

**QUARTERLY GROUNDWATER  
MONITORING AND SAMPLING  
AT THE PROPERTY  
LOCATED AT 3609 EAST 14<sup>TH</sup> STREET  
OAKLAND, CALIFORNIA  
MAY 6, 1997**

**PREPARED FOR:  
MR. ABOLGHASSEM RAZI  
TONY'S EXPRESS AUTO SERVICES  
3609 EAST 14<sup>TH</sup> STREET  
OAKLAND, CALIFORNIA 94601**

**BY:  
SOIL TECH ENGINEERING, INC.  
1761 JUNCTION AVENUE  
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**SOIL TECH ENGINEERING, INC.**

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May 6, 1997

File No. 7-92-514-SA

**Mr. Abolghassem Razi**  
Tony's Express Auto Services  
3609 East 14th Street  
Oakland, California 94601

**SUBJECT: QUARTERLY GROUNDWATER MONITORING  
AND SAMPLING AT THE PROPERTY**

Located at 3609 East 14th Street, in  
Oakland, California

Dear Mr. Razi:

This report presents the results of quarterly groundwater monitoring and sampling conducted by Soil Tech Engineering, Inc. (STE), on April 10, 1997, at the subject site (Figure 1).

**SITE DESCRIPTION:**

The site is located at the intersection of 36th Avenue and East 14th Street, in Oakland, California (Figure 1). The site is relatively flat and the area in the vicinity consists mainly of light commercial businesses and residential buildings (Figure 1).

**BACKGROUND:**

In July 1993, three fuel tanks and a waste oil tank were removed by Alpha Geo Services (AGS). STE was retained to conduct soil sampling from the tanks excavation area and the old piping associated with the fuel tanks. All soil sampling was conducted under the supervision of Alameda County Health Department staff Mr. Barney Chan.

Soil samples from the tank areas were taken at approximately 12 feet depth, soil samples from the waste oil tank area were taken at approximately 7 feet, and the piping areas ranged from 2 to 5 feet below grade, respectively. Soil analyses from the tank excavation detected low to moderate levels of Total Petroleum Hydrocarbons as gasoline (TPHg) ranging from 2.1 to a maximum of 640 milligrams per kilogram (mg/Kg). Soil samples from the old piping areas showed elevated TPHg ranging from 75 to a maximum of 4,100 mg/Kg. No hydrocarbons nor Volatile Organic Compounds (VOCs) were detected in the waste oil tank excavation area. The details of the soil sampling event are described in STE's report titled "Soil Sampling Below Removed Underground Tanks at Tony's Express Station...", dated July 27, 1993.

Due to the elevated TPHg, Alameda County Health Department requested a work plan for subsurface investigation in a letter, dated August 6, 1993. Therefore, STE prepared a preliminary site assessment work plan, dated August 15, 1993. The work plan was submitted to the Alameda County Health Department for approval. The county approved the plan in a letter, dated August 18, 1993.

The objective of the proposed work plan was to assess the extent of dissolved petroleum hydrocarbons beneath the site in order to determine whether or not the groundwater beneath the site has been impacted.

In August, 1993, STE conducted an interim corrective action and preliminary soil and groundwater investigation by drilling thirteen soil borings and converting three into monitoring wells. Monitoring wells STMW-1, STMW-2 and STMW-3 were drilled in the vicinity of the former underground fuel tanks. Groundwater was first encountered at a depth of 16 feet below grade during drilling operation. STE recommended quarterly groundwater monitoring and sampling for at least one year to further evaluate the site condition as required by Alameda County Health Department.

The details of preliminary soil and groundwater investigation is described in STE's report titled "Interim Corrective Action & Preliminary Soil & Groundwater Investigation for Tony's Express Service Station" dated November 8, 1993.

To allow for future in-situ remediation of impacted soils which were difficult to reach, four vertical 6-inch diameter soil vapor extraction probes were installed in four soil borings. In addition, two horizontal perforated pipes were installed connecting four soil borings and two horizontal perforated pipes were installed next to the two dispenser islands. These six probes were connected by non-perforated pipes to a vault in front of the northeast corner of the site building.

