AQUIFER SCIENCES, INC.

REQUEST FOR CASE CLOSURE
187 NORTH L STREET
LIVERMORE, CALIFORNIA

Prepared for

Don-Sul, Inc.
187 North L Street
Livermore, California 94550

by

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August 8, 2005

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Jerry Wickham
Alameda County Health Care Services Agency
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Subject: Request for Case Closure
Arrow Rentals, 187 North L Street, Livermore, California

Dear Mr. Wickham:

On behalf of Arrow Rentals, Aquifer Sciences is requesting closure of the environmental case pertaining to 187 North L Street in Livermore, California. At your request, we have provided additional supporting documentation for the closure request.

Thank you for your consideration of this request for closure of the environmental case. Please call us if you have any questions.

Respectfully yours,

for

Thomas E. Neely, PG, CHG, REA II
Senior Hydrogeologist

Rebecca A. Sterbentz, PG, CHG
President

REGISTERED GEOLOGIST
REBECCA A. STERBENTZ
No. 4119
STATE OF CALIFORNIA

cc: Rita Sullins, Arrow Rentals

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REQUEST FOR CASE CLOSURE
Arrow Rentals
187 North L Street, Livermore, California
August 2005

1.0 INTRODUCTION

On behalf of Arrow Rentals, Aquifer Sciences is requesting closure of the environmental case pertaining to 187 North L Street in Livermore, California. At the request of Bob Schultz of the Alameda County Health Care Services Agency, we have provided supporting documentation for the closure request. A summary of the environmental case and the rationale for closure are presented in the following sections.

2.0 DESCRIPTION OF THE SITE AND VICINITY

The site encompasses approximately 18,000 square feet of land, and is located on the western side of North L Street in northern Livermore (Figure 1). Arrow Rentals, an equipment rental company, occupies the site. A building covers approximately 850 square feet, and is located in the northern portion of the site (Figure 2). The remainder of the site is paved with asphalt or concrete. The site is bounded on the north by railroad tracks, on the east by North L Street, and on the south and west by undeveloped land. Residential housing, commercial businesses, and light industry are present in the vicinity.

3.0 ENVIRONMENTAL HISTORY OF THE SITE

A Mobil service station operated at the site between approximately 1951 and 1968 (WCC, 1991). Arrow Rentals purchased the site in 1972. In 1972, three of five underground fuel storage tanks were removed after failing integrity tests. The two remaining tanks were used until 1984, when they were removed. In 1984, a 1,000-gallon underground fuel tank and a vapor monitoring well were installed.

In 1985, a delivery truck operator from Petcock Petroleum accidentally dispensed approximately 600 gallons of fuel into the vapor well. Water was poured into the well from a garden hose some time after the release.

Several soil and groundwater investigations have been conducted at the site since 1988. The investigations have included drilling soil borings; collecting soil, soil vapor, and groundwater samples; installing groundwater monitoring wells; performing aquifer tests; and conducting periodic groundwater monitoring. Tables 1, 2, and 3 list the results of chemical analysis

performed on soil, soil vapor, and groundwater samples collected at the site. Soil boring and well installation logs are included in Appendix A. Primarily, the samples have been analyzed for total petroleum hydrocarbons quantified as gasoline (TPH-gasoline), diesel (TPH-diesel), and motor oil (TPH-motor oil); benzene, toluene, ethylbenzene, and xylenes (BTEX); and methyl tertiary butyl ether (MTBE). The data are summarized in the following subsections.

3.1 ANALYTICAL DATA FOR SOIL

Table 1 presents the analytical data for 121 soil samples collected at the site. The sampling locations are shown on the figures included in Appendix B. Petroleum hydrocarbons that have been detected in soil include TPH-gasoline (up to 16,000 mg/kg), TPH-diesel (up to 1,500 mg/kg), benzene (up to 220 mg/kg), toluene (up to 1,100 mg/kg), ethylbenzene (up to 340 mg/kg), xylenes (up to 1,500 mg/kg), naphthalene (up to 3.4 mg/kg), 2-methyl-naphthalene (up to 3.5 mg/kg), and phenol (up to 0.3 mg/kg). Concentrations of petroleum hydrocarbons that exceed residential and/or commercial/industrial Environmental Screening Levels (ESLs) are outlined in Table 1.

The highest levels of petroleum hydrocarbons were detected in soil samples collected at depths of approximately 40 feet below grade. Since the depth to groundwater ranges from approximately 20 to 40 feet below grade at the site, some or all of the soil samples deeper than 20 feet may have been collected from the saturated zone. The highest levels of petroleum hydrocarbons were detected in the vadose zone in borings B-G and W-1.

3.2 ANALYTICAL DATA FOR SOIL VAPOR

Table 2 presents the analytical data for 27 soil vapor samples collected in 1990 and 1998. The sampling locations are shown on the figures in Appendix B. Petroleum hydrocarbons that have been detected in soil vapor include TPH-gasoline (up to 2,000 $\mu g/m^3$), benzene (up to 16 $\mu g/m^3$), toluene (up to 46 $\mu g/m^3$), ethylbenzene (up to 11 $\mu g/m^3$), and xylenes (up to 66 $\mu g/m^3$). All of the petroleum hydrocarbons were detected in soil vapor at concentrations less than residential and commercial/industrial ESLs.

3.3 ANALYTICAL DATA FOR GROUNDWATER

In 1988, three groundwater monitoring wells (W-1, W-2, and W-3) were installed at the site. In 1990, five groundwater monitoring wells (W-A, W-B, W-C, W-D, and W-E) were installed in the vicinity of the site. In 1996, four groundwater monitoring wells (W-1s, W-3s, W-Bs, and W-Es) were installed in the vicinity of the site. The well locations are shown on the figures in Appendix B. Petroleum hydrocarbons have been detected in samples collected from the wells. A summary of the analytical data for the groundwater samples is presented in Table 3.

Since March 1996, groundwater samples have been collected from four monitoring wells (W-1s, W-3s, W-Bs, and W-Es) on a regular basis. Wells W-1s, W-3s, and W-Bs are located at the site. Well W-Es is located downgradient of the site (Figure 2). Elevated levels of TPH-gasoline, TPH-diesel, TPH-motor oil, benzene, toluene, ethylbenzene, xylenes, and methyl tertiary butyl ether (MTBE) have been detected in the samples collected from wells W-1s and W-Bs. Lower levels of petroleum hydrocarbons have been detected in samples collected from well W-3s. Samples from well W-Es have occasionally contained low levels of petroleum hydrocarbons.

3.4 AQUIFER TESTING

In 1990, slug tests were conducted in groundwater monitoring wells W-A and W-B to evaluate the hydraulic conductivity of the aquifer. The reported hydraulic conductivity from the slug tests was $4x10^{-4}$ centimeters per second (WCC, 1991).

4.0 TOPOGRAPHY AND HYDROGEOLOGY

The following sections present a discussion of the regional and local topography and hydrogeology.

4.1 REGIONAL TOPOGRAPHY

The site is located in an east-west trending valley (the Livermore Valley). The valley is bounded by hills on the north reaching elevations of more than 1,200 feet above mean sea level (MSL), and by hills on the south reaching to elevations of more than 900 feet above MSL. The elevation of the valley floor ranges from more than 500 feet in the east to approximately 350 feet in the west.

The channels of two streams (Arroyo Mocho and Arroyo Las Positas) are present in the site vicinity. Arroyo Mocho is located approximately 3,800 feet southwest of the site. Arroyo Las Positas is located approximately 1.1 mile north of the site. Both streams flow to the west toward the City of Pleasanton. Due to distance, contamination at the site likely does not impact either stream.

4.2 LOCAL TOPOGRAPHY

The site is approximately 480 feet above MSL. The land surface in the vicinity of the site slopes to the northwest at approximately 0.9 foot per 100 feet.

4.3 REGIONAL HYDROGEOLOGY

The site is underlain by approximately 750 feet of valley-fill deposits, consisting of Quaternary alluvium and the Livermore Formation. The valley-fill deposits are underlain by the Pliocene-age Tassajara Formation (DWR, 1966).

The oldest relevant geologic unit is the Tassajara Formation, which consists of freshwater deposits of moderately indurated sandstone, siltstone, shale, conglomerate, and limestone (DWR, 1974). The Tassajara Formation probably underlies the valley-fill deposits near the site at a depth of approximately 750 feet.

The Livermore Formation has been divided into two facies: one clay and one gravel (DWR, 1974). The clay facies is believed to underlie the gravel facies and represents a lacustrian phase of deposition. The gravel facies consists of unconsolidated beds of gravel, sand, silt, and clay (DWR, 1966). The Livermore Formation occurs at a shallow depth in some areas and is difficult to distinguish from the valley-fill deposits.

Quaternary valley-fill alluvium forms the valley floor beneath the site, thickening to the east. The alluvium consists of lenticular beds of gravel, sand, silt, and clay, representing reworked sediments of the Livermore Formation. The thickness of the alluvium ranges from approximately 20 to 350 feet.

4.4 LOCAL HYDROGEOLOGY

Cross sections depicting the subsurface at the site and in the vicinity are provided in Appendix C. At the site, silty and clayey gravel and sand extend between the ground surface to depths of approximately 35 to 40 feet below grade (WCC, 1991). The silty and clayey gravel and sand are underlain by silt and clay. In April 2004, the depth to groundwater in monitoring wells at the site was approximately 30 feet below grade (Aquifer Sciences, 2004). In the early 1990s, the depth to groundwater was greater (approximately 40 feet below grade), due to an extended drought. Groundwater generally flows to the west, with a hydraulic gradient of approximately 0.019 ft/ft (Aquifer Sciences, 2004).

5.0 EXTENT OF SOIL AND GROUNDWATER CONTAMINATION

The extent of contamination is depicted on the figures in Appendix D.

5.1 SOIL CONTAMINATION

Analytical data for 121 soil samples collected from 27 locations indicate that the majority of petroleum hydrocarbon contamination in soil is present in the vicinity of borings B-1, B-1A, B-G, B-H, W-A, and W-1. The soil contamination at borings B-1A, B-H, and W-A appears to be associated with contamination in groundwater.

5.2 GROUNDWATER CONTAMINATION

The approximate lateral extent of contamination in groundwater is shown on Figure 2. Based upon analytical data, the contamination at the site extends less than 60 feet below grade and less than 100 feet offsite (WCC, 1991). The data further show that the contaminant plume is stable. In November 2001, 0.14 foot of floating product was measured in well W-1s. Floating product has not been measured during any other monitoring event for well W-1s. Floating product has not been measured in any of the other monitoring wells.

6.0 GROUNDWATER RESOURCE EVALUATION

In 1999, we conducted a survey to evaluate groundwater usage in the area and the location of nearby wells. The results of the survey are presented in Section 6.1. An evaluation of the present and potential beneficial uses of shallow groundwater is presented in Section 6.2.

6.1 WELL SURVEY RESULTS

We conducted a survey of wells in the vicinity of the site to determine the locations of potential receptors of groundwater contamination. We researched well logs at the California Department of Water Resources (DWR) and Zone 7 of the Alameda County Flood Control and Water Conservation District (Zone 7). Table 4 lists information concerning wells located within approximately 1 mile of the site.

The depths of monitoring wells located within 1 mile of the site are 85 feet or less. The depths of five cathodic protection wells are approximately 120 feet. The nearest cathodic protection well is 660 feet west-northwest of the site. Domestic wells in the vicinity are at least 220 feet deep. The nearest domestic well is more than 3,000 feet south-southwest of the site. Industrial wells in the vicinity are at least 95 feet deep. The nearest industrial well is more than 1,800 feet north-northeast of the site. Municipal wells in the vicinity are at least 465 feet deep. The nearest municipal well is 2,200 feet north of the site.

Well location maps were provided by Zone 7. Well 3S/2E8R15 is located approximately 400 feet north of the site. The nearest downgradient well is 3S/2E8K4, located approximately 1,200 feet north of the site. No information concerning the use or construction of either well was available.

Based upon information obtained during the well survey, monitoring wells are screened in water-bearing units within 85 feet of ground surface. Water supply wells (domestic, industrial, and municipal) in the vicinity are typically screened in water-bearing units deeper than 100 feet below grade. The nearest potential water supply well (3S/2E8R15) is approximately 400 feet north of the site. The contamination at the site extends less than 60 feet below grade and less than 100 feet offsite to the west (WCC, 1991). Consequently, based upon the distance to nearby wells, contamination at the site is not impacting any known water supply wells.

6.2 BENEFICIAL USES OF GROUNDWATER

On June 21, 1995, the Regional Water Quality Control Board (RWQCB) issued an updated Water Quality Control Plan ("Basin Plan") for the San Francisco Bay Basin (RWQCB, 1995). The Basin Plan describes the present and potential beneficial uses of surface water and groundwater. Portions of the Basin Plan that pertain to groundwater are presented in the following paragraphs.

Existing and potential beneficial uses of groundwater include municipal and domestic supply, industrial water supply, industrial process water supply, agricultural water supply, and freshwater replenishment to surface waters. Unless otherwise designated by RWQCB, all groundwater is considered suitable, or potentially suitable, for municipal or domestic water supply. In making any exceptions, RWQCB considers criteria referenced in Resolution No. 89-39, "Sources of Drinking Water," where:

1) The total dissolved solids exceed 3,000 mg/L (specific conductance exceeds 5,000 μS/cm), and it is not reasonably expected by RWQCB that the groundwater could supply a public water system; or

2) There is contamination, either by natural processes or by human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for domestic use using either best management practices or best economically achievable treatment practices; or

3) The water source does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day; or

4) The aquifer is regulated as a geothermal energy-producing source or has been exempted administratively pursuant to 40 CFR Part 146.4 (revised April 1, 1983) for the purpose of underground injection of fluids associated with the production of hydrocarbon or

geothermal energy, provided that these fluids do not constitute a hazardous waste under 40 CFR Part 261.3 (revised October 30, 1992).

Based upon information obtained during the well survey, monitoring wells are screened in water-bearing units within 85 feet of ground surface. Water supply wells (domestic, industrial, and municipal) in the vicinity are typically screened in water-bearing units deeper than 100 feet below grade. Therefore, groundwater that is currently used in the vicinity is obtained from depths typically greater than 100 feet, and below the depths to which the contamination at the site extends. Although a potential resource, groundwater between ground surface and approximately 100 feet below grade is not typically utilized in the vicinity.

7.0 HEALTH CONSIDERATIONS

Exposure risk to humans and the environment are described in Section 7.1. Water quality objectives are presented in Section 7.2.

7.1 EXPOSURE RISK TO HUMANS AND THE ENVIRONMENT

The main routes of exposure to petroleum hydrocarbons such as gasoline, BTEX, and MTBE are through inhalation of vapors, dermal contact, and incidental ingestion. However, dermal contact with petroleum hydrocarbons at the site is unlikely, as the contamination is present beneath the pavement. Ingestion of petroleum hydrocarbons at the site is also unlikely since shallow groundwater in the vicinity is not used for beneficial purposes.

Inhalation of petroleum hydrocarbon vapors from the subsurface is possible. However, the pavement inhibits the volatilization and release of contaminants to the atmosphere. Exposure to petroleum hydrocarbons in the subsurface could occur if excavation were conducted through the affected area. However, fugitive emissions during excavation can be controlled, limiting worker and public exposure to these compounds.

Possible impacts to the environment include the potential discharge of contaminated groundwater to nearby creeks. However, Arroyo Mocho is located approximately 3,800 feet southwest of the site. The extent of contamination is well defined, is located within 100 feet of the site, and is not impacting surface water.

The levels of petroleum hydrocarbon contamination in soil, soil vapor, and groundwater are compared to ESLs in the following subsections.

7.1.1 Exposure Assessment Due to Soil Contamination

The majority of the soil contamination at the site is present at depths of more than 15 feet below grade. Petroleum hydrocarbons were detected in samples collected in shallow soil samples collected from boring B-G at levels exceeding ESLs. As noted in Section 7.1, dermal contact with and ingestion of contaminated soil are incomplete exposure pathways, provided the soil is not disturbed. Indirect ingestion of contaminants could result from the consumption of fruits or vegetables obtained from plants grown in contaminated soil. Inhalation of vapors is addressed in Section 7.1.2. Residual soil contamination may adversely impact groundwater quality. Impacts due to groundwater contamination are addressed in Section 7.1.3.

7.1.2 Exposure Assessment Due to Soil Vapor Contamination

Analytical data from 27 soil vapor samples collected at the site and in the vicinity indicate the presence of low levels of petroleum hydrocarbons in some areas. However, none of the contaminants were detected at levels exceeding ESLs for the vapor intrusion and inhalation scenario.

7.1.3 Exposure Assessment Due to Groundwater Contamination

Groundwater in the vicinity of the site has been adversely impacted by the presence of elevated levels of petroleum hydrocarbons. The majority of the contaminant plume is beneath the site. The contamination extends less than 60 feet below grade and less than 100 feet offsite. Exposure to the contamination in groundwater could occur through ingestion, dermal contact, inhalation of vapors, and indirect ingestion through the consumption of fruits and vegetables obtained from plants watered with contaminated groundwater.

If undisturbed, ingestion of and dermal contact with contaminated groundwater is an incomplete exposure pathway. Inhalation of vapors during showering is also an incomplete exposure pathway, if groundwater is not utilized. Inhalation of vapors from groundwater in the subsurface is addressed in Section 7.1.2. Indirect ingestion of contaminants could result from the consumption of fruits or vegetables obtained from plants grown in contaminated soil. This is currently an incomplete pathway.

7.2 WATER QUALITY OBJECTIVES

The Basin Plan also addresses groundwater clean-up levels. Resolution No. 92-49 indicates that clean-up and abatement must be performed "in a manner that promotes attainment of either background water quality, or the best water quality that is reasonable if background levels of water quality cannot be restored, considering all demands being made and to be made on those waters...

In approving any alternative clean-up levels less stringent than background, the clean-up levels shall: 1) be consistent with maximum benefit to the people of the state; 2) not unreasonably affect present and anticipated beneficial uses of such water; and 3) not result in water quality less than that prescribed in the Water Quality Control Plans and Policies adopted by the State and Regional Boards."

According to the Basin Plan "the overall clean-up level established for a water body is based upon the most sensitive beneficial use identified. In all cases, the Regional Board first considers high quality or naturally occurring 'background' concentration objectives as the clean-up levels for polluted groundwater . . . for groundwaters with a beneficial use of municipal and domestic supply, clean-up levels are set no higher than: 1) Maximum Contaminant Levels (MCLs) or Secondary MCLs . . . whichever is more restrictive, or 2) a more stringent level (i.e., below MCLs) based upon a site-specific risk assessment. Clean-up levels must be set to maintain the excess upperbound lifetime cancer risk to an individual of less than 1 in 10,000 (10^{-4}) or a cumulative toxicological effect as measured by the Hazard Index of less than one." In each instance, "groundwater clean-up levels are approved on a case-by-case basis by the Regional Board. The Executive Officer or a local agency may approve clean-up levels as appropriately established by the Regional Board."

8.0 SUMMARY AND CONCLUSIONS

Since 1988, several environmental investigations have been performed at the site. The hydrogeologic and analytical data obtained from these investigations indicate that the highest levels of residual contamination are beneath the site in the vicinity of monitoring wells W-1s and W-Bs. Floating product has not been detected in any of the monitoring wells since 2001. The data further show that the contaminant plume is stable, extending less than 60 feet below grade and less than 100 feet offsite.

We evaluated potential impacts from the petroleum hydrocarbon release to surface water and wells in the vicinity. Arroyo Mocho is the closest surface water feature, located approximately 3,800 feet southwest of the site. Based upon information obtained during the well survey, monitoring wells are screened in water-bearing units within 85 feet of ground surface. Water supply wells (domestic, industrial, and municipal) in the vicinity are typically screened in water-bearing units deeper than 100 feet below grade. The nearest potential water supply well (3S/2E8R15) is approximately 400 feet north of the site. Since the contamination at the site extends less than 60 feet below grade and less than 100 feet offsite to the west, contamination at the site is not impacting any known water supply wells.

The analytical data further show that, if left undisturbed, residual contamination in soil, soil vapor, and groundwater beneath the site should not adversely impact human health or the environment.

9.0 RECOMMENDATIONS

Base upon the available data and discussions with Tony and Rita Sullins, the current owners of the site, we offer the following recommendations.

- Place a restriction on the deed that prohibits the use of groundwater beneath the site for agricultural, domestic, commercial, industrial, or municipal purposes. Also prohibit the planting and harvesting of crops at the site.

- Place a notification on the deed and on file with the Livermore Building Department. The purpose of the notification is to alert City and County personnel if the usage of the site changes and to illustrate the location of residual contamination. This will enable Alameda County Environmental Health to evaluate any proposed project with respect to potential exposure to residual contamination.

- If the property owner ever changes the land use, consider the implementation of engineering controls, such as installation of a low-permeability barrier, as a preventive measure to mitigate potential vapor intrusion pathways.

