Logs #'s 293396A, 293397A, 293398A, 293453A, 293452A

Corporate Offices 41674 Christy Street, Fremont, CA 94538-3114 (415) 659-0404 Fax: (415) 651-4677 Contr. Lic. No. 550205

ensco environmental services, inc.
a subsidiary of environmental system company

February 2, 1989

Chevron U.S.A., Inc.
2410 Camino Ramon
San Ramon, CA 94583

Add'l Info

Attn: Ms. Lisa Marinaro

Re: Ground-Water Monitoring Well Abandonment
Former Chevron Service Station #9-3676
4300 MacArthur Boulevard, Oakland, California
EES Project No. 1876G

Dear Ms. Marinaro:

Per your request, the well abandonment portion of Phase II of our soil and ground-water invesigation at the above referenced site in Oakland, California took place on January 30 and 31, 1989. Phase II consists of abandoning ground-water monitoring wells MW-1 through MW-5 and installing two replacement monitoring wells. The abandonment was conducted under Permit Number 88621 in accordance with the Alameda County Flood Control and Water Conservation District, Zone 7, Ground-Water Protection Ordinance.

The abandonment of the wells was accomplished by drilling out the well and backfilling the boring with grout. The PVC casing, surface and strata seals, and filter pack were drilled out using 10-inch O.D. continuous flight hollow-stem augers. After removing the augers, a tremie pipe was lowered to the bottom of the boring. The pipe was then raised a few feet at a time while neat cement grout was pumped into the boring. Pumping continued until the water occupying the boring was displaced and grout was observed at the surface.

The well replacement portion of Phase II will be conducted when the site has been graded and well completion elevations can be determined.

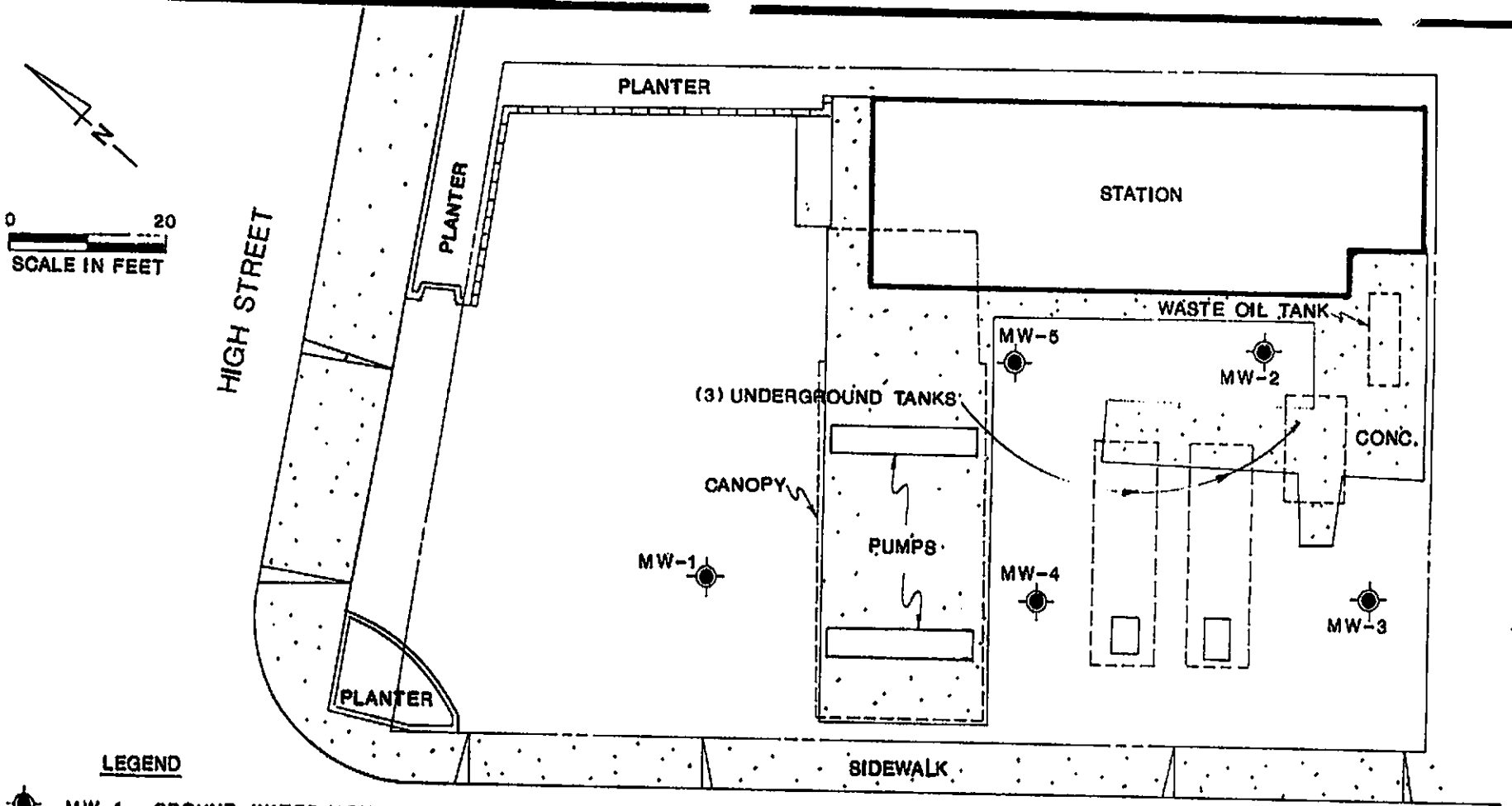
Enclosed please find a copy of the well abandonment permit. If you have any questions, please call our office.

Very truly yours,
Ensco Environmental Services, Inc.

Britt Von Thaden
Staff Geologist

Lawrence D. Pavlak, C.E.G. 1187
Senior Program Geologist

BVT/LDP/sd
Enclosure



onsco environmental services, inc.

SITE PLAN

CHEVRON SERVICES STATION NO. 9-3676

4300 MACARTHUR BOULEVARD

OAKLAND, CALIFORNIA

REVIEWED BY:	APPROVED BY:
JOB #: 1876G	DRAWN BY: J.C.
DATE: 10-31-88	DRAWING #: FIG. 1

29339A / 29339A / 29339A / 29339A

293396, 293397, 293398, 293453, 293452

Corporate Offices 41674 Christy Street, Fremont, CA 94538-3114 (415) 659-0404 Fax: (415) 651-4677 Contr. Lic. No. 464324

2S 3W 16 J-5

ensco environmental services, inc.

November 18, 1988

RECEIVED
NOV 21 1988
ZONE 7, ACFCWCD

Alameda County Flood Control & Water Conservation District
Zone 7
5997 Parkside Drive
Pleasanton, CA 94566

Attn: Mr. Wyman Hong

Re: Department of Water Resources
Water Well Drillers Report

Dear Mr. Hong:

Enclosed please find the State of California Department of Water Resources Water Well Drillers Report for each well which was installed at the Chevron Service Station #9-3676 located at 4300 MacArthur Boulevard in Oakland, California. Five ground-water monitoring wells were installed under permit number 88511 on the dates October 10-12, 1988.

If you have any questions, please call our office.

Sincerely,
Ensco Environmental Services, Inc.

Britt Von Thaden

Britt Von Thaden
Staff Geologist

293396A 293453A
293397A 293454A
293398A

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE ♦ PLEASANTON, CALIFORNIA 94566 ♦ (415) 484-2600

GROUNDWATER PROTECTION ORDINANCE PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

(1) LOCATION OF PROJECT 4300 MacArthur Blvd
OAKland, CAlifornia

(2) CLIENT
Name CHEVRON USA, INC.
Address 2410 CAMINO RAMON Phone 415-842-9527
City SAN RAMON, CA Zip 94583

(3) APPLICANT
Name ENSCO Environmental Services, Inc.
Address 41674 Christy St Phone 415-659-0404
City Fremont, CA Zip 94538-3114

(4) DESCRIPTION OF PROJECT
Water Well Construction ___ Geotechnical ___
Cathodic Protection ___ Well Destruction X

(5) PROPOSED WATER WELL USE
Domestic ___ Industrial ___ Irrigation ___
Municipal ___ Monitoring ___ Other ___

(6) PROPOSED CONSTRUCTION
Drilling Method:
Mud Rotary ___ Air Rotary ___ Auger X (Hollow stem)
Cable ___ Other ___

WELL PROJECTS physical property of wells
Drill Hole Diameter 8 in. Depth(s) 25 ft.
Casing Diameter 4 in. Number
Surface Seal Depth 13 ft. of Wells 5
Driller's License No. ~~550205~~ 550205

GEOTECHNICAL PROJECTS
Number ___
Diameter ___ in. Maximum Depth ___ ft.

(7) ESTIMATED STARTING DATE 1/3/88
ESTIMATED COMPLETION DATE 1/4/88

(8) I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.
on behalf of chevron U.S.A. INC.
APPLICANT'S SIGNATURE Mary R. Mulkey Date 12/21/88

FOR OFFICE USE

PERMIT NUMBER 88621
LOCATION NUMBER 2S/3W 4G80 to 4G84

Approved Todd N. Wendler Date 22 Dec 88
Todd N. Wendler

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Notify this office (484-2600) at least one day prior to starting work on permitted work and before placing well seals.
3. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or bore hole logs and location sketch for geotechnical projects. Permitted work is completed when the last surface seal is placed or the last boring is completed.
4. Permit is void if project not begun within 90 days of approval date.

B. WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie, or equivalent.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic, irrigation, and monitoring wells unless a lesser depth is specially approved.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie, or equivalent.

(E) WELL DESTRUCTION. See attached.

