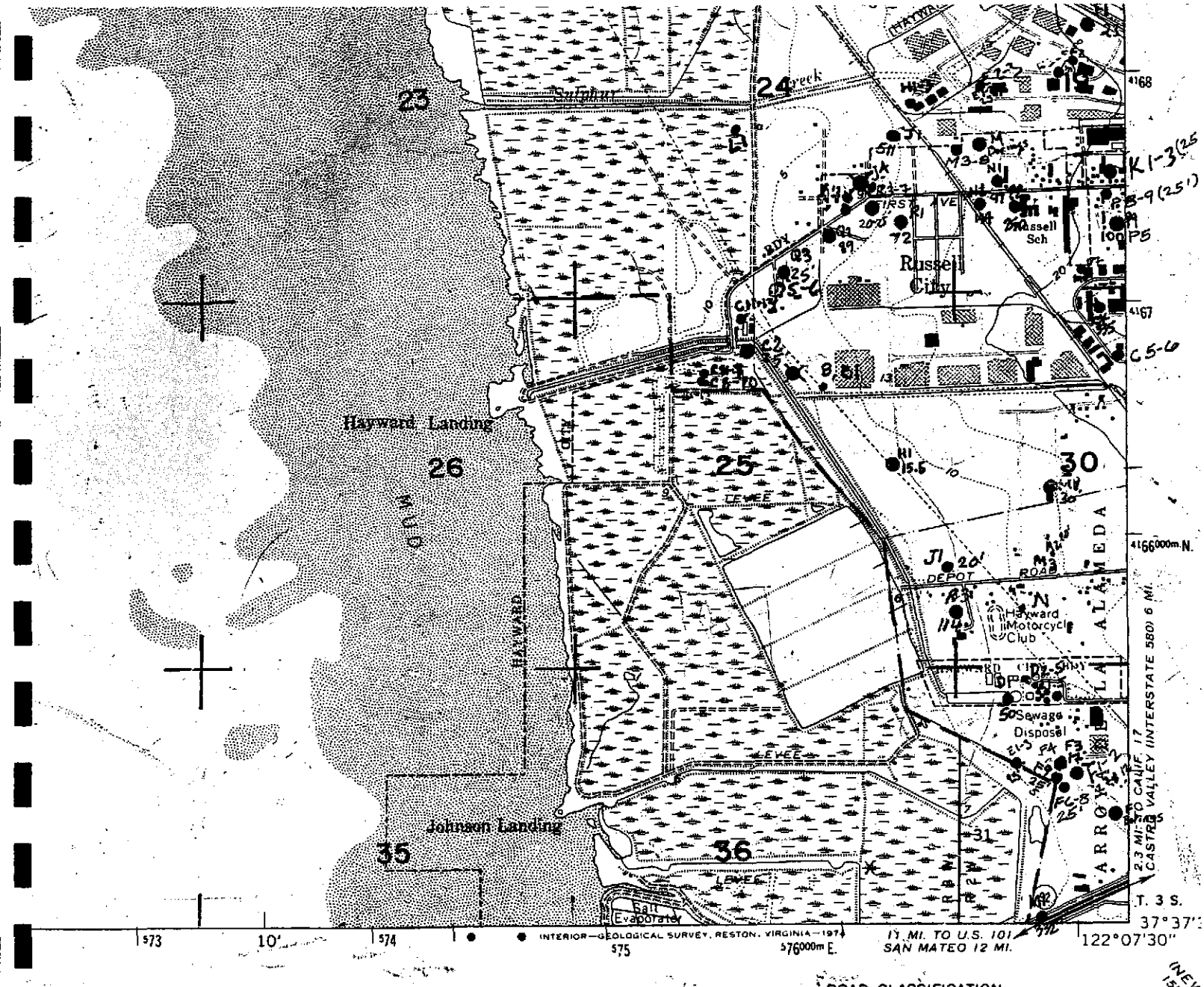
Dry upon completion but caved quickly to 6.3

Backfilled w bentonite + neat cement grout using tremie

Project Name 3744 Depot Rd Hayward Project No. 04028 Sheet 2 of 2

APPENDIX B

WATER WELL SURVEY DATA



1 MILE

6000 7000 FEET

1 KILOMETER

ROAD CLASSIFICATION

Heavy-duty ——— Light-duty ———

Medium-duty ——— Unimproved dirt - - - - - -

Interstate Route ◯ State Route

/ WATER
GH WATER

CALIF

QUADRANGLE LOCATION

NDARDS
RESTON, VIRGINIA 22092
E ON REQUEST

SAN LEANDRO, CALIF.
NW 4 HAYWARD 15' QUADRANGLE
N3737.5—W12207.5/7.5

1959
PHOTOREVISED 1968 AND 1973
AMS 1559 II NW—SERIES V895

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

EAST BAY PLAIN WELL LOCATION BASE MAP

SAN LEANDRO QUADRANGLE

	FILE NO	SHEET	OF
	MC 276	5	10