LETTER OF TRANSMITTAL

To:	*Ms. Eva Chu*	Date:	*June 11, 2001*
	Environmental Health		
	QIC 30440	Subject:	*MTBE Fate and Transport Screening*
			AlcoPark, 165-13th St., Oakland

JUN 14 2001

I am sending you:

☒ Attached ☐ Under separate cover

via: ☐ US Mail ☐ Overnight/FedEx ☐ Hand carried ☐ Messenger

The following items:

☐ Drawings ☐ Specifications ☐ Shop Drawings ☒ Submittals

☐ Samples ☐ Copy of Letter ☐ Change Order ☐ Other:

Copies	Date or No.	Description
1	*6-8-01*	***MTBE Fate and Transport Screening Report for AlcoPark***

These are transmitted as checked below:

☐ Approved as Submitted ☐ Resubmit __ Copies for Approval ☐ For Approval

☐ Approved as Noted ☐ Submit __ Copies for Distribution ☒ For Your Files

☐ Returned for Correction ☐ Return __ Corrected Copies ☒ As Requested

☐ For Review and Comment ☐ Returning Loaned Item(s) ☐ Other

Remarks: ***Here is PSI's ecological supplement to their November 10, 2000 Site Conceptual Model report. After wading through all the CYA language, the report indicates, based on conservative assumptions, that the ecology of Lake Merritt is not expected to be significantly impacted. The next question is, can we reduce monitoring frequency at AlcoPark?***

Rod Freitag, Environmental Program Manager
County of Alameda - General Services Agency
Technical Services Department
1401 Lakeside Drive, 11th Floor
Oakland, CA 94612
Tel. (510) 208-9522

If Enclosures Are Not As Noted, Notify Me At Once

h:\data\winword\transmittal letter.doc

Information To Build On
Engineering • Consulting • Testing

June 8, 2001

JUN 14 2001

County of Alameda
Engineering & Environmental Management Department
1401 Lakeside Drive, 11th Floor
Oakland, CA 94612

Attn: Mr. Rod Freitag, P.E.
Environmental Program Manager

Re: MTBE Fate and Transport Screening Report
Alcopark Fueling Facility
165 13th Street
Oakland, California 94612
PSI Project No.: 575-1G008

Dear Mr. Freitag:

In accordance with our agreement dated January 25, 2001, Professional Service Industries, Inc. (PSI) has conducted a preliminary screening estimate on fate and transport of the MTBE groundwater plume at the above referenced property. This screening is preliminary in nature in that very limited site-specific information was available and that the full scope of work required to obtain this information was not approved by the County of Alameda General Services Agency (client). The client further understands that actual conditions may vary greatly from the estimates provided in this report.

PROJECT OBJECTIVES

The objective of the project is to provide a preliminary estimate of the time for migration of the MTBE plume from the source area to Lake Merritt and a preliminary estimate of the concentration of the MTBE plume front at the boundary of Lake Merritt within the predicted time interval.

MODELS FOR MULTIDIMENSIONAL TRANSPORT

The Domenico analytical model was used to conduct this screening estimate. The model was used first with only the multidimensional transport equation for both longitudinal and transverse dispersion as well as advection. The second use of the model also included a first-order decay reaction. Both iterations were run using the RBCA Tool Kit for Chemical Releases software developed by Groundwater Services, Inc.

The Domenico model was selected because of its ease of use and it applicability for this type of screening. However, as with all models, a number of assumptions regarding site conditions are required to be made. If site conditions do not meet these assumptions then the validity of the model becomes questionable. As part of this project, PSI is unable to verify conditions because of the absence of sufficient and suitable site specific information.

An essential component to modeling is calibration, the process of demonstrating that the model is capable of producing field-measured values of the concentrations downgradient of the site. In general, calibration of the model is performed by manual trial-and-error selection of input parameters. The main parameters used to calibrate the model include source definition, dispersion, sorption, and biodegradation parameters. The modeling effort performed for the Alcopark Fueling Facility is considered preliminary in nature because of insufficient data to calibrate the model. The site-specific data including source definition (i.e., width and length of the contaminant plume), hydraulic parameters, and downgradient concentrations of MTBE are not available and therefore have not been assessed. These data are are needed as part of the model calibration effort.

In lieu of the site specific data, PSI completed this modeling effort using some conservative assumptions. A description of the factors effecting the concentration of MTBE entering Lake Merritt is discussed below along with the results predicted by the model.

LATERAL GROUNDWATER DILUTION ATTENUATION FACTOR

To account for attenuation of affected groundwater concentrations between the source and Lake Merritt, the Domenico Analytical Solute Transport Model was used. This model uses a vertical plane source situated perpendicular to groundwater flow to simulate the release of MTBE from the mixing zone to the migrating groundwater. The model takes into account the effects of advection, dispersion, sorption, and biodegradation. Given a representative source zone concentration the model predicts the steady-state plume concentration at any location along the centerline of the plume in the downgradient flow direction, based upon one-dimensional advective flow and three-dimensional dispersion. The location of Lake Merritt is assumed to be on the centerline of the plume, directly downgradient of the source zone at a distance of 402 meters (or ¼ mile).

GROUNDWATER SOURCE TERM

The Domenico Model assumes the contaminant source is a vertical plane that is perpendicular to groundwater flow, that releases dissolved constituents into the groundwater passing through the plane. The contaminant source zone was assigned a transverse dimension of 61 meters and a thickness of 3 meters. It should be noted that these data are not site-specific, as such information is unavailable at this time, but

rather based upon the professional judgement and experience of PSI geologists inOakland, California working on similar projects under similar conditions. The model assumes the source to have a constant concentration of 13,000 micrograms per liter (µg/L). This concentration was selected because it is the maximum concentration of MTBE detected in any of the wells since monitoring began in March of 1989.

Flow and Mixing Parameters

The degree of contaminant mixing predicted by the model is a function of the lateral, transverse, and vertical dispersion coefficients, hydraulic conductivity, hydraulic flow gradient, and effective soil porosity. The model calculates the dispersion coefficients based upon the method employed in ASTM 1739-95, *Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites*. The hydraulic conductivity, hydraulic gradient, and effective soil porosity were assigned values of 0.0001 meters per second, 0.004, and 10%, respectively. The hydraulic gradient was estimated from site groundwater elevations. The remaining parameters were selected from published material on the hydraulic characteristics of the Merritt Sands.

Retardation Factors

The rate of plume migration can be reduced due to sorption of MTBE to the solid matrix of the Merritt Sands. The retardation factor used in the model is calculated based upon a model default value of 12 cubic centimeters per gram (cm^3/g) for the organic carbon partition coefficient of MTBE and a default value of 0.001 for the fraction organic carbon present in the Merritt Sands. In addition to considering the effects of retardation, the model may also be used to estimate fate and transport based upon steady-state conditions, which ignore retardation.

First-Order Decay Parameters

Under steady-state conditions, biodegradation is one of the primary mechanisms responsible for the reduction of organic contaminant mass during transport of a groundwater plume. As such, a first-order decay reaction was used for one of the two modeling iterations based upon the half-life in groundwater of MTBE as obtained from the Handbook of Environmental Degradation Rates by Phillip H. Howard, et. al..

Key Assumptions

The following key assumptions were used in the groundwater solute transport model:

- The maximum concentration of MTBE in groundwater is assumed constant over time with no depletion.
- The dimensions of the groundwater source zone were estimated values based upon professional judgement and experience
- The aquifer thickness is assumed infinite, neglecting boundary effects on vertical dispersion.
- The lateral, transverse, and vertical dispersion coefficients are fixed in proportion.

- Lake Merritt is assumed to be downgradient and on the centerline of the groundwater plume.
- The biodegradation rate used in the model is a textbook value and not based on field data.

MODEL RESULTS

The results of the modeling estimate concentrations of MTBE in the groundwater at the perimeter of Lake Merritt may range from 20 to 180 µg/L and would take from 7 to 10 years, respectively to reach steady-state conditions. As indicated above, these results are estimates only, and significant additional investigations would be necessary to provide a more precise assessment of the fate and transport of the MTBE plume

ECOLOGICAL RISK OF MTBE

An ecological risk assessment of the impacts of MTBE on Lake Merritt was not conducted as part of this scope of work. PSI did review two studies on the ecological risk associated with groundwater contaminated with MTBE impacting surface water bodies. These studies were the following:

- Determination of the Ecological Risk Associated with a Groundwater Plume of MTBE at Port Hueneme, California, Bates, Kuvakas, Leonard, McKagan, Donald Bren School of Environmental Science Management, University of California at Santa Barbara (UCSB)
- Ecological Risk of MTBE in Surface Waters by Michael Johnson of the John Muir Institute of the Environment, University of California at Davis (UCD).

These studies cannot be directly correlated to risks that may or may not be present at Lake Merritt because no research has been done to correlate the environment (including flora and fauna) at Lake Merritt with that of the surface water bodies discussed in the case studies. Nevertheless, these case studies do provide some general information that may be useful in providing perspective to the conditions in the study area.

The UCSB study documents a study that has made "preliminary calculations to determine the freshwater concentrations of MTBE at which No Observable Adverse Effects (NOAEL) are expected for a range of organisms. The results found the NOAEL for acute exposure to be 151,000 µg/L and 51,000 µg/L for chronic exposure. Similar tests show that, for MTBE concentrations in marine environments, NOAEL for acute and chronic effects occur are 50,000 and 17,000 µg/L MTBE, respectively". Additionally, the study indicates that due to low bioconcentration of MTBE, that MTBE accumulation in indigenous microorganism community is unlikely.

The UCD study supports the findings found in the UCSB study with their conclusions stating that "there is little toxicity of MTBE to aquatic organisms, with the most sensitive taxonomic group being green algae" and that the "most conservative toxicity reference value calculated for rainbow trout is 7,000 μg/L."

CONCLUSIONS

The results of the preliminary MTBE Fate and Transport Screening Assessment estimates of the MTBE concentration in the groundwater at the perimeter of Lake Merritt would range from 20 to 180 μg/L. Although an ecological risk assessment was not conducted for Lake Merritt, a review of two case studies suggests that adverse effects to marine and freshwater environments occur at significantly higher concentrations

LIMITATIONS

The information provided in this preliminary Fate and Transport Screening prepared by PSI, Project Number 575-1G008, is intended exclusively for Alameda County General Services Agency for the Alcopark Fueling Facility. No unnamed third party shall have the right to rely on this report without the express written consent of PSI, as well as payment of the then current reliance letter fee. The professional services provided have been performed in accordance with practices generally accepted by other appropriate environmental professionals, geologists, hydrologists, hydrogeologists, engineers, and environmental scientists practicing in this field. No other warranty, either expressed or implied, is made. PSI is not an insurer and makes no guarantee or warranty that the services supplied will avert or mitigate occurrences, or the consequences of occurrences, that the services are designed to prevent or ameliorate. The work provided herein is based on extremely limited site specific data and therefore actual results may vary significantly from the estimates made here. Furthermore, the results of this screening should not be relied upon for agency closure. As referenced throughout this report, PSI recommends that additional and site-specific data would be needed to provide more accurate and definitive conclusions, to calibrate the model. A copy of select assumptions made in this report are attached as Exhibit A. Actual site conditions may vary, which may significantly alter the predicted model results. This report is issued with the understanding that Alameda County General Services Agency is responsible for ensuring that the information contained in this report is brought to the attention of the appropriate regulatory agency, if any.

Thank you for choosing PSI as your consultant for this project. If you have any questions, or if we can be of additional service, please call us at (510) 434-9200.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.

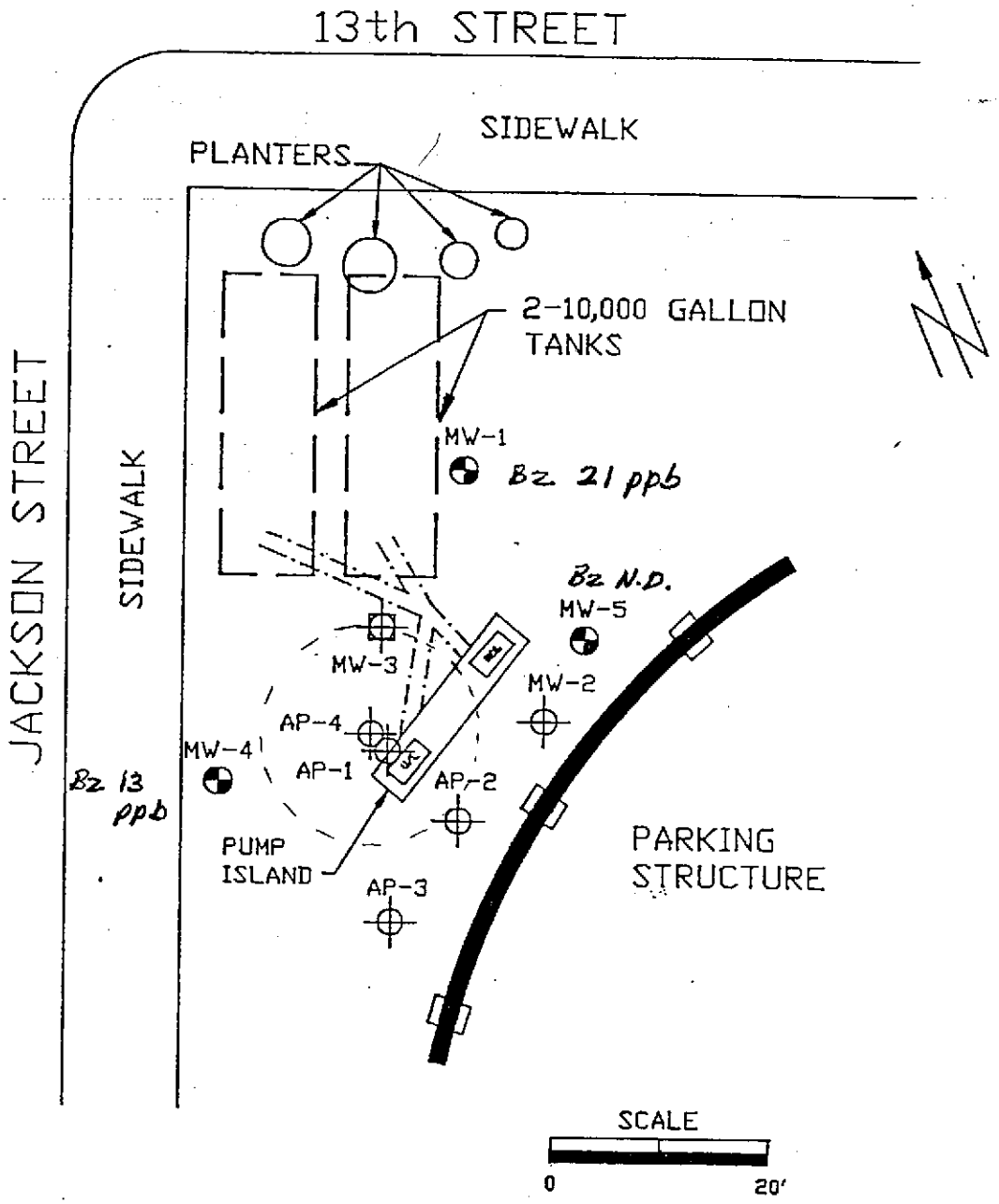
Mark R. Underhill, R.G. (OR: G1745)
Senior Geologist

Jeffery Friedman, R.G. (CA: 5677)
Senior Technical Professional

Enclosures

REGISTERED GEOLOGIST
JEFFREY A. FRIEDMAN
No. 5677
STATE OF CALIFORNIA

DOMENICO ADVECTION-DISPERSION MODEL		
Model Assumptions	**Explanation**	**Applicability**
Infinite Source	Groundwater source term constant over time with no depletion.	The infinite source assumption is very conservative and does not represent actual conditions but presents a worst case scenario in regard to this parameter.
Vertical Dispersion	Assumes one-directional (downward) vertical dispersion.	As the source of the release is located at the top of the aquifer this assumption is valid.
Infinite Aquifer Thickness	Neglects boundary effects on vertical dispersion.	According to the Environmental Solutions report Final Preliminary Endangerment Assessment, Container Freight, 1285 5th Street, Oakland, CA the thickness of the Merritt Sands aquifer is approximately 18 meters in thickness. As the plume is estimated to be 3 meters in thickness boundary effects are not likely to be an issue.
Dispersion Coefficient	Fixed proportions assumed among longitudinal, transverse, and vertical dispersion coefficients.	Determining dispersion coefficients can be difficult therefore, the simulation was performed using the dispersivity relationship employed in ASTM E-1739, which assumes the aquifer is homogeneous and isotropic and that vertical variations in head are negligible. The degree to which these assumptions matches actual conditions is unknown.
Receptor Location	Downgradient receptor assumed to be on plume centerline.	Based upon the location of Lake Merritt and the groundwater flow direction as measured at the site, this assumption is valid.
Biodegradation Rate	First-order of decay rate may be specified by user per site data.	The model is sensitive to decay rates therefore the model was run both with and without decay rates and when used the highest half-life value was used from the Handbook of Environmental Degradation Rates, Howard, et. al., 1991.

