SOIL & GROUNDWATER INVESTIGATION REPORT
(3 month period ending 06/30/98)

5930 College Avenue
Oakland, California
STID # 514

June 1998

for

William Sheaff
61 Dunbarton Court
San Ramon, CA 94583

415/572-1555

Project No. 7335
June 17, 1998

REGISTERED PROFESSIONAL ENGINEER
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GOLDEN GATE TANK REMOVAL
255 Shipley Street, San Francisco, California 94107

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INTRODUCTION

Purpose

The purpose of this report is to describe the procedures and results used in the preliminary 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. 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. The Work Plan was approved with minor modification by the Alameda County Health Care Services Agency in their letter of April 21, 1997.

This summary report, when filed with the Alameda County Health Care Services Agency and the San Francisco Regional Water Quality Control Board will serve as a Quarterly report for the three month period ending June 30, 1997.

Scope

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

- Drilling equipment and methods.
- Soil and groundwater sampling equipment and techniques.
- Soil and groundwater 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 A. 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 the attached Figure 2.

Site Plan

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

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	HCS published letter requiring soil and groundwater investigation.
03/10/97	GGTR authorized to prepare a Work Plan for additional investigation.
04/1/97	GGTR publishes work plan for a Soil and Groundwater Investigation.
04/21/97	HCS 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.

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 and drilling were primarily sands, with a varying amount of silt and clay. No groundwater was encountered during the tank removal. Groundwater was found to be within an confined aquifer at about 9 feet below grade. Water levels after well construction have been 4 to 5 feet below grade. 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 through 7 of Appendix A.

WORK ACCOMPLISHED

Soil Drilling and Sampling

On May 6, 1998, three soil borings (B1, B2 and B3) were advanced with portable drilling equipment (minute man) using 4 inch continuous flight augers at the locations shown on Figure 3 of Appendix A. The presence of the tree and the interior location of these borings precluded the use of larger equipment. On May 20, 1998, one boring (B4) was drilled using 8 inch outside, 3 3/4 inch inside diameter hollow stem augers at the location shown on Figure 3 of Appendix A.

The borings were sampled at about five feet and nine feet below ground surface. Sampling equipment and sample tubes was cleaned between samples using soap, TSP, and clear water to prevent cross or down-hole contamination.

As samples are obtained, they were capped and sealed with airtight tape. The samples were then be labeled, placed in a cooled environment 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 three borings are presented on Figures 4, 5 6 and 7 of Appendix A.

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 attached. Copies of the laboratory report are attached in Appendix B.

Water Sampling During Drilling

Water samples were taken from the three "minute man" soil borings (B1, B2 and B3) after groundwater was encountered. After the last soil sample was obtained, a piece of PVC will be placed in the boring. Approximately two volumes were removed through the PVC as a purging measure. A water sample was then be obtained through the PVC using a disposable bailer. The samples were placed in appropriate containers and maintained in a chilled environment for delivery to the laboratory.

After the water sample was obtained, each boring was grouted with neat cement grout using tremie placement techniques.

Monitoring Well Installation

Upon completion of drilling boring B4, the boring was immediately converted to a Groundwater Monitoring Well (MW1). On May 27, 1998, groundwater monitoring well MW1 was 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 C.

Details of the monitoring well installation is shown on Figures 8 of Appendix A. A copy of the State of California, Department of Water Resources Form DWR 188, Water Well Drillers Report for the well which is required by the State of California are attached in Appendix D.

Groundwater Sampling

On June 1, 1998, the groundwater monitoring well was observed, measured, purged, and then 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, the 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 well 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. 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 C.

Water Sample Analyses

The grab water samples and the monitoring well water sample 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 groundwater analyses have been tabulated and are presented on the attached Table II. Copies of the laboratory report are attached in Appendix B.

FINDINGS

Soil Conditions

The general soil profile encountered during the exploration at the site consisted dark silty clay (CL) from below the surface pavement and extending to between 6 to 9 feet. Underlying the CL a more granular material was encountered. This material was generally a silty sand to a sandy clay and even in B4 a silty gravel. In B4, the silty gravel extended to about 11 feet and was underlain by a more cohesive sandy clay.

The details of the borings are shown on the boring logs, Figures 4 through 7 of Appendix A. The results of the soil analyses are tabulated below and on Table I attached.

Sample ID	TPH-G (ppm)	MTBE (ppm)	BTEX (ppm)	TEPH (ppm)
7335-B1-5	ND	ND	ND/ND/ND/ND	ND
7335-B1-9	75	0.06	0.07/0.04/0.53/1.0	53
7335-B2-5	0.6	0.03	ND/ND/ND/ND	60
7335-B2-9	2,800	ND	13/78/38/160	ND
7335-B3-6	ND	ND	ND/ND/ND/ND	ND
7335-B3-10	48	ND	0.5/0.6/0.5/2.0	ND

Sample ID	TPH-G (ppm)	MTBE (ppm)	BTEX (ppm)	TEPH (ppm)
7335-B4-5	ND	ND	ND/ND/ND/0.02	ND
7335-B4-9	280	6.0	4.0/8.0/6.0/27.0	ND

Laboratory reports are contained in Appendix B.

Groundwater Conditions

Based on the review of the well drilling program, the groundwater below the site appears to be in an confined aquifer within the natural granular material at the site at between 6 and 9 feet below the ground surface. After development and a period of stabilization, the groundwater in MW1 was measured at 4.81 feet below the casing depth.

