SOIL & GROUNDWATER INVESTIGATION REPORT

5930 College Avenue
Oakland, California
STID # 514

for

William G. Sheaff TTE Trust
Mr. Brian Sheaff
1945 Parkside Drive
Concord, CA 94519

Project No. 7335
October 22, 1999

Tracy Wallace
Principal

REGISTERED PROFESSIONAL ENGINEER
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5930 COLLEGE AVENUE
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INTRODUCTION

Purpose

The purpose of this report is to describe the procedures and results used in the continuing soil and groundwater investigation of 5930 College Avenue in Oakland, California. The work carried out was described in the Golden Gate Tank Removal (GGTR) Work Plan dated April 1, 1997 and the Work Plan Addendum letter dated July 21, 1998. The work at the site is that required by the State Water Resources Control Board's Leaking Underground Fuel Tank (LUFT) manual and the TRI-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites. These documents set the work requirements as part of the work involved when an unauthorized fuel release has occurred and the groundwater below the site may have been affected.

This summary report, when filed with the Alameda County Health Care Services Agency (HSA) and the San Francisco Regional Water Quality Control Board will serve as a Quarterly report for the three month period ending October 31, 1999.

Scope

The scope of the work covered in this Summary Report includes the following:

- Drilling equipment and methods.
- Soil sampling equipment and techniques.
- Soil sample handling and transportation.
- Management of soil cuttings, well development water and purge water.
- Monitoring well installation including annular seal, surface treatment, and surveying.
- Well development.
- Physical monitoring and sampling of the well.
- Well purging.
- Sample analyses.
- Data interpretation.

Site Location and Description

The subject site, 5930 College Avenue, is located along the east side of College Avenue between Harwood Street and Chabot Road in Oakland, California. The general location of the site is shown on the Vicinity Map, Figure 1 of Appendix B. The project site consists of a commercial property with a building used for auto repair occupying the front 75% of the site, and a paved/unpaved storage area occupying the rear of the site. The site is an active auto repair shop with no active fuel distribution facilities. The site, building, adjacent street and property boundaries are shown on Figure 2 of Appendix B.

Site Plan

The subject site along with the various buildings and tank locations is shown on the Site Plan, Figure 2 of Appendix B.

Site History

Two underground storage tanks were removed from the site during 1996 by GGTR. The following summary shows the tank designations, size, type of construction and contents.

Designation	Construction	diameter (feet)	length (feet)	size (gallons)	contents
TANK 1	steel	4	7	675	gasoline
TANK 2	steel	4	3.5	340	waste oil

The ages of the tanks are unknown but are believed to be between 40 and 60 years old. During the removal there was evidence of a leak and a program of over-excavation of contaminated soil was carried out by GGTR. The removal and over-excavation was documented in the GGTR report dated October 11, 1996.

The following Chronology shows the significant work carried out at the site.

CHRONOLOGY

08/06/96	Tanks 1 and 2 were removed and samples taken.
08/15/96	A Work Plan was published by GGTR for additional excavation and soil disposal.
09/30/96	Additional excavation performed.
10/01/96	Last of additional excavation soil disposed of at a Class II facility.
10/11/96	TANK REMOVAL REPORT published by GGTR.
12/30/96	HSA published letter requiring soil and groundwater investigation.
03/10/97	GGTR authorized to prepare a Work Plan for additional investigation.
04/01/97	GGTR publishes work plan for a Soil and Groundwater Investigation.
04/21/97	HSA published letter authorizing work plan.
05/06/98	GGTR drills borings B1 through B3.
05/20/98	GGTR drills boring B4 (Monitoring Well MW1).
05/27/98	GGTR develops monitoring well MW1.
06/01/98	GGTR measures, purges and samples monitoring well MW1.
06/17/98	GGTR publishes Soil and Groundwater Investigation Report.
07/21/98	GGTR publishes Work Plan Addendum for installation of two additional groundwater monitoring wells
09/10/98	GGTR measures, purges and samples monitoring well MW1.
09/21/98	GGTR publishes Groundwater Monitoring Report.
10/02/99	GGTR drills two borings (B5 and B6) and converts them to groundwater monitoring Wells (MW2 and MW3).
10/04/99	GGTR develops monitoring wells MW2 and MW3.

10/07/99 GGTR surveys monitoring wells MW2 and MW3 and measures, purges and samples monitoring wells MW1, MW2 and MW3.

Site Geology, Soil Conditions and Hydrogeology

The site is located in the transition area between the Berkeley hills and the shores of San Francisco Bay. Soil at the site lies within colluvium and alluvium derived from the Berkeley Hills to the east and possible San Francisco Bay sediments to the west.

Soils encountered during the tank removal were primarily sands, with a varying amount of silt and clay. The borings have encountered sandy clays and silty clays in the several borings at the site. The cohesive soils extended to about 9 feet in borings B1 through B4 and overlay primarily sandy soils. Borings B5 and B6 encountered silty clays extending to the depths explored, approximately 20 feet. No groundwater was encountered during the tank removal. During the drilling of B1 through B4 and monitoring of MW1 in 1998, groundwater was found to be within an confined aquifer at about 9 feet below grade. The water level in MW1 after well construction was 4 to 5 feet below grade. During the drilling and monitoring of MW2 and MW3 groundwater was encountered during drilling at about 19 feet. Groundwater rose to about 10 feet below grade after development and stabilization. The regional groundwater flow direction in the immediate vicinity of the site is thought to be toward the southwest, the direction of San Francisco Bay, and topographically downhill. Boring logs which show the precise soil conditions encountered during drilling are presented on Figures 4 and 5 of Appendix B.

WORK ACCOMPLISHED

Soil Drilling and Sampling

On October 2, 1999, two soil borings (B4 and B5) were advanced with truck mounted drill rig using 8 inch outside, 3 3/4 inch inside diameter hollow stem augers at the locations shown on Figure 3 of Appendix B.

The borings were sampled at about five feet and then at approximate five foot intervals until water was encountered at about 20 feet. Shop cleaned auger strings were used for the two borings. Sampling equipment and sample tubes was cleaned between samples using soap, TSP, and clear water to prevent cross or down-hole contamination.

As samples were obtained, they were capped and sealed with airtight tape. The samples were then labeled and stored in an ice chest for transportation to the analytical laboratory.

All down-hole equipment was steam cleaned prior to arriving on site. As soil cuttings were generated, they were observed and also used to log the soil conditions. Soil cuttings were contained in 55 gallon DOT 17H drums. Final boring logs of the two borings are presented on Figures 4 and 5 of Appendix B.

The soil samples were analyzed for:

- Total Petroleum Hydrocarbons as Gasoline (TPH-G),
- Total Extractable Petroleum Hydrocarbons (TEPH),
- Volatile aromatic hydrocarbons Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX),
- Methyl Tertiary Butyl Ether (MTBE).

Results of the soil sample analyses have been tabulated and are presented on Table I of Appendix A. Copies of the laboratory report are attached in Appendix C.

Monitoring Well Installation

Upon completion of drilling each boring, each boring was immediately converted to a Groundwater Monitoring Well (MW2 and MW3). On October 4, 1999, groundwater monitoring wells MW2 and MW3 were developed by purging. Purging continued until the groundwater was free of all sediment and at least 10 well volumes had been removed from each well. Development groundwater was stored on site in a DOT 17E 55 gallon drum and labeled pending analyses results and proper disposal. Documentation of the development of the well is included in Appendix D.

Details of the monitoring well installations are shown on Figures 6 and 7 of Appendix B. Copies of the State of California, Department of Water Resources Form DWR 188, Water Well Drillers Report for the wells which are required by the State of California are attached in Appendix E.

Groundwater Sampling

On October 7, 1999, the horizontal and vertical locations of the well casing tops were surveyed. The groundwater monitoring wells were then observed, measured, purged, and sampled. Prior to purging and sampling, the depth to groundwater in the well was measured from the top of casing to the nearest 0.01 foot using an electronic sounding probe. A preliminary groundwater sample was collected at this time with a clear acrylic bailer and checked for the presence of liquid-phase hydrocarbons, odors or a sheen.

Prior to actual sample collection, each well was purged a minimum of three casing volumes and until the pH, temperature and conductivity of the purge water were essentially stable. A groundwater sample for analyses was collected from the wells by lowering a clean, 2 inch diameter bottom-fill, polyvinyl chloride (PVC) bailer to just below the air-water interface in the well and then carefully decanted from the bailer into the appropriate containers. All volatile organic analysis (VOA) vials were inverted and checked to insure that no entrapped air was present. Each sample was then properly labeled with the sample number, well number, sample date, and the sampler's initials. Similar procedures were followed in obtaining samples in liter bottles for extractable compounds. The samples were then stored in an iced cooler for delivery to a State Certified Laboratory utilizing proper preservation and Chain-of-Custody procedures.

