



Contractor's License #643881

# Accutite Environmental Engineering

35 So. Linden Avenue, South San Francisco, CA 94080-6407 Tel: (650) 952-5551 Fax: (650) 952-7631 Tank Testing: (650) 952-0327

July 12, 1999

Ms. Eva Chu  
Hazardous Materials Specialist  
Alameda County Health Agency  
Division of Environmental Protection  
1131 Harbor Bay Parkway, 2nd Floor  
Alameda, CA 94502

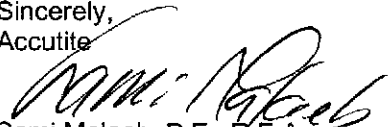
**SUBJECT: GROUNDWATER SAMPLING AND ANALYSIS, UTILITY SEARCH, AND A WORKPLAN TO INSTALL TWO ADDITIONAL MONITORING WELLS AT FORMER SERVICE STATION, 1435 WEBSTER STREET IN ALAMEDA, CALIFORNIA**

Dear Ms. Chu:

Accutite is pleased to enclose the report for the groundwater sampling and analysis of three monitoring wells at the former service station, 1435 Webster Street in Alameda California. Also, we included the results of our search of underground utilities and a workplan to install two additional monitoring wells. The site vicinity review to search for other potential sources of petroleum hydrocarbons will be conducted and the results of this review will be presented in the next well installation and sampling report.

Thank you for your cooperation. If you have any questions, please call me at (650) 952-5551, Ext. 209.

Sincerely,  
Accutite

  
Sami Malaeb, P.E., R.E.A.  
Project Manager

Cc: Mr. Dan Koch, Olympian, 260 Michelle Court, South San Francisco, CA 94080  
Mr. David Harris, Esq., Trump, Alioto, Trump & Prescott, LLP, 2280 Union Street, San Francisco, CA 94123  
Mr. Jeff Farrar, 3100 Cohasset Road, Chico, CA 95973

1999 JUL 19 PM 3:34  
ENVIRONMENTAL PROTECTION



Contractor's License #643881

**Accutite Environmental Engineering**

35 So. Linden Avenue, South San Francisco, CA 94080-6407    Tel: (650) 952-5551    Fax: (650) 952-7631    Tank Testing: (650) 952-0327

**GROUNDWATER SAMPLING AND ANALYSIS,  
UTILITY SEARCH, AND  
A WORKPLAN TO INSTALL TWO ADDITIONAL MONITORING WELLS**

**AT  
FORMER SERVICE STATION  
1435 WEBSTER STREET  
ALAMEDA, CA**

**PREPARED FOR:  
OLYMPIAN  
260 MICHELLE COURT  
SOUTH SAN FRANCISCO, CA**

**PREPARED BY:  
ACCUTITE  
35 SOUTH LINDEN AVENUE  
SOUTH SAN FRANCISCO, CA 94080**

**SAMPLING DATE: JUNE 23, 1999**

1435QMWP171299

## 1.0 INTRODUCTION

Olympian retained Accutite Environmental Engineering (Accutite) to conduct groundwater sampling and analysis from three monitoring wells at the former service station, 1435 Webster Street in Alameda, California (Figure 1). This report presents the analytical findings from the sampling episode, performed on June 23, 1999. Also included is a workplan to advance two additional monitoring wells and the results of the underground utility survey.

## 2.0 BACKGROUND

For background information about the subject site, please review BT Associates report, dated August 16, 1993 and the subsequent quarterly groundwater monitoring reports.

Below we detail the sampling results of MW-1, MW-2, and MW-3 from the sampling episode, completed on June 23, 1999.

## 3.0 ELEVATION DATA AND GROUNDWATER FLOW DIRECTION

On June 23, 1999, prior to sampling, Accutite measured the groundwater elevations in all three wells. The reference mark considered as a base for calculating the groundwater elevations was a fire hydrant, located on the sidewalk of Webster Street (Figure 2).

The calculated groundwater flow direction was to the southeast (Figure 2) with a gradient of 0.005 ft/ft. Table 1 below summarizes the elevation data from 6/23/99:

Table 1. Elevation Data

Well Identification	Elevation of Casing in ft	Depth to Ground-Water in ft on June 23, 1999	Ground Water Elevation in ft
MW-1	19.53	9.03	10.50
MW-2	19.80	9.33	10.47
MW-3	19.79	9.21	10.58

## 4.0 SAMPLING

On June 23, 1999, Accutite sampled all three monitoring wells MW-1, MW-2, and MW-3. Wells were purged prior to sampling. The sampling logs are included in Appendix A. The groundwater samples were obtained through a disposable bailer, and were directly transferred into the sampling vials and containers. The samples were transported in a cooler at approximately 4°C. A completed chain of custody accompanied the samples to North State Environmental Laboratory.

## 5.0 LABORATORY ANALYSIS

The laboratory results are included in Appendix B. A tabulated summary of the analytical findings to date is included in Table 2, below.



**Table 2. Cumulative Groundwater Analytical Results**

Sample ID	Date Of Sampling	Depth to Water (ft)	TPH-D <sup>(1)</sup> in ppb <sup>(2)</sup>	TPH-G <sup>(3)</sup> in ppb	Benzene in ppb	Toluene in ppb	Ethyl Benzene in ppb	Xylenes in ppb	MTBE <sup>(4)</sup> in ppb	TRPH <sup>(5)</sup> ppm <sup>(6)</sup>
MW-1	6/03/93	N/A <sup>(7)</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/14/94	11.46	<50	14,000	44	28	25	50	NA <sup>(8)</sup>	0.8
	12/30/94	9.22	<50	4,000	12	9	6.8	30	NA	<0.5
	3/26/95	6.76	<50	1,000	21	10	7.1	25	NA	2.1
	07/9/95	8.92	<50	16,000	57	28	25	53	NA	NA
	07/31/98	8.30	1,700	4,700	1,300	48	140	150	6,600	<5
	02/11/99	7.91	2000	25,000	18,000	1,600	1,400	500	28,000	NA
	6/23/99	9.03	4,900	42,000	11,000	1,100	1,500	2,300	15,000	NA
	MW-2	6/03/93	9.54	<50	<50	5.8	<0.5	<0.5	<0.5	NA
9/14/94		11.82	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.5
12/30/94		9.46	<50	160	1.4	1.4	0.8	5.0	NA	<0.5
3/26/95		6.82	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.5
07/9/95		9.22	NA	NA	NA	NA	NA	NA	NA	NA
07/31/98		8.56	220	<50	<0.5	<0.5	<0.5	<0.5	73	<5
02/11/99		8.12	<50	<50	<0.5	<0.5	<0.5	<0.5	75	NA
6/23/99		9.33	420	<50	<0.5	<0.5	<0.5	<0.5	96	NA
MW-3		6/03/93	9.80	<50	<50	<0.5	<0.5	<0.5	<0.5	NA
	9/14/94	12.19	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.5
	12/30/94	9.72	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.5
	3/26/95	6.88	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.5
	07/9/95	9.52	NA	NA	NA	NA	NA	NA	NA	NA
	07/31/98	8.40	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5
	02/11/99	7.77	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	NA
	06/23/99	9.21	<50	<50	<0.5	<0.5	<0.5	<0.5	3.0	NA

- (1) TPH-D = Total Petroleum Hydrocarbons as Diesel
- (2) ppb = part per billion or microgram per liter
- (3) TPH-G = Total Petroleum Hydrocarbons as Gasoline
- (4) MTBE = Methyl tertiary butyl ether
- (5) TRPH = Total Recoverable Petroleum Hydrocarbons as Oil and Grease
- (6) ppm = part per million or milligram per liter
- (7) Well was not accessible because of a parking car in its location
- (8) NA denotes not analyzed for the indicated compound

**6.0 FINDINGS**

Accutite concludes the following:

- The present groundwater flow direction is toward the southeast with gradient 0.005 ft/ft.
- Non-detect to non-significant concentrations of the analyzed contaminants were detected in MW-2 and MW-3.
- Benzene was detected in MW-1 at 11,000 ppb and MTBE was detected at 15,000 ppb. MTBE was confirmed by using the GC/MS, EPA Method 8260.



## 9.0 SEARCH OF UNDERGROUND UTILITIES

As requested by ACHA, Accutite searched the underground utilities on Taylor and Webster Streets. The objective of this search was to avoid drilling through these utilities and to determine whether these utilities affect the groundwater flow direction. The search of utilities included the following:

- Contacting PG&E to locate the gas and electric lines.
- Contacting Alameda Bureau of Electricity to locate other electrical lines
- Contacting the City of Alameda to locate sewer lines
- Contacting Pacific Bell to locate Telephone lines
- Contacting TCI Cable to locate cable lines
- Contacting EBMUD to locate water lines
- Contacting Underground Service Alert (USA) to mark utilities

As a result of our search, the following lines were located:

- A sewer main on Webster Street with an 8 inch diameter and 6 feet of depth (see Appendix D)
- A gas line on Webster Street with a 4-inch diameter and approximately 3 to 5 feet of depth.
- A water line with a 16 inch diameter and 3 to 4 feet of depth (see Appendix D)
- Electrical conduits with a 4 inch diameter and depth of 2 to 3 feet on Webster and Taylor Streets.


As a conclusion, the deepest line is the sewer line at approximately 6 feet below surface grade (bsg). The groundwater depth measured on June 23, 1999 is more than 9 feet bsg. Therefore, the utilities on Webster and Taylor Streets are not expected to impact the groundwater flow.

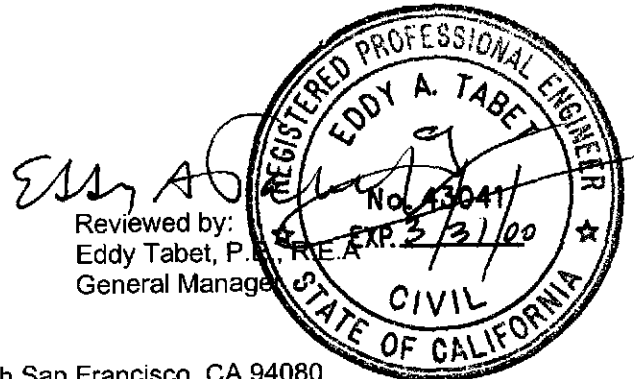
## 10.0 LIMITATIONS

Our services consist of professional opinions, conclusions, and recommendations made today in accordance with generally accepted engineering principles and practices. This warranty is in lieu of all other warranties either expressed or implied.

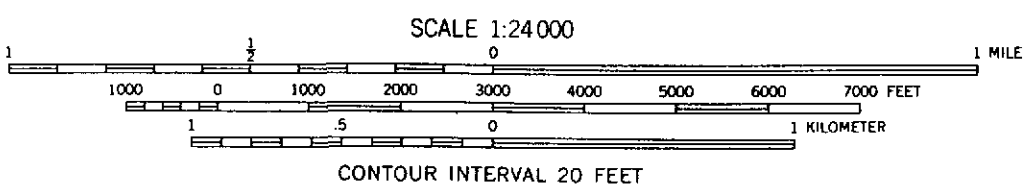
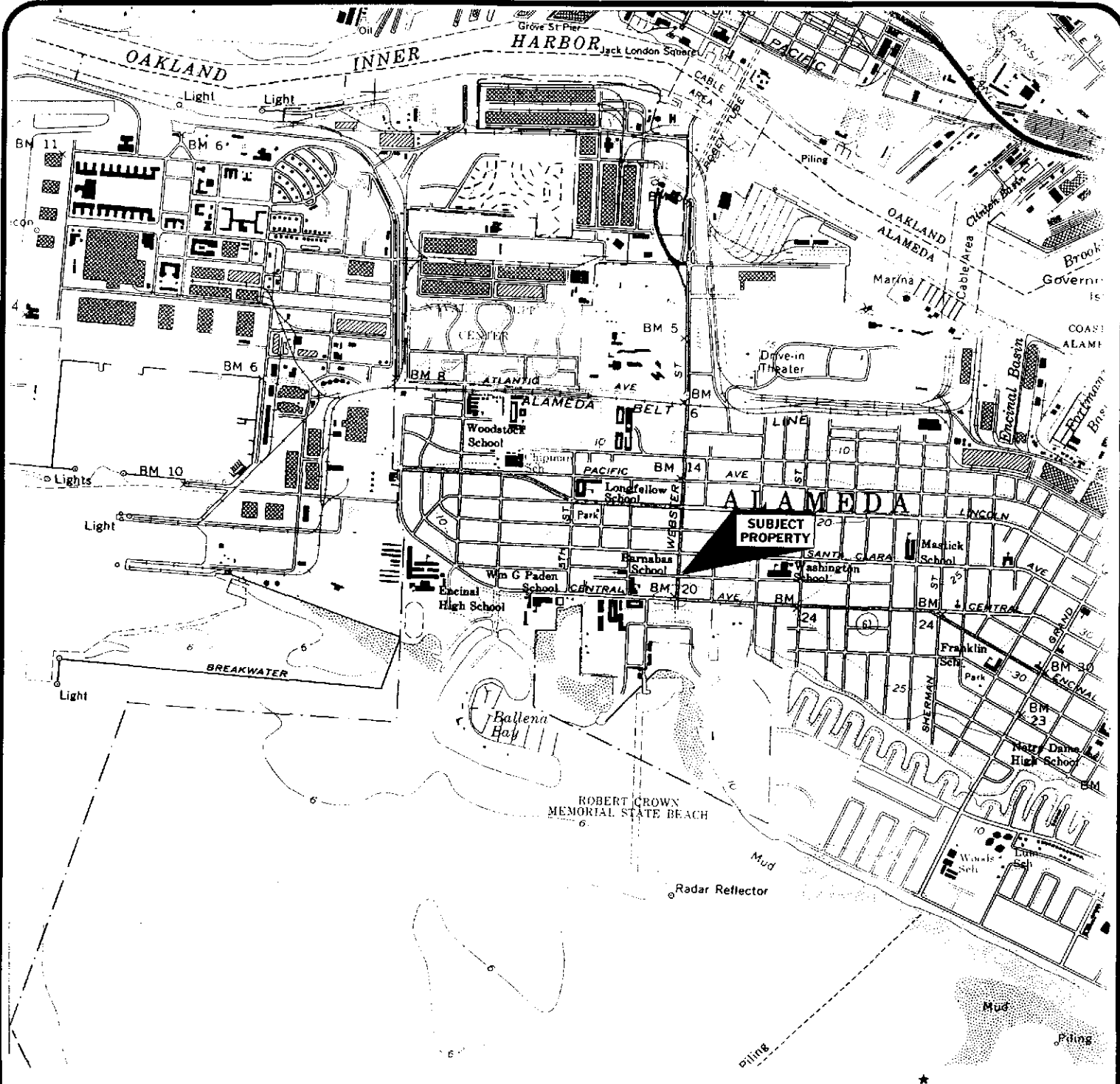
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Sincerely,  
Accutite

  
Sami Malaeb, P.E., R.E.A.  
Project Manager



cc: Mr. Dan Koch, Olympian, 260 Michelle Court, South San Francisco, CA 94080  
Mr. David Harris, Esq., Trump, Alioto, Trump & Prescott, LLP, 2280 Union Street, San Francisco, CA 94123  
Mr. Jeff Farrar, 3100 Cohasset Road, Chico, CA 95973



REVISIONS	DATE 7/30/98	PAGE 1 of 1
<p>CALIF</p>	SCALE: AS INDICATED ABOVE	LEGEND:

**ACCUTITE  
ENVIRONMENTAL  
ENGINEERING**

35 SOUTH LINDEN AVENUE  
SOUTH SAN FRANCISCO, CA 94080  
1435

**FIGURE 1  
SITE LOCATION**

SITE:  
1435 Webster Street Alameda, California

**PUBLIC PARKING LOT  
1435 Webster Street  
Alameda, California**

**GROUNDWATER FLOW DIRECTION  
GRADIENT 0.005 FT/FT (6/23/99)**

**HISTORICAL  
GROUNDWATER  
FLOW RANGE**

SIDEWALK

WEBSTER STREET

(11.62')

(11.68')

MW-1

(10.50')

82.5ft

MW-3

43.5ft

52ft

(10.47')

MW-2

Fire Hydrant

SIDEWALK

TAYLOR AVENUE

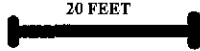
REVISIONS

DATE  
6/23/99

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SCALE: 20 FEET



LEGEND:



LOCATION OF  
MONITORING WELLS

**ACCUTITE  
ENVIRONMENTAL  
ENGINEERING**

35 SOUTH LINDEN AVENUE  
SOUTH SAN FRANCISCO, CA 94080

**FIGURE 2  
GROUNDWATER FLOW DIRECTION  
AND GRADIENT**

1435 Webster Street  
Alameda, California

1435gw762399

**PUBLIC PARKING LOT  
AND FORMER GAS STATION  
1435 WEBSTER STREET  
ALAMEDA, CALIFORNIA**

**PROPERTY  
BOUNDARY**

**B4-W (WATER)  
(2/11/99)**  
TPH-D 9,000 PPB  
TPH-G 33,000 PPB  
B 460 PPB  
T 2,300 PPB  
E 1,500 PPB  
X 8,300 PPB  
MTBE 110 PPB  
LEAD (PB) 1.4 PPM

**FORMER  
GAS ISLAND**

**B3** ● ⊕  
**MW-5**

**B3-W (WATER)  
(2/11/99)**  
TPH-D 7,000 PPB  
TPH-G 38,000 PPB  
B 2,000 PPB  
T 3,700 PPB  
E 1,600 PPB  
X 6,300 PPB  
MTBE 750 PPB  
LEAD (PB) 1.7 PPM

**HISTORICAL GROUNDWATER  
FLOW DIRECTION**

**SIDEWALK**

**WEBSTER STREET**

**FORMER 300-GALLON  
WASTE OIL UST**

**B4**

**GROUNDWATER FLOW DIRECTION  
CALCULATED IN JUNE 1999**

**FORMER  
GAS ISLAND**

**MW-1**

**B2-W (WATER)  
(2/11/99)**  
TPH-D ND  
TPH-G 340 PPB  
B 34 PPB  
T 0.7 PPB  
E 1.2 PPB  
X 1.2 PPB  
MTBE 6,000 PPB  
LEAD (PB) 0.51 PPM

**MW-3  
(6/23/99)**  
TPH-D ND  
TPH-G ND  
B ND  
T ND  
E ND  
X ND  
MTBE 3.0 PPB

**MW-3**

**FORMER 10,000-GALLON  
REG. GAS UST**

**B2**

**MW-2  
(6/23/99)**  
TPH-D 420 PPB  
TPH-G ND  
B ND  
T ND  
E ND  
X ND  
MTBE .96 PPB

**FORMER 10,000-GALLON  
REG. GAS UST**

**FORMER  
GAS ISLAND**

**B1**

**MW-1  
(6/23/99)**  
TPH-D 4,900 PPB  
TPH-G 42,000 PPB  
B 11,000 PPB  
T 1,100 PPB  
E 1,500 PPB  
X 2,300 PPB  
MTBE 15,000 PPB

**FORMER 7,500-GALLON  
DIESEL UST**

**MW-2**

**SIDEWALK**

**Fire Hydrant**

**TAYLOR AVENUE**

⊕  
**MW-4**

**B1-W (WATER)  
(2/11/99)**  
TPH-D 9,000 PPB  
TPH-G 8,200 PPB  
B 1,400 PPB  
T 130 PPB  
E 290 PPB  
X 1,300 PPB  
MTBE 320 PPB  
LEAD (PB) 1.1 PPM

REVISIONS

DATE  
7/12/99

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1 of 1

**ACCUTITE  
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ENGINEERING**

**35 SOUTH LINDEN AVENUE  
SOUTH SAN FRANCISCO, CA 94080**

**FIGURE 3  
LOCATION OF THE PROPOSED  
MONITORING WELLS**

**1435 Webster Street  
Alameda, California**

**KEY:** TPH-D = DIESEL  
TPH-G = GASOLINE  
B = BENZENE  
T = TOLUENE  
E = ETHYLBENZENE  
X = XYLENES  
MTBE = METHYL-T-BUTYL ETHER  
TRPH = PETROLEUM OIL AND GREASE

**SCALE: 20 FEET**



**LEGEND:**

- EXISTING MONITORING WELLS
- LOCATION OF THE DRILLED BORINGS
- ⊕ PROPOSED MONITORING WELLS



WATER SAMPLING FORM

CLIENT:  
 ADDRESS: 1435 Webster  
 WELL # TESTED: MW-1

To convert water column height to total amount of gallons in one (1) well volume, multiply the water column height by A.

WELL DIAMETER	A
2" ✓	0.17
3"	0.36
4"	0.65

TOTAL WELL DEPTH 20  
 - DEPTH TO WATER 9.03  
 = WATER COLUMN HEIGHT 10.97 x A = 1.86 GAL (1 well volume)

Multiply one (1) well volume by three (3) to obtain the minimum # of gallons to be extracted before taking well sample(s)

$3 \times 1.86 = 5.6$  (3 well volume)

DATE: 6/23/99  
 TIME: 8:06  
 WATER LEVEL ~~to~~ 9.03'

TIME:	GALS PUMPED	TEMP	COND.	PH
	<u>2</u>	<u>19.9</u>	<u>-11.4</u>	<u>7.19</u>
	<u>2</u>	<u>19.4</u>	<u>-1.10</u>	<u>7.01</u>
	<u>2</u>	<u>19.6</u>	<u>1.7</u>	<u>6.96</u>
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____

Time: 8:37  
 Volume Pumped 6 gal  
 Sampler A.S.

Sheen or inches of free product  
 Analyzed for:

WATER SAMPLING FORM

CLIENT:  
 ADDRESS: 1435 Webster  
 WELL # TESTED: MW-2

To convert water column height to total amount of gallons in one (1) well volume, multiply the water column height by A.

WELL DIAMETER	A
2" ✓	0.17
3"	0.36
4"	0.65

TOTAL WELL DEPTH 20  
 - DEPTH TO WATER 9.33  
 = WATER COLUMN HEIGHT 10.67 x A = 1.8 GAL (1 well volume)

Multiply one (1) well volume by three (3) to obtain the minimum # of gallons to be extracted before taking well sample(s)

$3 \times 1.8 = 5.4$  (3 well volume)

DATE: 6/23/99  
 TIME: 8:50  
 WATER LEVEL 7.33'

TIME:	GALS PUMPED	TEMP	COND.	PH
	<u>2</u>	<u>21.2</u>	<u>-5.6</u>	<u>7.09</u>
	<u>2</u>	<u>20.0</u>	<u>-6.7</u>	<u>7.12</u>
	<u>2</u>	<u>19.5</u>	<u>-9.0</u>	<u>7.16</u>
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____

Time: 7:11  
 Volume Pumped 6 gal  
 Sampler A.S.

Shen or inches of free product  
 Analyzed for:

WATER SAMPLING FORM

CLIENT:  
 ADDRESS: 1435 Webster  
 WELL # TESTED: MW-3

To convert water column height to total amount of gallons in one (1) well volume, multiply the water column height by A.

WELL DIAMETER	A
2" ✓	0.17
3"	0.36
4"	0.65

TOTAL WELL DEPTH 20  
 - DEPTH TO WATER 9.21  
 = WATER COLUMN HEIGHT 10.79 x A = 1.83 GAL (1 well volume)

Multiply one (1) well volume by three (3) to obtain the minimum # of gallons to be extracted before taking well sample(s)

$3 \times 1.83 = 5.5$  (3 well volume)

DATE: 6/23/99  
 TIME: 9:18  
 WATER LEVEL 9.21'

TIME:	GALS PUMPED	TEMP	COND.	PH
	<u>2</u>	<u>19.7</u>	<u>-19.1</u>	<u>7.30</u>
	<u>2</u>	<u>19.4</u>	<u>-14.8</u>	<u>7.25</u>
	<u>2</u>	<u>19.2</u>	<u>-12.0</u>	<u>7.20</u>
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____

Time: 9:37  
 Volume Pumped 6 gal  
 Sampler A.S.

Sheen or inches of free product  
 Analyzed for:



# North State Environmental Laboratory

CA ELAP#1753

90 South Spruce Avenue, Suite V • South San Francisco, CA 94080 • (650) 266-4563 • FAX (650) 266-4560

## C E R T I F I C A T E O F A N A L Y S I S

Lab Number: 99-0946  
 Client: Accutite Envir. Engin.  
 Project: 224 / 1435 Webster St. Alameda

Date Reported: 06/30/99

Diesel Range Hydrocarbons by Method 8015M  
 Gasoline, BTEX and MTBE by Methods 8015M and 8020

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 99-0946-01 Client ID: MW-1				06/23/99	WATER
Gasoline	8015M	42000	ug/L		06/24/99
Benzene	8020	11000	ug/L		
Ethylbenzene	8020	1500	ug/L		
MTBE	8020	**15000	ug/L		
Toluene	8020	1100	ug/L		
Xylenes	8020	2300	ug/L		
Diesel	8015M	*4.9	mg/L		06/28/99
Sample: 99-0946-02 Client ID: MW-2				06/23/99	WATER
Gasoline	8015M	ND			06/24/99
Benzene	8020	ND			
Ethylbenzene	8020	ND			
MTBE	8020	96	ug/L		
Toluene	8020	ND			
Xylenes	8020	ND			
Diesel	8015M	*0.42	mg/L		06/28/99
Sample: 99-0946-03 Client ID: MW-3				06/23/99	WATER
Gasoline	8015M	ND			06/24/99
Benzene	8020	ND			
Ethylbenzene	8020	ND			
MTBE	8020	3	ug/L		
Toluene	8020	ND			

\*Pattern does not match diesel\*\*Confirmed by GC/MS



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## C E R T I F I C A T E O F A N A L Y S I S

Lab Number: 99-0946  
Client: Accutite Envir. Engin.  
Project: 224 / 1435 Webster St. Alameda

Date Reported: 06/30/99

Diesel Range Hydrocarbons by Method 8015M  
Gasoline, BTEX and MTBE by Methods 8015M and 8020

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 99-0946-03	Client ID: MW-3			06/23/99	WATER
Xylenes	8020	ND			
Diesel	8015M	ND			06/28/99



# North State Environmental Laboratory

CA ELAP# 1753

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## C E R T I F I C A T E O F A N A L Y S I S

### Quality Control/Quality Assurance

Lab Number: 99-0946  
 Client: Accutite Envir. Engin.  
 Project: 224 / 1435 Webster St. Alameda

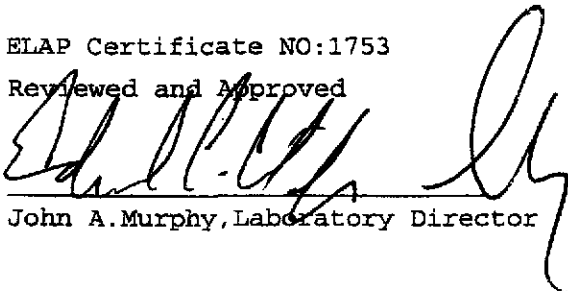
Date Reported: 06/30/99

Diesel Range Hydrocarbons by Method 8015M  
 Gasoline, BTEX and MTBE by Methods 8015M and 8020

Analyte	Method	Reporting Limit	Unit	Blank	Avg MS/MSD Recovery	RPD
Gasoline	8015M	50	ug/L	ND	124	4
Benzene	8020	0.5	ug/L	ND	94	6
Ethylbenzene	8020	0.5	ug/L	ND	103	11
Toluene	8020	0.5	ug/L	ND	100	6
Xylenes	8020	1.0	ug/L	ND	108	12
MTBE	8020	0.5	ug/L	ND	98	13
Diesel	8015M	0.05	mg/L	ND	89	1