- Obtain a permit and properly decommission all groundwater monitoring wells at the site.

10.0 REFERENCES

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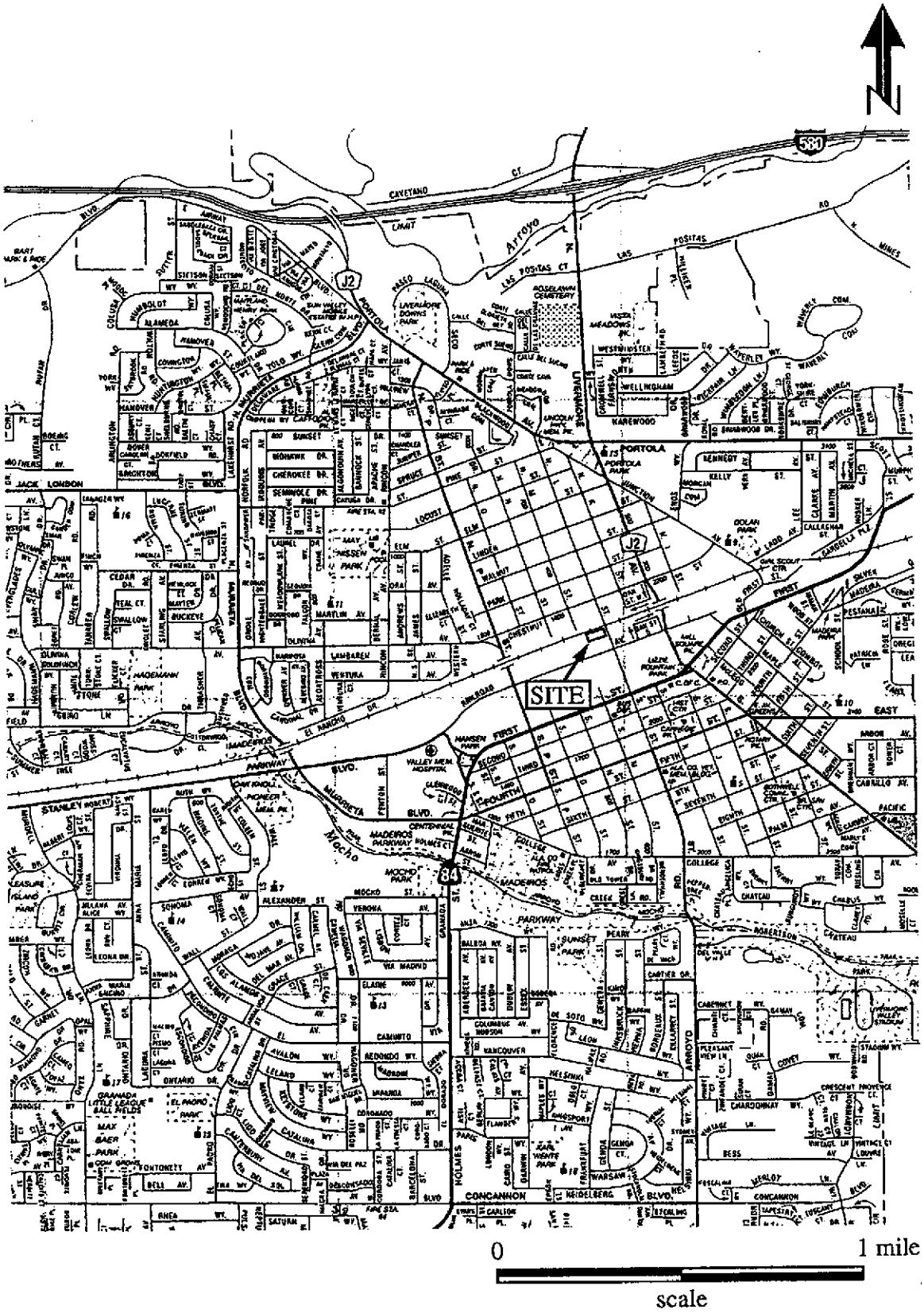

Figure 1. VICINITY MAP
187 North L Street, Livermore, California

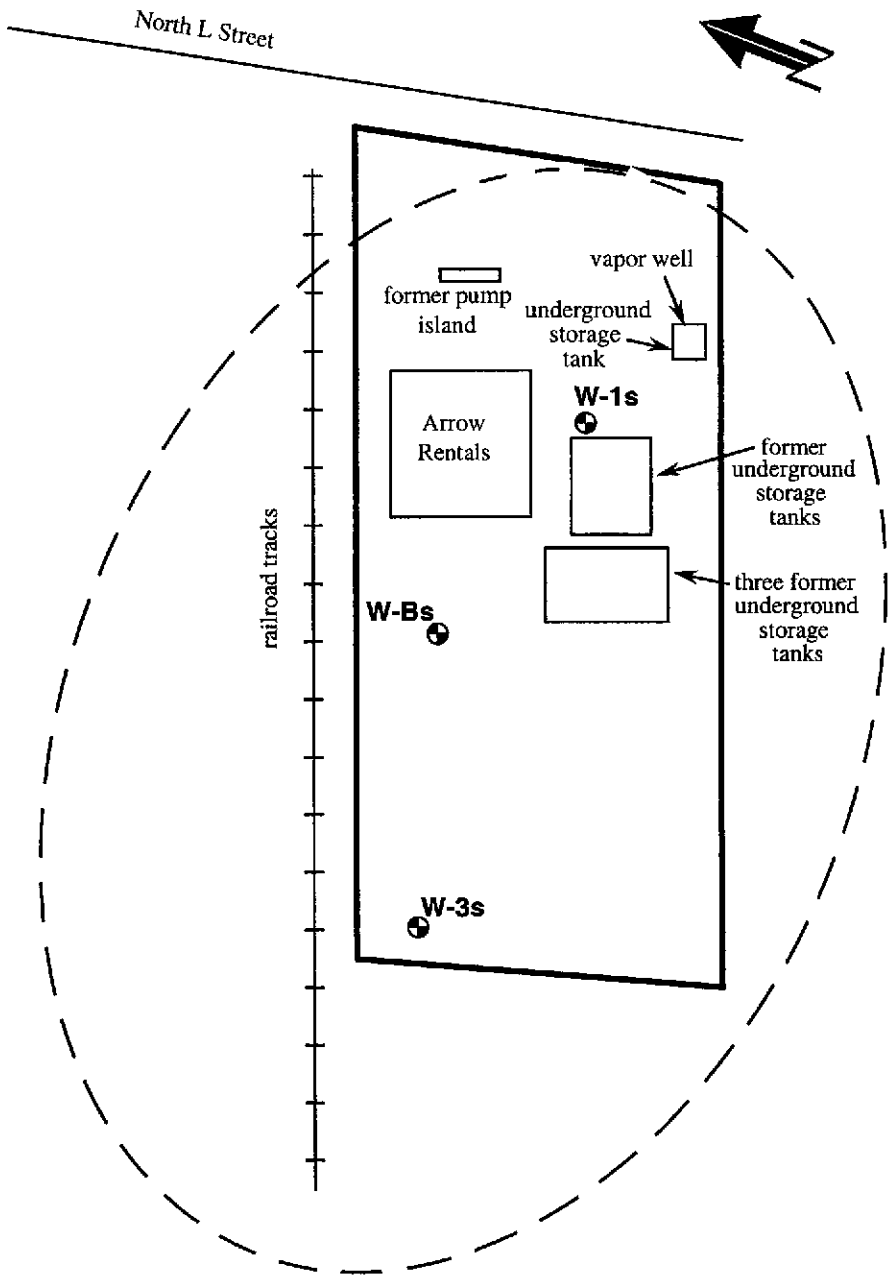

Figure 2. SITE MAP
187 North L Street, Livermore, California

Table 1. SUMMARY OF ANALYTICAL DATA FOR SOIL
187 North L Street, Livermore, California

Well/Boring/ Sample Numher	Depth (feet)	TPH-gasoline (mg/kg)	TPH-diesel (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)	Naphthalene (mg/kg)	2-Methyl-naphthalene (mg/kg)	Phenol (mg/kg)
B-1A-10	10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-1A-15	15	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-1A-20	20	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-1A-30	30	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-1A-35	35	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-1A-40	40	350	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-1A-45	45	54	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-1A-50	50	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-1	2	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
B-1	5	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
B-1	10	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
B-1	15	ND	2.3	ND	ND	ND	ND	NA	NA	NA	NA
B-1	20	170	NA	2.1	1.4	0.22	1.5	NA	NA	NA	NA
B-1	25	220	NA	0.38	7.1	6.4	52	NA	3.4	3.5	0.3
B-2	2	3.5	NA	ND	ND	ND	0.1	NA	NA	NA	NA
B-2	5	8.2	NA	ND	ND	ND	ND	NA	NA	NA	NA
B-2	10	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
B-2	15	ND	2.3	ND	ND	ND	ND	NA	NA	NA	NA
B-2	25	1.7	NA	ND	ND	ND	0.55	NA	NA	NA	NA
B-3	2	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
B-3	5	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
B-3	10	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
B-3	15	ND	2.6	ND	ND	ND	ND	NA	NA	NA	NA
B-3	20	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
B-3	25	1.3	NA	ND	ND	ND	ND	NA	NA	NA	NA
B-4	2	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
B-4	5	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA

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Table 1 (continued). SUMMARY OF ANALYTICAL DATA FOR SOIL
187 North L Street, Livermore, California

Well/Boring/ Sample Numher	Depth (feet)	TPH-gasoline (mg/kg)	TPH-diesel (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)	Naphthalene (mg/kg)	2-Methyl-naphthalene (mg/kg)	Phenol (mg/kg)
B-4	10	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
B-4	15	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
B-5	2	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
B-5	5	1.9	NA	ND	ND	ND	ND	NA	NA	NA	NA
B-5	10	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
B-5	15	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
B-5	20	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
B-5	25	1.7	NA	ND	ND	ND	ND	NA	NA	NA	NA
B-6	5	1.8	NA	ND	ND	ND	ND	NA	NA	NA	NA
B-6	10	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
B-6	15	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
B-6	20	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
B-6	25	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
B-7	5	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
B-7	10	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
B-8	5	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
B-8	10	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
B-F-1,2	15-16	NA	NA	0.002	0.025	0.030	0.034	NA	NA	NA	NA
B-G-5.5	5.5	570	NA	0.550	1.3	< 0.25	2.8	NA	NA	NA	NA
B-G-7	7	< 1.0	NA	< 0.005	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA
B-G-8	8	< 1.0	NA	< 0.005	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA
B-G-9.5	9.5	< 1.0	NA	< 0.005	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA
B-G-11.5	11.5	490	NA	< 0.10	< 0.10	< 0.10	0.53	NA	NA	NA	NA
B-G-13	13	3,100	NA	< 2.0	4.4	38	330	NA	NA	NA	NA
B-G-14	14	750	NA	< 0.5	< 0.5	3.9	38	NA	NA	NA	NA

Table 1 (continued). SUMMARY OF ANALYTICAL DATA FOR SOIL
187 North L Street, Livermore, California

Well/Boring/ Sample Numher	Depth (feet)	TPH-gasoline (mg/kg)	TPH-diesel (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)	Naphthalene (mg/kg)	2-Methyl-naphthalene (mg/kg)	Phenol (mg/kg)
B-G-15	15	1,800	NA	< 0.5	16	31	220	NA	NA	NA	NA
B-G-16	16	6,700	NA	< 20	96	120	790	NA	NA	NA	NA
B-G-17.5	17.5	3,000	NA	< 1.3	2.2	19	220	NA	NA	NA	NA
B-G-19	19	240	NA	< 0.05	0.45	1.3	5.9	NA	NA	NA	NA
B-G-20.5	20.5	2,100	NA	4	75	29	180	NA	NA	NA	NA
B-G-26	26	150	NA	1	3.2	0.9	5.3	NA	NA	NA	NA
B-G-31.5	31.5	40	NA	4	4.4	0.48	2.8	NA	NA	NA	NA
B-G-36	36	1,900	NA	1.8	63	21	120	NA	NA	NA	NA
B-G-41	41	12,000	NA	150	520	130	710	NA	NA	NA	NA
B-H-4.5	4.5	< 1.0	NA	< 0.005	0.016	< 0.005	< 0.010	NA	NA	NA	NA
B-H-6	6	< 1.0	NA	< 0.005	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA
B-H-7.5	7.5	< 1.0	NA	< 0.005	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA
B-H-9.5	9.5	< 1.0	NA	< 0.005	0.008	< 0.005	< 0.005	NA	NA	NA	NA
B-H-11	11	< 1.0	NA	< 0.005	0.009	< 0.005	< 0.005	NA	NA	NA	NA
B-H-12.5	12.5	< 1.0	NA	< 0.005	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA
B-H-14	14	< 1.0	NA	< 0.005	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA
B-H-21	21	< 1.0	NA	< 0.005	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA
B-H-26.5	26.5	160	NA	< 0.025	0.12	0.11	2.2	NA	NA	NA	NA
B-H-31	31	1,900	NA	0.59	1.1	1.1	3.3	NA	NA	NA	NA
B-H-36	36	8,000	NA	16	18	26	210	NA	NA	NA	NA
B-H-41	41	< 1.0	NA	0.058	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA
W-A-20	20	<1	NA	0.41	0.32	0.24	0.21	NA	NA	NA	NA
W-A-30	30	2	NA	0.39	0.13	0.035	1.2	NA	< 1	< 1	< 10
W-A-35	35	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
W-A-40	40	1,000	NA	12	37	7.5	27	NA	NA	NA	NA
W-B-25	25	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA
W-B-30	30	NA	NA	NA	NA	NA	NA	NA	< 1	< 1	< 1
W-B-35	35	< 1	NA	0.69	0.26	0.11	0.07	NA	NA	NA	NA

Table 1 (continued). SUMMARY OF ANALYTICAL DATA FOR SOIL
187 North L Street, Livermore, California

Well/Boring/ Sample Numher	Depth (feet)	TPH-gasoline (mg/kg)	TPH-diesel (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)	Naphthalene (mg/kg)	2-Methyl-naphthalene (mg/kg)	Phenol (mg/kg)
W-1	5	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
W-1	10	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
W-1	15	1,200	NA	ND	21	20	130	NA	NA	NA	NA
W-1	20	350	380	2.5	14	6.3	30	NA	NA	NA	NA
W-1	25	490	NA	3.5	24	9.4	46	NA	NA	NA	NA
W-1	30	160	NA	1.0	7.9	3.6	18	NA	NA	NA	NA
W-1	35	370	NA	2.4	20	8.2	40	NA	NA	NA	NA
W-1	40	16,000	1,500	220	1,100	340	1,500	NA	NA	NA	NA
W-1	45	1,600	NA	30	120	34	160	NA	NA	NA	NA
W-1	50	2,500	NA	28	200	59	270	NA	NA	NA	NA
W-1	55	120	NA	3.2	10	2.7	13	NA	NA	NA	NA
W-2	5	1.2	NA	ND	0.14	ND	ND	NA	NA	NA	NA
W-2	10	ND	NA	ND	0.1	ND	ND	NA	NA	NA	NA
W-2	15	ND	NA	ND	0.1	ND	ND	NA	NA	NA	NA
W-2	20	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
W-2	25	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
W-2	30	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
W-2	35	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
W-2	40	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
W-2	45	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
W-2	50	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
W-3	5	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
W-3	10	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
W-3	15	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
W-3	20	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
W-3	25	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
W-3	30	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
W-3	35	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
W-3	40	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA

Table 1 (continued). SUMMARY OF ANALYTICAL DATA FOR SOIL
187 North L Street, Livermore, California

Well/Boring/ Sample Numher	Depth (feet)	TPH-gasoline (mg/kg)	TPH-diesel (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)	Naphthalene (mg/kg)	2-Methyl-naphthalene (mg/kg)	Phenol (mg/kg)
W-3	45	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA
W-3	50	12	NA	0.06	ND	ND	ND	NA	NA	NA	NA
SS5E	4.5	< 1.0	NA	< 0.005	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA
SSM90	2.5	< 1.0	NA	< 0.005	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA
SS4E	4	< 1.0	NA	< 0.005	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA
SS3E	3.5	< 1.0	NA	< 0.005	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA
SS1,2E	3.5	< 1.0	NA	< 0.005	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA
SS2V	4	< 1.0	NA	< 0.005	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA
SS3V	2.5	< 1.0	NA	< 0.005	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA
SS5PB	3	< 1.0	NA	< 0.005	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA
SS3PB	2	< 1.0	NA	< 0.005	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA
SS1PB	2	< 1.0	NA	< 0.005	< 0.005	< 0.005	< 0.005	NA	NA	NA	NA
CIESL-Table A	--	100	100	0.044	2.9	3.3	2.3	0.023	1.5	0.25	0.076
CIESL-Table B	--	400	500	0.38	9.3	32	11	5.6	1.5	0.25	19
CIESL-Table C	--	100	100	0.044	2.9	3.3	2.3	0.023	1.5	0.25	0.076
CIESL-Table D	--	400	500	0.51	9.3	32	11	5.6	1.5	0.25	19
RESL-Table A	--	100	100	0.044	2.9	3.3	2.3	0.023	0.46	0.25	0.076
RESL-Table B	--	100	100	0.18	9.3	32	11	2.0	0.46	0.25	19
RESL-Table C	--	100	100	0.044	2.9	3.3	2.3	0.023	0.46	0.25	0.076
RESL-Table D	--	400	500	0.18	9.3	32	11	2.0	0.46	0.25	19

mg/kg = milligrams per kilograms [parts per million (ppm)]
NA = not analyzed
ND = not detected
TPH-gasoline = total petroleum hydrocarbons quantified as gasoline
TPH-diesel = total petroleum hydrocarbons quantified as diesel
MTBE = methyl tertiary butyl ether
CIESL = Commercial/Industrial Environmental Screening Level, RWQCB, February 2005
RESL = Residential Environmental Screening Level, RWQCB, February 2005
350 The concentration exceeds one or more of the ESLs.

Table 2. SUMMARY OF ANALYTICAL DATA FOR SOIL VAPOR
187 North L Street, Livermore, California

Sampling Location	Depth (feet)	TPH-gasoline ($\mu g/m^3$)	Benzene ($\mu g/m^3$)	Toluene ($\mu g/m^3$)	Ethyl-benzene ($\mu g/m^3$)	Total Xylenes ($\mu g/m^3$)
SG1-10	10	400	< 40	< 50	< 50	< 70
SG2-10	10	1,000	< 80	< 100	< 100	< 100
SG3-10	10	2,000	< 40	< 50	< 50	< 70
SG4-10	10	< 100	< 80	< 100	< 100	< 100
SG5-10	10	< 100	< 80	< 100	< 100	< 100
SG6-10	10	600	< 40	< 50	< 50	< 70
SG7-10	10	< 100	< 80	< 100	< 100	< 100
SG8-10	10	< 100	< 80	< 100	< 100	< 100
SG9-10	10	< 100	< 80	< 100	< 100	< 100
SG10-10	10	< 100	< 80	< 100	< 100	< 100
SG11-10	10	700	< 80	< 100	< 100	< 100
SG12-10	10	< 50	< 40	< 50	< 60	< 60
SG13-10	10	< 50	< 40	< 50	< 60	< 60
SG14-10	10	< 50	< 40	< 50	< 60	< 60
SG15-8	8	1,000	< 40	< 50	< 60	< 60
SG16-10	10	< 50	< 40	< 50	< 60	< 60
SG17-10	10	200	< 40	< 50	< 60	< 60
SG18-10	10	< 50	< 40	< 50	< 60	< 60
SG19-10	10	< 50	< 40	< 50	< 60	< 60
SG20-10	10	500	< 40	< 50	< 60	< 60
SG21-10	10	800	< 40	< 50	< 60	< 60
SG22-10	10	400	< 40	< 50	< 60	< 60
SG23-10	10	400	< 40	< 50	< 60	< 60
SG24-10	10	200	< 40	< 50	< 60	< 60
VS-1	3	NA	11	46	9.7	53
VS-2	3	NA	16	24	9.7	56
VS-2 (dup)	3	NA	16	25	11	66
CIESL	--	72,000	290	180,000	1,200,000	410,000
RESL	--	26,000	85	63,000	420,000	150,000

$\mu g/m^3$ = micrograms per cubic meter
TPH-gasoline = total petroleum hydrocarbons quantified as gasoline or total hydrocarbons (THC)
(dup) = duplicate sample
CIESL = Commercial/Industrial Environmental Screening Level, Table E Shallow Soil Gas, RWQCB, February 2005
RESL = Residential Environmental Screening Level, Table E Shallow Soil Gas, RWQCB, February 2005

Table 3. SUMMARY OF ANALYTICAL DATA FOR GROUNDWATER
187 North L Street, Livermore, California

Well Number	Date Sampled	TPH-gasoline (µg/L)	TPH-diesel (µg/L)	TPH-motor oil (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	Naphthalene (µg/L)	2-Methyl-naphthalene (µg/L)
W-1	11/88	210,000	300,000	NA	29,000	30,000	5,400	24,000	NA	NA	NA
W-2	11/88	360	< 50	NA	6.7	2.1	0.47	1.3	NA	NA	NA
W-3	11/88	11,000	2,200	NA	290	120	150	140	NA	NA	NA
W-A	c. 1990	10,000	2,400	NA	6,800	5,500	620	3,400	NA	< 10	< 10
W-A (dup)	c. 1990	NA	NA	NA	6,900	5,600	620	6,800	NA	NA	NA
W-B	c. 1990	13,000	1,700	NA	22,000	7,900	2,000	4,000	NA	< 100	< 100
W-B (dup)	c. 1990	21,000	1,600	NA	21,000	7,300	1,800	3,700	NA	< 100	< 100
W-C	c. 1990	< 10	< 100	NA	< 1	< 1	< 1	< 1	NA	< 100	< 10
W-D	c. 1990	100	< 100	NA	1	2	1	1	NA	< 10	< 10
W-E	c. 1990	< 10	< 100	NA	< 1	< 1	< 1	< 1	NA	< 10	< 10
W-1s	3/22/96	6,400	NA	NA	580	470	85	1,100	< 500	NA	NA
W-1s	11/22/96	170,000	NA	NA	13,000	18,000	3,500	18,000	< 10,000	NA	NA
W-1s	7/15/97	140,000	38,000	NA	12,000	12,000	2,600	16,000	< 800	NA	NA
W-1s	10/29/97	650,000	180,000	NA	14,000	19,000	7,800	35,000	< 3,000	NA	NA
W-1s	4/27/98	6,700	2,200	NA	410	250	77	870	< 30	NA	NA
W-1s	10/23/98	99,000	18,000	NA	9,800	9,400	1,800	11,000	< 600	NA	NA
W-1s	4/9/99	70,000	24,000	NA	6,500	7,000	1,800	8,900	360	330	NA
W-1s	10/5/99	82,000	60,000	NA	5,500	4,500	2,500	14,000	< 300	510	280
W-1s	4/5/00	47,000	15,000	NA	4,300	2,300	1,500	6,100	170	330	110
W-1s	10/26/00	50,000	1,200	NA	3,800	1,800	1,700	7,600	< 50	350	180
W-1s	4/18/01	54,000	6,800	NA	5,200	1,800	1,500	7,000	< 330	NA	NA

Table 3 (continued). SUMMARY OF ANALYTICAL DATA FOR GROUNDWATER
187 North L Street, Livermore, California

Well Number	Date Sampled	TPH-gasoline (µg/L)	TPH-diesel (µg/L)	TPH-motor oil (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	Naphthalene (µg/L)	2-Methyl-naphthalene (µg/L)
W-1s	11/13/01	750,000	NA	NA	9,500	7,800	7,200	33,000	< 2,000	NA	NA
W-1s	4/30/02	66,000	8,200	NA	6,000	2,700	2,300	11,000	< 1,200	NA	NA
W-1s	9/30/02	51,000	1,200	< 2,500	5,600	1,500	2,000	9,400	< 1,000	NA	NA
W-1s	3/19/03	49,000	9,800	NA	3,400	880	1,300	7,300	< 500	NA	NA
W-1s	9/16/03	53,000	24,000	NA	4,100	1,200	1,400	6,600	< 1,000	NA	NA
W-1s	4/29/04	39,000	5,900	NA	3,700	1,200	810	4,700	< 2,500	NA	NA
W-3s	3/22/96	100	NA	NA	13	6.9	5.3	14	< 5	NA	NA
W-3s	11/22/96	3,200	NA	NA	270	29.0	63.0	100	< 100	NA	NA
W-3s	7/15/97	2,100	340	NA	230	7	33	51	< 20	NA	NA
W-3s	10/29/97	2,800	750	NA	630	31	71	69	< 30	NA	NA
W-3s	4/27/98	< 50	< 50	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 3	NA	NA
W-3s	10/23/98	3,800	1,000	NA	500	28	90	37	35	NA	NA
W-3s	4/9/99	980	430	NA	240	4	37	3	< 12	NA	NA
W-3s	10/5/99	1,500	1,000	NA	290	9.5	53	9.8	< 6	NA	NA
W-3s	4/5/00	810	320	NA	150	3.0	9.0	5.7	< 3	< 5	< 5
W-3s	10/26/00	310	120	NA	83	3.5	6.4	1.2	< 5	NA	NA
W-3s	4/18/01	2,300	1,600	NA	320	8.0	16	7.0	< 20	NA	NA
W-3s	11/13/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
W-3s	4/30/02	1,400	490	NA	320	5.5	24	5.0	< 25	NA	NA
W-3s	9/30/02	420	390	1,400	68	1.4	3.1	1.1	< 5.0	NA	NA
W-3s	3/19/03	5,300	1,500	NA	920	24	140	27	< 25	NA	NA
W-3s	9/16/03	1,600	1,400	NA	270	1.7	5.2	< 0.5	< 5.0	NA	NA
W-3s	4/29/04	1,300	400	NA	210	5.1	23	4.5	< 25	NA	NA
W-Bs	3/22/96	61,000	NA	NA	9,800	8,000	2,200	11,000	< 5,000	NA	NA
W-Bs	11/22/96	47,000	NA	NA	5,100	3,100	1,400	7,800	< 2,500	NA	NA
W-Bs	7/15/97	66,000	17,000	NA	7,800	4,900	1,900	10,000	< 600	NA	NA
W-Bs	10/29/97	44,000	27,000	NA	6,000	500	1,500	6,400	380	NA	NA

Table 3 (continued). SUMMARY OF ANALYTICAL DATA FOR GROUNDWATER
187 North L Street, Livermore, California

Well Number	Date Sampled	TPH-gasoline (µg/L)	TPH-diesel (µg/L)	TPH-motor oil (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	Naphthalene (µg/L)	2-Methyl-naphthalene (µg/L)
W-Bs	4/27/98	63,000	17,000	NA	6,100	5,400	1,900	9,100	< 600	NA	NA
W-Bs	10/23/98	48,000	9,600	NA	6,700	1,200	1,500	6,200	< 300	NA	NA
W-Bs	4/9/99	39,000	12,000	NA	4,100	1,900	1,400	5,600	< 300	NA	NA
W-Bs	10/5/99	38,000	7,300	NA	3,800	390	1,600	5,900	< 60	NA	NA
W-Bs	4/5/00	34,000	9,600	NA	3,500	1,200	1,400	4,700	< 150	280	68
W-Bs	10/26/00	23,000	650	NA	2,500	210	1,100	2,600	150	260	88
W-Bs	4/18/01	20,000	2,500	NA	2,400	180	880	1,800	< 20	NA	NA
W-Bs	11/13/01	17,000	3,600	NA	2,000	130	1,100	1,700	< 150	NA	NA
W-Bs	4/30/02	13,000	2,300	NA	1,000	38	660	360	< 170	NA	NA
W-Bs	9/30/02	7,100	1,500	< 250	940	28	260	93	< 250	NA	NA
W-Bs	3/19/03	14,000	3,900	NA	1,200	77	820	900	< 120	NA	NA
W-Bs	9/16/03	9,400	1,900	NA	1,300	36	580	160	< 150	NA	NA
W-Bs	4/29/04	15,000	3,300	NA	2,400	170	1,300	950	< 200	NA	NA
W-Es	3/22/96	< 50	NA	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 5	NA	NA
W-Es	11/22/96	280	NA	NA	24	0.6	1.8	2.2	< 5	NA	NA
W-Es	10/23/98	82	69	NA	< 0.5	0.8	< 0.5	0.8	4	NA	NA
W-Es	10/5/99	68	88	NA	< 0.5	< 0.5	< 0.5	< 0.5	4	NA	NA
W-Es	10/26/00	110	< 50	NA	0.7	< 0.5	< 0.5	< 1.0	< 5	NA	NA
W-Es	3/19/03	86	61	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA
W-Es	4/29/04	55	87	NA	0.62	< 0.5	< 0.5	< 0.5	< 5.0	NA	NA
MCL	--	NE	NE	NE	1	150	300	1,750	13	NE	NE
ESL-Tables A and C		100	100	100	1.0	40	30	20	5.0	17	2.1
ESL-Tables B and D		500	640	640	46	130	290	100	1,800	24	2.1

µg/L = micrograms per liter [parts per billion (ppb)]
NA = not analyzed
ND = not detected
NE = none established

TPH = total petroleum hydrocarbons
MTBE = methyl tertiary butyl ether
MCL = Maximum Contaminant Level, July 2004
ESL = Environmental Screening Level, RWQCB, February 2005

Table 4. WELL SURVEY RESULTS
187 North L Street, Livermore, California

Location	Bearing to Site	Type	Status	Total Depth (feet)	Depth to Groundwater (feet)	Highest Screened Interval (feet)
3S/2E 8R1	805 feet, SSE	mon.	active	77	55.8	27-77
3S/2E 8R2	300 feet, S	mon.	active	61.5	42.74	30-60
3S/2E 8R3	on site	mon.	active	56.5	50	45.5-55.5
3S/2E 8R4	on site	mon.	active	51.5	49	39-49
3S/2E 8R5	on site	mon.	active	51.5	45	38-48
3S/2E 8R6	on site	mon.	active	63	50	42-52
3S/2E 8R7	on site	mon.	active	55	48	40-55
3S/2E 8R8	on site	mon.	active	55	47	45-55
3S/2E 8R9	on site	mon.	active	57.5	46	42-57.5
3S/2E 8R10	on site	mon.	active	61	47	40-60
3S/2E 8R11	795 feet, SSE	mon.	active	60	40	30-60
3S/2E 8R12	865 feet, SSE	mon.	active	60	40	30-60
3S/2E 8R13	895 feet, SSE	mon.	active	60	40	30-60
3S/2E 8P3	2,230 feet, W	mon.	decommissioned	55	53.5	25-55
3S/2E 8Q1	1,830 feet, W	mon.	decommissioned	53	45	25-53
3S/2E 8Q2	1,475 feet, W	mon.	decommissioned	59.5	50	29.5-59.5
3S/2E 8Q3	1,475 feet, SSW	mon.	decommissioned	40	NA	25-40
3S/2E 8K1	660 feet, WNW	cath.	active	120	NA	NA
3S/2E 8K2	1,255 feet, NNW	mon.	active	74	51	64-69
3S/2E 8K4	1,255 feet, NNW	NA	decommissioned	NA	NA	NA
3S/2E 8H1	2,210 feet, N	muni.	active	625	61.9	NA
3S/2E 8H2	2,655 feet, N	mon.	active	47	33	36-41
3S/2E 8G1	2,210 feet, NNW	muni.	active	465	NA	120-455
3S/2E 8G2	2,360 feet, NNW	cath.	active	120	NA	NA
3S/2E 9N1	1,325 feet, ESE	mon.	active	75	NA	55-75
3S/2E 9N2	1,325 feet, ESE	mon.	active	75	NA	55-75
3S/2E 9N3	1,325 feet, ESE	mon.	active	75	NA	55-75
3S/2E 9P1	2,950 feet, E	muni.	active	515	107	192-492
3S/2E 9P4	2,280 feet, ESE	mon.	active	54	45	37-52
3S/2E 9P5	2,340 feet, ESE	mon.	active	53	45	38-53
3S/2E 9P6	2,315 feet, ESE	mon.	active	51.5	45	35-50
3S/2E 9P7	2,210 feet, ESE	mon.	active	55	45	38-53
3S/2E 9P8	2,020 feet, E	cath.	active	120	NA	NA
3S/2E 9Q1	4,720 feet, ESE	muni.	active	576	NA	180-492
3S/2E 9Q3	3,685 feet, ESE	NA	decommissioned	28	8	NA
3S/2E 9Q4	3,540 feet, ESE	mon.	active	80	52	70-75
3S/2E 9Q8	(East Ave.) ESE	dom.	active	252	140	167-170
3S/2E 9M1M	1,845 feet, NNE	irr.	active	95	43	49-89
3S/2E 9M2	2,210 feet, ENE	mon.	active	54	40.3	38-53

Table 4 (continued). WELL SURVEY RESULTS
187 North L Street, Livermore, California

Location	Bearing to Site	Type	Status	Total Depth (feet)	Depth to Groundwater (feet)	Highest Screened Interval (feet)
3S/2E 9M3	2,200 feet, ENE	mon.	active	53	40	37-52
3S/2E 9M4	2,210 feet, ENE	mon.	active	53	40.4	37-52
3S/2E 9M5	2,210 feet, ENE	mon.	active	46	NA	20-46
3S/2E 9M6	2,210 feet, ENE	mon.	active	40	NA	10-40
3S/2E 9M7	2,210 feet, ENE	mon.	active	45	NA	10-45
3S/2E 9M8	2,210 feet, ENE	mon.	active	45	NA	10-45
3S/2E 9M9	2,210 feet, ENE	mon.	active	60	NA	40-60
3S/2E 9M10	2,210 feet, ENE	mon.	active	60	NA	40-60
3S/2E 9M11	2,210 feet, ENE	mon.	active	65	NA	45-65
3S/2E 9M12	1,475 feet, ENE	mon.	decommissioned	55	NA	NA
3S/2E 9M13	1,475 feet, ENE	mon.	decommissioned	55	NA	NA
3S/2E 9L1	3,095 feet, ENE	muni.	active	529	NA	136-496
3S/2E 9L2	3,095 feet, ENE	mon.	decommissioned	67	46	42-67
3S/2E 9L3	3,095 feet, ENE	mon.	active	61.5	55	46.5-61.5
3S/2E 9L10	3,095 feet, ENE	mon.	active	57	35.5	32-57
3S/2E 16C1	3,390 feet, ESE	muni.	active	584	69	288-298
3S/2E 16C3	3,690 feet, ESE	cath.	active	120	NA	NA
3S/2E 16E1	3,835 feet, SSE	irr.	active	394	NA	NA
3S/2E 16E2	4,130 feet, SSE	irr.	active	540	NA	125-136
3S/2E 16E3	3,690 feet, SSE	irr.	active	377	NA	112-131
3S/2E 16E4	3,540 feet, SSE	mon.	active	50	25	35-40
3S/2E 16E6	3,690 feet, SSE	irr.	active	360	57	300-360
3S/2E 17A	NA	NA	active	77	NA	NA
3S/2E 17B1	3,245 feet, SSW	NA	active	760	67	145-193
3S/2E 17B2	3,230 feet, SSW	dom.	active	442	67	221-224
3S/2E 17B3	2,580 feet, SSW	cath.	active	120	NA	NA
3S/2E 17B4	1,695 feet, SSW	mon.	active	65	40	44.6-59.6
3S/2E 17B5	1,990 feet, SSW	mon.	active	48.5	31.66	28.5-48.5
3S/2E 17B6	1,625 feet, SSW	mon.	active	65	54	44-51
3S/2E 17B7	1,620 feet, WSW	mon.	active	76	70.5	35-75
3S/2E 17B8	1,550 feet, WSW	mon.	active	85	71	35-84.5
3S/2E 17B19	2,210 feet, SSW	mon.	decommissioned	38	NA	23-38
3S/2E 17B72 & 3S/2E 17B73	1,695 feet, SSW	NA	active	65	NA	20-25
3S/2E 17G	3,170 feet, SSW	dom.	active	220	155	NA
3S/2E 17G2	3,170 feet, SSW	mon.	active	35	Dry	18-23
3S/2E 17G3	3,170 feet, SSW	mon.	active	70	31.3	45-70
3S/2E 17J1	NA	dom.	active	531	103	260-270

cath. = cathodic protection
dom. = domestic
irr. = irrigation
mon. = monitoring
muni. = municipal
NA = not available

APPENDIX A

SOIL BORING AND WELL INSTALLATION LOGS

Woodward-Clyde Consultants

PROJECT NAME Railroad Avenue Property NO. 8810220A - 3000

BORING LOCATION: Boring # 1: Approx. 13.5' S X 3' E of SW corner of Arrow Rental Bldg.		ELEVATION AND DATUM: Pavement Surface	
DRILLING AGENCY: Kvilhaug Drilling	DRILLER: C. Holoman	DATE STARTED / DATE FINISHED: March 2, 1989	
DRILLING EQUIPMENT: B - 61 Mobile Drill		COMPLETION DEPTH: 26 ft.	SAMPLER: 2.5" I.D. Modified California Type
DRILLING METHOD: 8" Hollow Stem Augers	DRILL BIT: Drag	NO. OF SAMPLES / DIST.: n/a	UNDIST.: 6
SIZE AND TYPE OF CASING: n/a		WATER LEVEL / FIRST: n/a	COMPL.: n/a / 24 HRS.: n/a
TYPE OF PERFORATION: n/a	FROM n/a TO n/a FT.	LOGGED BY: P. Respess	CHECKED BY: A. McDonald
SIZE AND TYPE OF PACK: n/a	FROM n/a TO n/a FT.		
TYPE OF SEAL: NO. 1 n/a	FROM n/a TO n/a FT.		
NO. 2 n/a	FROM n/a TO n/a FT.		

DEPTH (feet)	DESCRIPTION	Lithology	Piezometer Installation	Water Content	Piezometer Data	Drive Number	Sample Number	Recov. (Feet)	Blow Counts	REMARKS (Drill Rate, Fluid Loss, Odor, etc.)
	4" Concrete									
	SANDY GRAVEL (GP) - brown - gravel fine to medium coarse - some fine-grained sand - medium dense - wet					1	A		16	OVM = 0 ppm No odor
							B		15	
							C		18	
5	CLAYEY GRAVEL (GC) - brown - gravel fine to coarse (to 2.5") - clay moderately plastic - loose - wet				5	2	A		5	OVM = 0 ppm No odor
							B		5	
							C		7	
10	CLAYEY GRAVEL (GC) - brown - gravel fine to coarse - clay moderately plastic - medium dense to dense - wet				10	3	A		13	OVM = 0 ppm No odor
							B		21	
							C		40	
15					15	4	A		20	OVM = 0 ppm No odor
							B		50	
20					20	5	A		25	OVM = 5.6 ppm Gasoline odor fairly strong
							B		50	
	CLAYEY GRAVEL (GC) - brown - fine to coarse gravel - fine to coarse-grained sand - little clay - dense to very dense - wet									
25					25	6	A		12	OVM = 68.5 ppm Strong gasoline odor
							B		50	
	Bottom of boring at 26 ft. No free water observed ATD									
30					30					
35					35					

Woodward-Clyde Consultants

PROJECT NAME Railroad Avenue Property NO. 8810220A - 3000

BORING LOCATION	Boring # 2: Approx. 14.5' S X 25' W of SW corner of Arrow Rental Bldg.			ELEVATION AND DATUM	Pavement Surface
DRILLING AGENCY	Kvilhaug Drilling	DRILLER	C. Holoman	DATE STARTED / DATE FINISHED	March 2, 1989
DRILLING EQUIPMENT	B - 61 Mobile Drill			COMPLETION DEPTH	26 ft.
DRILLING METHOD	8" Hollow Stem Augers	DRILL BIT	Drag	NO. OF SAMPLES / DIST.	n/a
SIZE AND TYPE OF CASING	n/a			WATER LEVEL / FIRST	n/a
TYPE OF PERFORATION	n/a	FROM n/a TO n/a Ft.			
SIZE AND TYPE OF PACK	n/a	FROM n/a TO n/a Ft.			
TYPE OF SEAL NO. 1	n/a	FROM n/a TO n/a Ft.			
TYPE OF SEAL NO. 2	n/a	FROM n/a TO n/a Ft.			

SAMPLER	2.5" I.D. Modified California Type
UNDIST.	6
COMPL. n/a	24 HRS. n/a

LOGGED BY: P. Respess

CHECKED BY: A. McDonald

DEPTH (feet)	DESCRIPTION	Lithology	Piezometer Installation	Water Content	Piezometer Data	Drive Number	Sample Number	Recov. (Feet.)	Blow Counts	REMARKS (Drill Rate, Fluid Loss, Odor, etc.)
0	4" Concrete									
	CLAYEY GRAVEL (GC) - brown - gravel fine to coarse - clay moderately plastic - medium dense - moist to wet					1	A		9	OVM = 0 ppm No odor
							B		11	
							C		14	
5					5	2	A		10	OVM = 0 ppm No odor
							B		10	
							C		10	
	→ some coarser gravel									
10	CLAYEY GRAVEL (GC) - brown - gravel fine to coarse - clay moderately plastic - dense to very dense - wet				10	3	A		20	OVM = 0 ppm No odor
							B		50	
15					15	4	A		30	OVM = 0 ppm No odor
							B		50	
20					20	5	A		20	OVM = 0 ppm No odor
							B		50	
25	Bottom of boring at 26 ft. No free water observed ATD				25	6	A		25	OVM = 32.6 ppm Strong gasoline odor
							B		50	
30					30					
35					35					

Woodward-Clyde Consultants

PROJECT NAME Railroad Avenue Property NO. 8810220A - 3000

BORING LOCATION	Boring # 3: Approx. 28' S X 25' W of SW corner of Arrow Rental Bldg.			ELEVATION AND DATUM	Pavement Surface
DRILLING AGENCY	Kvilhaug Drilling	DRILLER	C. Holoman	DATE STARTED / DATE FINISHED	March 2, 1989
DRILLING EQUIPMENT	B - 61 Mobile Drill			COMPLETION DEPTH: 26 ft.	SAMPLER: 2.5" I.D. Modified California Type
DRILLING METHOD	8" Hollow Stem Augers	DRILL BIT	Drag	NO. OF SAMPLES: DIST. n/a	UNDIST. 6
SIZE AND TYPE OF CASING	n/a			WATER LEVEL: FIRST n/a	COMPL. n/a 24 HRS. n/a
TYPE OF PERFORATION	n/a	FROM n/a TO n/a FT.		LOGGED BY: P. Respess	CHECKED BY: A. McDonald
SIZE AND TYPE OF PACK	n/a	FROM n/a TO n/a FT.			
TYPE OF SEAL NO. 1	n/a	FROM n/a TO n/a FT.			
TYPE OF SEAL NO. 2	n/a	FROM n/a TO n/a FT.			

DEPTH (feet)	DESCRIPTION	GRAPHIC LOG: Lithology	GRAPHIC LOG: Piezometer Installation	Water Content	Piezometer Data	SAMPLES: Drive Number	SAMPLES: Sample Number	SAMPLES: Recov. (Feet.)	SAMPLES: Blow Counts	REMARKS (Drill Rate, Fluid Loss, Odor, etc.)
	4" Concrete									
	SILTY GRAVEL (GC) - brown - gravel fine to coarse - slightly rounded - very dense - damp					1	A		50	OVM = 0 ppm No odor
5	SILTY GRAVEL (GC) - brown - gravel fine to coarse - medium dense - damp				5	2	A B C		10 25 27	OVM = 0 ppm No odor
10	CLAYEY GRAVEL (GC) - brown - gravel fine to coarse - slightly clayey - medium dense to dense - moist				10	3	A B		24 50	OVM = 0 ppm No odor
15	SANDY GRAVEL (GW) - brown - gravel fine to medium coarse - sand fine to coarse-grained - trace of silt - medium dense to dense - moist				15	4	A B		27 50	OVM = 0 ppm No odor
20	CLAYEY GRAVEL (GC) - brown - gravel fine to coarse - sand fine to coarse-grained - clay moderately plastic - dense - moist				20	5	A B		30 50	OVM = 3.1 ppm No odor
25					25	6	A B		30 50	OVM = 1.2 ppm Slight gasoline odor
	Bottom of boring at 26 ft. No free water observed ATD									
30					30					
35					35					

Woodward-Clyde Consultants

PROJECT NAME Railroad Avenue Property NO. 8810220A - 3000

BORING LOCATION	Boring # 4: Approx. 11' N X 14.5' E of SE corner of Arrow Rental Bldg.	ELEVATION AND DATUM	Pavement Surface
DRILLING AGENCY	Kvilhaug Drilling	DRILLER C. Holoman	DATE STARTED / DATE FINISHED March 2, 1989
DRILLING EQUIPMENT	B - 61 Mobile Drill	COMPLETION DEPTH 16 ft.	SAMPLER 2.5" I.D. Modified California Type
DRILLING METHOD	8" Hollow Stem Augers	DRILL BIT Drag	NO. OF SAMPLES DIST. n/a / UNDIST. 4
SIZE AND TYPE OF CASING	n/a	WATER LEVEL FIRST n/a	COMPL. n/a / 24 HRS. n/a
TYPE OF PERFORATION	n/a	FROM n/a TO n/a FT.	LOGGED BY: P. Respess / CHECKED BY: A. McDonald
SIZE AND TYPE OF PACK	n/a	FROM n/a TO n/a FT.	
TYPE OF SEAL NO. 1	n/a	FROM n/a TO n/a FT.	
TYPE OF SEAL NO. 2	n/a	FROM n/a TO n/a FT.	

DEPTH (feet)	DESCRIPTION	Graphic Log: Lithology	Graphic Log: Piezometer Installation	Water Content	Piezometer Data	Samples: Drive Number	Samples: Sample Number	Samples: Recov. (Feet)	Samples: Blow Counts	REMARKS (Drill Rate, Fluid Loss, Odor, etc.)
	5" Concrete									
	SILTY CLAY (CL) - brown - moderately plastic - little fine gravel - moderately stiff - damp to moist					1	A		25	OVM = 0 ppm No odor
							B		50	
5	CLAYEY GRAVEL (GC) - brown - gravel fine to medium coarse - clay moderately plastic - medium dense to dense - moist				5	2	A		33	OVM = 0 ppm No odor
							B		50	
10	SILTY GRAVEL (GM) - brown - gravel fine to coarse (2") - trace of silt - sand fine to coarse-grained - medium dense to dense - damp				10	3	A		50	OVM = 0 ppm No odor
15	CLAYEY GRAVEL (GC) - brown - gravel fine to coarse - clay moderately plastic - dense - moist				15	4	A		35	OVM = 0 ppm No odor
							B		50	
	Bottom of boring at 16 ft. No free water observed ATD									
20					20					
25					25					
30					30					
35					35					

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PROJECT NAME Railroad Avenue Property NO. 8810220A - 3000

BORING LOCATION	Boring # 5: Approx. 32.5' S X 8.5' E of SE corner of Arrow Rental Bldg.	ELEVATION AND DATUM	Pavement Surface
DRILLING AGENCY	Kvilhaug Drilling	DRILLER C. Holoman	DATE STARTED / DATE FINISHED March 3, 1989
DRILLING EQUIPMENT	B - 61 Mobile Drill	COMPLETION DEPTH 25.5 ft.	SAMPLER 2.5" I.D. Modified California Type
DRILLING METHOD	8" Hollow Stem Augers	DRILL BIT Drag	NO. OF SAMPLES DIST. n/a / UNDIST. 6
SIZE AND TYPE OF CASING	n/a	WATER LEVEL FIRST n/a	COMPL. n/a / 24 HRS. n/a
TYPE OF PERFORATION	n/a	FROM n/a TO n/a Ft.	LOGGED BY: P. Respess / CHECKED BY: A. McDonald
SIZE AND TYPE OF PACK	n/a	FROM n/a TO n/a Ft.	
TYPE OF SEAL NO. 1	n/a	FROM n/a TO n/a Ft.	
TYPE OF SEAL NO. 2	n/a	FROM n/a TO n/a Ft.	

DEPTH (feet)	DESCRIPTION	GRAPHIC LOG: Lithology	GRAPHIC LOG: Piezometer Installation	Water Content	Piezometer Data	SAMPLES: Drive Number	SAMPLES: Sample Number	SAMPLES: Recov. (Feet)	SAMPLES: Blow Counts	REMARKS (Drill Rate, Fluid Loss, Odor, etc.)
0	3" Asphalt Concrete + 6" Aggregate Base									
	SANDY GRAVEL (GP) - brown - gravel fine to medium coarse (2") - sand fine to coarse-grained - loose - wet					1	A		6	OVM = 0 ppm No odor
							B		4	
							C		9	
5	→ slightly clayey					2	A		13	OVM = 0 ppm No odor
							B		14	
							C		17	
10	CLAYEY GRAVEL (GC) - brown - gravel fine to coarse (2"), rounded - sand fine to coarse - trace of clay - moderately plastic - medium dense to dense - wet					3	A		17	OVM = 0 ppm No odor
							B		30	
							C		50	
15						4	A		50	OVM = 0 ppm No odor
20						5	A		50	OVM = 0 ppm No odor
25						6	A		50	OVM = 16.3 ppm Slight gasoline odor
	Bottom of boring at 25.5 ft. No free water observed ATD									
30										
35										

LOG OF BORING NO. 5 SHEET 1 OF 1

Woodward-Clyde Consultants

PROJECT NAME Railroad Avenue Property NO. 8810220A - 3000

BORING LOCATION	Boring # 6: Approx. 10' S X 10' E of NE corner of Fabtronics Bldg.			ELEVATION AND DATUM	Pavement Surface
DRILLING AGENCY	Kvilhaug Drilling	DRILLER	C. Holoman	DATE STARTED / DATE FINISHED	March 3, 1989
DRILLING EQUIPMENT	B - 61 Mobile Drill			COMPLETION DEPTH	25.5 ft.
DRILLING METHOD	8" Hollow Stem Augers	DRILL BIT	Drag	NO. OF SAMPLES / DIST.	n/a
SIZE AND TYPE OF CASING	n/a			WATER LEVEL / FIRST	n/a
TYPE OF PERFORATION	n/a	FROM n/a TO n/a FT.		LOGGED BY:	P. Respess
SIZE AND TYPE OF PACK	n/a	FROM n/a TO n/a FT.		CHECKED BY:	A. McDonald
TYPE OF SEAL NO. 1	n/a	FROM n/a TO n/a FT.			
TYPE OF SEAL NO. 2	n/a	FROM n/a TO n/a FT.			

DEPTH (feet)	DESCRIPTION	GRAPHIC LOG: Lithology	GRAPHIC LOG: Piezometer Installation	Water Content	Piezometer Data	SAMPLES: Drive Number	SAMPLES: Sample Number	SAMPLES: Recov. (Feet)	SAMPLES: Blow Counts	REMARKS (Drill Rate, Fluid Loss, Odor, etc.)
0	2" Asphalt Concrete + 4" Aggregate Base									
	SILTY SAND (SM) - brown - sand fine to medium-grained - little coarse gravel - loose - damp					1	A		35	OVM = 0 ppm No odor
							B		50	
5	SILTY GRAVEL (GM) - brown - gravel to 2" - sand fine-grained - medium dense to dense - damp				5	2	A		18	OVM = 0 ppm No odor
							B		30	
							C		35	
10	SANDY GRAVEL (GP) - brown - gravel to 2" (coarse) - sand medium to coarse-grained - dense to very dense - moist				10	3	A		50	OVM = 0 ppm No odor
15					15	4	A		50	OVM = 0 ppm No odor
20	CLAYEY GRAVEL (GC) - brown - gravel to 2" - sand fine to coarse-grained - trace of clay - moderately plastic				20	5	A		50	OVM = 0 ppm No odor
25	→ more clay in sample than above				25	6	A		50	OVM = 0 ppm No odor
	Bottom of boring at 25.5 ft. No free water observed ATD									
30					30					
35					35					

Woodward-Clyde Consultants

PROJECT NAME ARROW RENTALS NO. 90C0321A

BORING LOCATION W-A, between W-1 and tank		ELEVATION AND DATUM	
DRILLING AGENCY Kvilhaug	DRILLER Rod Furlow, Brian Vincent	DATE STARTED 7/12/90 → DATE FINISHED 7/12/90	
DRILLING EQUIPMENT B 61 Mobile Drill		COMPLETION DEPTH 63 ft.	SAMPLER 2 in.
DRILLING METHOD Hollow Stem Auger	DRILL BIT	NO. OF SAMPLES DIST.	UNDIST. 8
SIZE AND TYPE OF CASING 4 "-diameter Schedule 40 PVC		WATER LEVEL FIRST 50 ft.	COMPL. 24 HRS. 44.25
TYPE OF PERFORATION 0.010 Slotted PVC	FROM 57 -1/2 TO 42 FT	LOGGED BY: Lois Gruenberg	CHECKED BY:
SIZE AND TYPE OF PACK Monterey Sand # 2/12	FROM 63 TO 40 FT		
TYPE OF SEAL NO. 1 Bentonite Pellets	FROM 40 TO 36 -1/2 FT		
NO. 2 5 sack, 3/4" agg. - Grout/ Quick mix to set Christy box	FROM 36 - 1/2 TO 0 FT		

DEPTH (feet)	LITHOLOGIC DESCRIPTION	Well Completion Diagram	DEPTH (feet)	SAMPLES BLOW-COUNTS	REMARKS (Drill Rate, Fluid Loss, Odor, etc.)
	Asphalt Concrete - 6 inches				
5	Cuttings-Gravel (GP), some silt, much resistance.		5		No sample taken
10	Grades to more silty		10	35 50/ 6	Sample: W-A-10 HNU = 1 ppm
15			15	50/ 6	little recovery no sample
20	SILTY, GRAVELLY SAND (GM), gray brown, gravels to 1/2 ", very coarse to coarse sand, trace clay, wet, loose, odor.		20	35 50/ 6	Sample: W-A-20 HNU= 15 ppm
25			25	50/ 6	Sample: W-A-25 HNU = 110 ppm
30			30	45 50/ 6	Sample: W-A-25 Very strong odor in borehole

Woodward-Clyde Consultants

PROJECT NAME ARROW RENTALS NO. 90C0321A

DEPTH (feet)	LITHOLOGIC DESCRIPTION	Well Completion Diagram	DEPTH (feet)	SAMPLES BLOW-COUNTS	REMARKS (Drill Rate, Fluid Loss, Odor, etc.)
35			35	50/6	Sample: W-A-35 HNU > 200 ppm
40	SILT (ML), brown with black patches, with some clay, some coarse sand, soft to medium stiff, moist.		40	5 9 20	Sample : W-A-40 HNU = 250 ppm
45	Grades to homogenous brown, abundant clay, no sand, medium stiff to stiff, moist		45	35 30 35	Sample: W-A-45 HNU = 150 ppm
50	Grades to saturated		50	25 25 25	Sample: W-A-50 HNU = 100 ppm
55			55		
60			60		Boring terminated at approximately 63 ft. below grade.

FIELD LOG OF BORING NO. W-A SHEET 2 OF 2

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PROJECT NAME ARROW RENTALS NO. 90C0321A

BORING LOCATION 187 N. L Street, Livermore, CA		ELEVATION AND DATUM	
DRILLING AGENCY Kvilhaug	DRILLER Mike Crocker, Joel Vigil	DATE STARTED 7/10/90 → DATE FINISHED 7/10/90	
DRILLING EQUIPMENT B 53 Mobile Drill		COMPLETION DEPTH 50	SAMPLER 2 in.
DRILLING METHOD Hollow Stem Auger	DRILL BIT	NO. OF SAMPLES DIST.	UNDIST. 10
SIZE AND TYPE OF CASING None		WATER LEVEL FIRST 47 ft	COMPL. 24 HRS.
TYPE OF PERFORATION None	FROM TO FT	LOGGED BY: Lois Gruenberg	CHECKED BY:
SIZE AND TYPE OF PACK None	FROM TO FT		
TYPE OF SEAL NO. 1 None	FROM TO FT		
TYPE OF SEAL NO. 2 Grout	FROM 51-1/2 TO 0 FT		

DEPTH (feet)	LITHOLOGIC DESCRIPTION	Well Completion Diagram	DEPTH (feet)	SAMPLES BLOW COUNTS	REMARKS (Drill Rate, Fluid Loss, Odor, etc.)
	Asphalt Concrete - 4 inches.				
	Cuttings- SILT (ML), brown with orange, gravels to 1/2 ", loose.				
5	SANDY, SILTLY GRAVEL (GM), brown-gray and black gravels, very coarse, moist, gravels to 1/2", loose.		5	7 13 15	Sample: B-1-5 HNU= no response
10	Grades to more silt, some clay, slightly wet.		10	10 19 23	Sample: B-1-10 HNU= 10 ppm
15	Grades to moist with pockets of wet clay.		15	35 50 50	Sample: B-1-15 HNU= no response
20	Noticeable odor and sheen in pockets of moisture.		20	20 40 36	Sample: B-1-20 HNU= 50 ppm
25	CLAYEY SILT (CL), brown, gravels to 1/2 ", some very coarse sand, loose, moist to wet.		25	20 35 35	Sample: B-1-25 HNU= 25 ppm
30	SILTY SAND (SM), brown-gray, very coarse sand, gravels to 1/2 ", trace clay, moist to wet, loose to medium dense.		30	12 17 27	Sample B-1-30 HNU = 50 ppm

Woodward-Clyde Consultants

PROJECT NAME ARROW RENTALS NO. 90C0321A

DEPTH (feet)	LITHOLOGIC DESCRIPTION	Well Completion Diagram	DEPTH (feet)	SAMPLES	BLOW-COUNTS	REMARKS (Drill Rate, Fluid Loss, Odor, etc.)
35	CLAYEY, SANDY SILT (SM-CL), brown-gray with some orange, coarse sand, wet.		35		5 12 5	Sample: B-1-35 HNU = 130 ppm
	Very easy drilling encountered.					
40	CLAYEY SILT (CL), homogenous brown, noticeable hydrocarbon odor soft, wet.		40		4 5 5	Sample : B-1-40 HNU =225 ppm
45	Grades to mottled with some, small, white and black pebbles, odor.		45		2 3 3	Sample: B-1-45 HNU= 180 ppm
50	Grades to gray with rare layer of coarse sand, odor, saturated.		50		10 15 17	Sample: B-1-50 HNU= 110 ppm
						Boring terminates at approximately 51-1/2 feet below grade.
55			55			
60			60			

FIELD LOG OF BORING NO. B-1A SHEET 2 OF 2

Woodward-Clyde Consultants

PROJECT NAME ARROW RENTALS NO. 90C0321A

BORING LOCATION W-B		ELEVATION AND DATUM	
DRILLING AGENCY Kvilhaug	DRILLER Rod Furlow, Brian Vincent	DATE STARTED 7/12/90 → DATE FINISHED 7/13/90	
DRILLING EQUIPMENT B 61 Mobile Drill		COMPLETION DEPTH 55	SAMPLER
DRILLING METHOD Hollow Stem Auger	DRILL BIT	NO. OF SAMPLES DIST.	UNDIST. 6
SIZE AND TYPE OF CASING 4 "-diameter Schedule 40 PVC		WATER LEVEL FIRST 48 ft.	COMPL. 24 HRS. 44.62
TYPE OF PERFORATION 0.010 Slotted PVC	FROM 55 TO 40 FT	LOGGED BY: Lois Gruenberg	CHECKED BY:
SIZE AND TYPE OF PACK Monterey Sand # 2/12	FROM 55 TO 32 FT		
TYPE OF SEAL NO. 1 Bentonite Pellets	FROM 32 TO 30 FT		
NO. 2 Grout/Quick mix to set Christy box	FROM 30 TO 0 FT		

DEPTH (feet)	LITHOLOGIC DESCRIPTION	Well Completion Diagram	DEPTH (feet)	SAMPLES BLOW-COUNTS	REMARKS (Drill Rate, Fluid Loss, Odor, etc.)
	Cement Concrete - 4 inches				
5	SILTY GRAVELS (GM), brown to dark brown, trace clay, damp, loose.		5	12 25 50	No recovery
	Gravels 1/2 to 2 "				
10	Grades to more silty, moist.		10		No sample taken
15	Grades to gray brown with orange patches more silt, some clay, moist		15	50/ 6	Little recovery, 2" gravel stuck in sampler HNU = 10 ppm
20			20	40 50/ 6	Little recovery HNU= 15 ppm
25			25	50/ 6	Sample: W-B-25 HNU = 2 ppm
30			30	50/ 6	Sample: W-B-30 HNU = 2 ppm

Woodward-Clyde Consultants

PROJECT NAME ARROW RENTALS NO. 90C0321A

DEPTH (feet)	LITHOLOGIC DESCRIPTION	Well Completion Diagram	DEPTH (feet)	SAMPLES BLOW-COUNTS	REMARKS (Drill Rate, Fluid Loss, Odor, etc.)
35			35	50/6	Sample : W-B-35 HNU >20 ppm
40	SILT (ML), brown with black patterns, some clay, medium-low plasticity, moderately soft, damp to moist.		40	8 12 15	Sample : W-B-40 HNU = 2 ppm
45	Grades to brown with green-yellow and gray, black patches, mottling		45	17 19 26	Sample: W-B-45 HNU = 30 ppm
50			50	5 25 40	Sample: W-B-50
55			55		Boring terminated at approximately 55 feet below grade.
60			60		

FIELD LOG OF BORING NO. W-B SHEET 2 OF 2

Woodward-Clyde Consultants

PROJECT NAME ARROW RENTALS NO. 90C0321A

BORING LOCATION: Across Arrow Rentals on North L St.		ELEVATION AND DATUM	
DRILLING AGENCY: Kvilhaug	DRILLER: Mike Crocker, Joel Vigil	DATE STARTED / DATE FINISHED: 7/11/90 → 7/11/90	
DRILLING EQUIPMENT: B 53 Mobile Drill		COMPLETION DEPTH: 55 ft.	SAMPLER: 2 in.
DRILLING METHOD: Hollow Stem Auger	DRILL BIT	NO. OF SAMPLES: DIST.	UNDIST.: 6
SIZE AND TYPE OF CASING: 2 "-diameter Schedule 40 PVC		WATER LEVEL: FIRST 47 ft.	COMPL.: 24 HRS. 43.34
TYPE OF PERFORATION: 0.010 Slotted PVC	FROM 55 TO 45 FT	LOGGED BY: Lois Gruenberg	CHECKED BY:
SIZE AND TYPE OF PACK: Monterey Sand # 2	FROM 55 TO 37 - 1/2 FT		
TYPE OF SEAL: NO. 1 Bentonite Pellets	FROM 37 - 1/2 TO 35 FT		
NO. 2 Grout/ Quick mix to set Christy box	FROM 35 TO 0 FT		

DEPTH (feet)	LITHOLOGIC DESCRIPTION	Well Completion Diagram	DEPTH (feet)	SAMPLES: BLOW-COUNTS	REMARKS (Drill Rate, Fluid Loss, Odor, etc.)
	Asphalt Concrete - 6 inches Gravel base to 1/2 "-diameter, silty, brown, dry.				
5	SILTY GRAVEL/GRAVELLY SILT (GM) brown, some silt, some very large rocks, dry to slightly damp, loose.		5		No sample taken.
10			10		No sample taken.
15			15		No sample taken.
20			20	20 40 35	Sample: W-C-20 HNU= no response
25	Grades to more silt with trace clay, moderately stiff.		25	17 18 20	Sample: W-C-25 HNU= no response
30			30	20 35 40	Sample: W-C-30 HNU = no response

Woodward-Clyde Consultants

PROJECT NAME ARROW RENTALS NO. 90C0321A

DEPTH (feet)	LITHOLOGIC DESCRIPTION	Well Completion Diagram	DEPTH (feet)	SAMPLES BLOW-COUNTS	REMARKS (Drill Rate, Fluid Loss, Odor, etc.)
35	CLAYEY SILT (ML-CL), brown with dark brown and orange blotches, some gravels to 3/8 ", moist to wet, moderately stiff.		35	8 18 23	Sample: W-C-35 HNU = no response
40	Grades to brown-gray, less gravels, stiff.		40	20 35 35	Sample : W-C-40 HNU < 1 ppm
45			45	18 20 22	Sample: W-C-45
50	Grades to saturated.		50	8 20 25	Sample not taken No recovery
55			55		Boring terminated at approximately 55 feet below grade.
60			60		

FIELD LOG OF BORING NO. W-C SHEET 2 OF 2

Woodward-Clyde Consultants

PROJECT NAME ARROW RENTALS NO. 90C0321A

BORING LOCATION 1951 Chestnut, Livermore, CA (in backyard of residence of William Armstrong)		ELEVATION AND DATUM	
DRILLING AGENCY Kvilhaug	DRILLER Rod Furlow, Brian Vincent	DATE STARTED 7/12/90 → DATE FINISHED 7/12/90	
DRILLING EQUIPMENT B 61 Mobile Drill		COMPLETION DEPTH 57 - 1/2 ft.	SAMPLER 2 in.
DRILLING METHOD Hollow Stem Auger	DRILL BIT	NO. OF SAMPLES DIST.	UNDIST. 6
SIZE AND TYPE OF CASING 4 "-diameter Schedule 40 PVC		WATER LEVEL FIRST 46 ft.	COMPL. 24 HRS. 42.19
TYPE OF PERFORATION 0.010 Slotted PVC	FROM 57 - 1/2 TO 42 FT	LOGGED BY: Lois Gruenberg	CHECKED BY:
SIZE AND TYPE OF PACK Monterey Sand # 2/12	FROM 57 - 1/2 TO 39 - 1/2 FT		
TYPE OF SEAL NO. 1 Bentonite Pellets	FROM 34 TO 32 FT		
NO. 2 Grout	FROM 32 TO 0 FT		

DEPTH (feet)	LITHOLOGIC DESCRIPTION	Well Completion Diagram	DEPTH (feet)	SAMPLES BLOW-COUNTS	REMARKS (Drill Rate, Fluid Loss, Odor, etc.)
	Some grass and dry, silty soil in backyard.				
5	Cuttings - SILTY (GM), brown, gravels to 3/8 ", dry.		5	50/6	Sample not taken HNU < 1 ppm
10	GRAVELLY SILT (GM), brown with black and orange blotches, fractured gravels to 1/2 ", trace clay, moist, very dense.		10	30 25 28	Little recovery HNU < 1 ppm
15			15	25 50/6	Sample: W-D-15 HNU = 1 ppm
20	SILTY GRAVEL (GM), brown, gravels to 1", trace clay, loose, moist, very dense .		20	50/6	Sample not taken HNU= 1.5 ppm
25	SILT (ML), brown with black patches, some clay, soft.		25	12 12 14	Sample: W-D-25 HNU = 1.75 ppm
30	GRAVELLY SILT/SILTY GRAVEL(GM), brown with gray rocks, trace clay, moist to wet, rock stuck in sampler.		30	50/6	Rock stuck in sampler No response HNU

Woodward-Clyde Consultants

PROJECT NAME ARROW RENTALS NO. 90C0321A

DEPTH (feet)	LITHOLOGIC DESCRIPTION	Well Completion Diagram	DEPTH (feet)	SAMPLES BLOW-COUNTS	REMARKS (Drill Rate, Fluid Loss, Odor, etc.)
35	SILT (ML), brown with black patches, some clay, moderately stiff.		35	12 15 20	Sample: W-D-35 HNU = 2 ppm
40	SANDY SILT (SM), brown, homeogenous, coarse sand, dense, wet. Some sloughing occured from 40 to 34 feet, just above the sand pack, during drilling.		40	30 50/ 6	Sample :W-D-40 HNU = 1.5 ppm
45	CLAYEY SILT (CL), brown, medium plasticity, moderately soft, wet.		45	12 15 22	Sample: W-A-45 HNU = 150 ppm
50			50		
55			55		
60			60		Boring terminated at approximately 57-1/2 feet below grade.

FIELD LOG OF BORING NO. W-D SHEET 2 OF 2

Woodward-Clyde Consultants

PROJECT NAME ARROW RENTALS NO. 90C0321A

BORING LOCATION End of M Street, Livermore, CA		ELEVATION AND DATUM	
DRILLING AGENCY Kvilhaug	DRILLER Mike Furlow, Joel Vincent	DATE STARTED 7/10/90 → DATE FINISHED 7/10/90	
DRILLING EQUIPMENT B 53 Mobile Drill		COMPLETION DEPTH 61 ft.	SAMPLER 2 in.
DRILLING METHOD Hollow Stem Auger	DRILL BIT	NO. OF SAMPLES DIST.	UNDIST. 8
SIZE AND TYPE OF CASING 2 "-diamter Schedule 40 PVC		WATER LEVEL FIRST 47 ft.	COMPL. 24 HRS. 43.08
TYPE OF PERFORATION 0.010 Slotted PVC	FROM 60 -1/3 TO 40 - 1/2 FT	LOGGED BY: Lois Gruenberg	CHECKED BY:
SIZE AND TYPE OF PACK Monterey Sand # 2/12	FROM 61 TO 37 FT		
TYPE OF SEAL NO. 1 Bentonite Pellets	FROM 30 TO 29 FT		
NO. 2 5 sack, 3/4" agg. - Grout / Quick Seal to set Christy box	FROM 29 TO 0 FT		

DEPTH (feet)	LITHOLOGIC DESCRIPTION	Well Completion Diagram	DEPTH (feet)	SAMPLES BLOW-COUNTS	REMARKS (Drill Rate, Fluid Loss, Odor, etc.)
	Asphalt Concrete - 4 "				
	Cuttings - SILT (ML), gravels to 1/2 ", brown, loose.				
5	SILTY SAND (SM) , brown and gray, some gravels to 1/2 ", quartz gravels with black veins, fryable, loose.		5	10 14 18	Sample: W-E-5 HNU= 2 ppm
10	GRAVELLY SILT/ SILTY GRAVEL (GM), brown, some silt, fractured, very hard rocks.		10	20 30 40	Sample: W-E-10 HNU= 2.5 ppm
15	SILTY, SANDY GRAVEL mixture, brown with orange, gravels to 1/2 ", some clay, loose, damp to moist.		15	12 25 25	Sample: W-E-15 HNU= no response
20			20	15 20 28	Sample: W-E-20 HNU= no response
25			25	12 20 28	Sample: W-E-25 HNU= no response
30			30	28 50/ 5	Sample W-E-30 HNU = no response

Woodward-Clyde Consultants

PROJECT NAME ARROW RENTAL NO. 90C0321A

DEPTH (feet)	LITHOLOGIC DESCRIPTION	Well Completion Diagram	DEPTH (feet)	SAMPLES BLOW-COUNTS	REMARKS (Drill Rate, Fluid Loss, Odor, etc.)
35	Grades to wet.		35	12 15 12	Sample: W-E-35 HNU < 1 ppm Little recovery
	Very soft drilling encountered. Sloughing occured at approximately 37 to 30 feet during well installation.				
40	CLAYEY SILT (ML-CL), brown, some medium sand, homogeneous, soft, moist.		40	2 3 5	Sample : W-E-40 HNU < 1 ppm
45	Grades to less sand, brown with faint black blebs.		45	5 8 8	Sample: W-E-45 HNU = no response
	More difficult drilling encountered.				
50	GRAVELS (GM), pebbles black/gray, saturated, some silt.		50	20 30 25	Sample not taken.
55			55		
60			60		Boring terminated at approximately 61 feet below grade.

FIELD LOG OF BORING NO. W-E SHEET 2 OF 2

Woodward-Clyde Consultants

Project: Arrow Rentals 90C0321A

Well Number and Location: Boring B-F at former Arrow Gas Pump	Elev. and Datum:
Drilling Agency: Arrow Rentals / Driller: Tony Sullins	Date Started: 3/11/91 Date Completed: 3/12/91
Drilling Equipment: Bobcat	Total Depth: 16 ft.
Drilling Method : flight auger / Drill bit: 8- inch	Sampler: Bulk, in 4inch brass liners
Size and Type of Casing: NA	Water Level: First / Compl. / 24 HRS.
Type of Perforation: NA From: ft To: ft	No. of Samples: Dist. 2 / Undist.
Size and Type of Pack: NA From: ft To: ft	
Seal: Bentonite Pellets NA From: ft To: ft	Logged by: A. Ridley / Checked by:
Grout NA From: ft To: ft	

Depth (feet)	LITHOLOGIC DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION	Sample	Blow Counts	REMARKS
	Concrete pavment- 4 inches thick					
	SILTY GRAVEL(GM) FILL					
1						
	CLAYEY GRAVEL (GC)					
2				P-1		P-1 collected on 1/22/91 from this location in brass liner, no gasoline odor
	-dark brown with sand, moist, with gravel to 1" diameter	GC				
3						
4						
5						
6						
7						
8						
9						
	Difficult drilling, larger gravel to 4" diameter					
10						
11						
	Increasing clay content, moist					no gasoline odor
12						
13						
14						
15		GC				
	Boring terminated at 16 ' in CLAYEY GRAVEL					
16				1,2		B-F-1 and 2 in brass liners, slight gasoline odor

Woodward-Clyde Consultants **Project: 187 North "L" Street** **No. 91C0954A**

Well Number and Location: Near side door to Arrow Building	Elev. and Datum:
Drilling Agency: Weeks Drilling & Pump / Driller: Gary	Date Started: 1/31/92 Date Completed: 1/31/92
Drilling Equipment: Mobile Drill B-53	Total Depth: 40 ft.
Drilling Method: Hollow Stem Auger / Drill bit: 7 7/8 inch	Sampler: 2-1/2-inch split spoon
Size and Type of Casing:	Water Level: First Compl. 24 HRS.
Type of Perforation: From: ft To: ft	No. of Samples: Dist. Undist. 16
Size and Type of Pack: From: ft To: ft	Logged by: B. Loskutoff / Checked by:
Seal: Bentonite Pellets From: ft To: ft	
Grout Cement with 5% bentonite From: 0 ft To: 40 ft	

Depth (feet)	LITHOLOGIC DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION	Sample	Blow Counts	REMARKS
	0-5" CONCRETE	conc				At surface 5-inches of concrete
1	@ 5"- SANDY GRAVEL,base aggregate fill rock, greenish gray, angular gravels to 1 1/2" size,15-20% fine-grained to coarse-grained sand, damp, loose	GP				From 5-inches to 4-feet log cuttings
2						From 4-feet to 20 continuous sample with 2-1/2-inch split-spoon sampler
3						
4	@ 4' CLAYEY SANDY GRAVEL, dark brown, loose to medium dense, moist, angular gravels to 1 1/2" x 2" size, 20-30% medium-grained to coarse-grained sand, 15% clay	GP			5	petroluem-like
5				1	7 6	product at 5.5 feet odor B - G - 5.5
6					6 5	HNu : 6 ppm
7				2	6	B - G - 7
8				3	6 16 20	B - G - 8 HNu : 13 ppm
9				4	17 27 20	slight odor B - G - 9.5 HNu : 38 ppm
10					3	odor
11	@ 10.5 CLAYEY GRAVEL, dark grayish brown, dense, moist, 5 % coarse-grained sand, 30-35% clay, angular gravels to 3-inch size	GC		5	18 30 50	B - G - 11.5 HNu : 62 ppm
12						12 to 12.5' No sample
13				6	50	B - G - 13, odor HNu : 320 ppm
14				7	40 50	B - G - 14, odor HNu : 420 ppm
15				8	35 50	B - G - 15, odor HNu : 390 ppm
16				9	40 50	B - G - 16, odor HNu : 390 ppm
17				10	23 40 50	B - G - 17.5, odor HNu : 260 ppm
18						

FIELD LOG OF BORING NO. B - G

Project: 187 North "L" Street	LOG OF BORING B - G

Depth (feet)	LITHOLOGIC DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION	Sample	Blow Counts	REMARKS
17	as above, CLAYEY GRAVEL	GC				
18	same, increase clay content to 40%, also coarse-grained sand to 20%				40 35	
19				11	35 33	B - G - 19 odor HNu : 280 ppm
20	same, decrease medium to coarse-grained sand content to 10%			12	20 30 38	B - G - 20.5 HNu:280 ppm, odor
21						
22						
23						
24						
25	@ 25' SANDY CLAYEY GRAVEL, light yellowish brown, 20% coarse-grained sand, 30-40% clay, angular gravels to 2 1/2" size, moist, dense to hard	GC			25	
26				13	40 50	B- G - 26 HNu : 220 ppm, odor
27						
28						
29						
30					25 36	HNu : 180 ppm,odor
31	@ 31' SILTY CLAY, yellowish brown, stiff to very stiff, damp, 20-30% very fine grained sand	CL		14	25	B - G - 31.5
32						
33						
34						
35	@ 35' SANDY CLAYEY GRAVEL, light yellowish brown, 20% coarse-grained sand, 30-40% clay, moist, dense to hard, 2" angular gravels	GC			23	
36				15	30 30	B - G - 36, odor HNu : 180 ppm
37	@ 36.5' CLAYEY SILT, light olive brown, firm to stiff, moist to very moist at depth, 30-35% clay	ML				
38						

Project: 187 North "L" Street	LOG OF BORING B - G

Depth (feet)	LITHOLOGIC DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION	Sample	Blow Counts	REMARKS
38	as above, CLAYEY SILT	ML				
39						
40					6	
41	same, very moist at depth			16	10 13	B - G - 41 HNu : 100 ppm, odor
42	BOTTOM OF BOREHOLE					Boring terminated at 41.5 feet below grade, backfill with cement plus 5% bentonite grout mixture to surface
43						
44						
45						

Woodward-Clyde Consultants **Project: 187 North "L" Street** **No. 91C0954A**

Well Number and Location: Middle of Former Pump Island			Elev. and Datum:
Drilling Agency: Weeks Drilling & Pump	Driller: Gary		Date Started: 1/31/92 Date Completed: 1/31/92
Drilling Equipment: Mobile Drill B-53			Total Depth: 40 ft.
Drilling Method : Hollow Stem Auger	Drill bit: 7 7/8 inch		Sampler: 2-1/2-inch split spoon
Size and Type of Casing:			Water Level: First Compl. 24 HRS.
Type of Perforation:	From: ft To: ft		No. of Samples: Dist. Undist. 12
Size and Type of Pack:	From: ft To: ft		Logged by: B. Loskutoff
Seal: Bentonite Pellets	From: ft To: ft		Checked by:
Grout Cement with 5% bentonite	From: 0 ft To: 40 ft		

Depth (feet)	LITHOLOGIC DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION	Sample	Blow Counts	REMARKS
	0-5" CONCRETE	conc				At surface 5-inches of concrete
1	@ 5"- SANDY GRAVEL,base aggregate fill rock, greenish gray, angular gravels to 1 1/2" size,15-20% fine-grained to coarse-grained sand, damp, loose	GP				5"- 3.5' log cuttings
2						From 3.5 to 14 feet continuous sample with 2-1/2-inch split-spoon sampler
3					3	
4				1	15	B - H - 4.5
	@ 4' SANDY GRAVEL with clay, dark brown, loose to medium dense, dry, angular to subangular gravels to 2" size, 5-10 % clay, 20% medium-grained sand	GP			17	HNu : 6 ppm
5					23	
				2	40	B - H - 6
6					43	HNu : 6 ppm
					15	
7	same, clay to 10%			3	23	B - H - 7.5
					40	HNu : 2 ppm
8					30	
					30	
9				4	27	B - H - 9.5
					38	HNu : 1 ppm
10					30	
	@ 10' SANDY CLAYEY GRAVEL, yellowish brown, hard, dry, angular gravels, 20-30% clay, 15% medium-grained sand	GC		5	45	B - H - 11
11					42	HNu : 2 ppm
					20	
12				6	18	B - H - 12.5
					35	HNu : 0
13					30	HNu : 1 ppm
	same			7	50	B - H - 14
14						
15						
16						
17						
18						

FIELD LOG OF BORING NO. B - H

Project: 187 North "L" Street	LOG OF BORING B - H

Depth (feet)	LITHOLOGIC DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION	Sample	Blow Counts	REMARKS
17	as above, SANDY CLAYEY GRAVEL	GC				
18						
19						
20					10	
21	same, 15-20% medium to coarse-grained sand, clay to 40%			8	37 37	B - H - 21 HNu: 1 ppm
22						
23						
24						
25					20 40	HNu : 120 ppm
26	same			9	44	B- H - 26.5
27						
28						
29						
30					30	HNu : 200 ppm,odor
31	same			10	50	B - H - 31
32						
33						
34						
35					37	B - H - 36, odor
36	same			11	50	HNu : 200 ppm
37						
38						

Project: 187 North "L" Street	LOG OF BORING B - H

Depth (feet)	LITHOLOGIC DESCRIPTION	LITHOLOGY	MONITORING WELL CONSTRUCTION	Sample	Blow Counts	REMARKS
38	as above, SANDY CLAYEY GRAVEL	GC				
39						
40	@ 40' SANDY CLAY, light olive brown, firm to stiff, moist to very moist, 25% very fine to fine-grained sand	CL			5	
				12	7	B - H - 41
41					10	HNu : 40 ppm, odor
42	BOTTOM OF BOREHOLE					Boring terminated at 41.5 feet below grade, backfill with cement plus 5% bentonite grout mixture to surface
43						
44						
45						

Woodward-Clyde Consultants PROJECT NAME ARROW RENTALS NO. 93C0273A

BORING LOCATION W-1S		ELEVATION AND DATUM	
DRILLING AGENCY GREGG DRILLING	DRILLER Chris St Pierre	DATE STARTED 3/11/96 → DATE FINISHED 3/11/96	
DRILLING EQUIPMENT Mobile Drill		COMPLETION DEPTH	SAMPLER
DRILLING METHOD Hollow Stern Auger	DRILL BIT	NO. OF SAMPLES DIST. 0	UNDIST. 0
SIZE AND TYPE OF CASING 6" diameter schedule 40 PVC		WATER ELEV. FIRST	COMPL. 24 HRS
TYPE OF PERFORATION 0.010 slotted PVC	FROM 45 TO 20 FT.	LOGGED BY Jerome Lebegue	CHECKED BY
SIZE AND TYPE OF PACK Monterey Sand #2/12	FROM 45 TO 17 FT.		
TYPE OF SEAL Bentonite Pellets	FROM 17 TO 15 FT.		