All impacted soils removed during excavation of former tanks and over-excavation of contaminated soil were bio-remediated on-site. When contaminant levels were acceptably low, a letter of request for disposal was sent to Redwood Landfill in Novato, California. A copy of STE's letter to Redwood Landfill requesting the disposal of treated soil along with soil analyses was included in the November 1993 request.

Three quarterly monitoring of the three on-site wells were conducted by STE in December 1994, March 1995 and June 1995. The results of these groundwater monitoring and sampling activities are presented in our reports dated December 8, 1994, March 10, 1995 and June 13, 1995. The groundwater level had risen from approximately 15 feet below grade during our initial sampling in October 1993 to approximately 9 to 10 feet below grade during the quarterly monitoring in June 1995.

Low to moderate levels of TPHg and BTEX were detected in the groundwater for the last three quarters. Levels of contaminants were lower in March 1995 than in December 1994. Levels of contaminants have decreased significantly compared to the initial sampling activity in October 1993 which could be due to the high groundwater elevation and dissolution. Groundwater flow direction has been to the south-southeast during all three monitoring and sampling events.

Additional five monitoring wells (STMW-4 through STMW-8) were installed in August 1995. The details of additional investigation is described in STE's report dated October 9, 1995. Since then, all the wells have been monitored and sampled on a quarterly basis.

An additional subsurface investigation was conducted by STE on August 13 and September 7, 1996 per its May 13, 1996 work plan and ACHD's August 1, 1996 recommendations for amendments to the work plan. During this phase of investigation, five boreholes were drilled, soil and grab groundwater samples were collected from each of these borings, and based on the analytical results for TPHg and BTEX, three boreholes were converted to monitoring wells. These three newly installed monitoring wells (STMW-9, STMW-10 and STMW-11) along with five existing on-site wells (STMW-2, STMW-3, STMW-4, STMW-6 and STMW-8) were monitored and sampled. STMW-1, STMW-5 and STMW-7 were monitored but not sampled per ACHD.

The details of this additional sub-surface investigation is described in STE's October 15, 1996 report titled "Additional Subsurface Investigation...".

**SCOPE OF PRESENT WORK:**

The scope of present work comprised:

- Monitoring wells STMW-1 through STMW-8, STMW-10 and STMW-11 for presence of sheen/odor and measuring the depth-to-water
- Purging the seven monitoring wells (STMW-2, STMW-3, STMW-4, STMW-6, STMW-8, STMW-10 and STMW-11) prior to sampling
- Sampling the seven monitoring wells
- Submitting water samples to a state-certified laboratory for analysis of Total Petroleum Hydrocarbons as gasoline (TPHg), Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX) and Methyl Tertiary Butyl Ether (MTBE). In addition, water sample from monitoring well STMW-6 was analyzed for Total Oil & Grease (TOG)
- Reviewing results and preparing a report of the investigation

**CURRENT FIELD WORK:**

**GROUNDWATER MONITORING:**

On April 10, 1997, STE's staff monitored ten on-site monitoring wells (STMW-1 through STMW-8, STMW-10 and STMW-11) to measure the water depth and check for presence of sheen and/or odor. No sheen or odor were detected in monitoring wells



STMW-4, STMW-5, STMW-10 and STMW-11. Monitoring wells STMW-2, STMW-6 and STMW-8 detected no sheen and very light sewerage odor. Monitoring well STMW-1 detected rainbow sheen spots and mild petroleum odor. Monitoring well STMW-3 detected rainbow sheen spots and light petroleum odor, while well STMW-7 detected light petroleum odor. The groundwater levels ranged from 10.44 feet to 12.58 feet below ground surface. Table 1 summarizes the depth to groundwater measurements and observations made.

Monitoring well STMW-9 was not monitored or sampled because it was decommissioned on December 9, 1996.

*why?*

#### GROUNDWATER SAMPLING:

*Prior to*  
~~Following~~ groundwater monitoring, the wells were purged at least five well volumes and sampled in accordance with STE's Standard Operation Procedures (see Appendix "C"), which contains state and local guidelines for sampling of monitoring wells.

The water samples were placed in a cool ice chest and submitted to Priority Environmental Labs, a state-certified laboratory with appropriate chain-of-custody.

All seven water samples were analyzed for Total Petroleum Hydrocarbons as gasoline (TPHg) per EPA Methods 5030/8015, Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX) and Methyl Tertiary Butyl Ether (MTBE) per EPA Method 602. In addition, water sample from monitoring well STMW-6 was analyzed for Total Oil & Grease (TOG).