ELAP Certificate NO:1753

Reviewed and Approved



John A. Murphy, Laboratory Director


Chain of Custody Accutite Environmental Engineering

99-0946

Client Accutite Environmental Engineering				Report To <b>Albert</b>				Turnaround							
Address 35 South Linden Avenue South San Francisco, CA 94080				Bill To: Accutite				ASAP		1 Day	2 Day	3 Day			
Phone 650-952-5551				Billing Reference# <b>224</b>				<u>1 Week</u>		2 Week	Others				
Project Name/Address <b>1435 Webster St, Alameda</b>				Analysis Required				Please confirm highest MTOS w/ 8260 Thank A-S.							
Sampler <b>A-S</b>		Date: <b>6/23/99</b>		PH-6 2000		TOL V									
Sample ID	Sample Matrix	#of Containers	Container Type	Sample Date/Time								Remarks			
1 MW-1	Water	3	VOA	6/23/99 AM	X										
"		1	Ambr			X									
2 MW-2		3	VOA		X										
"		1	Ambr			X									
3 MW-3		3	VOA		X										
"		1	Ambr			X									
Relinquished by: <b>Albert Jimin</b>				Date: <b>6/22/99</b>		Time: <b>9:47</b>		Received by: <b>Erin A. NSE</b>				Date: <b>6/23</b>		Time: <b>1:10pm</b>	
Relinquished by:				Date:		Time:		Received by:				Date:		Time:	
Relinquished by:				Date:		Time:		Received by:				Date:		Time:	

**APPENDIX C**  
**STANDARD PROCEDURES**



  
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## **Monitoring Well Construction**

The proposed ground water monitoring well will be drilled with the use of a power rig, equipped with an 8-inch hollow-stem auger. All drill cuttings will be left on site, in a labeled 55-gallon drum, pending receipt of analytical results. Well bottom will be terminated approximately 20 feet below surface grade.

Well casing will consist of two-inch diameter PVC. The screened casing will be 0.010" factory made. Well casings, from the bottom of the well extending to the ground surface, will consist of a bottom-threaded cap, followed by 15 feet of screen, and then 5 feet of blank. Sand pack will consist of No. 2-216 clean Monterey sand. Neat cement will consist of five gallons of clean water mixed with one 94-lb bag of Portland cement.

The well head will be fitted with a locking cap. Well head will be covered by a Christy type manhole cover, and set in concrete. The well illustration figure is attached.

## **Soil Sampling Procedure**

Soil samples will be collected at the soil-groundwater interface and every 5 feet thereafter. Drilling will be stopped 18 inches prior to sample collection. Samples will be collected in a thin-walled brass cylinder (6" X 2" diameter), placed within a California Modified Split Spoon sampler. The sampler will be driven through the hollow stem of the drilling auger with a 140-pound hammer. Soil will be logged using the Unified Soil Classification System. Noticed staining and hydrocarbon smell will be recorded. All samples will be analyzed for TPH-D, TPH-G, BTEX, and MTBE. All soil samples will be held at the laboratory in the event that further characterization is warranted.

No headspace will be left in the cylinder when the soil sample is collected. To seal the sample, each end of the cylinder will be covered with Teflon liner and then capped with a polyethylene lid, taped, and labeled. The samples will be immediately placed in an ice chest containing blue ice and kept cold (approximately 4<sup>o</sup> C) for delivery to the laboratory. Soil samples will be sent under chain of custody to North State Environmental laboratory to be analyzed. Analytical results will be reported in parts per million (ppm).

## **Well Purging and Ground water Sampling Procedure**

Water level will be recorded in the monitoring well prior to any well purging activities. The monitoring well will be developed between 3 and 7 days after installation. Well development will proceed with the use of a hydrolift pump and a surge block. Purge water resulting from well development will be stored on-site in a labeled drum until receipt of analytical results. Well development is intended to clear the well casing and surrounding sand pack from construction related materials and naturally occurring fine sands and silts.

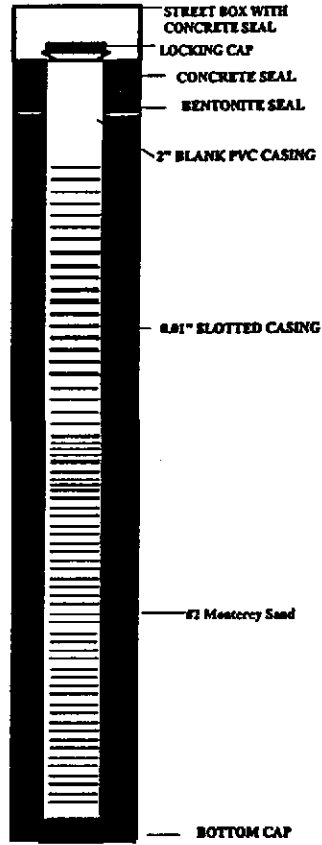
A minimum of three well casing volumes will be purged using the dedicated polyethylene tubing prior to sample collection. This amount is contingent upon well stabilization indicated by temperature, conductivity, and pH measurements.

Ground water samples will be collected through a disposable bailer. The samples will be immediately placed in an ice chest containing blue ice and kept cold (approximately 4<sup>o</sup> C) for delivery to the laboratory. Samples will be sent under chain of custody to a certified laboratory to be analyzed. Analytical results will be reported in parts per billion (ppb). All ground water samples will be analyzed for TPH-D, TPH-G, BTEX, and MTBE.

### **Decontamination Procedure**

Drilling augers will be steam cleaned prior to being brought to the site. The split spoon sampler will be decontaminated in between collection of soil samples by a thorough wash in a trisodium phosphate solution, then a double rinse with clean tap water.

All containers used for collection of water samples will be provided by the laboratory, properly packaged, and brought on site.



# PROPOSED WELL CONSTRUCTION

FIGURE

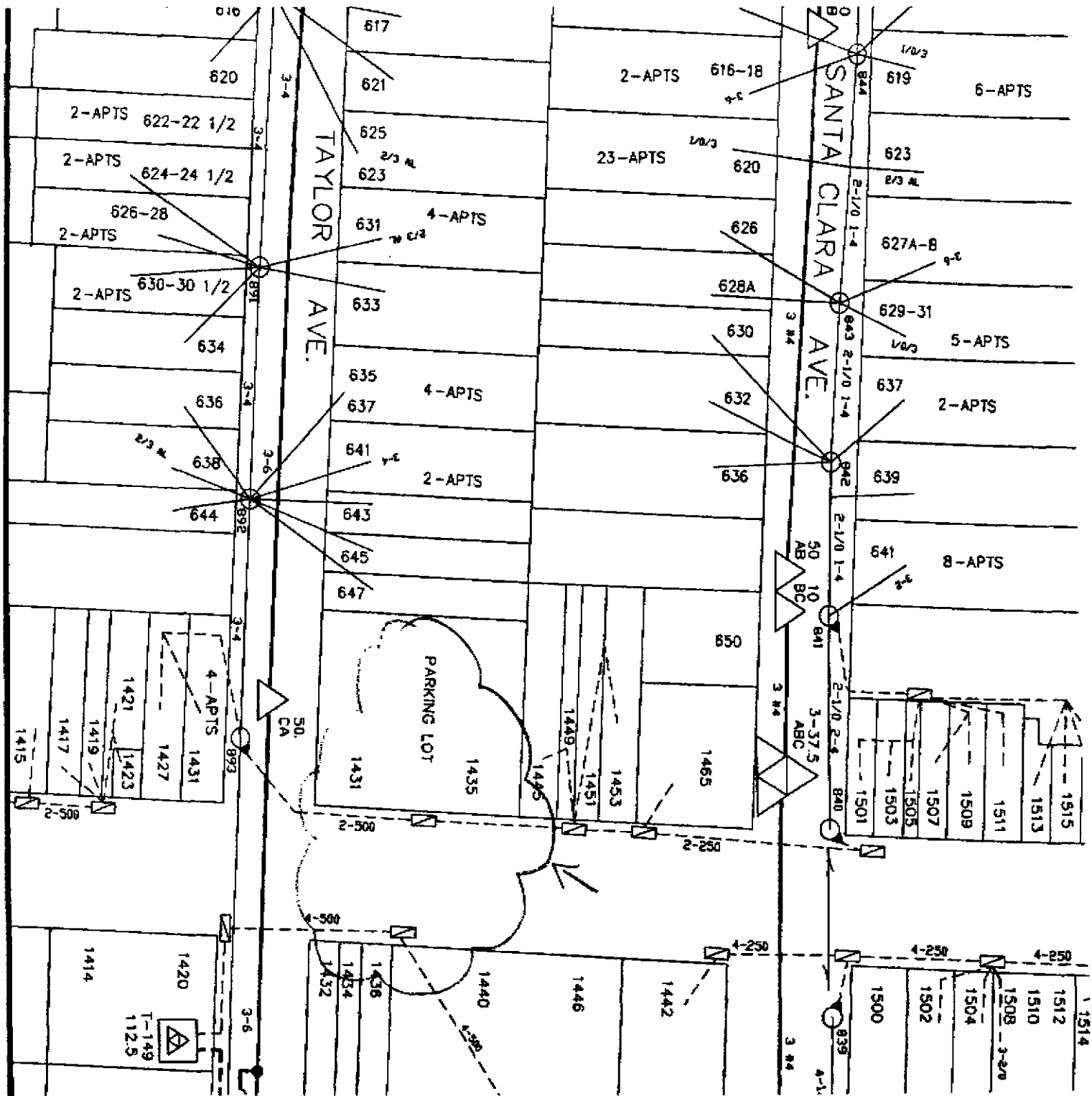
**APPENDIX D**  
**UNDERGROUND UTILITY SURVEY**



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RECYCLED PAPER

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# FAX TRANSMITTAL COVER SHEET

DATE: 6-9-99

TO: SAMI MALABE

FAX NUMBER: 650-952-7631

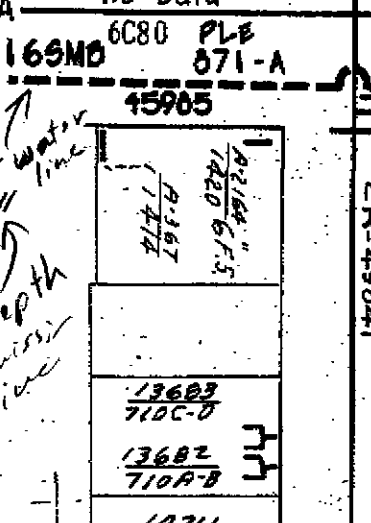
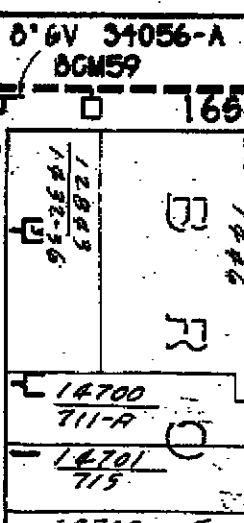
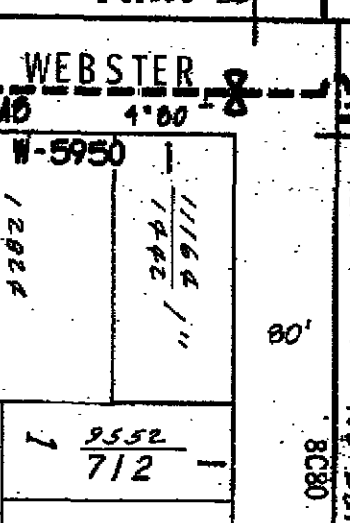
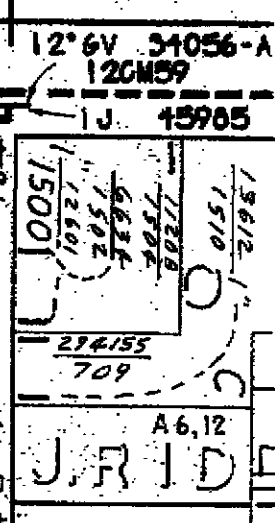
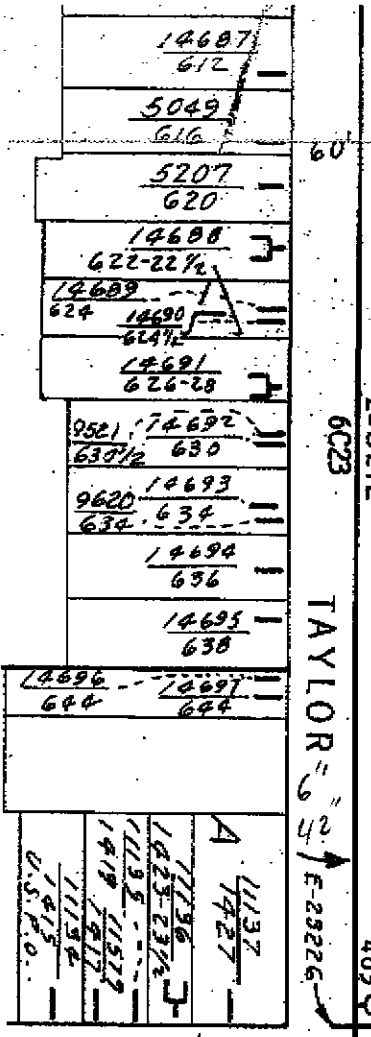
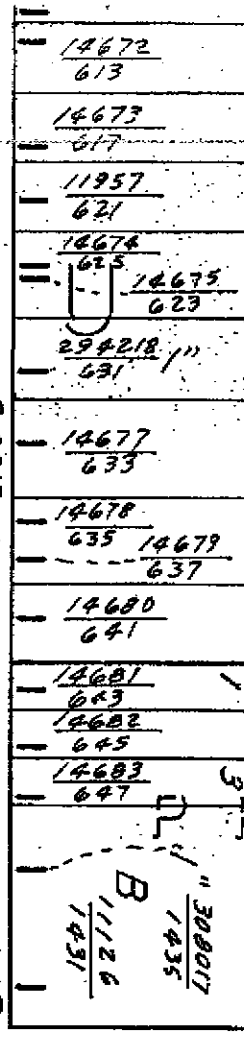
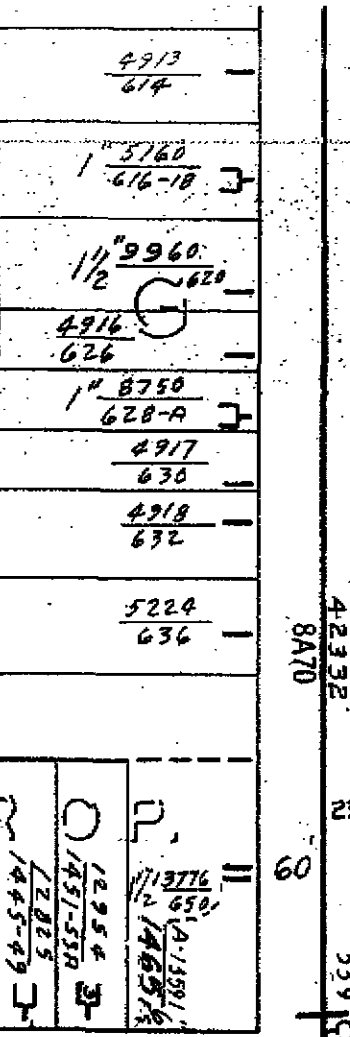
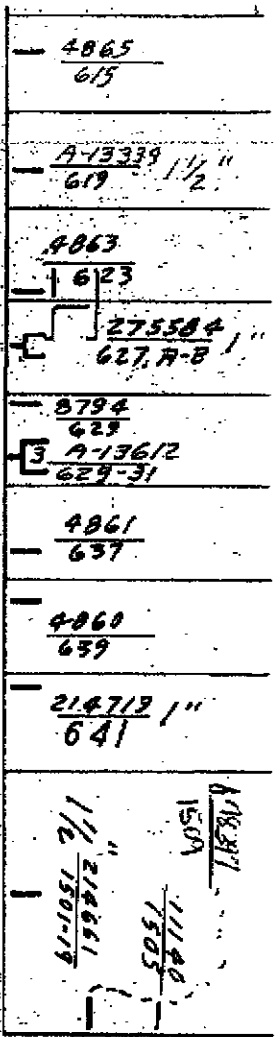
NUMBER OF PAGES INCLUDING COVER SHEET: 2

FROM: Susan Miller  
New Business Office  
East Bay Municipal Utility District  
PO Box 24055  
Oakland, CA 94623

VOICE NUMBER: 510-287-1010

FAX NUMBER: 510-287-0325

COMMENTS: \_\_\_\_\_  
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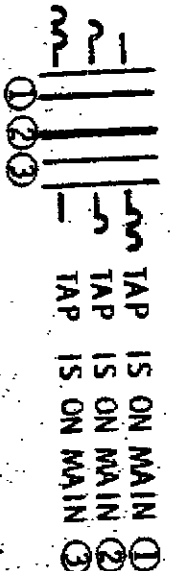


*42" water line  
depth  
transmission  
line*

1485 B 466

Only those maps on which this legend appears identify the main tapped.

TAP LEGEND



CITY	COUNTY	U.S.G.S. OA
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