Purged groundwater was stored on site in DOT 17E 55 gallon drums and labeled pending analytical results and proper disposal. Groundwater Monitoring and sampling documentation is attached in Appendix D.

Water Sample Analyses

The monitoring well groundwater samples were analyzed for:

- Total Petroleum Hydrocarbons as Gasoline (TPH-G),
- Total Extractable Petroleum Hydrocarbons (TEPH),
- Volatile aromatic hydrocarbons Benzene, Toluene. Ethylbenzene and total Xylenes (BTEX),
- Methyl Tertiary Butyl Ether (MTBE),
- Volatile Organic Compounds (VOC).

Although the Work Plan and previous analyses did not include VOCs, Ms. Eva Chu of the HSA requested that the three water samples from the monitoring wells be analyzed for VOCs. Results of the groundwater analyses have been tabulated and are presented on Table II of Appendix A. Copies of the laboratory report are attached in Appendix C.

FINDINGS

Soil Conditions

The general soil profile encountered during the exploration at the site consisted dark silty clay (CL) from below the surface pavement which graded into a brown sandy clay or silty clay and extended to the depths explored.

The details of the borings are shown on the boring logs, Figures 4 and 5 of Appendix B. The results of the soil analyses are tabulated below and on Table I of Appendix A.

Sample ID	TPH-G (ppm)	MTBE (ppm)	BTEX (ppm)	TEPH (ppm)
7335-B5-3.0	ND	ND	ND/ND/ND/ND	ND
7335-B5-5.0	ND	ND	ND/ND/ND/ND	ND
7335-B5-9.0	ND	ND	ND/ND/ND/ND	ND
7335-B5-15.5	2.8	ND	0.69/0.092/0.066/0.22	ND
7335-B5-20.0	ND	ND	0.028/0.021/0.007/0.029	ND
7335-B6-5.0	ND	ND	ND/ND/ND/ND	200
7335-B6-10.0	1.5	ND	ND/ND/0.005/0.013	ND
7335-B6-15.0	ND	0.031	ND/ND/ND/ND	ND
7335-B6-19.0	ND	0.043	ND/ND/ND/ND	ND

Laboratory reports are contained in Appendix C.

Groundwater Conditions

Based on the review of the well drilling program, the groundwater below the site appears to be in an confined aquifer which varies considerably in depth from season to season. The water encountered in MW2 and MW3 was within silty clays with no observable water during drilling until a depth of about 20 feet. The water in each of the newly installed wells rose to about 10 feet within two days of drilling. Recharge is somewhat slow, taking about 2 hours to recharge after purging.

On October 7, 1998, the three groundwater monitoring wells were observed purged, monitored for depth to groundwater and the presence of oil sheen or free product and then sampled. The physical observations and measurements are presented on Table II of Appendix A.

The results of the groundwater analyses for the monitoring well water samples are summarized below and tabulated with previous results on Table II of Appendix A.

Sample ID	TPH-G (ppb)	MTBE (ppb)	BTEX (ppb)	TEPH (ppm)
7335-MW1	85,000	1,100	20,000/13,000/3,800/17,000	ND
7335-MW2	18,000	490	3,000/1,700/1,000/3,000	ND
7335-MW3	6,600	390	310/110/430/1,000	ND

Laboratory reports are contained in Appendix C.

The measurements taken during the monitoring were used to calculate a groundwater gradient. The groundwater gradient for the October 7, 1999 monitoring event has been calculated and is shown on Figure 8 of Appendix B. The groundwater gradient calculated for the first monitoring event with three data points is:

Date	Direction	Slope
10/07/99	11° west of south	0.67 feet per 100 feet

ANALYTICAL CERTIFICATES

Copies of original certificates from a California Certified Laboratory for the groundwater sample analyses are attached in Appendix C Copies of the Chain-of-Custody Forms are also included in Appendix C.

CONCLUSIONS

Two borings were drilled and sampled to further define the horizontal and vertical limits of soil contamination. TPH-G varied from non-detect to over 2.8 parts per million at 15.5 feet in boring B5 (MW2). There was only minor BTEX in several of the samples. The gasoline soil contamination appears to be confined to the groundwater capillary fringe . There was 200 ppm of TEPH encountered in Boring B6 (MW3).

The three groundwater monitoring wells have been installed and monitored for the first time. The groundwater gradient has been calculated to the south south west which agrees with other monitoring data in the area.

The placement of the three wells have been reviewed along with the gradient data. MW3 is a down gradient well within 10 feet of the excavation. MW1 is up gradient and MW2 is cross to up gradient of the tank and over-excavation area. The levels of gasoline related contamination found in all three wells are significant but appear to be from an off site source to the north of the property. The decrease of the gasoline related components correspond to the distribution which would be projected from an off-site source along with the calculated gradient. Only anecdotal evidence has been presented to GGTR regarding a gasoline service station which had operated directly to the north of 5930 College Avenue. The anecdotal information indicated that the tanks associated with the service station had been removed but there was no official case closure.

There was no indication of TEPH or VOCs in this monitoring event which could be associated with the waste oil tank which was removed from the 5930 College Avenue site. In fact, there were significant TRPH levels reported during the tank removal, along with lower levels reported for the confirmation samples.

Department of Water Resources Forms DWR 188, Water Well Drillers Report, has been completed and filed as required. A copy is attached as Appendix E.

RECOMMENDATIONS

The groundwater monitoring well at the site should continued to be monitored on a quarterly basis to further confirm that the contamination source is from the north of the site. Water samples from the groundwater monitoring well should be taken each quarter and analyzed for TPH-G, MTBE, and BTEX.

The results of the monitoring and analyses obtained each quarter should be summarized and presented in a quarterly report and forwarded to the HSA and the San Francisco Region Water Quality Control Board.

The responsible party of the property to the north should be identified and informed that there the property at 5930 College Avenue may have been impacted by sources on their

property. A formal program of data review, site history compilation and active monitoring and remediation on the potential sources to the north of 5930 College Avenue should be considered.

REPORT DISTRIBUTION

Copies of this report are being sent to:

Alameda County Health Care Services
Environmental Health Services
Environmental Protection (LOP)
1131 Harbor Bay Parkway Suite 250
Alameda, CA 94502
Attention: Eva Chu

California Regional Water Quality Control Board
San Francisco Region
1515 Clay Street, Suite 1400
Oakland, California 94612

William G. Sheaff TTE Trust
c/o Mr. Brian Sheaff
1945 Parkside Drive
Concord, CA 94519

APPENDIX A

TABLE I and TABLE II

SOIL & GROUNDWATER INVESTIGATION REPORT

FOR

5930 College Avenue
Oakland, California
STID # 514

Project No. 7335
October, 22, 1999

SOIL ANALYTICAL RESULTS
PROJECT 7335

TABLE 1

Sample Number	Date	Depth (feet)	TPH-G (ppm)	MTBE (ppm)	BTEX (ppm)	TEPH (ppm)
7335-B1-5	05/06/96	5.0	ND	ND	ND/ND/ND/ND	ND
7335-B1-9	05/06/96	9.0	75	0.06	0.07/0.04/0.53/1.0	53
7335-B2-5	05/06/96	5.0	0.6	0.03	ND/ND/ND/ND	60
7335-B2-9	05/06/96	9.0	2,800	ND	13/78/38/160	ND
7335-B3-6	05/06/96	6.0	ND	ND	ND/ND/ND/ND	ND
7335-B3-10	05/06/96	10.0	48	ND	0.5/0.6/0.5/2.0	ND
7335-B4-5	05/20/96	5.0	ND	ND	ND/ND/ND/0.02	ND
7335-B4-9	05/20/96	9.0	280	6.0	4.0/8.0/6.0/27.0	ND
7335-B5-3.0	**10/02/99**	**3.0**	**ND**	**ND**	**ND/ND/ND/ND**	**ND**
7335-B5-5.0	**10/02/99**	**5.0**	**ND**	**ND**	**ND/ND/ND/ND**	**ND**
7335-B5-9.0	**10/02/99**	**9.0**	**ND**	**ND**	**ND/ND/ND/ND**	**ND**
7335-B5-15.5	**10/02/99**	**15.5**	**2.8**	**ND**	**0.69/0.092/0.066/0.22**	**ND**
7335-B5-20.0	**10/02/99**	**20.0**	**ND**	**ND**	**0.028/0.021/0.007/0.029**	**ND**
7335-B6-5.0	**10/02/99**	**5.0**	**ND**	**ND**	**ND/ND/ND/ND**	**200**
7335-B6-10.0	**10/02/99**	**10.0**	**1.5**	**ND**	**ND/ND/0.005/0.013**	**ND**
7335-B6-15.0	**10/02/99**	**15.0**	**ND**	**0.031**	**ND/ND/ND/ND**	**ND**
7335-B6-19.0	**10/02/99**	**19.0**	**ND**	**0.043**	**ND/ND/ND/ND**	**ND**