## GROUNDWATER FLOW:

Water elevation data were used to determine groundwater flow direction. Table 1 summarizes the groundwater elevations. The groundwater flow direction beneath the site was in a southwesterly direction as of April 10, 1997 (Figure 2).

## ANALYTICAL RESULTS:

Laboratory analytical results of water samples from monitoring wells STMW-4 and STMW-11 detected TPHg and BTEX below laboratory detection limit. Water sample from well STMW-2 detected low levels of TPHg (53 mg/L) and BTEX (0.15 mg/L, 0.11 mg/L, 0.037 mg/L and 0.12 mg/L). Water sample from well STMW-3 detected low levels of TPHg (54 mg/L) and BTEX (0.13 mg/L, 0.12 mg/L, 0.038 mg/L and 0.12 mg/L). Water sample from well STMW-6 detected low levels of TPHg (29 mg/L), very low levels of BTEX (0.06 mg/L, 0.07 mg/L, 0.024 mg/L and 0.071 mg/L) and TOG (0.0005 mg/L). Monitoring well STMW-8 detected TPHg at 24 mg/L and BTEX at (0.086 mg/L, 0.055 mg/L, 0.05 mg/L and 0.1 mg/L), respectively. Monitoring well STMW-10 detected very low levels of TPHg (1 mg/L) and BTEX (0.021 mg/L, 0.0093 mg/L, 0.0033 mg/L and 0.033 mg/L) in the water sample. MTBE concentrations were below laboratory detection limit in all seven monitoring wells. The laboratory results are summarized in Table 1, and the laboratory report is enclosed with this report (Appendix "D").

## SUMMARY:

A comparison of the recent groundwater analytical results with the last quarterly sampling (December 1996) shows reduced levels of TPHg and BTEX in monitoring wells STMW-4, STMW-6 and STMW-11. A slight increase levels of TPHg and BTEX

were noted in well STMW-2. TPHg levels remain the same in well STMW-3 while a slight decrease of BTEX concentrations. Monitoring well STMW-8 showed a decrease in TPHg and Benzene levels but a slight increase in TEX concentrations. Monitoring well STMW-10 showed a decrease in TPHg concentration and a slight increase of BTEX levels. TOG concentrations reduced considerable in monitoring well STMW-6. MTBE concentrations were below laboratory detection limit in all seven monitoring wells.

### **RECOMMENDATIONS:**

STE recommends the continuation of quarterly monitoring and sampling of the ten on-site wells.

A copy of this report should be forwarded to ACHD and Regional Water Quality Control Board (RWQCB).

### **LIMITATIONS:**

This report and the associated work has been provided in accordance with the general principles and practices currently employed in the environmental consulting profession. The contents of this report reflect the conditions of the site at this particular time. The findings of this report are based on:

1. The observations of field personnel.
2. The results of laboratory analyses performed by a state-certified laboratory.

It is possible that variations in the soil and groundwater could exist beyond the points explored in this investigation. Also, changes in groundwater conditions of a property can occur with the passage of time due to variations in rainfall, temperature, regional water usage and other natural processes or the works of man on this property or adjacent properties.


This report is issued with the understanding that it is the responsibility of this owner or his/her representative to ensure that the information and recommendations contained herein are called to the attention of the Local Environmental Agency.

Services performed by STE have been in accordance with generally accepted environmental professional practices for the nature and conditions of the work completed in the same or similar localities, at the time the work was performed. This report is not meant to represent a legal opinion. No other warranty, express or implied is made.

If you have any questions or require additional information, please contact our office at (408) 441-1881 at your convenience.

Sincerely,

**SOIL TECH ENGINEERING, INC.**



NOORI AMELI  
PROJECT ENGINEER



LAWRENCE KOO, P. E.  
C. E. #34928



FRANK HAMEDI-FARD  
GENERAL MANAGER

**A P P E N D I X "A"**

**TABLE 1**  
**GROUNDWATER MONITORING DATA (feet) AND**  
**ANALYTICAL RESULTS (mg/L)**

Date	Well No./ Elevation	Depth of Well	Depth to Perf.	Depth to Water	GW Elev.	Well Observation	TPHg	B	T	E	X	MTBE	TOG
10/05/93	STMW-1 (97.99)	30	10	15.39	82.60	Brown sheen spots Light pet. odor	320	24	21	2.6	15	NA	NA
12/02/94				9.32	88.67	Rainbow sheen spots Light pet. odor	80	3.8	6.6	2.3	11	NA	NA
03/06/95				8.07	89.92	Brown sheen spots Mild pet. odor	32	0.19	0.16	0.15	0.49	NA	NA
06/05/95				9.53	88.46	Brown sheen spots Mild pet. odor	21	0.95	0.65	0.57	1.5	NA	NA
10/02/95				13.29	84.70	Rainbow sheen spots Mild pet. odor	59	0.14	0.13	0.14	0.39	NA	NA
01/03/96				10.07	87.92	Rainbow sheen spots Mild pet. odor	30	0.071	0.073	0.05	0.12	NA	NA
04/03/96				8.26	89.73	Rainbow sheen spots Mild pet. odor	31	0.098	0.012	0.063	0.17	NA	NA
09/12/96				14.06	83.93	No sheen V. light pet. odor	NA	NA	NA	NA	NA	NA	NA
12/09/96				11.67	86.93	No sheen V. light pet. odor	NA	NA	NA	NA	NA	NA	NA

TPHg - Total Petroleum Hydrocarbons as Gasoline

B- Benzene

T - Toluene

E - Ethylbenzene

X - Total Xylenes

TOG - Total Oil &amp; Grease

MTBE - Methyl Tertiary Butyl Ether

ND - Not Detected

NA - Not Analyzed

GW Elev. - Groundwater Elevation

Pet. - Petroleum

Perf. Length - Perforation

**TABLE 1 CONT'D  
GROUNDWATER MONITORING DATA (feet) AND  
ANALYTICAL RESULTS (mg/L)**

Date	Well No./ Elevation	Depth of Well	Depth to Perf.	Depth to Water	GW Elev.	Well Observation	TPHg	B	T	E	X	MTBE	TOG
04/10/97	STMW-1 (97.99)	30	10	11.14	86.85	Rainbow sheen spots Mild pet. odor	NA	NA	NA	NA	NA	NA	NA
10/05/93	STMW-2 (98.58)	30	10	15.36	83.22	No sheen or odor	260	17	19	0.57	10	NA	NA
12/02/94				8.60	89.98	No sheen Mild sewage odor	42	1.7	2.2	1.2	3.6	NA	NA
03/06/95				7.68	90.90	No sheen or odor	0.49	0.0032	0.0026	0.0016	0.0059	NA	NA
06/05/95				9.59	88.99	No sheen V. light pet. odor	8.0	0.22	0.33	0.35	0.66	NA	NA
10/02/95				13.42	85.16	No sheen V. light pet. odor	46	0.16	0.13	0.093	0.24	NA	NA
01/03/96				9.93	88.65	No sheen V. light sewage odor	3.4	0.0076	0.013	0.0074	0.026	NA	NA
04/03/96				8.13	90.45	No sheen V. light sewage odor	27	0.10	0.092	0.044	0.13	NA	NA
09/12/96				14.15	84.43	No sheen V. light sewage odor	19	0.21	0.22	0.11	0.40	ND	NA