On June 1, 1998, the groundwater monitoring well was 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 III of attached.

The results of the groundwater analyses for the grab water samples and the monitoring well water sample are tabulated below and on Table III attached.

Sample ID	TPH-G (ppb)	MTBE (ppb)	BTEX (ppb)	TEPH (ppm)
7335-B1-GW (grab)	31,000	ND	2,600/390/1,600/4,200	6
7335-B2-GW (grab)	200,000	2,500	30,000/49,000/45,000/21,000	ND
7335-B3-GW (grab)	1,000,000	18,000	17,000/24,000/20,000/80,000	7
7335-MW1	160,000	1,900	28,000/21,000/3,800/21,000	ND

Laboratory reports are contained in Appendix B.

ANALYTICAL CERTIFICATES

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

CONCLUSIONS

Four borings were drilled and sampled to determine the horizontal and vertical limits of soil contamination. TPH-G varied from non-detect to over 2,800 parts per million. BTEX

also varied in about the same proportion as TPH-G. The soil in the groundwater capillary fringe zone appears to have been impacted by groundwater contamination.

One groundwater monitoring well has been installed and monitored for the first time. The first groundwater sample from the well has been analyzed and shows 160,000 of TPH-G.

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

RECOMMENDATIONS

The groundwater monitoring well at the site should be monitored on a quarterly basis for at least one year to determine if the contamination in the groundwater has stabilized or decreased. 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 San Francisco Department of Public Health LOP and the San Francisco Region Water Quality Control Board.

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: Madullah Logan

California Regional Water Quality Control Board
San Francisco Region
2101 Webster Street, Suite 500
Oakland, California 94612

ATTACHMENTS

TABLE I TABLE II and TABLE II

SOIL & GROUNDWATER INVESTIGATION REPORT

FOR

5930 College Avenue
Oakland, California
STID # 514

Project No. 7335
June 17, 1998

TABLE I

Sample Number	Location (boring #)	Depth (feet)	TPH-G (ppm)	MTBE (ppm)	BTEX (ppm)	TEPH (ppm)
7335-B1-5	B1	5.0	ND	ND	ND/ND/ND/ND	ND
7335-B1-9	B1	9.0	75	0.06	0.07/0.04/0.53/1.0	53
7335-B2-5	B2	5.0	0.6	0.03	ND/ND/ND/ND	60
7335-B2-9	B2	9.0	2,800	ND	13/78/38/160	ND
7335-B3-6	B3	6.0	ND	ND	ND/ND/ND/ND	ND
7335-B3-10	B3	10.0	48	ND	0.5/0.6/0.5/2.0	ND
7335-B4-5	B4 (MW1)	5.0	ND	ND	ND/ND/ND/0.02	ND
7335-B4-9	B4 (MW1)	9.0	280	6.0	4.0/8.0/6.0/27.0	ND

NOTES:

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

GRAB WATER SAMPLE ANALYTICAL RESULTS
PROJECT 7335 **TABLE II** **June, 1998**

Sample Number	Location (boring #)	TPH-G (ppb)	MTBE (ppb)	BTEX (ppb)	TEPH (ppm)
7335-B1-GW	B1	31,000	ND	2,600/390/1,600/4,200	6
7335-B2-GW	B2	200,000	2,500	30,000/49,000/45,000/21,000	ND
7335-B3-GW	B3	1,000,000	18,000	17,000/24,000/20,000/80,000	7

NOTES:

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

GROUNDWATER MONITORING RESULTS
PROJECT 7335

TABLE III

June, 1998

Monitoring Well Number	Sample Date	Casing Elevation	Depth to Groundwater (feet)	Groundwater 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

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 A

Figures 1 through 8

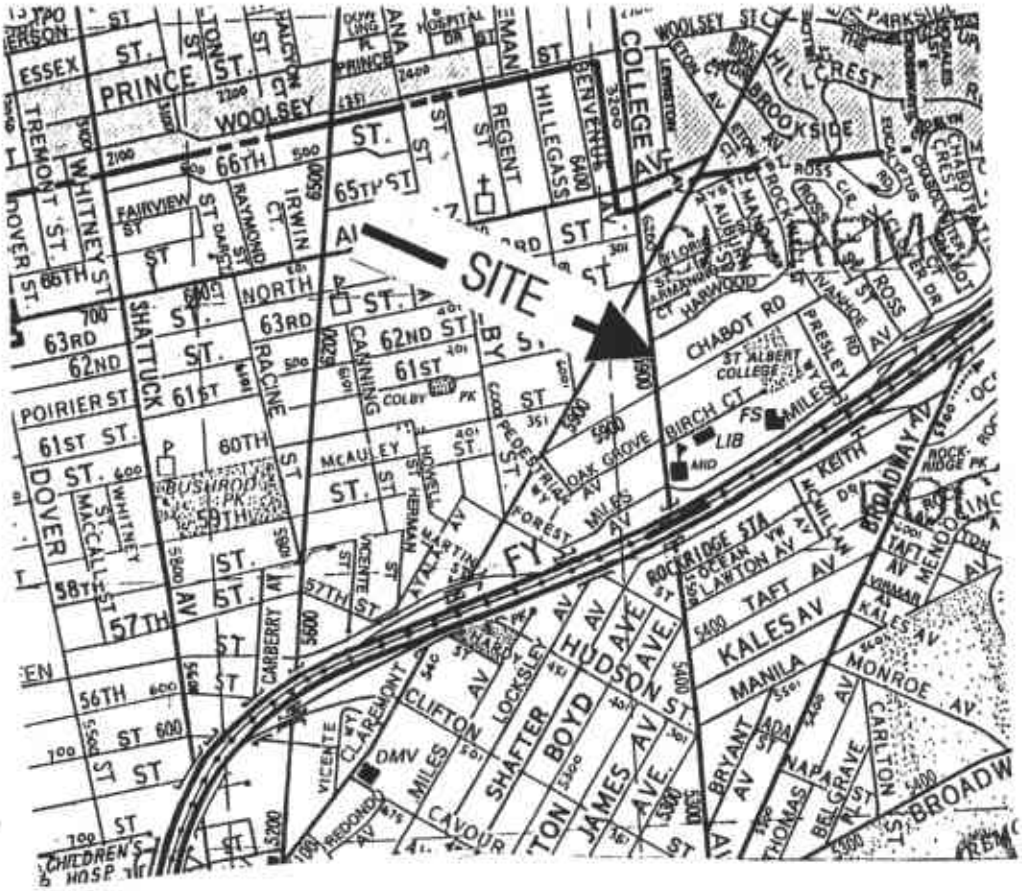
SOIL & GROUNDWATER INVESTIGATION REPORT

FOR

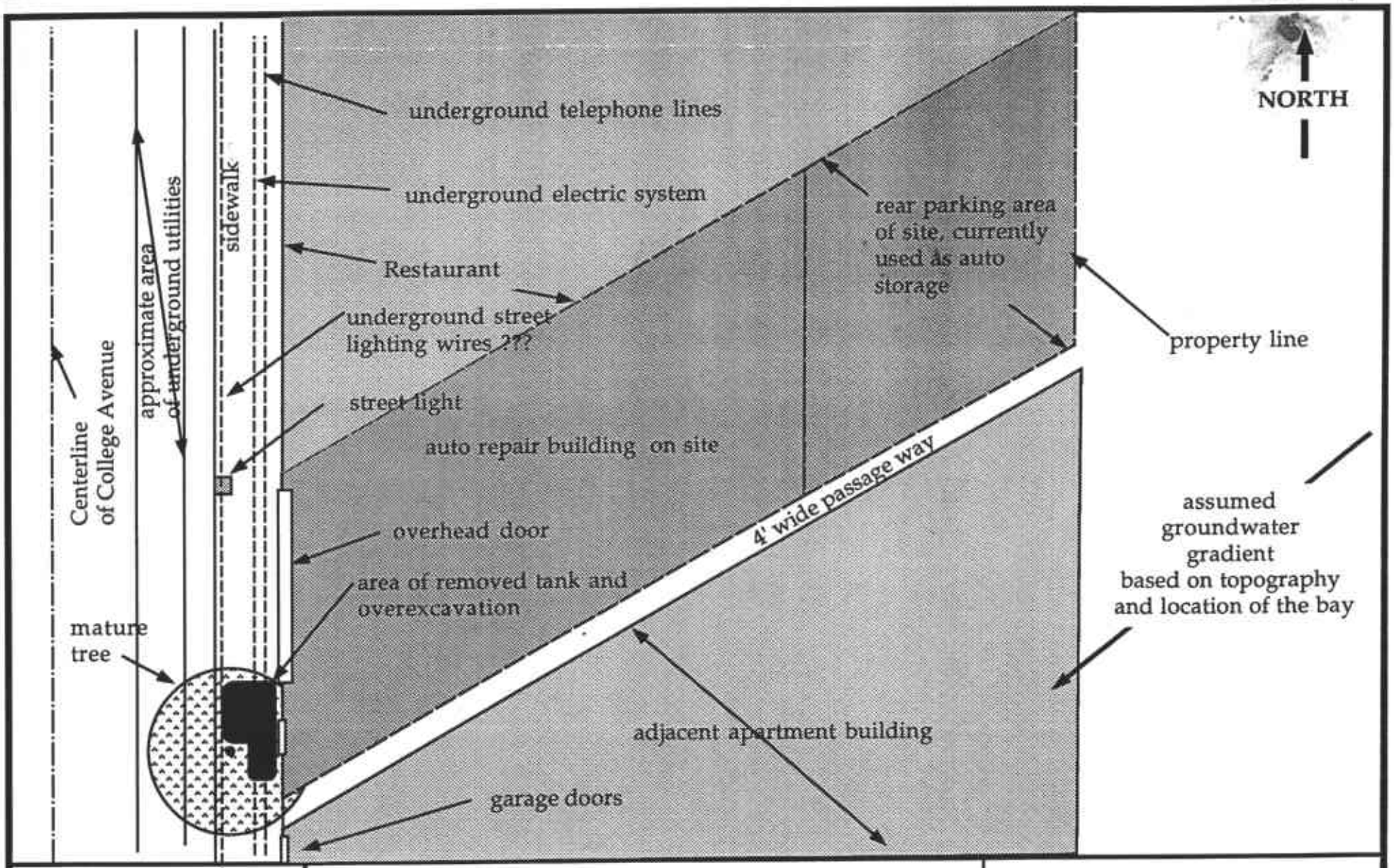
5930 College Avenue
Oakland, California
STID # 514

Project No. 7335
June 17, 1998

NORTH



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	June, 1998	Figure 1

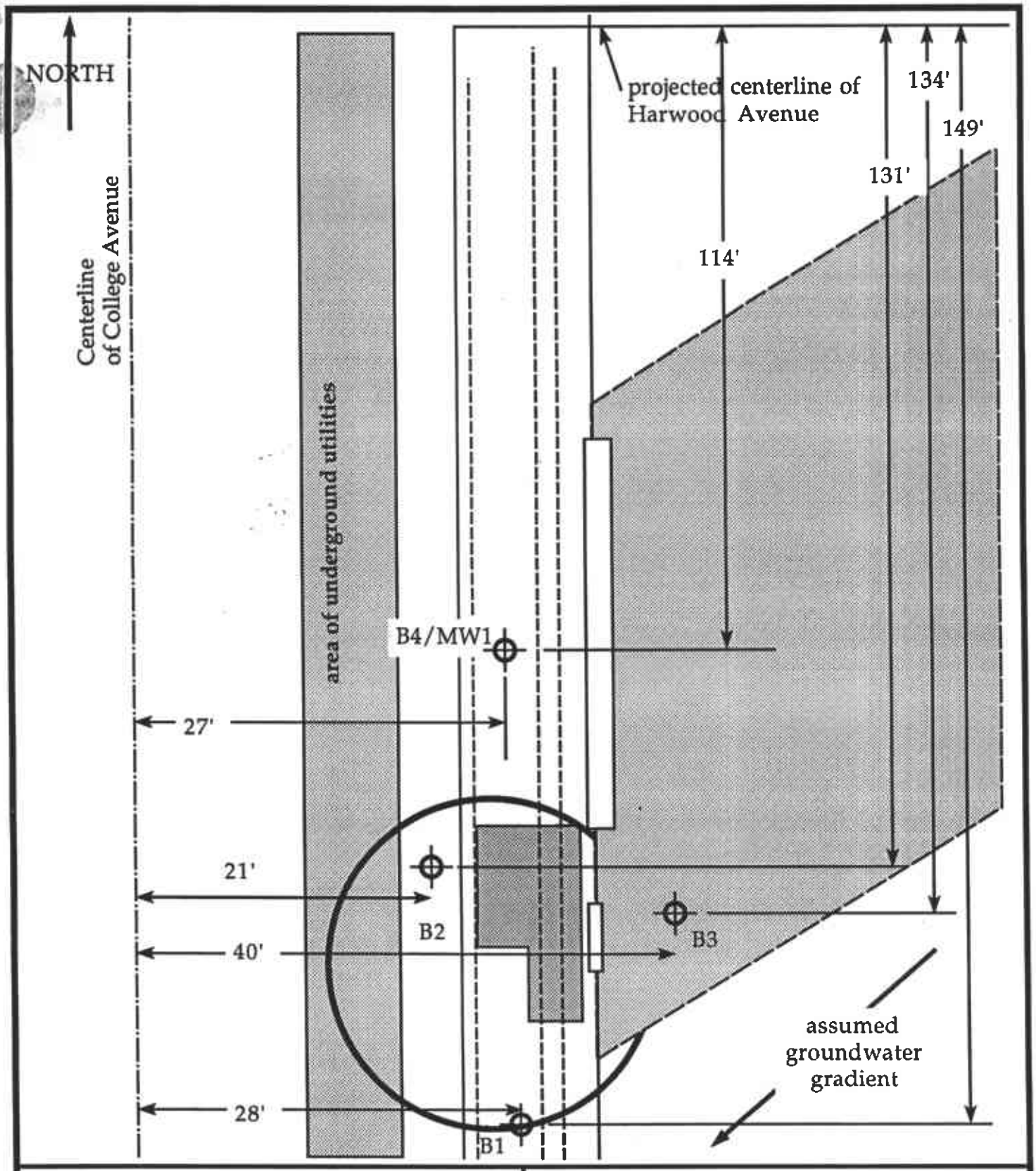


GOLDEN GATE TANK REMOVAL

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'	June, 1998	Figure Number: 2



GOLDEN GATE TANK REMOVAL
255 Shipley Street, San Francisco, California
Tel. (415) 512 1555 Fax. (415) 512 0964

Boring Location Plan
5930 College Avenue
Oakland, California

⊕ Boring or monitoring well location

Project Number: 7335	By: JNC	Scale: 1" = 10'	June 1998	Figure Number: 3

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
					0	8 inches of sidewalk/driveway concrete. 4 inches base rock.
						Brown silty clay, medium stiff, damp to moist.
7335-B4-5.0	11	CL	0740		5	
						Water level during drilling.
7335-B4-9.0	17	GM/ML	0800		10	Grey and brown silty gravel to gravelly silt, dense, wet.
						Brown sandy clay, stiff, moist to wet.
					15	

Drilled May 20, 1998 using 8 inch hollow stem augers. Water encountered at about 10 feet during drilling. Boring converted to Monitoring Well MW1 upon completion of sampling.

GOLDEN GATE TANK REMOVAL

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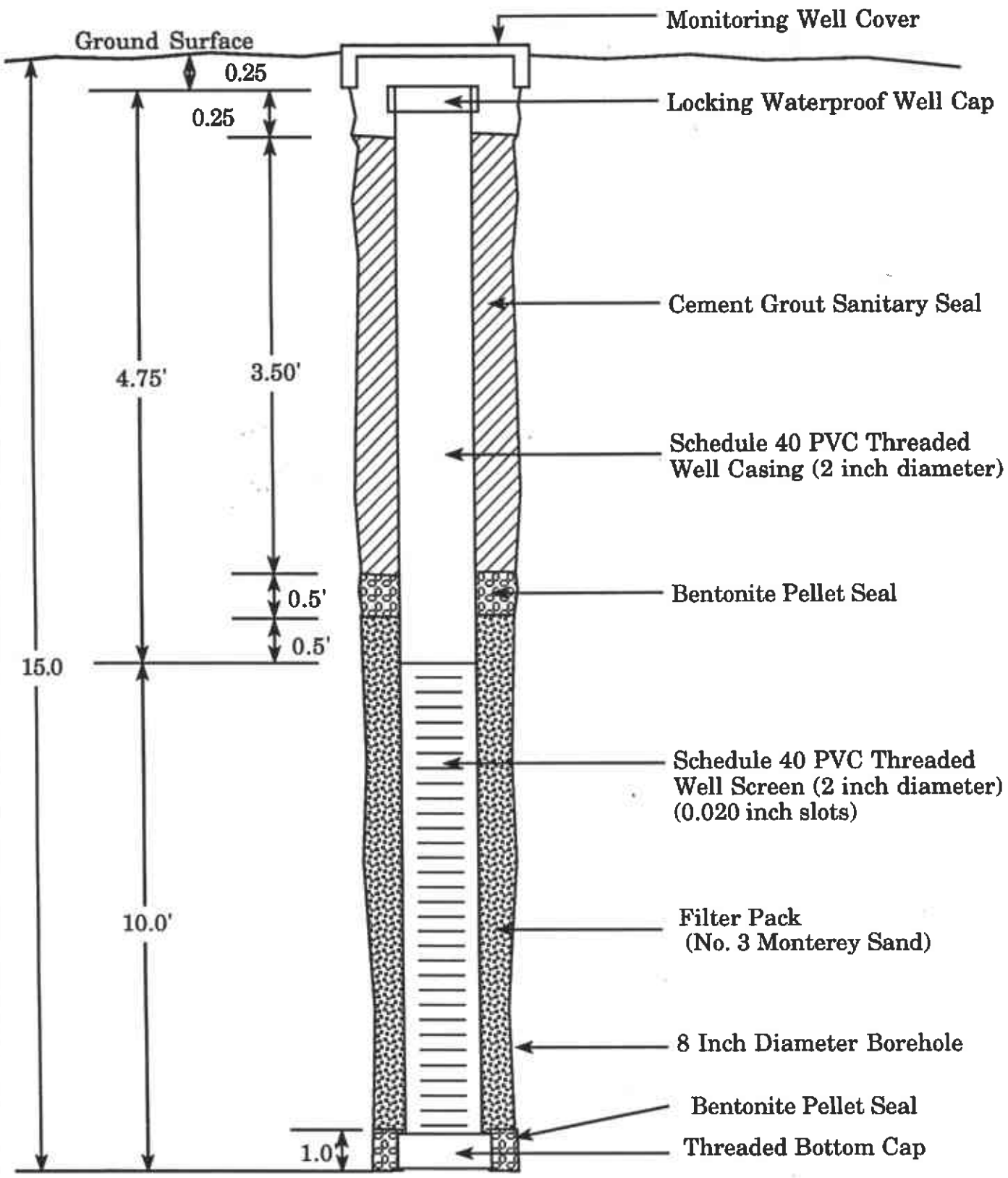
Log of Boring Number B4 (MW1)

5930 College Avenue
Oakland, California

Project Number: 7335	Date: June, 1998	Figure Number: 6



GOLDEN GATE TANK REMOVAL	**5930 College Avenue** Oakland, California	**Monitoring Well (MW1) Installation Detail**
Project Number: 7335	Date: June, 1998	Figure Number: 8

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
					0	4 inches of sidewalk pavement section.
						Black silty clay, medium stiff moist.
						changing in color to brown.
7335-B1-5	hand sample	CL	0910		5	
						first water encountered during drilling.
7335-B1-9	hand sample	ML-SC	0925			Gray-brown clayey SILT to clayey sand (ML-SC), medium stiff,to medium dense, wet.
					10	

Boring Drilled May 6, 1998 to 10 feet.
using 4 inch diameter "minute man" augers.

Water encountered at about 8.5' during drilling.
Grab groundwater sample taken at 0945.
Boring grouted after drilling.

Golden Gate Tank Removal 255 Shipley Street • San Francisco, CA 94107 (415) 512 1555 • Fax (415) 512 0964	**Log of Boring Number: B1** 5930 College Avenue Oakland, California

Project Number: 7335	Date: June, 1998	Figure Number 4

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
					0	5 inches of asphalt over 12 inches of base rock street pavement section.
						Dark brown silty clay, medium stiff moist.
7335-B2-5	hand sample	CL	1015		5	first water encountered during drilling.
						Brown sandy silty clay to silty clayey sand (CL-SC), medium stiff, wet.
7335-B2-9	hand sample	ML-SC	1030		10	

Boring Drilled May 6, 1998 to 10 feet.
using 4 inch diameter "minute man" augers.

Water encountered at about 6.5' during drilling.
Grab groundwater sample taken at 1100.
Boring grouted after drilling.

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Project Number: 7335	Date: June, 1998	Figure Number 5

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
					0	6 inches of concrete over 8 inches of base rock garage floor section.
						Black silty clay, medium stiff damp.
						grading to moist.
7335-B3-6	hand sample	CL	1215		5	
						first water encountered during drilling.
7335-B3-10	hand sample	CL	1240			Brown silty clay with some gravel inclusions, medium stiff, wet.
					10	

Boring Drilled May 6, 1998 to 10 feet.
using 4 inch diameter "minute man" augers.

Water encountered at about 6.5' during drilling.
Grab groundwater sample taken at 1240.
Boring grouted after drilling.

Golden Gate Tank Removal
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Log of Boring Number: B3
5930 College Avenue
Oakland, California

Project Number: 7335	Date: June, 1998	Figure Number 6

APPENDIX B

Analytical Certificates
Chain of Custody Forms

SOIL & GROUNDWATER INVESTIGATION REPORT

FOR

5930 College Avenue
Oakland, California
STID # 514

Project No. 7335
June 17, 1998

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: 98-504
Client: Golden Gate Tank
Project: 5930 College Ave.,Oakland/#7335

Date Reported: 05/14/98

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: 98-504-01	Client ID: 7335-B1-5			05/06/98	SOIL
Gasoline	8015M	ND			05/14/98
Benzene	8020	ND			
Ethylbenzene	8020	ND			
MTBE	8020	ND			
Toluene	8020	ND			
Xylenes	8020	ND			
TEPH	5520F	ND			05/12/98
Sample: 98-504-02	Client ID: 7335-B1-9			05/06/98	SOIL
Gasoline	8015M	75	mg/Kg		05/14/98
Benzene	8020	0.07	mg/Kg		
Ethylbenzene	8020	0.53	mg/Kg		
MTBE	8020	0.06	mg/Kg		
Toluene	8020	0.04	mg/Kg		
Xylenes	8020	1	mg/Kg		
TEPH	5520F	53	mg/Kg		05/12/98

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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

Lab Number: 98-504
Client: Golden Gate Tank
Project: 5930 College Ave.,Oakland/#7335

Date Reported: 05/14/98

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: 98-504-03	Client ID: 7335-B2-5			05/06/98	SOIL
Gasoline	8015M	0.6	mg/Kg		05/14/98
Benzene	8020	ND			
Ethylbenzene	8020	ND			
MTBE	8020	0.03	mg/Kg		
Toluene	8020	ND			
Xylenes	8020	ND			
TEPH	5520F	60	mg/Kg		05/12/98
Sample: 98-504-04	Client ID: 7335-B2-9			05/06/98	SOIL
Gasoline	8015M	2800	mg/Kg		05/14/98
Benzene	8020	13	mg/Kg		
Ethylbenzene	8020	38	mg/Kg		
MTBE	8020	ND			
Toluene	8020	78	mg/Kg		
Xylenes	8020	160	mg/Kg		
TEPH	5520F	ND			05/12/98

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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: 98-504
Client: Golden Gate Tank
Project: 5930 College Ave.,Oakland/#7335

Date Reported: 05/14/98

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: 98-504-05	Client ID: 7335-B3-6			05/06/98	SOIL
Gasoline	8015M	ND			05/14/98
Benzene	8020	ND			
Ethylbenzene	8020	ND			
MTBE	8020	ND			
Toluene	8020	ND			
Xylenes	8020	ND			
TEPH	5520F	ND			05/12/98
Sample: 98-504-06	Client ID: 7335-B3-10			05/06/98	SOIL
Gasoline	8015M	48	mg/Kg		05/14/98
Benzene	8020	0.5	mg/Kg		
Ethylbenzene	8020	0.5	mg/Kg		
MTBE	8020	ND			
Toluene	8020	0.6	mg/Kg		
Xylenes	8020	2	mg/Kg		
TEPH	5520F	ND			05/12/98

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North State Environmental
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CERTIFICATE OF ANALYSIS

Lab Number: 98-504
Client: Golden Gate Tank
Project: 5930 College Ave.,Oakland/#7335

Date Reported: 05/14/98

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: 98-504-07	Client ID: 7335-B1-GW			05/06/98	WATER
Gasoline	8015M	31000	ug/L		05/14/98
Benzene	8020	2600	ug/L		
Ethylbenzene	8020	1600	ug/L		
MTBE	8020	ND			
Toluene	8020	390	ug/L		
Xylenes	8020	4200	ug/L		
TEPH	5520F	6	mg/L		05/12/98
Sample: 98-504-08	Client ID: 7335-B2-GW			05/06/98	WATER
Gasoline	8015M	200000	ug/L		05/14/98
Benzene	8020	30000	ug/L		
Ethylbenzene	8020	45000	ug/L		
MTBE	8020	2500	ug/L		
Toluene	8020	49000	ug/L		
Xylenes	8020	21000	ug/L		
TEPH	5520F	ND			05/12/98

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ANALYSIS

Lab Number: 98-504
Client: Golden Gate Tan[illegible]
Project: 5930 College Ave.,Oa[illegible] 5

Date Reported: 05/14/98

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: 98-504-09	Client ID: 7335-B3-GW			05/06/98	WATER
Gasoline	8015M	1000,000	ug/L		05/14/98
Benzene	8020	17000	ug/L		
Ethylbenzene	8020	20000	ug/L		
MTBE	8020	18000	ug/L		
Toluene	8020	24000	ug/L		
Xylenes	8020	80000	ug/L		
TEPH	5520F	7	mg/L		05/12/98

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North State Environmental
Chemical Waste Disposal · Trucking · Consulting

CERTIFICATE OF ANALYSIS

Quality Control/Quality Assurance

Lab Number: 98-504
Client: Golden Gate Tank
Project: 5930 College Ave.,Oakland/#7335

Date Reported: 05/14/98

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

Analyte	Method	Reporting Limit	Unit	Blank	MS/MSD Recovery	RPD
TEPH	5520F	50	mg/Kg	ND	87	0
Gasoline	8015M	0.5	mg/Kg	ND	95	2
Benzene	8020	.005	mg/Kg	ND	101	6
Ethylbenzene	8020	.005	mg/Kg	ND	103	6
Toluene	8020	.005	mg/Kg	ND	104	5
Xylenes	8020	.010	mg/Kg	ND	109	4
MTBE	8020	.005	mg/Kg	ND	102	11

ELAP Certificate NO:1753
Reviewed and Approved

John A.Murphy,Laboratory Director

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98-504

North State Environmental Analytical Laboratory

Phone: (415) 588-9652 Fax: (415) 588-1950

Chain of Custody / Request for Analysis

Lab Job No.: _____ Page 1 of 1

Client: GGTR	Report to: John Carver	Phone: 4155121555	Turnaround Time: Normal TAT
Mailing Address:	Billing to:	Fax:	Date: 5/7/8
		PO# / Billing Reference: 7335	Sampler: John Carver

Project / Site Address: 5930 College Ave Oakland

Analysis Requested

	Sample ID	Sample Type	Container No. / Type	Pres.	Sampling Date / Time		TPH-G	BTEX	MTBE	TRPH					Comments / Hazards
1	7335-B1-5	Soil	1 BT	Cool	5/6/8	0910	X	X	X	X					
2	7335-B1-9					0925	X	X	X	X					
3	7335-B2-5					1015	X	X	X	X					
4	7335-B2-9					1030	X	X	X	X					
5	7335-B3-6					1215	X	X	X	X					
6	~~7335~~ 7335-B3-10					1240	X	X	X	X					
7	7335-B1-GW	Water	1 Lit 2 VOAs	Cool HCl		0945	X	X	X	X					
8	7335-B2-GW	"	"	"		1100	X	X	X	X					
9	7335-B3-GW	"	"	"		1310	X	X	X	X					

Relinquished by:	Date: 5/7/8	Time: 3:30	Received by:	Lab Comments
Relinquished by:	Date:	Time:	Received by:	
Relinquished by:	Date:	Time:	Received by:	

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: 98-565
Client: Golden Gate Tank
Project: College Ave. /#7335

Date Reported: 05/27/98

Gasoline, BTEX and MTBE by Methods 8015M and 8020
Lead by Method 7420, AA Spectroscopy
Total Extractable Petroleum Hydrocarbons by SM 5520 E & F

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 98-565-01	Client ID: 7335-B4-5.0			05/20/98	SOIL
Gasoline	8015M	ND			05/21/98
Benzene	8020	ND			
Ethylbenzene	8020	ND			
MTBE	8020	ND			
Toluene	8020	ND			
Xylenes	8020	0.02	mg/Kg		
Lead	7420	8	mg/Kg		05/26/98
TEPH	5520F	ND			06/09/98
Sample: 98-565-02	Client ID: 7335-B4-9.0			05/20/98	SOIL
Gasoline	8015M	280	mg/Kg		05/21/98
Benzene	8020	4	mg/Kg		
Ethylbenzene	8020	6	mg/Kg		
MTBE	8020	1	mg/Kg		
Toluene	8020	8	mg/Kg		
Xylenes	8020	27	mg/Kg		
Lead	7420	11	mg/Kg		05/26/98
TEPH	5520F	ND			06/09/98

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98-565

North State Environmental Analytical Laboratory

Phone: (415) 588-9652 Fax: (415) 588-1950

Chain of Custody / Request for Analysis

Lab Job No.: _____ Page 1 of 1

Client: GGTR	Report to: Carver	Phone:	Turnaround Time: Fr. 8-22
Mailing Address:	Billing to:	Fax:	Date: 5/20/8
		PO# / Billing Reference: 7335	Sampler: Carver

Project / Site Address: College Ave. Oak.

Analysis Requested: TPH-G, BTEX, EDB, 5 Oxy

Sample ID	Sample Type	Container No. / Type	Pres.	Sampling Date / Time	Comments/Hazards
~~7335-5~~					
1 7335-B4-5.0	Soil	1 BT.	Cool	5/20/8 0800	
2 7335-B4-9.0	"	"	"	" 0845	

Relinquished by:	Date: 5/20/8	Time: 1330	Received by:	Lab Comments
Relinquished by:	Date:	Time:	Received by:	
Relinquished by:	Date:	Time:	Received by:	

Jun-10-98 12:43P P.02

98-565

North State Environmental Analytical Laboratory

Phone: (415) 588-9652 Fax: (415) 588-1950

Chain of Custody / Request for Analysis

Lab Job No.: _____ Page 1 of 1

Client: GGTR	Report to: J Carver	Phone:	Turnaround Time: Fr. 8-22
Mailing Address:	Billing to:	Fax:	Date: 5/20/8
		PO# / Billing Reference: 7335	Sampler: Carver

Project / Site Address: College Ave. Oak.

					Analysis Requested							
Sample ID	Sample Type	Container No. / Type	Pres.	Sampling Date / Time	TPH-G	BTEX	EDB	TPH-D				Comments/Hazards
~~7335-5~~												
1 7335-B4-5.0	Soil	1BT	Cool	5/20/8 0800	X	X	X	X				
2 7335-B4-9.0	"	"	"	" 085	X	X	X	X				

Relinquished by:	Date: 5/20/8	Time: 4398	Received by:	Lab Comments
Relinquished by:	Date:	Time:	Received by:	
Relinquished by:	Date:	Time:	Received by:	

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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: 98-621
Client: Golden Gate Tank
Project: 5930 College / #7335

Date Reported: 06/09/98

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: 98-621-01 Client ID: 7335-MW1				06/01/98	WATER
Gasoline	8015M	160000	ug/L		06/04/98
Benzene	8020	28000	ug/L		
Ethylbenzene	8020	3800	ug/L		
MTBE	8020	*1900	ug/L		
Toluene	8020	21000	ug/L		
Xylenes	8020	21000	ug/L		
TEPH	5520F	ND			06/04/98

*Confirmed by GC/MS method 8260.

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CERTIFICATE OF ANALYSIS

Quality Control/Quality Assurance

Lab Number: 98-621
Client: Golden Gate Tank
Project: 5930 College / #7335

Date Reported: 06/09/98

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

Analyte	Method	Reporting Limit	Unit	Blank	MS/MSD Recovery	RPD
Gasoline	8015M	50	ug/L	ND	89	10
Benzene	8020	0.5	ug/L	ND	106	6
Ethylbenzene	8020	0.5	ug/L	ND	114	8
Toluene	8020	0.5	ug/L	ND	106	9
Xylenes	8020	1.0	ug/L	ND	107	8
MTBE	8020	0.5	ug/L	ND	88	6
TEPH	5520F	5	mg/L	ND	85/76	10

ELAP Certificate NO:1753
Reviewed and Approved

John A.Murphy,Laboratory Director

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98-621

North State Environmental Analytical Laboratory

Phone: (415) 588-9652 Fax: (415) 588-1950

Chain of Custody / Request for Analysis

Lab Job No.: _____ Page ___ of ___

Client: GR TR	Report to:	Phone:	Turnaround Time: 3day by 6/5/8
Mailing Address:	Billing to:	Fax:	
		PO# / Billing Reference: 7335	Date: 6/1/8
			Sampler: JCarver

Project / Site Address: 5530 College Ave

Analysis Requested

Sample ID	Sample Type	Container No. / Type	Pres.	Sampling Date / Time	TPH-G	BTEX	EDB	TPH-D				Comments / Hazards
7335-MW1	WAT	3 VOAS HCL	HCL	6/1/8 1130	X	X	X	X				

Relinquished by:	Date: 6/2/8	Time: 230	Received by:	Lab Comments: USE LABS
Relinquished by:	Date:	Time: PM	Received by:	
Relinquished by:	Date:	Time:	Received by:	

APPENDIX C

Purging and Sampling
Documentation

SOIL & GROUNDWATER INVESTIGATION REPORT

FOR

5930 College Avenue
Oakland, California
STID # 514

Project No. 7335
June 17, 1998

GOLDEN GATE TANK REMOVAL

GROUNDWATER WELL MONITORING FIELD DATA SHEET

Project Number 1337 Site Name 5530 College Date 6/1/8
Well Number MW2 Sampler [illegible]

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

Well Depth 15' ft. time of sample 1500 Depth to water 4.81 ft
Well Diameter 2" sheen or free product

Volume Height of water		Diameter 2 inch (circled)	4 inch	Volume	Number of well volumes	total gallons to purge
Column	≈10 ft.	(0.16) (circled)	0.65	1.6 gals.		gal

Quality of purge water

TIME	VOLUME PURGED	pH	CONDUCTIVITY	TEMP	NOTES
1300	1/2 gals	7.87	9.05	70.6	
	1 gals	7.48	10.57	65.9	
	2 gals	7.32	10.31	70.7	
	2 1/2 gals	7.17	10.22	71.0	
	3 gals	7.02	10.24	70.6	
	4 gals	6.98	~~10.[illegible]~~ 9.12	69.0	
	5 gals	6.92	9.66	68.0	
	6 gals	6.54	9.53	68.3	
1430	8	6.91	8.81	68.7	

Additional comments

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General Engineering Contractors License No. 616521

GOLDEN GATE TANK REMOVAL

GROUNDWATER WELL MONITORING FIELD DATA SHEET

Project Number 2335 Site Name 5930 College Ave Date 5/27/8
Well Number MW Sampler J

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

DEVELOPMENT ONLY

Well Depth 15 ft. time of sample — Depth to water 4.54 ft
Well Diameter 2 sheen or free product odor

Volume Height of water		Diameter 2 inch	4 inch	Volume	Number of well volumes	total gallons to purge
Column	~10 ft.	(0.16)	0.65	1.6 gals.	x 15	20 gal

Quality of purge water Muddy becoming clear

TIME	VOLUME PURGED	pH	CONDUCTIVITY	TEMP	NOTES
	gals				
	gals				
	gals				
	gals				
	gals				
	gals				
	gals				
	gals				

Additional comments rainy day
Well recharge well.

255 Shipley Street • San Francisco, Ca. 94107 • Tel.: 415/512-1555 • Fax: 415/512-0964
General Engineering Contractors License No. 616521

APPENDIX D

Water Well Drillers Reports

SOIL & GROUNDWATER INVESTIGATION REPORT

FOR

5930 College Avenue
Oakland, California
STID # 514

Project No. 7335
June 17, 1998

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED