CONVERSE ENVIRONMENTAL WEST

55 Hawthorne Street, Suite 500
San Francisco, California 94105-3906

Telephone **415 543-4200**
FAX 415-777-3157

January 31, 1990
88-44-361-01-395

Ms. Dyan Whyte
Water Resource Control Engineer
San Francisco Bay Regional Water Quality Control Board
1800 Harrison, Room 700
Oakland, California 94612

Subject: Shell Oil Company
Monthly Groundwater Monitoring Report
500 40th Street, Oakland, California

Dear Ms. Whyte:

Enclosed please find one copy of the Shell Oil Company Monthly Groundwater Monitoring Report for January 1990 prepared by Converse Environmental West (CEW) - San Francisco.

Analytical results of groundwater samples collected in January 1990 will be presented in the February 1990 report for the site. That report, scheduled for delivery on or before February 28, 1990, will include up to date details of investigative activities and a comprehensive review of site water quality.

Please call if you have any questions.

Very truly yours,

Converse Environmental West

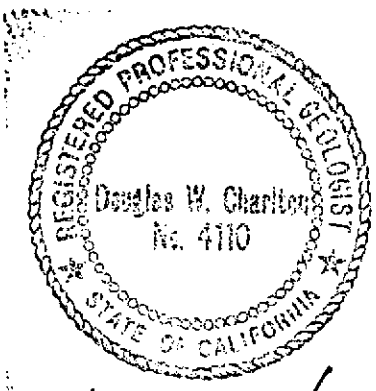
Douglas W. Charlton
Vice President

Robin M. Breuer
Project Manager

DWC:arm
Enclosure

cc: Ms. Diane Lundquist - Shell Oil Company (w/ encl.)
Mr. Rafat Shahid - Alameda County Health (w/ encl.)

500 40TH II\WHYTE395.LTR



DOUGLAS W. CHARLTON
Principal Geologist

FORMER GASOLINE STATION

SHELL OIL COMPANY
500 40TH Street
Oakland, California

January 31, 1990

CEW Project No. 88-44-361-01

This report has been prepared by the staff of **Converse Environmental West (CEW)** under the professional supervision of the Engineer and/or Geologist whose seal(s) and signature(s) appear hereon.

The findings, recommendations, specifications or professional opinions are presented, within the limits prescribed by the Client, after being prepared in accordance with generally accepted professional engineering and geologic practice. We make no other warranty, either expressed or implied.

Converse Environmental West

REPORT OF ACTIVITIES

SHELL OIL COMPANY FACILITY
500 40th Street
Oakland, California

For January, 1990
Submitted: January 31, 1990

RWQCB Representative:	Ms. Dyan Whyte Waste Water Control Engineer San Francisco Bay RWQCB 1800 Harrison Street, Seventh Floor Oakland, California 94607
LIA Representative:	Mr. Rafat Shahid Alameda County Health Services Agency Hazardous Materials 80 Swan Way, Room 200 Oakland, California 94621
Shell Engineer:	Ms. Diane Lundquist Environmental Engineer
Converse Project Manager:	Mr. Bojan Gustincic, Project Manager 55 Hawthorne Street, Suite 500 San Francisco, California 94105 (415) 543-4200
Registered Geologist in Charge:	Douglas W. Charlton, Principal Geologist 55 Hawthorne Street, Suite 500 San Francisco, California 94105 (415) 543-4200
Site Owners:	Joseph Heung Yu Chan Olivia Wai Yee Cheng Chan Ivy Tak Tsing Wong Shirley Tak Hing Kwong Magdalen Tak Fan Chan

1. SITE DESCRIPTION

1.1 Maps

Vicinity Map: See Drawing 1
Plot Plan: See Drawing 2

1.2 Neighborhood Topography

Slopes gently westward towards San Francisco Bay.

1.3 Primary Surface Waters Nearby

San Francisco Bay is located approximately 1.5 miles to the west.

1.4 Water Table Information

January 1990 Depth to Water: Approximately 11' below grade.
Depth to Highest High Water: Approximately 10' below grade by redox boundary in soils.

2. INVESTIGATION HISTORY

2.1 Soil Borings Drilled to Period Start

B-1 through B-11 (IT 1982-84)
MW-2 through MW-5 (CEW 5/89)

2.2 Soil Borings Abandoned to Period Start

B-1 through B-11 (Date Unknown).

2.3 Groundwater Wells Drilled to Period Start

B-1 through B-11 (IT 1982-84)
MW-2 through MW-5 (CEW 5/89)

2.4 Groundwater Wells Abandoned to Period Start

B-6 was abandoned by IT in June, 1986. No records are available for abandonment of the other B-series wells. These wells are covered with pavement or buildings, and they can not be located.

3. WORK COMPLETED THIS PERIOD

3.1 Introduction

Work initiated and completed during January 1990 followed the task descriptions and modifications of the site Work Plan dated April 5, 1989.

3.2 Soil Boring Drilling/Sampling Well Installations

A Right-of-Entry Agreement with the property owners of 518 40th Street was needed by Shell prior to installation of three onsite wells sited on the west edge of 500 40th Street (Drawing 3). The Agreement was sent to the property owners of 518 40th Street on August 1, 1989. On August 29, 1989, the property owners indicated the Agreement was being reviewed by their attorneys. As of January 20, 1990, the Right-of-Entry had not been received by Shell or CEW.

No soil boring drilling, sampling, or well installations occurred during January 1990.

3.3 Groundwater Analysis and Results

Groundwater samples were collected from 7 onsite wells, properly packaged and transferred to a California State-certified analytical laboratory under proper chain-of-custody and preservation (see Quarter 2 Report of Activities, Appendices E and F). The samples were analyzed for TPH (as gasoline, diesel and motor oil), and BTEX (EPA Methods 3150, 5030, 8015 and 602). The analytical results are summarized in Table 1, and certified sheets from all analyses are enclosed as Attachment 1.

Chronological Summary

DATE	DESCRIPTION OF ACTIVITY
7/82	IT installed 8 six inch diameter groundwater monitoring wells to 30 feet below ground surface (bgs) onsite. The wells were screened from 5 to 30 feet bgs. Combustible vapors were detected in the storm sewer system in the BART Station across the street.
7/82	IT Progress Report 1: Well installations and constructions were reported, and free product was noted in wells B-7 and B-8. Groundwater gradient was shown to be westward, towards the BART Station.
11/82	IT Progress Report 6: Groundwater gradient still towards well B-3. From September 1 to November 19, 1982, IT removed 35 pints of product from B-4. Well tops of casings (TOCs) were re-surveyed and groundwater gradient was confirmed toward B-3. Maximum product thickness was in B-4, at several inches.
12/82	IT Progress Report 7: Product thickness increased in B-3 in apparent response to rising water table. Product in B-4 remained at several inches.
1/83	IT Progress Report 8: Product in B-4 had diminished to film thickness.

Chronological Summary (continued)

DATE	DESCRIPTION OF ACTIVITY
2/83	IT Progress Report 9: Rainfall records were researched, and the relationship between rainfall, water table and product removed was charted by graph. Amount of product in B-4 appeared to vary inversely with water table; as water table rose with winter rains, the amount product in B-4 dropped. IT proposed that product was displaced downgradient as water table rose.
3/83	IT Progress Report 10: Vapor concentrations of TPH (expressed as percent lower explosive limit) were rising in wells B-1, B-2, B-3 and B-7. No product was measurable in B-4.
6/83	Rapid reappearance of product in well B-4, from negligible in May to 4+ feet by June 30 and 6.34 feet on July 15. Increase was also measured B-3, to a thickness of 0.66 feet in July. IT concluded that a reservoir of product existed in the tank backfill, and that as water table dropped in summer time this reservoir was allowed to escape by way of gravel lenses which were saturated at high water table seasons.
7/83	IT installed 8 inch diameter monitoring wells B-9 and B-10 to 20 feet bgs in native soils next to the tank backfill.
8/83	IT Progress Report 11: IT repeated the concept that product was released in surges through gravel lenses exposed to the water table during summer.
8/83	IT installed groundwater monitoring well B-11 and sand backfill in the southwest corner of the tank bed. No free-flowing product was encountered in this well.
9/83	IT drilled two 18 inch diameter borings to 30 feet bgs and completed same as 12 inch diameter recovery wells with screen intervals from 5 to 30 feet bgs. These wells, R-1 and R-2, were located near wells B-3 and B-4, directly west of the tank backfill.
10/83	IT purged and developed wells R-1 and R-2, holding a strong depression on the water table for 2 hours.
11/83	According to IT reference, the tanks were removed and, as part of this excavation wells R-1 and R-2 were also removed. No information was provided on tank excavation or associated soils/groundwater testing and reporting to regulatory agencies.
1/84	IT Progress Report 13: Wells B-3 and B-4 continued to contain measurable product, to thicknesses of 2 feet. In general, product thicknesses decreased during December and January. Product thicknesses also decreased after tank removal. Groundwater piezometric map showed a westward-trending, low area encompassing wells R-1, R-2, B-3 and B-4. This extended offsite, suggesting a paleodrainage which controlled product collection and migration offsite.
5/84	IT Report: The thicknesses of product in B-3 and B-4 measured from several inches to one foot during the period January to May 1984.
7/84	IT Report: Product thicknesses increased starting in mid-May in response to lowering water tables. This pattern was similar to the pattern observed in 1983.