NOTES:

TPH-G	Total Petroleum Hydrocarbons as Gasoline
BTEX	Benzene/Ethylbenzene/Toluene/Xylenes
MTBE	Methyl Tertiary Butyl Ether
ppm	parts per million

SOIL ANALYTICAL RESULTS
PROJECT 7335

TABLE I

Sample Number	Date	Depth (feet)	TPH-G (ppm)	MTBE (ppm)	BTEX (ppm)	TEPH (ppm)
7335-B1-5	05/06/98	5.0	ND	ND	ND/ND/ND/ND	ND
7335-B1-9	05/06/98	9.0	75	0.06	0.07/0.04/0.53/1.0	53
7335-B2-5	05/06/98	5.0	0.6	0.03	ND/ND/ND/ND	60
7335-B2-9	05/06/98	9.0	2,800	ND	13/78/38/160	ND
7335-B3-6	05/06/98	6.0	ND	ND	ND/ND/ND/ND	ND
7335-B3-10	05/06/98	10.0	48	ND	0.5/0.6/0.5/2.0	ND
7335-B4-5	05/20/98	5.0	ND	ND	ND/ND/ND/0.02	ND
7335-B4-9	05/20/98	9.0	280	6.0	4.0/8.0/6.0/27.0	ND
7335-B5-3.0	**10/02/99**	**3.0**	**ND**	**ND**	**ND/ND/ND/ND**	**ND**
7335-B5-5.0	**10/02/99**	**5.0**	**ND**	**ND**	**ND/ND/ND/ND**	**ND**
7335-B5-9.0	**10/02/99**	**9.0**	**ND**	**ND**	**ND/ND/ND/ND**	**ND**
7335-B5-15.5	**10/02/99**	**15.5**	**2.8**	**ND**	**0.69/0.092/0.066/0.22**	**ND**
7335-B5-20.0	**10/02/99**	**20.0**	**ND**	**ND**	**0.028/0.021/0.007/0.029**	**ND**
7335-B6-5.0	**10/02/99**	**5.0**	**ND**	**ND**	**ND/ND/ND/ND**	**200**
7335-B6-10.0	**10/02/99**	**10.0**	**1.5**	**ND**	**ND/ND/0.005/0.013**	**ND**
7335-B6-15.0	**10/02/99**	**15.0**	**ND**	**0.031**	**ND/ND/ND/ND**	**ND**
7335-B6-19.0	**10/02/99**	**19.0**	**ND**	**0.043**	**ND/ND/ND/ND**	**ND**

NOTES:

TPH-G	Total Petroleum Hydrocarbons as Gasoline
BTEX	Benzene/Ethylbenzene/Toluene/Xylenes
MTBE	Methyl Tertiary Butyl Ether
ppm	parts per million

GROUNDWATER MONITORING RESULTS
PROJECT 7335

TABLE II

October, 1999

Monitoring Well Number	Sample Date	Casing Elevation	Depth to Ground-water (feet)	Ground-water Elevation	Free Product or Sheen	TPH-G (ppb)	TEPH (ppm)	MTBE (ppb)	BTEX (ppb)
MW1	06/01/98	50.00*	4.81	45.19	slight sheen	160,000	ND	1,900	28,000/21,000/3,800/21,000
MW1	09/10/98	50.00	7.50	42.50	odor	290,000	ND	440	<50/25,000/7,100/32,000
MW1	**10/07/99**	**50.00**	**10.04**	**39.96**	**odor**	**85,000**	**ND**	**1,100**	**20,000/13,000/3,800/17,000**
MW2	**10/07/99**	**51.42**	**11.49**	**39.93**	**slight odor**	**18,000**	**ND**	**490**	**3,000/1,700/1,000/3,900**
MW3	**10/07/99**	**49.39**	**9.67**	**39.72**	**none**	**6,600**	**ND**	**390**	**310/110/430/1,000**

Volatile Organic Compounds are all Non-Detect for all three water samples taken during the 10/07/99 monitoring event

NOTES:

TPH-G	Total Petroleum Hydrocarbons as Gasoline
TPH-D	Total Petroleum Hydrocarbons as Diesel
TEPH	Total Extractable Petroleum Hydrocarbons
MTBE	Methyl Tertiary Butyl Ether
ppb	parts per billion
ppm	parts per million
*	assumed
NT	