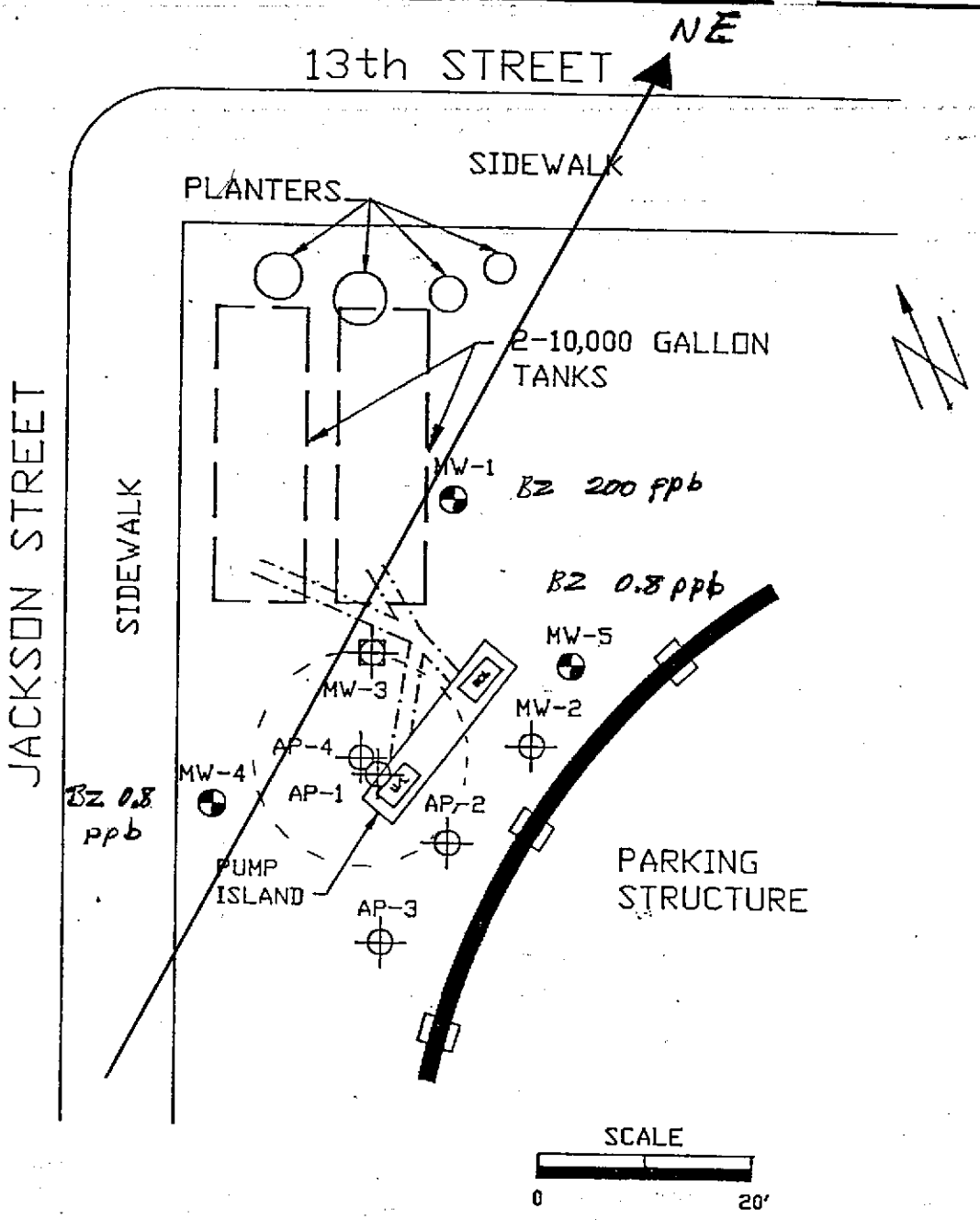


LEGEND

- SOIL BORING
- GROUND WATER MONITORING WELL
- VADOSE MONITORING WELL
- UNDERGROUND PIPING

MARCH 1989

Hunter	ALAMEDA COUNTY ALCOPARK
FIGURE 2 SITE MAP	
5/89	02-276-010

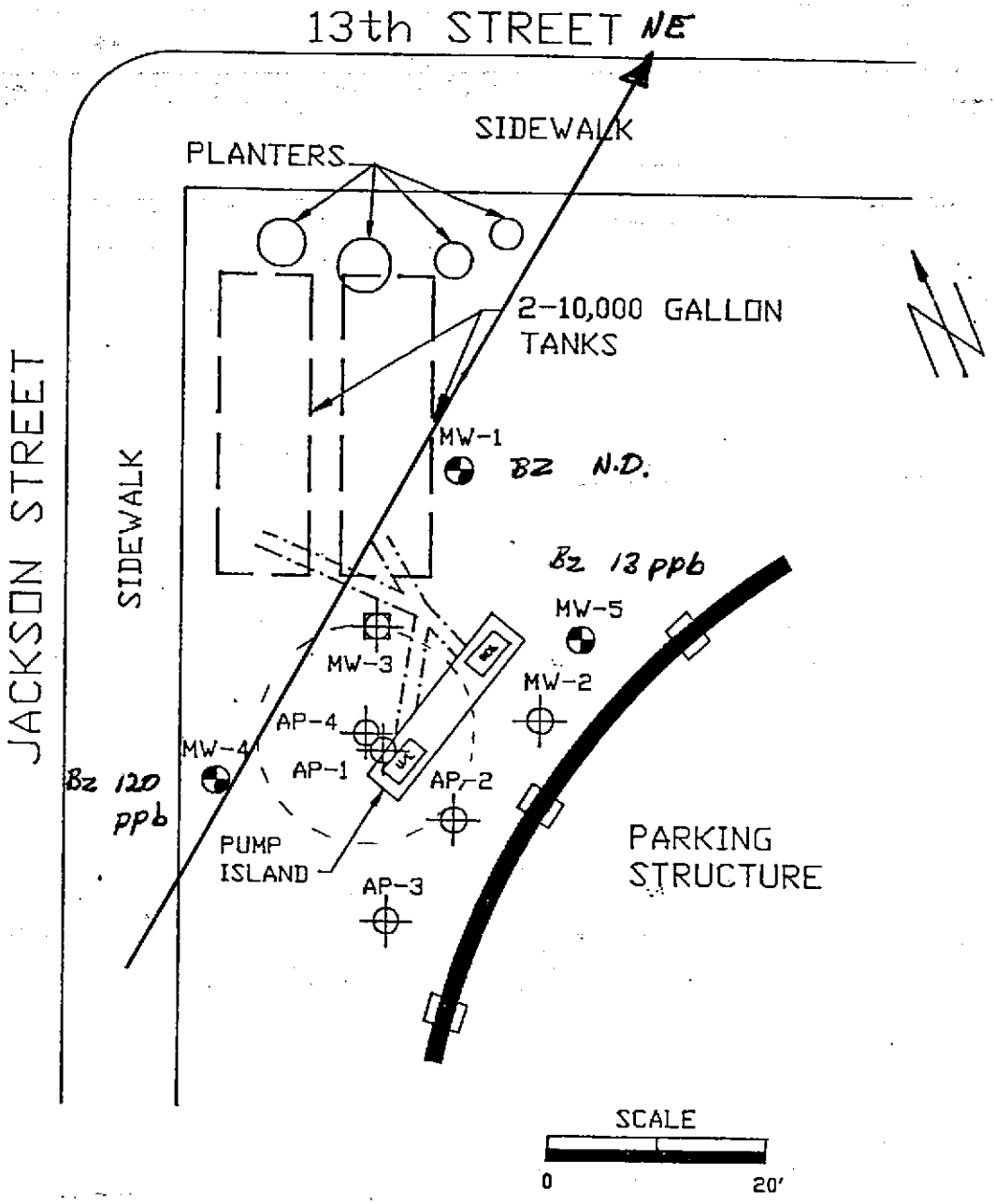


LEGEND

- SOIL BORING
- GROUND WATER MONITORING WELL
- VADOSE MONITORING WELL
- UNDERGROUND PIPING

JULY 1990

Hunter	ALAMEDA COUNTY ALCOPARK
FIGURE 2 SITE MAP	
5/89	02-276-010



LEGEND

- SOIL BORING
- GROUND WATER MONITORING WELL
- VADOSE MONITORING WELL
- UNDERGROUND PIPING

OCTOBER 1990

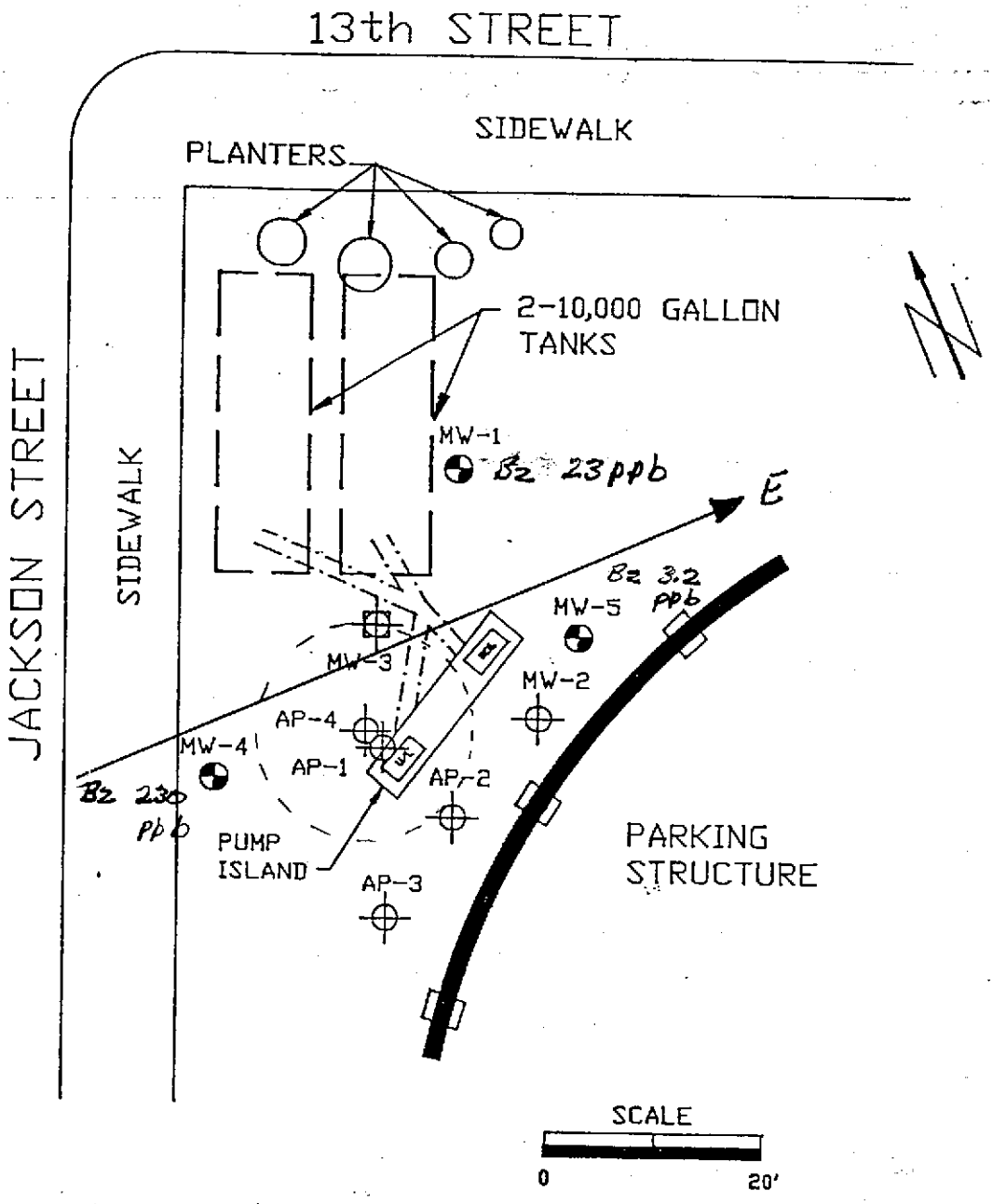
HunTer

ALAMEDA COUNTY
ALCOPARK

FIGURE 2
SITE MAP

5/89

02-276-010

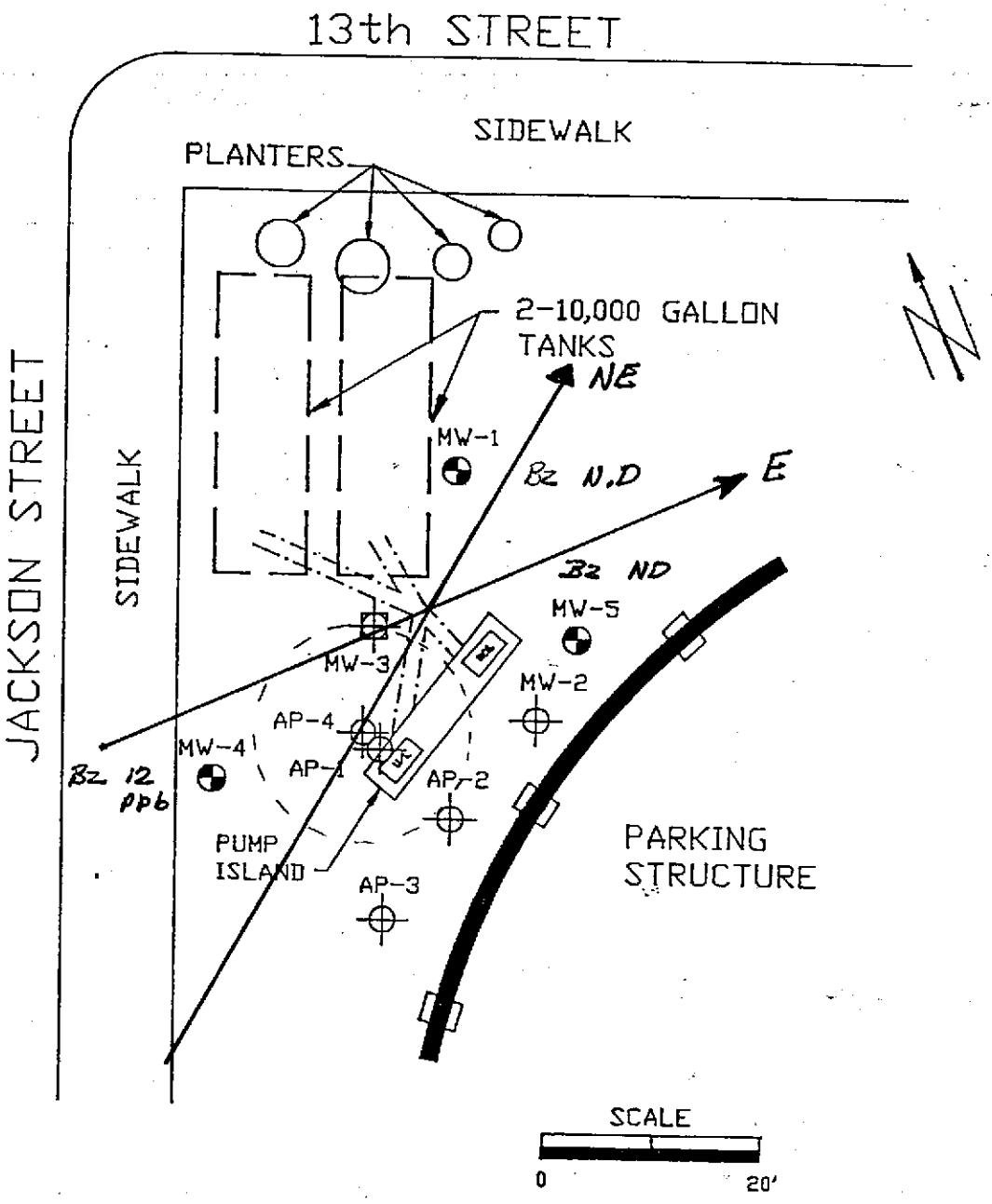


LEGEND

- SOIL BORING
- GROUND WATER MONITORING WELL
- VADOSE MONITORING WELL
- UNDERGROUND PIPING

JANUARY 1991

Hunter	ALAMEDA COUNTY ALCOPARK
FIGURE 2 SITE MAP	
5/89	02-276-010

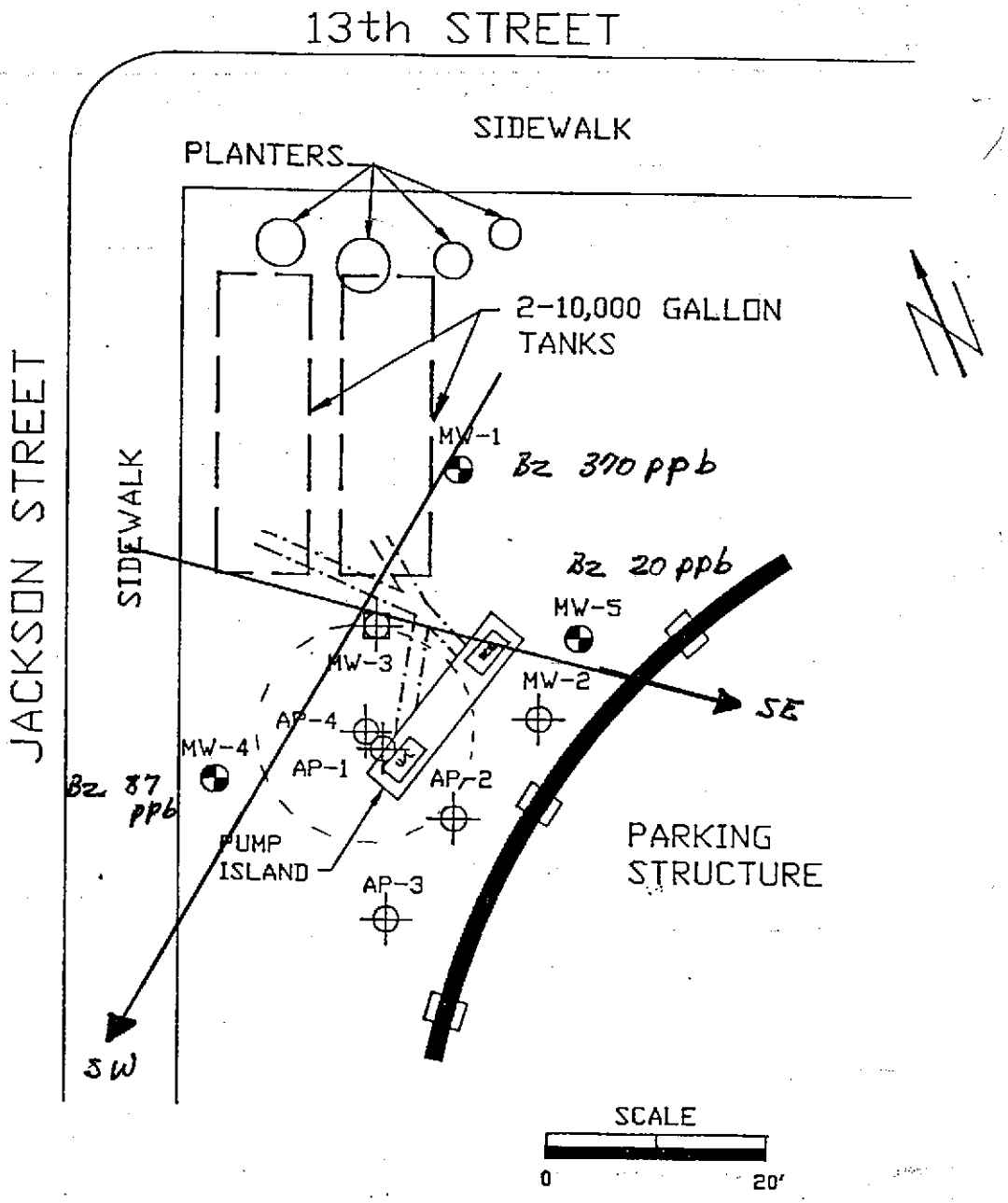


LEGEND

- SOIL BORING
- GROUND WATER MONITORING WELL
- VADOSE MONITORING WELL
- UNDERGROUND PIPING

APRIL 1991

Hunter	ALAMEDA COUNTY ALCOPARK
FIGURE 2 SITE MAP	
5/89	02-276-010



LEGEND

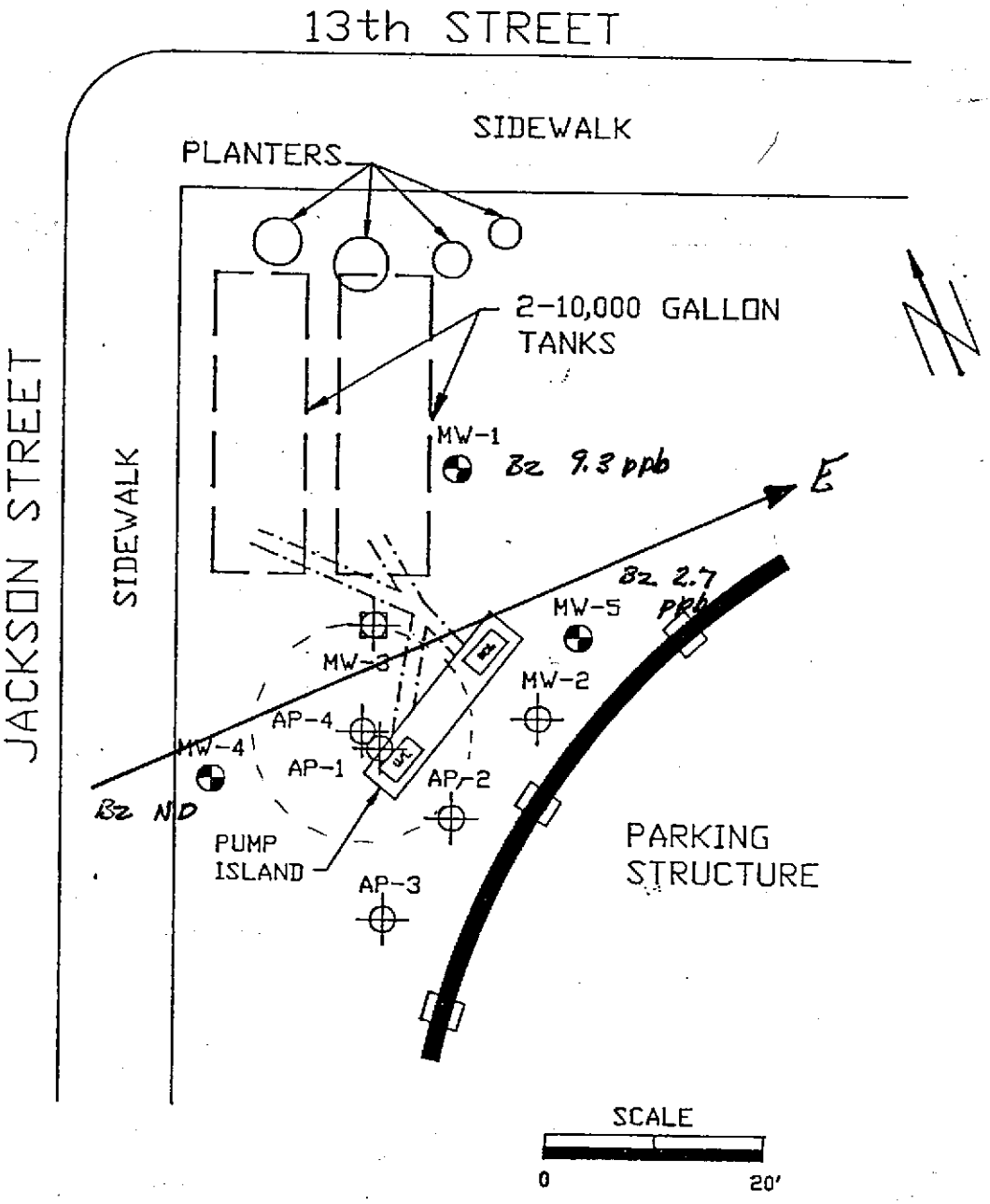
- SOIL BORING
- GROUND WATER MONITORING WELL
- VADOSE MONITORING WELL
- UNDERGROUND PIPING

AUGUST 1991

Hunter	ALAMEDA COUNTY ALCOPARK

FIGURE 2
SITE MAP

5/89 02-276-010

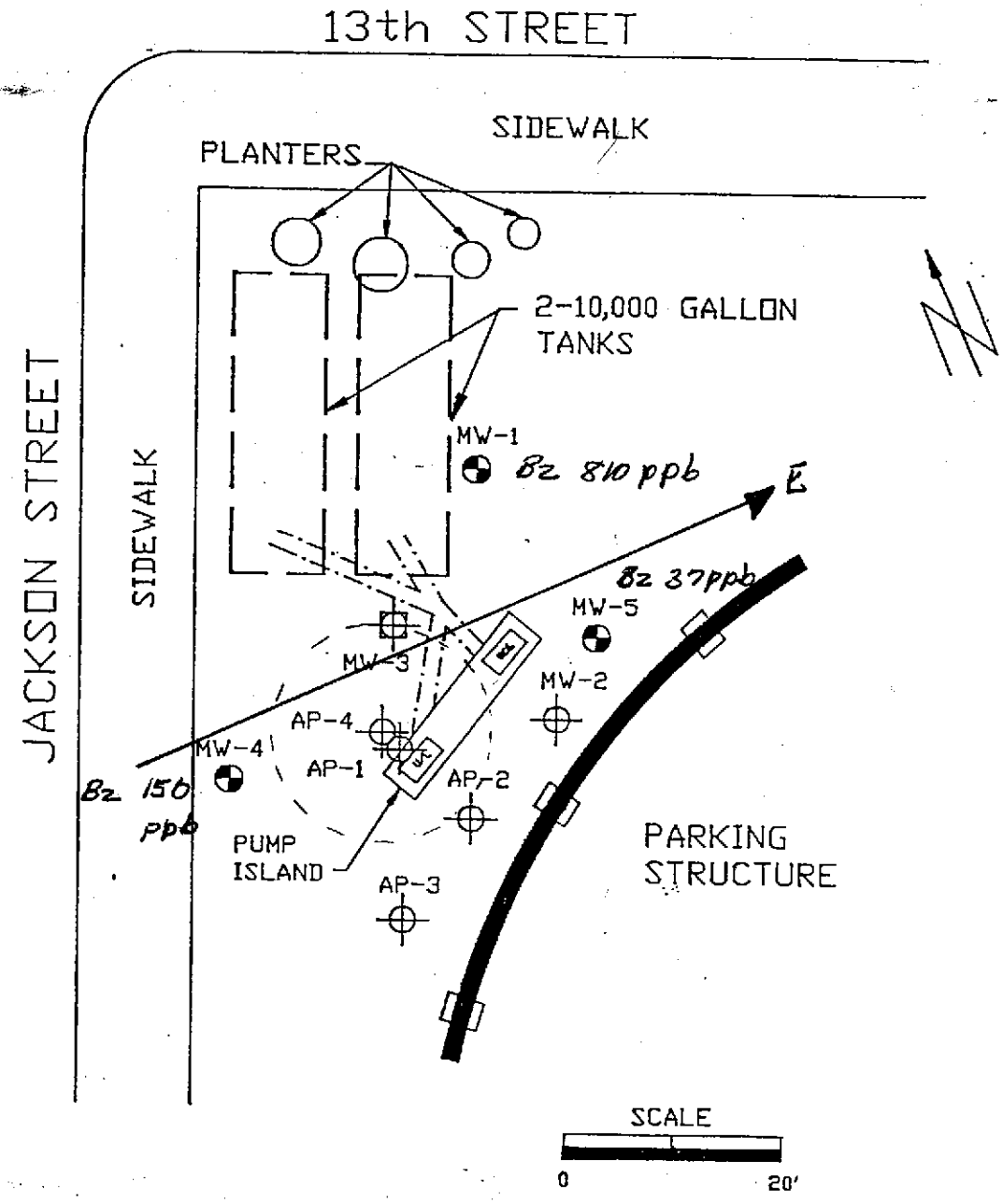


LEGEND

- SOIL BORING
- GROUND WATER MONITORING WELL
- VADOSE MONITORING WELL
- UNDERGROUND PIPING

NOVEMBER 1991

Hunter	ALAMEDA COUNTY ALCOPARK
FIGURE 2 SITE MAP	
5/89	02-276-010



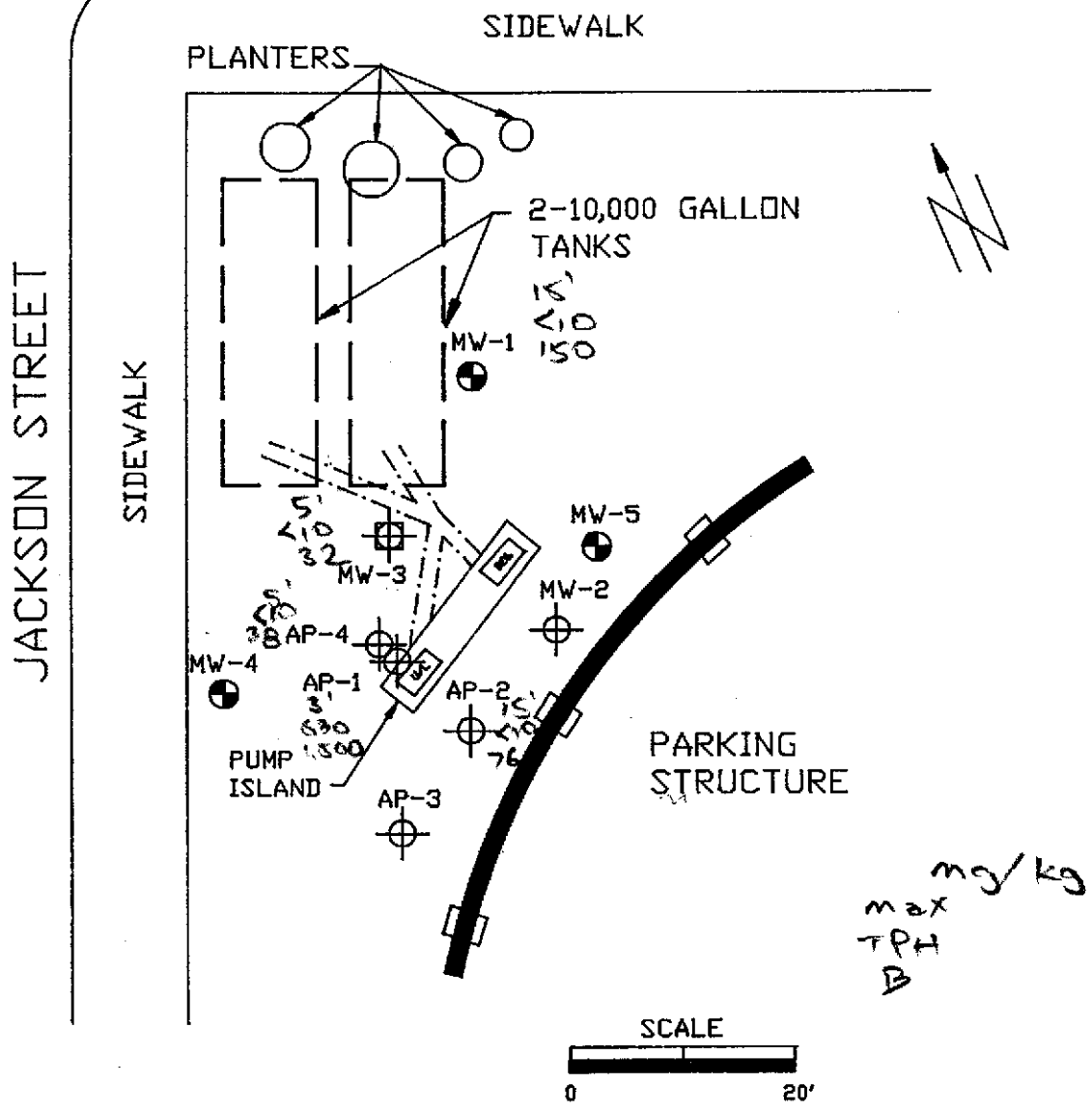
LEGEND

- SOIL BORING
- GROUND WATER MONITORING WELL
- VADOSE MONITORING WELL
- UNDERGROUND PIPING

JUNE 1992

HunTer	ALAMEDA COUNTY ALCOPARK
FIGURE 2 SITE MAP	
5/89	02-276-010

RO401



mg/kg
max
TPH
B

LEGEND

- SOIL BORING
- GROUND WATER MONITORING WELL
- VADOSE MONITORING WELL
- UNDERGROUND PIPING

HunTon	ALAMEDA COUNTY ALCOPARK

FIGURE 2
SITE MAP

5/89 02-276-010

Table 1. Laboratory Results From Preliminary Site Investigation For Alameda County/Alcopark

SAMPLE ID	SAMPLE DEPTH (ft)	TPH (ppm)	BENZENE (ppb)	TOLUENE (ppb)	ETHYL BENZENE (ppb)	TOTAL XYLENES (ppb)
AP-1	3	630	1,500	11,000	4,500	33,000
AP-1	9	ND < 10	110	130	32	140
AP-Soil Pile	-	3,700	-	-	-	-

Note: ft - feet
ppm - Parts per million or milligrams per kilogram (mg/kg)
ppb - Parts per billion or micrograms per kilogram (ug/kg)
ND < 10 - Not-detected at a detection limit of 10 ppm

TABLE 2 - LABORATORY RESULTS OF SOIL SAMPLES FOR ALAMEDA COUNTY/ALCOPARK II

SAMPLE NUMBER	DATE SAMPLED	TOTAL PETROLEUM HYDROCARBONS (ppm)	BENZENE (ppb)	TOLUENE (ppb)	ETHYL BENZENE (ppb)	TOTAL XYLENES (ppb)
MW-1-5'	3/20/89	ND < 10	22	18	7.7	ND < 3.0
MW-1-15'	3/20/89	ND < 10	150	190	53	250
MW-1-20'	3/20/89	ND < 10	63	23	6.5	ND < 3.0
MW-1-25'	3/20/89	ND < 10	-	-	-	-
MW-3-5'	3/20/89	ND < 10	32	25	ND < 3.0	ND < 3.0
MW-3-15'	3/20/89		12	25	ND < 3.0	27
MW-4-5'	3/21/89	ND < 10	-	-	-	-
MW-4-15'	3/21/89	ND < 10	7.5	29	ND < 3.1	ND < 3.1
MW-4-25'	3/21/89	ND < 10	-	-	-	-
MW-5-5'	3/21/89	ND < 10	ND < 3.3	34	ND < 3.3	ND < 3.3
MW-5-15'	3/21/89	ND < 10	4.9	12	ND < 3.0	ND < 3.0
MW-5-25'	3/21/89	ND < 10	-	-	-	-
AP-2-5'	3/21/89	ND < 10	53	69	9.5	150
AP-2-10'	3/21/89	ND < 10	45	95	23	110
AP-2-15'	3/21/89	ND < 10	76	100	30	130
AP-2-20'	3/21/89	ND < 10	ND < 3.0	16	ND < 3.0	ND < 3.0
AP-2-25'	3/21/89	ND < 10	-	-	-	-
AP-3-5'	3/22/89	31	ND < 3.0	31	ND < 3.0	ND < 3.0
AP-3-10'	3/22/89	ND < 10	ND < 3.0	31	4.5	ND < 3.3
AP-3-15'	3/22/89	ND < 10	ND < 3.0	50	ND < 3.0	ND < 3.0
AP-3-20'	3/22/89	ND < 10	ND < 3.0	40	ND < 3.1	ND < 3.1
AP-3-25'	3/22/89	ND < 10	-	-	-	-
AP-4-5'	3/22/89	ND < 10	38	23	3.6	ND < 3.0
AP-4-10'	3/22/89	ND < 10	5.5	44	3.2	22
AP-4-15'	3/22/89	ND < 10	3.7	10	3.3	ND < 3.1
AP-4-20'	3/22/89	ND < 10	ND < 3.0	40	ND < 3.0	ND < 3.0
AP-4-25'	3/22/89	ND < 10				

Notes: ppm - parts per million or milligrams per kilogram (mg/kg)
ppb - parts per billion or micrograms per kilogram (ug/kg)
ND < 10 - not detected at indicated detection limit

HUNTER
ENVIRONMENTAL SERVICES, INC.
597 Center Avenue, Suite 350
Martinez, California 94553
415–372–3637

LOG OF BORING NO. MW–1

PROJECT NO: 02–276–010
DATE: 3/21/89
CLIENT: Alameda County
REF. ELEV. –
SITE LOCATION: 165 13th St.,Oakland
METHOD: Hollow–stem auger, Mobile Drill B–53
BORING LOCATION: 5' East of pump Island
HOLE DIA: 10.25"
DRILLER: Gregg Drilling and Testing
LOGGED BY: J.Bryson
SUPERVISOR: S.Wickham R.G #3851

DEPTH (FT)	GRAPHIC LOG	BLOW/FT	VAPOR (PPM)	SAMPLE TYPE AND DEPTH	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	WELL CONSTRUCTION
0						4" Concrete at Surface	
2					SP	SAND, brown, silty, fine–grained, medium dense, slightly moist, no odor	
4		30	47	RING @ 5'	SP	As Above	
6							
8							
10		38	ND	RING @ 10'	SP	As Above, moist, trace of odor	
12							
14		40	300	RING @ 15'	SP	SAND, brown, fine–grained, medium dense, moist, strong odor	
16							
18							
20		50+	260	RING @ 20'	SP	SAND, brown, medium–grained, moist, slight odor	
22							
24						▽ Water found at 23'	

HUNTER
ENVIRONMENTAL SERVICES, INC.
597 Center Avenue, Suite 350
Martinez, California 94553
415-372-3637

LOG OF BORING NO. MW-1 PAGE 2 of 2

PROJECT NO: DATE:
CLIENT: REF. ELEV.
SITE LOCATION: METHOD:
BORING LOCATION: HOLE DIA:
DRILLER:
LOGGED BY:
SUPERVISOR:

DEPTH (FT)	GRAPHIC LOG	BLOW/FT	VAPOR (PPM)	SAMPLE TYPE AND DEPTH	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	WELL CONSTRUCTION
24		-	-	RING @ 25'	SP	As above, silty, no odor	
26					CL	CLAY, light-brown, sandy, silty, firm, moist, no odor	
28							
30					SP	SAND, brown, gravelly, fine to medium-grained, very dense, moist, no odor	
32							
34							
36						TOTAL DEPTH-35'	

Well Construction: 35'-14', 0.02" slotted 4" PVC; 14'-0', blank 4" PVC. #3 Lonestar sand 35'-13'; 3/8" bentonite pellets 13'-11.5'; holeplug 11.5'-4'; concrete 4'-0'. 12" water-proof well box.

HUNTER
ENVIRONMENTAL SERVICES, INC.
597 Center Avenue, Suite 350
Martinez, California 94553
415–372–3637

LOG OF BORING NO. MW–2

PAGE 1 of 1

PROJECT NO: 02–276–010
DATE: 3/20/89
CLIENT: Alameda County
REF. ELEV. –
SITE LOCATION: 165 13th St., Oakland
METHOD: Hollow–stem auger, Mobile Drill B–53
BORING LOCATION: 6' S.E. of pump island
HOLE DIA: 10.25"
DRILLER: Gregg Drilling and Testing
LOGGED BY: J.Bryson
SUPERVISOR: S.Wickham, R.G. #3851

DEPTH (FT)	GRAPHIC LOG	BLOW/FT	VAPOR (PPM)	SAMPLE TYPE AND DEPTH	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	WELL CONSTRUCTION
0						4" Concrete at surface	
2		22	ND	RING @ 5'	SP	SAND, silty, clayey, fine–grained, medium dense, slightly moist, no odor	
10		17	ND	RING @ 10'	SP	As above	
15		36	43	RING @ 15'	SP	As above, dark brown	
						TOTAL DEPTH – 15.5'	

HUNTER
ENVIRONMENTAL SERVICES, INC.
597 Center Avenue, Suite 350
Martinez, California 94553
415–372–3637

LOG OF BORING NO. MW–3 PAGE 1 of 1

PROJECT NO: 02–276–010 DATE: 3/20/89
CLIENT: Alameda County REF. ELEV. –
SITE LOCATION: 165 13th St., Oakland METHOD: Hollow–stem auger, Mobile Drill B–53
BORING LOCATION: 5' N.W. of pump Island HOLE DIA: 10.25"
DRILLER: Gregg Drilling and Testing
LOGGED BY: J.Bryson
SUPERVISOR: S.Wickham, R.G. #3851

DEPTH (FT)	GRAPHIC LOG	BLOW/FT	VAPOR (PPM)	SAMPLE TYPE AND DEPTH	UNIFIED SOIL CLASSIFICATION	DESCRIPTION
0						8" Concrete at surface
4		33	16	RING @ 5'	SP	SAND, brown, silty, fine–grained, medium dense, slighty moist, no odor
10		22	35	RING @ 10'	SP	As above
14		50+	160	RING @ 15'	SP	As above, slight odor
16						Well Construction: 15'-5', 0.02" slotted 2" PVC; 5'-0', blank 2" PVC. Holeplug 24'-22'; 3/8" bentonite pellets 22'-21'; holeplug 21'-16'; #3 Lonestar sand 16'-4'; 3/8" bentonite pellets 4'-3'; concrete 3'-0'. 12" water-proof well box.
20			ND	RING @ 20'		As above
22						▽ Water found at 23'
24						TOTAL DEPTH – 24'

WELL CONSTRUCTION

HUNTER
ENVIRONMENTAL SERVICES, INC.
597 Center Avenue, Suite 350
Martinez, California 94553
415–372–3637

LOG OF BORING NO. MW–4 PAGE 1 of 2

PROJECT NO: 02–276–010
CLIENT: Alameda County
SITE LOCATION: 02–276–010
BORING LOCATION: 20' West of pump island
DRILLER: Gregg Drilling and Testing
LOGGED BY: J.Bryson
SUPERVISOR: S.Wickham R.G. #3851

DATE: 3/21/89
REF. ELEV. –
METHOD: Hollow–stem Auger, Mobile Drill B–53
HOLE DIA: 8.25"

DEPTH (FT)	BLOW/FT	VAPOR (PPM)	SAMPLE TYPE AND DEPTH	UNIFIED SOIL CLASSIFICATION	DESCRIPTION
0					4" Concrete at Surface
4	4	ND	RING @ 5'	SP	SAND, brown, some silt, fine–grained, loose, slighty moist, no odor
10	25	ND	RING @ 10'	SP	As above, medium dense
14	35	133	RING @ 15'	SP	As above, ,slight odor
20	50+	15	RING @ 20'	SP	SAND, brown, fine–grained, dense, moist, no odor
22					▽ Water found at 23'

WELL CONSTRUCTION

HUNTER
ENVIRONMENTAL SERVICES, INC.
597 Center Avenue, Suite 350
Martinez, California 94553
415-372-3637

LOG OF BORING NO. MW-4 PAGE 2 of 2

PROJECT NO: 02-276-010 DATE: 3/21/89
CLIENT: REF. ELEV.
SITE LOCATION: METHOD:
BORING LOCATION: HOLE DIA:
DRILLER:
LOGGED BY:
SUPERVISOR:

DEPTH (FT)	GRAPHIC LOG	BLOW/FT	VAPOR (PPM)	SAMPLE TYPE AND DEPTH	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	WELL CONSTRUCTION
24		–	ND	RING @ 25'	SP	As above, saturated	
26							
28							
30							
32							
34							
36						TOTAL DEPTH–35'	

Well Construction: 35'-15', 0.02" slotted 2" PVC; 15'-0', blank 2" PVC. #3 Lonestar sand 35'-13'; 3/8" bentonite pellets 13'-11'; holeplug 11'-4'; concrete 4'-0'. 12" water-proof well box.

HUNTER
ENVIRONMENTAL SERVICES, INC.
597 Center Avenue, Suite 350
Martinez, California 94553
415-372-3637

LOG OF BORING NO. MW-5

PROJECT NO: 02-276-010
CLIENT: Alameda County
SITE LOCATION: 165 13th St.,Oakland
BORING LOCATION: 5' East of pump island
DRILLER: Gregg Drilling and Testing
LOGGED BY: J.Bryson
SUPERVISOR: S.Wickham R.G #3851

DATE: 3/21/89
REF. ELEV. –
METHOD: Hollow-stem auger, Mobile Drill B-53
HOLE DIA: 10.25"

DEPTH (FT)	GRAPHIC LOG	BLOW/FT	VAPOR (PPM)	SAMPLE TYPE AND DEPTH	UNIFIED SOIL CLASSIFICATION	DESCRIPTION
0						6" Concrete at Surface
4		18	ND	RING @ 5'	SP	SAND, light-brown, silty, fine-grained, medium dense, slightly moist, no odor
10		22	ND	RING @ 10'	SP	As above
14		46	10	RING @ 15'	SP	SAND, gray-brown, fine-grained, medium dense, slightly moist, no odor
20		50+	110	RING @ 20'	SP	As above, trace of odor
24						▽ Water found at 24'

WELL CONSTRUCTION

HUNTER
ENVIRONMENTAL SERVICES, INC.

597 Center Avenue, Suite 350
Martinez, California 94553
415-372-3637

LOG OF BORING NO. MW-5 PAGE 2 of 2

PROJECT NO: DATE:
CLIENT: REF. ELEV.
SITE LOCATION: METHOD:
BORING LOCATION: HOLE DIA:
DRILLER:
LOGGED BY:
SUPERVISOR:

DEPTH (FT)	GRAPHIC LOG	BLOW/FT	VAPOR (PPM)	SAMPLE TYPE AND DEPTH	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	WELL CONSTRUCTION
24		-	-	RING @ 25'	SP	▽ RING @ 25'	
26							
28					CL	CLAY, light-brown, sandy, silty, fine-grained, medium dense, saturated	
30							
32					SP	SAND, brown, silty, fine-grained, medium dense, saturated	
34							
36						TOTAL DEPTH-35'	

Well Construction: 35'-15', 0.02" slotted 4" PVC; 15'-0', blank 4" PVC. #3 Lonestar sand 35'-13'; 3/8" bentonite pellets 13'-11.5'; holeplug 11.5'-4'; concrete 4'-0'. 12" water-proof well box.

HUNTER
ENVIRONMENTAL SERVICES, INC.

597 Center Avenue, Suite 350
Martinez, California 94553
415–372–3637

LOG OF BORING NO. AP–2

PAGE 1 of 1

PROJECT NO: 02–276–010
CLIENT: Alameda County
SITE LOCATION: 165 13th St., Oakland
BORING LOCATION: 8' S.E. of pump island
DRILLER: Gregg Drilling and Testing
LOGGED BY: J. Bryson
SUPERVISOR: S. Wickham R.G. #3851

DATE: 3/21/89
REF. ELEV. –
METHOD: Hollow–stem auger, Mobile Drill B–53
HOLE DIA: 7.5"

DEPTH (FT)	GRAPHIC LOG	BLOW/FT	VAPOR (PPM)	SAMPLE TYPE AND DEPTH	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	WELL CONSTRUCTION
0						6" Concrete at Surface	
4		15	563	RING @ 5'	SP	SAND, gray-brown, fine-grained, medium dense, slightly moist, slight odor	
10		23	27	RING @ 10'	SP	SAND, brown, medium dense, silty, fine-grained slightly moist, no odor	
14		39	92	RING @ 15'	SP	SAND, gray, fine-grained, medium dense, slighty moist, no odor	
20		50+	ND	RING @ 20'	SP	SAND, brown, fine-grained, dense, moist, no odor	
24		50+	ND	RING @ 25'	SP	▽ As above, saturated	

Water found at 24'
TOTAL DEPTH–25'

HUNTER
ENVIRONMENTAL SERVICES, INC.
597 Center Avenue, Suite 350
Martinez, California 94553
415-372-3637

LOG OF BORING NO. AP-3 PAGE 1 of 1

PROJECT NO: 02-276-010 DATE: 3/22/89
CLIENT: REF. ELEV.
SITE LOCATION: METHOD:
BORING LOCATION: 10' South of pump island HOLE DIA: 7.5"
DRILLER:
LOGGED BY:
SUPERVISOR:

DEPTH (FT)	GRAPHIC LOG	BLOW/FT	VAPOR (PPM)	SAMPLE TYPE AND DEPTH	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	WELL CONSTRUCTION
0						6" Concrete at Surface	
2							
4		23	7	RING @ 5'	SP	SAND, brown, silty, fine-grained, medium dense, slightly moist, no odor	
6							
8							
10		28	ND	RING @ 10'	SP	As above, trace of odor	
12							
14							
16		45	100	RING @ 15'	SP	As above, no silt	
18							
20		50+	6	RING @ 20'	SP	SAND, brown, fine-grained, medium dense, wet, no odor	
22							
24		50+	ND	RING @ 25'	SP	▽ As above, saturated	

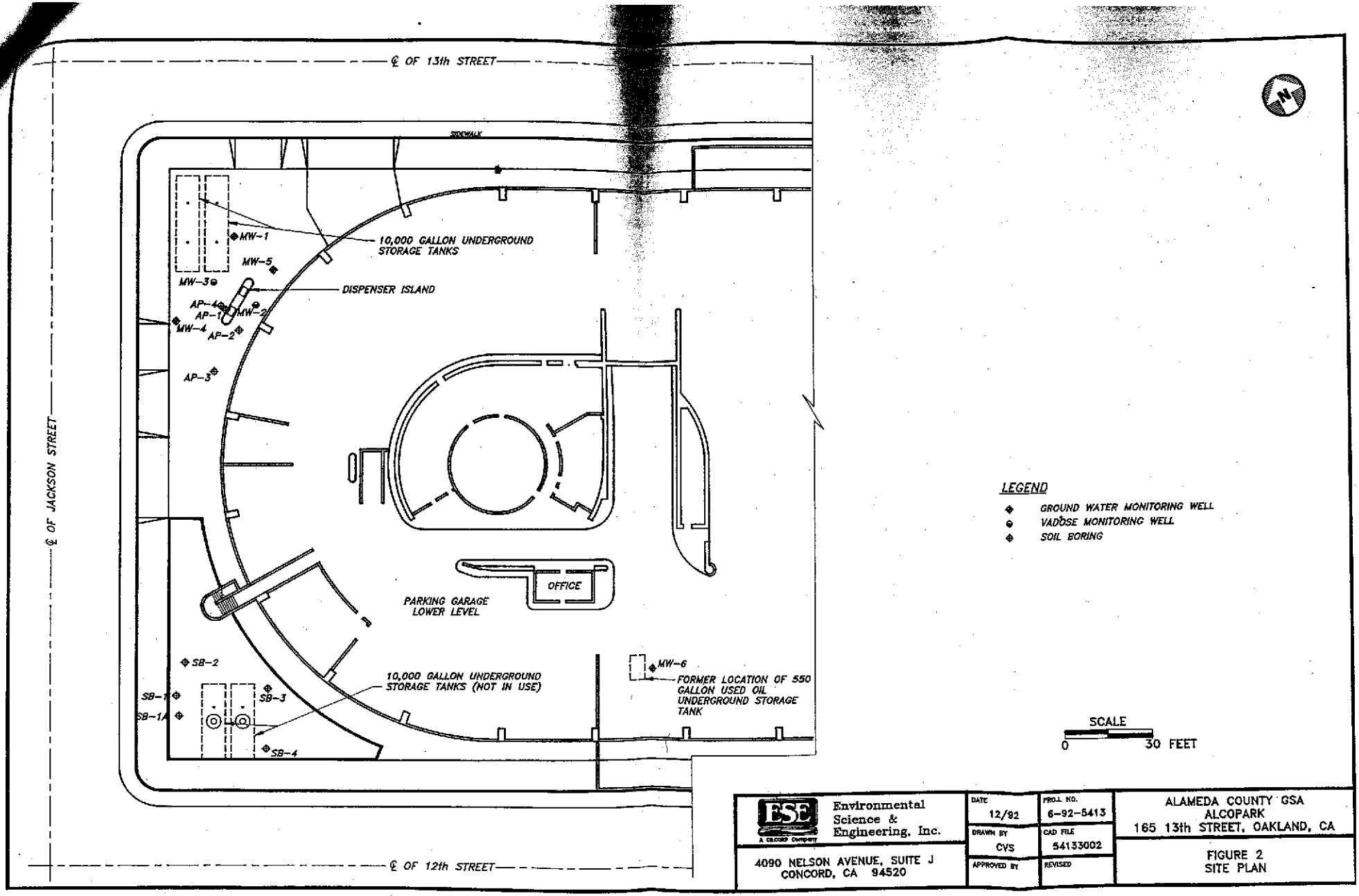
Water found at 24'
TOTAL DEPTH-25'

HUNTER
ENVIRONMENTAL SERVICES, INC.
597 Center Avenue, Suite 350
Martinez, California 94553
415-372-3637

LOG OF BORING NO. AP-4 PAGE 1 of 1

PROJECT NO: 02-276-010 DATE: 3/22/89
CLIENT: REF. ELEV.
SITE LOCATION: METHOD:
BORING LOCATION: 3' West of pump Island HOLE DIA: 7.5"
DRILLER:
LOGGED BY:
SUPERVISOR:

DEPTH (FT)	GRAPHIC LOG	BLOW/FT	VAPOR (PPM)	SAMPLE TYPE AND DEPTH	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	WELL CONSTRUCTION
0						OPEN CUT IN 4" THICK CONCRETE (3'X3')	
4		29	550	RING @ 5'	SP	SAND, brown, silty, fine-grained, medium dense, slightly moist, slight odor	
10		26	25	RING @ 10'	SP	SAND, brown, fine-grained, medium dense, slightly moist, slight odor	
14		41	150	RING @ 15'	SP	As above	
20		50+	150	RING @ 20'	SP	SAND, gray-brown, fine-grained, moist, medium dense, slight odor	
						Water found at 24' TOTAL DEPTH-25'	
24		39	5	RING @ 25'	SP	▽ SAND, brown, fine-grained, medium dense, saturated, no odor	



ESE Environmental Science & Engineering, Inc.	DATE 12/92	PROJ. NO. 6-92-5413	ALAMEDA COUNTY GSA ALCOPARK 165 13th STREET, OAKLAND, CA
4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	DRAWN BY CVS	CAD FILE 54133002	FIGURE 2 SITE PLAN
	APPROVED BY	REVISED	

Environmental Science & Engineering, Inc.

BORING LOG AND WELL COMPLETION SUMMARY

MW-6

Page 1 of 1

WELL COMPLETION

Completion Depth: 20 FEET

Size/Type	From	To
Casing: 2" PVC Sch. 40	5	0
Screen: 2"-0.02" slot PVC	20	5
Filter: #3 Monteray Sand	20	4
Seal: Bentonite Pellets	4	3.5
Grout /sand slurry	3.5	1.5
Concrete	1.5	0

Well Cap or Box: Flush Traffic box with locking well cap.

Project Name: ALCOPARK Project No: 6-92-5413
Location: 165 13th Street
Oakland, California

Driller: Soils Exploration Services, Inc.
Method: Hollow Stem Auger - Access II
Hole Diameter: 8 in. O.D. Total Depth: 20 Feet
Ref. Elevations: NA
Logged By: Kerry Lefever

Dates:
Start: 10-29-92
Finish: 10-29-92

Depth (ft)	Lithologic Description	USC	Graphic Log: Sample/Blows	Graphic Log: Lithology	Graphic Log: Well Installation	Vapor	Remarks: Water, drilling/completion, summary, sample type
0	Concrete						
1	SILTY SAND; orange-brown, dense, fine grained sand, moist, no odor.	SM					
2							
3							
4			22				
5			30				
6			22			2	
7	SAND; brown, wet, fine grained sand, no odor.	SP	46				Water at 7 Feet
8			17				
9			23				
10			24				
11							
12							
13							
14							
15							
16	GRAVELLY SAND; brown, wet, some clay, fine to coarse grained sand.	SW					
17							
18							
19							
20							Total Depth = 20 Feet
21							
22							

REGISTERED GEOLOGIST
SUSAN S. MICHAEL
#2351
STATE OF CALIFORNIA

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Environmental Science & Engineering, Inc.	Client Project ID:	Alcopark/#6-92-5413	Sampled:	Oct 29, 1992
4090 Nelson Ave., Suite J	Sample Matrix:	Soil	Received:	Oct 30, 1992
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported:	Nov 12, 1992
Attention: Michael Edmonson	First Sample #:	210-1037		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit mg/kg	Sample I.D. 210-1037 MW-6 @ 6.5'
Purgeable Hydrocarbons	1.0	N.D.
Benzene	0.005	N.D.
Toluene	0.005	N.D.
Ethyl Benzene	0.005	N.D.
Total Xylenes	0.005	N.D.
Chromatogram Pattern:		--

Quality Control Data

Report Limit Multiplication Factor:	1.0
Date Analyzed:	11/2/92
Instrument Identification:	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	104

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Environmental Science & Engineering, Inc.	Client Project ID:	Alocopark/ #6-92-5413	Sampled:	Oct 29, 1992
4090 Nelson Ave., Suite J	Sample Matrix:	Soil	Received:	Oct 30, 1992
Concord, CA 94520	Analysis Method:	EPA 3550/8015	Reported:	Nov 12, 1992
Attention: Michael Edmonson	First Sample #:	210-1037		

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit mg/kg	Sample I.D. 210-1037 MW-6 @ 6.5'
Extractable Hydrocarbons	1.0	1.0
Chromatogram Pattern:		Diesel

Quality Control Data

Report Limit Multiplication Factor:	1.0
Date Extracted:	11/6/92
Date Analyzed:	11/10/92
Instrument Identification:	HP-3B

Extractable Hydrocarbons are quantitated against a fresh diesel standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Environmental Science & Engineering, Inc.	Client Project ID:	Alcopark/#6-92-5413	Sampled:	Oct 29, 1992
4090 Nelson Ave., Suite J	Matrix Descript:	Soil	Received:	Oct 30, 1992
Concord, CA 94520	Analysis Method:	EPA 413.1 (Gravimetric)	Extracted:	Nov 3, 1992
Attention: Michael Edmonson	First Sample #:	210-1037	Analyzed:	Nov 9, 1992
			Reported:	Nov 12, 1992

TOTAL RECOVERABLE OIL & GREASE

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
210-1037	MW-6 @ 6.5'	N.D.

Detection Limits:	30

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Environmental Science & Engineering, Inc.	Client Project ID:	Alcopark/#6-92-5413	Sampled:	Oct 29, 1992
4090 Nelson Ave., Suite J	Sample Descript:	Soil, MW-6 @ 6.5'	Received:	Oct 30, 1992
Concord, CA 94520	Analysis Method:	EPA 5030/8010	Analyzed:	Nov 3, 1992
Attention: Michael Edmonson	Lab Number:	210-1037	Reported:	Nov 12, 1992

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Bromodichloromethane	5.0	N.D.
Bromoform	5.0	N.D.
Bromomethane	10	N.D.
Carbon tetrachloride	5.0	N.D.
Chlorobenzene	5.0	N.D.
Chloroethane	10	N.D.
2-Chloroethylvinyl ether	10	N.D.
Chloroform	5.0	N.D.
Chloromethane	10	N.D.
Dibromochloromethane	5.0	N.D.
1,2-Dichlorobenzene	5.0	N.D.
1,3-Dichlorobenzene	5.0	N.D.
1,4-Dichlorobenzene	5.0	N.D.
1,1-Dichloroethane	5.0	N.D.
1,2-Dichloroethane	5.0	N.D.
1,1-Dichloroethene	5.0	N.D.
cis-1,2-Dichloroethene	5.0	N.D.
trans-1,2-Dichloroethene	5.0	N.D.
1,2-Dichloropropane	5.0	N.D.
cis-1,3-Dichloropropene	5.0	N.D.
trans-1,3-Dichloropropene	5.0	N.D.
Methylene chloride	50	N.D.
1,1,2,2-Tetrachloroethane	5.0	N.D.
Tetrachloroethene	5.0	N.D.
1,1,1-Trichloroethane	5.0	N.D.
1,1,2-Trichloroethane	5.0	N.D.
Trichloroethene	5.0	N.D.
Trichlorofluoromethane	5.0	N.D.
Vinyl chloride	10	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Environmental Science & Engineering, Inc.	Client Project ID:	#6-92-5413/Alcopark-WO, Oakland	Sampled:	Nov 5, 1992
4090 Nelson Ave., Suite J	Sample Matrix:	Water	Received:	Nov 6, 1992
Concord, CA 94520	Analysis Method:	EPA 5030/8015/8020	Reported:	Nov 18, 1992
Attention: Michael Edmonson	First Sample #:	211-0309		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 211-0309 MW-6
Purgeable Hydrocarbons	50	N.D.
Benzene	0.5	1.0
Toluene	0.5	0.79
Ethyl Benzene	0.5	N.D.
Total Xylenes	0.5	2.7
Chromatogram Pattern:		--

Quality Control Data

Report Limit Multiplication Factor:	1.0
Date Analyzed:	11/10/92
Instrument Identification:	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	101

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Environmental Science & Engineering, Inc.	Client Project ID:	#6-92-5413/Alcopark-WO, Oakland	Sampled:	Nov 5, 1992
4090 Nelson Ave., Suite J	Sample Matrix:	Water	Received:	Nov 6, 1992
Concord, CA 94520	Analysis Method:	EPA 3510/3520/8015	Reported:	Nov 18, 1992
Attention: Michael Edmonson	First Sample #:	211-0309		

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 211-0309 MW-6
Extractable Hydrocarbons	50	N.D.
Chromatogram Pattern:		--

Quality Control Data

Report Limit Multiplication Factor:	1.0
Date Extracted:	11/11/92
Date Analyzed:	11/16/92
Instrument Identification:	HP-3A

Extractable Hydrocarbons are quantitated against a fresh diesel standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Environmental Science & Engineering, Inc.	Client Project ID:	#6-92-5413/Alcopark-WO, Oakland	Sampled:	Nov 5, 1992
4090 Nelson Ave., Suite J	Matrix Descript:	Water	Received:	Nov 6, 1992
Concord, CA 94520	Analysis Method:	EPA 413.1 (Gravimetric)	Extracted:	Nov 11, 1992
Attention: Michael Edmonson	First Sample #:	211-0309	Analyzed:	Nov 12, 1992
			Reported:	Nov 18, 1992

TOTAL RECOVERABLE OIL & GREASE

Sample Number	Sample Description	Oil & Grease mg/L (ppm)
211-0309	MW-6	N.D.

Detection Limits:	5.0

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager

SEQUOIA ANALYTICAL
1[illegible] • Suite LM • Concord, California 94520
(510)686-[illegible] • FAX (510) 686-9689

Environmental Science & Engineering, Inc.	Client Project ID:	#6-92-5413/Alcopark-WO, Oakland	Sampled:	Nov 5, 1992
4090 Nelson Ave., Suite J	Sample Descript:	Water, MW-6	Received:	Nov 6, 1992
Concord, CA 94520	Analysis Method:	EPA 5030/8010	Analyzed:	Nov 12, 1992
Attention: Michael Edmonson	Lab Number:	211-0309	Reported:	Nov 18, 1992

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane	0.50	N.D.
Bromoform	0.50	N.D.
Bromomethane	1.0	N.D.
Carbon tetrachloride	0.50	N.D.
Chlorobenzene	0.50	N.D.
Chloroethane	1.0	N.D.
2-Chloroethylvinyl ether	1.0	N.D.
Chloroform	0.50	0.54
Chloromethane	1.0	N.D.
Dibromochloromethane	0.50	N.D.
1,3-Dichlorobenzene	0.50	N.D.
1,4-Dichlorobenzene	0.50	N.D.
1,2-Dichlorobenzene	0.50	N.D.
1,1-Dichloroethane	0.50	N.D.
1,2-Dichloroethane	0.50	N.D.
1,1-Dichloroethene	0.50	N.D.
cis-1,2-Dichloroethene	0.50	N.D.
trans-1,2-Dichloroethene	0.50	N.D.
1,2-Dichloropropane	0.50	N.D.
cis-1,3-Dichloropropene	0.50	N.D.
trans-1,3-Dichloropropene	0.50	N.D.
Methylene chloride	5.0	N.D.
1,1,2,2-Tetrachloroethane	0.50	N.D.
Tetrachloroethene	0.50	1.7
1,1,1-Trichloroethane	0.50	8.3
1,1,2-Trichloroethane	0.50	N.D.
Trichloroethene	0.50	N.D.
Trichlorofluoromethane	0.50	N.D.
Vinyl chloride	1.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager

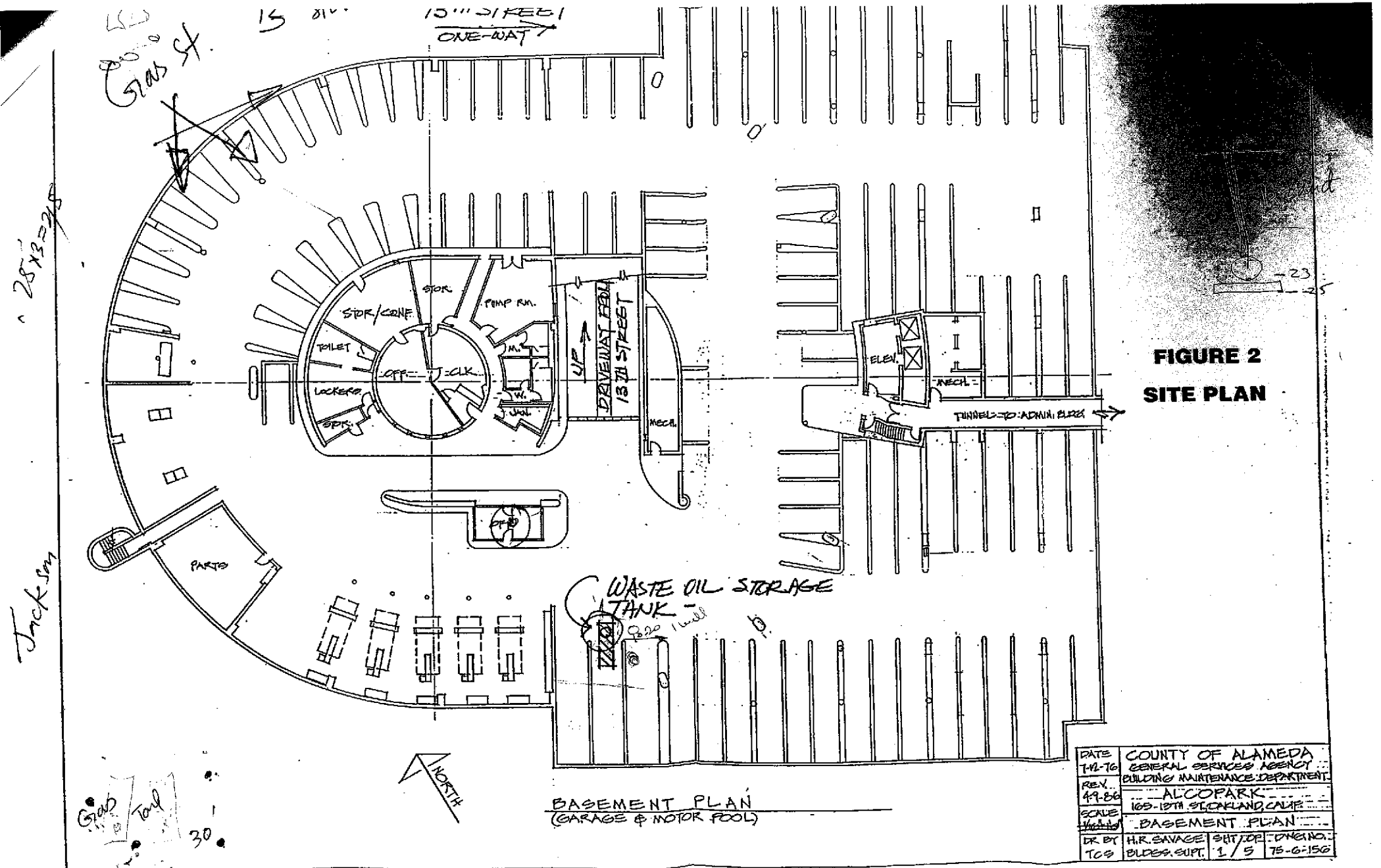
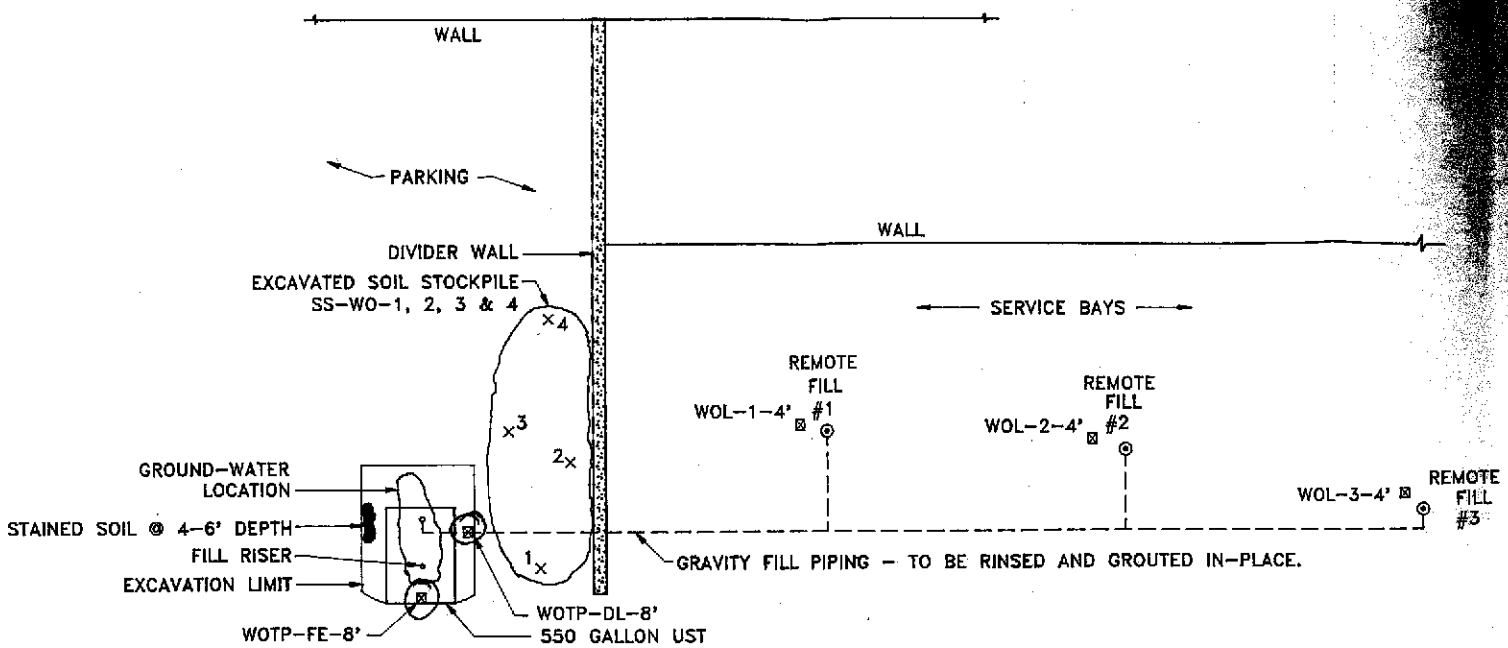


FIGURE 2

SITE PLAN

BASEMENT PLAN
(GARAGE & MOTOR POOL)

DATE 7-12-76	COUNTY OF ALAMEDA GENERAL SERVICES AGENCY BUILDING MAINTENANCE DEPARTMENT		
REV. 4-9-86	ALCOPARK 165-13TH ST. OAKLAND, CALIF.		
SCALE	BASEMENT PLAN		
DR BY TCS	H.R. SAVAGE BLDGS. SUPT.	SHT. OF 1 / 5	DWG. NO. 75-6-156



ESE A CH2M HILL COMPANY
Environmental Science & Engineering, Inc.

ALAMEDA COUNTY GSA
ALCOPARK
165 13th ST, OAKLAND CALIFORNIA

FIGURE 3
TANK PLAN

DRAWN BY	APPROVED BY	REVISED
DWR		4/92 DWR
DATE	FILE NAME	PROJ. NO.
6/91	F1UST10	6-90-5122

TABLE 1 - ANALYTICAL RESULTS
SOIL SAMPLES FROM EXCAVATION PIT WALLS

SAMPLE ID	TVH AS GASOLINE (mg/Kg)	BENZENE (µg/Kg)	TOLUENE (µg/Kg)	ETHYL BENZENE (µg/Kg)	TOTAL XYLENES (µg/Kg)	KEROSENE RANGE (mg/Kg)	DIESEL RANGE (mg/Kg)	OIL & GREASE (mg/Kg)	SEMI VOLATILE ORGANICS (8270) (µg/Kg)	CHLORINATED HYDROCARBONS (8010) (µg/Kg)
WOTP-DL-8'	ND	ND	ND	ND	6.8	ND	ND	ND	ND	ND
WOTP-FE-8'	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

SAMPLE ID	TOTAL METALS (mg/Kg) CADMIUM	CHROMIUM	LEAD	NICKEL	ZINC
WOTP-DL-8'	0.28	39.7	ND	30.9	18.2
WOTP-FE-8'	ND	43.6	ND	35.1	20.4

ND = Not detected at or above reporting limit.

TABLE 2 - ANALYTICAL RESULTS
SOIL SAMPLES FROM REMOTE FILL AREAS

SAMPLE ID	TVH AS GASOLINE (mg/Kg)	BENZENE (µg/Kg)	TOLUENE (µg/Kg)	ETHYL BENZENE (µg/Kg)	TOTAL XYLENES (µg/Kg)	KEROSENE RANGE (mg/Kg)	DIESEL RANGE (mg/Kg)	OIL & GREASE (mg/Kg)	CHLORINATED HYDROCARBONS (8010) (µg/Kg)
COMP WOL-1, 2, 3	1.8	ND	11	ND	21	**	140	70	ND

SAMPLE ID	TOTAL METALS (mg/Kg) CADMIUM	CHROMIUM	LEAD	NICKEL	ZINC
COMP WOL-1, 2, 3	ND	41.2	ND	30.8	25.5

SAMPLE ID	SEMI VOLATILE ORGANICS (8270) (µg/Kg) PHENANTHRENE	FLUORANTHENE	PYRENE
COMP WOL-1, 2, 3	740	440	380

ND = Not detected at or above reporting limit.

** Kerosene range not reported

TABLE 3 - ANALYTICAL RESULTS
STOCKPILE SOIL SAMPLES

	SAMPLE ID	TVH AS GASOLINE (mg/Kg)	BENZENE (µg/Kg)	TOLUENE (µg/Kg)	ETHYL BENZENE (µg/Kg)	TOTAL XYLENES (µg/Kg)	KEROSENE RANGE (mg/Kg)	DIESEL RANGE (mg/Kg)	OIL & GREASE (mg/Kg)
COMP	SS-WO-1	13*	ND	39	99	710	ND	53	250
	SS-WO-2								
	SS-WO-3								
	SS-WO-4								

TOTAL METALS (mg/Kg)

	SAMPLE ID	CADMIUM	CHROMIUM	LEAD	NICKEL	ZINC
COMP	SS-WO-1	ND	42.0	ND	31.7	32.5
	SS-WO-2					
	SS-WO-3					
	SS-WO-4					

SEMI VOLATILE ORGANICS (8270) (µg/Kg)

	SAMPLE	NAPHTHALENE	2-METHYLNAPHTHALENE	ACENAPHTHENE	DIBENZOFURAN	FLUORENE	PHENANTHRENE	FLUORANTHENE	INDENO (1,2,3-cd) PYRENE	BENZO (K) FLUORANTHENE
COMP	SS-WO-1	1,400	1,300	510	350	570	3,100	1,700	340	1,000
	SS-WO-2									
	SS-WO-3									
	SS-WO-4									

CHLORINATED HYDROCARBONS (8010) (µg/Kg)

	SAMPLE	TETRACHLOROETHYLENE
COMP	SS-WO-1	330
	SS-WO-2	
	SS-WO-3	
	SS-WO-4	

ND = Not detected at or above reporting limit.
* Pattern does not match gasoline standard.

TABLE 4 - ANALYTICAL RESULTS
GROUND-WATER SAMPLE FROM EXCAVATION PIT

SAMPLE ID	TVH AS GASOLINE (µg/L)	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL BENZENE (µg/L)	TOTAL XYLENES (µg/L)	KEROSENE RANGE (µg/L)	DIESEL RANGE (µg/L)	OIL & GREASE (mg/L)
WOP-GW-8.5'	2,800	52	200	40	310	19,000	**	ND

3 ppm

19 ppm

TOTAL METALS (µg/L)

SAMPLE ID	CADMIUM	CHROMIUM	LEAD	NICKEL	ZINC
WOP-GW-8.5'	ND	ND	5.7	70	270

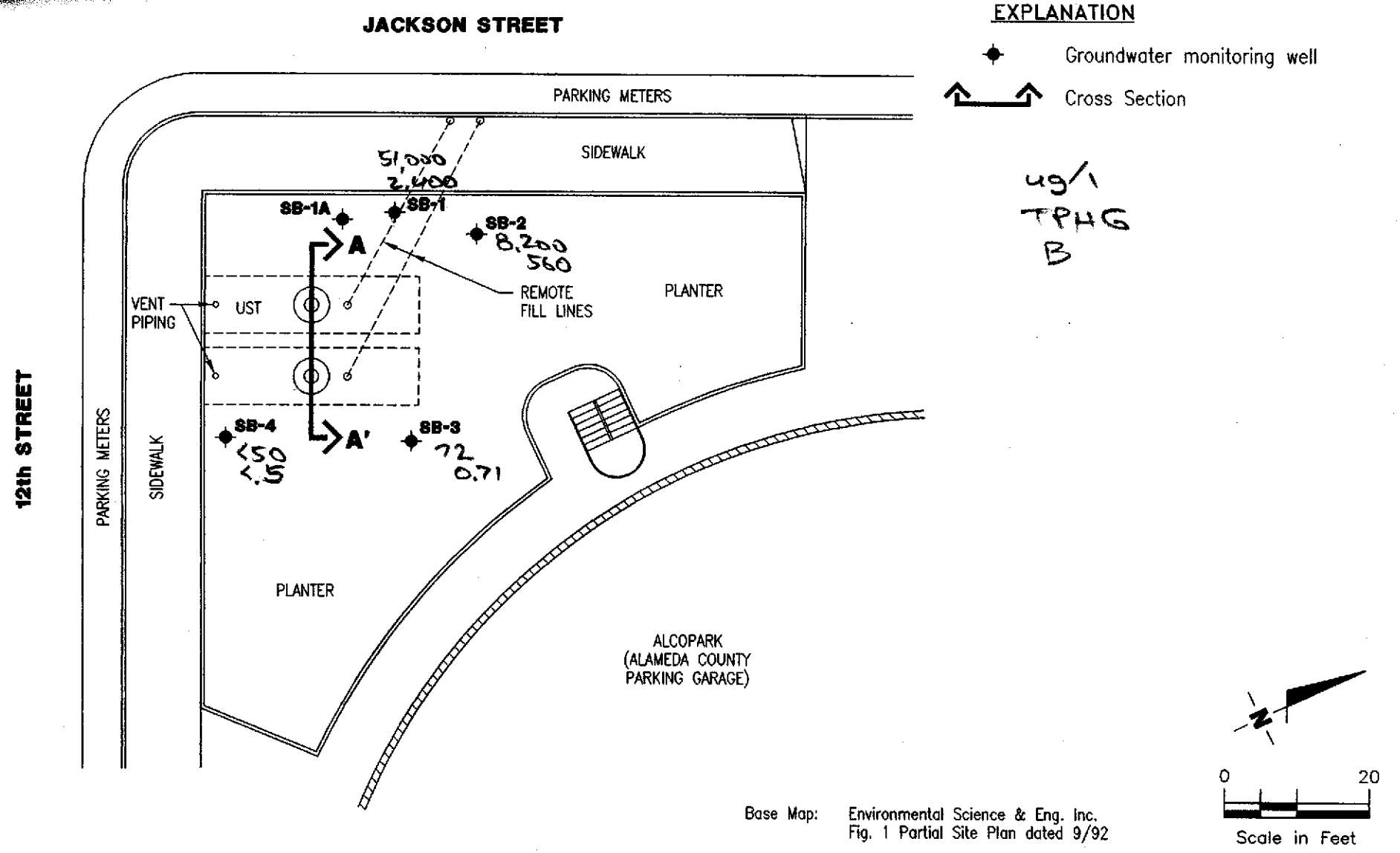
SEMI VOLATILE ORGANICS (8270) (µg/L)

SAMPLE ID	PHENOL	2-METHYLPHENOL	4-METHYLPHENOL	NAPHTHALENE
WOP-GW-8.5'	102	90	120	30

CHLORINATED HYDROCARBONS (8010) (µg/L)

SAMPLE ID	TRICHLOROFLUOROMETHANE	1,1-DICHLOROETHENE	1,1,1-TRICHLOROETHANE	TETRACHLOROETHENE
WOP-GW-8.5'	110	5.5	320	75

** Diesel Range not reported.



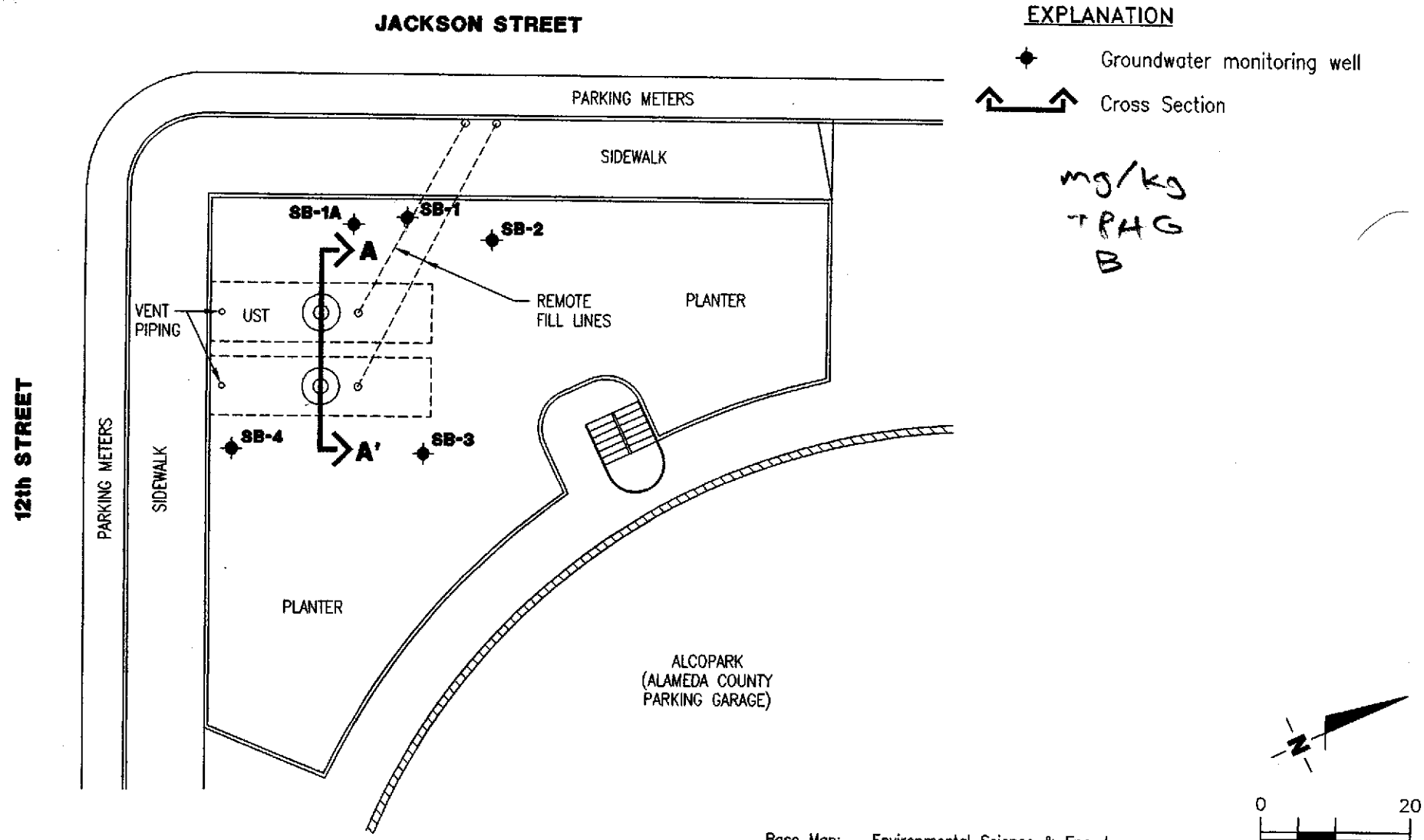
Base Map: Environmental Science & Eng. Inc.
Fig. 1 Partial Site Plan dated 9/92

GeoStrategies Inc.

SITE PLAN
Alameda County GSA
165 13th Street
Oakland, California

FIGURE
2

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
613801-1		5/94	



Base Map: Environmental Science & Eng. Inc.
Fig. 1 Partial Site Plan dated 9/92

GeoStrategies Inc.

SITE PLAN
Alameda County GSA
165 13th Street
Oakland, California

FIGURE
2

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
613801-1		5/94	

TABLE 2

ANALYTICAL DATA: GROUND WATER SAMPLES

ALAMEDA COUNTY ALCOPARK
12TH AND JACKSON STREETS
OAKLAND, CALIFORNIA

Boring	Date	TPH-G (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)
SB-1	10/27/92	51,000	2,400	9,400	1,400	8,400
SB-2	10/27/92	8,200	560	930	360	620
SB-3	10/28/92	72	0.71	<0.5	0.5	2.4
SB-4	10/28/92	<50	<0.5	<0.5	<0.5	<0.5

NOTES:

TPH-G = Total Petroleum Hydrocarbons as Gasoline (TPH-G)
µg/L = micrograms per liter or parts per billion (ppb)
< = less than listed detection limit

TABLE 1

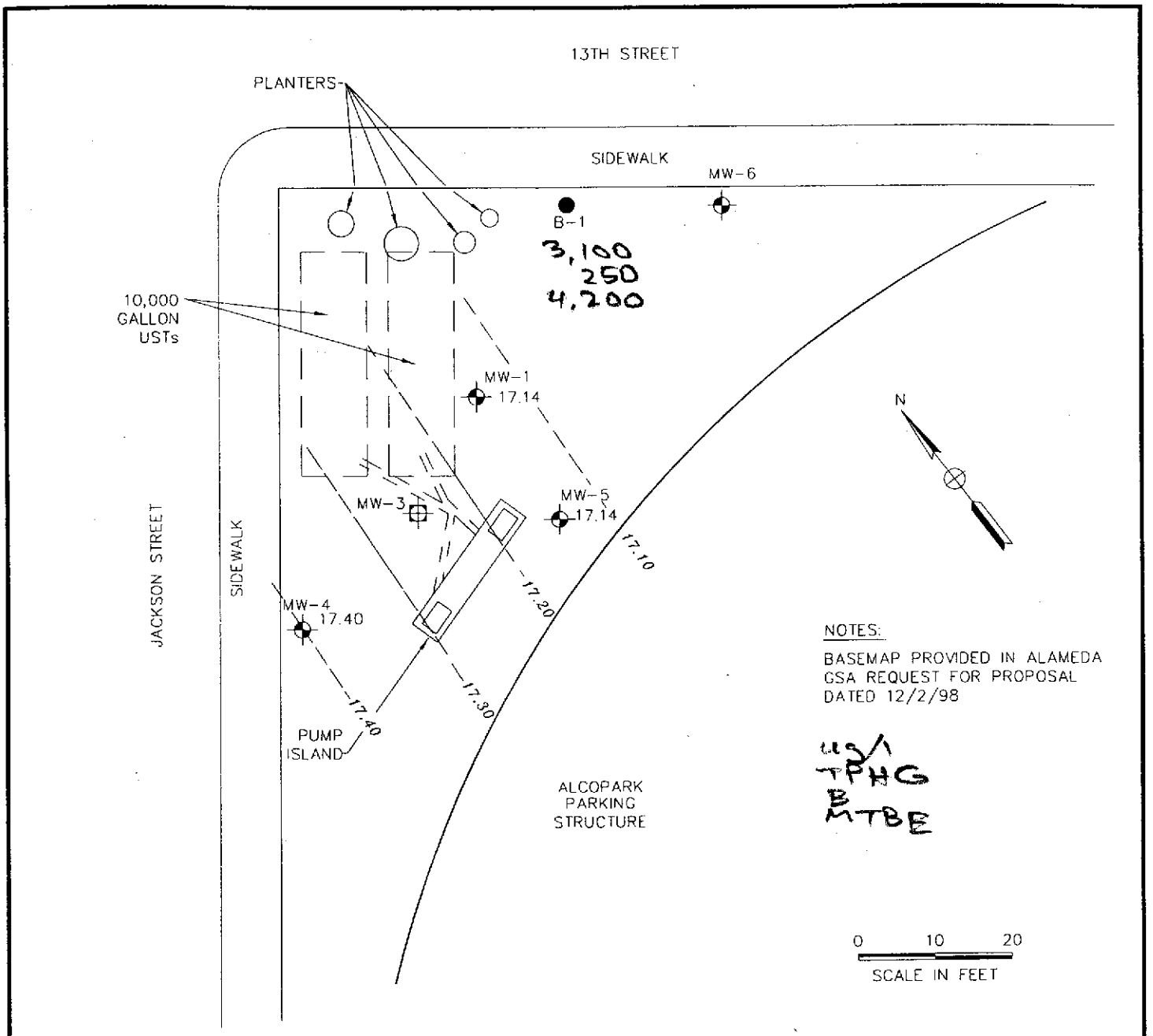
ANALYTICAL DATA: SOIL SAMPLES

ALAMEDA COUNTY ALCOPARK
12TH AND JACKSON STREETS
OAKLAND, CALIFORNIA

Soil Borings	Sample Depth (feet)	Date	TPH-G (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl-benzene (mg/Kg)	Total Xylenes (mg/Kg)
SB-1	15	10/27/92	<1	0.019	0.019	0.011	0.042
SB-1	21.5	10/27/92	6.3	0.41	0.68	0.10	0.70
SB-2	15	10/27/92	<1	<0.005	<0.005	<0.005	<0.005
SB-2	22	10/27/92	1.8	0.21	0.19	0.034	0.20
SB-3	15	10/28/92	<1	<0.005	<0.005	<0.005	<0.005
SB-3	22	10/28/92	<1	<0.005	<0.005	<0.005	<0.005
SB-4	15	10/28/92	<1	<0.005	<0.005	<0.005	<0.005
SB-4	22	10/28/92	<1	<0.005	<0.005	<0.005	<0.005

NOTES:

TPH-G = Total Petroleum Hydrocarbons as Gasoline (TPH-G)
mg/Kg = milligrams per kilogram or parts per million (ppm)
< = less than listed detection limit



LEGEND

MW-1 GROUNDWATER MONITORING WELL

MW-3 VADOSE MONITORING WELL LOCATION

B-1 SOIL BORING

UNDERGROUND PIPING

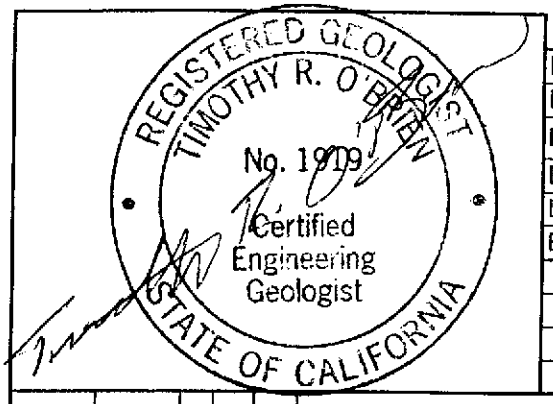
LINE OF EQUAL GROUNDWATER ELEVATION

psi ENVIRONMENTAL GEOTECHNICAL CONSTRUCTION
CONSULTING • ENGINEERING • TESTING

GROUNDWATER ELEVATION MAP – 4/1/98
ALCOPARK FUELING STATION
165 13TH STREET
OAKLAND, CALIFORNIA
PROJECT NUMBER: 575-8G004

DATE: 1/13/98	CKD BY: JD	FIGURE NO.: 2
FILE NO: 8G004-2		DRAWN BY: S.BOWERS

SOIL BORING LOG



BORING NO:	B2
SHEET 1 OF 2	
PROJECT NAME: ALCOPARK	PROJECT NO: 8G004
DATE: 3/23/98	
NORTHINGS:	EASTINGS:
DRILLING COMPANY:	FISCH ENVIRONMENTAL SERVICES
DRILLING METHOD:	DIRECT PUSH - GEOPROBE
BORING DIMENSIONS:	2.5 INCH DIAMETER DEPTH: 24 FT

GROUNDWATER LEVELS

DATE	COMMENTS	DEPTH BGS
3/23/98	INITIAL	19 FT
3/23/98	STABILIZED	16 FT

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
1					Sand with some clay, fine to medium grained sand, brown, moist, low plasticity fines, no odor.		SP	Concrete pavement surface.
5						0		
6		22						
10						0		
11		16						
15						0		
16		19						
18								Color change to green.
19								Slight organic (sewage) odor noted.
20		16				0		
								Log continued on Sheet 2 of 2

LOGGED BY: TIM O'BRIEN

SOIL BORING LOG

BORING NO:	B2
SHEET 2	OF 2
PROJECT NAME: ALCOPARK	PROJECT NO: 8G004
DATE: 3/23/98	
NORTHINGS:	EASTINGS:
DRILLING COMPANY:	FISCH ENVIRONMENTAL SERVICES
DRILLING METHOD:	DIRECT PUSH - GEOPROBE
BORING DIMENSIONS:	2.5 INCH DIAMETER DEPTH: 24 FT

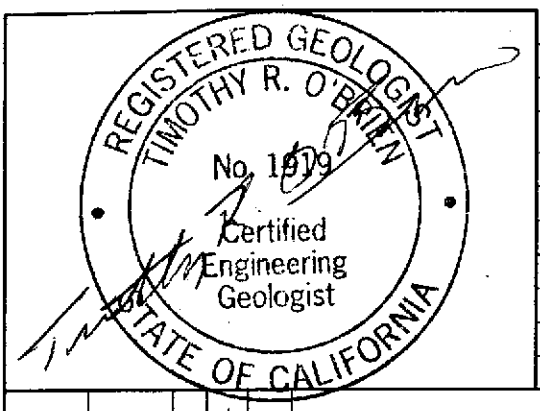
GROUNDWATER LEVELS

DATE	COMMENTS	DEPTH BGS
3/23/98	STABILIZED	16 FT

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
					Sand with trace fines as described above.	0	SP	Sample interval continued from 19 ft. bgs.
21		16						
22								
23								
24								Probe refusal at 24 ft. bgs.
								Total Depth = 24 feet.
25								Boring terminated at depth of
								probe refusal.
26								Well MW-6 constructed in boring.
27								
28								
29								
30								
31								
32								
33								
34								
35								
36								
37								
38								
39								
40								

LOGGED BY: Tim O'Brien

SOIL BORING LOG



BORING NO:	B1
SHEET 1 OF 2	
PROJECT NAME: ALCOPARK	PROJECT NO: 8G004
DATE: 3/23/98	
NORTHINGS:	EASTINGS:
DRILLING COMPANY:	FISCH ENVIRONMENTAL SERVICES
DRILLING METHOD:	DIRECT PUSH - GEOPROBE
BORING DIMENSIONS: 2.5 INCH DIAMETER	DEPTH: 21 FT

GROUNDWATER LEVELS

DATE	COMMENTS	DEPTH BGS
3/23/98	INITIAL	19 FT
3/23/98	STABILIZED	16 FT

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
0					Sand with some clay, fine to medium grained sand, tan,		SP	Concrete pavement surface.
1					moist, moderate plasticity fines, no odor.			
2								
3								
4								
5						0		
6		21						
7								
8								
9								
10					Silty sand, fine to medium grained, greenish-gray, moist,	0	SM	
11		20			low plasticity fines, no odor.			
12					Sand with trace fines, fine to medium grained, tan, very moist,		SP	
13					low plasticity fines, no odor.			
14								
15						0		
16		22						
17								
18								Color change to green, moisture increase
19								to very moist to wet.
20						0		Organic (sewage) odor noted.
		23						Log continued on Sheet 2 of 2

LOGGED BY: TIM O'BRIEN

SOIL BORING LOG

BORING NO:	B1
SHEET 2	OF 2
PROJECT NAME: ALCOPARK	PROJECT NO: 8G004
DATE: 3/23/98	
NORTHINGS:	EASTINGS:
DRILLING COMPANY:	FISCH ENVIRONMENTAL SERVICES
DRILLING METHOD:	DIRECT PUSH - GEOPROBE
BORING DIMENSIONS:	2.5 INCH DIAMETER DEPTH:

GROUNDWATER LEVELS

DATE	COMMENTS	DEPTH BGS
3/23/98	STABILIZED	16 FT

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
		23			Sand with trace fines as described above.	0	SP	Sample interval continued from 19 ft. bgs.
21								Total Depth = 21 feet.
22								Boring terminated at depth sufficient for investigation.
23								Boring grouted with neat cement.
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								
36								
37								
38								
39								
40								

LOGGED BY: Tim O'Brien

TABLE 2-1
GROUNDWATER ELEVATION AND ANALYTICAL DATA
ALCOPARK FUELING FACILITY
OAKLAND, CALIFORNIA

All concentrations in ug/l (PPB).