Chronological Summary (continued)

DATE	DESCRIPTION OF ACTIVITY
8/84	IT Report: The thickness of product in B-3 remained one foot, while the amount of product in B-4 decreased. IT recommended looking for possible upgradient offsite sources.
9/84	IT Report: The thickness of product in B-4 started to increase (still at less than one inch) while the thickness of product in B-3 decreased (still on the order of one foot).
10/84	IT Report: New construction was noted.
1/85	IT Report: The thickness of product of B-3 had decreased to several inches and B-4 contained negligible measurable product. This pattern of decreasing product in the winter (high water table) months was consistent with that observed in the winters of 1982-83, and 1983-84.
2/85	IT Report: Significant measurable gasoline (1.64 feet) was discovered in B-8. The gasoline appeared degraded and "old". IT concluded that this gasoline could be from the same source as that contributing to observed in wells B-3 and B-4.
6/85	IT Report: Product thicknesses in B-3, B-4 and B-8 decreased from January to mid-May, with a dramatic decrease in B-8. IT repeated its interpretation that product thickness decreased as water tables rose and increased as water tables fell. IT further proposed that the product was trapped in permeable lenses, and migrated to different geographic areas as the water tables rose and fell.
12/85	IT Report: The thickness of product in B-3 increased to approximately 2 feet during the summer, showing the seasonal increase of prior years period. Simultaneously, no product was measured in B-8 after June 3, and product reappeared in B-2 in September and October. Product thickness in B-4 fluctuated at less than one foot thick during this period. IT recommended installing a recovery extraction trench along the west boundary of the property.
5/86	IT Quarterly Report: Product thickness decreased in wells B-3 and B-4 in response to seasonal rise in the water table.
6/86	IT requested permission to abandon B-6.
7/86	IT stated that Shell planned to remove the underground storage tanks in the near future.
8/86	IT Quarterly Report: IT noted seasonal decline in water table and negligible measurable product in wells B-2 and B-4, with approximately 2 feet of floating product in B-3.
9/86	A groundwater sample from B-3 contained volatile organics: 0.90 ppm; benzene: 0.32 ppm; toluene: 0.23 ppm; xylene: 0.16 ppm.
1/04/87(?)	A commercial shopping center building was erected on the property, covering wells B-2, B-6, B-7, B-9 and B-10. Wells B-1, B-3, B-4, B-5 and B-8 were covered by site parking and a rear driveway.
1/89	Shell transfers project to CEW.

Chronological Summary (continued)

DATE	DESCRIPTION OF ACTIVITY
4/07/89	Revised Work Plan submitted to RWQCB.
5/23/89	Monitoring wells MW-2, MW-3 and MW-4 installed, soil sampled.
6/20/89	Groundwater sampled, wells MW-2 through MW-4.
7/07/89	CEW issued Quarterly Report.
7/19/89	Groundwater sampled, wells MW-2 through MW-4.
8/01/89	Right-of-Entry Agreement sent to property owners of 518 40th Street.
8/08/89	Groundwater was sampled, wells MW-2 through MW-4.
9/11/89	Groundwater was sampled, wells MW-2 through MW-4.
9/19/89	CEW installed well MW-5; soils were sampled and analyzed.
10/10/89	Groundwater was sampled MW-2 through MW-5.
10/16/89	CEW installed well OMW-6; soils were sampled and analyzed.
10/17/89	CEW installed boring CSB-1; soils sampled and analyzed; and bored OMW-9. During well drilling, Loma Prieta Earthquake struck. Oakland municipal services were severely disrupted.
10/21/89	OMW-9 pilot boring was sealed.
11/13/89	OMW-9 boring was reamed and the well installed. OMW-10 installed; soils sampled and analyzed. Proposed well OMW-8 boring attempted and abandoned; location was in sewer main backfill.
11/17/89	Discharge permit application for interim groundwater treatment system submitted to EBMUD.
12/01/89	OMW-6 was developed.
12/10/89	OMW-10 and OMW-9 were developed.
8/89-1/90	Ongoing unsuccessful attempts to gain right-of-entry for installation of extraction wells EW-11 and EW-12, as the commencement of onsite groundwater remediation. This process has continued without resolution since August, 1989.
1/5/90	CEW sampled groundwater wells MW-2, MW-3, MW-4, MW-5, OMW-6, OMW-9 and OMW-10.

TABLE 1: Groundwater Analytical Results (ppm)

Well No.	Sample Date	TPH-g	TPH-d	Benzene	Toluene	Ethyl-benzene	Xylenes	Lead
MW-2	6/20/89	0.8	<0.01	0.046	0.0068	0.0027	0.056	NA
MW-2	7/18/89	1.4	0.4	0.033	0.0056	0.024	0.073	0.003
MW-2	8/08/89	0.23	0.50	0.0045	<0.0005	<0.0015	0.011	NA
MW-2	9/11/89	0.50	0.31	0.019	0.0023	<0.0015	0.010	NA
MW-2	10/10/89	2.0	0.81	0.077	0.0084	0.024	0.15	NA
MW-2	1/05/90	2.0	0.56	0.038	0.0056	0.030	0.059	NA
MW-3	6/20/89	2.3	<0.1	0.18	0.15	0.054	0.80	NA
MW-3	7/18/89	1.5	9.1	0.085	0.034	0.010	0.12	0.002
MW-3	8/08/89	2.5	0.71	0.13	0.073	0.0035	0.33	NA
MW-3	9/11/89	1.9	0.23	0.18	0.074	0.0037	0.11	NA
MW-3	10/10/89	2.6	1.2	0.069	0.055	0.0063	0.30	NA
MW-3	1/05/90	2.7	0.76	0.051	0.041	0.028	0.070	NA
MW-4	6/20/89	<0.05	<0.01	<0.0005	<0.0015	<0.0015	<0.0015	NA
MW-4	7/18/89	<0.05	<0.05	<0.0005	<0.0015	<0.0015	<0.0015	0.003
MW-4	8/08/89	<0.05	<0.05	<0.0005	<0.0005	<0.0015	<0.0015	NA
MW-4	9/11/89	<0.05	<0.05	<0.0005	<0.0005	<0.0015	<0.0015	NA
MW-4	10/10/89	<0.05	<0.05	<0.0005	<0.0005	<0.0015	<0.0015	NA
MW-4	1/05/90	<0.05	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA
MW-5	10/10/89	<0.05	<0.05	<0.0005	<0.0005	<0.0015	<0.0015	NA
MW-5	1/05/90	<0.05	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	NA
MW-6	1/05/90	22	6.5	1.4	1.8	0.56	1.5	NA
MW-9	1/05/90	4.3	1.6	0.097	0.12	0.091	0.29	NA
MW-10	1/05/90	<0.05	0.20	0.034	0.0011	0.0043	0.013	NA

NA - Not Analyzed.

3.4 Physical Monitoring Results

Seven wells were physically monitored for depth to water table, and measurement of floating product, if any. A summary of these results is presented in Table 2.

TABLE 2 Physical Monitoring Results: Evidence of Contamination

Well No.	Date	Depth to Water (ft)	Petroleum Water Odor	Thickness Floating Product (inches)
MW-2	6/19/89	11.91	No	0.0
MW-2	7/18/89	11.98	No	0.0
MW-2	8/08/89	12.00	Yes	0.0
MW-2	9/11/89	12.00	No	0.0
MW-2	10/10/89	12.05	Yes	0.0
MW-2	1/05/90	10.95	No	0.0
MW-3	6/19/89	10.99	No	0.0
MW-3	7/18/89	11.05	Yes	0.0
MW-3	8/08/89	11.07	Yes	0.0
MW-3	9/11/89	11.02	Yes	0.0
MW-3	10/10/89	11.08	Yes	0.0
MW-3	1/05/90	10.97	No	0.0
MW-4	6/19/89	12.18	No	0.0
MW-4	7/18/89	12.21	No	0.0
MW-4	8/08/89	12.23	No	0.0
MW-4	9/11/89	12.26	No	0.0
MW-4	10/10/89	12.28	No	0.0
MW-4	1/05/90	12.25	No	0.0
MW-5	10/10/89	11.08	No	0.0
MW-5	1/05/90	12.96	No	0.0
MW-6	1/05/90	10.23	No	0.0
MW-9	1/05/90	9.90	No	0.0
MW-10	1/05/90	9.92	No	0.0

4. REVIEW OF DATA AND INTERPRETATIONS

4.1 Groundwater Elevation and Gradient (See Drawing 4)

- Groundwater gradient is nonlinear, with an apparent change in trend from southeast to southwest across the site.

- The gradient has changed slightly August 1989 to January 1990.
- The groundwater elevation increased approximately 0.10 ft. from August 1989 to January 1990.

4.2 Distribution of Dissolved MVF Contamination in Groundwater (See Drawings 5-7)

TPH-g dissolved in groundwater is highest in offsite monitoring well OMW-6 (22 ppm). The upgradient edge of the TPH-g plume is defined by <0.05 ppm contour which crosses the site along a north-south trend, with a southern extension across 40th Street. The north and south edges of the plume are not defined. Further more, the eastern half or more of the plume is not defined. Apparently, 80% or more of the groundwater plume for TPH-g is offsite.

The TPH-d plume closely resembles the TPH-g plume, but at substantially lower concentrations. The distribution of TPH-d is again centered at OMW-6, with an eastern crossgradient margin of the plume defined by a <0.05 isopleth which crosses the site. Benzene in groundwater (Drawing 7) shows a similar distribution and partial plume definition.

1989 diesel and groundwater plume definition showed the eastern crossgradient margins of the above plumes at mid-site. Thus, the work in January, 1990 established the offsite, southern extension of plume isopleths. None of the work in January, 1990 modified earlier interpretations. However, the January, 1990 did establish a TPH-g, TPH-d and benzene plume center for groundwater offsite.

4.3 Distribution of Floating Product on Groundwater

- No floating product was observed during January 1990 monitoring. This condition is the same as earlier monitoring indicated during 1989.