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG: Lithology	GRAPHIC LOG: Piezometer Installation	Water Content	Penetrometer Data	SAMPLES: Type No	SAMPLES: Recov. ft	SAMPLES: Penetr. Resist. (Blows/6 in.)	REMARKS (Drill Rate, Fluid loss, Odor, etc.)
2	~~Asphalt concrete 4 inches~~ Cuttings - Gravel (GP)								
4									
6									
8									
10									
12									
14									
16									PID = 0.7 ppm
18									
20									PID = 182 ppm gasoline odor
22									
24									
26	Cuttings - Gravels with silt Silty gravelly sand (GM)								PID = 329 ppm gasoline odor
28									

FIELD LOG OF BORING NO. W-1S SHEET 1 of 2

Woodward-Clyde Consultants

PROJECT NAME ARROW RENTALS NO. 93C0273A

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG: Lithology	GRAPHIC LOG: Piezometer installation	Water Content	Piezometer Data	SAMPLES: Type No	SAMPLES: Recovery (in)	SAMPLES: Penetro (Blows/6 in)	REMARKS (Drill Rate, Fluid loss, Odor, etc.)
30									PID = 250 ppm gasoline odor
32									
34	Silty gravelly sand (GM), moist								
36									PID = 135 ppm gasoline odor
38									
40									PID = 77 ppm
42									
44									
46	Bottom of boring 45'								

FIELD LOG OF BORING NO. W-15 SHEET 2 of 2

Woodward-Clyde Consultants PROJECT NAME ARROW RENTALS NO. 93C0273A

BORING LOCATION W-Bs		ELEVATION AND DATUM	
DRILLING AGENCY GREGG & DRILLING	DRILLER Chris & Pierre	DATE STARTED / DATE FINISHED 3/12/96 → 3/12/96	
DRILLING EQUIPMENT Mobile Drill		COMPLETION DEPTH	SAMPLER
DRILLING METHOD Hollow Stem Auger	DRILL BIT	NO. OF SAMPLES / DIST. 0	UNDIST. 0
SIZE AND TYPE OF CASING 6" diameter schedule 40 PVC		WATER ELEV. / FIRST	COMPL. / 24 HRS
TYPE OF PERFORATION 0.010 slotted PVC	FROM 45 TO 20 FT.	LOGGED BY Jerome Lebegue	CHECKED BY:
SIZE AND TYPE OF PACK Monterey Sand #2/12	FROM 45 TO 18 FT.		
TYPE OF SEAL Bentonite Pellets	FROM 18 TO 16 FT.		

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG: Lithology	GRAPHIC LOG: Piezometer Installation	Water Content	Piezometer Data	SAMPLES: Type No	SAMPLES: Recov ft	SAMPLES: Penetr Resist (Blows/6 in)	REMARKS (Drill Rate, Fluid loss, Odor etc.)
	Asphalt concrete 4 inches								
	Cuttings								
2	Silty gravels (GM) brown to dark brown								
4									PID = 2.0 ppm
6									
8									
10									PID = 2.5 ppm
12									
14									PID = 2.8 ppm
16	Gravelly sand (GM). brown with some silt, moist								
18									
20									PID = 3.5 ppm
22									
24									
26									PID = 3.3 ppm
28									

Woodward-Clyde Consultants

PROJECT NAME ARROW RENTALS NO. 93C0273A

DEPTH (FEET)	DESCRIPTION	Lithology	Piezometer Installation	Water Content	Piezometer Data	Type No.	Recov. ft	Penetration Resistance (Blows/6 in.)	REMARKS (Drill Rate, Fluid loss, Odor, etc.)
30									PID = 3.2 ppm
32									
34	Silt (ML), some clay, brown, moist								PID = 2.5 ppm
36									
38									
40									PID = 2.8 ppm
42									
44									PID = 4.7 ppm
46	Bottom of boring 45'								

FIELD LOG OF BORING NO. W-B5 SHEET 2 of 2

Woodward-Clyde Consultants

PROJECT NAME ARROW RENTALS NO. 93C0273A

BORING LOCATION W-3S		ELEVATION AND DATUM	
DRILLING AGENCY GREGG DRILLING	DRILLER Chris & Steve	DATE STARTED 3/12/96 → DATE FINISHED 3/12/96	
DRILLING EQUIPMENT Mobile Drill		COMPLETION DEPTH	SAMPLER
DRILLING METHOD Hollow Stern Auger	DRILL BIT	NO. OF SAMPLES DIST. 0	UNDIST. 0
SIZE AND TYPE OF CASING 4" Diameter Schedule 40 PVC		WATER ELEV. FIRST	COMPL. 24 HRS
TYPE OF PERFORATION 0.010 slotted PVC	FROM 45 TO 20 FT.	LOGGED BY Jeanne Lebeque	CHECKED BY
SIZE AND TYPE OF PACK Monterey sand #2/12	FROM 45 TO 18 FT.		
TYPE OF SEAL Bentonite pellets	FROM 18 TO 16 FT.		

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG: Lithology	GRAPHIC LOG: Piezometer Installation	Water Content	Piezometer Data	SAMPLES: Type No	SAMPLES: Recov ft	SAMPLES: Penetro Resist (Blows/6 in)	REMARKS (Drill Rate, Fluid loss, Odor, etc.)
0	~~Asphalt concrete 4 inches~~								
2	Silty gravel (GC) brown to dark brown								
4									PID = 0 ppm
6									
8									
10	clayed gravel (GC)								PID = 0 ppm
12									
14									
16									PID = 0 ppm
18									
20									PID = 0 ppm
22									
24									
26	clayed gravel brown								PID = 0 ppm
28									

FIELD LOG OF BORING NO. W-3S SHEET 1 of 2

Woodward-Clyde Consultants

PROJECT NAME ARROW RENTALS NO. 93C0273A

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG: Lithology	GRAPHIC LOG: Piezometer Installation	Water Content	Piezometer Data	SAMPLES: Type No	SAMPLES: Recov. in	SAMPLES: Penetr. Resist. (Blows/ft.)	REMARKS (Drill Rate, Fluid loss, Odor, etc.)
30	Layed gravel (GC), moist								PID = 0 ppm
32									
34									PID = 1.2 ppm
36									
38									PID = 1.7 ppm
40									
42									PID = 1.0 ppm.
44									
46	Bottom of boring 45'								

FIELD LOG OF BORING NO. W-35 SHEET 2 of 2

Woodward-Clyde Consultants

PROJECT NAME ARROW RENTALS NO. 93C0273A

BORING LOCATION W-ES		ELEVATION AND DATUM	
DRILLING AGENCY GREGG & DRILLING	DRILLER Trevor Joyner	DATE STARTED 3/13/96 → DATE FINISHED 3/13/96	
DRILLING EQUIPMENT Mobile Drill		COMPLETION DEPTH	SAMPLER
DRILLING METHOD Hollow Stem Auger	DRILL BIT	NO. OF SAMPLES DIST. 0	UNDIST. 0
SIZE AND TYPE OF CASING 2" diameter schedule 40 PVC		WATER ELEV. FIRST	COMPL. 24 HRS
TYPE OF PERFORATION 0.010 slotted PVC	FROM 45 TO 20 FT.	LOGGED BY Jeanne Lebeque	CHECKED BY:
SIZE AND TYPE OF PACK Monterey sand #2/12	FROM 45 TO 18 FT.		
TYPE OF SEAL Bentonite Pellets	FROM 18 TO 16 FT.		

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG: Lithology	GRAPHIC LOG: Piezometer Installation	Water Content	Piezometer Data	SAMPLES: Type No	SAMPLES: Recov. ft	SAMPLES: Penetr. Resist. (Blows/6 in.)	REMARKS (Drill Rate, Fluid Loss, Odor, etc.)
0	Asphalt & rock								
2	silty gravel (GC) - brown to dark brown								
4									
6									PID = 2.5 ppm
8									
10									PID = 3.3 ppm
12									
14									
16									PID = 2.9 ppm
18									
20									PID = 2.9 ppm
22									
24									
26	Silty to clayed gravel (GM/GC) brown								PID = 4.6 ppm
28									

FIELD LOG OF BORING NO. W-ES SHEET 1 of 2

Woodward-Clyde Consultants

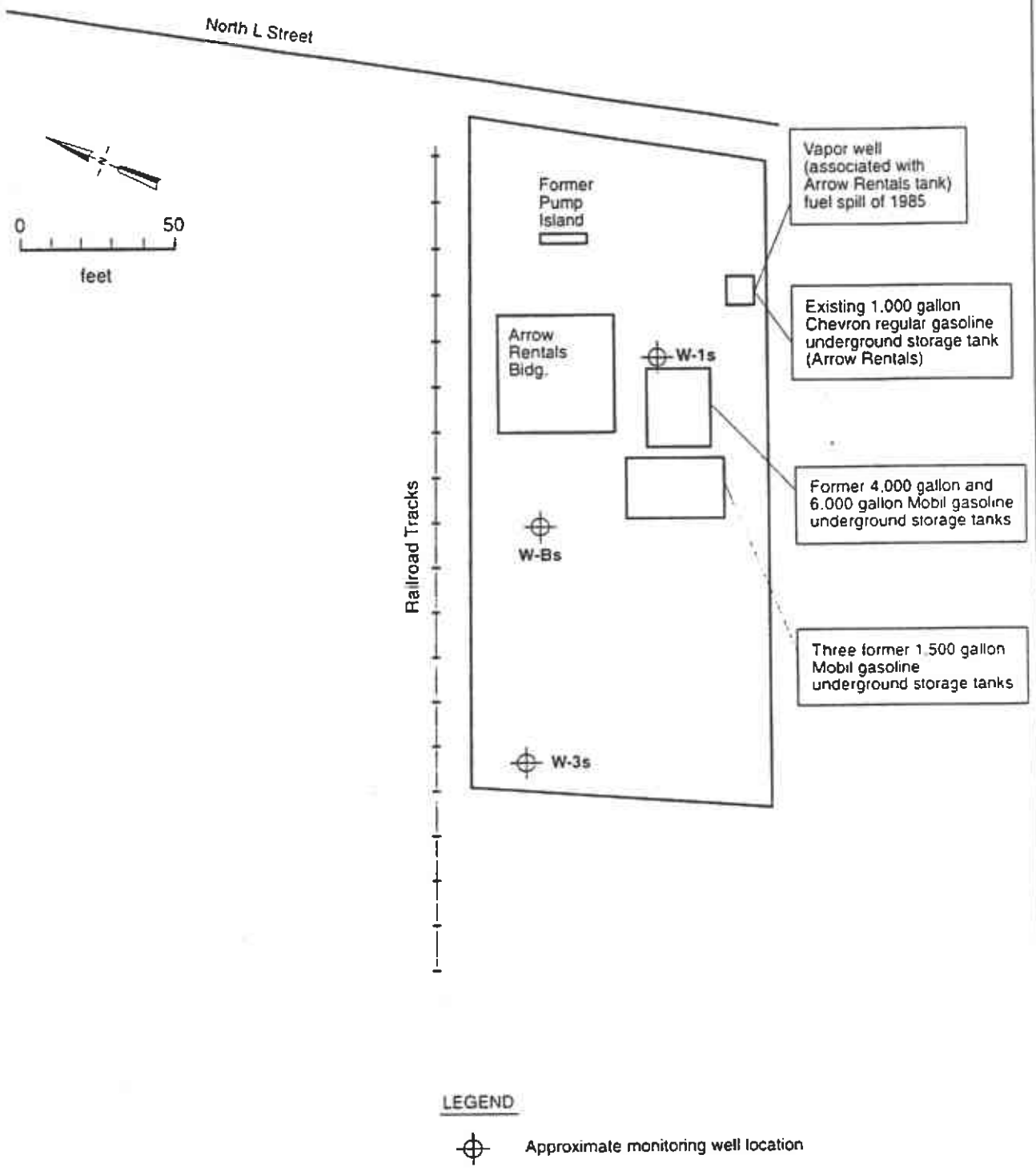
PROJECT NAME ARROW RENTALS NO. 93C0273A

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG: Lithology	GRAPHIC LOG: Piezometer Installation	Water Content	Piezometer Data	SAMPLES: Type No.	SAMPLES: Recov (ft)	SAMPLES: Penetr. Resist. (Blows/6 in.)	REMARKS (Drill Rate, Fluid loss, Odor, etc.)
30	clayed sand (SC), brown, moist								PID = 2.4 ppm.
32									
34									
36									
38									
40									
42									
44									
46	Bottom of boring 45'								

FIELD LOG OF BORING NO. W-ES SHEET 2 of 2

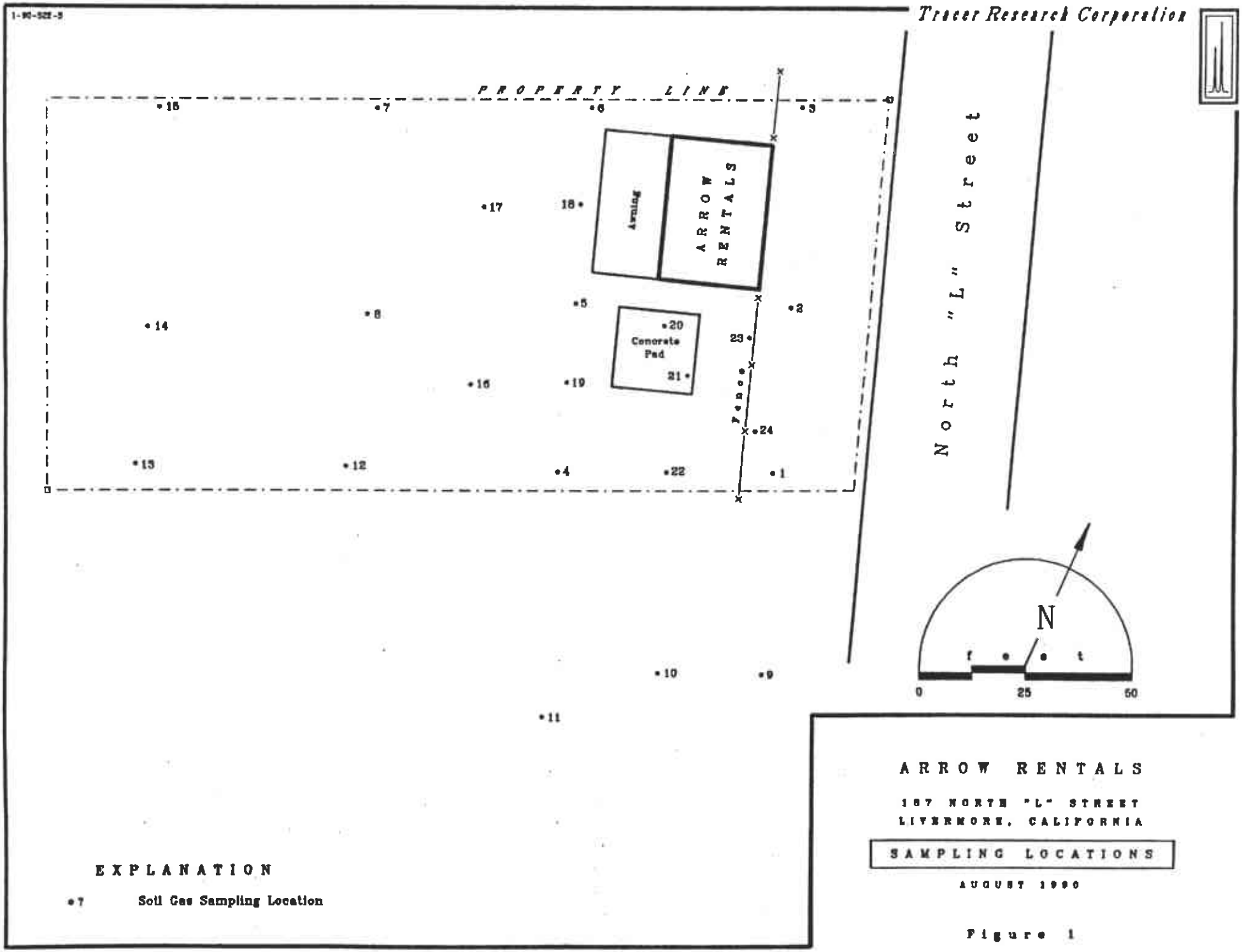
APPENDIX B

MAPS SHOWING SAMPLING LOCATIONS



Project No. 90C0321A	ARROW RENTALS 187 North L Street, Livermore, California	SITE PLAN	May 1996
Woodward-Clyde Consultants			Figure 1

90C0321A-4300/052196/gos



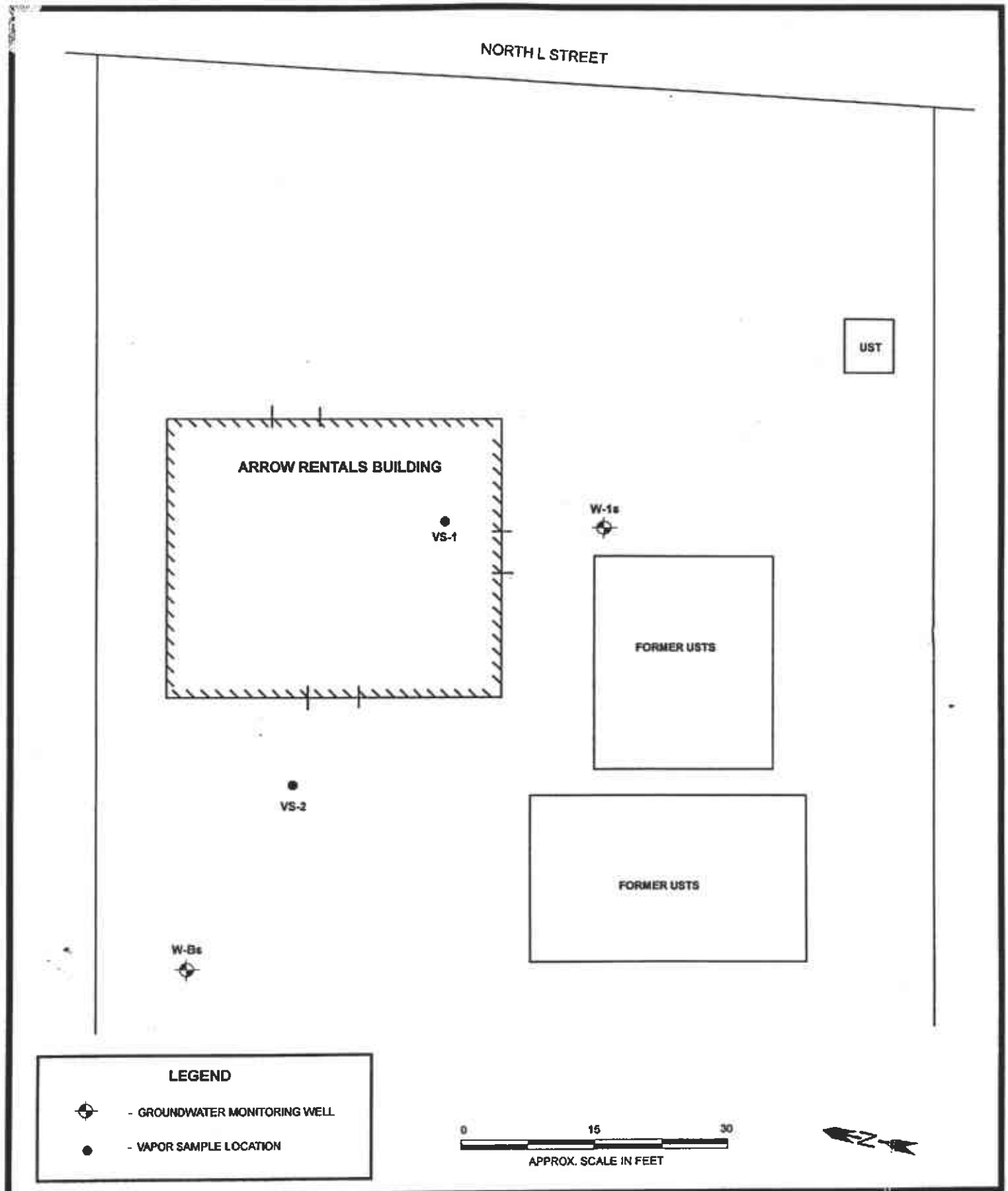
ARROW RENTALS

187 NORTH "L" STREET
LIVERMORE, CALIFORNIA

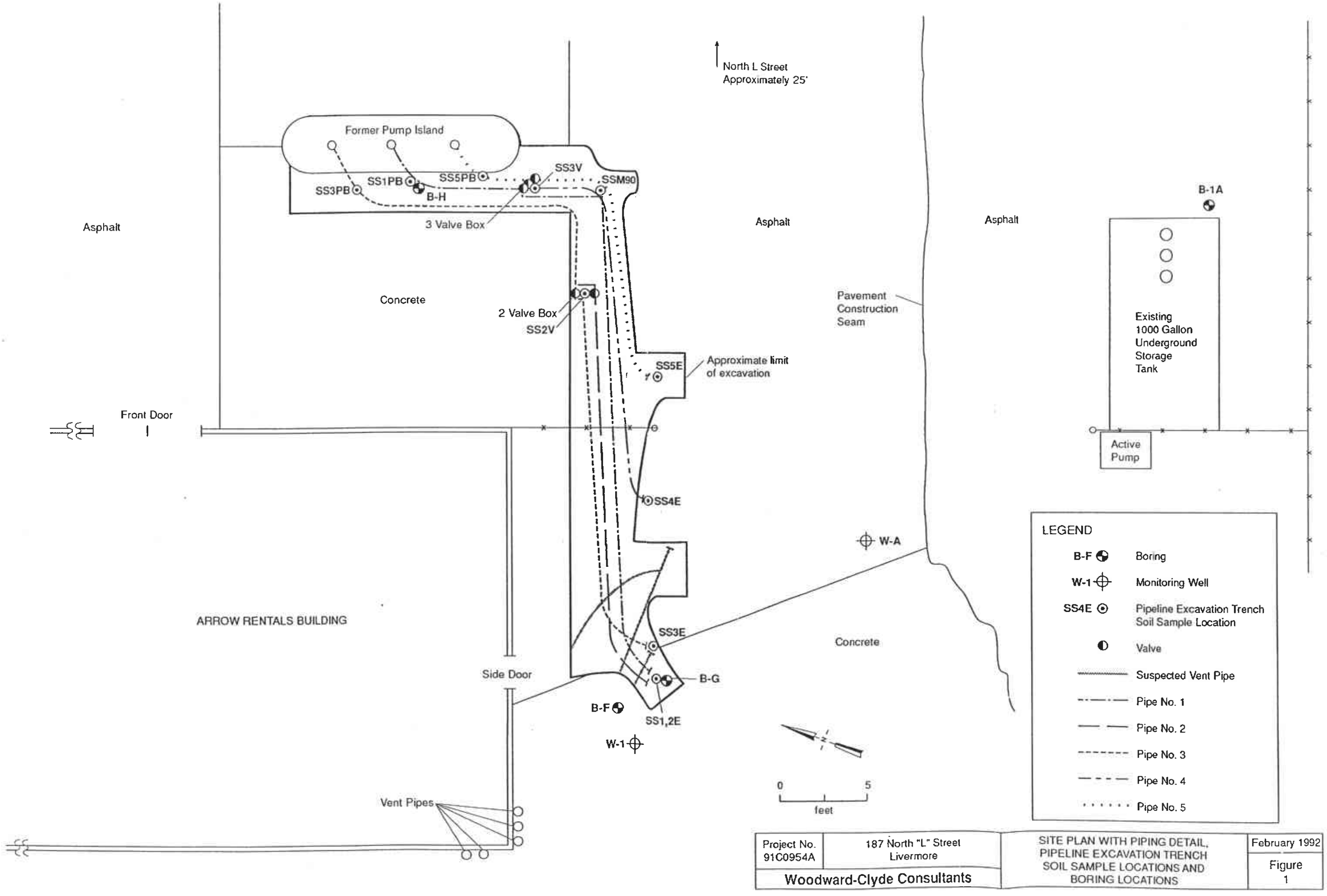
SAMPLING LOCATIONS

AUGUST 1990

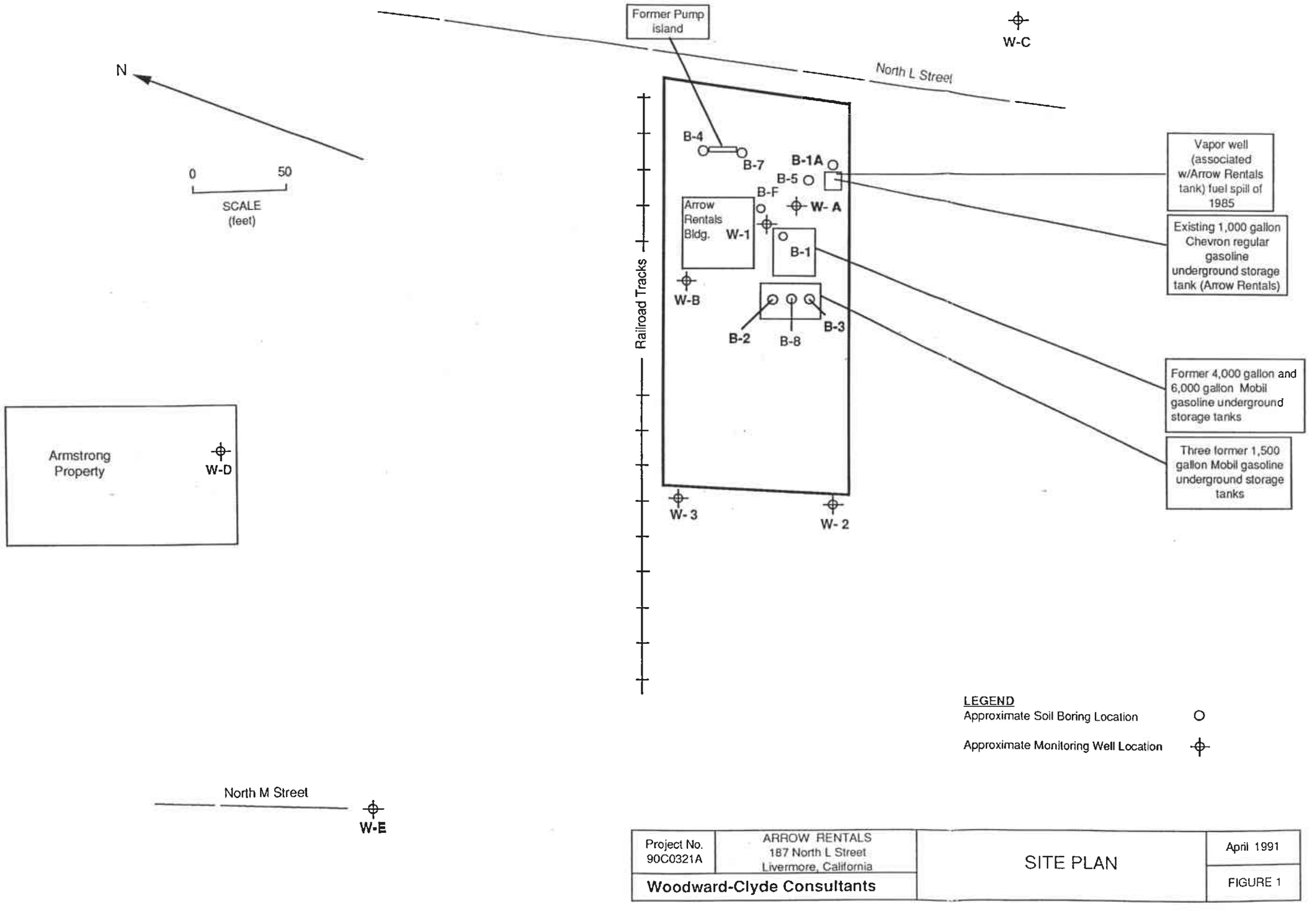
Figure 1



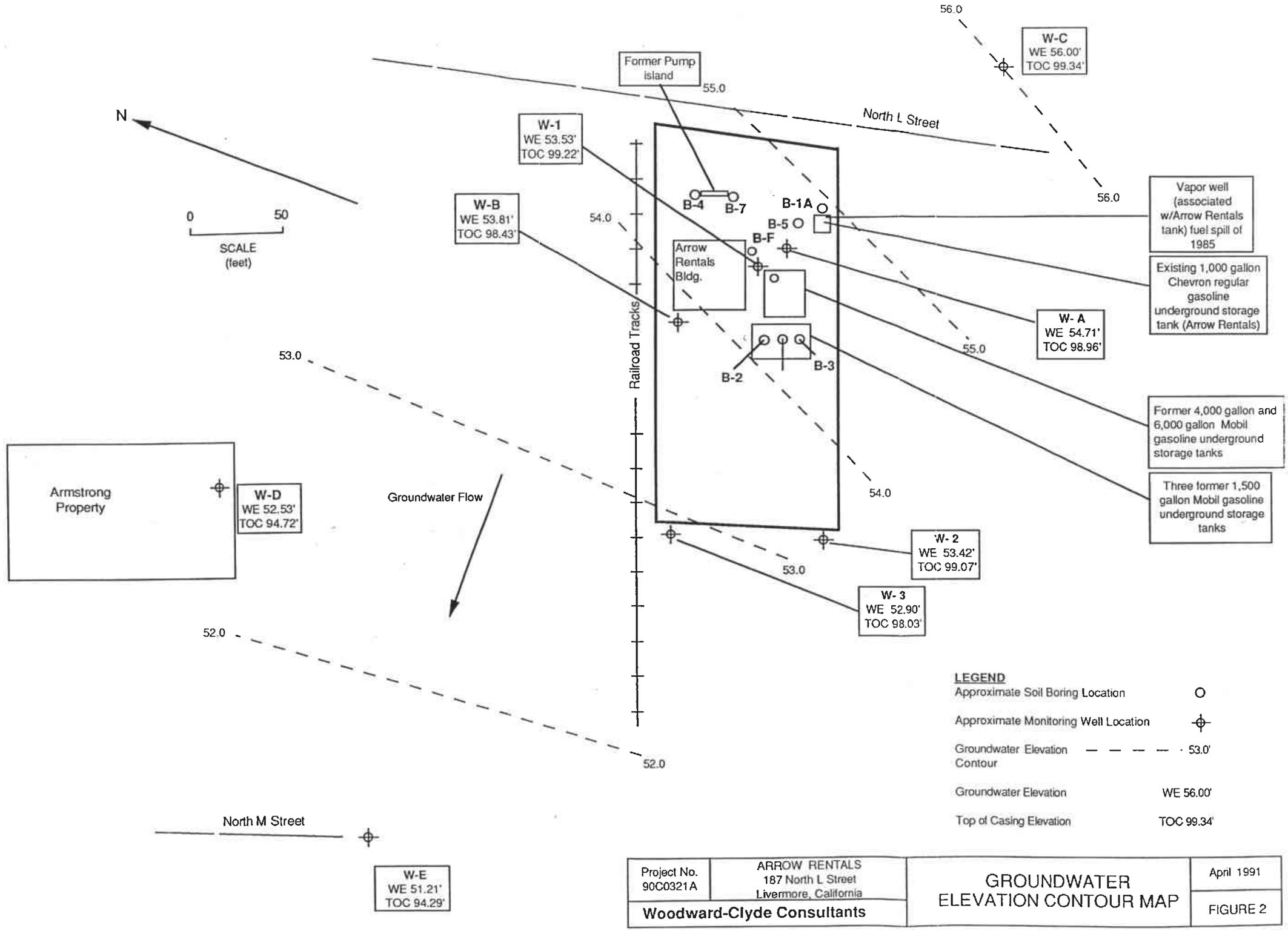
DESIGNED BY:	CHECKED BY:	SITE PLAN	DATE: 11/09/98	FIGURE: 2
DRAWN BY: JG	SCALE:	187 NORTH L STREET UST SITE LIVERMORE, CALIFORNIA	GRIBI Associates	
PROJECT NO: 143-01-01				



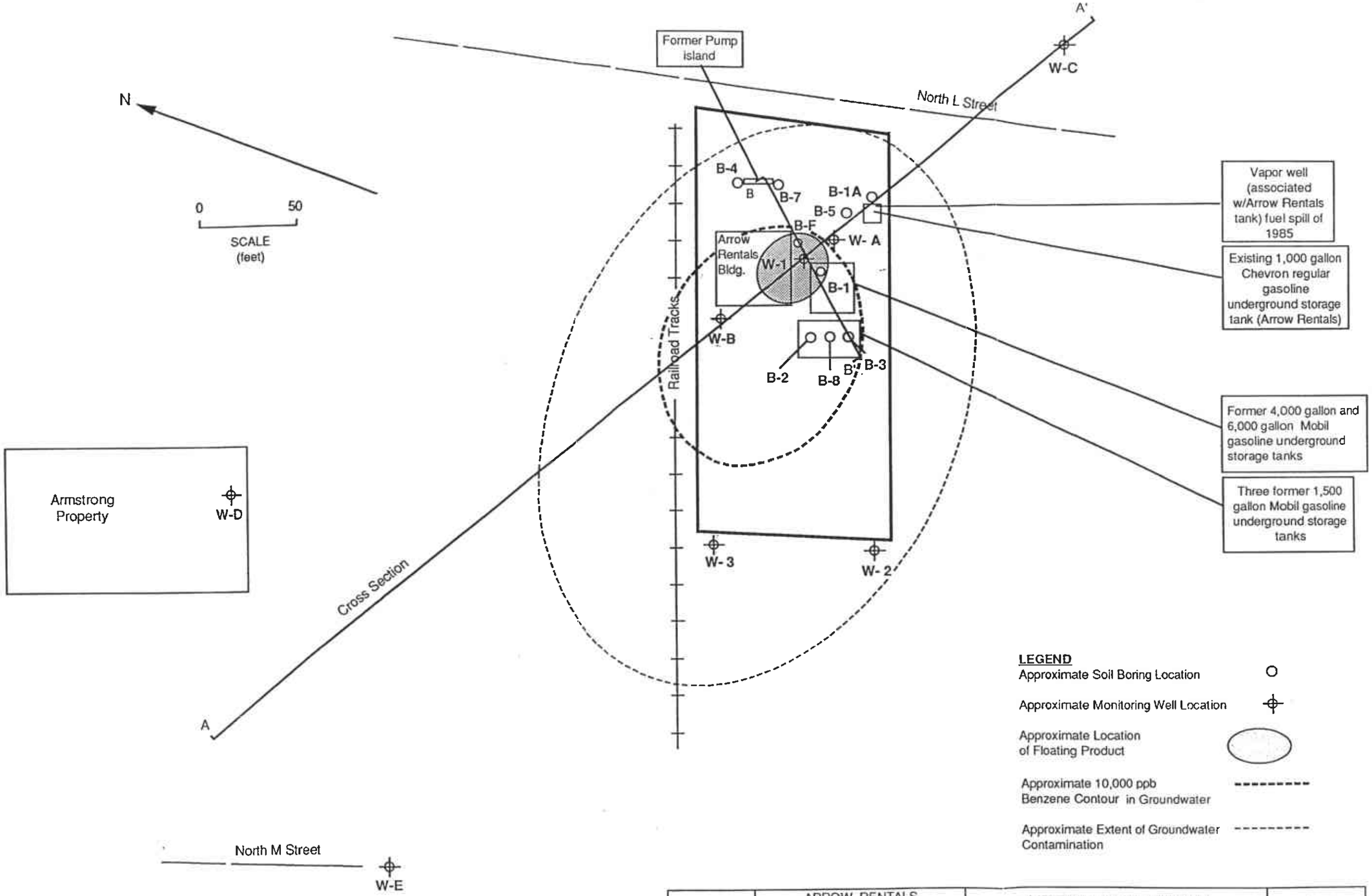
Project No. 91C0954A	187 North "L" Street Livermore	SITE PLAN WITH PIPING DETAIL, PIPELINE EXCAVATION TRENCH SOIL SAMPLE LOCATIONS AND BORING LOCATIONS	February 1992
Woodward-Clyde Consultants			Figure 1



Project No. 90C0321A	ARROW RENTALS 187 North L Street Livermore, California	SITE PLAN	April 1991
Woodward-Clyde Consultants			FIGURE 1



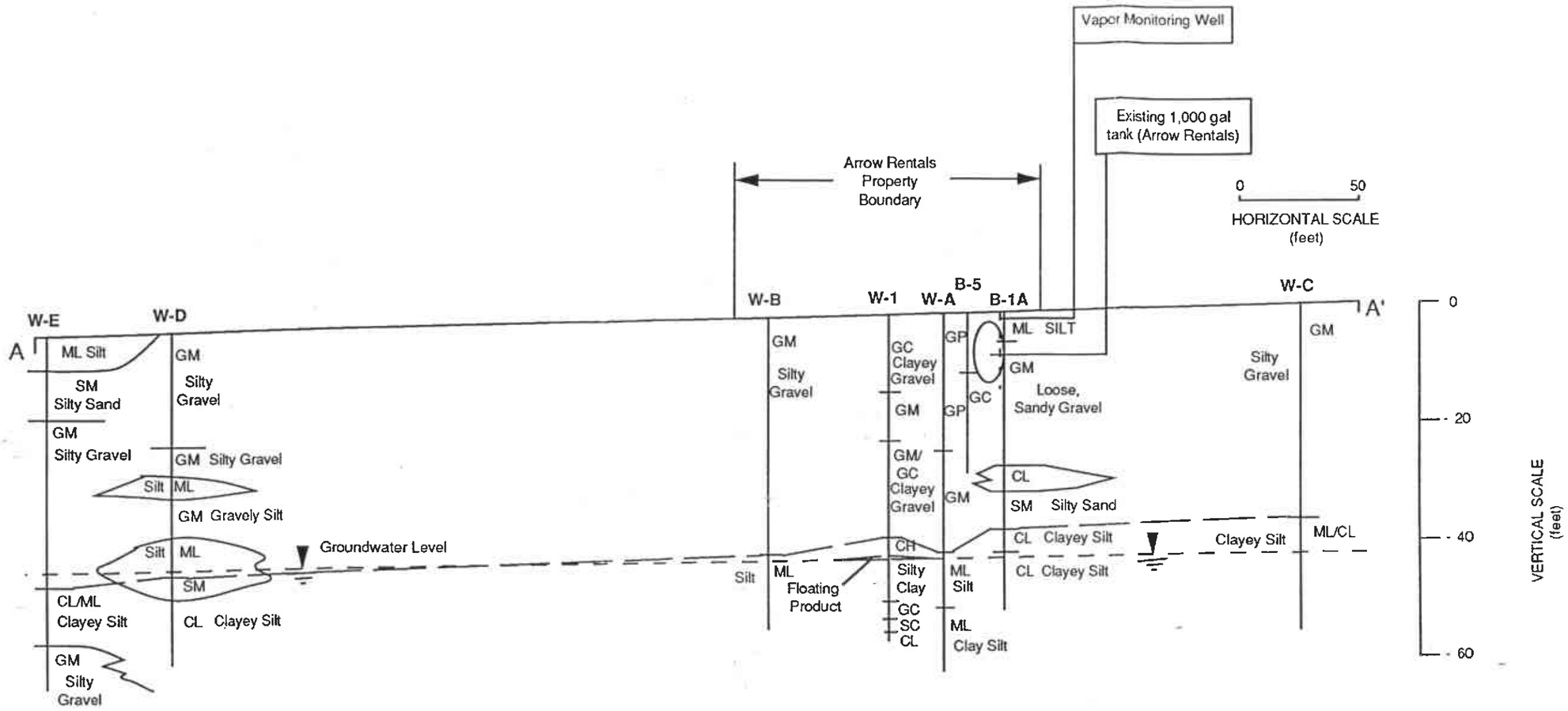
Project No. 90C0321A	ARROW RENTALS 187 North L Street Livermore, California	GROUNDWATER ELEVATION CONTOUR MAP	April 1991
Woodward-Clyde Consultants			FIGURE 2



Project No. 90C0321A	ARROW RENTALS 187 North L Street Livermore, California	BENZENE CONTAMINANT CONTOUR MAP IN GROUNDWATER	April 1991
Woodward-Clyde Consultants			FIGURE 3

APPENDIX C

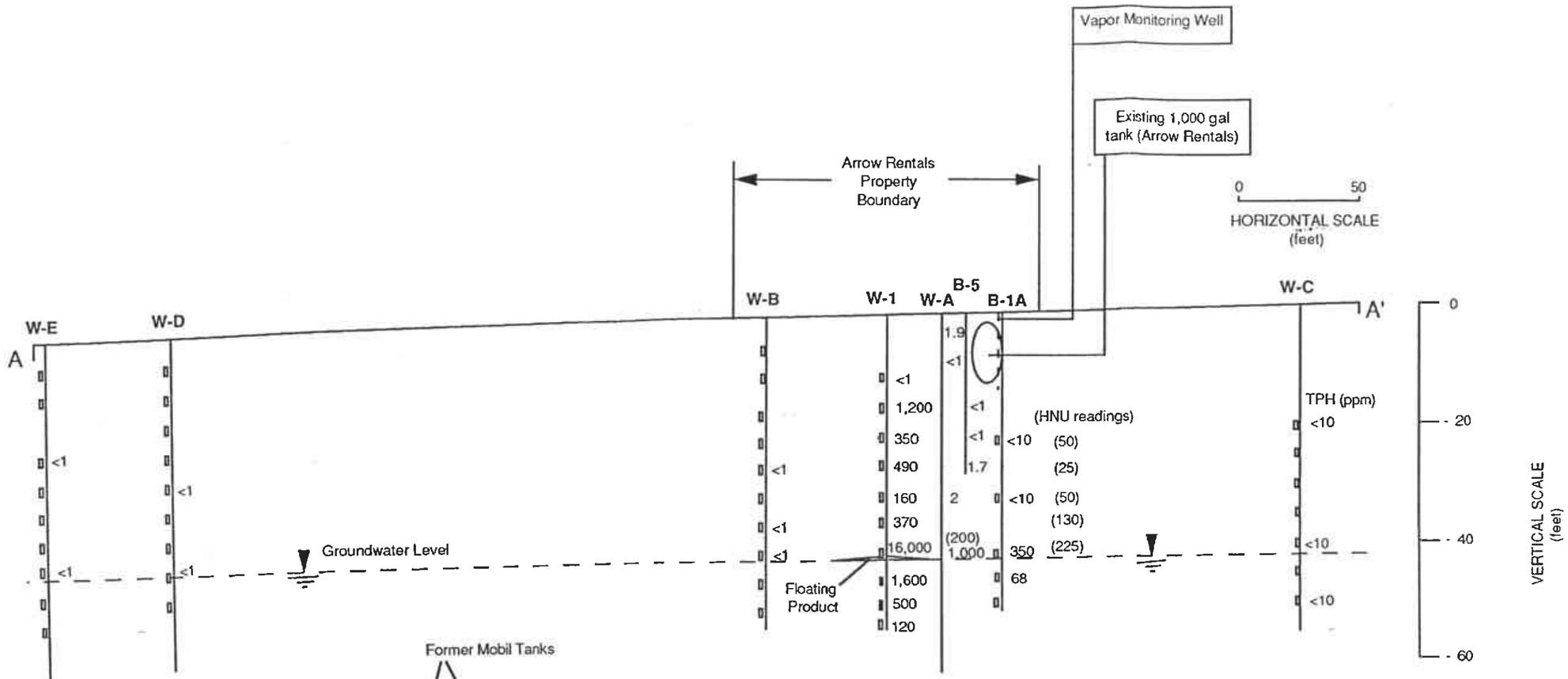
GEOLOGIC CROSS SECTIONS



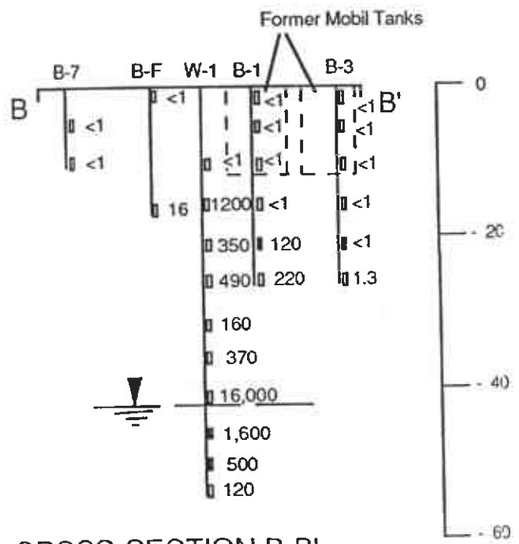
Project No. 90C 0321A	Arrow Rentals 187 North L Street Livermore, California	CROSS-SECTION A-A'	APRIL 1991
Woodward-Clyde Consultants			FIGURE 4

APPENDIX D

MAPS SHOWING EXTENT OF CONTAMINATION

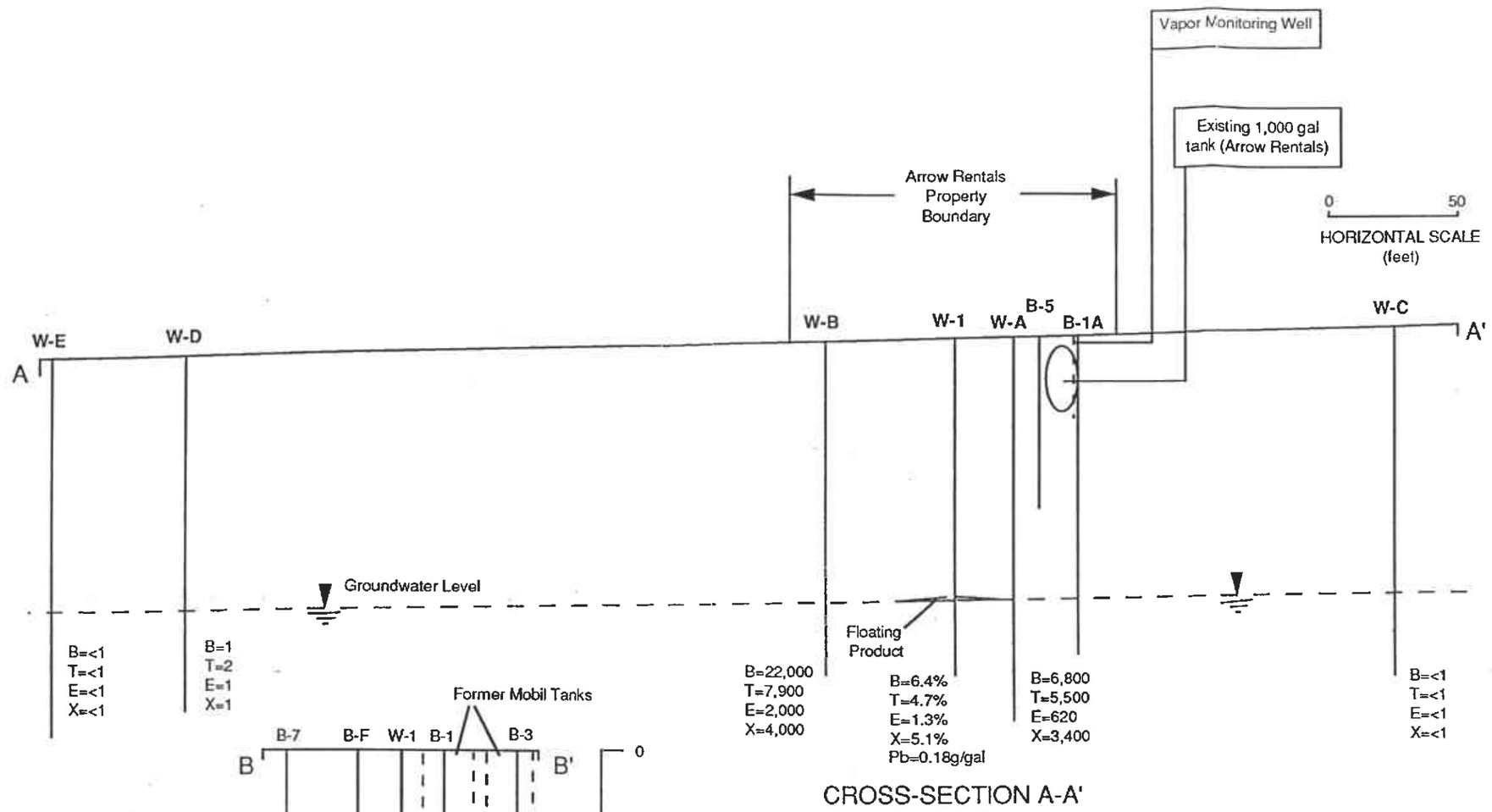


CROSS-SECTION A-A'

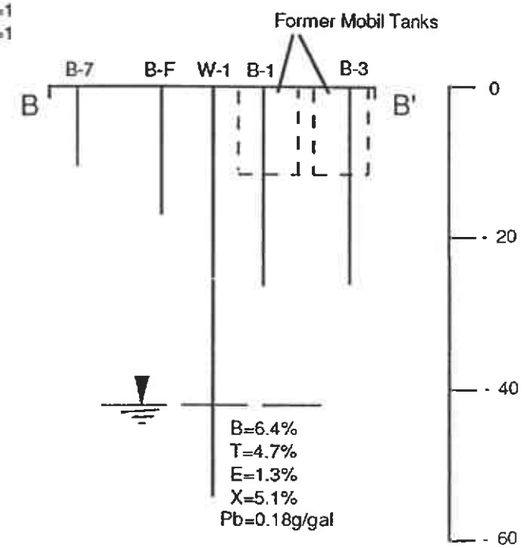


CROSS-SECTION B-B'

Project No. 90C 0321A	Arrow Rentals 187 North L Street Livermore, California	VERTICAL DISTRIBUTION OF TPH IN SOIL	APRIL 1991
Woodward-Clyde Consultants			FIGURE 5

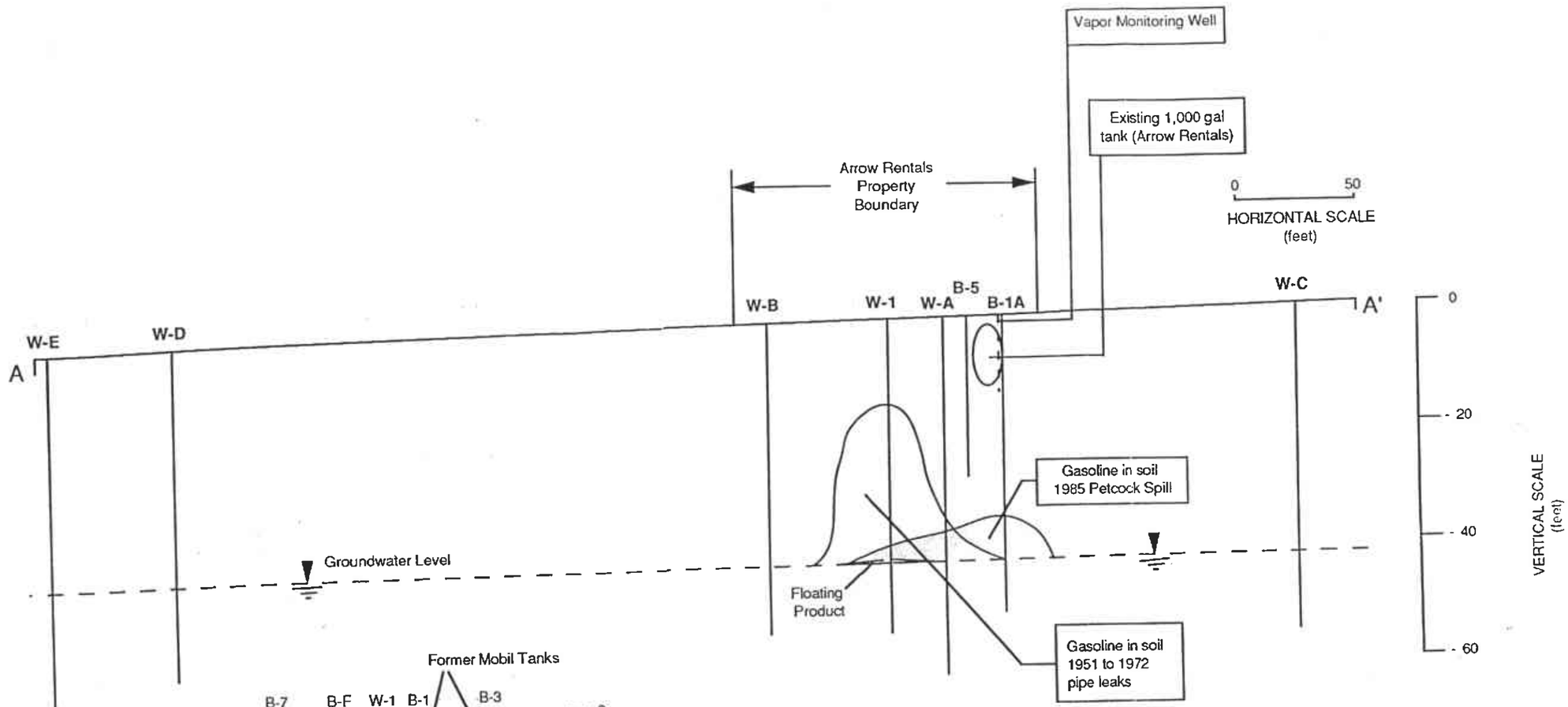


CROSS-SECTION A-A'

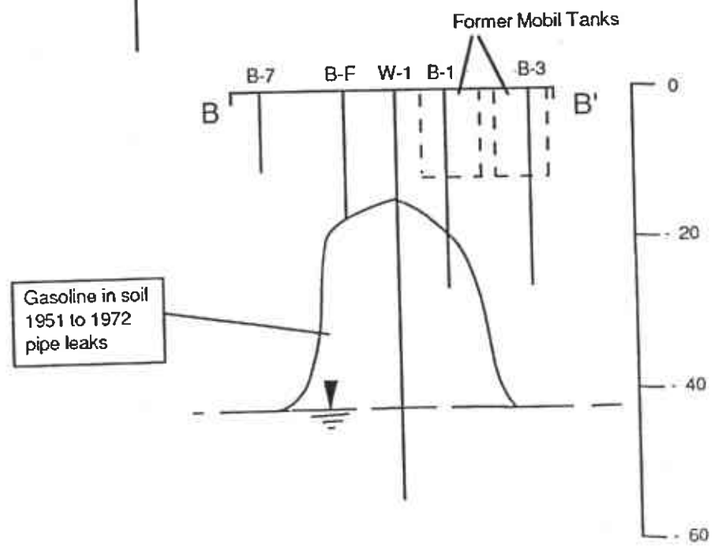


CROSS-SECTION B-B'

Project No. 90C 0321A	Arrow Rentals 187 North L Street Livermore, California	BTEX CONCENTRATIONS IN GROUNDWATER	APRIL 1991
Woodward-Clyde Consultants			FIGURE 6



CROSS-SECTION A-A'



CROSS-SECTION B-B'

Project No. 90C 0321A	Arrow Rentals 187 North L Street Livermore, California	APPROXIMATE SOIL CONTAMINANT PLUMES	APRIL 1991
Woodward-Clyde Consultants			FIGURE 7

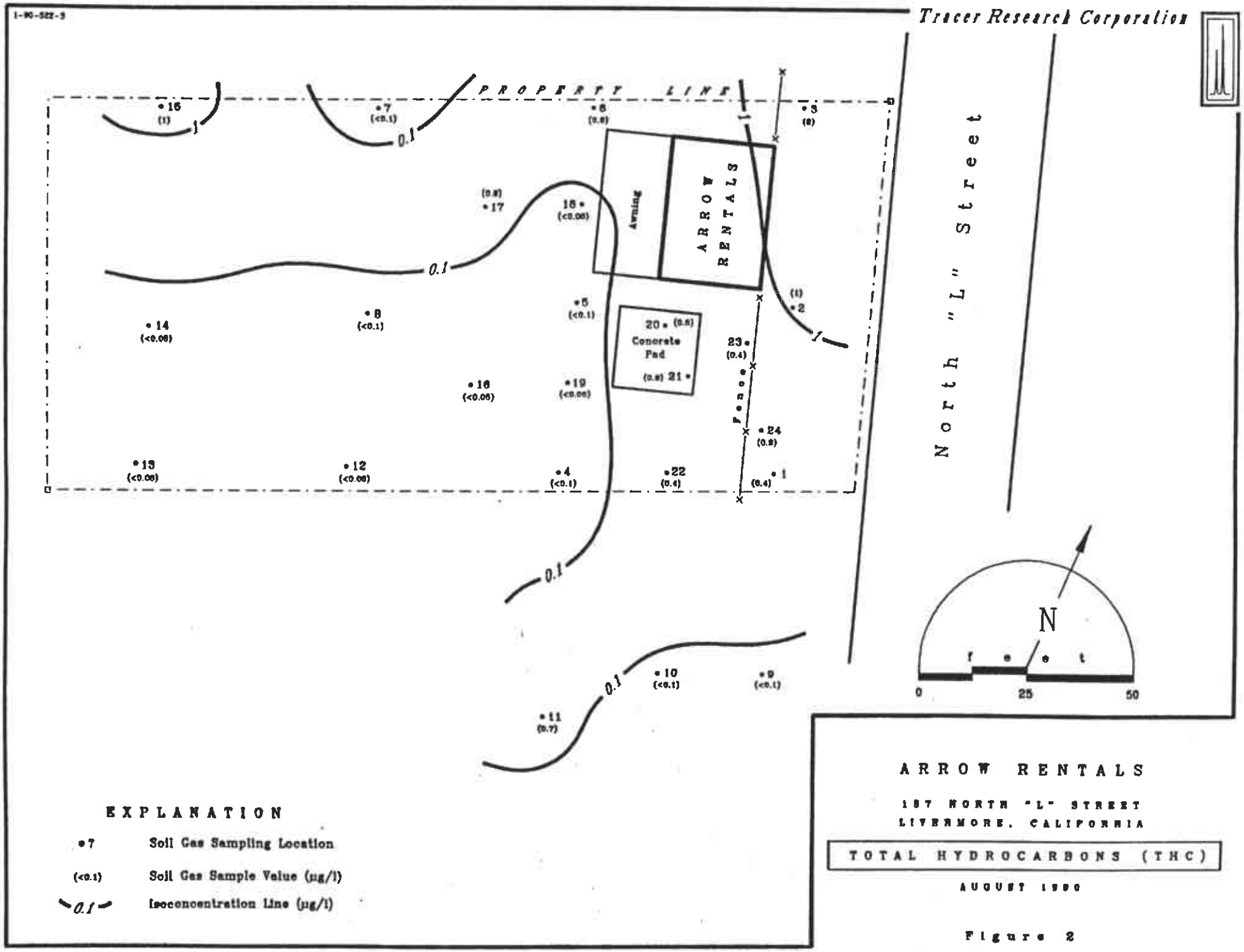
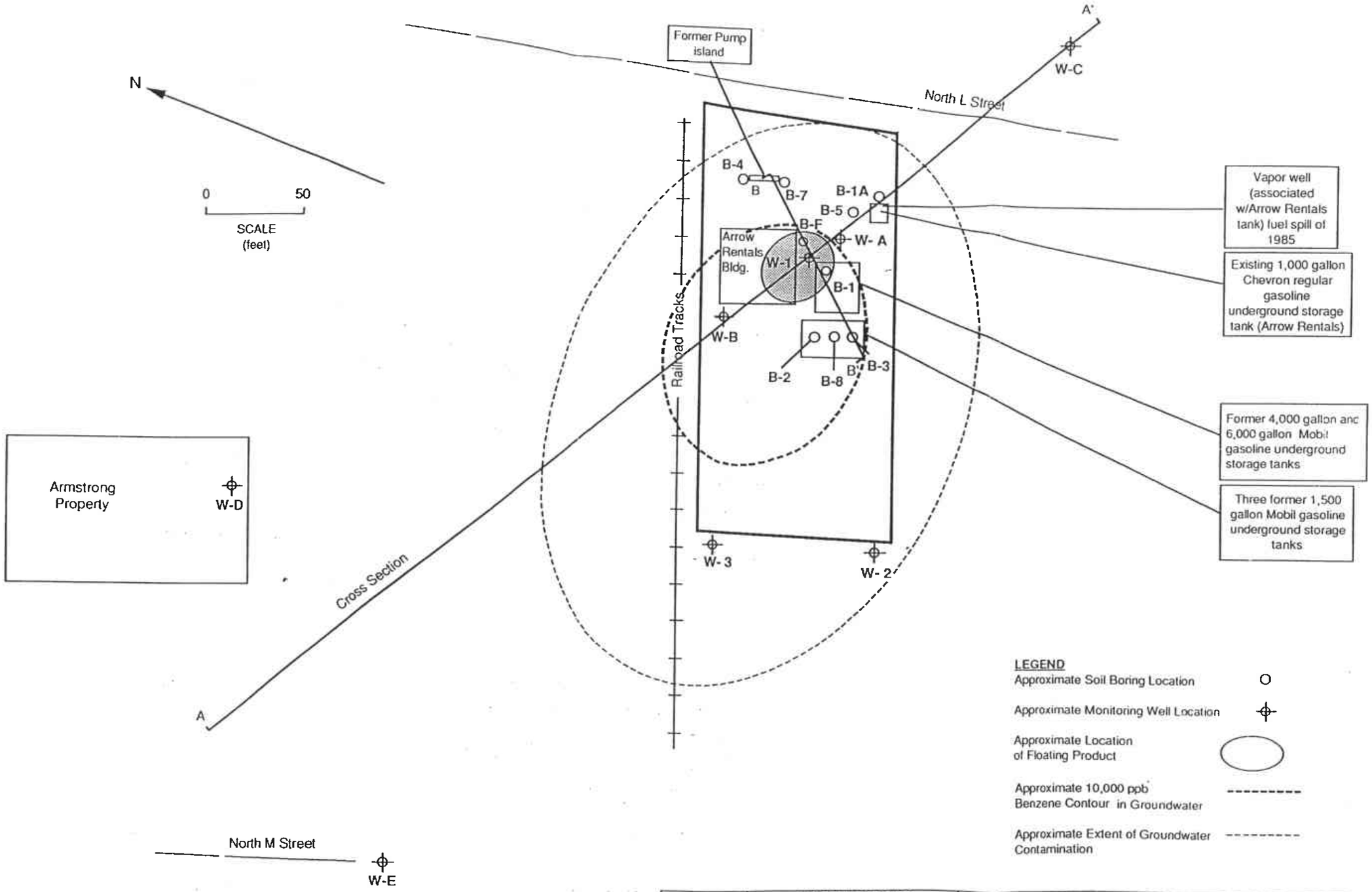

1-90-522-5
Tracer Research Corporation
PROPERTY LINE
ARROW RENTALS
Awning
Concrete Pad
Fence
North "L" Street
N
f e e t
0
25
50
EXPLANATION
•7 Soil Gas Sampling Location
(<0.1) Soil Gas Sample Value (µg/l)
0.1 Isoconcentration Line (µg/l)
ARROW RENTALS
187 NORTH "L" STREET
LIVERMORE, CALIFORNIA
TOTAL HYDROCARBONS (THC)
AUGUST 1990

Figure 2



	ARROW RENTALS 187 North L Street Livermore, California	EXISTING SITE CONDITIONS	
Woodward-Clyde Consultants			FIGURE 1