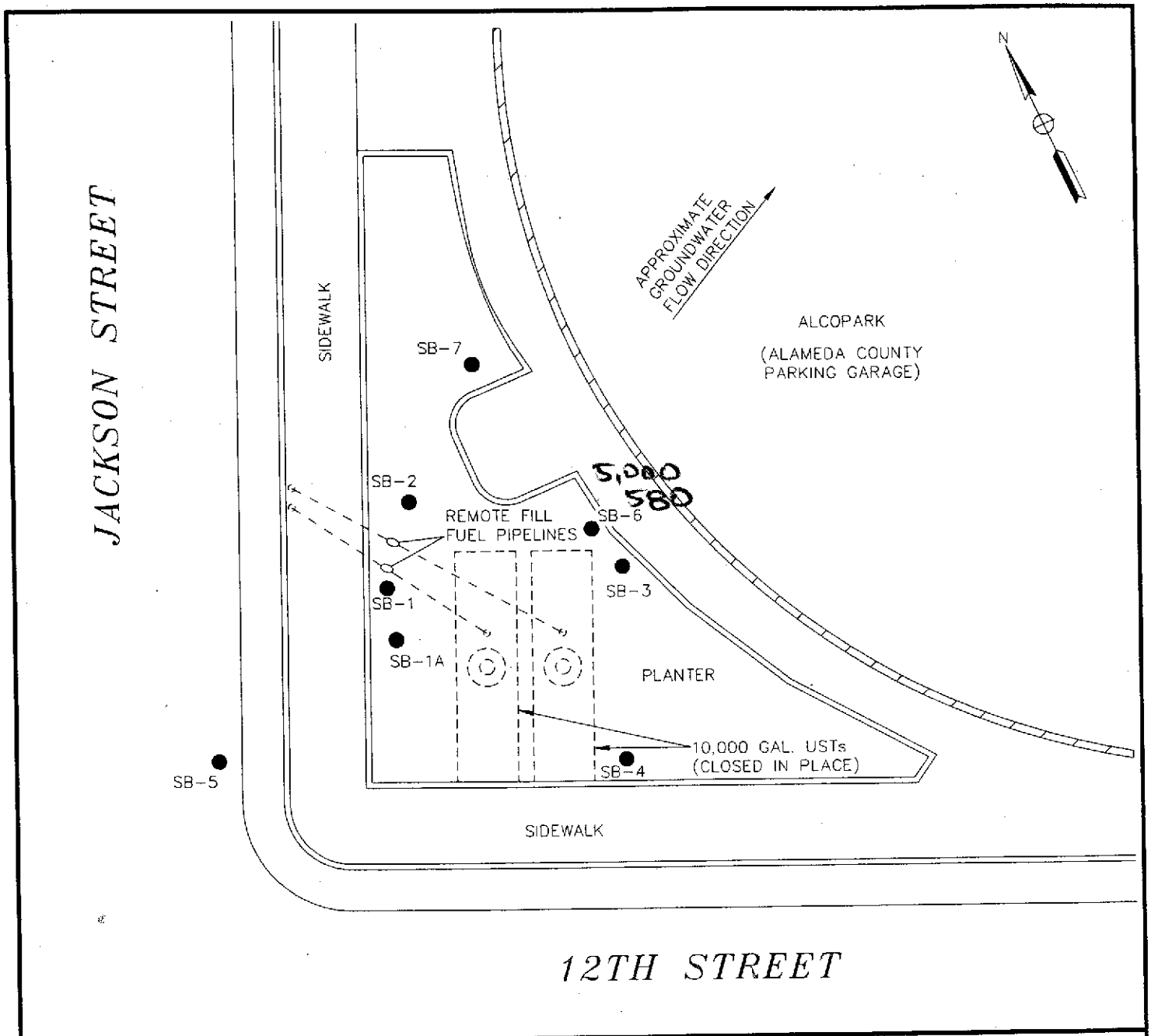
Well	Date	Groundwater Elevation	TPH-G	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes
W-MW1	3/21/89	12.2	ND	NA	21	3.9	0.4	4.5
W-MW1	7/26/90	12.3	1,400	NA	200	45	ND	53
W-MW1	10/25/90	12.1	1,200	NA	ND	7.3	2.2	46
W-MW1	1/25/91	11.9	270	NA	23	1.5	ND	3.1
W-MW1	4/25/91	11.8	230	NA	ND	ND	ND	ND
W-MW1	8/27/91	11.8	8,300	NA	370	64	ND	120
W-MW1	11/25/91	11.7	810	NA	9.3	ND	7.8	32
W-MW1	6/11/92	12.85	2,600	NA	810	16	21	42
W-MW1	7/16/97	14.36	19,000	ND (150)	1,400	2,800	500	2,600
W-MW1	10/21/97	13.92	14,000	29	1,200	1,000	590	2,800
W-MW1	3/11/98	17.14	NS	NS	NS	NS	NS	NS
W-MW1	4/1/98	17.14	ND (50)	6.3	5.4	ND (0.5)	ND (0.5)	0.82
W-MW4	3/21/89	12.4	ND	NA	13	1.4	1.0	ND
W-MW4	7/26/90	12.5	NA	NA	0.8	ND	ND	ND
W-MW4	10/25/90	12.2	NA	NA	120	1.2	1.1	0.9
W-MW4	1/25/91	12.0	NA	NA	230	2.8	1.2	2.0
W-MW4	4/25/91	13.0	170	NA	12	ND	ND	2.3
W-MW4	8/27/91	11.8	ND	NA	87	1.3	0.8	0.8
W-MW4	11/25/91	11.8	1,400	NA	ND	1.7	8.6	3.6
W-MW4	6/11/92	12.93	560	NA	150	1.8	1.8	1.1
W-MW4	7/16/97	14.46	50	ND	ND	ND	ND	ND
W-MW4	10/21/97	14.10	ND	ND	ND	ND	ND	ND
W-MW4	3/11/98	17.39	NS	NS	NS	NS	NS	NS
W-MW4	4/1/98	17.40	ND (50)	ND (5.0)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
W-MW5	3/21/89	12.2	ND	NA	ND	ND	ND	ND
W-MW5	7/26/90	12.4	670	NA	0.8	ND	ND	ND
W-MW5	10/25/90	12.1	120	NA	13	ND	ND	ND
W-MW5	1/25/91	11.9	120	NA	3.2	ND	ND	ND
W-MW5	4/25/91	12.3	ND	NA	ND	ND	ND	ND
W-MW5	8/27/91	11.5	ND	NA	20	ND	0.5	ND
W-MW5	11/25/91	11.7	190	NA	2.7	ND	0.8	2.5
W-MW5	6/11/92	12.85	150	NA	37	ND	ND	ND
W-MW5	7/16/97	14.33	ND	22	ND	ND	ND	ND
W-MW5	10/21/97	13.88	ND	14	ND	ND	ND	ND
W-MW5	3/11/98	17.14	NS	NS	NS	NS	NS	NS
W-MW5	4/1/98	17.14	ND (50)	11	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
W-MW6	4/1/98	NA	740	4,600	9.8	3.2	3.0	15
W-B1	3/23/98	NA	3,100	4,200	250	18	160	290

Notes:
TPH-G denotes Total Petroleum Hydrocarbons as Gasoline. MTBE denotes Methyl tert-Butyl Ether.
NA denotes Not Analyzed. NS denotes Not Sampled. ND denotes Not Detected. ( ) denotes detection limit.
Data collected prior to 1998 was reported in Alameda County Request for Proposal dated December 2, 1997.

TABLE 2-2
SUMMARY OF SOIL SAMPLE ANALYTICAL DATA
ALCOPARK FUELING FACILITY
OAKLAND, CALIFORNIA

	All concentrations in ug/kg (PPB).					
	TPH-G	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes
SB-1-14'	ND (1,000)	ND (50)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)
SB-2-14'	ND (1,000)	ND (50)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)

Notes:
TPH-G denotes Total Petroleum Hydrocarbons as Gasoline
MTBE denotes Methyl tert-Butyl Ether
ND denotes not detected (detection limit shown in parentheses).



LEGEND

SB-1 ● SOIL BORING

REMOTE FILL PORTS

ug/l
TPHG
B

0 10 20

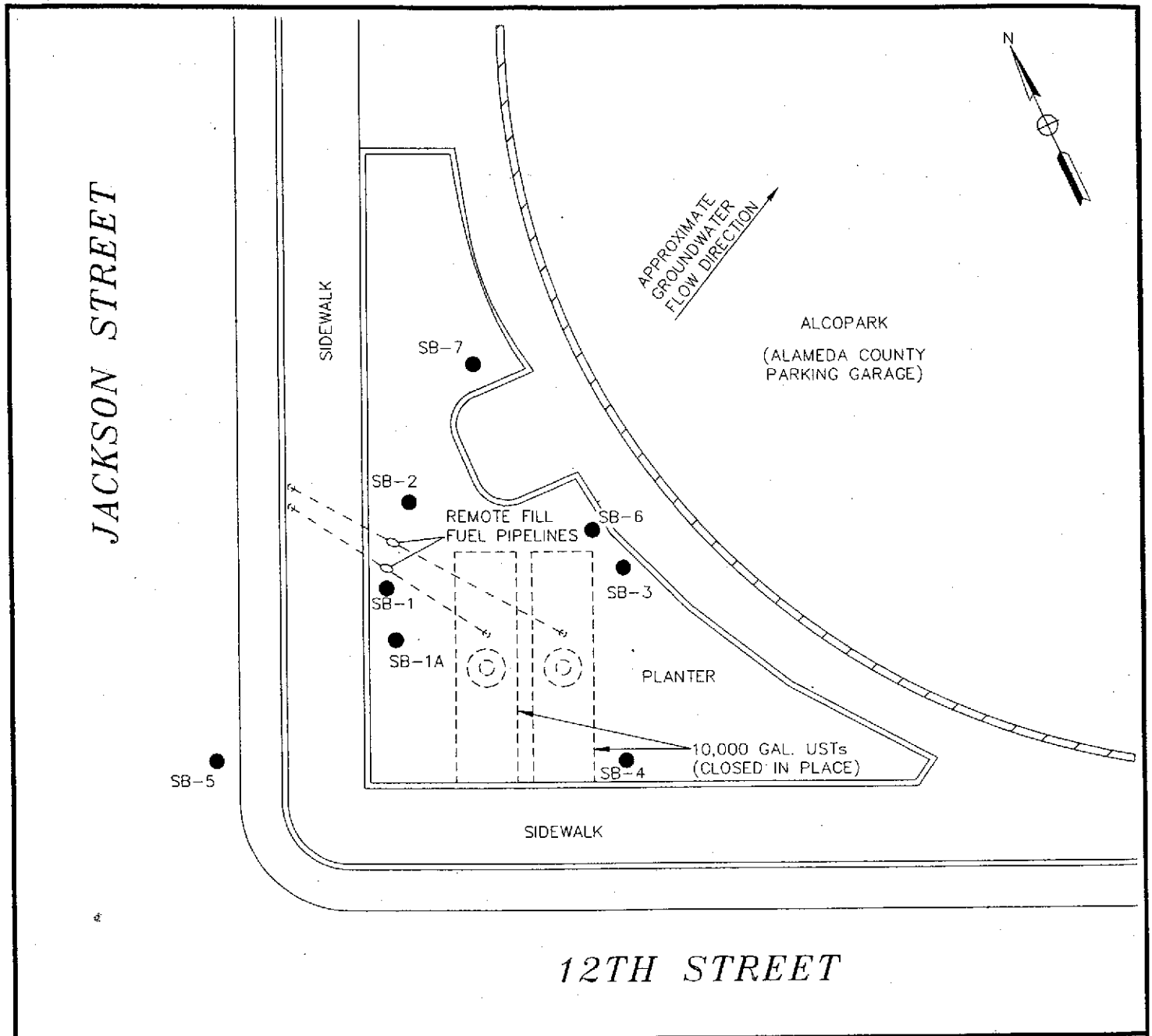
SCALE IN FEET

NOTE:
SITE MAP FROM ESE REPORT OF FINDINGS, DATED APRIL 19, 1993.

PSI ENVIRONMENTAL GEOTECHNICAL CONSTRUCTION
CONSULTING • ENGINEERING • TESTING

SITE PLAN
FORMER ALCOPARK FUELING FACILITY
12TH AND JACKSON STREETS
OAKLAND, CALIFORNIA
PROJECT NUMBER: 575-9G004

DATE: 1/21/99	CKD BY:	FIGURE NO.: 2
FILE NO: 9G004-2		DRAWN BY: S.BOWERS



LEGEND

SB-1 ● SOIL BORING

○ REMOTE FILL PORTS

0 10 20

SCALE IN FEET

NOTE:
SITE MAP FROM ESE REPORT OF FINDINGS, DATED APRIL 19, 1993.

psi ENVIRONMENTAL GEOTECHNICAL CONSTRUCTION
CONSULTING • ENGINEERING • TESTING

SITE PLAN
FORMER ALCOPARK FUELING FACILITY
12TH AND JACKSON STREETS
OAKLAND, CALIFORNIA
PROJECT NUMBER: 575-9G004

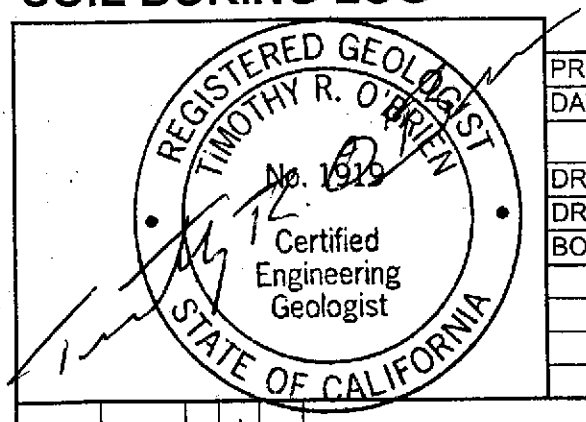
DATE: 1/21/99	CKD BY:	FIGURE NO.: 2
FILE NO: 9G004-2		DRAWN BY: S.BOWERS

TABLE 1-1
SUMMARY OF ANALYTICAL DATA
FORMER ALCOPARK FUELING FACILITY
12TH and JACKSON STREETS, OAKLAND, CA

					All concentrations in mg/kg (PPM).					
Soil Boring	Sample Depth	Date	Matrix	TPH-G	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	Lead
SB-1	15	10/27/92	Soil	<1	NA	0.019	0.019	0.011	0.042	NA
SB-1	21.5	10/27/92	Soil	6.3	NA	0.41	0.68	0.1	0.70	NA
SB-2	15	10/27/92	Soil	<1	NA	<0.005	<0.005	<0.005	<0.005	NA
SB-2	22	10/27/92	Soil	1.8	NA	0.21	0.19	0.034	0.20	NA
SB-3	15	10/28/92	Soil	<1	NA	<0.005	<0.005	<0.005	<0.005	NA
SB-3	22	10/28/92	Soil	<1	NA	<0.005	<0.005	<0.005	<0.005	NA
SB-4	15	10/28/92	Soil	<1	NA	<0.005	<0.005	<0.005	<0.005	NA
SB-4	22	10/28/92	Soil	<1	NA	<0.005	<0.005	<0.005	<0.005	NA
SB-5	25	2/10/99	Soil	<1	<0.005	<0.005	<0.005	<0.005	<0.005	NA
SB-6	25	2/10/99	Soil	<1	<0.005	0.047	0.022	0.024	0.026	<3.0
SB-7	25	2/10/99	Soil	<1	<0.005	<0.005	<0.005	<0.005	<0.005	NA
					All concentrations in mg/l (PPM).					
Soil Boring	Sample Depth	Date	Matrix	TPH-G	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	Lead
SB-1	NA	10/27/92	Groundwater	51	NA	2.4	9.4	1.4	8.4	NA
SB-2	NA	10/27/92	Groundwater	8.2	NA	0.56	0.93	0.36	0.62	NA
SB-3	NA	10/28/92	Groundwater	0.072	NA	0.00071	<0.0005	0.0005	0.0024	NA
SB-4	NA	10/28/92	Groundwater	<0.050	NA	<0.0005	<0.0005	<0.0005	<0.0005	NA
SB-5	25	2/10/99	Groundwater	<0.050	<0.005	0.00063	0.00076	<0.0005	0.00067	NA
SB-6	25	2/10/99	Groundwater	5.0	<0.015	0.58	0.58	0.16	0.87	NA
SB-7	25	2/10/99	Groundwater	<0.050	<0.005	<0.0005	0.0011	<0.0005	0.0020	NA

Notes:
TPH-G denotes Total Petroleum Hydrocarbons as Gasoline.
MTBE denotes Methyl Tert Butyl Ether.
mg/kg denotes milligrams per kilogram (ppm).
< denotes less than detection limit.
NA denotes Not Analyzed.
Sample Depth reported in feet below ground surface.
Data collected in 1992 from ESE Report of Findings dated April 19, 1993 prepared for Alameda GSA.

SOIL BORING LOG



BORING NO: SB-5	
SHEET 1 OF 2	
PROJECT NAME: Former Alcopark Fueling Stn.	PROJECT NO: 575-9G004
DATE: 2/10/99	
DRILLING COMPANY:	FISCH ENVIRONMENTAL
DRILLING METHOD:	DIRECT PUSH - GEOPROBE
BORING DIMENSIONS:	2 INCH DIAMETER DEPTH: 25 FT

GROUNDWATER LEVELS

DATE	COMMENTS	DEPTH BGS
2/10/99	INITIAL	25 FT
2/10/99	STABILIZED	8 FT

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
0					Sand with some silt, fine to medium grained sand, brown,		SP	Concrete pavement surface.
1					moist, no odor.			
2								
3								
4								
5		18				0		
6								
7								
8								
9								
10		20				0		
11								
12								
13								
14								
15		19			Silty sand, fine to medium grained sand, greenish-gray, moist,	0	SM	
16					no odor.			
17								
18								moisture increase to very moist.
19		19						
20						0		
					Log continues downward			

REVIEWED BY: TIM O'BRIEN

LOGGED BY: SCOTT A. BOWERS

SOIL BORING LOG

BORING NO:	SB-5
SHEET	2 OF 2
PROJECT NAME:	Former Alcopark Fueling Stn.
PROJECT NO:	575-9G004
DATE:	2/10/99
DRILLING COMPANY:	FISCH ENVIRONMENTAL
DRILLING METHOD:	DIRECT PUSH - GEOPROBE
BORING DIMENSIONS:	2 INCH DIAMETER
DEPTH:	25 FT

GROUNDWATER LEVELS

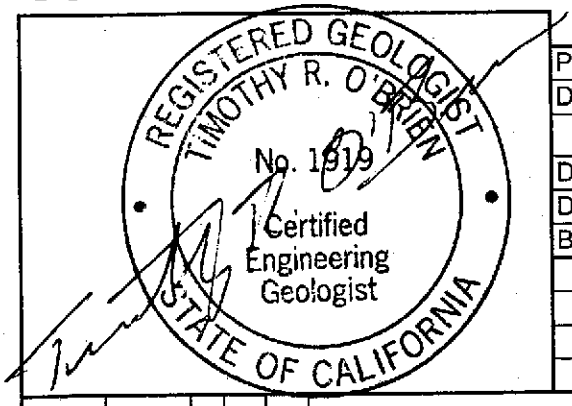
DATE	COMMENTS	DEPTH BGS

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
					Silty sand as described above.			
21								
22								
23								
24		24				0		
25								Groundwater encountered
								Total Depth = 25 feet.
26								Boring terminated at depth sufficient for investigation.
27								Groundwater encountered at 25 feet below ground surface.
28								Boring grouted with neat cement.
29								
30								
31								
32								
33								
34								
35								
36								
37								
38								
39								
40								

REVIEWED BY: TIM O'BRIEN

LOGGED BY: SCOTT A. BOWERS

SOIL BORING LOG



BORING NO:	SB-6
SHEET	1 OF 2
PROJECT NAME: Former Alcopark Fueling Stn.	PROJECT NO: 575-9G004
DATE: 2/10/99	
DRILLING COMPANY:	FISCH ENVIRONMENTAL
DRILLING METHOD:	DIRECT PUSH - GEOPROBE
BORING DIMENSIONS:	2 INCH DIAMETER DEPTH: 25 FT

GROUNDWATER LEVELS

DATE	COMMENTS	DEPTH BGS
2/10/99	INITIAL	25 FT
2/10/99	STABILIZED	18 FT

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
0					Sand with some silt, fine to medium grained sand, brown,		SP	Soil surface.
1					moist, no odor.			
2								
3								
4								
5		20				0		
6								
7								
8								
9								
10		24				0		
11								
12								
13								
14								
15		21			Silty sand, fine to medium grained sand, greenish-gray, moist,	0	SM	
16					no odor.			
17								
18								moisture increase to very moist.
19		20						
20						0		
					Log continues downward			

REVIEWED BY: TIM O'BRIEN

LOGGED BY: SCOTT A. BOWERS

SOIL BORING LOG

BORING NO:	SB-6
SHEET	2 OF 2
PROJECT NAME:	Former Alcopark Fueling Stn.
PROJECT NO:	575-9G004
DATE:	2/10/99
DRILLING COMPANY:	FISCH ENVIRONMENTAL
DRILLING METHOD:	DIRECT PUSH - GEOPROBE
BORING DIMENSIONS:	2 INCH DIAMETER
DEPTH:	25 FT

GROUNDWATER LEVELS

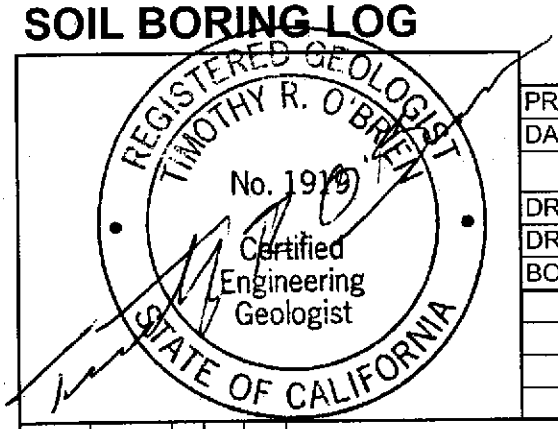
DATE	COMMENTS	DEPTH BGS

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
					Silty sand as described above.			
21								
22								
23								
24		24				0		
25								Groundwater encountered
26								Total Depth = 25 feet.
27								Boring terminated at depth sufficient for investigation.
28								Groundwater encountered at 25 feet below ground surface.
29								Boring grouted with neat cement.
30								
31								
32								
33								
34								
35								
36								
37								
38								
39								
40								

REVIEWED BY: TIM O'BRIEN

LOGGED BY: SCOTT A. BOWERS

SOIL BORING LOG



BORING NO: SB-7	
SHEET 1 OF 2	
PROJECT NAME: Former Alcopark Fueling Stn.	PROJECT NO: 575-9G004
DATE 2/10/99	
DRILLING COMPANY:	FISCH ENVIRONMENTAL
DRILLING METHOD:	DIRECT PUSH - GEOPROBE
BORING DIMENSIONS: 2 INCH DIAMETER	DEPTH: 25 FT

GROUNDWATER LEVELS

DATE	COMMENTS	DEPTH BGS
2/10/99	INITIAL	25 FT
2/10/99	STABILIZED	17 FT

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
0					Sand with some silt, fine to medium grained sand, brown, moist, no odor.		SP	Soil surface.
5		18				0		
10		20				0		
15		19			Silty sand, fine to medium grained sand, greenish-gray, moist, no odor.	0	SM	
18								moisture increase to very moist.
19		19						
20						0		
					Log continues downward			

REVIEWED BY: TIM O'BRIEN

LOGGED BY: SCOTT A. BOWERS

SOIL BORING LOG

BORING NO:	SB-7
SHEET	2 OF 2
PROJECT NAME:	Former Alcopark Fueling Stn.
PROJECT NO:	575-9G004
DATE	2/10/99
DRILLING COMPANY:	FISCH ENVIRONMENTAL
DRILLING METHOD:	DIRECT PUSH - GEOPROBE
BORING DIMENSIONS:	2 INCH DIAMETER
DEPTH:	25 FT

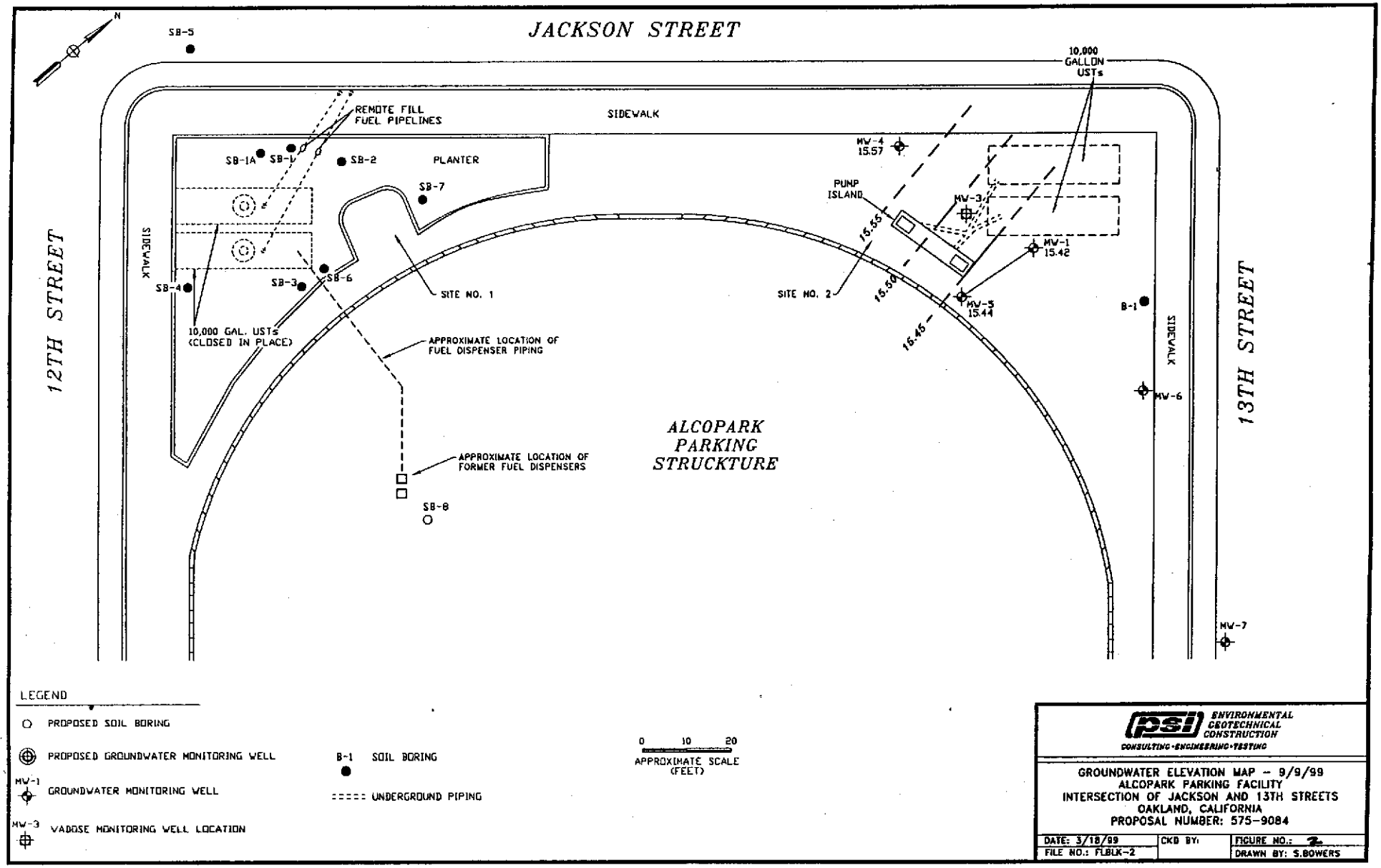
GROUNDWATER LEVELS

DATE	COMMENTS	DEPTH BGS

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
					Silty sand as described above.			
21								
22								
23								
24		24				0		
25								Groundwater encountered
								Total Depth = 25 feet.
26								Boring terminated at depth sufficient for investigation.
27								Groundwater encountered at 25 feet below ground surface.
28								Boring grouted with neat cement.
29								
30								
31								
32								
33								
34								
35								
36								
37								
38								
39								
40								

REVIEWED BY: TIM O'BRIEN

LOGGED BY: SCOTT A. BOWERS



psi ENVIRONMENTAL GEOTECHNICAL CONSTRUCTION
CONSULTING · ENGINEERING · TESTING

GROUNDWATER ELEVATION MAP – 9/9/99
ALCOPARK PARKING FACILITY
INTERSECTION OF JACKSON AND 13TH STREETS
OAKLAND, CALIFORNIA
PROPOSAL NUMBER: 575-9084

DATE: 3/18/99	CKD BY:	FIGURE NO.: 2
FILE NO.: FLBLK-2		DRAWN BY: S.BOWERS

TABLE 1
SUMMARY OF ANALYTICAL DATA, SITE NO. 1
FORMER ALCOPARK FUELING FACILITY
12TH and JACKSON STREETS, OAKLAND, CA

					All concentrations in mg/kg (PPM).					
Soil Boring	Sample Depth	Date	Matrix	TPH-G	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	Lead
SB-1	15	10/27/92	Soil	<1	NA	0.019	0.019	0.011	0.042	NA
SB-1	21.5	10/27/92	Soil	6.3	NA	0.41	0.68	0.1	0.70	NA
SB-2	15	10/27/92	Soil	<1	NA	<0.005	<0.005	<0.005	<0.005	NA
SB-2	22	10/27/92	Soil	1.8	NA	0.21	0.19	0.034	0.20	NA
SB-3	15	10/28/92	Soil	<1	NA	<0.005	<0.005	<0.005	<0.005	NA
SB-3	22	10/28/92	Soil	<1	NA	<0.005	<0.005	<0.005	<0.005	NA
SB-4	15	10/28/92	Soil	<1	NA	<0.005	<0.005	<0.005	<0.005	NA
SB-4	22	10/28/92	Soil	<1	NA	<0.005	<0.005	<0.005	<0.005	NA
SB-5	25	2/10/99	Soil	<1	<0.005	<0.005	<0.005	<0.005	<0.005	NA
SB-6	25	2/10/99	Soil	<1	<0.005	0.047	0.022	0.024	0.026	<3.0
SB-7	25	2/10/99	Soil	<1	<0.005	<0.005	<0.005	<0.005	<0.005	NA
SB-8*	6	9/3/99	Soil	<1	<0.005	<0.005	<0.005	<0.005	<0.005	NA
					All concentrations in mg/l (PPM).					
Soil Boring	Sample Depth	Date	Matrix	TPH-G	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	Lead
SB-1	NA	10/27/92	Groundwater	51	NA	2.4	9.4	1.4	8.4	NA
SB-2	NA	10/27/92	Groundwater	8.2	NA	0.56	0.93	0.36	0.62	NA
SB-3	NA	10/28/92	Groundwater	0.072	NA	0.00071	<0.0005	0.0005	0.0024	NA
SB-4	NA	10/28/92	Groundwater	<0.050	NA	<0.0005	<0.0005	<0.0005	<0.0005	NA
SB-5	25	2/10/99	Groundwater	<0.050	<0.005	0.00063	0.00076	<0.0005	0.00067	NA
SB-6	25	2/10/99	Groundwater	5.0	<0.015	0.58	0.58	0.16	0.87	NA
SB-7	25	2/10/99	Groundwater	<0.050	<0.005	<0.0005	0.0011	<0.0005	0.002	NA
SB-8*	7	9/3/99	Groundwater	<0.050	<0.001	<0.001	<0.001	<0.001	<0.001	NA

Notes:
TPH-G denotes Total Petroleum Hydrocarbons as Gasoline.
MTBE denotes Methyl Tert Butyl Ether.
mg/kg denotes milligrams per kilogram (ppm).
< denotes less than detection limit.
NA denotes Not Analyzed.
Sample Depth reported in feet below ground surface. Sample SB-8 collected inside Alcopark basement garage.
Data collected in 1992 from ESE Report of Findings dated April 19, 1993 prepared for Alameda GSA.

TABLE 3
SUMMARY OF SOIL SAMPLE ANALYTICAL DATA, SITE NO. 2
ALCOPARK FUELING FACILITY
OAKLAND, CALIFORNIA

		All concentrations in ug/kg (PPB).					
Boring Name	Date	TPH-G	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes
B-1-14'	3/23/98	ND (1,000)	ND (50)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)
B-2-14'	3/23/98	ND (1,000)	ND (50)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)
B-7-18	9/3/99	ND (1,000)	ND (50)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)

Notes:
TPH-G denotes Total Petroleum Hydrocarbons as Gasoline
MTBE denotes Methyl tert-Butyl Ether
ND denotes not detected (detection limit shown in parentheses).
Boring B-1 grouted, Well MW-6 constructed in Boring B-2, Well MW-7 constructed in Boring B-7.

SOIL BORING LOG

BORING NO:	B-7
SHEET 1 OF 2	
PROJECT NAME: Alcopark Site No. 2	PROJECT NO: 575-9G028
DATE 9/3/99	
DRILLING COMPANY:	FISCH ENVIRONMENTAL
DRILLING METHOD:	DIRECT PUSH - GEOPROBE
BORING DIMENSIONS: 2 INCH DIAMETER	DEPTH: 24 ft.

GROUNDWATER LEVELS

DATE	COMMENTS	DEPTH BGS
9/3/99	initial	18.0
9/3/99	stabilized	16.9

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
					Sand with some silt, fine to medium grained sand, brown,		SP	Concrete Surface
1					moist, no odor.			
2								
3								
4								
5		16				0		
6								
7								
8								Color change to green.
9								
10		18				0		
11								
12								
13								
14								
15		20				0		
16								
17								
18								groundwater encountered.
19		19						
20						0		
					Log continues downward			

LOGGED BY: Chris Merritt

SOIL BORING LOG

BORING NO:	B-7
SHEET 2	OF 2
PROJECT NAME: Alcopark Site No. 2	PROJECT NO: 575-9G028
DATE 9/3/99	
DRILLING COMPANY:	FISCH ENVIRONMENTAL
DRILLING METHOD:	DIRECT PUSH - GEOPROBE
BORING DIMENSIONS:	2 INCH DIAMETER DEPTH: 24 FT

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
					Silty sand as described above.		SP	
21								
22								
23								
		24						
24						0		Groundwater encountered at 18 feet.
25								Total Depth = 24 feet.
								Boring terminated at depth sufficient for
26								well installation.
								Well MW-7 installed in boring.
27								
28								
29								
30								
31								
32								
33								
34								
35								
36								
37								
38								
39								
40								

LOGGED BY: Chris Merritt

SOIL BORING LOG

BORING NO:	SB-8
SHEET	1 OF 1
PROJECT NAME:	Alcopark Site No. 1
PROJECT NO:	575-9G028
DATE	9/3/99
DRILLING COMPANY:	PSI
DRILLING METHOD:	Hand Auger
BORING DIMENSIONS:	2.5 inch hand auger
DEPTH:	8 ft.

GROUNDWATER LEVELS

DATE	COMMENTS	DEPTH BGS
9/3/99	Initial	7.0
9/3/99	stabilized	7.0

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
1					Sand with some silt, fine to medium grained sand, brown, moist, no odor.		SP	Concrete Surface
2								
3						0		PID from soil cuttings.
4								
5						0		PID from soil cuttings.
6								
7		6				0		groundwater encountered.
8								Total depth = 8 feet.
9								Boring terminated at depth sufficient for investigation.
10								Boring grouted with neat cement and capped with 8-10 inches of concrete.
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

LOGGED BY: Chris Merritt

MONITORING WELL CONSTRUCTION DATA

WELL/BORING NO: B7/MW7

PERMIT NO:

DATE: 9/3/99 | PROJECT NAME: Alcopark Site #2 | PROJECT NO: 96028

WELL SITE LOCATION PLAN:

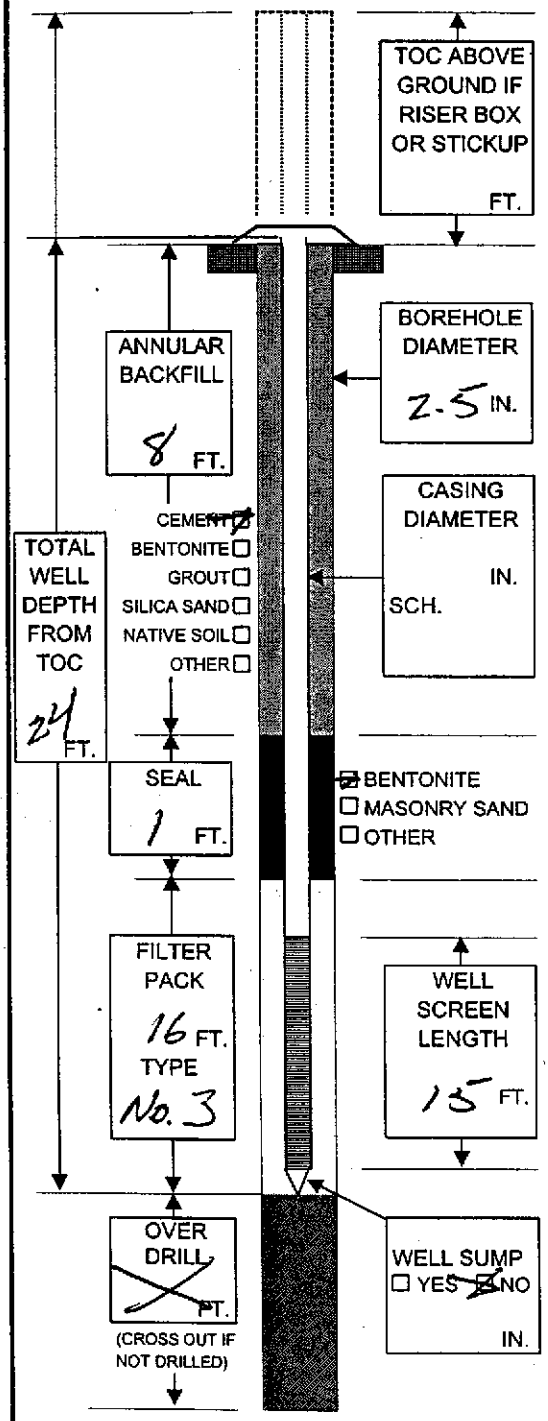
SEC: TWN: RGE: LAT: LONG:

DRILLING CO: Fisch Environmental

DRILL CREW: Dave Fisch

WELL TYPE: ☐ SHALLOW ☐ SINGLE CASED ☒ MONITORING
☐ PERMANENT ☐ INTERMEDIATE ☐ DOUBLE CASED ☐ RECOVERY
☐ TEMPORARY ☐ DEEP ☐ OTHER ☐ OTHER

WELL SCHEMATIC



INSTALLATION DATA

DECON. ☐ STEAM CLEAN ☒ HIGH PRESSURE WASH ☐ SOAP WASH ☐ OTHER

CASING TYPE: ☒ PVC ☐ STAINLESS ☐ TEFLON ☐ OTHER
JOINTS: ☐ THREADED ☐ WELDED ☐ COUPLED ☐ SCREWED ☒ OTHER Prepack
PIT CASING: ☐ YES ☐ NO ☐ DESCRIBE

WELL SCREEN: ☒ PVC ☐ STAINLESS ☐ TEFLON ☐ OTHER
DIAMETER: ☐ 2" ☐ 4" ☐ 6" ☐ OTHER ____ IN
SLOT: ☒ 0.010 ☐ 0.020 ☐ OTHER ____ IN

DRILLING METHOD: ☐ SOLID STEM ☐ HOLLOW STEM ☐ MUD ROTARY ☐ AIR ROTARY ☒ DIRECT PUSH ☐ HAND AUGER ☐ OTHER
BIT SIZE: ☒ 2.5 ☐ 4" ☐ 6" ☐ 8" ☐ 12" ☐ OTHER ____ IN
DRILLING MUD: ☒ NONE ☐ WATER ☐ BENTONITE ☐ OTHER
CENTRALIZER: ☐ YES ☒ NO

COMPLETION: ☒ FLUSH MOUNT ☐ STICKUP ☐ RISER BOX
LOCK TYPE: ☒ DOLPHIN ☐ MASTER KEY NO. ☐ OTHER
PAD: ☐ 2'X2' ☐ 4'X4' ☐ OTHER

CUTTINGS: ☐ DRUMMED NUMBER OF DRUMS ☐ SPREAD ☒ OTHER None generated

DEVELOPMENT METHOD: ☐ NONE ☒ BAILING ☐ PUMPING ☐ AIR LIFT ☐ SURGE & BLOCK ☐ OTHER
TIME: ☐ 10 MIN ☐ 20 MIN ☒ OTHER 30 MIN
AMOUNT: ☐ 5 GAL ☐ 10 GAL ☐ OTHER ____ GAL
WATER BEFORE: ☐ SILTY ☐ TURBID ☐ OPAQUE ☐ CLEAR
WATER AFTER: ☐ SILTY ☐ TURBID ☐ OPAQUE ☐ CLEAR
EVIDENT ODOR: ☐ YES ☐ NO TYPE

DEVELOPMENT WATER: ☐ DRUMMED NUMBER OF DRUMS ☐ SPREAD ☐ TREATED ☐ POTW ☐ OTHER

WATER LEVEL: INITIAL ____ FT ☐ BTOC ☐ BGS

DATE: ____ ____ FT BELOW TOC

DATE: ____ ____ FT BELOW TOC

NOTES: (DESCRIBE ALL NON-STANDARD METHODS & MATERIALS)

PSI
Rev. 12/95

PREPARED BY: Chris Merritt