TPHg - Total Petroleum Hydrocarbons as Gasoline

B - Benzene

ND - Not Detected

TOG - Total Oil & Grease

Pet. - Petroleum

T - Toluene

NA - Not Analyzed

MTBE - Methyl Tertiary Butyl Ether

Perf. - Perforation

E - EthylBenzene

GW Elev. - Groundwater Elevation

V. - Very

X - Total Xylenes

**TABLE 1 CONT'D  
GROUNDWATER MONITORING DATA (feet) AND  
ANALYTICAL RESULTS (mg/L)**

Date	Well No./ Elevation	Depth of Well	Depth to Perf.	Depth to Water	GW Elev.	Well Observation	TPHg	B	T	E	X	MTBE	TOG
12/09/96	STWM-2 (98.58)	30	10	11.40	87.18	No sheen No odor	6.2	0.011	0.0066	0.0021	0.014	ND	NA
04/10/97				11.18	87.40	No sheen V. light sewerage odor	53	0.15	0.11	0.037	0.12	ND	NA
10/05/93	STMW-3 (97.78)	30	10	16.79	80.99	NMFP V. strong pet. odor	30,000	190	740	310	1,300	NA	NA
12/02/94				9.79	87.99	NMFP Strong pet. odor	250	19	22	4.4	28	NA	NA
03/06/95				8.69	89.09	No sheen V. light pet. odor	21	0.08	0.073	0.035	0.13	NA	NA
06/05/95				10.25	87.53	Brown sheen spots Strong pet. odor	350	20	42	5.8	36	NA	NA
10/02/95				12.91	84.87	Rainbow sheen spots Strong pet. odor	150	0.51	0.41	0.21	0.65	NA	NA
01/03/96				10.55	87.23	Rainbow sheen spots Strong pet. odor	190	0.29	0.27	0.097	0.89	NA	NA

NMFP - Non Measurable Floating Product

TPHg - Total Petroleum Hydrocarbons as Gasoline

B - Benzene

T - Toluene

E - Ethylbenzene

X - Total Xylenes

TOG - Total Oil & Grease

MTBE - Methyl Tertiary Butyl Ether

ND - Not Detected

NA - Not Analyzed

GW Elev. - Groundwater Elevation

Pet. - Petroleum

Perf. - Perforation



**TABLE 1 CONT'D  
GROUNDWATER MONITORING DATA (feet) AND  
ANALYTICAL RESULTS (mg/L)**

Date	Well No./ Elevation	Depth of Well	Depth to Perf.	Depth to Water	GW Elev.	Well Observation	TPHg	B	T	E	X	MTBE	TOG
04/03/96	STMW-3 (97.78)	30	10	8.76	89.02	Rainbow sheen spots Mild pet. odor	70	0.31	0.26	0.089	0.28	NA	NA
09/12/96				14.65	83.13	No sheen V. light pet. odor	66	0.43	0.42	0.21	0.51	NA	NA
12/09/96				12.02	85.76	No sheen V. light pet. odor	54	0.32	0.28	0.09	0.25	ND	NA
04/10/97				11.73	86.05	Rainbow sheen spots Light pet. odor	54	0.13	0.12	0.038	0.12	ND	NA
10/02/95	STMW-4 (97.85)	27	7	13.34	84.51	No sheen V. light pet. odor	9.3	0.023	0.011	0.0099	0.029	NA	NA
01/03/96				10.11	87.74	No sheen or odor	1.1	0.004	0.0013	0.0009	0.0033	NA	NA
04/03/96				8.35	89.50	No sheen or odor	1.9	0.012	0.0075	0.0052	0.014	NA	NA
09/12/96				14.04	83.81	No sheen Light sewage odor	2.1	0.046	0.024	0.031	0.073	ND	NA

TPHg - Total Petroleum Hydrocarbons as Gasoline

B - Benzene

T - Toluene

E - Ethylbenzene

X - Total Xylenes

TOG - Total Oil & Grease

MTBE - Methyl Tertiary Butyl Ether

ND - Not Detected

NA - Not Analyzed

GW Elev. - Groundwater Elevation

Pet. - Petroleum

Perf. - Perforation

**TABLE 1 CONT'D  
GROUNDWATER MONITORING DATA (feet) AND  
ANALYTICAL RESULTS (mg/L)**

Date	Well No./ Elevation	Depth of Well	Depth to Perf.	Depth to Water	GW Elev.	Well Observation	TPHg	B	T	E	X	MTBE	TOG
12/09/96	STMW-4 (97.85)	27	7	11.58	86.27	No sheen L. sewerage odor	4.0	0.014	0.0063	0.0042	0.012	ND	NA
04/10/97				11.23	86.62	No sheen or odor	ND	ND	ND	ND	ND	ND	NA
10/02/95	STMW-5 (99.04)	26	6	13.57	85.47	No sheen V. light pet. odor	1.5	0.0011	0.0013	0.0039	0.0053	NA	NA
01/03/96				10.03	89.01	No sheen or odor	0.83	ND	ND	0.0013	0.0022	NA	NA
04/03/96				8.24	90.80	No sheen or odor	0.78	0.0013	0.001	0.0048	0.0038	NA	NA
09/12/96				14.30	84.74	No sheen or odor	NA	NA	NA	NA	NA	NA	NA
12/09/96				11.48	87.56	No sheen or odor	NA	NA	NA	NA	NA	NA	NA
04/10/97				11.35	87.69	No sheen or odor	NA	NA	NA	NA	NA	NA	NA

TPHg - Total Petroleum Hydrocarbons as Gasoline

B - Benzene

T - Toluene

E - Ethylbenzene

X - Total Xylenes

TOG - Total Oil & Grease

MTBE - Methyl Tertiary Butyl Ether

ND - Not Detected

NA - Not Analyzed

GW Elev. - Groundwater Elevation

Pet. - Petroleum

Perf. - Perforation

V. - Very

L. - Light

**TABLE 1 CONT'D  
GROUNDWATER MONITORING DATA (feet) AND  
ANALYTICAL RESULTS (mg/L)**

Date	Well No./ Elevation	Depth of Well	Depth to Perf.	Depth to Water	GW Elev.	Well Observation	TPHg	B	T	E	X	MTBE	TOG
10/02/95	STMW-6 (98.77)	26	6	13.94	84.83	No sheen Light pet. odor	120	0.35	0.31	0.2	0.61	NA	0.60
01/03/96				10.55	88.22	Rainbow sheen spots Mild pet. odor	68	0.06	0.061	0.027	0.18	NA	1.4
04/03/96				8.76	90.01	Rainbow sheen spots Mild pet. odor	48	0.14	0.11	0.062	0.17	NA	1.1
09/12/96				14.51	84.26	Rainbow sheen spots V. Light Pet. odor	23	0.15	0.16	0.11	0.31	ND	0.5
12/09/96				12.04	86.73	Rainbow sheen spots Light pet. odor	57	0.48	0.45	0.16	0.46	ND	1.6
04/10/97				11.76	87.01	No sheen V. light pet. odor	29	0.06	0.07	0.024	0.071	ND	0.0005

TPHg - Total Petroleum Hydrocarbons as Gasoline

B - Benzene

T - Toluene

E - Ethylbenzene

X - Total Xylenes

TOG - Total Oil & Grease

MTBE - Methyl Tertiary Butyl Ether

ND - Not Detected

NA - Not Analyzed

GW Elev. - Groundwater Elevation

Pet. - Petroleum

Perf. - Perforation

V. - Very

**TABLE 1 CONT'D  
GROUNDWATER MONITORING DATA (feet) AND  
ANALYTICAL RESULTS (mg/L)**

Date	Well No./ Elevation	Depth of Well	Depth to Perf.	Depth to Water	GW Elev.	Well Observation	TPHg	B	T	E	X	MTBE	TOG
10/02/95	STMW-7 (97.83)	26	6	12.95	84.88	Rainbow sheen spots Mild pet. odor	3.3	0.0089	0.012	0.017	0.045	NA	NA
01/03/96				9.57	88.26	No sheen V. light sewerage odor	1.5	0.0015	0.0009	0.003	0.0041	NA	NA
04/03/96				7.75	90.08	No sheen V. light sewerage odor	1.9	0.0021	0.0026	0.0051	0.0069	NA	NA
09/12/96				13.75	84.08	No sheen V. light sewerage odor	NA	NA	NA	NA	NA	NA	NA
12/09/96				10.97	86.86	No sheen V. light sewerage odor	NA	NA	NA	NA	NA	NA	NA
04/10/97				10.67	87.16	No sheen Light pet. odor	NA	NA	NA	NA	NA	NA	NA