5. WORK PLAN MODIFICATIONS

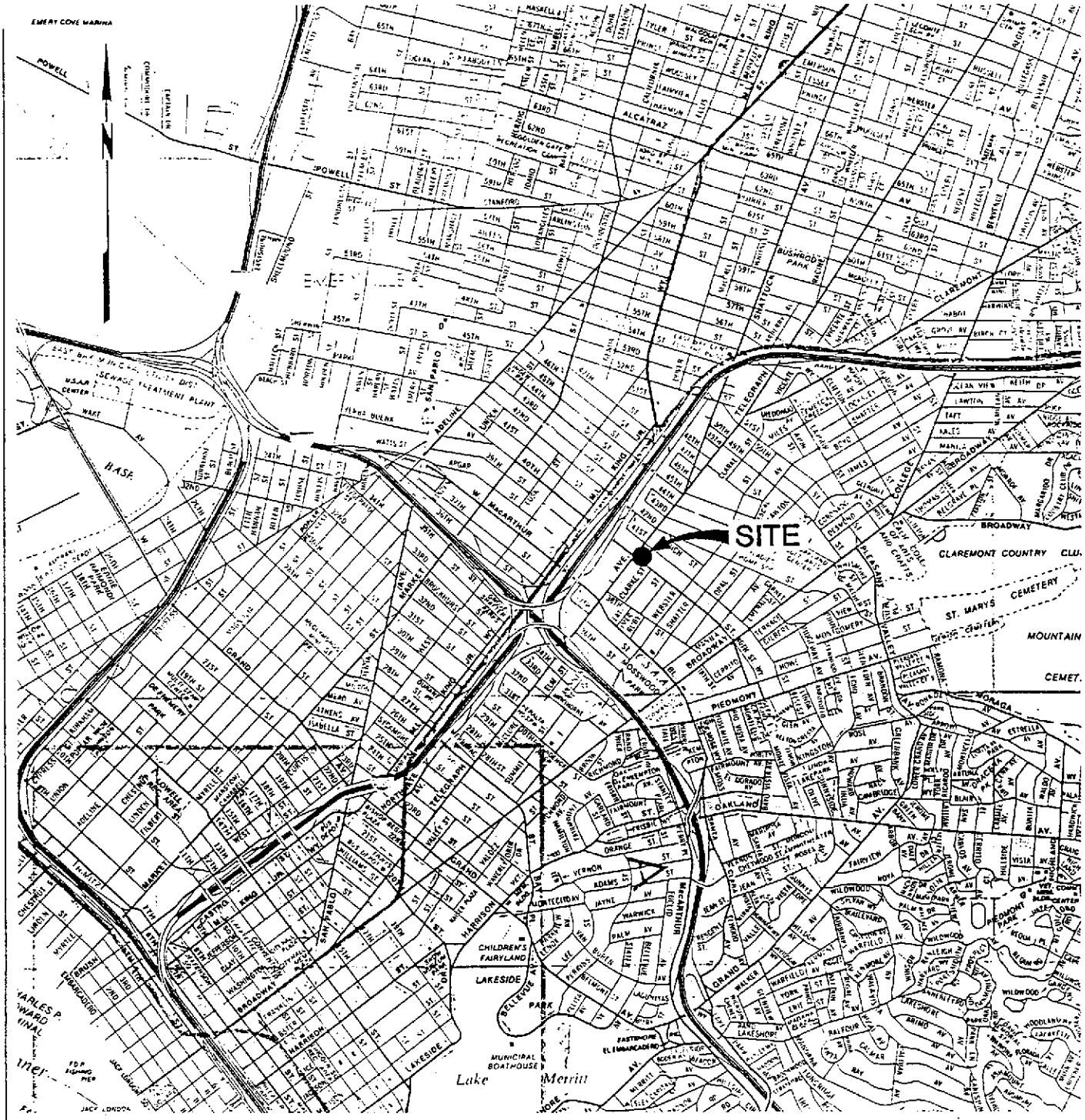
Task 16 was modified to include monthly groundwater sampling.

6. WORK PLANNED FOR NEXT MONTH

Groundwater will be sampled and analyzed in March, 1990. The groundwater analytical results will be presented in the Quarter 1, 1990 report. Thereafter, samples will be collected and analyzed quarterly.

Receipt of the right-of-entry agreement from the property owners at 518 40th Street is anticipated during Quarter 1, 1990. Installation of three proposed onsite wells (see Drawing 3) will proceed when the Agreement is secured. If the right-of-entry is not obtained, Shell will proceed with installing the wells onsite by using a small SIMCO drill rig. This drill rig will be small enough to access the driveway onsite without demolishing the fence along the western site boundary. Thus, the three extraction wells (EW-1, EW-2, EW-3) proposed in the driveway will be installed in Q1/90.

In February, 1990, Shell plans to continue its offsite characterization of groundwater conditions downgradient from the site, to the west along 40th Street (Drawing 8). These wells will be installed following the protocols already on file in the CEW revised workplan for this site dated 4/7/89. The offsite monitoring wells will be 4-inch diameter wells installed as per the specifications shown on Drawing 9. The extraction wells will be of similar construction specifications, but with a probable casing diameter of 6 inches.



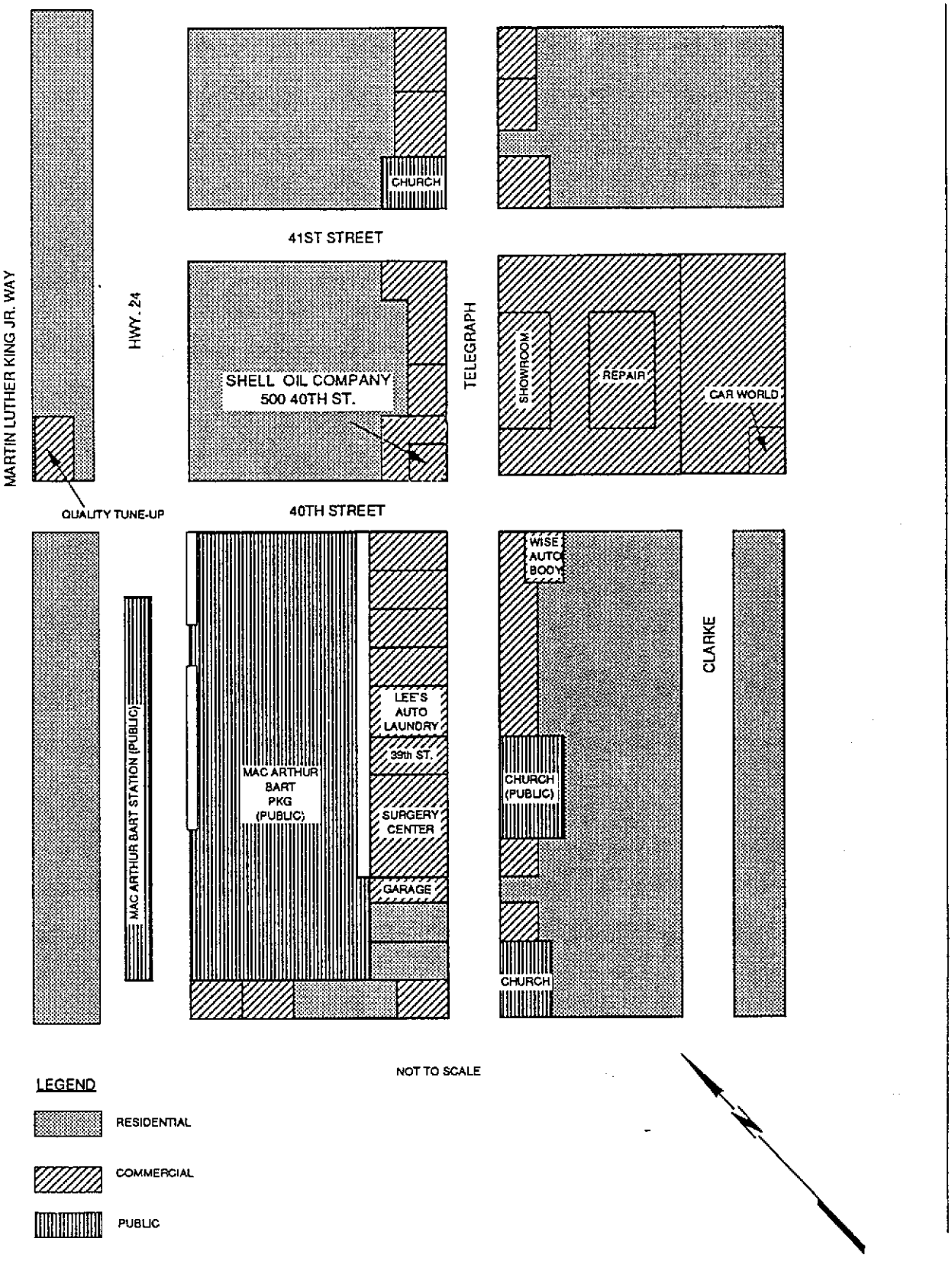
SOURCE: California State Automobile Association.

SITE LOCATION MAP

SHELL OIL COMPANY
500 40th Street
Oakland, California

Converse Environmental
Consultants California

Scale: AS SHOWN	Project No.: 88-44-361-01
Prepared by: KGC	Date: 4/4/89
Checked by: RMB/MIY	Drawing No.: 1
Approved by: DWC	

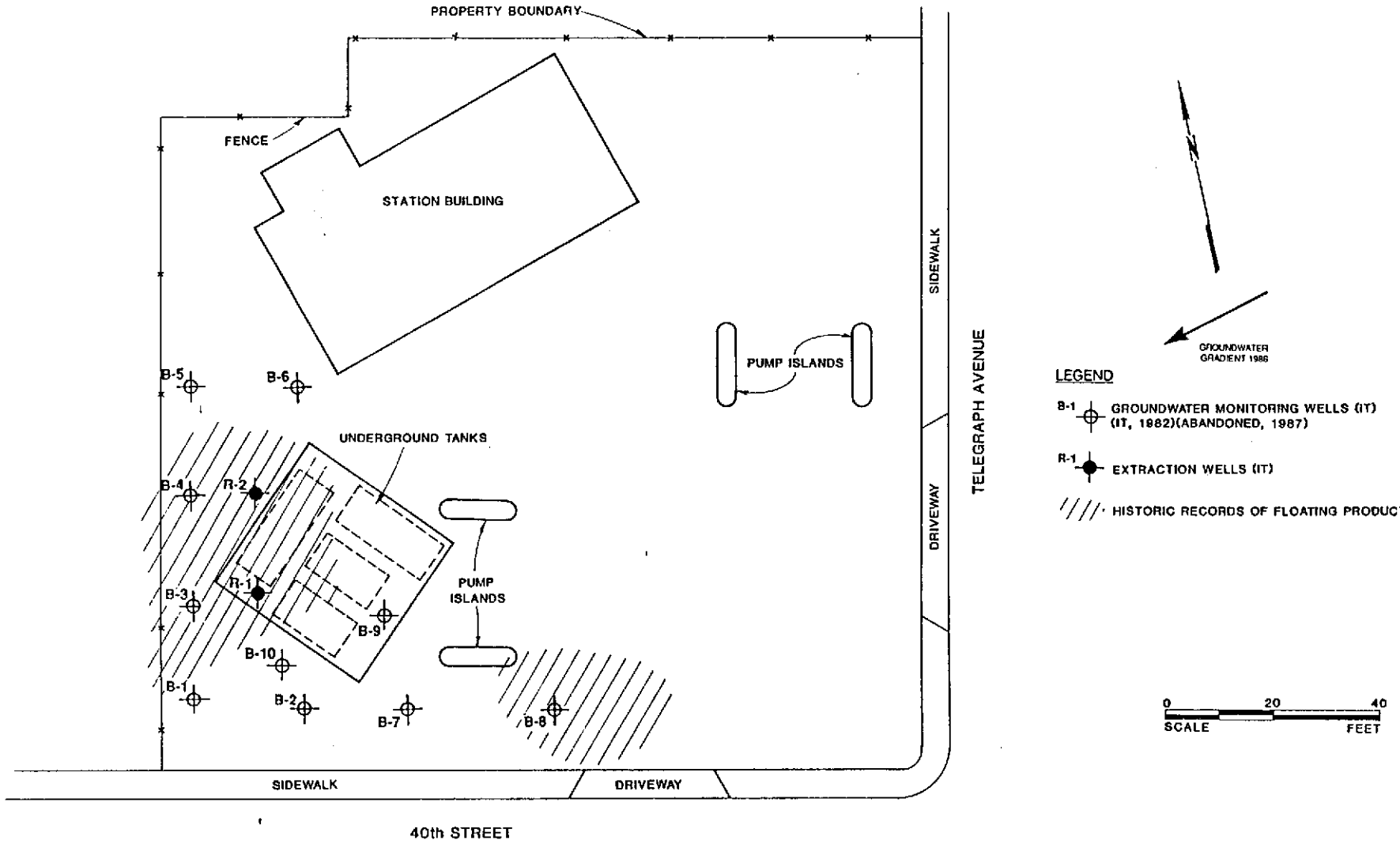


AREA LAND USE

SHELL OIL COMPANY
500 40th Street
Oakland, California

Converse Environmental Consultants California

Scale: AS SHOWN	Project No.: 88-44-361-01
Prepared by: CMM	Date: 6/22/89
Checked by: RMB	Drawing No.: 1a
Approved by:	



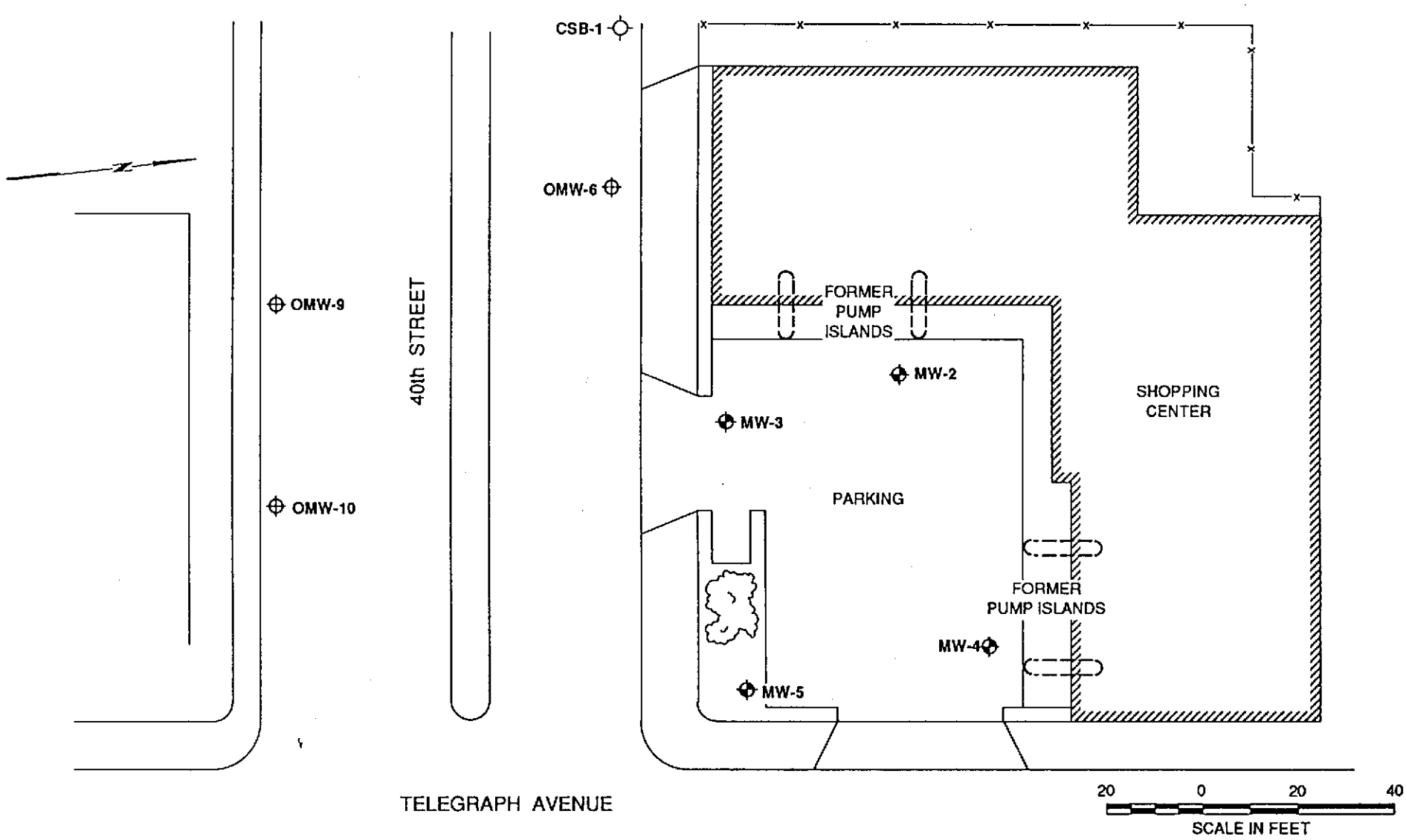
1986-1987 PLOT PLAN - BEFORE CONSTRUCTION OF SHOPPING CENTER

SHELL OIL COMPANY
500 40th Street
Oakland, California

Scale	AS SHOWN
Date	6/14/89
Prepared By	KGC
Checked By	RMB
Approved By	DWC
Project No	88-44-361-01
Drawing No	2

Converse Environmental Consultants California

Map: after Pacific Environmental Group, Inc. and IT Corporation



LEGEND:

SB-1 ⊕ SOIL BORING

MW-1 ⊕ GROUNDWATER MONITORING WELL

OMW-1 ⊕ OFFSITE GROUNDWATER MONITORING WELL

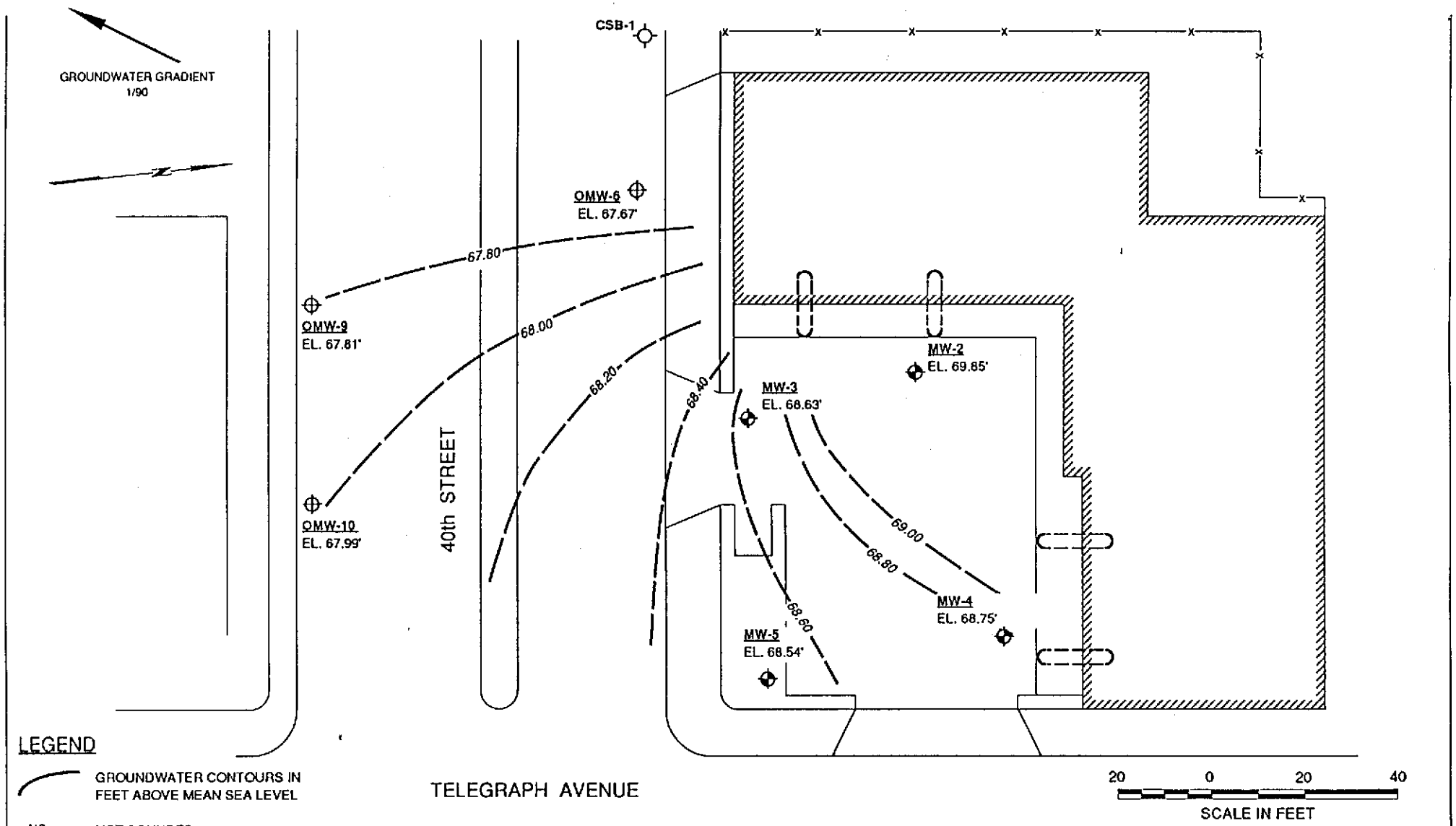
Base Map: Surveyed with EDM, Converse 1989.

PLOT PLAN Q4/89

SHELL OIL COMPANY
500 40th Street
Oakland, California

Converse Environmental West

Scale: AS SHOWN	Project No.: 88-44-361-01
Prepared by: LQL	Date: 12/29/89
Checked by: MIY	Drawing No.: 3
Approved by:	



LEGEND

- GROUNDWATER CONTOURS IN FEET ABOVE MEAN SEA LEVEL
- NS = NOT SOUNDED
- SB-1 ○ SOIL BORING
- MW-1 ⊕ GROUNDWATER MONITORING WELL SHOWING GROUNDWATER ELEVATIONS IN FEET ABOVE MSL
- OMW-6 ⊕ OFFSITE GROUNDWATER MONITORING WELL

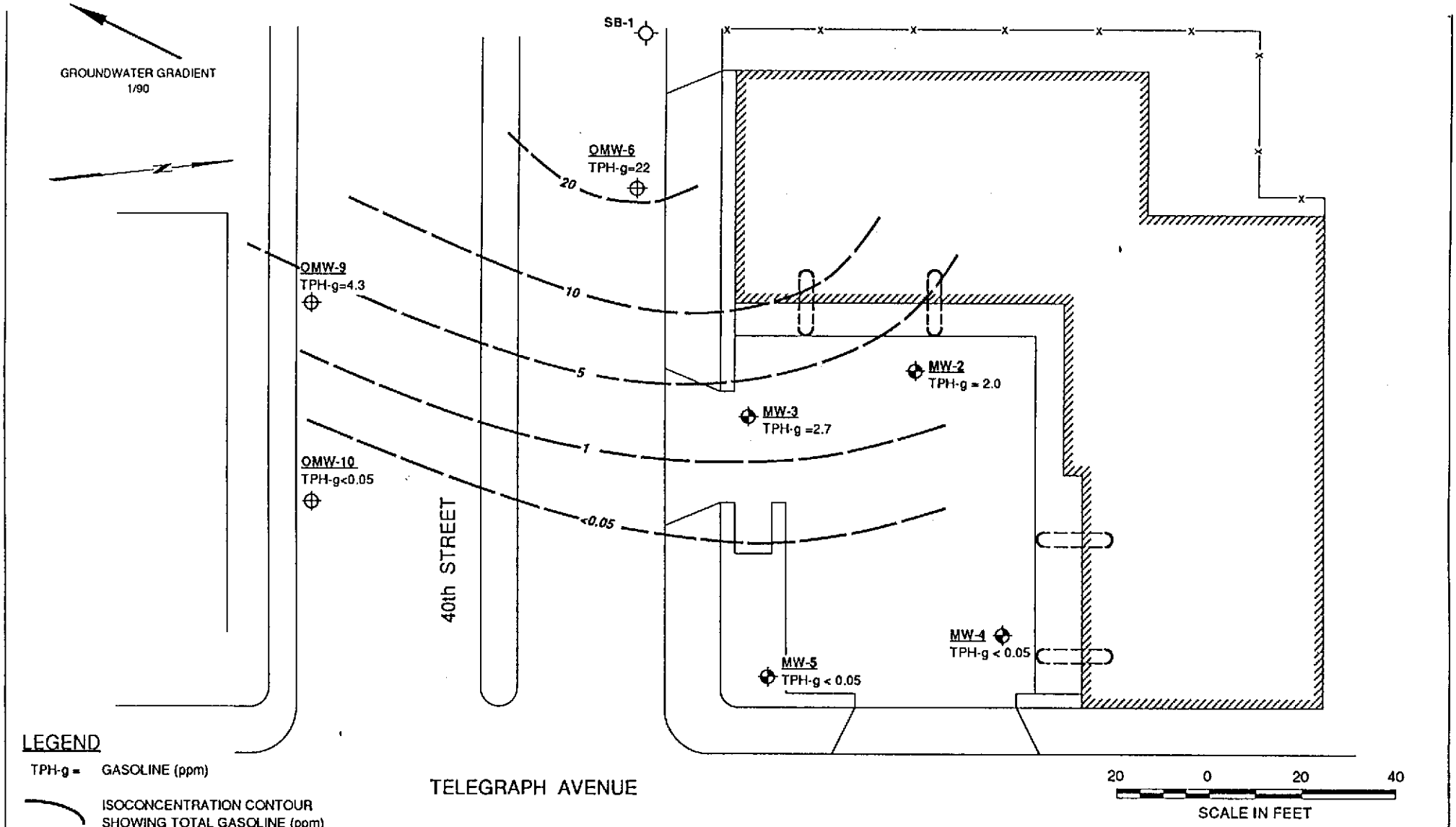
Base Map: Surveyed with EDM, Converse 1989.

POTENTIOMETRIC MAP JANUARY 1990

SHELL OIL COMPANY
500 40th Street
Oakland, California

Converse Environmental West

Scale: AS SHOWN	Project No.: 88-44-361-01
Prepared by: LQL/KGC	Date: 1/25/90
Checked by: MIY	Drawing No.: 4
Approved by:	



LEGEND

TPH-g = GASOLINE (ppm)

ISOCONCENTRATION CONTOUR SHOWING TOTAL GASOLINE (ppm)

SB-1 SOIL BORING

MW-1 GROUNDWATER MONITORING WELL

OMW-6 OFFSITE GROUNDWATER MONITORING WELL

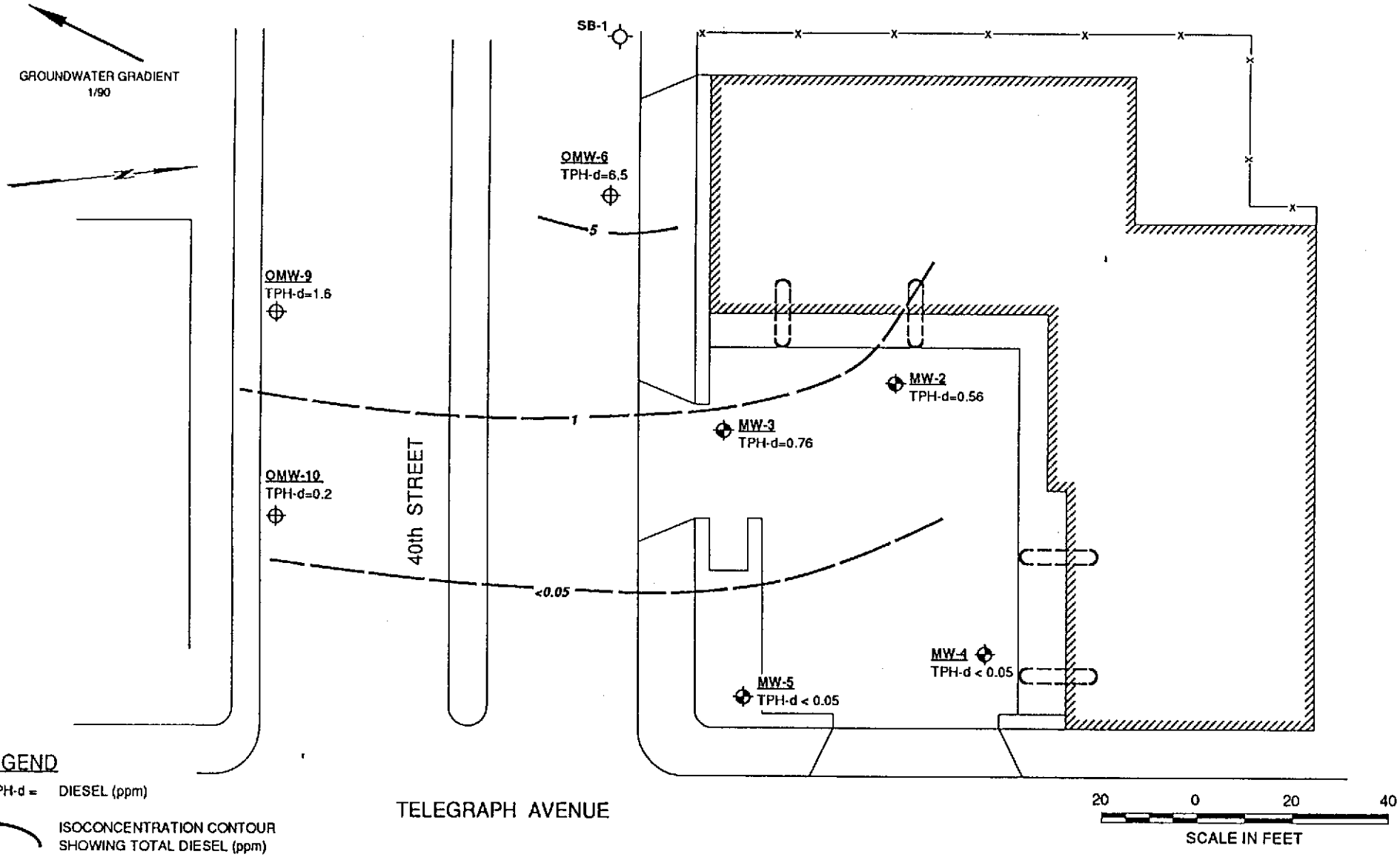
Base Map: Surveyed with EDM, Converse 1989.

PLAN: TPH-g IN GROUNDWATER JANUARY 1990

SHELL OIL COMPANY
500 40th Street
Oakland, California

Converse Environmental West

Scale: AS SHOWN	Project No.: 88-44-361-01
Prepared by: LQL/KGC	Date: 1/25/90
Checked by: MIY	Drawing No.: 5
Approved by:	



LEGEND

TPH-d = DIESEL (ppm)

ISOCONCENTRATION CONTOUR SHOWING TOTAL DIESEL (ppm)

SB-1 SOIL BORING

MW-1 GROUNDWATER MONITORING WELL

OMW-6 OFFSITE GROUNDWATER MONITORING WELL

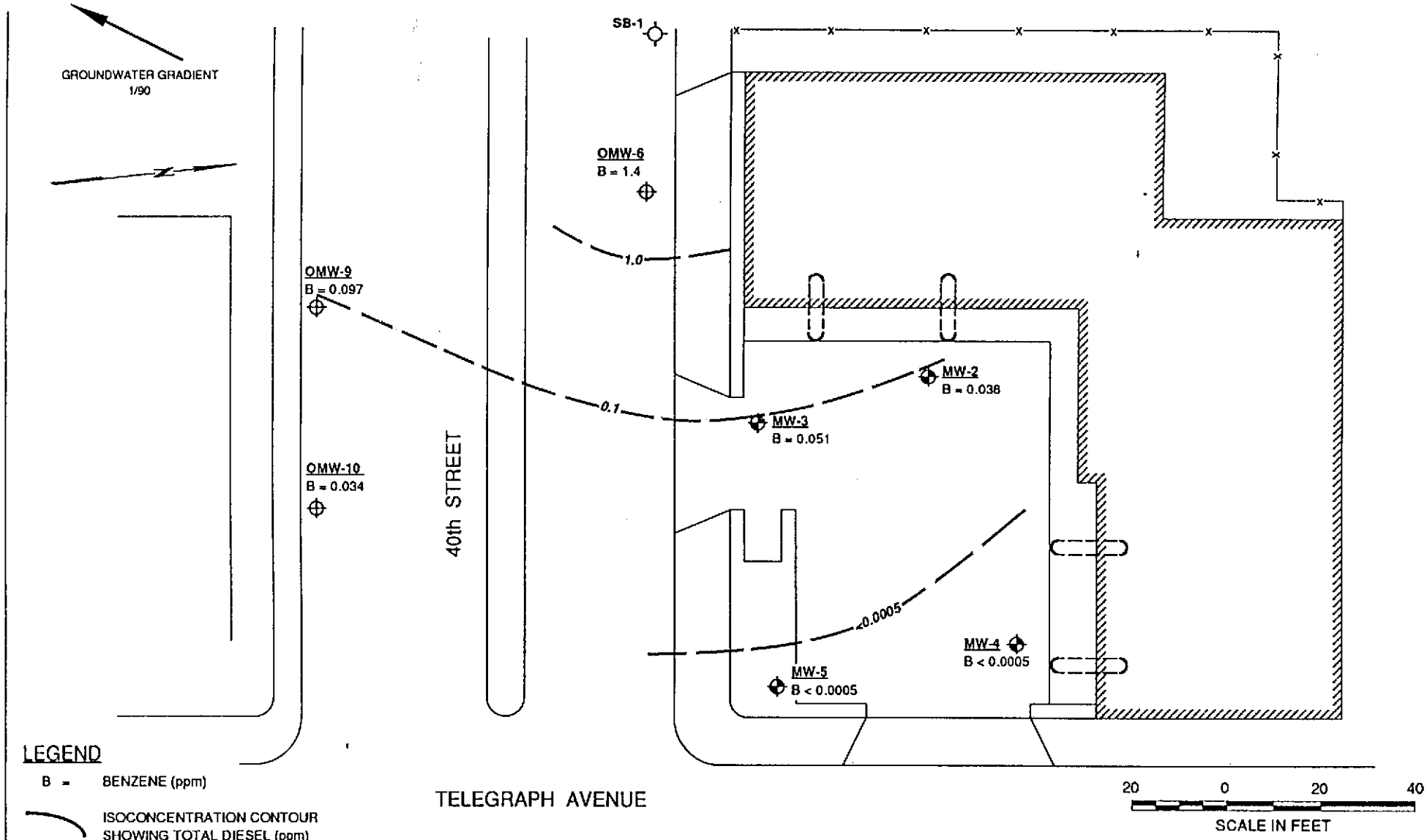
Base Map: Surveyed with EDM, Converse 1989.

PLAN: TPH-d IN GROUNDWATER JANUARY 1990

SHELL OIL COMPANY
500 40th Street
Oakland, California

Converse Environmental West

Scale: AS SHOWN	Project No.: 88-44-361-01
Prepared by: LQL/KGC	Date: 1/25/90
Checked by: MIY	Drawing No.: 6
Approved by:	



LEGEND

B = BENZENE (ppm)

ISOCONCENTRATION CONTOUR SHOWING TOTAL DIESEL (ppm)

SB-1 SOIL BORING

MW-1 GROUNDWATER MONITORING WELL

OMW-6 OFFSITE GROUNDWATER MONITORING WELL

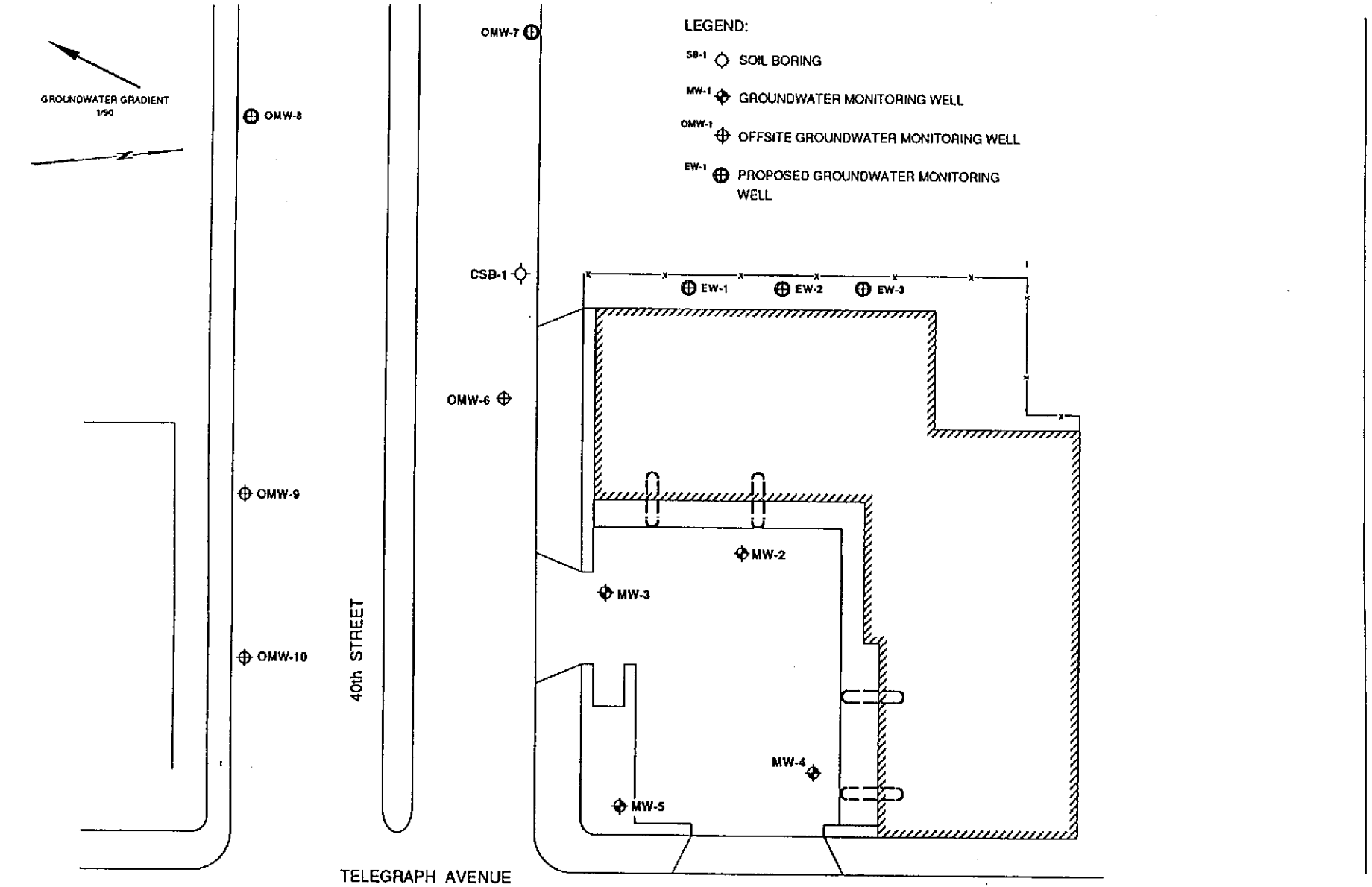
Base Map: Surveyed with EDM, Converse 1989.

PLAN: BENZENE IN GROUNDWATER JANUARY 1990

SHELL OIL COMPANY
500 40th Street
Oakland, California

Converse Environmental West

Scale: AS SHOWN	Project No.: 88-44-361-01
Prepared by: LQL/KGC	Date: 1/25/90
Checked by: MIY	Drawing No.: 7
Approved by:	



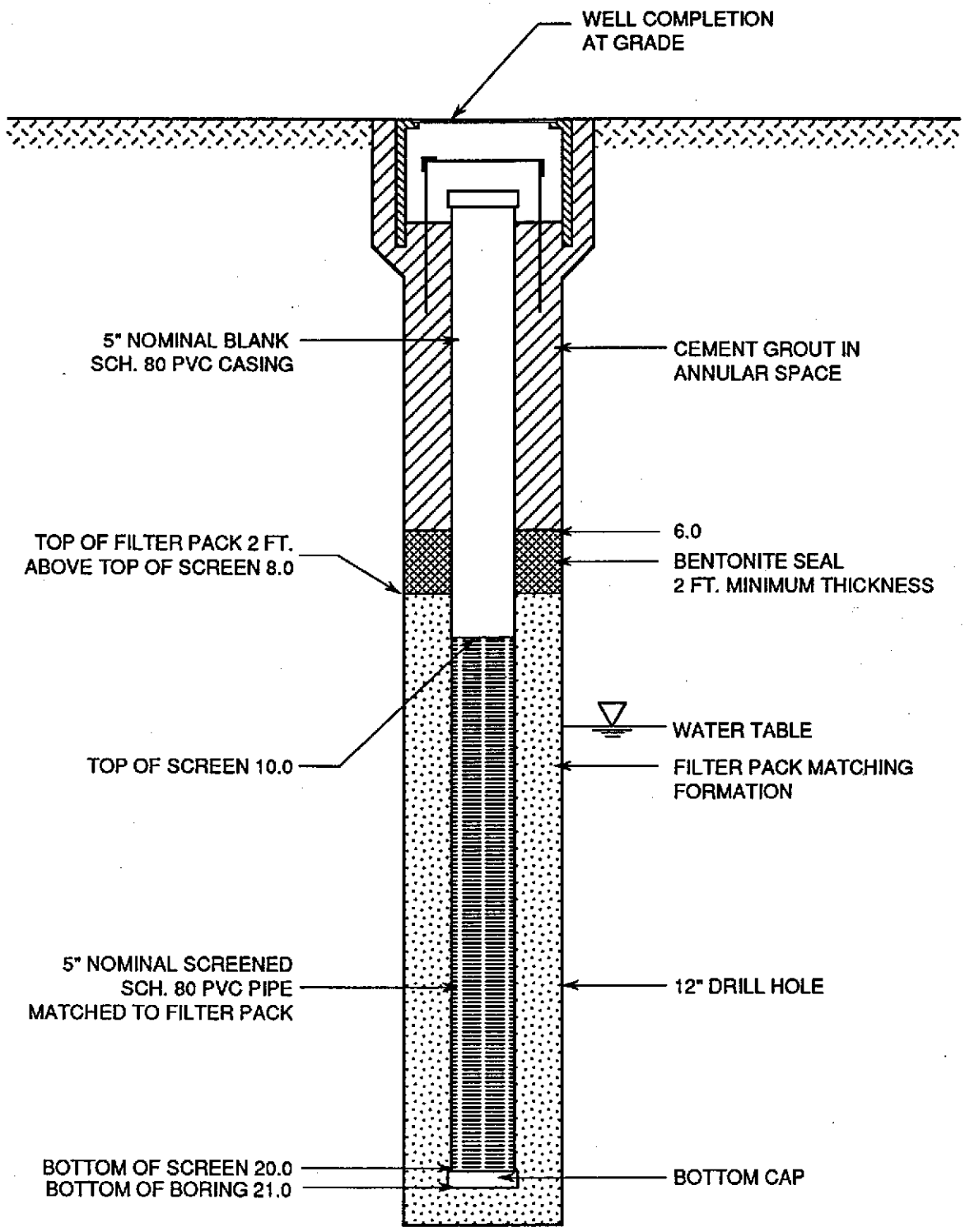
Base Map: Surveyed with EDM, Converse 1989.

PROPOSED GROUNDWATER MONITORING WELLS

SHELL OIL COMPANY
500 40th Street
Oakland, California

Converse Environmental West

Scale: AS SHOWN	Project No.: 88-44-361-01
Prepared by: LQL/KGC	Date: 1/31/89
Checked by: MIY	Drawing No.: 8
Approved by:	



WELL CONSTRUCTION DIAGRAM

SHELL OIL COMPANY
500 40th Street
Oakland, California

Project No.
88-44-361-02
Drawing No.

ATTACHMENT 1

GROUNDWATER ANALYTICAL RESULTS

NATIONAL ENVIRONMENTAL TESTING, INC.

NET Pacific, Inc.
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

RECEIVED

JAN 19 1990

CONVERSE ENVIRONMENTAL

Marc Yalom
Converse Consultants
55 Hawthorne St, Ste 500
San Francisco, CA 94105

Date: 01-15-90
NET Client Acct. No: 18.02
NET Pacific Log No: 9206
Received: 01-06-90 1035

Client Reference Information

SHELL, 500 40th St., Oakland; Project # 88-44-361-01

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Approved by:

Jules Skamarack
Laboratory Manager

Enclosure(s)

SAMPLE DESCRIPTION: MW-10 01-05-90 1130
LAB Job No: (-43131)

Parameter	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS		--	
VOLATILE (WATER)		--	
DILUTION FACTOR *		1	
DATE ANALYZED		01-09-90	
METHOD GC FID/5030		--	
as Gasoline	0.05	ND	ppm
METHOD 602		--	
Benzene	0.0005	0.034	ppm
Ethylbenzene	0.0005	0.0043	ppm
Toluene	0.0005	0.0011	ppm
Xylenes, total	0.0005	0.013	ppm
PETROLEUM HYDROCARBONS		--	
EXTRACTABLE (WATER)		--	
DILUTION FACTOR *		1	
DATE EXTRACTED		01-09-90	
DATE ANALYZED		01-09-90	
METHOD GC FID/3510		--	
as Diesel	0.05	0.20	ppm
as Motor Oil	0.05	ND	ppm

SAMPLE DESCRIPTION: MW-9 01-05-90 1300
LAB Job No: (-43132)

Parameter	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS		--	
VOLATILE (WATER)		--	
DILUTION FACTOR *		5	
DATE ANALYZED		01-09-90	
METHOD GC FID/5030		--	
as Gasoline	0.05	4.3	ppm
METHOD 602		--	
Benzene	0.0005	0.097	ppm
Ethylbenzene	0.0005	0.091	ppm
Toluene	0.0005	0.12	ppm
Xylenes, total	0.0005	0.29	ppm
PETROLEUM HYDROCARBONS		--	
EXTRACTABLE (WATER)		--	
DILUTION FACTOR *		1	
DATE EXTRACTED		01-09-90	
DATE ANALYZED		01-09-90	
METHOD GC FID/3510		--	
as Diesel	0.05	1.6	ppm
as Motor Oil	0.05	ND	ppm

SAMPLE DESCRIPTION: MW-3 01-05-90 1315
LAB Job No: (-43133)

Parameter	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS		--	
VOLATILE (WATER)		--	
DILUTION FACTOR *		1	
DATE ANALYZED		01-09-90	
METHOD GC FID/5030		--	
as Gasoline	0.05	2.7	ppm
METHOD 602		--	
Benzene	0.0005	0.051	ppm
Ethylbenzene	0.0005	0.028	ppm
Toluene	0.0005	0.041	ppm
Xylenes, total	0.0005	0.070	ppm
PETROLEUM HYDROCARBONS		--	
EXTRACTABLE (WATER)		--	
DILUTION FACTOR *		1	
DATE EXTRACTED		01-09-90	
DATE ANALYZED		01-09-90	
METHOD GC FID/3510		--	
as Diesel	0.05	0.76	ppm
as Motor Oil	0.05	ND	ppm

SAMPLE DESCRIPTION: MW-6 01-05-90 1330
LAB Job No: (-43134)

Parameter	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS		--	
VOLATILE (WATER)		--	
DILUTION FACTOR *		5	
DATE ANALYZED		01-09-90	
METHOD GC FID/5030		--	
as Gasoline	0.05	22	ppm
METHOD 602		--	
Benzene	0.0005	1.4	ppm
Ethylbenzene	0.0005	0.56	ppm
Toluene	0.0005	1.8	ppm
Xylenes, total	0.0005	1.5	ppm
PETROLEUM HYDROCARBONS		--	
EXTRACTABLE (WATER)		--	
DILUTION FACTOR *		1	
DATE EXTRACTED		01-09-90	
DATE ANALYZED		01-09-90	
METHOD GC FID/3510		--	
as Diesel	0.05	6.5	ppm
as Motor Oil	0.05	ND	ppm

SAMPLE DESCRIPTION: MW-4 01-05-90 1515
LAB Job No: (-43135)

Parameter	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS		--	
VOLATILE (WATER)		--	
DILUTION FACTOR *		1	
DATE ANALYZED		01-09-90	
METHOD GC FID/5030		--	
as Gasoline	0.05	ND	ppm
METHOD 602		--	
Benzene	0.0005	ND	ppm
Ethylbenzene	0.0005	ND	ppm
Toluene	0.0005	ND	ppm
Xylenes, total	0.0005	ND	ppm
PETROLEUM HYDROCARBONS		--	
EXTRACTABLE (WATER)		--	
DILUTION FACTOR *		1	
DATE EXTRACTED		01-09-90	
DATE ANALYZED		01-09-90	
METHOD GC FID/3510		--	
as Diesel	0.05	ND	ppm
as Motor Oil	0.05	ND	ppm

SAMPLE DESCRIPTION: MW-2 01-05-90 1530
LAB Job No: (-43136)

Parameter	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS		--	
VOLATILE (WATER)		--	
DILUTION FACTOR *		1	
DATE ANALYZED		01-09-90	
METHOD GC FID/5030		--	
as Gasoline	0.05	2.0	ppm
METHOD 602		--	
Benzene	0.0005	0.038	ppm
Ethylbenzene	0.0005	0.030	ppm
Toluene	0.0005	0.0056	ppm
Xylenes, total	0.0005	0.059	ppm
PETROLEUM HYDROCARBONS		--	
EXTRACTABLE (WATER)		--	
DILUTION FACTOR *		1	
DATE EXTRACTED		01-09-90	
DATE ANALYZED		01-09-90	
METHOD GC FID/3510		--	
as Diesel	0.05	0.56	ppm
as Motor Oil	0.05	ND	ppm

SAMPLE DESCRIPTION: MW-5 01-05-90 1630
LAB Job No: (-43137)

Parameter	Reporting Limit	Results	Units
PETROLEUM HYDROCARBONS		--	
VOLATILE (WATER)		--	
DILUTION FACTOR *		1	
DATE ANALYZED		01-09-90	
METHOD GC FID/5030		--	
as Gasoline	0.05	ND	ppm
METHOD 602		--	
Benzene	0.0005	ND	ppm
Ethylbenzene	0.0005	ND	ppm
Toluene	0.0005	ND	ppm
Xylenes, total	0.0005	ND	ppm
PETROLEUM HYDROCARBONS		--	
EXTRACTABLE (WATER)		--	
DILUTION FACTOR *		1	
DATE EXTRACTED		01-09-90	
DATE ANALYZED		01-09-90	
METHOD GC FID/3510		--	
as Diesel	0.05	ND	ppm
as Motor Oil	0.05	ND	ppm

NET Pacific, Inc.

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in results column indicates analyte not detected at the value following, which supercedes the listed reporting limit.
mean	:	Average; sum of measurements divided by number of measurements.
mg/Kg (ppm)	:	Concentration in units of milligrams of analyte per kilogram of sample, wet-weight basis (parts per million).
mg/L	:	Concentration in units of milligrams of analyte per liter of sample.
mL/L/hr	:	Milliliters per liter per hour.
MPN/100 mL	:	Most probable number of bacteria per one hundred milliliters of sample.
N/A	:	Not applicable.
NA	:	Not analyzed.
ND	:	Not detected; the analyte concentration is less than applicable listed reporting limit.
NTU	:	Nephelometric turbidity units.
RPD	:	Relative percent difference, 100 [Value 1 - Value 2]/mean value.
SNA	:	Standard not available.
ug/Kg (ppb)	:	Concentration in units of micrograms of analyte per kilogram of sample, wet-weight basis (parts per billion).
ug/L	:	Concentration in units of micrograms of analyte per liter of sample.
umhos/cm	:	Micromhos per centimeter.

Method References

Methods 601 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants" U.S. EPA, 40 CFR, Part 136, rev. 1988.

Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd edition, 1986.

* Reporting Limits are a function of the dilution factor for any given sample. To obtain the actual reporting limits for this sample, multiply the stated reporting limits by the dilution factor.

Converse Consultants

WIC No.# 204-5508-4903
AFE No.# 98611
EXP CODE # 5440

9206

CHAIN OF CUSTODY RECORD

Project No.	Project Name
8R-4M-3001-01	500 40th ST. - OAKLAND

Samplers: (signature) Kelly Shutes

15 - 1 LITRE BOTTLES
28 - 40 ML VOA'S

P.M.: MARK YALOM
SHELL

Station No.	Date	Time	Comp.	Grab	Station Location	Number of Containers (43 TOTAL)	TPH-GAS (WATER)	TPH-DIESEL (WATER)	BTEX (WATER)				Remarks
MW-10	1/5/90	11:30		✓	500 40th ST. - OAK.	7	✓	✓	✓				STANDARD TURNAROUND TIME
MW-9	1/5/90	1:00		✓	500 40th ST. - OAK.	6	✓	✓	✓				" " "
MW-8	1/5/90	1:15		✓	500 40th ST. - OAK.	6	✓	✓	✓				" " "
MW-6	1/5/90	3:30		✓	500 40th ST. - OAK.	6	✓	✓	✓				" " "
MW-4	1/5/90	5:15		✓	500 40th ST. - OAK.	6	✓	✓	✓				" " "
MW-2	1/5/90	5:30		✓	500 40th ST. - OAK.	6	✓	✓	✓				" " "
MW-5	1/5/90	4:30		✓	500 40th ST. - OAK.	6	✓	✓	✓				" " "

NOTE:
MUST HAVE ANALYSIS IN HAND BY 1-12-90

Relinquished by: (signature)	Date/Time	Received by: (signature)	Relinquished by: (signature)	Date/Time	Received by: (signature)
Kelly Shutes					
Relinquished by: (signature)	Date/Time	Received by: (signature)	Relinquished by: (signature)	Date/Time	Received by: (signature)
Relinquished by Courier: (signature)	Date/Time	Received by Mobile Lab: (signature)	Relinquished by Mobile Lab: (signature)	Date/Time	Received by Courier: (signature)
Method of Shipment		Shipped by: (signature)	Courier from Airport: (signature)	Received for Laboratory: (signature)	Date/Time 1-6-90 / 10:55 am

NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Pacific, Inc.
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

RECEIVED

CONVERSE ENVIRONMENTAL

Marc Yalom
Converse Consultants
55 Hawthorne St, Ste 500
San Francisco, CA 94105

Date: 01-18-90
NET Client Acct. No: 18.02
NET Pacific Log No: 9237
Received: 01-10-90 0700

Client Reference Information

SHELL 500 40th St., Oakland; Project# 88-44-361-01

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Approved by:

Jules Skamarack
Laboratory Manager

Enclosure(s)

SAMPLE DESCRIPTION: OMW9 #1-3comp01-09-90
LAB Job No: (-43358)

Parameter	Reporting Limit	Results	Units
Lead (EPA 7421)	0.2	5.5	ppm
PETROLEUM HYDROCARBONS		--	
VOLATILE (SOIL)		--	
DILUTION FACTOR *		1	
DATE ANALYZED		01-11-90	
METHOD GC FID/5030		--	
as Gasoline	1	ND	ppm
METHOD 8020		--	
Benzene	0.0025	ND	ppm
Ethylbenzene	0.0025	ND	ppm
Toluene	0.0025	ND	ppm
Xylenes, total	0.0025	ND	ppm
PETROLEUM HYDROCARBONS		--	
EXTRACTABLE (SOIL)		--	
DILUTION FACTOR *		1	
DATE EXTRACTED		01-11-90	
DATE ANALYZED		01-17-90	
METHOD GC FID/3550		--	
as Diesel	1	ND	ppm
as Motor Oil	10	ND	ppm

Michelle

9237

Converse Consultants

CHAIN OF CUSTODY RECORD

Project No.: 90-01-361-01

Project Name: 800 40th St, Oakland

Samplers: (signature) [signature]

Station No.	Date	Time	Comp.	Grab	Station Location	Number of Containers	TPH-gas	TPH-diesel	TPH-motor oil	BTEX	Pb	Remarks
[illegible]	1-9-90			x	soil drum #1	3						
↓	↓			x	soil drum #2		x	x	x	x	X	composite as one sample
↓	↓			x	soil drum #3							
												STAT
												samples recvd on blue ice 1/10/90

Relinquished by: (signature)	Date/Time	Received by: (signature)	Relinquished by: (signature)	Date/Time	Received by: (signature)
Gerald P Mannell	1/9/90 16:30	Jeff Winkler	Jeff Winkler		
Relinquished by: (signature)	Date/Time	Received by: (signature)	Relinquished by: (signature)	Date/Time	Received by: (signature)
Relinquished by Courier: (signature)	Date/Time	Received by Mobile Lab: (signature)	Relinquished by Mobile Lab: (signature)	Date/Time	Received by Courier: (signature)

Method of Shipment	Shipped by: (signature)	Courier from Airport: (signature)	Received for Laboratory: (signature)	Date/Time
(VIA NCS)			[signature]	1/10/90 0700

NET Pacific, Inc.

KEY TO ABBREVIATIONS and METHOD REFERENCES

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NATIONAL ENVIRONMENTAL TESTING, INC.

NET Pacific, Inc.
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

Marc Yalom
Converse Consultants
55 Hawthorne St, Ste 500
San Francisco, CA 94105

Date: 12-14-89
NET Client Acct No: 18.02
NET Pacific Log No: 8734a
Client Ref: Project#88-44-361-01-11

Client Reference Information

SHELL-500 40th St. Oakland
Original Log #8583
REVISED 01/24/90

Dear Marc Yalom:

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Approved by:

Jules Skamarack
Laboratory Manager

/ma
Enclosure

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