APPENDIX B

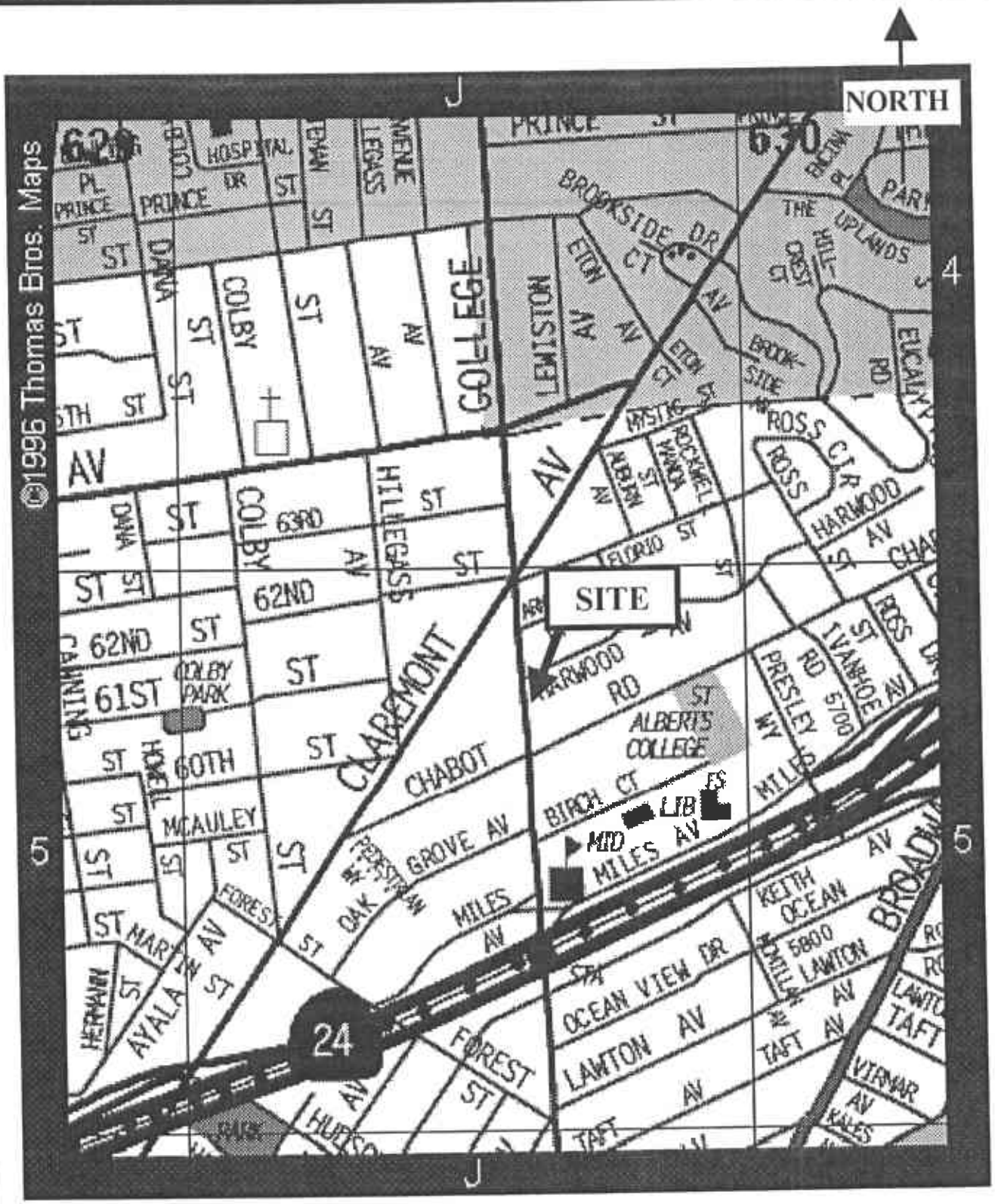
Figures 1 through 8

SOIL & GROUNDWATER INVESTIGATION REPORT

FOR

5930 College Avenue
Oakland, California
STID # 514

Project No. 7335
October, 22, 1999



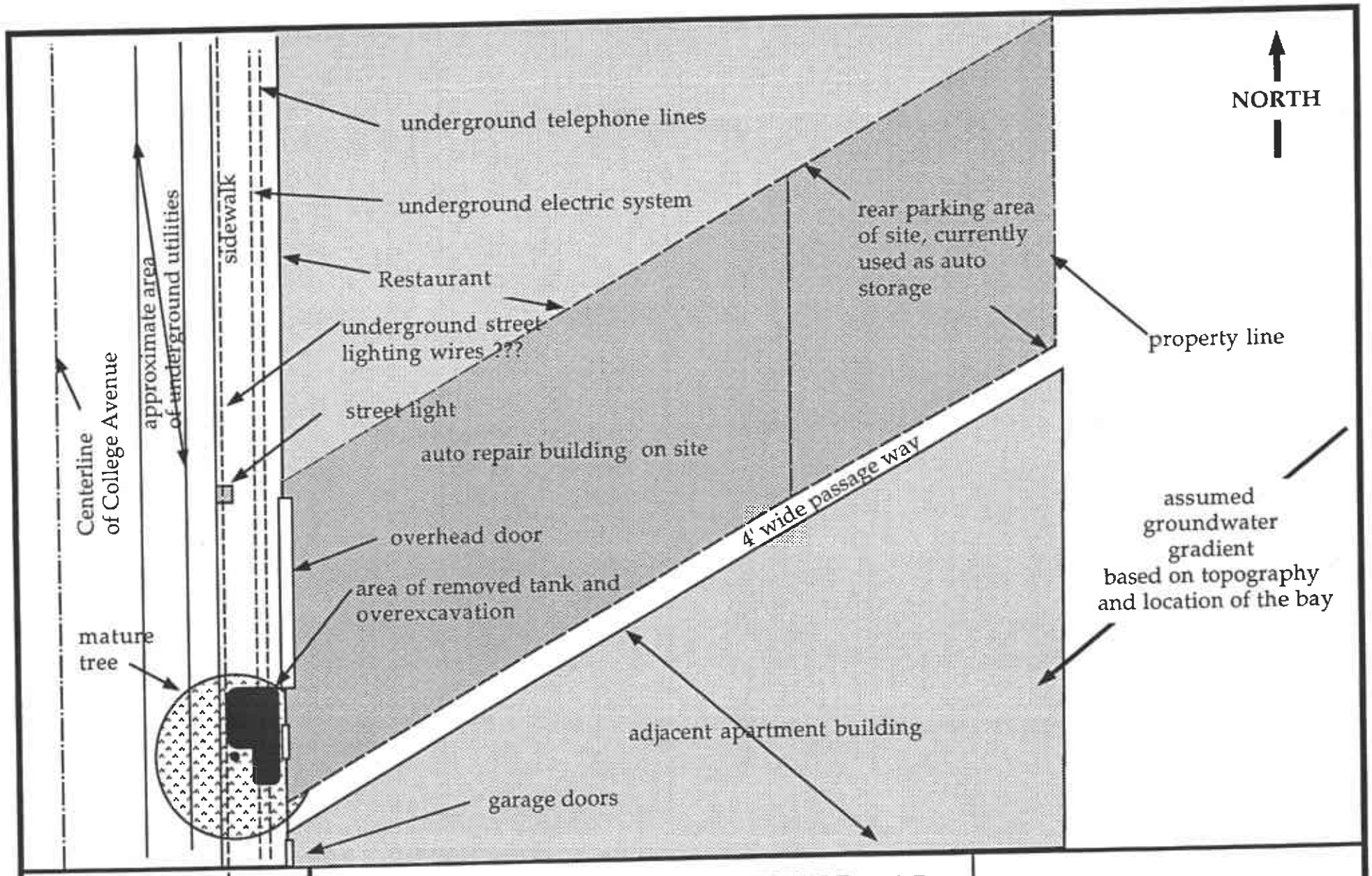
GOLDEN GATE TANK REMOVAL

255 Shipley Street
San Francisco, California 94107
Telephone (415) 512 1555 Fax (415) 512 0964

VICINITY MAP

5930 College Avenue
Oakland, California

Project 7335	By: jnc	Not to scale	October, 1999	Figure 1

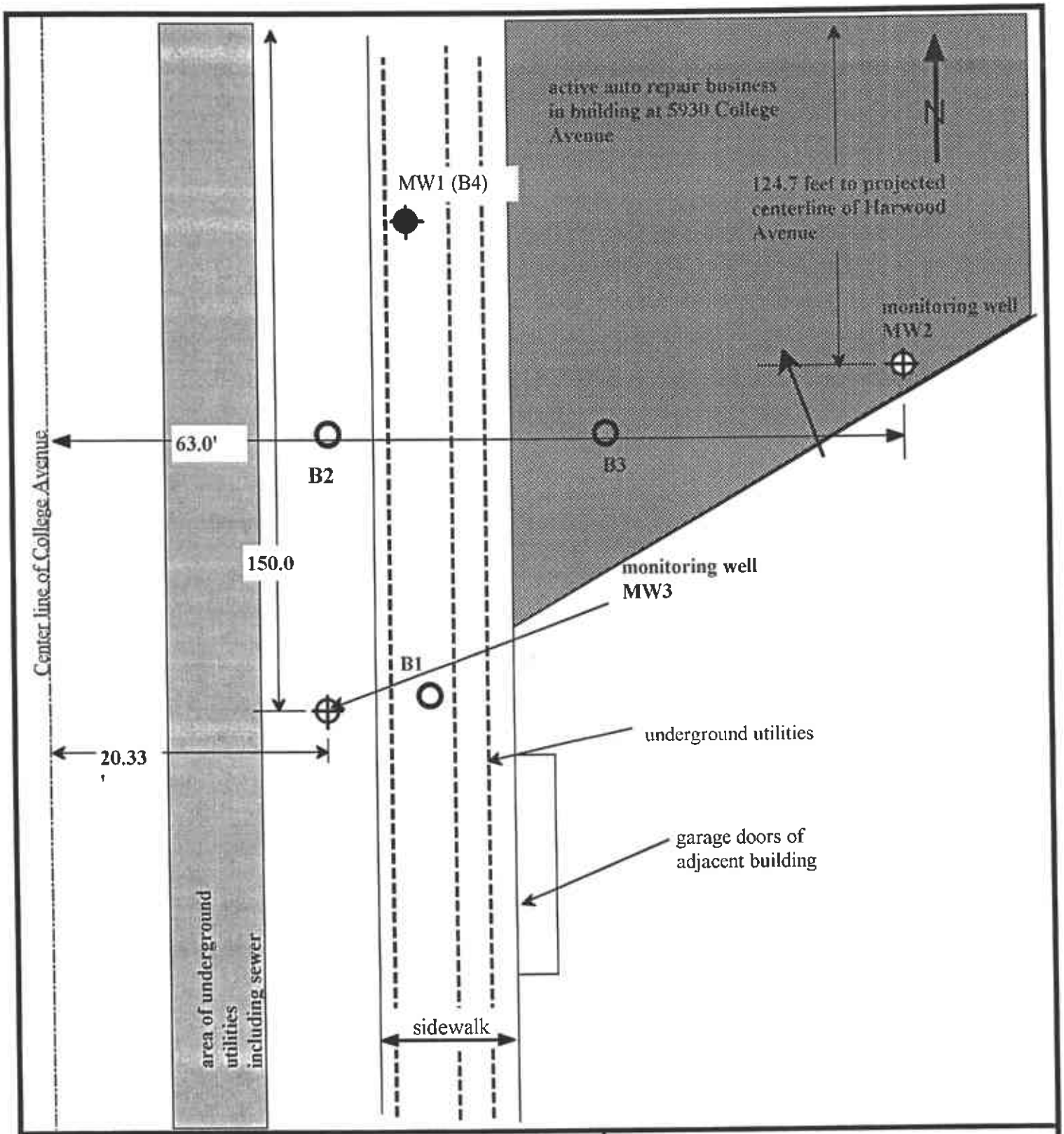


GOLDEN GATE TANK REMOVAL

255 Shipley Street•San Francisco, CA94107•(415) 512-1555

Site Plan
5930 College Avenue
Oakland, California

Project Number: 7335	Drawn by: JNC	Scale 1"= 20'	October, 1999	Figure Number: 2



GOLDEN GATE TANK REMOVAL

255 Shipley Street
San Francisco, CA 94107
Telephone (415) 512 1555 Fax (415) 512 0964

PROPOSED MONITORING WELL LOCATION
5930 College Avenue
Oakland, California

Project 7335	By: jnc	1" = 10'	October 1999	Figure 3

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
					0	6 inches of garage concrete slab.
						Black silty clay, medium stiff damp, with occassional gravel.
7335-B5-3.0	push	CL	0845			
7335-B5-5.0	push	CL/ML	0905		5	Brown silty clay to clayey silt, medium stiff to stiff, moist.
7335-B5-9.0	push	CL	0920		10	Dark brown to grey silty clay stiff, moist.
						Brown silty clay with gravel fragments stiff, moist to wet
7335-B5-15.5	push	CL	0945		15	
						grading very stiff to hard
						small seepage areas around gravel fragments
7335-B5-20.0	push	CL	1030		20	

Boring Drilled October 2, 1999 to 20 feet using 8 inch diameter hollow stem augers.
No groundwater encountered during drilling. Boring coverted to Monitoirng Well MW2 after drilling.

Golden Gate Tank Removal
255 Shipley Street • San Francisco, CA 94107
(415) 512 1555 • Fax (415) 512 0964

Log of Boring Number: B5/MW2
5930 College Avenue
Oakland, California

Project Number: 7335	Date: October, 1999	Figure Number 4

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
					0	12 inches of sidewalk pavement section.
		CL				Black silty clay with minor gravel, medium stiff, damp.
7335-B6-5.0	push	ML/CL	1245		5	Brown clayey silt to silty clay, stiff, moist to wet.
7335-B6-10.0	push	ML	1310		10	Gray clayey SILT, stiff, moist.
7335-B6-15.5	push	CL/GC	1400		15	Brown gravelly clay to silty clay with gravel (rock fragments), very stiff to hard.
7335-B6-19.5	push	CL/GC	1430		20	first water encountered during drilling.

Boring Drilled October 2, 1999 to 20 feet using 8 inch diameter hollow stem augers.
Groundwater encountered at about 19.5 feet during drilling. Boring coverted to Monitoirng Well MW3 after drilling.

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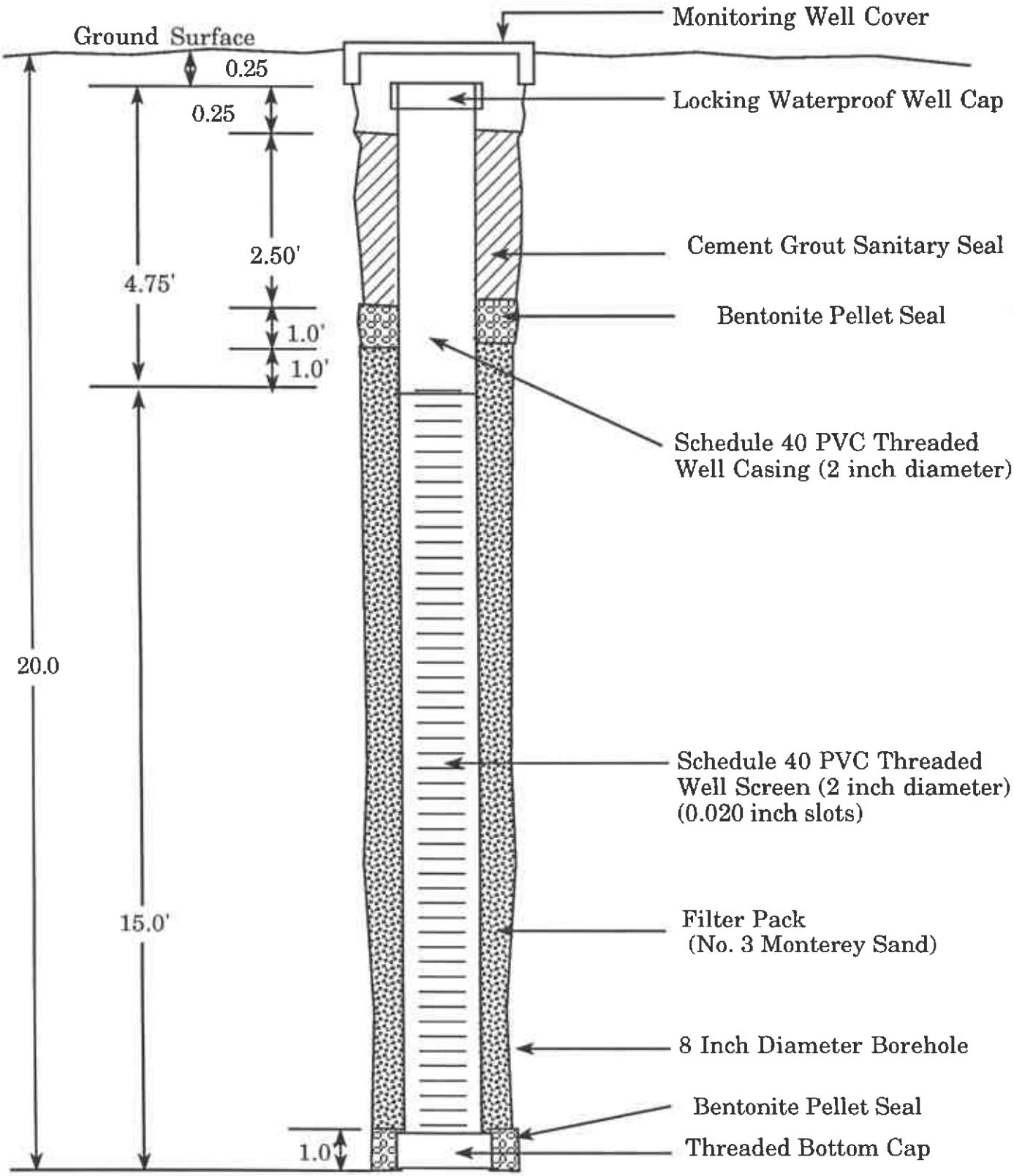
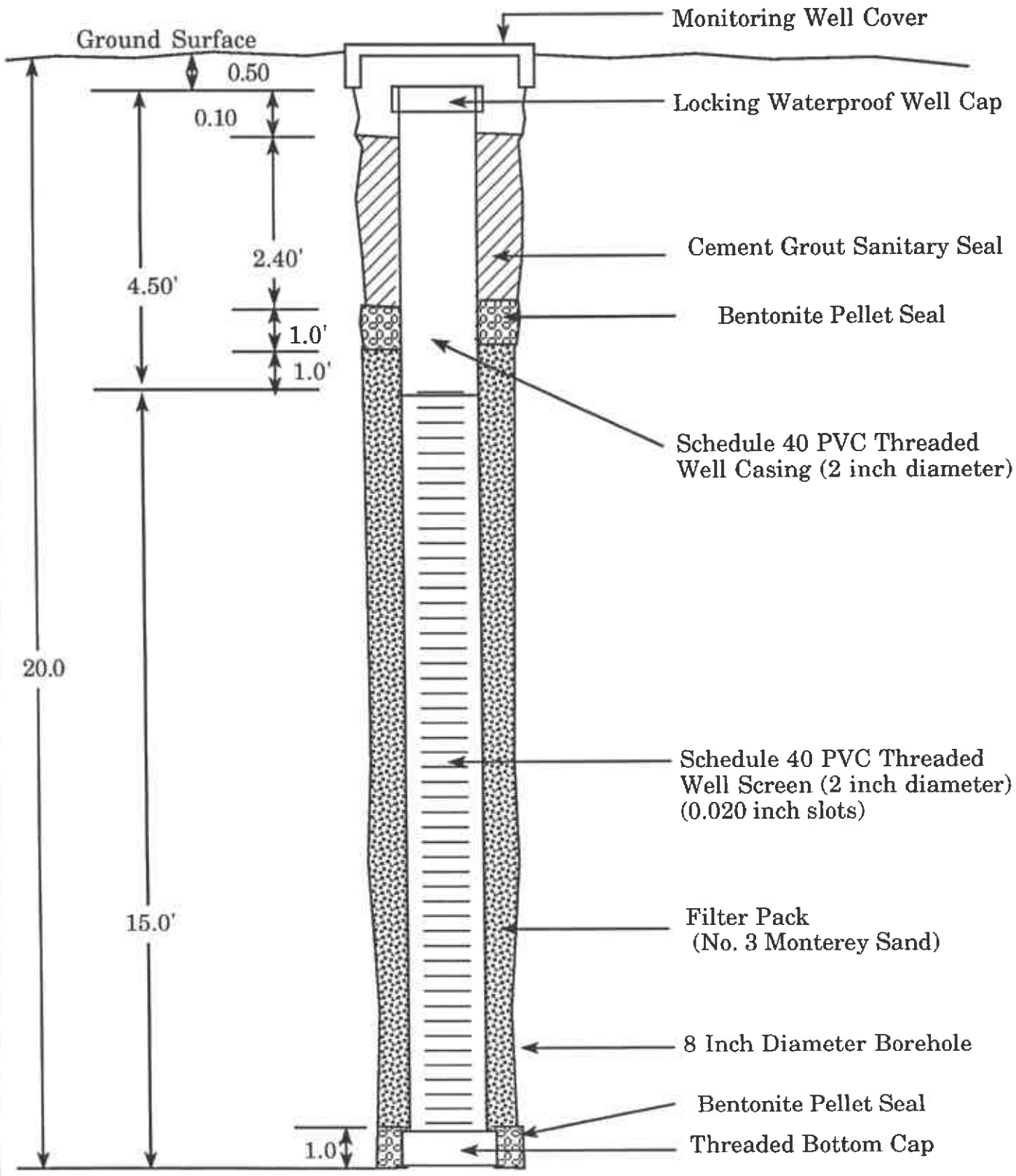
Log of Boring Number: B6/MW3
5930 College Avenue
Oakland, California

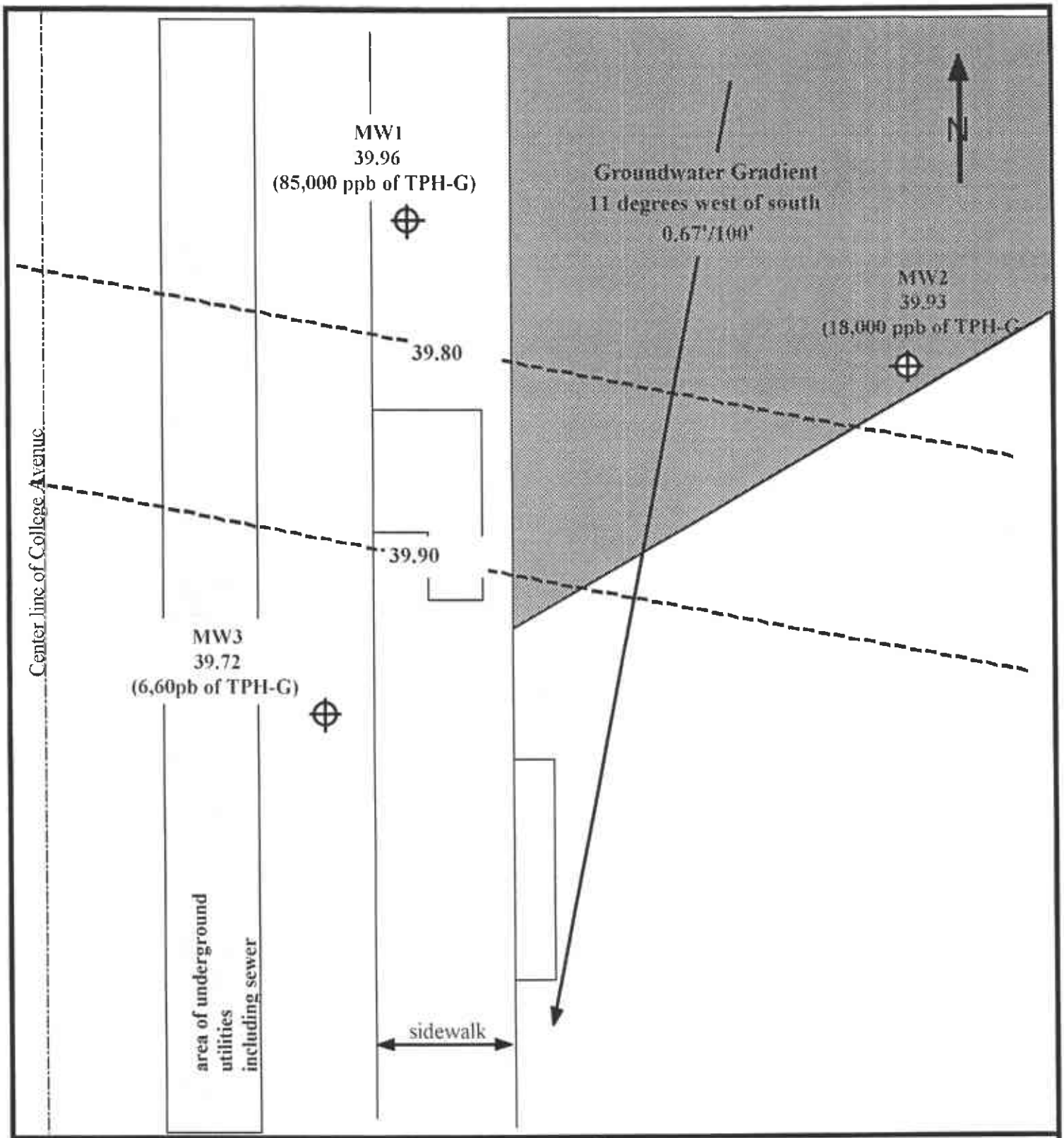
Project Number: 7335	Date: October, 1999	Figure Number 5



GOLDEN GATE TANK REMOVAL	**5930 College Avenue** Oakland, California	**Monitoring Well (MW2) Installation Detail**
Project Number: 7335	Date: October, 1999	Figure Number: 6



GOLDEN GATE TANK REMOVAL	**5930 College Avenue** Oakland, California	**Monitoring Well (MW3) Installation Detail**
Project Number: 7335	Date: October, 1999	Figure Number: 7



GOLDEN GATE TANK REMOVAL

255 Shipley Street
San Francisco, CA 94107
Telephone (415) 512 1555 Fax (415) 512 0964

GROUNDWATER GRADIENT
10/07/99
5930 College Avenue
Oakland, California

Project 7335	By: jnc	1" = 10'	October 1999	Figure 8

APPENDIX C

Analytical Certificates
Chain of Custody Forms

SOIL & GROUNDWATER INVESTIGATION REPORT

FOR

5930 College Avenue
Oakland, California
STID # 514

Project No. 7335
October, 22, 1999

North State Environmental
Chemical Waste Disposal · Trucking · Consulting

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

Lab Number: 99-1575
Client: Golden Gate Tank
Project: 7335/5930 College Ave, Oakland

Date Reported: 10/07/99

Gasoline, BTEX and MTBE by Methods 8015M and 8020
Total Extractable Petroleum Hydrocarbons by SM 5520 E & F

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 99-1575-01 Client ID: 7335-B5-3.0				10/02/99	SOIL
Gasoline	8015M	ND			10/04/99
Benzene	8020	ND			
Ethylbenzenc	8020	ND			
MTBE	8020	ND			
Toluene	8020	ND			
Xylenes	8020	ND			
TEPH	5520F	ND			10/06/99
Sample: 99-1575-02 Client ID: 7335-B5-5.0				10/02/99	SOIL
Gasoline	8015M	ND			10/04/99
Benzene	8020	ND			
Ethylbenzene	8020	ND			
MTBE	8020	ND			
Toluene	8020	ND			
Xylenes	8020	ND			
TEPH	5520F	ND			10/06/99
Sample: 99-1575-03 Client ID: 7335-B5-9.0				10/02/99	SOIL
Gasoline	8015M	ND			10/04/99
Benzene	8020	ND			
Ethylbenzene	8020	ND			
MTBE	8020	ND			
Toluene	8020	ND			

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North State Environmental
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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: 99-1575
Client: Golden Gate Tank
Project: 7335/5930 College Ave, Oakland

Date Reported: 10/07/99

Gasoline, BTEX and MTBE by Methods 8015M and 8020
Total Extractable Petroleum Hydrocarbons by SM 5520 E & F

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 99-1575-03 Client ID: 7335-B5-9.0				10/02/99	SOIL
Xylenes	8020	ND			
TEPH	5520F	ND			10/06/99
Sample: 99-1575-04 Client ID: 7335-B5-15.5				10/02/99	SOIL
Gasoline	8015M	2.8	mg/Kg		10/04/99
Benzene	8020	0.69	mg/Kg		
Ethylbenzene	8020	0.066	mg/Kg		
MTBE	8020	ND			
Toluene	8020	0.092	mg/Kg		
Xylenes	8020	0.22	mg/Kg		
TEPH	5520F	ND			10/06/99
Sample: 99-1575-05 Client ID: 7335-B5-20.0				10/02/99	SOIL
Gasoline	8015M	ND			10/04/99
Benzene	8020	0.028	mg/Kg		
Ethylbenzene	8020	0.007	mg/Kg		
MTBE	8020	ND			
Toluene	8020	0.021	mg/Kg		
Xylenes	8020	0.029	mg/Kg		
TEPH	5520F	ND			10/06/99

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North State Environmental
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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: 99-1575
Client: Golden Gate Tank
Project: 7335/5930 College Ave, Oakland

Date Reported: 10/07/99

Gasoline,BTEX and MTBE by Methods 8015M and 8020
Total Extractable Petroleum Hydrocarbons by SM 5520 E & F

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 99-1575-06 Client ID: 7335-B6-5.0				10/02/99	SOIL
Gasoline	8015M	ND			10/04/99
Benzene	8020	ND			
Ethylbenzene	8020	ND			
MTBE	8020	ND			
Toluene	8020	ND			
Xylenes	8020	ND			
TEPH	5520F	200	mg/Kg		10/06/99
Sample: 99-1575-07 Client ID: 7335-B6-10.0				10/02/99	SOIL
Gasoline	8015M	1.5	mg/Kg		10/04/99
Benzene	8020	ND			
Ethylbenzene	8020	0.005	mg/Kg		
MTBE	8020	ND			
Toluene	8020	ND			
Xylenes	8020	0.013	mg/Kg		
TEPH	5520F	ND			10/06/99
Sample: 99-1575-08 Client ID: 7335-B6-15.0				10/02/99	SOIL
Gasoline	8015M	ND			10/04/99
Benzene	8020	ND			
Ethylbenzene	8020	ND			
MTBE	8020	0.031	mg/Kg		
Toluene	8020	ND			

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North State Environmental
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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: 99-1575
Client: Golden Gate Tank
Project: 7335/5930 College Ave, Oakland

Date Reported: 10/07/99

Gasoline,BTEX and MTBE by Methods 8015M and 8020
Total Extractable Petroleum Hydrocarbons by SM 5520 E & F

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 99-1575-08 Client ID: 7335-B6-15.0				10/02/99	SOIL
Xylenes	8020	ND			
TEPH	5520F	ND			10/06/99
Sample: 99-1575-09 Client ID: 7335-B6-19.0				10/02/99	SOIL
Gasoline	8015M	ND			10/04/99
Benzene	8020	ND			
Ethylbenzene	8020	ND			
MTBE	8020	0.043	mg/Kg		
Toluene	8020	ND			
Xylenes	8020	ND			
TEPH	5520F	ND			10/06/99

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North State Environmental
Chemical Waste Disposal · Trucking · Consulting

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: 99-1575
Client: Golden Gate Tank
Project: 7335/5930 College Ave, Oakland

Date Reported: 10/07/99

Gasoline, BTEX and MTBE by Methods 8015M and 8020
Total Extractable Petroleum Hydrocarbons by SM 5520 E & F

Analyte	Method	Reporting Limit	Unit	Blank	Avg MS/MSD Recovery	RPD
Gasoline	8015M	0.5	mg/Kg	ND	100	1
Benzene	8020	.005	mg/Kg	ND	106	1
Ethylbenzene	8020	.005	mg/Kg	ND	108	1
Toluene	8020	.005	mg/Kg	ND	107	1
Xylenes	8020	.010	mg/Kg	ND	109	1
MTBE	8020	.005	mg/Kg	ND	113	1
TEPH	5520F	50	mg/Kg	ND	100/97	3

ELAP Certificate NO:1753
Reviewed and Approved

John A.Murphy,Laboratory Director

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North State Environmental Analytical Laboratory

90 South Spruce Avenue, Suite W, South San Francisco, CA 94080
Phone: (650) 266-4563 Fax: (650) 266-4560

99-1575

Chain of Custody / Request for Analysis

Lab Job No.:_____ Page___ of___

Client: GGTR	Report to: Carver	Phone:	Turnaround Time: ASAP
Mailing Address:	Billing to:	Fax:	Date: 10/2/99
		PO# / Billing Reference: 7335	Sampler: Carver

Project / Site Address: 5930 College Ave Oakland

Analysis Requested

Sample ID	Sample Type	Container No. / Type	Pres.	Sampling Date / Time	TPH-D	BTEX	EDB	TEAD				Comments / Hazards
7335-B5-3.0	Soil	1BT	Cool	10/2/99 0845	X	X	X	X				
7335-B5-5.0				0905	X	X	X	X				Call re. Trip Comp.
7335-B5-9.0				0920	X	X	X	X				
7335-B5-15.5				0945	X	X	X	X				
7335-B5-20.0				1030	X	X	X	X				
7335-B6-5.0				1245	X	X	X	X				
7335-B6-10.0				1310	X	X	X	X				
7335-B6-15.0				1400	X	X	X	X				
7335-B6-18.0				1430	X	X	X	X				

Relinquished by:	Date: 10/4/99	Time: 3:35 pm	Received by:	Lab Comments
Relinquished by:	Date:	Time:	Received by:	
Relinquished by:	Date:	Time:	Received by:	

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: 99-1599
Client: Golden Gate Tank
Project: 5930 College/7335

Date Reported: 10/21/99

Gasoline,BTEX and MTBE by Methods 8015M and 8020
Total Extractable Petroleum Hydrocarbons by SM 5520 E&F

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 99-1599-01 Client ID: 7335-MW1				10/07/99	WATER
Gasoline	8015M	85000	ug/L		10/18/99
Benzene	8020	20000	ug/L		
Ethylbenzene	8020	3800	ug/L		
MTBE	8020	*1100	ug/L		
Toluene	8020	13000	ug/L		
Xylenes	8020	17000	ug/L		
TEPH	5520F	ND			10/20/99
Sample: 99-1599-02 Client ID: 7335-MW2				10/07/99	WATER
Gasoline	8015M	18000	ug/L		10/18/99
Benzene	8020	3000	ug/L		
Ethylbenzene	8020	1000	ug/L		
MTBE	8020	*490	ug/L		
Toluene	8020	1700	ug/L		
Xylenes	8020	3900	ug/L		
TEPH	5520F	ND			10/20/99
Sample: 99-1599-03 Client ID: 7335-MW3				10/07/99	WATER
Gasoline	8015M	6600	ug/L		10/18/99
Benzene	8020	310	ug/L		
Ethylbenzene	8020	430	ug/L		
MTBE	8020	*390	ug/L		

*Confirmed by GC/MS method 8260.

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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: 99-1599
Client: Golden Gate Tank
Project: 5930 College/7335

Date Reported: 10/21/99

Gasoline,BTEX and MTBE by Methods 8015M and 8020
Total Extractable Petroleum Hydrocarbons by SM 5520 E&F

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 99-1599-03 Client ID: 7335-MW3				10/07/99	WATER
Toluene	8020	110	ug/L		
Xylenes	8020	1000	ug/L		
TEPH	5520F	ND			10/20/99

*Confirmed by GC/MS method 8260.

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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: 99-1599
Client: Golden Gate Tank
Project: 5930 College/7335

Date Reported: 10/21/99

Gasoline,BTEX and MTBE by Methods 8015M and 8020
Total Extractable Petroleum Hydrocarbons by SM 5520 E&F

Analyte	Method	Reporting Limit	Unit	Blank	Avg MS/MSD Recovery	RPD
Gasoline	8015M	50	ug/L	ND	95	4
Benzene	8020	0.5	ug/L	ND	92	2
Ethylbenzene	8020	0.5	ug/L	ND	107	0
Toluene	8020	0.5	ug/L	ND	104	1
Xylenes	8020	1.0	ug/L	ND	114	2
MTBE	8020	0.5	ug/L	ND	91	2
TEPH	5520F	125	mg/L	ND	85	5

ELAP Certificate NO:1753
Reviewed and Approved

John A.Murphy,Laboratory Director

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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