TPHg - Total Petroleum Hydrocarbons as Gasoline

B - Benzene

T - Toluene

E - Ethylbenzene

X - Total Xylenes

TOG - Total Oil & Grease

MTBE - Methyl Tertiary Butyl Ether

ND - Not Detected

NA - Not Analyzed

GW Elev. - Groundwater Elevation

Pet. - Petroleum

Perf. - Perforation

V. - Very

**TABLE 1 CONT'D  
GROUNDWATER MONITORING DATA (feet) AND  
ANALYTICAL RESULTS (mg/L)**

Date	Well No./ Elevation	Depth of Well	Depth to Perf.	Depth to Water	GW Elev.	Well Observation	TPHg	B	T	E	X	MTBE	TOG
10/02/95	STMW-8 (97.25)	27	7	12.86	84.39	Rainbow sheen spots Mild pet. odor	94	0.31	0.25	0.18	0.48	NA	NA
01/03/96				9.79	87.46	Rainbow sheen spots Light pet. odor	23	0.019	0.012	0.0088	0.047	NA	NA
04/03/96				7.98	89.27	Rainbow sheen spots Light pet. odor	58	0.25	0.17	0.14	0.33	NA	NA
09/12/96				13.55	83.70	No sheen V. light pet. odor	46	0.21	0.15	0.16	0.36	ND	NA
12/09/96				11.13	86.12	No sheen V. light pet. odor	27	0.088	0.043	0.044	0.08	ND	NA
04/10/97				10.76	86.49	No sheen V. light sewerage odor	24	0.086	0.055	0.05	0.1	ND	NA

TPHg - Total Petroleum Hydrocarbons as Gasoline

B - Benzene

T - Toluene

E - Ethylbenzene

X - Total Xylenes

TOG - Total Oil & Grease

MTBE - Methyl Tertiary Butyl Ether

ND - Not Detected

NA - Not Analyzed

GW Elev. - Groundwater Elevation

Pet. - Petroleum

Perf. - Perforation

V. - Very

**TABLE 1 CONT'D  
GROUNDWATER MONITORING DATA (feet) AND  
ANALYTICAL RESULTS (mg/L)**

Date	Well No./ Elevation	Depth of Well	Depth to Perf.	Depth to Water	GW Elev.	Well Observation	TPHg	B	T	E	X	MTBE	TOG
09/12/96	STMW-9 (98.29)	25	8	14.62	83.67	No sheen V. light pet. odor	7.7	0.020	0.026	0.044	0.16	ND	NA
12/09/96				12.58	85.71	No sheen Light sewerage odor	0.58	0.0008	ND	0.0007	0.0036	ND	NA
09/12/96	STMW-10 (94.54)	25	8	12.05	82.49	No sheen V. light pet. odor	26.0	0.098	0.037	0.063	0.099	ND	NA
12/09/96				10.44	84.10	No sheen Light sewerage odor	3.0	0.0081	0.0022	0.0015	0.0071	ND	NA
04/10/97				10.07	84.47	No sheen or odor	1.0	0.021	0.0093	0.0033	0.033	ND	NA
09/12/96	STMW-11 (95.94)	25	8	13.60	82.34	No sheen V. light sewage odor	2.3	0.007	0.0072	0.012	0.031	ND	NA
12/09/96				11.99	83.95	No sheen or odor	0.65	0.0018	0.0005	0.0008	0.0042	ND	NA
04/10/97				11.47	84.47	No sheen or odor	ND	ND	ND	ND	ND	ND	NA

TPHg - Total Petroleum Hydrocarbons as Gasoline

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MTBE - Methyl Tertiary Butyl Ether

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NA - Not Analyzed

GW Elev. - Groundwater Elevation

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Perf. - Perforation

V. - Very

**A P P E N D I X "B"**



**SOIL TECH ENGINEERING, INC.**

Figure 1



**A P P E N D I X "C"**

## GROUNDWATER SAMPLING

Prior to collection of groundwater samples, all of the sampling equipment (i.e. bailer, cables, bladder pump, discharge lines and etc.) was cleaned by pumping TSP water solution followed by distilled water.

Prior to purging, the well "Water Sampling Field Survey Forms" were filled out (depth to water and total depth of water column were measured and recorded). The well was then bailed or pumped to remove four to ten well volumes or until the discharged water temperature, conductivity and pH stabilized. "Stabilized" is defined as three consecutive readings within 15% of one another.

The groundwater sample was collected when the water level in the well recovered to 80% of its static level.

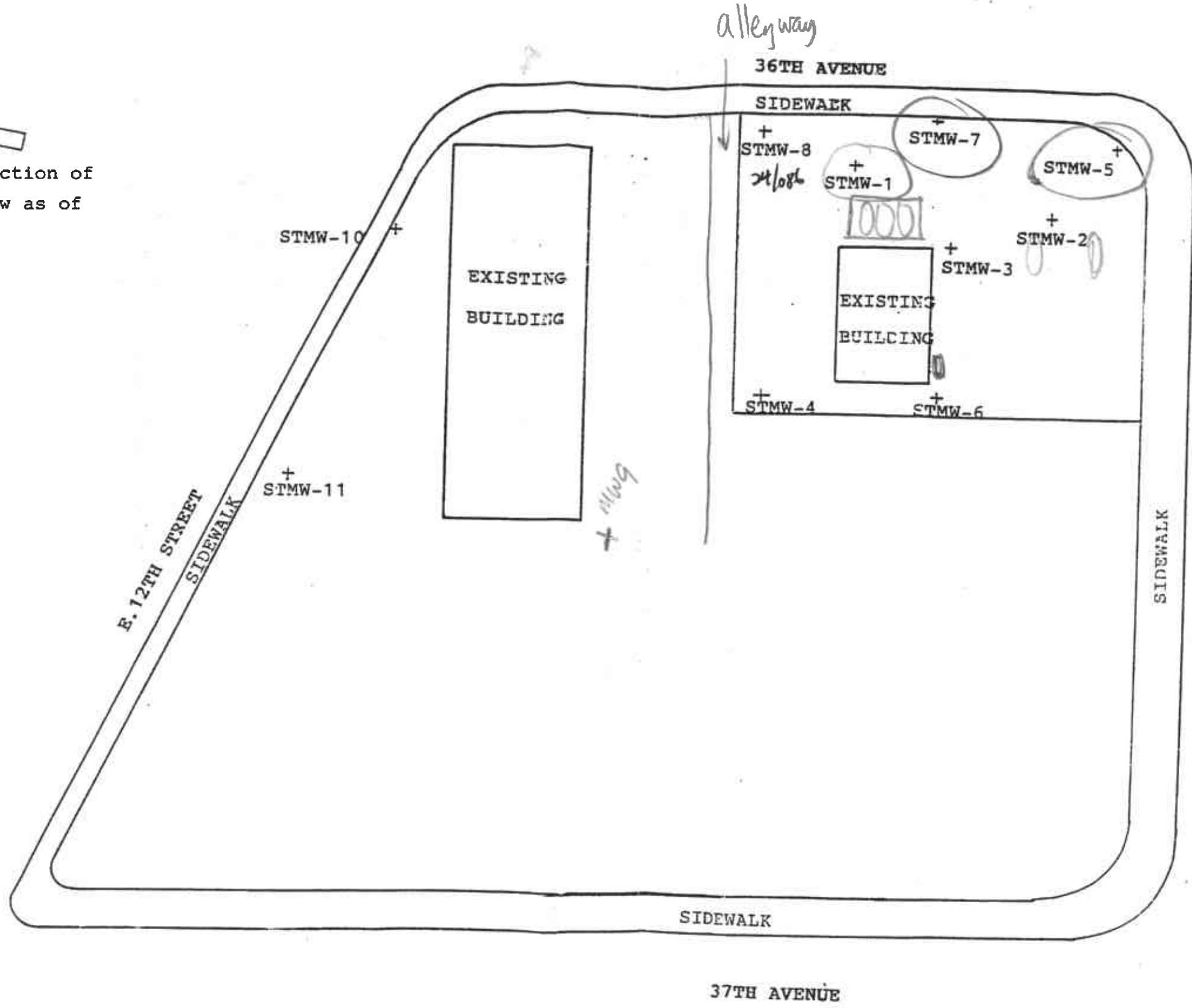
Forty milliliter (ml.), glass volatile organic analysis (VOA) vials with Teflon septa were used as sample containers. The groundwater sample was decanted into each VOA vial in such a manner that there was a meniscus at the top. The cap was quickly placed over the top of the vial and securely tightened. The VOA vial was then inverted and tapped to see if air bubbles were present. If none were present, the sample was labeled and refrigerated for delivery under chain-of-custody to the laboratory. The label information would include a sample identification number, job identification number, date, time, type of analysis requested, and the sampler's name.

**A P P E N D I X "D"**

Approximate Direction of  
Groundwater Flow as of  
4/10/97



○ = hold monitoring



LEGEND

MONITORING WELL

TONY'S EXPRESS AUTO SERVICES		
SCALE: 1"=40'	7-92-514-SA	DRAWN BY N
DATE: 4/10/97		REVISED
3609 E. 14TH STREET OAKLAND CA, 94601		
SOIL TECH ENGINEERING INC		DRAWING NUMB