91987

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

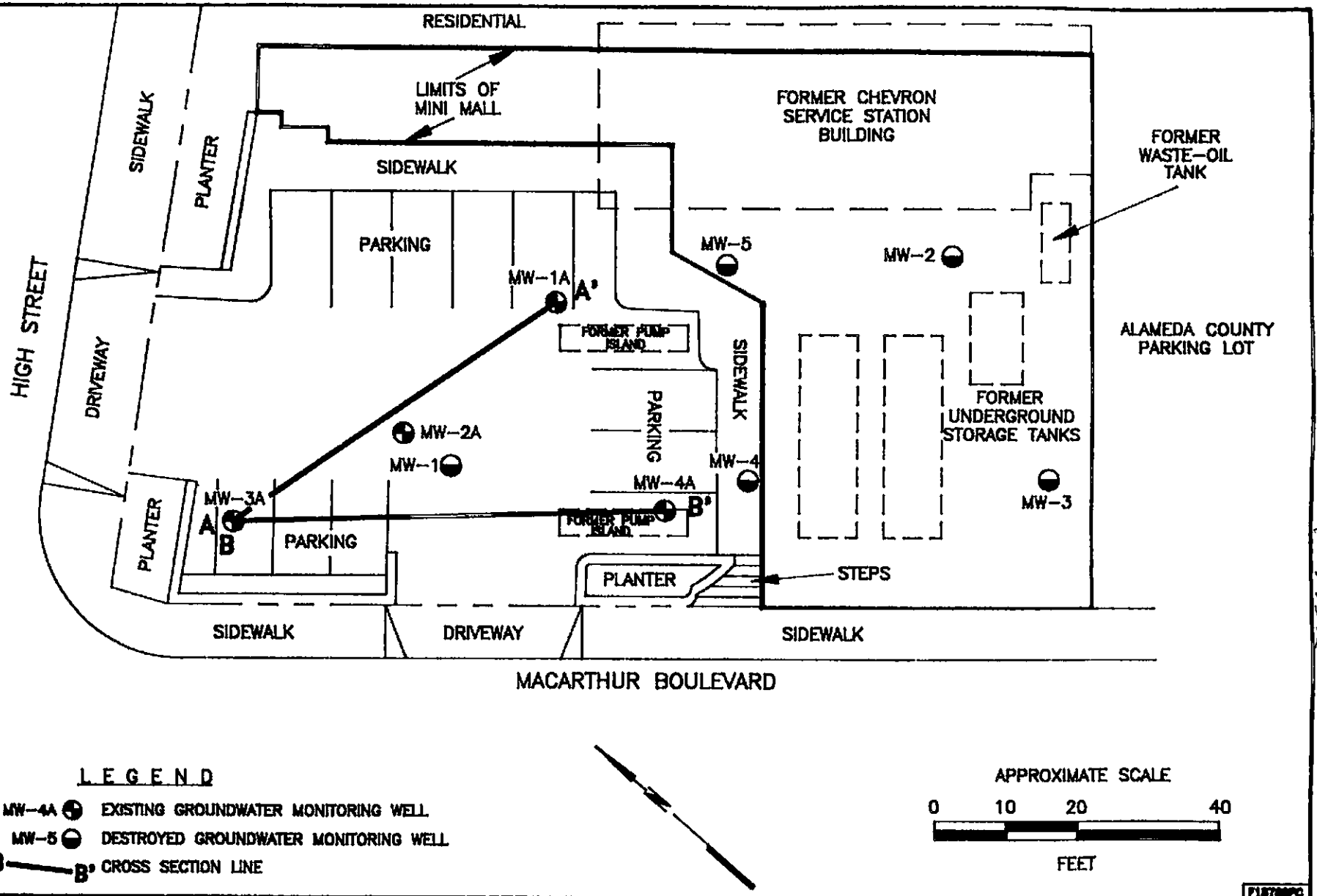


PLATE	SITE PLAN/GEOLOGIC CROSS SECTION LOCATIONS	RESNA
2	FORMER CHEVRON SERVICE STATION NO. 9-3676	
	4300 MACARTHUR BOULEVARD	
	OAKLAND, CALIFORNIA	PROJECT NO. F1876.01

4044432

25/30449

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

404432 02S03W04G09

Total depth of boring: 26-1/2 feet
Diameter of boring: 8 inches
Date drilled: 12-29-92
Drilling Company: Spectrum Exploration
Driller: Mike Young and Bob Duvall
Drilling method: Hollow-Stem Auger
Field Geologist: Robin Barber

Casing diameter: 2 inches
Casing material: Sch 40 PVC
Slot size: 0.020-inch
Sand size: No. 2/12 Sand
Blank casing from 0 feet to 12 feet
Perforated casing from 12 feet to 20 feet
Annular seal from 0 feet to 10 feet
Bentonite plug from 10 feet to 11 feet
Sand pack from 11 feet to 20 feet

Depth	Sample No.	Blows	OVM	USCS Code	Description	Well Const.
					Fill: silty gravel.	
2				CL	Silty clay with 10% fine- to coarse-grained sand, angular, yellow-brown, medium plasticity, moist.	
4						
6	S-5.5	7 16 24	50		15% gravel to 1 cm, 10% medium- to coarse-grained sand, gray with red-brown mottling, medium plasticity, hard.	
8						
10	S-10.5	7 8 12	1914		Decrease in sand to 5%, yellow-brown with light gray mottling, very stiff.	
12						
14						
16	S-15.5	5 7 12	36		Sandy clay, 40% fine- to medium-grained sand, poorly sorted, angular, light yellow-brown, low plasticity, stiff, wet.	
18				SC	Clayey sand, medium- to coarse-grained sand, poorly sorted, angular, yellow-brown, medium dense, moist.	
20		7 8 9		CL	Sandy clay, 40% fine- to medium-grained sand, poorly sorted, very angular, light yellow-brown, low plasticity, stiff, moist.	
22						
24					Silty clay, 5-10% fine sand, yellow-brown, medium plasticity, very stiff, damp.	
26		5 10 11			Total Depth = 26-1/2 feet.	
28						
30						
32						
34						
36						
38						
40						

RESNA

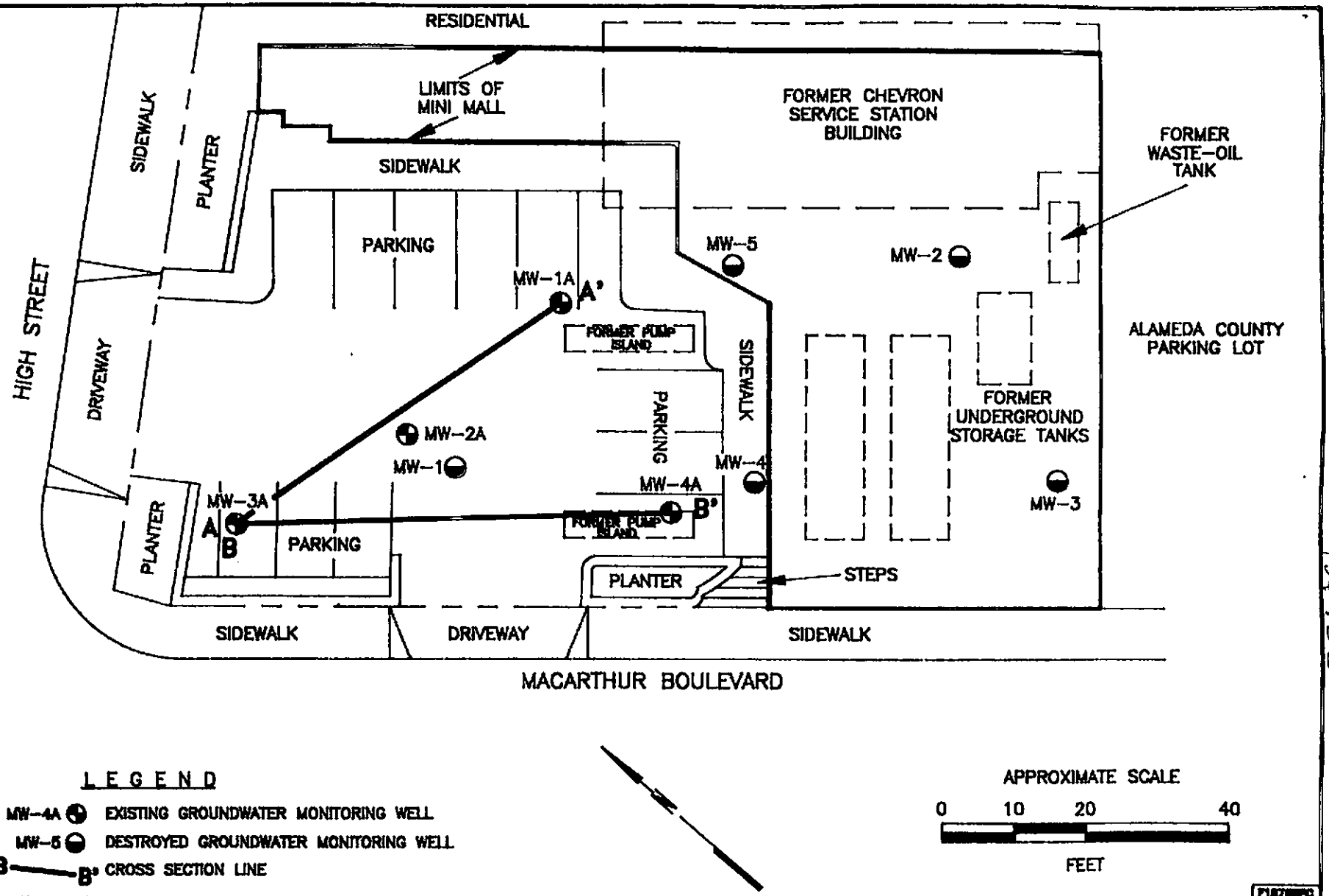
LOG OF BORING FOR MW-3A

FORMER CHEVRON SERVICE STATION NO. 9-3676

4300 MACARTHUR BOULEVARD

OAKLAND, CALIFORNIA

PROJECT NO. F1876.01



LEGEND

MW-4A EXISTING GROUNDWATER MONITORING WELL

MW-5 DESTROYED GROUNDWATER MONITORING WELL

B—B' CROSS SECTION LINE

APPROXIMATE SCALE

0 10 20 40

FEET

PLATE	SITE PLAN/GEOLOGIC CROSS SECTION LOCATIONS	RESNA
2	FORMER CHEVRON SERVICE STATION NO. 9-3676	
	4300 MACARTHUR BOULEVARD	
	OAKLAND, CALIFORNIA	PROJECT NO. F1876.01

4044433

29/4W3E

404433 025030049608

Total depth of boring: 21-1/2 feet
Diameter of boring: 8 inches
Date drilled: 12-29-92
Drilling Company: Spectrum Exploration
Driller: Mike Young and Bob Duvall
Drilling method: Hollow-Stem Auger
Field Geologist: Robin Barber

Casing diameter: 2 inches
Casing material: Sch 40 PVC
Slot size: 0.020-inch
Sand size: No. 2/12 Sand
Blank casing from 0 feet to 13 feet
Perforated casing from 13 feet to 20 feet
Annular seal from 0 feet to 10 feet
Bentonite plug from 10 feet to 11 feet
Sand pack from 11 feet to 20 feet

Depth	Sample No.	Blows	OVM	USCS Code	Description	Well Const.
0					Fill: gravel baserock up to 4 cm.	
4				CL	Silty clay with 15% fine- to coarse-grained sand, brown, medium plasticity, damp.	
6	S-5.5	3 5 6	306	ML	Clayey silt with 10% fine- to coarse-grained sand, brown with light gray mottling, stiff, damp.	
8				CL	Silty clay with 20-30% fine- to medium-grained sand, light gray, very stiff, damp.	
10	S-10.5	5 13 17	1700	SC	Clayey sand with 10% gravel, 70% fine- to coarse-grained sand, medium gray with dark gray mottling, medium dense, damp.	
14				CL	Silty clay with 10% gravel to 2 cm and 5% fine-grained sand, medium gray with brown mottling, medium plasticity, stiff, damp.	
16	S-15.5	5 13 15	0	SM	Silty sand, 80% fine- to medium-grained sand, trace clay, gray-brown medium dense, wet.	
20		5 13 20		CL	Silty clay with 20% fine- to coarse-grained sand, trace gravel, subangular, poorly sorted, yellow-brown, medium to high plasticity, very stiff, damp.	
22					Total Depth = 21-1/2 feet.	

RESNA

LOG OF BORING FOR MW-4A

FORMER CHEVRON SERVICE STATION NO. 9-3676

4300 MACARTHUR BOULEVARD

OAKLAND, CALIFORNIA

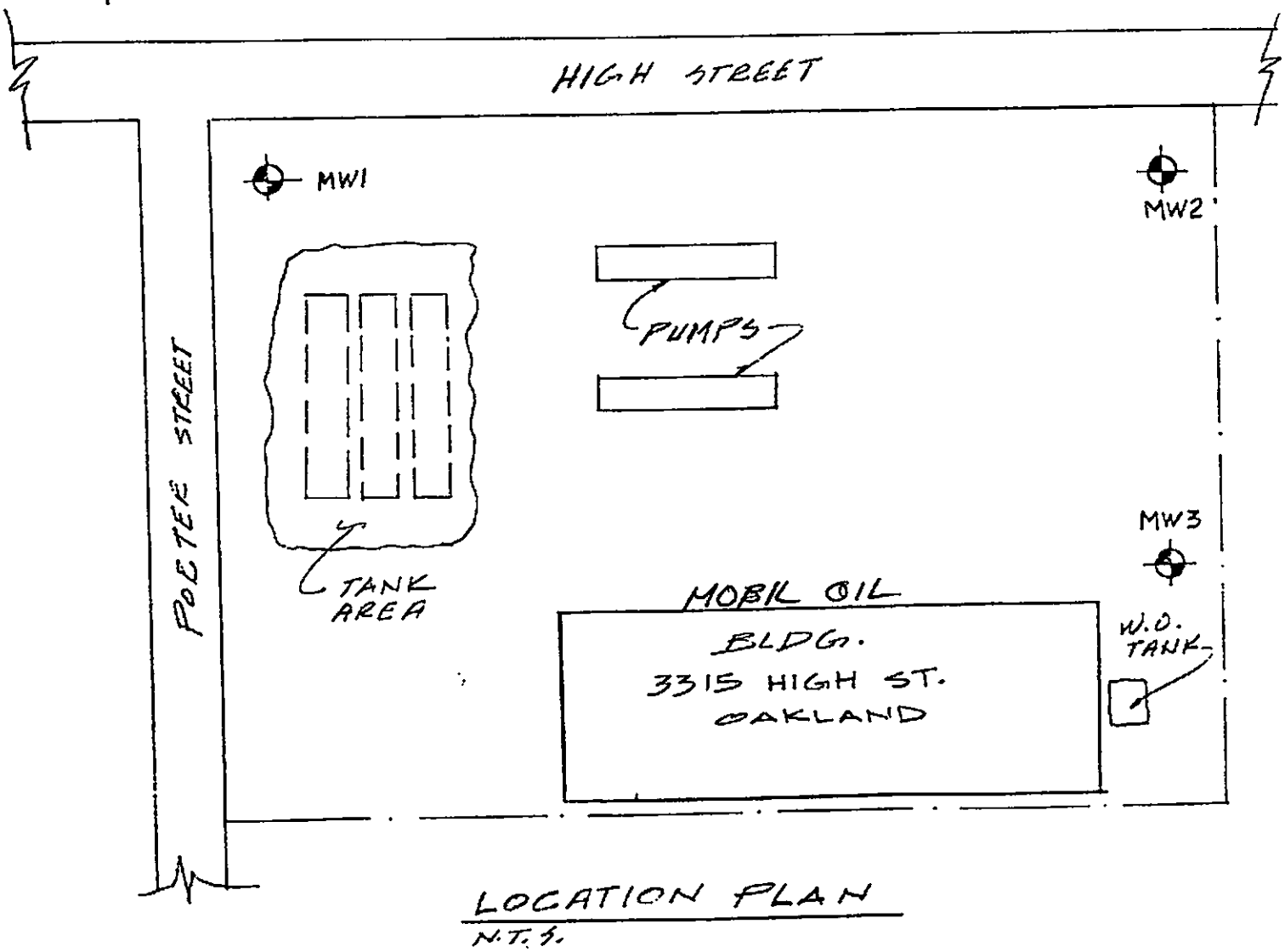
PROJECT NO. F1876.01

PERMIT # 86210 INVV ADV 01-177A

25/3W 4K1-3

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
535 Main Street
Martinez, Ca. 94553
(415) 372-5444

OAKLAND



LOCATION PLAN
N.T.S.

⊕ MW (MONITORING WELL)

DRILLER: EXPLORATION DRILLING SERVICES SAN JOSE

6210 IN. ✓ AD. ✓ 01-177 A 25/3W4K1

DRILL RIG Hollow Stem	SURFACE ELEVATION -----	LOGGED BY JCW
DEPTH TO GROUNDWATER As noted	BORING DIAMETER 8"	DATE DRILLED 7/29/86

DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE	DEPTH (FEET)	SAMPLER	UNCONFINED COMPRESSIVE STRENGTH (KSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT.)
ASPHALT, BASE ROCK AND FILL									
SILTY CLAY with rock fragments; dry	tan	stiff	CL						
Cobbles; damp				5					
Grading to clayey gravel; damp	tan to brown		CL GC	10			▽		
GRAVELLY CLAY, with some fine sand; damp to moist No product odor	tan to light brown	stiff	CL	15					
Increasing clay at 17 feet, moist; no product odor				20					

HAZARDOUS MATERIALS MITIGATION PROFESSIONALS, INC.

1450 Koll Circle, Suite 114, San Jose, CA 95112
Telephone: (408) 286-7868

EXPLORATORY BORING LOG

MOBIL OIL CORPORATION
3316 HIGH STREET, OAKLAND

PROJECT NO.	DATE	BORING NO.
H182-21	8/86	MW-1

01-177A

#86210

25/3W4K1

DRILL RIG Hollow Stem	SURFACE ELEVATION ----	LOGGED BY JCW
DEPTH TO GROUNDWATER As Noted	BORING DIAMETER 8"	DATE DRILLED 7/29/86

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	UNCONFINED COMPRESSIVE STRENGTH (KSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT.)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
GRAVELLY CLAY (CONTD)	light brown	stiff to very stiff	CL				▽		
CLAYEY GRAVEL; wet, no product odor	light brown	dense	GC	25					
				30					
CLAYEY SAND; grading to sandy clay	light brown	medium dense	SC						
				35					
TOTAL DEPTH = 35.0 feet									

HAZARDOUS MATERIALS MITIGATION PROFESSIONALS, INC.

1450 Koll Circle, Suite 114, San Jose, CA 95112
Telephone: (408) 286-7868

EXPLORATORY BORING LOG

MOBIL OIL CORPORATION
3315 HIGH STREET, OAKLAND

PROJECT NO.	DATE	BORING NO.
H182-21	8/86	MW-1

01-177A
2S/3W4K1

#86210

MOBIL OIL CORPORATION

OAKLAND, CALIFORNIA

MW-1

Well completed to 35.0 feet in depth with 2-inch Class 160 PVC casing, flush-threaded joints. Screen (.020-inch slot) set from 7.0 to 35.0 feet. 6 X 12 Monterey sand placed from 5.5 to 35.0 feet, bentonite pellets placed from 5.0 to 5.5 feet, and concrete seal placed from 0 to 5.0 feet.

01-177B

#86210

2S/3W7K2

MOBIL OIL CORPORATION

OAKLAND, CALIFORNIA

MW-2

Well completed to 30.0 feet in depth with 2-inch Class 160 PVC casing, flush-threaded joints. Screen (.020-inch slot) set from 7.0 to 30.0 feet. 6 X 12 Monterey sand placed from 5.0 to 30.0 feet, bentonite pellets placed from 4.5 to 5.0 feet, and concrete seal placed from 0 to 4.5 feet.

#86210 INV. ✓ AD. ✓ 01-177 B 2S/3W4K2

DRILL RIG Hollow Stem	SURFACE ELEVATION ---	LOGGED BY JCW
DEPTH TO GROUNDWATER As Noted	BORING DIAMETER 8"	DATE DRILLED 7/30/86

DESCRIPTION AND REMARKS	COLOR	CONSIST	SOIL TYPE	DEPTH (FEET)	SAMPLER	UNCONFINED COMPRESSIVE STRENGTH (KSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT.)
ASPHALT AND BASE ROCK									
SILTY CLAY with rock fragments; dry	tan	stiff	CL						
Large rock fragments				5					
Damp; no product odor	motld tan to gray to brown								
Decreasing rock fragments				10					
Slightly sandy No product odor			CL-SC	15					
CLAYEY GRAVEL	light brown	dense	GC			K2	▽		
				20					

HAZARDOUS MATERIALS MITIGATION PROFESSIONALS, INC.
1450 Koll Circle, Suite 114, San Jose, CA 95112
Telephone: (408) 286-7868

EXPLORATORY BORING LOG

MOBIL OIL CORPORATION
335 HIGH STREET, OAKLAND

PROJECT NO.	DATE	BORING NO.
H182-21	8/86	MW-2

#86210

01-1778

25/3W4K2

DRILL RIG Hollow Stem	SURFACE ELEVATION ----	LOGGED BY JCW
DEPTH TO GROUNDWATER As Noted	BORING DIAMETER 8"	DATE DRILLED 7/30/86

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	UNCONFINED COMPRESSIVE STRENGTH (KSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT.)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
CLAYEY GRAVEL (CONTD)	light brown to tan	dense	GC						
Large gravel		dense to very dense		25					
TOTAL DEPTH = 30.0 feet				30					

HAZARDOUS MATERIALS MITIGATION PROFESSIONALS, INC.

1450 Koll Circle, Suite 114, San Jose, CA 95112
Telephone: (408) 286-7868

EXPLORATORY BORING LOG

MOBIL OIL CORPORATION

3315 HIGH STREET, OAKLAND

PROJECT NO.	DATE	BORING NO.
H182-21	8/86	MW-2

2S/3W 4K3 01-177C

#86210

MOBIL OIL CORPORATION

OAKLAND, CALIFORNIA

MW-3

Well completed to 30.0 feet in depth with 2-inch Class 160 PVC casing, flush-threaded joints. Screen (.020-inch slot) set from 7.0 to 30.0 feet. 6 X 12 Monterey sand placed from 5.0 to 30.0 feet, bentonite pellets placed from 4.5 to 5.0 feet, and concrete seal placed from 0 to 4.5 feet.

#86210 INV. ✓ AD. ✓ 25/3W&R3 01-177 C

DRILL RIG Hollow Stem	SURFACE ELEVATION ----	LOGGED BY JCW
DEPTH TO GROUNDWATER As Noted	BORING DIAMETER 8"	DATE DRILLED 7/30/86

DESCRIPTION AND REMARKS	COLOR	CONSIST	SOIL TYPE	DEPTH (FEET)	SAMPLER	UNCONFINED COMPRESSIVE STRENGTH (KSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT.)
ASPHALT AND BASE ROCK									
SILTY CLAY with rock fragments; dry	tan to brown	stiff	CL-						
Large rock fragments			CL-GC	5					
Decreasing rock fragments									
SILTY CLAY, damp No product odor	tan to gray	stiff	CL	10					
		very stiff		15					
Wet; no product odor				20			▽		

HAZARDOUS MATERIALS MITIGATION PROFESSIONALS, INC.
1450 Koll Circle, Suite 114, San Jose, CA 95112
Telephone: (408) 286-7868

EXPLORATORY BORING LOG

MOBIL OIL CORPORATION
3345 HIGH STREET, OAKLAND

PROJECT NO.	DATE	BORING NO.
H182-21	8/86	MW-3

#86210

01-177C

25/3W & K3

DRILL RIG Hollow Stem	SURFACE ELEVATION -----	LOGGED BY JCW
DEPTH TO GROUNDWATER As Noted	BORING DIAMETER 8"	DATE DRILLED 7/30/86

DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE	DEPTH (FEET)	SAMPLER	UNCONFINED COMPRESSIVE STRENGTH (KSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT.)
SILTY CLAY (CONTD)	tan to gray	very stiff	CL						
CLAYEY GRAVEL; wet	light brown		GC						
				25					
SILTY CLAY	light brown	very stiff to hard	CL						
CLAYEY GRAVEL	light brown	dense to very dense	GC						
				30					
TOTAL DEPTH = 30.0 feet									

HAZARDOUS MATERIALS MITIGATION PROFESSIONALS, INC.
1450 Koll Circle, Suite 114, San Jose, CA 95112
Telephone: (408) 286-7868

EXPLORATORY BORING LOG

MOBIL OIL CORPORATION
3315 HIGH STREET, OAKLAND

PROJECT NO.	DATE	BORING NO.
H182-21	8/86	MW-3

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

340494 2S/3W 4K4

Total depth of boring: 30-1/2 ft. **Diameter of boring:** 8 in. **Date drilled:** 5/13/91

Casing diameter: 2 in. **Length:** 15 ft. **Slot size:** 0.020 in.

Screen diameter: 2 in. **Length:** 15 ft. **Material type:** PVC

Drilling Company: Kvilhaug **Driller:** Mike and Cliff

Method Used: Hollow-stem Auger **Field Geologist:** C. Avila

Signature of Registered Professional:

Registration No.: 4313 **State:** Calif.

DEPTH	SAMPLE NO.	BLOWS	P.I.D.	USCS CODE	DESCRIPTION	WELL CONST.
0					Asphalt.	
2						
4	S-5	40		SM	Silty sand with some gravel, medium- to coarse-grained sand and coarse gravel, light brown, damp, dense.	
6						
8						
10	S-10	23		CL	Clay with some silt, light brown, damp, medium plasticity, very stiff.	
12						
14						
16	S-15	24		ML	Silt with some clay and trace gravel, light brown, damp, slight plasticity, very stiff.	
18						
20	S-20	38		▼	Silt with some fine- to coarse-grained sand and coarse gravel, wet, hard.	

(section continues downward)

Applied Geosystems, Inc.

PROJECT NO. 30061-1

LOG OF BORING: B-1/MW-4
BP Facility No. 11124
3315 High Street
Oakland, California

PLATE

240494 2S/3W4K4

DEPTH	SAMPLE NO.	BLOWS	P.I.D.	USCS CODE	DESCRIPTION	WELL CONST.
20	S-20	38		ML	Silt with some fine- to coarse-grained sand and coarse gravel, wet, hard.	
22						
24	S-25	20			Silt with some fine- to medium-grained sand, trace coarse gravel and clay, light brown, wet, very stiff.	
26						
28	S-28	37				
30	S-30	37				
32					Total depth = 30-1/2 feet. Ground water encountered at 19-1/2 feet. Boring terminated to construct monitoring well.	
34						
36						
38						
40						
42						
44						
46						
48						
50						

Applied GeoSystems, Inc.

PROJECT NO. 30061-1

LOG OF BORING: B-1/MW-4
BP Facility No. 11124
3315 High Street
Oakland, California

PLATE

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

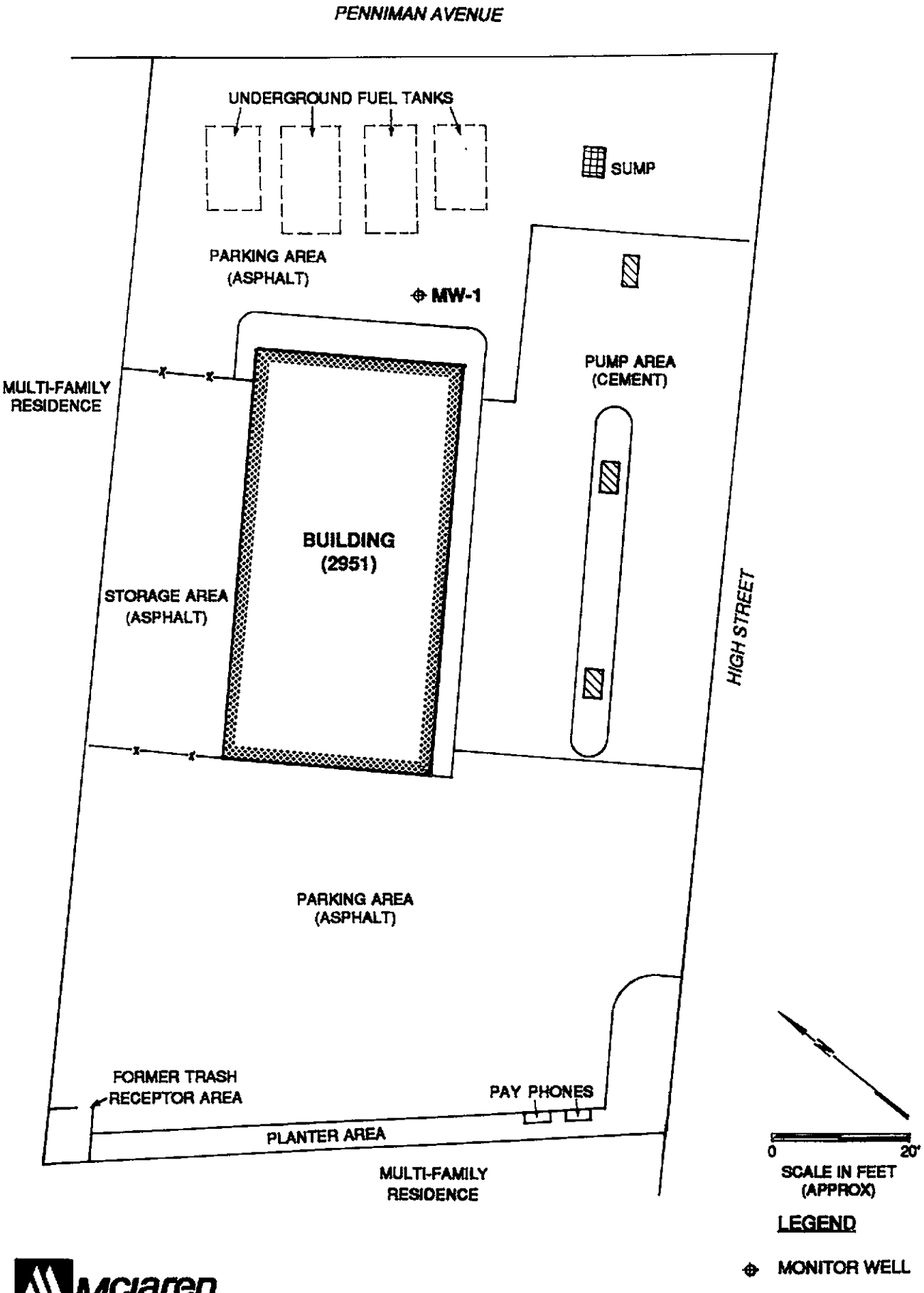
CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

340002

FIGURE 2
SITE PLAN AND
MONITOR WELL LOCATION



McLaren

3/0002 2S/3W 4L1

SOIL DRILLING LOG

McLAREN

SB/MW # : MW-1
D-
Page 1 of 2
Sampler: J. WAHLER

PROJECT BLUE CHIP-1 (14101) LOCATION 2951 HIGH ST., OAKLAND (LEE'S ARCO)
ELEVATION MONITORING DEVICE HNu
SAMPLING DATE(S) 2/20/90 START 9:30 FINISH 2:00
SAMPLING METHOD CALIF. MODIFIED SPLIT SPOON SUBCONTRACTOR & EQUIPMENT EXPLORATION GEOSERVICES MIKE YAEGER
MEMO * SAMPLES ANALYZED BY McLAREN ANALYTICAL LABORATORY
** SAMPLE PUT ON HOLD

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Depth Interval (ft.)	Sample ID #	Hnu reading (ppm)	Soil Description, Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth
						0-1.0' Asphalt and sub-base	A C		
						1.0'-2.5' Clayey silt: dark gray (5Y 4/1) <2% sand; 88-90% silt; 10% clay; slightly moist; very stiff; low plasticity; hydrocarbon odor.	M L		
5'	28-40-50/3"	90	4.0-5.5	6385	850	2.5'-4.0' Clayey sand: olive gray (5Y 5/2) 75% very fine to medium sand; 10% silt; 15% clay; moist; stiff; medium plasticity; strong hydrocarbon odor.	S C / S M		*
10'	16-30-35	65	9.0-10.5	6386	250	4.0'-7.0' Silty sand: light yellowish brown (2.5Y 6/4) 85% well graded sand; 10% silt; 5% clay; slightly moist; very dense; strong hydrocarbon odor.	S C		*
						7.0'-10.5' Clayey sand: olive gray (5Y 5/2) 85% well graded sand; 15% clay; saturated; very dense; very strong hydrocarbon odor. Perched water between 9.0'-9.5'.	M L		
15'	26-30-50/5"	80	14.0-15.5	6387	4	10.5'-17.0' Clayey silt/sandy silt: yellowish brown (10YR 5/6) 15% well graded sand; 70% silt; 15% clay; slightly moist; hard caliche; semi-consolidated; no hydrocarbon odor.			*
	18-23-38	61	19.0-20.5	6388	3	17.0'-24.5' Clayey sand: yellowish brown (10YR 5/4) 85% medium to very coarse sand; 15% clay; moist to saturated; very dense; semi-consolidated; no hydrocarbon odor. Saturated below 19.0'.	S C		* *
25'	30-50/6"	80	24.0-25.5		4	24.5'-26.0' Sandy gravel: brownish yellow (10YR 6/6) 75% fragmented gravel; 15% well graded sand; 10% clay; very dense; saturated.	G C		
30'	16-30-40	70	29.0-30.5		3	26.0'-30.0' Silty sand: yellow (10YR 7/6) 70% very fine to medium sand; 20% silt; 10% clay; dense; saturated.	S M		

Well Construction Details

- Vault box
- Locking well cap
- Neat cement
- 4" Sch. 40 PVC blank casing
- 2.0'
- 14.5'
- 15.0'
- Bentonite pellets
- 17.0'
- 4" Sch. 40 PVC 0.020" slot screen casing
- 8/20 Mesh sand

SIGNATURE OF FIELD SUPERVISOR
ASSOCIATE GEOLOGIST
TITLE

SIGNATURE OF REVIEWER
SUPERVISING ENGINEER, P.E.
TITLE

340002

SOIL DRILLING LOG

McLAREN

SB/MW # : MW-1
D-
Page 2 of 2
Sampler: J. WAHLER

PROJECT BLUE CHIP-1 (14101) LOCATION 2951 HIGH ST., OAKLAND (LEE'S ARCO)
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Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Depth Interval (ft.)	Sample ID #	Hnu reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth	Well Construction Details
35'	19-29-31	60	34.0-35.5			30.0'-32.5' Sandy gravel: light yellowish brown (10YR 6/4) 55% fragmented gravel; 35% very fine to coarse sand; 10% clay; very dense; saturated.	G C			32.0' End cap; 34.0' Bentonite pellets; 35.5' T.D.
						32.5'-35.5' sigity clay: yellowish brown (10YR 5/6) 10% medium to very coarse sand; 40% silty; 50% clay; hard; saturated; semi-consolidated; caliche.	C L			
40'										
45'										
50'										
55'										
60'										

SIGNATURE OF FIELD SUPERVISOR
ASSOCIATE GEOLOGIST
TITLE

SIGNATURE OF REVIEWER
SUPERVISING ENGINEER, P.E.
TITLE

#8625 N/V AL ✓ (2 BORINGS) 2S/3W 7C

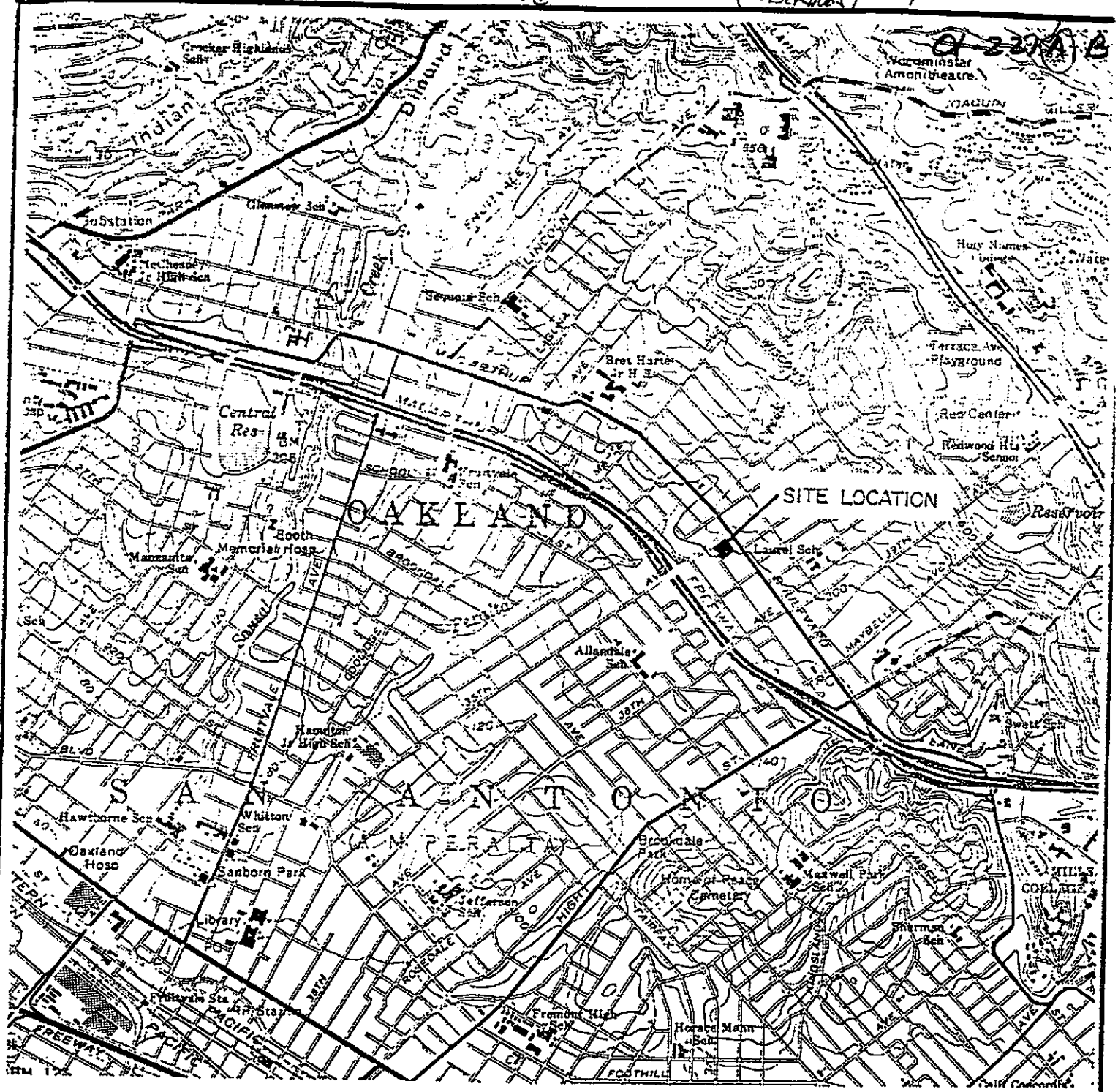


FIGURE 1

SITE LOCATION MAP

TEXACO SERVICE STATION
3450 35TH AVENUE
OAKLAND

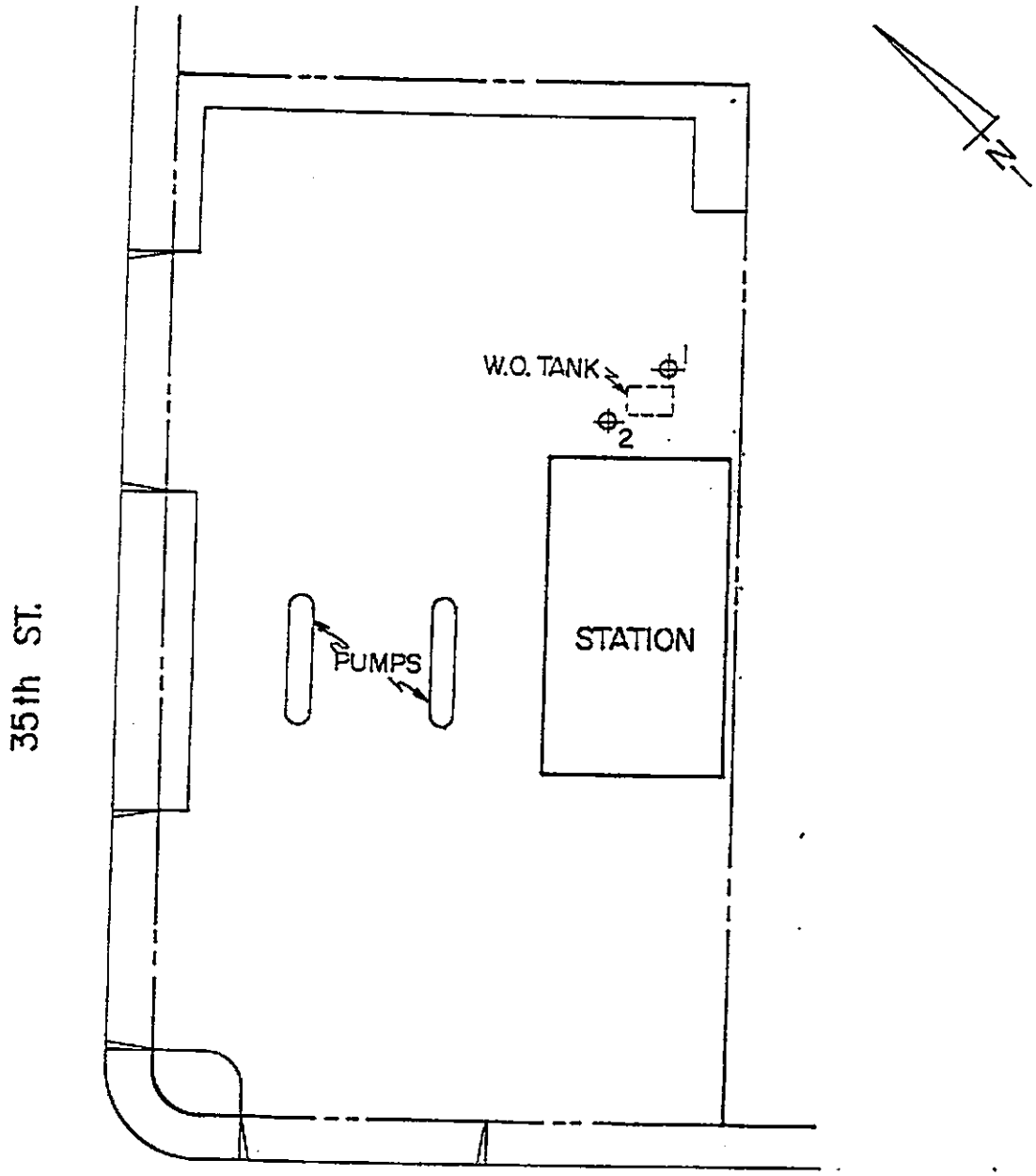
N

TEXACO USA
OAKLAND, CALIFORNIA

0 MILES 1

GROUNDWATER TECHNOLOGY

#86256 01-221A, B2S/3W4C



LEGEND

⊕ SOIL BORING LOCATION

FIGURE 2
SITE PLAN

TEXACO USA
OAKLAND, CALIFORNIA

0 FEET 30

GROUNDWATER TECHNOLOGY

#86256

2S/3W4C

INV ✓
AD

01-221A

GROUNDWATER TECHNOLOGY, INC.
OIL RECOVERY SYSTEMS

Soil Boring 1

Drilling L

Project Texaco/35th&Quigley Owner Texaco U.S.A.

Location Oakland, Calif. Project Number 20-8155

Date Drilled 9/23/86 Total Depth of Hole 20 ft. Diameter 7.5 ft.

Surface Elevation ____ Water Level, Initial ____ 24-hrs. ____

Screen: Dia. ____ Length ____ Slot Size ____

Casing: Dia. ____ Length ____ Type ____

Drilling Company H.E.W. Drilling Method h. s. auger

Driller C. Pineda Logged by S. Gable

Sketch Map

Notes Background PID readings .5 PPM

Depth (Feet)	Well Construction	PID Notes READING	Sample Number	Graphic Log	Description/Soil Classification
0	NO WELL CONSTRUCTED	PID .5		GM	Concrete Red-brown, silty gravel (loose, dry, no odor). Brown clay (soft, dry, no odor).
2					
4				CH	(Grades yellow brown).
6					(Increasing gravel)
8		PID .5	A 7		
10			12 14	CL	Red-brown, multicolored gravelly clay (stiff, dry, no odor).
12					(Increasing clay). (Increasing gravel).
14		PID 7	B 12 12		Red-brown, multicolored coarse sandy clay (stiff, dry, slight odor). (Green discoloration @ 14'10").
16			19		
18			E 9		
20			14 23		Red-brown, coarse sandy clay (stiff, dry, no odor) Bottom of Boring
22					
24					

#8625 INV AD ✓ plot/ppt (2 BARNES) 2S/3W 8C

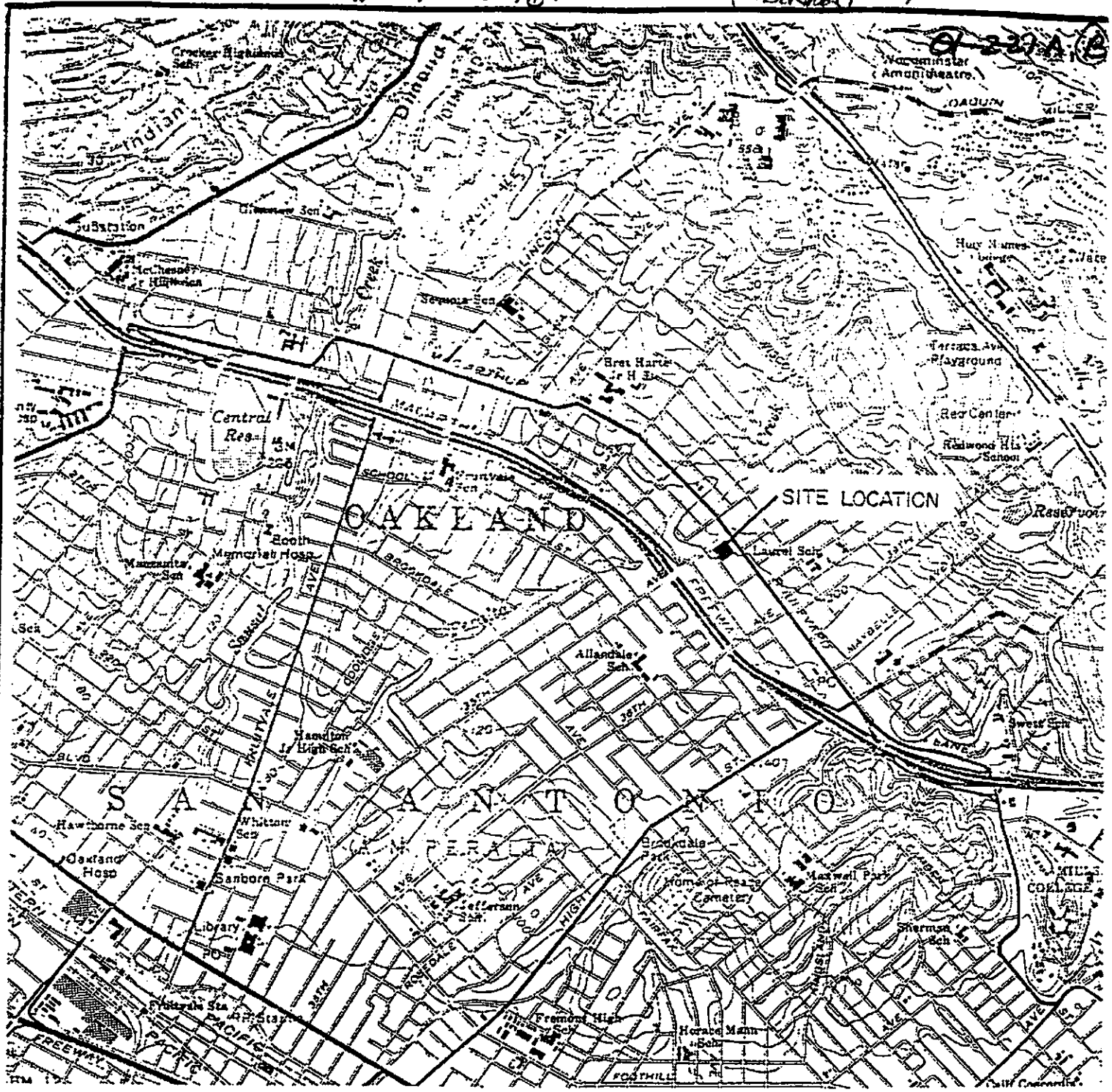


FIGURE 1

SITE LOCATION MAP

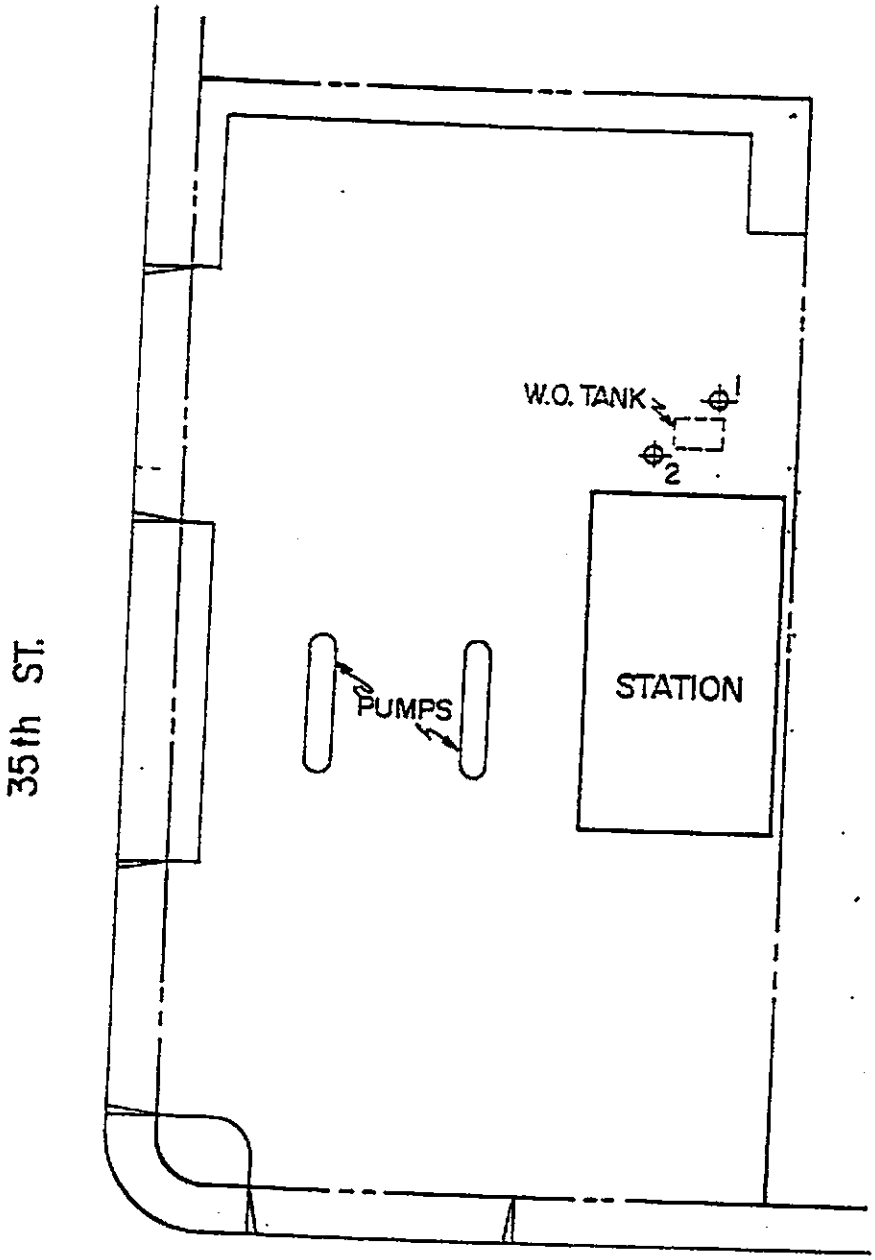
TEXACO SERVICE STATION
3450 35TH AVENUE
OAKLAND

TEXACO USA
OAKLAND, CALIFORNIA

0 MILES 1

GROUNDWATER TECHNOLOGY

#96256 01-221A, B2S/3W4C



LEGEND

⊕ SOIL BORING LOCATION

FIGURE 2
SITE PLAN

TEXACO USA
OAKLAND, CALIFORNIA

0 FEET 30

GROUNDWATER

#86256

25/3W4C

01-2211

GROUNDWATER TECHNOLOGY, INC.
OIL RECOVERY SYSTEMS

Soil Boring 2

Drilling L

Project: Texaco/35th & Ogden Owner: Texaco U.S.A.

Location: Oakland, Calif. Project Number: 20-8155

Date Drilled: 9/23/86 Total Depth of Hole: 20 Ft. Diameter: 7.5 in.

Surface Elevation: ____ Water Level, Initial: ____ 24-hrs.: ____

Screen: Dia.: ____ Length: ____ Slot Size: ____

Casing: Dia.: ____ Length: ____ Type: ____

Drilling Company: H.E.W. Drilling Method: h. s. auger

Driller: C. Pineda Log by: S. Gable

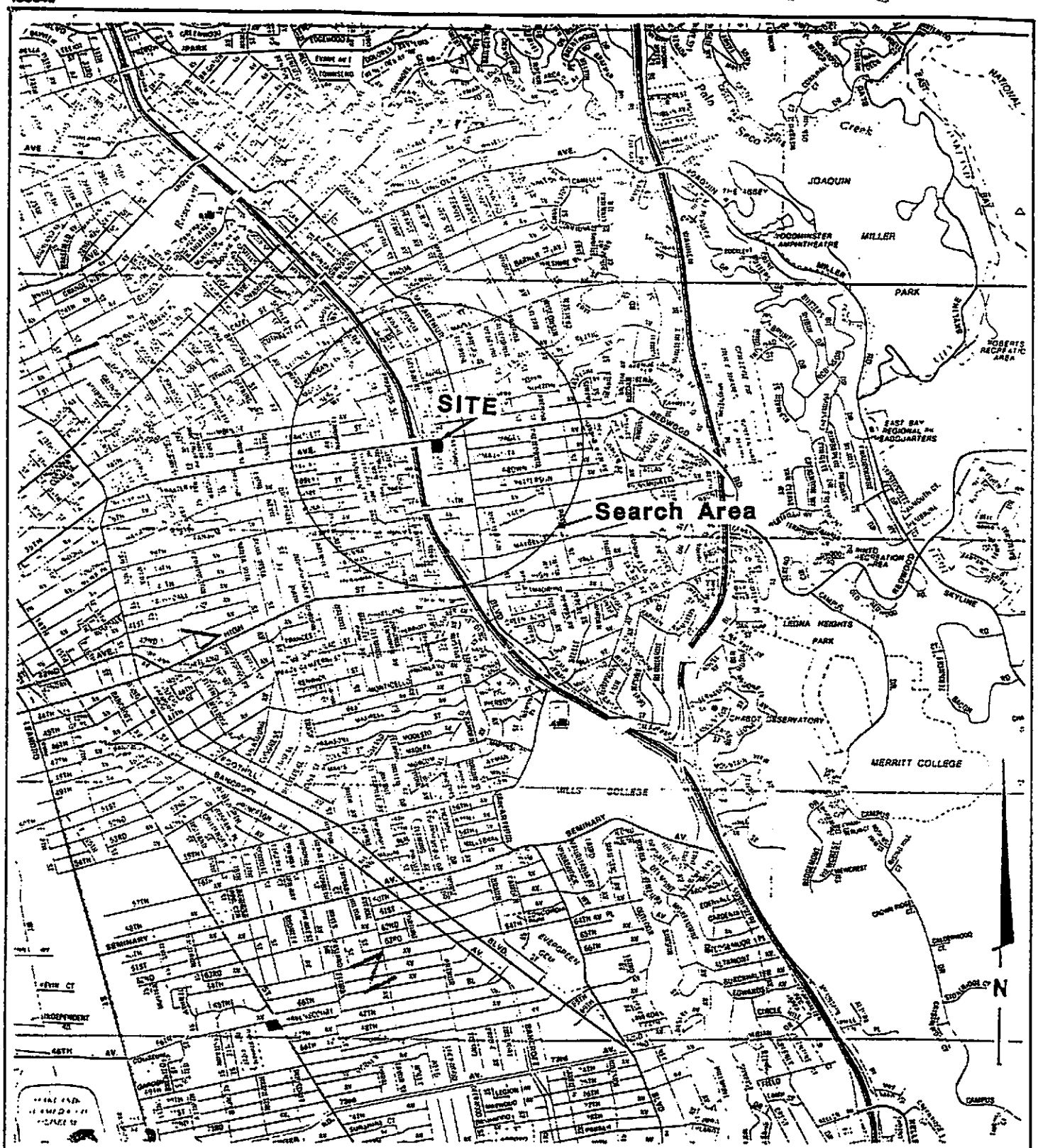
Sketch Map

Notes: Background PID readings .5 PPM

Depth (Feet)	Well Construction	PID Notes READING	Sample Number	Graphic Log	Description/Soil Classification
0	NO WELL CONSTRUCTED				Concrete
2				CH	Brown clay (stiff, dry, no odor).
4					Yellow-brown, silty clay (stiff, dry, no odor). (Little gravel).
6					(Increasing sand). (Sand to gravel).
8					
10		PID .5	A 11 15 24	CL	Red-brown, coarse, sandy clay (stiff, dry, no odor).
12					(Increasing gravel).
14					
16		PID .5	B 12 18 25		Red-brown, coarse gravelly clay (very stiff, dry, no odor).
18					
20		PID .5	C 9 14 23		Bottom of Boring
22					
24					

01-406(K), L

105648



Harding Lawson Associates
Engineers and Geoscientists

Vicinity Map

Texaco Station-62488000193
3450 35th Avenue
Oakland, California

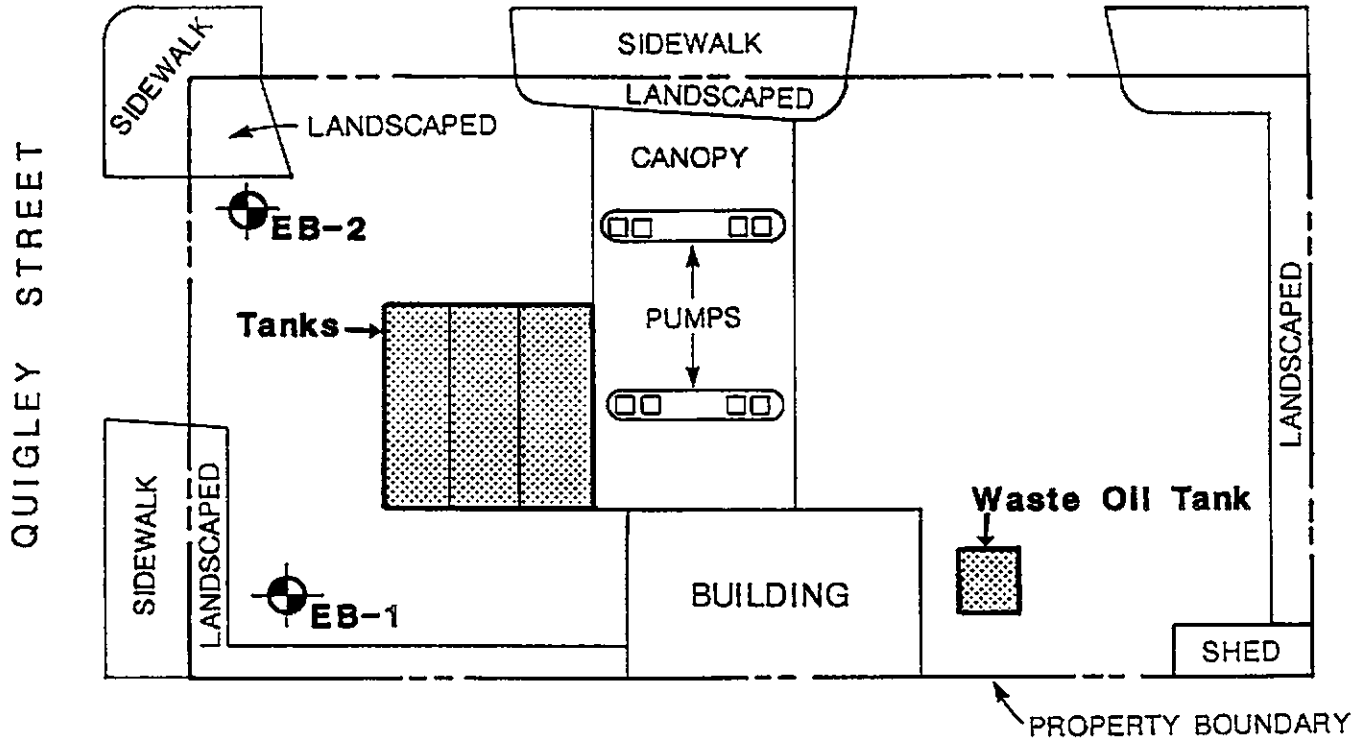
PLATE
1

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE

25/3W-4C2 & 3
01-406K, L

APARTMENTS

35TH AVENUE



PRIVATE RESIDENCES

EXPLANATION

EB-1 HLA Test Boring Location and Number

N

0 15 30
Scale in Feet

Harding Lawson Associates
Engineers, Geologists & Geophysicists

Site Plan
Texaco Station-62488000193
3450 35th Avenue
Oakland, California

PLATE 2

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
RS	2251,051.04	JO	6/88		

25/3W - [illegible] 01-406K

Equipment 6-inch Flight Auger

Elevation ***195± feet MSL Date 6/13/88

Laboratory Tests	Blows/foot **	PID * Reading (ppm)	Depth (ft)	Sample
			0	
	13	1	5	
	30	2	10	
	27	1	15	
	54	1	20	
	36	1	25	
			30	
			35	
			40	

concrete pavement

DARK BROWN SILTY CLAY (CL)
medium stiff, moist

DARK GRAY SILTY CLAY with very fine sand (CL)
medium stiff, moist

BROWN SILTY CLAY trace sand (CL)
stiff, moist

YELLOWISH BROWN GRAVELLY CLAY with sand (CL)
hard, moist

YELLOWISH BROWN SANDY CLAY (CL)
hard, moist

bottom of boring 25.5 feet
ground water not encountered

■ Sample kept for testing

*PID = photo ionization detector, HNU PI 101
ppm = parts per million

**S&H Sampler blow counts converted to SPT blow counts.

***Mean Sea Level Elevations interpreted from U.S.G.S. topographic map.

HLA Harding Lawson Associates
Engineers, Geologists & Geophysicists

Log of Boring EB-1
Texaco Station - 62488000193
3450 35th Avenue
Oakland, California

PLATE 3

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
RS	2251,051.04	[illegible]	6/88		

01-406 K, L

E

ZONE 7

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94588 • (415) 484-2600

GROUNDWATER PROTECTION ORDINANCE PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

(1) LOCATION OF PROJECT 3450 - 35th Avenue
Oakland, California

(2) CLIENT
Name Texaco USA
Address 10 Universal City Plaza Phone: 818-505-2476
City Los Angeles Zip 91608

(3) APPLICANT
Name Harding Lawson Associates
666 Howard Street, 3rd Floor
Address Phone 543-8422
City San Francisco Zip 94105

(4) DESCRIPTION OF PROJECT
Water Well Construction X Geotechnical ___
Cathodic Protection ___ Well Destruction ___

(5) PROPOSED WATER WELL USE
Domestic ___ Industrial ___ Irrigation ___
Municipal ___ Monitoring X Other ___

(6) PROPOSED CONSTRUCTION
Drilling Method:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

WELL PROJECTS
Drill Hole Diameter 8 in. Depth(s) 20 ft.
Casing Diameter 2 in. Number
Surface Seal Depth 5-10ft. of Wells 3
Driller's License No. C61-407379

GEOTECHNICAL PROJECTS
Number ___
Diameter ___ in. Maximum Depth ___ ft.

(7) ESTIMATED STARTING DATE June 13, 1988
ESTIMATED COMPLETION DATE June 13, 1988

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE [signature] Date 6-3-88

FOR OFFICE USE

PERMIT NUMBER 88232
LOCATION NUMBER

Approved Wyman Hong Date 2 Jun
Wyman Hong

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so arrive at the Zone 7 office five days pri proposed starting date.
2. Notify this office (484-2600) at least on prior to starting work on permitted wor before placing well seals.
3. Submit to Zone 7 within 60 days after comp of permitted work the original Departme Water Resources Water Well Drillers Repo equivalent for well projects, or bore hole and location sketch for geotechnical pro Permitted work is completed when the last s seal is placed or the last boring is complet
4. Permit is void if project not begun wit days of approval date.

(B.) WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inc cement grout placed by tremie, or equivalent
2. Minimum seal depth is 50 feet for municip industrial wells or 20 feet for domestic, i tion, and monitoring wells unless a lesser is specially approved.

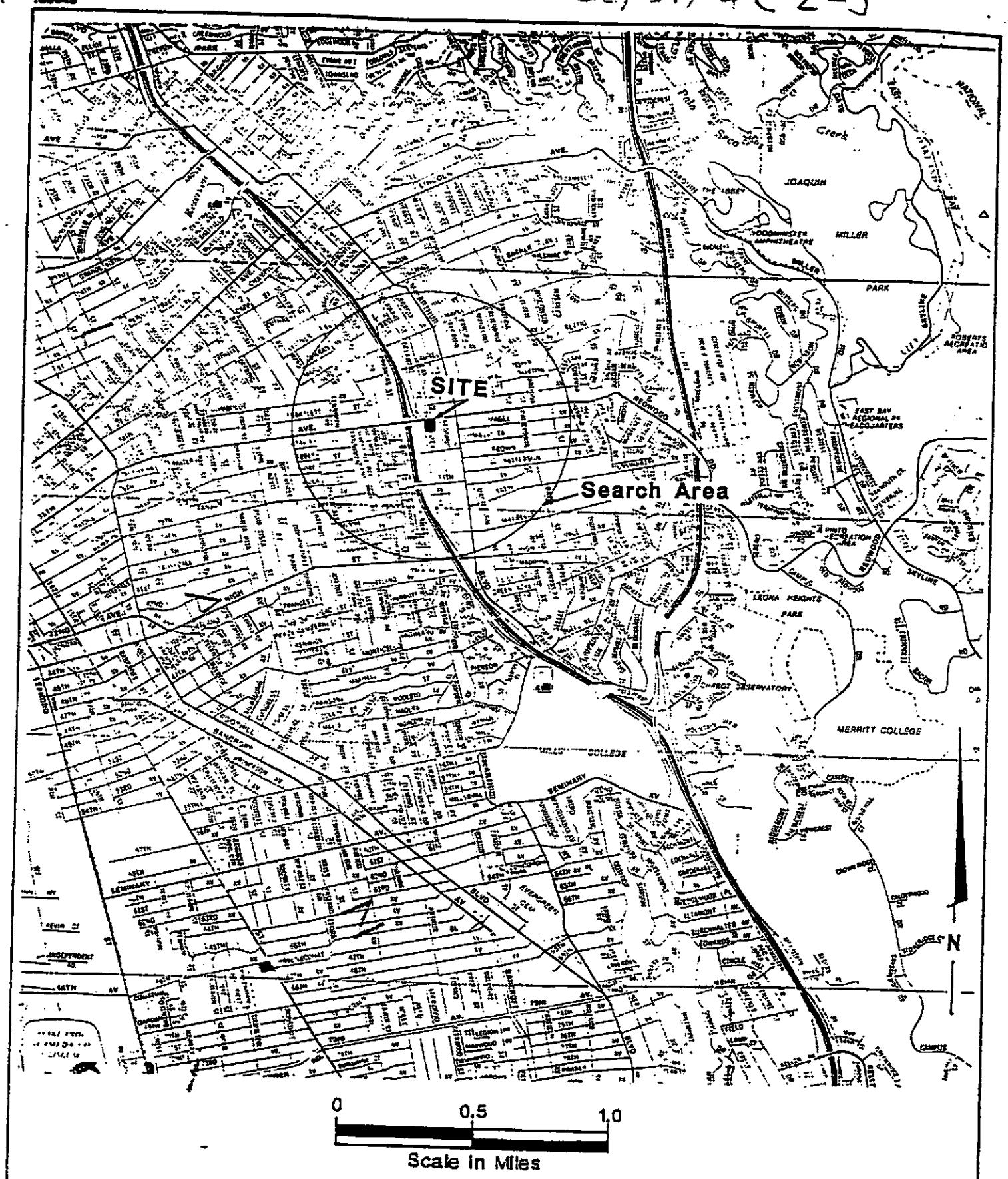
C. GEOTECHNICAL. Backfill bore hole with compacte tings or heavy bentonite and upper two feet wit pacted material.

D. CATHODIC. Fill hole above anode zone with ce placed by tremie, or equivalent.

E. WELL DESTRUCTION. See attached.

01-406 KC

2S/2W 4 C 2-3



Harding Lawson Associates
Engineers and Geoscientists

Vicinity Map
Texaco Station-62488000193
3450 35th Avenue
Oakland, California

PLATE
1

DRAWN | JOB NUMBER | APPROVED | DATE | REVISED | FILE

25/3W-- 01-406L

Equipment 8-inch Hollow Stem Auger

Elevation*** 195± feet Date 6/13/88

Laboratory Tests	Blows/foot **	PID* Reading (ppm)	Depth (ft)	Sample	
			0		concrete pavement
					DARK YELLOWISH BROWN SILTY CLAY (CL) medium stiff, moist
	8	---	5		
					DARK YELLOWISH BROWN CLAYEY SAND with gravel (SC) dense, moist
	39	1	10		
					DARK BROWN SILTY CLAY trace sand (CL)
					YELLOWISH BROWN SANDY CLAY trace gravel (CL) hard, moist
	38	1	15		
					BROWN SILTY CLAY with sand (CL) hard, moist
	37	1.5	20		
					BROWN SANDY CLAY (CL) hard, moist
	39	1.5	25		
					bottom of boring 25 feet ground water not encountered
			30		
			35		
			40		

■ Sample kept for testing

*PID = photo ionization detector, HNU PI 101
ppm = parts per million

**S&H Sampler blow counts converted to SPT blow counts.

***Mean Sea Level Elevations interpreted from U.S.G.S. topographic map.

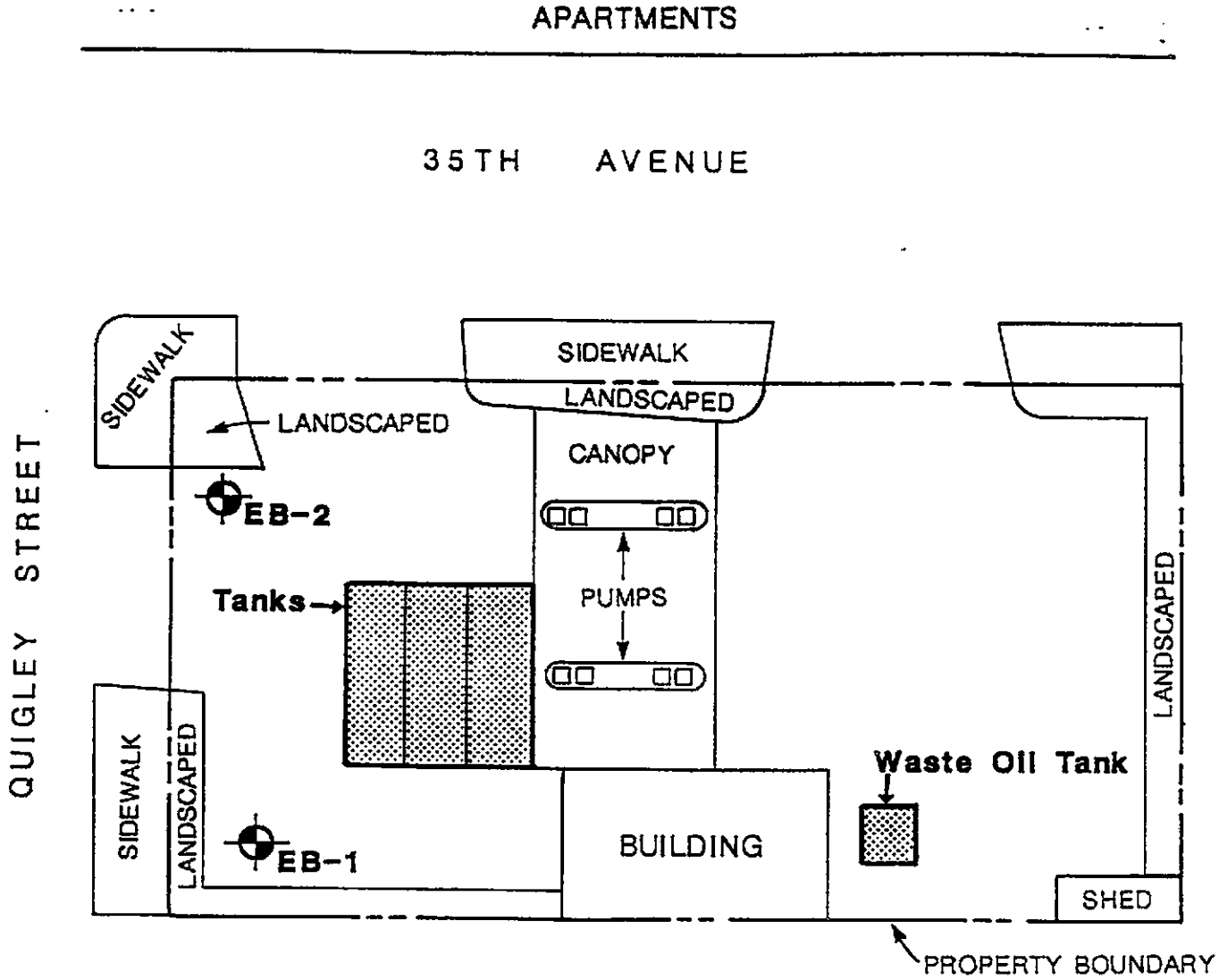
HLA Harding Lawson Associates
Engineers, Geologists & Geophysicists

Log of Boring EB-2
Texaco Station - 62488000193
3450 35th Avenue
Oakland, California

PLATE 4

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
RS	2251,051.04	JO	6/88		

25/3W-4c2 +3
01-406K, L



Harding Lawson Associates Engineers, Geologists & Geophysicists	**Site Plan** Texaco Station-62488000193 3450 35th Avenue Oakland, California				PLATE **2**
DRAWN RS	JOB NUMBER 2251,051.04	APPROVED JO	DATE 6/88	REVISED	DATE

01-406 R,E

(WW) PDO

ZONE # 2-3

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5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94566 • (415) 484-2

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Cathodic Protection ___ Well Destruction ___

(5) PROPOSED WATER WELL USE
Domestic ___ Industrial ___ Irrigation ___
Municipal ___ Monitoring X Other ___

(6) PROPOSED CONSTRUCTION
Drilling Method:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

WELL PROJECTS
Drill Hole Diameter 8 in. Depth(s) 20 ft.
Casing Diameter 2 in. Number
Surface Seal Depth 5-10ft. of Wells 3
Driller's License No. C61-407379

GEOTECHNICAL PROJECTS
Number
Diameter ___ in. Maximum Depth ___ ft.

(7) ESTIMATED STARTING DATE June 13, 1988
ESTIMATED COMPLETION DATE June 13, 1988

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LOCATION NUMBER

Approved Wyman Hong Date 2 Ju
Wyman Hong

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D. CATHODIC. Fill hole above anode zone with placed by tremie, or equivalent.

E. WELL DESTRUCTION. See attached.