Job Number: 99-1599
Client : Golden Gate Tank
Project : 5930 College/7335

Date Sampled : 10/07/99
Date Analyzed: 10/18/99
Date Reported: 10/21/99

8010 Volatile Organics by GC/MS

Laboratory Number	99-1599-01	99-1599-02	99-1599-03
Client ID	7335-MW1	7335-MW2	7335-MW3
Matrix	WATER	WATER	WATER
Analyte	ug/L	ug/L	ug/L
Chloromethane	ND<25	ND<5	ND<5
Vinyl Chloride	ND<3	ND<0.5	ND<0.5
Bromomethane	ND<25	ND<5	ND<5
Chloroethane	ND<25	ND<5	ND<5
Trichlorofluoromethane	ND<5	ND<1	ND<1
1,1-Dichloroethene	ND<5	ND<1	ND<1
Methylene Chloride	ND<5	ND<1	ND<1
t-1,2-Dichloroethene	ND<5	ND<1	ND<1
1,1-Dichloroethane	ND<5	ND<1	ND<1
c-1,2-Dichloroethene	ND<5	ND<1	ND<1
Chloroform	ND<5	ND<1	ND<1
1,1,1-Trichloroethane	ND<3	ND<0.5	ND<0.5
Carbon Tetrachloride	ND<3	ND<0.5	ND<0.5
1,2-Dichloroethane	ND<3	ND<0.5	ND<0.5
Trichloroethene	ND<50	ND<10	ND<10
Bromodichloromethane	ND<5	ND<1	ND<1
t-1,3-Dichloropropene	ND<5	ND<1	ND<1
c-1,3-Trichloropropene	ND<5	ND<1	ND<1
1,1,2-Trichloroethane	ND<5	ND<1	ND<1
Tetrachloroethene	ND<3	ND<0.5	ND<0.5
Dibromobenzene	ND<5	ND<1	ND<1
Chlorobenzene	ND<5	ND<1	ND<1
1,1,2,2-Tetrachloroethane	ND<5	ND<1	ND<1
1,3-Dichlorobenzene	ND<5	ND<1	ND<1
1,4-Dichlorobenzene	ND<5	ND<1	ND<1
1,2-Dichlorobenzene	ND<5	ND<1	ND<1
Trichlorotrifluoroethane	ND<5	ND<1	ND<1
1,2-Dibromoethane	ND<3	ND<0.5	ND<0.5
SUR-Dibromofluoromethane	131% Rec	131% Rec	133% Rec
SUR-Toluene d8	91% Rec	92% Rec	97% Rec
SUR-4-Bromofluorobenzene	98% Rec	103% Rec	103% Rec

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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

Job Number: 99-1599
Client : Golden Gate Tank
Project : 5930 College/7335

Date Sampled : 10/07/99
Date Analyzed: 10/18/99
Date Reported: 10/21/99

8010 Volatile Organics by GC/MS
Quality Control/Quality Assurance Summary

Laboratory Number	99-1599	MS/MSD	RPD
Client ID	Blank	Recovery	
Matrix	WATER	WATER	
Analyte	Results ug/L	%Recoveries	
Chloromethane	ND<5		
Vinyl Chloride	ND<0.5		
Bromomethane	ND<5		
Chloroethane	ND<5		
Trichlorofluoromethane	ND<1		
1,1-Dichloroethene	ND<1	85	1
Methylene Chloride	ND<1		
t-1,2-Dichloroethene	ND<1		
1,1-Dichloroethane	ND<1		
c-1,2-Dichloroethene	ND<1		
Chloroform	ND<1		
1,1,1-Trichloroethane	ND<0.5		
Carbon Tetrachloride	ND<0.5		
1,2-Dichloroethane	ND<0.5		
Trichloroethene	ND<10	103	4
Bromodichloromethane	ND<1		
t-1,3-Dichloropropene	ND<1		
c-1,3-Trichloropropene	ND<1		
1,1,2-Trichloroethane	ND<1		
Tetrachloroethene	ND<0.5		
Dibromobenzene	ND<1		
Chlorobenzene	ND<1	109	2
1,1,2,2-Tetrachloroethane	ND<1		
1,3-Dichlorobenzene	ND<1		
1,4-Dichlorobenzene	ND<1		
1,2-Dichlorobenzene	ND<1		
Trichlorotrifluoroethane	ND<1		
1,2-Dibromoethane	ND<0.5		
SUR-Dibromofluoromethane	91% Rec	96/93	3
SUR-Toluene d8	93% Rec	94/94	0
SUR-4-Bromofluorobenzene	103% Rec	103/102	1

Reviewed and Approved

John A. Murphy
Laboratory Director

99-1599

Oct-21-99 08:56A

North State Environmental Analytical Laboratory

90 South Spruce Avenue, Suite W, South San Francisco, CA 94080
Phone: (650) 266-4563 Fax: (650) 266-4560

Chain of Custody / Request for Analysis

Lab Job No.:________ Page___ of___

Client: GGTR	Report to: J Carr	Phone:	Turnaround Time: Normal
Mailing Address:	Billing to:	Fax:	Date: 10/7/9
		PO# / Billing Reference: 7335	Sampler: J Carr

Project / Site Address: 5930 College

Analysis Requested: TPH-G, TPH-D, BTEX(8020?), MTBE

Sample ID	Sample Type	Container No. / Type	Pres.	Sampling Date	Sampling Time	TPH-G	TPH-D	BTEX	MTBE				Comments / Hazards
7335-MW1	Wat	3 VOA	Cool	10/7/9	1000	X	X	X	X				
7335-MW2	"	"	"	"	1200	X	X	X	X				
7335-MW3	"	"	"	"	1400	X	X	X	X				

Relinquished by: J Carr	Date: 10/8/99	Time: 2:20	Received by: [signature] NSE LABS	Lab Comments
Relinquished by:	Date:	Time:	Received by:	
Relinquished by:	Date:	Time:	Received by:	

APPENDIX D

Purging and Sampling
Documentation

SOIL & GROUNDWATER INVESTIGATION REPORT

FOR

5930 College Avenue
Oakland, California
STID # 514

Project No. 7335
October, 22, 1999

102

GROUNDWATER WELL MONITORING
FIELD DATA SHEET

Project Number 7335 Site Name 5930 Colley Date 10-7
Well Number MW1 Sampler JC

Notes, including field conditions, persons on site, methods used, weather

Well Depth 15 ft. time of sample Depth to water 10.04 ft
Well Diameter 2 sheen or free product

Volume Height of water	Diameter 2 inch	4 inch	Volume	Number of well volumes	total gallons to purge
Column 5 ft.	(0.16)	0.65	.8 gals.	____	____ gal

Quality of purge water

TIME	VOLUME PURGED	pH	CONDUCTIVITY	TEMP	NOTES
	gals	7.20	11.00	71.3	
	gals	8.62	10.55	68.4	
	gals	8.13	10.21	67.1	
	gals	8.00	9.92	66.1	
	gals	7.77	9.69	65.8	
	gals	7.72	9.84	65.6	
	8gal gals	7.68	9.75	65.4	
	gals				

Additional comments

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General Engineering Contractors License No. 616521

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GROUNDWATER WELL MONITORING
FIELD DATA SHEET

Project Number 7335 Site Name 3320 Colby Date 10-7
Well Number MW2 Sampler SC

Notes, including field conditions, persons on site, methods used, weather Warm
Tenant elect water gauge today

Well Depth 20 ft. time of sample 1200 Depth to water 11.40 ft
Well Diameter 2 sheen or free product N

Volume Height of water	Diameter 2 inch	4 inch	Volume	Number of well volumes	total gallons to purge
Column ft.	(0.16)	0.65	1.6 gals.	3	gal

Quality of purge water

TIME	VOLUME PURGED	pH	CONDUCTIVITY	TEMP	NOTES
	2 gals	7.51	10.25	65.4	
	4 gals	7.72	10.70	65.2	
	6 gals	7.46	11.02	65.2	
	8 gals	7.43	11.63	65.6	
	gals				
	gals				
	gals				
	gals				

Additional comments

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General Engineering Contractors License No. 616521

GROUNDWATER WELL MONITORING
FIELD DATA SHEET

Project Number 7335 Site Name 5530 College Date 10-7
Well Number MW3 Sampler Carver

Notes, including field conditions, persons on site, methods used, weather Warm
Tenant, elect. water gauge - hydac

Well Depth 17 ft. time of sample 1400 Depth to water 3.67 ft
Well Diameter 2" sheen or free product NO

Volume	Diameter			Number of well volumes	total gallons to purge
Height of water	2 inch	4 inch	Volume		
Column 8 ft.	(0.16)	0.65	1.28 gals.	4	36.0 gal

Quality of purge water

TIME	VOLUME PURGED	pH	CONDUCTIVITY	TEMP	NOTES
	1 gals	8.85	2.40	67.5	
	2 gals	7.51	10.00	66.8	
	3 gals	7.72	6.92	67.5	
	4 gals	7.80	7.87	68.1	
	5 gals	7.00	8.91	67.2	
	6 gals	7.50	7.53	67.3	
	gals				
	gals				

Additional comments

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General Engineering Contractors License No. 616521

APPENDIX E

Water Well Drillers Reports

SOIL & GROUNDWATER INVESTIGATION REPORT

FOR

5930 College Avenue
Oakland, California
STID # 514

Project No. 7335
October, 22, 1999

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED