ADDITIONAL SITE INVESTIGATIONS
at
SHEEHAN PROPERTY
845 Pacific Avenue
Alameda, California

Prepared for:

Mr. William J. Sheehan
1236 Bay Street
Alameda, California

December 5, 2002

ADVANCED ASSESSMENT AND REMEDIATION SERVICES

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December 5, 2002

Ms. eva chu
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502

Subject: Submittal of Additional Investigation Report for
Sheehan Property at 845 Pacific Avenue, Alameda, California

Dear Ms. chu:

Advanced Assessment and Remediation Services (AARS) is pleased to submit this additional investigation report for the above referenced site.

This report has been prepared in general accordence with the Tri-Regional Board Staff Recommendation for Preliminary Investigation and Evaluation of Underground Tank Sites, Addendum to Appendix A, dated August 30, 1991, and the guidelines and requirements of the Alameda County Health Agency, Department of Environmental Health (ACHADEH).

Please contact Tridib Guha at (925) 363-1999 if you have any questions regarding this report.

Sincerely,

Advanced Assessment and Remediation Services

Tridib K. Guha, R.G., R.E.A.
Principal

cc: Mr. William Sheehan, Alameda, California

TG/SHEEHANRPT/Enclosure

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ADDITIONAL SITE INVESTIGATION
at
SHEEHAN PROPERTY
845 Pacific Avenue
Alameda, California

1.0 INTRODUCTION

This report presents the results and findings of the additional site investigation conducted by Advanced Assessment and Remediation Services (AARS) to delineate the extent of the contaminant plume at the Sheehan Property, 845 Pacific Avenue, Alameda, California. The work performed was based on the analytical results of soil and groundwater sampling of the site investigation conducted in May 1997, by HK2, Inc./SEMCO. Analytical results of the soil and groundwater samples at the site detected high concentrations of petroleum hydrocarbon constituents. This investigative work evaluated the extent of the contaminant plume at the property. This work was performed pursuant to the requirements of the Alameda County Department of Environmental Health (ACDEH), as described in the Work Plan for Additional Site Investigation by AARS dated July 15, 2002, and revised July 24, 2002.

2.0 SITE CHARACTERISTICS

A brief description of the site location and summary of past activities is presented below.

2.1 Site Description

Mr. William Sheehan owns the adjacent property of the project site. It is a residence located on the northwest corner of 9th Street and Pacific Avenue, Alameda, California. The site is set in a residential development.

The site is bounded by 9th Street to the east, Pacific Avenue to the south, a residence (845 Pacific Avenue) is located west of the property, and 9th Street continues to north of the site.

San Francisco Bay is located approximately 0.6 mile southwest of the project site of and at an elevation of approximately 15 feet above mean sea level. A site vicinity map and a site plan are presented in Figure 1 and Figure 2 respectively.

2.2 Site History

"In September 1996, HK2 removed one 120 gallon underground gasoline storage tank (UST) and one 750 gallon heating oil UST from the site. The concentration of total petroleum hydrocarbons as gasoline (TPHg) and benzene, toluene, ethylbenzene, and xylenes (BTEX) in the soil sample collected beneath the former gasoline tank was below the laboratory reporting limit. However, soil sample collected beneath the former heating oil tank contained up to 800 mg/kg TPH as diesel (TPHd), 3.6 mg/kg benzene, 2.5 mg/kg toluene, 2.0 mg/kg ethylbenzene, and 13 mg/kg xylenes. Details are in the Tank Removal Reports prepared by HK2 on October 2 and 10, 1996.

Based on the BTEX concentrations measured in the soil samples collected beneath the heating oil tank, the ACHADEH requested further assessment. Mr. Sheehan contracted HK2 to perform the assessment. HK2 investigation is summarized below.

On May 13 and 14, 1997, HK2 drilled five 2-inch-diameter percussion borings (B-1 through B-5; Figure 2) to 15 feet below grade (fbg) to evaluate the extent of hydrocarbons encountered beneath the heating oil UST. The location of these borings is shown on Figure 2. The borings were drilled in accordance with the ACHADEH approved work plan dated March 21, 1997, and our addendum dated April 8, 1997 except B-1 was moved because hydrocarbons were encountered in B-4. Our general field procedures are in Appendix A. A copy of Zone 7 Water Agency Drilling Permit 97267, City of Alameda Excavation Permit EX97-006, Encroachment Permit EN97-061, and the boring logs are in Appendix A.

Eighteen soil samples were collected with a split-spoon sample. North State Environmental (NSE; a California certified laboratory) analyzed seven of the samples for TPHd and TPHg (Modified EPAMethod 8015), BTEX (EPA Method 8020), methyl-teritiary-butyl ether (MTBE; EPA method 8020). Based on the laboratory results, NSE analyzed two additional samples for TPHd. One soil sample was submitted to Cooper Testing Laboratory for grain size (ASTM D-1140) and organic content (ASTM D-2974) analysis. The laboratory results of the hydrocarbon analyses are summarized in Table 1. A copy of the laboratory reports and chain of custody records are in Appendix B. The estimated lateral extent of hydrocarbon-affected soil is shown in Figure 3.

When sampling activities were completed, HK2 removed the drilling rod from the boring and installed 15 feet of 0.75-inch-diameter PVC pipe, the lower 10 feet of which contained 0.010-inch-wide slots. A stainless steel bailer was then lowered down the PVC pipe to collect groundwater samples. The samples were submitted to NSE for analysis of TPHg, TPHd, BTEX and MTBE. A sample from B-4 was additionally analyzed for total dissolved solids (TDS; EPA Method 160.1). The laboratory results are listed in Table 2. The laboratory report and chain of custody record is in Appendix B.

On May 14, 1997, after groundwater sampling activities were completed, HK2 surveyed the top of the PVC casing in each boring and measured depth to groundwater from the top of each casing. Figure 4 is a groundwater elevation contour map based on the monitoring data. The survey was referenced to the top of a garage support footing west of the former gasoline tank cavity. The elevation of the Bench Mark was arbitrarily set at 15 feet above mean sea level. When surveying and fluid level monitoring activities were completed the PVC pipe was removed and the borings were backfilled with neat cement." (HK2, Inc./SEMCO, September 1997).

Key findings of HK2 investigation:

- Depth to groundwater is approximately 9 to 10 fbg. Groundwater gradient was directed toward the north approximately 0.017 foot per foot.

- Fine to medium grained sand was the predominant lithology encountered from grade to approximately 15 fbg.

- TPHd concentrations up to 9,200 mg/kg were measured in soil samples collected from B-3 and B-4; in soil samples from B-1, B-2 and B-5 up to 2 mg/kg TPHd.

- The TPHd concentrations in groundwater samples collected from Borings B-3 through B-5 ranged from 65,000 ug/l (B-5) to 430,000 ug/l (B-4). The dissolved phase TPHd concentration in B-1 and B-2 was <50 ug/l and 2,000 ug/l, respectively. Dissolved phase benzene concentrations were <0.5 ug/l in B-2 and B-3, 2 ug/l in B-1 and B-5, and 35 ug/l in B-4. Dissolved phase MTBE was below the laboratory reporting limit (0.5 ug/l) except in B-5 (27 ug/l). The TDS concentration in B-4 was 594 mg/l.

- The dissolved phase benzene concentration in B-4 exceeds the 10−□ residential use Risk Based Screening Level (RBSL) for groundwater ingestion listed in Designation E-1739 published by American Society for Testing and Materials (ASTM). The concentration of benzene in soil and in the groundwater samples collected from the other borings does not exceed the 10□□ RBSL for any other exposure pathway listed in Designation E-1739.

- A sheen was observed on water flowing from soil samples collected beneath the water table in Boring B-4.

- The laboratory report suggests gasoline range hydrocarbons were encountered in many soil and groundwater samples. However, Chromatogram analysis performed by the laboratory indicates the TPHg values reported represent the lighter end of diesel fuel and not gasoline.

2.3 Regional Geology and Hydrogeology

The site is located on a broad alluvial plain on the east side of the San Francisco Bay. The plain is characterized by nearly level topography. It is in the west-central portion of the East Bay Plain Groundwater Basin (California Regional Water Quality Control Board [CRWQCB], 1995) and is underlain by imported fill soils, Quaternary beach and dune sand deposits, and possibly saline marsh deposits (predominantly mud) deposited on Jurassic Cretaceous rocks of the Franciscan Complex (California Department of Conservation, 1990,; United States Geological Survey, 1993).

Groundwater at this site is shallow. Soil borings drilled during May of 1997, encountered groundwater at approximately 9 to 10 feet below ground surface (bgs). However, groundwater levels may fluctuate with tidal variations. The general groundwater flow direction is toward the San Francisco Bay to the southwest.

The Hayward Fault, located approximately five miles east of the site is the nearest active fault.

3.0 SCOPE OF WORK

This additional site investigation was conducted by AARS in accordance with the requirements and guidelines of the ACEHD and California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) as presented in the work plan dated July 15, 2002, and revised July 24, 2002. The scope of work included the following tasks:

Task 1. Summarized the previous site activities; submitted a work plan and acquired necessary permits;

Task 2. Installed four soil borings, converted three of them into three groundwater monitoring wells;

Task 3. Sampled the temporary well;

Task 4. Developed, sampled and surveyed monitoring wells;

Task 5. Analyzed soil samples for specified constituents;

Task 6. Analyzed groundwater samples;

Task 7. Evaluated soil and groundwater sampling and analytical results and other data;

Task 8. Prepared this report presenting the results and findings of the above activities and appropriate recommendations.

The location of the monitoring wells and temporary well are presented in Figure 2. The various tasks associated with this site investigation is discussed below:

4.0 FIELD METHODS AND PROCEDURES

To assess the nature and extent of contamination in groundwater, four soil borings were drilled at the project site. One soil boring was converted into a temporary well. Soil and groundwater samples were collected during drilling for laboratory analysis of petroleum hydrocarbon constituents specified in section 5.0. The monitoring wells were developed, sampled, and surveyed. The procedures and methods used during field activities were in accordance with the requirements and guidelines of the ACEHD and RWQCB. The methods utilized in drilling soil borings, sampling, and laboratory analyses are presented below.

4.1 Soil Borings and Sampling

Prior to commencement of drilling activities, permits for the proposed soil borings/temporary wells and groundwater monitoring wells were obtained from the ACPWA. The work plan prepared by AARS was approved by the ACEHD. An encroachment permit to drill on 9th Street and on the sidewalk was obtained from the City of Alameda. Underground Service Alert was informed 72 hours prior to drilling. Copies of the permits and work plan approval letter are presented in Appendix A.

On October 9, 2002, AARS supervised the drilling of four soil borings (MW-1 through MW-3, and SB-1/TW). The drilling activities were performed by Gregg Drilling and Testing, Inc., of Martinez, California. The soil borings were drilled with a limited access drill rig (RHINO D-27) using 8-inch diameter, clean hollow stem augers. Soil borings, MW-1, MW-2 and MW-3 were drilled to 20 feet bgs; and SB-1/TW was drilled to 17 feet bgs using 8-inch diameter, clean hollow stem augers. The augers were steam cleaned at the Gregg Drillings facility, prior to drilling at the site.

Each boring was hand augured to 5 feet. During drilling, soil samples were collected continuously starting at 5 feet bgs. Soil samples were collected at every 5-foot interval using a macrocore sampler lined with clean plastic tubes. One soil sample was collected from each borehole MW-3 and SB-1/TW for laboratory analyses and two soil samples were collected from each borehole MW-1 and MW-2 for laboratory analyses. Selection of the samples for laboratory analyses were based on the depth of

groundwater encountered as well as the Photo Ionization Detector (PID) reading and petroleum hydrocarbon odor.

The soil samples recovered for chemical analyses were immediately sealed with teflon squares, polyethylene caps and plastic tape. The samples were then labeled with sample identification, sample location, depth, and the date and time of collection. Soil samples were placed immediately in an iced cooler for shipment to the North State Environmental Laboratory, under chain-of-custody documents.

The soil borings were lithologically logged in the field using the Unified Soil Classification System. Soil samples were screened in the field using a PID. Soil type, color, density, moisture content, and depth were recorded on the boring logs (Appendix B).

4.2 Groundwater Sampling in Temporary Wells

The soil boring SB-1/TW was converted into a temporary well. During drilling, groundwater was encountered at approximately 10.5 feet bgs. Soil boring was advanced 7 feet below the top of the saturated zone approximately 17 feet bgs. The temporary well was constructed using a ten-foot long, 2 inch diameter 0.010-inch slotted screen (Schedule 40 PVC), and a seven-foot long blank casing (flush-threaded) was installed in the borehole. The water was allowed to stabilize and a small volume of water was purged. Following purging, a water sample was collected from the temporary well into two 40-milliliter volatile organic analysis vials with teflon-lined septa (VOA), preserved using hydrochloric acid to a pH of 2.0, and one 1-liter amber glass bottle. The casings were then removed and the boring was completely backfilled to grade with neat cement. The groundwater samples collected for chemical analysis were placed immediately into an iced cooler for shipment to North State Environmental Laboratory, under chain-of -custody documents.

4.3 Groundwater Monitoring Well Construction

Soil borings MW-1, MW-2 and MW-3 were converted into groundwater monitoring wells and completed to a total depth of 20 feet bgs. Each monitoring well was constructed with one 7½ -foot section flush-threaded, Schedule 40, PVC blank casing and one 10-foot and one 2½-foot section of two-inch diameter 0.010-inch, slotted PVC casing, which extended to a depth of at least 10 feet beneath the water table. The annular space surrounding the screened portion was backfilled with #2 Lonestar sand to 1½ feet above the top of the screened section. A 1-foot thick bentonite annular seal was placed above the filter pack. The remaining annulus was grouted with neat cement to the surface. A well box was installed slightly above grade with a locking watertight well cap to ensure the integrity of the well. Monitoring well construction details are included in Appendix B.

4.4 Monitoring Well Development and Sampling

Well development and sampling procedures were conducted in accordance with RWQCB guidelines and ACEHD requirements.

Monitoring wells MW-1, through MW-3 were developed on October 10, 2002, by removing a minimum of 10 casing volumes of water from the wells with a two-inch-diameter PVC bailer. All three monitoring wells, MW-1 through MW-3 were sampled on October 17, 2002.

Prior to sampling of wells a groundwater sample was collected from each for inspection. Groundwater samples from each well were inspected for floating product, sheen and odor. Groundwater samples from all three monitoring wells were clear initially, without floating product. Very strong petroleum hydrocarbon odor was noted from MW-2 groundwater samples. During sampling of the wells, pH, specific conductivity, and temperature measurements of purged water were recorded. A groundwater sample was then collected from each well. Field parameters of groundwater sampling are presented in Table 4.

The groundwater samples were collected in clean containers and transported in an iced cooler to the laboratory for analysis following standard chain of custody procedures.

4.5 Groundwater Level Monitoring and Surveying

Top-of-well-casing elevations for MW-1 through MW-3 were surveyed on October 17, 2002. A common datum was established on the sidewalk east of MW-2. The wellhead elevations surveyed relative to each other from the common datum. The top of the casing elevation for MW-1 was assumed 100.00 feet above mean sea level (MSL). All elevations are relative to this. The elevations at each well were taken on the top of the well casing.

Groundwater levels in each well were measured to the nearest 0.01 foot on October 17, 2002, from the top of the PVC casing using an electric sounder. Groundwater surface elevation contours, based on interpretation of groundwater level and survey data, are presented in Figure 3. Survey data and water level measurements are presented in Table 1.

4.6 Soil Cuttings and Well Development Water Storage and Disposal

Soil cuttings generated during drilling and sampling of the soil borings were transferred into 55-gallon DOT 17H drums, labeled and stored at the site for proper disposal.

All purged water generated from the well development and sampling, as well as decontamination rinseate, were stored in properly-labeled 55-gallon DOT 17H drums for proper disposal.

5.0 ANALYTICAL METHODS

All soil and groundwater samples were analyzed by North State Environmental Laboratory of South San Francisco, California, a California-certified Laboratory. All chemical analyses of soil and groundwater samples were performed using standard test methods of the United States Environmental Protection Agency (EPA) and the California Department of Health Services (Cal-DHS), as discussed below.

5.1 Analysis of Soil Samples

A total of six soil samples were collected from four soil borings for chemical analysis, (one soil sample from each borehole MW-3 and SB-1/TW and two soil samples from each borehole MW-1 and MW-2). The depth of each of the samples were recorded on the boring logs (Appendix B). Soil samples were analyzed for total petroleum hydrocarbon as diesel (TPHd) using EPA Methods CATFH. Results of soil sample analyses are presented in Table 2. The official laboratory reports and chain of custody documents are included in Appendix C.

5.2 Analysis of Groundwater Samples

All groundwater samples from monitoring wells MW-1 through MW-3 and SB-1/TW were analyzed for total petroleum hydrocarbon as gasoline (TPHg), benzene, toluene, ethylebenzene and total xylenes (BTEX), methyl tertiary butyl ether (MTBE) using EPA Method SW8020F and TPHd using EPA Methods CATFH. Results of groundwater analyses are summarized in Table 3. The official laboratory reports and chain of custody documents are included in Appendix C.

6.0 DISCUSSION OF RESULTS

A brief description of site geology and hydrogeology based on the results of the drilling activities is presented below. The results of the laboratory analysis of the soil and groundwater samples collected during this investigation are also discussed below.

6.1 Site Geology

The subsurface lithology in four soil borings and the previous borings by HK2 are comprised of a fine to medium grained sand and silty sand to the maximum explored depth of 20 feet bgs. A hydrogeologic cross-sections A-A' is presented in Figure 5.

6.2 Site Hydrogeology

Groundwater was encountered approximately at 11 to 12 feet bgs during drilling and stabilized at 9.5 to 10.5 feet bgs on October 17, 2002. The groundwater elevations from monitoring wells MW-1 through MW-3, as measured on October 17, 2002, were used to develop the groundwater elevation contour map shown in Figure 3. The groundwater flow direction has been calculated to be to the north, with an average gradient of approximately 0.011 foot per foot. The average depth to stabilized groundwater in these wells was approximately 10 feet bgs on October 17, 2002, which may vary with seasonal conditions.

6.3 Soil analysis

Analytical results of six soil samples from (MW-1, 2, 3, and SB-1/TW) detected TPHd concentrations ranging from 893,000 to 28,300,000 parts per billion (ppb). Results of soil sample analyses are presented in Table 2. The official laboratory reports and chain of custody documents are included in Appendix C.

6.4 Groundwater Analysis

Analytical results for groundwater samples from monitoring well, MW-3 and temporary well SB-1/TW were non-detect for TPHg, BTEX, MTBE and TPHd. Only TPHg and xylenes were detected in groundwater sample from MW-1 at a concentrations of 71 ppb and 2 ppb respectively. Also the groundwater samples from MW-2 detected TPHd and TPHg at a concentrations of 4490 and 809 ppb respectively and toluene, 1.2 ppb, ethylbenzene 1.2 ppb and xylenes, 5.7 ppb. However, laboratory reported TPHg detected in samples (MW-1 and MW-2) do not match gasoline pattern. These may be lighter end of diesel fuel and not gasoline. Results of groundwater sample analyses are presented in Table 3. TPHd concentrations in groundwater is presented in Figure 4. The official laboratory reports and chain of custody documents are included in Appendix C.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the present site investigation, the following conclusions are drawn:

1. The petroleum hydrocarbon constituents (TPHd) were detected in soil samples from all four soil borings.

2. Only groundwater sample from MW-2 detected TPHd at 4490 ppb.

3. Benzene, MTBE and TPHg were not detected in groundwater samples. TPHg detected in groundwater samples from MW-1 and MW-2 does not match typical gasoline pattern and may be lighter end of diesel fuel.

4. The groundwater flow direction has been calculated to be to the north, with an average gradient of approximately 0.011 foot per foot. The average depth to stabilized groundwater in these wells was approximately 10 feet bgs on October 17, 2002.

Recommendations are as follows:

1. Based on the above findings, no further characterization of the dissolved-phase hydrocarbon plume is necessary at this time, the extent of the contaminant plume has been defined.

2. Quarterly groundwater monitoring and sampling should be conducted for one year (four quarters) at the site to establish a history for water levels, and hydrocarbon concentrations.

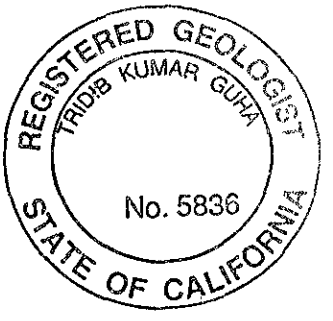
3. After one year, the site is expected to be ready for closure and the wells should be plugged and abandoned.

8.0 CERTIFICATION

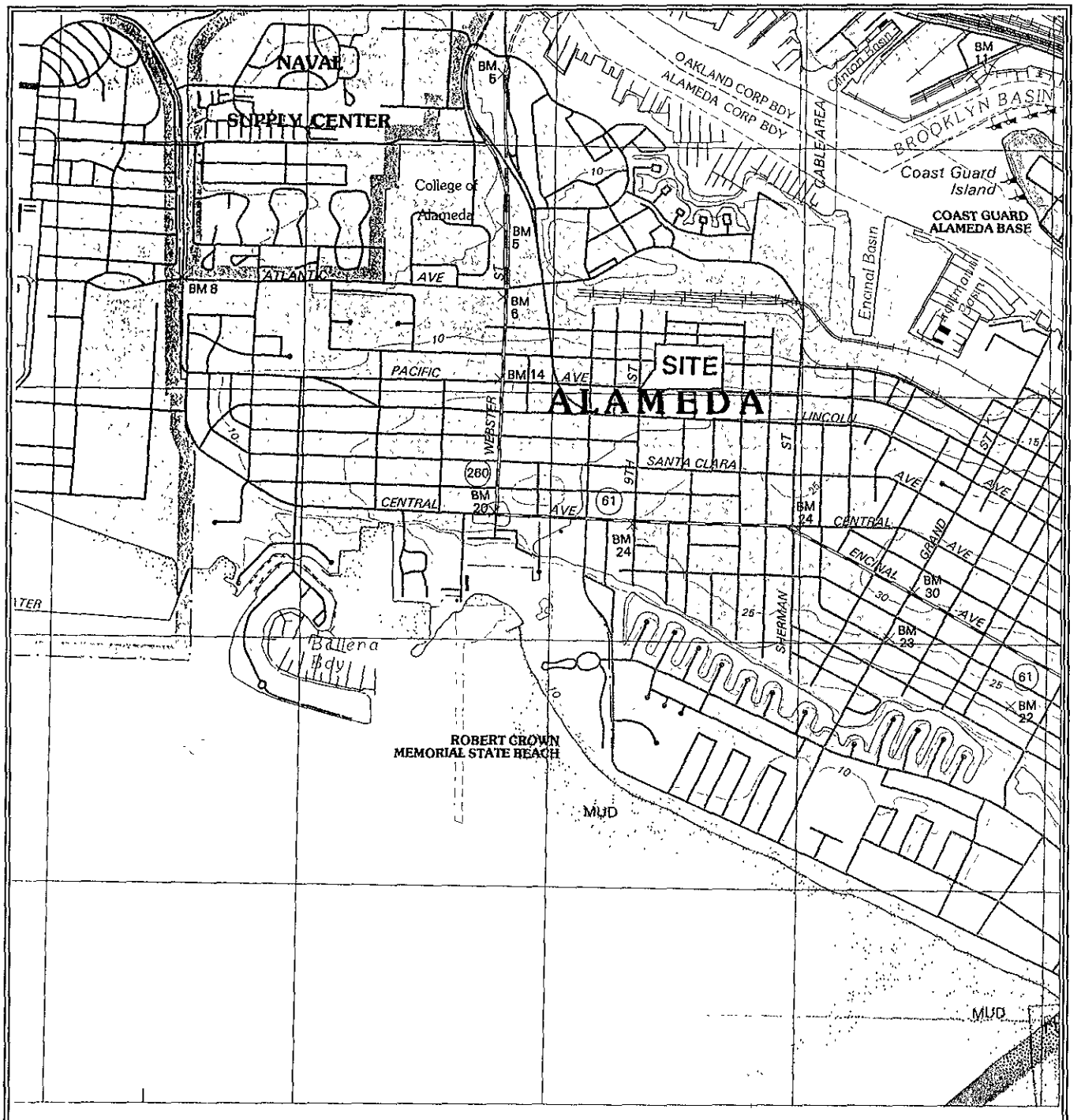
The information provided in this report is based on groundwater and soil sampling activities conducted at the site. All data presented in this report are believed to be accurate. All conclusions or recommendations provided herein are based on our expertise and experience conducting work of a similar nature.

Advanced Assessment and Remediation Services

Tridib K. Guha
Registered Geologist Number 5836



FIGURES



Source: U.S.G.S. Maps; 7.5 Minute Series (Topographic)
Oakland West Quadrangle, CA
1993 Map Edited 1996

FIGURE 1: SITE VICINITY MAP
SHEEHAN PROPERTY
845 Pacific Avenue
Alameda, California

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Concord, California

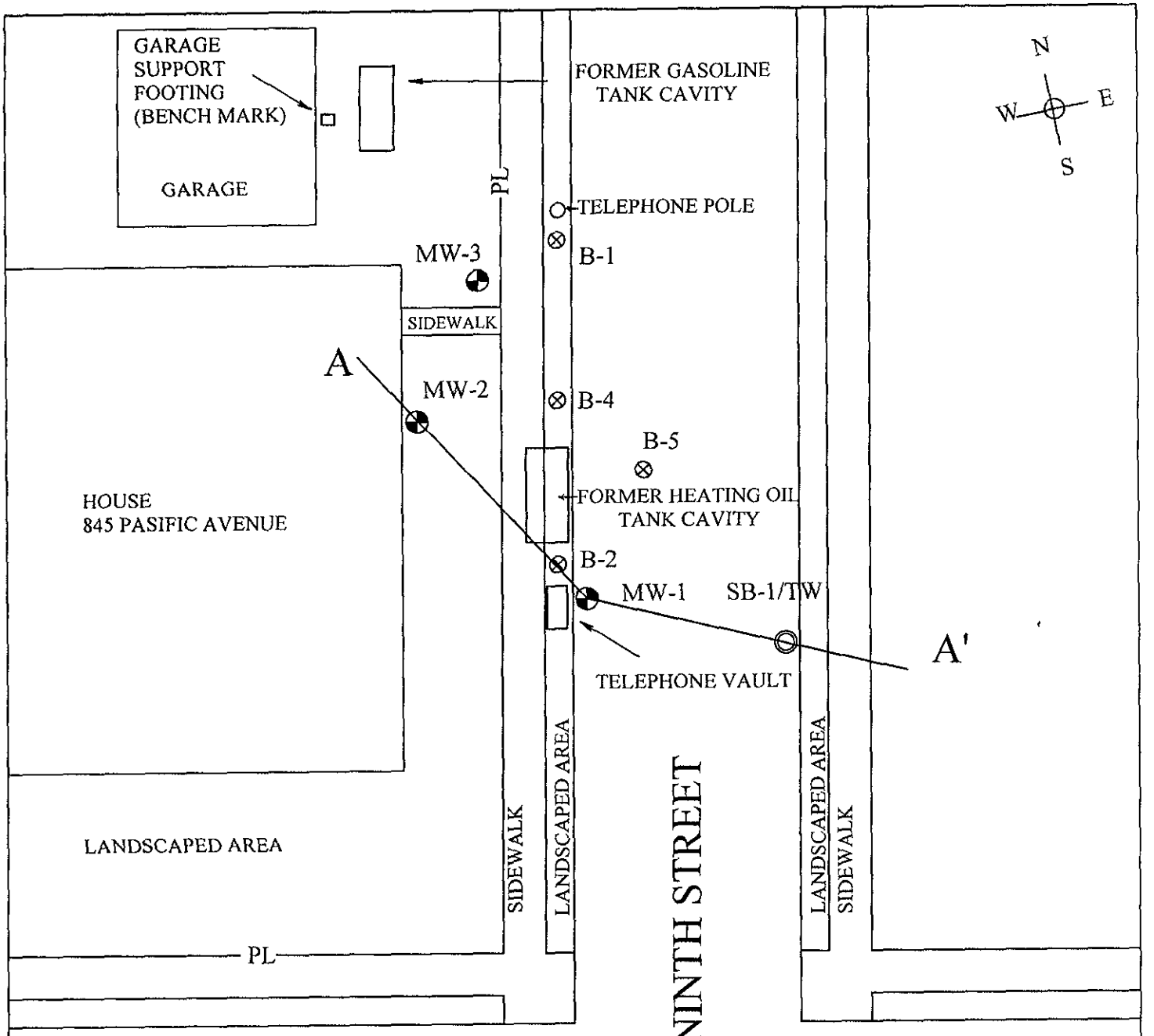

FIGURE 2: SITE PLAN
SHEEHAN PROPERTY
845 Pacific Avenue
Alameda, California

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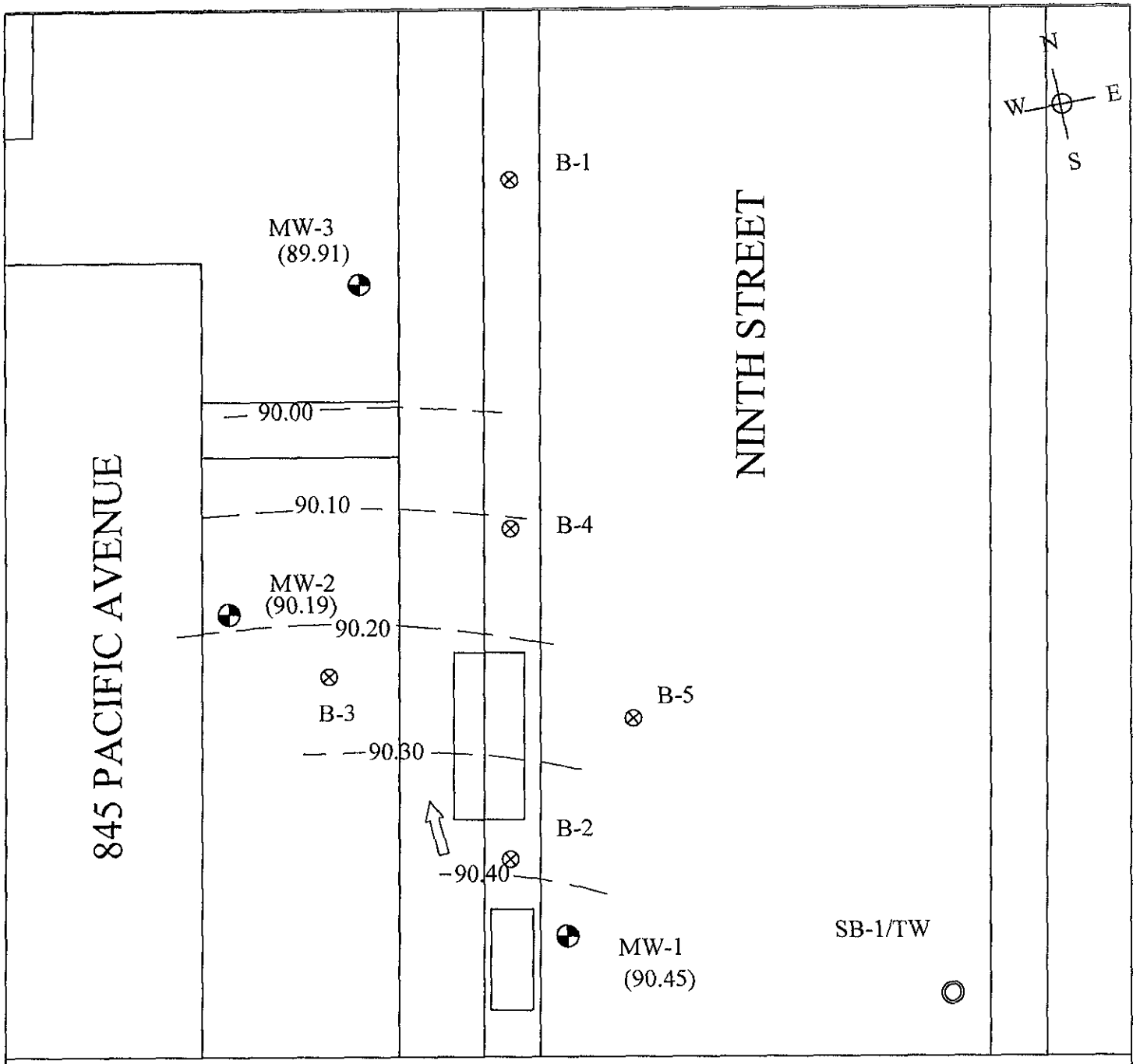
Concord, California



LEGEND

⊗ B-1 Soil Boring by HK2, Inc.

MW-1 Monitoring Well

SB-1/TW Soil Boring/ Temporary Well

(90.19) Relative Groundwater Elevation

-90.00- Groundwater Elevation Contour

General Direction of Groundwater Flow

0 5 10
Feet

Source of the Base Map:
HK2, Inc./ SEMCO report

Note:
1. Water Levels in Monitoring Wells measured October 17,2002
2. Contour Interval-0.10
3. Hydraulic Gradient- 0.011foot/foot

FIGURE 3: GROUNDWATER SURFACE ELEVATION
SHEEHAN PROPERTY
845 Pacific Avenue
Alameda, California

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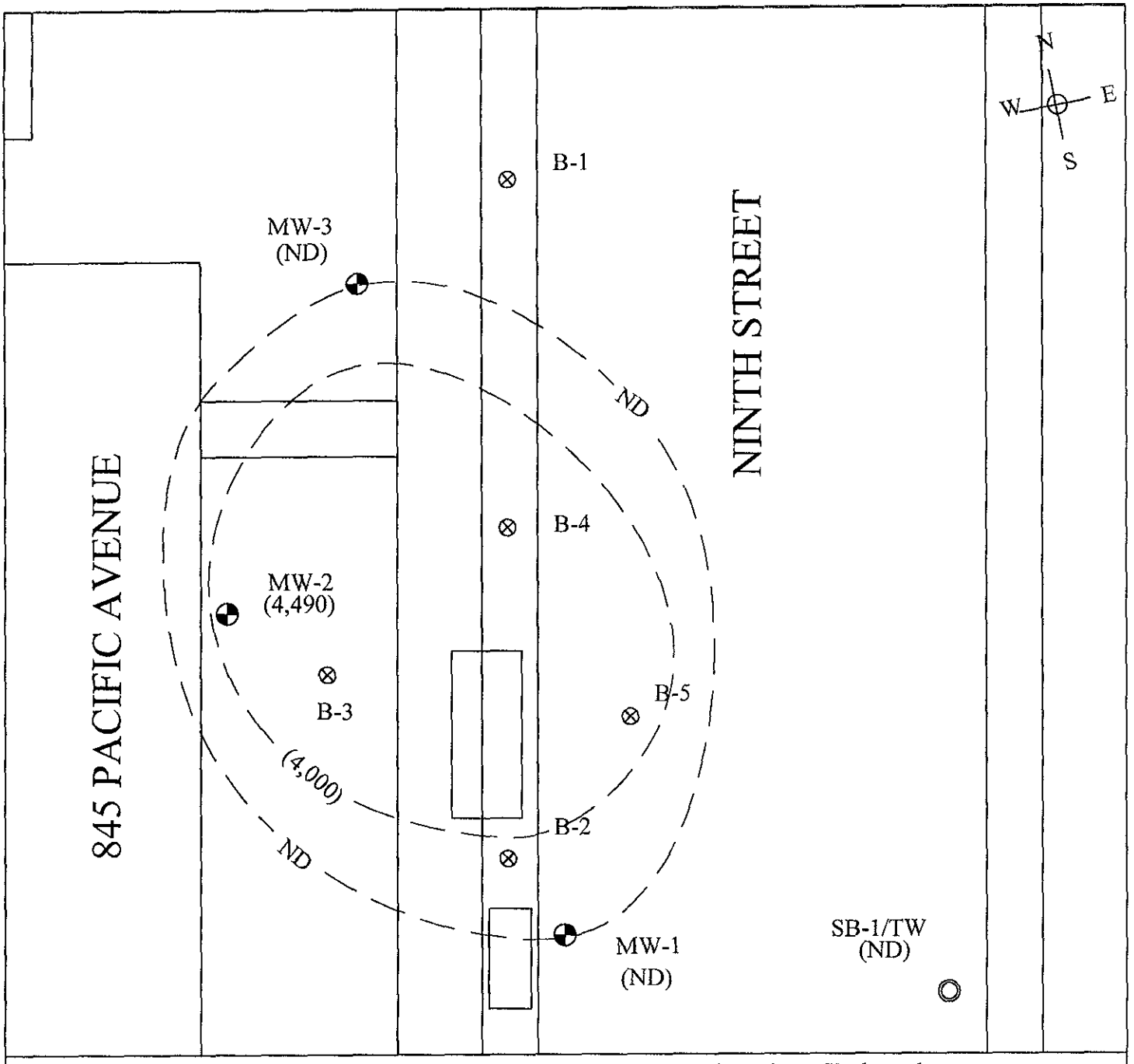
2380 Salvio Street, Suite 202
Concord, California



LEGEND

- ⊗ B-1 Soil Boring by HK2, Inc.
- ◒ MW-1 Monitoring Well
- ◎ SB-1/TW Soil Boring/ Temporary Well

(4,490) Total Petroleum Hydrocarbon as Disel (TPHd) Concentration in Groundwater in Parts Per Billion (ppb)

-4,000- TPHd Concentration contour

ND Not Detected above Reported Detection Limit

0 5 10
Feet

Source of the Base Map:
HK2, Inc./ SEMCO report

Note:
1. Groundwater samples collected October 17,2002
2. Contour Interval-as labeled

FIGURE 4: TPHd CONCENTRATIONS IN GROUNDWATER
SHEEHAN PROPERTY
845 Pacific Avenue
Alameda, California

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2380 Salvio Street, Suite 202
Concord, California

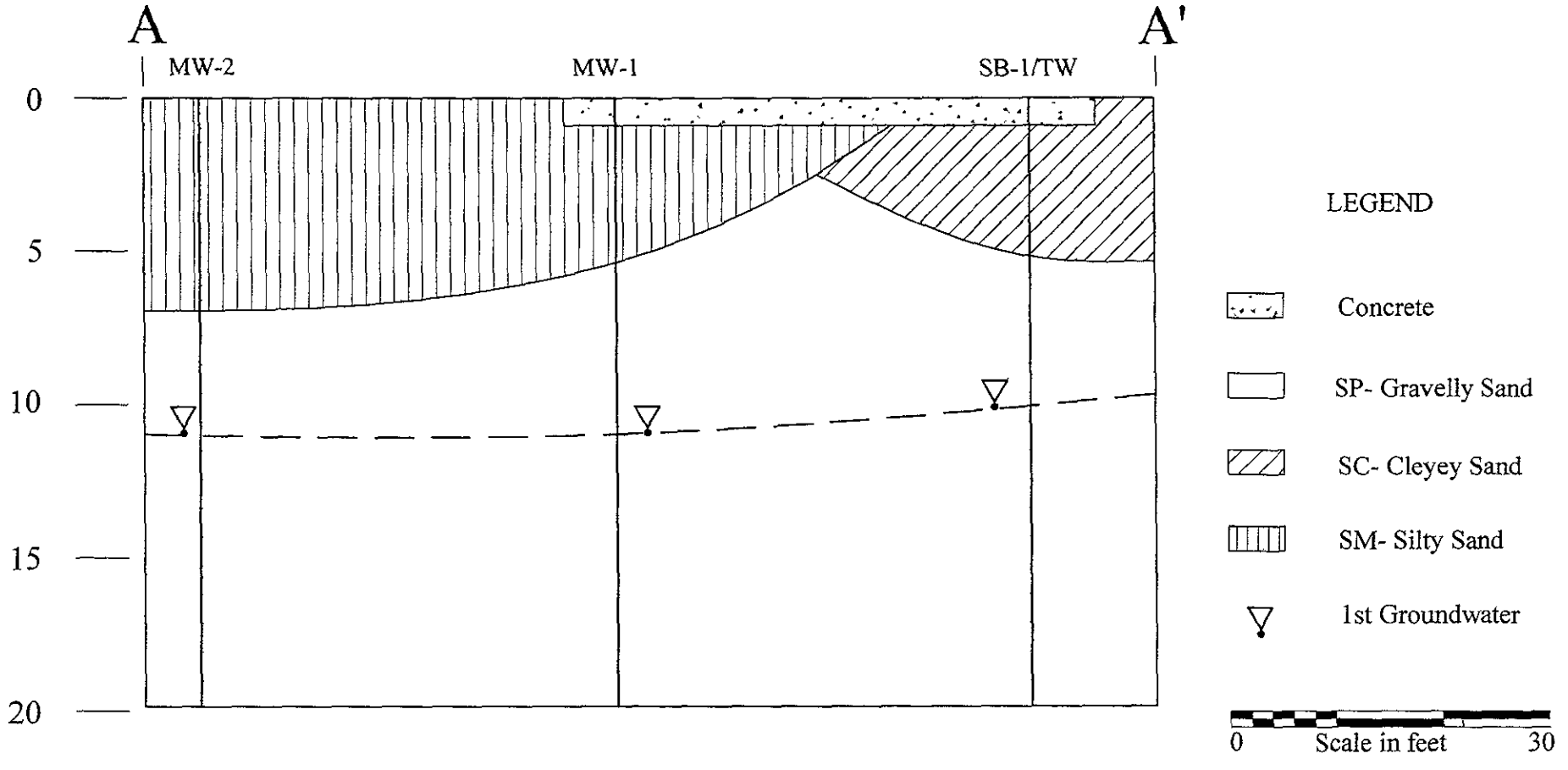


FIGURE 5:HYDROGEOLOGIC CROSS SECTION A-A'
SHEEHAN PROPERTY
845 Pacific Avenue
Alameda, California

ADVANCED ASSESSMENT AND REMEDIATION SERVICES
2380 Salvio Street, Suite 202
Concord, California 94520

TABLES

TABLE 1: SURVEY AND WATER LEVEL MONITORING DATA

SHEEHAN PROPERTY

845 Pacific Avenue

Alameda, California

Well No	Date of Measurement	Casing Elevation (Feet - Relative)	Depth to Groundwater (Feet - Relative)	Product Thickness (Feet)	Groundwater Elevation (Feet - Relative)
MW-1	10/17/02	100	9.55	0	90.45
MW-2	10/17/02	100.8	10.61	0	90.19
MW-3	10/17/02	100.08	10.17	0	89.91

Notes

1. Wellhead elevations surveyed relative to each other, from a common datum, but not tied to a benchmark.
2. The top of the casing elevation for MW-1 was assumed 100.00 feet (Above Mean Sea Level); all well elevations are relative to MW-1. The elevations at each well were taken on the top of the well casing on October 17, 2002.

AARS

TABLE 2: SUMMARY OF ANALYTICAL RESULTS OF SOIL SAMPLING

SHEEHAN PROPERTY

845 Pacific Avenue

Alameda, California

Sample ID	Date of Sampling	TPHg ug/kg	MTBE ug/kg	Benzene ug/kg	Toluene ug/kg	Ethylbenzene ug/kg	Xylenes ug/kg	TPHd ug/kg
B-1@6'	5/14/97	1300	ND	ND	ND	ND	ND	2,000
B-1@9'	5/14/97	ND	ND	ND	ND	ND	ND	ND
B-2@8.5'	5/13/97	ND	ND	ND	ND	ND	ND	ND
B-3@6'	5/13/97	1,200	ND	ND	ND	ND	ND	ND
B-3@9'	5/13/97	12,000	ND	ND	8	24	45	9,200,000
B-3@11'	5/13/97	NA	NA	NA	NA	NA	NA	5,700,000
B-4@8	5/13/97	12,000	ND	ND	7	25	14	4,100,000
B-4@11'	5/13/97	NA	NA	NA	NA	NA	NA	9,200,000
B-5@8'	5/13/97	ND	ND	ND	ND	ND	ND	ND
SB-1/TW@9'	10/9/02	NA	NA	NA	NA	NA	NA	893,000
MW-1-S@7'	10/9/02	NA	NA	NA	NA	NA	NA	ND
MW-1-S@11'	10/9/02	NA	NA	NA	NA	NA	NA	2,540,000
MW-2-S@7'	10/9/02	NA	NA	NA	NA	NA	NA	28,300,000
MW-2-S@11'	10/9/02	NA	NA	NA	NA	NA	NA	14,600,000
MW-3-S@10'	10/9/02	NA	NA	NA	NA	NA	NA	ND
RL		500	5	5	5	5	10	1000

Notes:

ND- Not Detected RL- Reporting Limit NA- Not available NS- No Sample

ug/L- Microgram per liter (parts per billion)

TPHg- Total petroleum hydrocarbon as gasoline (EPA method modified 8015)

TPHd- Total petroleum hydrocarbon as diesel (EPA method modified 8015)

MTBE- Methyl Tertiary Butyl Ether (EPA Method 8020)

Benzene, toluene, ethylbenzene, and total xylenes (EPA method 8020)

TABLE 3: SUMMARY OF ANALYTICAL RESULTS OF GROUNDWATER SAMPLING

SHEEHAN PROPERTY

845 Pacific Avenue, Alameda, California

Sample ID	Date of Sampling	TPHg ug/L	MTBE ug/L	Benzene ug/L	Toluene ug/L	Ethylbenzene ug/L	Xylenes ug/L	TPHd ug/L
B-1	5/14/97	ND	ND	2	2	3	9	ND
B-2	5/14/97	360	ND	ND	ND	1	15	2,000
B-3	5/14/97	3,200	ND	ND	ND	3	6	ND
B-4	5/14/97	6,100	ND	35	ND	27	160	430,000
B-5	5/14/97	3,100	27	2	0.5	19	34	65,000
SB-1/TW/GW	10/9/02	ND	*ND	ND	1	ND	ND	ND
MW-1/GW	10/17/02	**71	ND	ND	ND	ND	2	ND
MW-2/GW	10/17/02	**809	*ND	ND	1.2	1.2	5.7	4,490
MW-3/GW	10/17/02	ND	ND	ND	ND	ND	ND	ND
RL		50	0.5	0.5	0.5	0.5	1	50

Notes:

ND- Not Detected RL- Reporting Limit

ug/L- Microgram per liter (parts per billion)

TPHg- Total petroleum hydrocarbon as gasoline (EPA method modified 8015)

TPHd- Total petroleum hydrocarbon as diesel (EPA method modified 8015)

MTBE- Methyl Tertiary Butyl Ether (EPA Method 8020; after 9/24/01 by Method 8260)

BTEX- Benzene, toluene, ethylbenzene, and xylenex (EPA Method 8020)

** Does not match gasoline pattern

* Confirmed by GC/MS method 8260

TABLE 4: FIELD PARAMETERS OF GROUNDWATER SAMPLING
Sheehan Property
845 Pacific Avenue
Alamea , California

Sample I.D. No.	Date of Sampling	Temperature °F	pH	Conductivity uS
MW-1	10/17/02	70	7.18	1408
MW-2	10/17/02	67.9	6.92	1691
MW-3	10/17/02	67.8	7.03	1652

Note:

°F = degree Fahrenheit
uS = microSiemens

APPENDIX A

Permits

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway
Alameda, CA 94502
(510) 567-6700
Fax (510) 337-9432

RO0000081

July 23, 2002

Mr. William Sheehan
1236 Bay Street
Alameda, CA 94501

RE: Work Plan Approval for 845 Pacific Avenue, Alameda, CA

Dear Mr. Sheehan:

I have completed review of Advanced Assessment and Remediation Services' July 2002 *Work Plan for Additional Investigations* prepared for the above referenced site. The proposal to install three groundwater monitoring wells and one temporary well is acceptable with the following additions/changes:

- Soil samples from 5, 10, 15, and possibly 20 feet bgs should be submitted for laboratory analysis to delineate the vertical extent of soil contamination.
- Soil and groundwater samples should also be quantified for MtBE using Method 8020. All samples should be analyzed for TPHd, TPHg, and BTEX.
- All borings should be continuously logged.
- A "clean" soil sample from the vadose zone (about 3 to 5 feet bgs) should be collected for soil parameters bulk density, total organic carbon content, soil porosity, and water content. The site specific soil values can be used if a risk assessment is warranted.

The work plan should be implemented within 60 days of the date of the letter, **or by September 30, 2002.** Please provide 72 hours advance notice of field activities. If you have any questions, I can be reached at (510) 567-6762.

eva chu
Hazardous Materials Specialist

email: Tridib Guha (AARS)

ADVANCED ASSESSMENT AND REMEDIATION SERVICES (AARS)

2380 SALVIO STREET, SUITE 202
CONCORD, CALIFORNIA 94520-2137
TEL: (925) 363-1999 FAX: (925) 363-1998
e-mail: aars@ccnet.com

July 24, 2002

Ms. eva chu
Alameda County Health Agency, Environmental Health Services
1131 Harbor Bay Parkway, 2nd Floor
Alameda, CA 94502

RE: Revised Work Plan for Sheehan Property at 845 Pacific Avenue, Alameda, CA
Your File # RO0000081

Dear Ms. chu:

Per our telephone conversation on July 23, 2002, with referenced to the Work Plan for Additional Site Investigation at 845 Pacific Avenue, Alameda, the following changes were made:

- Selected soil samples from each boring will be submitted for laboratory analysis for TPHd only.
- All groundwater samples will be submitted for laboratory analysis for TPHd, TPHg, BTEX and MtBE.
- All soil borings will be continuously logged.
- Since soil parameter analysis was conducted in the previous study; therefore, this tusk will not be repeated.

Please call me at (925) 363-1999 if you have any questions

Sincerely,

Advanced Assessment and Remediation Services

Tridib K. Guha, R.G., R.E.A.
Principal

CC: Mr. William Sheehan, Alameda, CA

TG/SHNWPRVSD

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-6633 James Yoo
FAX (510)782-1939

APPLICANTS: PLEASE ATTACH A SITE MAP FOR ALL DRILLING PERMIT APPLICATIONS
DESTRUCTION OF WELLS OVER 45 FEET REQUIRES A SEPARATE PERMIT APPLICATION

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 845 Pacific Avenue, Alameda, CA 94501

CLIENT
Name William J. Sheehan
Address 1236 Bay Street Phone 510-522-0978
City Alameda Zip 94501

APPLICANT
Name Advanced Assessment and Remediation Services
Fax 925-363-1998
Address 2380 Salvio Street, Suite 202 Phone 925-363-1999
City Concord Zip 94520

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☒
Monitoring	☒	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☒
Cable	☐	Other	☐		

DRILLER'S NAME Gregg Drilling & Testing

DRILLER'S LICENSE NO. C57 485165

WELL PROJECTS
Drill Hole Diameter 6 in. Maximum Depth 20 ft.
Casing Diameter 2 in. Owner's Well Number MW-1
Surface Seal Depth 7 ft.

GEOTECHNICAL PROJECTS
Number of Borings
Hole Diameter in. Maximum Depth ft.

ESTIMATED STARTING DATE October 9, 2002
ESTIMATED COMPLETION DATE October 9, 2002

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE T. K. Guha DATE 9-25-02

PLEASE PRINT NAME TRIDIB K. GUHA

FOR OFFICE USE
PERMIT NUMBER W02-0896
WELL NUMBER
APN

PERMIT CONDITIONS
Circled Permit Requirements Apply

A. GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources-Well Completion Report.
3. Permit is void if project not begun within 90 days of approval date

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and Industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

E. CATHODIC
Fill hole anode zone with concrete placed by tremie

F. WELL DESTRUCTION
Send a map of work site. A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations

APPROVED [signature] DATE 9/11/02

Rev.5-13-00

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-6633 James Yoo
FAX (510)782-1939

APPLICANTS: PLEASE ATTACH A SITE MAP FOR ALL DRILLING PERMIT APPLICATIONS
DESTRUCTION OF WELLS OVER 45 FEET REQUIRES A SEPARATE PERMIT APPLICATION

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 845 Pacific Avenue
Alameda, CA 94501

CLIENT
Name William J. Sheehan
Address 1236 Bay Street Phone 510-522-0978
City Alameda Zip 94501

APPLICANT
Name Advanced Assessment and Remediation Services
Fax 925-363-1998
Address 2380 Salvio Street, Suite 202 Phone 925-363-1999
City Concord Zip 94520

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☒
Monitoring	☒	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☒
Cable	☐	Other	☐		

DRILLER'S NAME Gregg Drilling & Testing

DRILLER'S LICENSE NO. C57 485165

WELL PROJECTS
Drill Hole Diameter 6 in. Maximum
Casing Diameter 2 in. Depth 20 ft.
Surface Seal Depth 7 ft. Owner's Well Number MW-2

GEOTECHNICAL PROJECTS
Number of Borings _____ Maximum
Hole Diameter _____ in. Depth _____ ft.

ESTIMATED STARTING DATE October 9, 2002
ESTIMATED COMPLETION DATE October 9, 2002

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE _____ DATE 9/24/02

PLEASE PRINT NAME TRIDIB K. GUHA

FOR OFFICE USE

PERMIT NUMBER W02-0897
WELL NUMBER _____
APN _____

PERMIT CONDITIONS
Circled Permit Requirements Apply

A. GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources-Well Completion Report.
3. Permit is void if project not begun within 90 days of approval date

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and Industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

E. CATHODIC
Fill hole anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
Send a map of work site. A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED _____ DATE 9-11-02

Rev.5-13-00

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-6633 James Yoo
FAX (510)782-1939

APPLICANTS: PLEASE ATTACH A SITE MAP FOR ALL DRILLING PERMIT APPLICATIONS
DESTRUCTION OF WELLS OVER 45 FEET REQUIRES A SEPARATE PERMIT APPLICATION

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 845 Pacific Avenue
Alameda, CA 94501

CLIENT
Name William J. Sheehan
Address 1236 Bay Street Phone 510-522-0978
City Alameda Zip 94501

APPLICANT
Name Advanced Assessment and Remediation Services
Fax 925-363-1998
Address 2380 Salvio Street, Suite 202 Phone 925-363-1999
City Concord Zip 94520

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☒
Monitoring	☒	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☒
Cable	☐	Other	☐		

DRILLER'S NAME Gregg Drilling & Testing

DRILLER'S LICENSE NO. C57 485165

WELL PROJECTS
Drill Hole Diameter 6 in. Maximum
Casing Diameter 2 in. Depth 20 ft.
Surface Seal Depth 7 ft. Owner's Well Number MW-3

GEOTECHNICAL PROJECTS
Number of Borings _____ Maximum
Hole Diameter _____ in. Depth _____ ft.

ESTIMATED STARTING DATE October 9, 2002
ESTIMATED COMPLETION DATE October 9, 2002

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE _____ DATE 8/28/02

PLEASE PRINT NAME TRIDIB K. GUHA

FOR OFFICE USE

PERMIT NUMBER W02-0898
WELL NUMBER _____
APN _____

PERMIT CONDITIONS
Circled Permit Requirements Apply

A. GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources-Well Completion Report.
3. Permit is void if project not begun within 90 days of approval date

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and Industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

E. CATHODIC
Fill hole anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
Send a map of work site. A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations

APPROVED _____ DATE 9-11-02

Rev.5-13-00

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-6633 James Yoo
FAX (510)782-1939

APPLICANTS: PLEASE ATTACH A SITE MAP FOR ALL DRILLING PERMIT APPLICATIONS
DESTRUCTION OF WELLS OVER 45 FEET REQUIRES A SEPARATE PERMIT APPLICATION

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 845 Pacific Avenue
Alameda, CA 94501

CLIENT
Name William J. Sheehan
Address 1236 Bay Street Phone 510-522-0978
City Alameda Zip 94501

APPLICANT
Name Advanced Assessment and Remediation Services
Fax 925-363-1998
Address 2380 Salvio Street, Suite 202 Phone 925-363-1999
City Concord Zip 94520

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☒
Monitoring	☐	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☒
Cable	☐	Other	☐		

DRILLER'S NAME Gregg Drilling & Testing

DRILLER'S LICENSE NO. C57 485165

WELL PROJECTS Soil Boring/Temporary Well (backfill with neat cement)
Drill Hole Diameter 6 in. Maximum
Casing Diameter in. Depth 20 ft.
Surface Seal Depth ft. Owner's Well Number SB-1/TW

GEOTECHNICAL PROJECTS
Number of Borings Maximum
Hole Diameter in. Depth ft.

ESTIMATED STARTING DATE October 9, 2002
ESTIMATED COMPLETION DATE October 9, 2002

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE [signature] DATE 6/28/02

PLEASE PRINT NAME TRIDIB K. GUHA

FOR OFFICE USE

PERMIT NUMBER W02-0899
WELL NUMBER
APN

PERMIT CONDITIONS
Circled Permit Requirements Apply

A. GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources-Well Completion Report.
3. Permit is void if project not begun within 90 days of approval date

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and Industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

E. CATHODIC
Fill hole anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
Send a map of work site. A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS — SC #3 Attached.

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED [signature] DATE 9/1/02

Rev.5-13-00

2263 SANTA CLARA AVENUE, ROOM 190
ALAMEDA, CA 94501

CITY OF ALAMEDA

(510) 748-4530
FAX (510) 748-4548

ENCROACHMENT PERMIT: EN02-0077

Applicant Information
GREGG DRILLING & TESTING INC
950 HOWE RD
MARINEZ, CA 94553
925-313-5800

Contractor Information
GREGG DRILLING & TESTING INC
950 HOWE RD
MARINEZ, CA 94553
925-313-5800

Owner Information
SHEEHAN WILLIAM J & RENEE G
1236 BAY ST
ALAMEDA, CA 94501

Project Information
Status: **ISSUED**
Applied: **08/30/2002**
Issued: **09/27/2002**
Type: **Encroachment Permit**
Finaled:
Expires: **09/26/2003**
Category: **NA**
Sub-Type: **NA**
Parcel Number: **073-0409-022-03**
Valuation: **$1,000.00**
Job Address: **845 PACIFIC AVE, ALAMEDA, CA 94501**
Work Description: **ENCROACHMENT-INVESTIGATION SOIL AND GROUNDWATER CONTAMINATION/INSTALLATION OF SOIL BORINGS & MONITORING WELLS**

INSPECTIONS

Building: (510) 748-4564 (7:30-9:30 AM)
Plumbing & Mechanical: (510) 748-4563 (7:30-9:30 AM)
Electrical: (510) 748-4634 (7:30-9:30 AM)
Fire: (510) 749-5885
Design Review: (510) 748-4554

ITEM #	FEE DESCRIPTION	ACCOUNT CODE	UNITS	FEE AMOUNT	PAID
250	250-FY01-Filing Fee (per activity)	4520-37450 (1050)	1	$38.00	$38.00
782	782-ENGINEERING PLAN CHECK FEE	4225-37160 (6319)	150	$150.00	$150.00
				Total Fees:	$188.00

RECEIPT #	PAYMENT METHOD	COMMENTS/PAYEE	RECEIPT DATE	RECEIPT AMT
400721	Check	ADVANCED ASSESSMENT	08/30/2002	$188.00
			Total Payments:	$188.00
			Balance Due:	$0.00

INSPECTIONS

Call for an inspection when work is complete.

(510) 749-5840

This is to certify that the above work has been completed to my satisfaction and approval.

Date

Inspector

6006
Version 2.52

2263 SANTA CLARA AVENUE, ROOM 190
ALAMEDA, CA 94501

CITY OF ALAMEDA

(510) 748-4530
FAX (510) 748-4548

RIGHT OF WAY PERMIT: EX02-0136

Applicant Information
GREGG DRILLING & TESTING INC
950 HOWE RD
MARINEZ, CA 94553
925-313-5800

Contractor Information
GREGG DRILLING & TESTING INC
950 HOWE RD
MARINEZ, CA 94553
925-313-5800

Owner Information
SHEEHAN WILLIAM J & RENEE G
1236 BAY ST
ALAMEDA, CA 94501

Project Information
Status: **ISSUED**
Type: **Right-of-Way Permit**
Category: **NA**
Sub-Type: **NA**
Parcel Number: **073-0409-022-03**
Job Address: **845 PACIFIC AVE, ALAMEDA, CA 94501**
Work Description: **EXCAVATION-INVESTIGATION SOIL AND GROUNDWATER CONTAMINATION/INSTALLATION OF SOIL BORINGS & MONITORING WELLS**

Applied: **08/30/2002**
Finaled:

Issued: **09/27/2002**
Expires: **09/26/2003**

Valuation: **$38.00**

INSPECTIONS

Building: (510) 748-4564 (7:30-9:30 AM)
Plumbing & Mechanical: (510) 748-4563 (7:30-9:30 AM)
Electrical: (510) 748-4634 (7:30-9:30 AM)
Fire: (510) 749-5885
Design Review: (510) 748-4554

ITEM #	FEE DESCRIPTION	ACCOUNT CODE	UNITS	FEE AMOUNT	PAID
250	250-FY01-Filing Fee (per activity)	4520-37450 (1050)	1	$38.00	$38.00
				Total Fees:	$38.00

RECEIPT #	PAYMENT METHOD	COMMENTS/PAYEE	RECEIPT DATE	RECEIPT AMT
400722	Check	ADVANCED ASSESSMENT	08/30/2002	$38.00
			Total Payments:	$38.00
			Balance Due:	$0.00

**** See application for additional requirements ****

INSPECTIONS

(510) 749-5840

Note: All construction within the public right of way must have barricades with flashers for night time protection.

This is to certify that the above work has been completed to my satisfaction and approval.

Date

Inspector

APPENDIX B

Boring Logs and Monitoring Well Installation Details

LOG OF EXPLORATORY BORING NO. SB-1/TW

Project: Sheehan Property
Drilling Co.: Gregg Drilling & Testing
Start Date: 10/9/02
End Date: 10/9/02

Drill Method: HSA
Driller: R. Nessenger
Drill Rig: Rhino D-27

Logged By: T. Guha
Sampler: Macro Core
Hole Dia.: 8 inch

LITHOLOGIC DESCRIPTION	USCS CLASS	GRAPHIC LOG	DEPTH	SAMPLE	DRIVEN in	RECOVERY-in	OVA (ppm)	WELL CONSTRUCTION DETAIL
Asphalt, Concrete 6"			0					
SAND: dark brown, with some clay, slightly moist, loose	SC		-5-				0	
SAND: brown, well sorted, slightly moist, loose color changes to light brown, wet	SP		-10-	■			20	▽
			-15-				0	
BORE HOLE TERMINATED @ 17 feet			-20-					Neat cement
			-25-					
			-30-					

ADVANCED ASSESSMENT & REMEDIATION SERVICES
2380 Salvio Street, Suite202
Concord, CA 94520

Note: A grab groundwater sample was collected (see text).

Project No. 02002

LOG OF EXPLORATORY BORING NO. MW-1

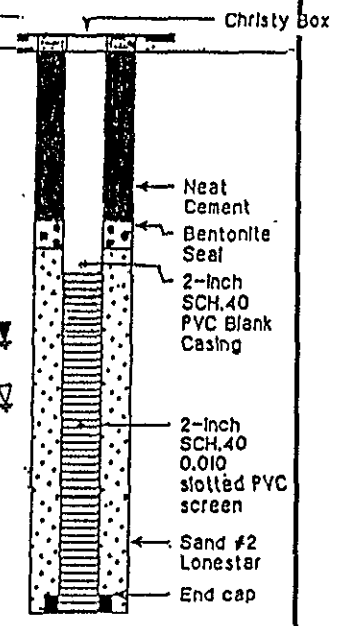
Project: Sheehan Property
Drilling Co.: Gregg Drilling & Testing
Start Date: 10/9/02
End Date: 10/9/02

Drill Method: HSA
Driller: R. Nessenger
Drill Rig:Rhino D-27

Logged By: T. Guha
Sampler: Macro Core
Hole Dia.: 8 inch

LITHOLOGIC DESCRIPTION	USCS CLASS	GRAPHIC LOG	DEPTH	SAMPLE	DRIVEN in	RECOVERY-in	OVA (ppm)
Asphalt and concrete 6"			0				
SAND: drak brown, fine grain, well sorted, dry, loose	SM		-5-				0
SAND: light brown, medium grain, well sorted, dry, loose color changed to greenish gray	SP		-10-				50
color changed to light brown, strong odor, wet			-15-				0
BORE HOLE TERMINATED @ 20 feet			-20-				0
			-25-				
			-30-				

WELL CONSTRUCTION DETAIL



ADVANCED ASSESSMENT & REMEDIATION SERVICES
2380 Salvio Street, Suite202
Concord, CA 94520

Note: .

Project No. 02002

LOG OF EXPLORATORY BORING NO. MW-2

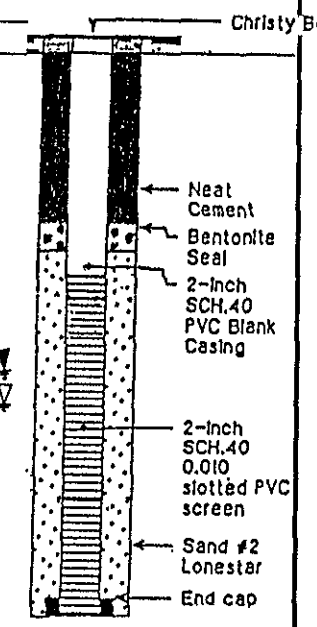
Project: Sheehan Property
Drilling Co.: Gregg Drilling & Testing
Start Date: 10/9/02
End Date: 10/9/02

Drill Method: HSA
Driller: R. Nessenger
Drill Rig: Rhino D-27

Logged By: T. Guha
Sampler:MacroCore
Hole Dia.: 8 inch

LITHOLOGIC DESCRIPTION	USCS CLASS	GRAPHIC LOG	DEPTH	SAMPLE	DRIVEN in	RECOVERY-in	OVA (ppm)
SILTY SAND: light gray, dry, loose	SM		0				
SAND: light brown, fine grain, well sorted, dry, loose	SM		-5-				0
SAND: brown, medium grain, well sorted, slightly moist, loose, strong odor	SP			■			20
color changed to light grey, wet, strong odor			-10-	■			60
same, no odor, wet			-15-				0
BORE HOLE TERMINATED @ 20 feet			-20-				0
			-25-				
			-30-				

WELL CONSTRUCTION DETAIL



ADVANCED ASSESSMENT & REMEDIATION SERVICES
2380 Salvio Street, Suite202
Concord, CA 94520

Note:

Project No. 02002

LOG OF EXPLORATORY BORING NO. MW-3

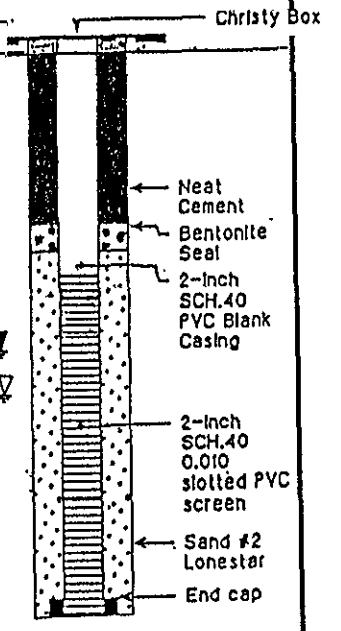
Project: Sheehan Property
Drilling Co.: Gregg Drilling & Testing
Start Date: 10/9/02
End Date: 10/9/02

Drill Method: HSA
Driller: R. Nessenger
Drill Rig: Rhino D-27

Logged By: T. Guha
Sampler:MacroCore
Hole Dia.: 8 inch

LITHOLOGIC DESCRIPTION	USCS CLASS	GRAPHIC LOG	DEPTH	SAMPLE	DRIVEN in	RECOVERY-in	OVA (ppm)
Top soil 4"			0				
SAND: light brown, fine grain, well sorted, dry, loose	SM						
Color changes to brown, slightly moist, loose			-5-				0
color changes to light brown wet			-10-	■			0
SILTY SAND: dark grey, with some clay, loose, wet	SM						
SAND: reddish brown, medium grain, loose, wet	SP		-15-				0
BORE HOLE TERMINATED @ 20 feet			-20-				0
			-25-				0
			-30-				

WELL CONSTRUCTION DETAIL



ADVANCED ASSESSMENT & REMEDIATION SERVICES
2380 Salvio Street, Suite202
Concord, CA 94520

Note: .

Project No. 02002
Page 1 of 1

UNIFIED SOIL CLASSIFICATION SYSTEM
ASTM D2488-84

MAJOR DIVISIONS			SYMBOLS		TYPICAL NAMES
COARSE GRAINED SOILS OVER 50%>No.200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION> NO.4 SIEVE SIZE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW		Well graded gravels or gravel-sand mixtures, little or no fines
			GP		Poorly graded gravels or gravel-sand mixtures, little or no fines
		GRAVELS WITH OVER 12% FINES	GM		Silty gravels, gravel-sand mixtures
			GC		Clayey gravels, gravel-sand-clay mixtures
	SANDS MORE THAN 1/2 OF COARSE FRACTION< NO.4 SIEVE SIZE	CLEAN SANDS WITH LITTLE OR NO FINES	SW		Well graded sands or gravelly sands, little or no fines
			SP		Poorly graded sands or gravelly sands, little or no fines
		SANDS WITH OVER 12% FINES	SM		Silty sands, sand-silt mixtures
			SC		Clayey sands, sand-clay mixtures
FINE GRAINED SOILS OVER 50%<No.200 SIEVE SIZE	SILTS & CLAYS LIQUID LIMIT 50% OR LESS		ML		Inorganic siltys and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
			CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL		Organic silts andorganic silty clays of low plasticity
	SILTS & CLAYS LIQUID LIMIT GREATER THAN 50%		MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
			CH		Inorganic clays of high plasticity, fat clays
			OH		Organic clays of medium to high plasticity, organic silty clays, organic silts
HIGHLY ORGANIC SOILS			Pt		Peat and other hightly organic soils

SYMBOLS KEY

I	Driven Interval
⊠	Bulk or Classification Sample
■	Laboratory Sample
⊠	Undisturbed Samp. for Classification
▽	First encountered groundwater level
▼	Static groundwater level
(10YR 4/4)	Munsell soil color 1990 edition

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL	3" to No.4	76.2 to 4.76
coarse	3" to 3/4"	76.2 to 19.1
fine	3/4" to No.4	19.1 to 4.76
SAND	No.4 to No.200	4.76 to 0.074
coarse	No.4 to No.10	4.76 to 2.00
medium	No.10 to No.40	2.00 to 0.420
fine	No.40 to No.200	0.420 to 0.074
SILT & CLAY	Below No.200	Below No.0.074

ADVANCED ASSESSMENT &
REMEDIATION SERVICES
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Concord, CA 94520

SOIL CLASSIFICATION CHART AND KEY TO BORING LOG

APPENDIX C

Certified Analytical Reports and Chain-of-Custody Documents

North State Labs
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: 02-1442
Client: Advanced Assessment & Remd.
Project: 845 PACIFIC AVE.

Date Reported: 10/17/2002

Diesel Range Hydrocarbons by Method CATFH
Gasoline,BTEX and MTBE by Methods SW8020F

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 02-1442-01 Client ID: SB-1/TW/GW				10/09/2002	W
Benzene	SW8020F	ND<0.5	UG/L		10/11/2002
Ethylbenzene	SW8020F	ND<0.5	UG/L		10/11/2002
Gasoline Range Organics	SW8020F	ND<50	UG/L		10/11/2002
Methyl-tert-butyl ether	SW8020F	*ND<0.5	UG/L		10/11/2002
Toluene	SW8020F	1	UG/L		10/11/2002
Xylenes	SW8020F	ND<1.0	UG/L		10/11/2002
Diesel Fuel #2	CATFH	ND<0.05	MG/L		10/12/2002
Sample: 02-1442-02 Client ID: SB-1/TW-S@9'				10/09/2002	SO
Diesel Fuel #2	CATFH	893	MG/KG		10/11/2002
Sample: 02-1442-03 Client ID: MW-1-S@7'				10/09/2002	SO
Diesel Fuel #2	CATFH	ND<1	MG/KG		10/11/2002
Sample: 02-1442-04 Client ID: MW-1-S@11'				10/09/2002	SO
Diesel Fuel #2	CATFH	2540	MG/KG		10/14/2002
Sample: 02-1442-05 Client ID: MW-2-S@7'				10/09/2002	SO
Diesel Fuel #2	CATFH	28300	MG/KG		10/14/2002

*Confirmed for MTBE 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: 02-1442
Client: Advanced Assessment & Remd.
Project: 845 PACIFIC AVE.

Date Reported: 10/17/2002

Diesel Range Hydrocarbons by Method CATFH
Gasoline,BTEX and MTBE by Methods SW8020F

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 02-1442-06 Client ID: MW-2-S@11'				10/09/2002	SO
Diesel Fuel #2	CATFH	14600	MG/KG		10/14/2002
Sample: 02-1442-07 Client ID: MW-3-S@10'				10/09/2002	SO
Diesel Fuel #2	CATFH	ND<1	MG/KG		10/12/2002

*Confirmed for MTBE 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: 02-1442
Client: Advanced Assessment & Remd.
Project: 845 PACIFIC AVE.

Date Reported: 10/17/2002
Diesel Range Hydrocarbons by Method CATFH
Gasoline,BTEX and MTBE by Methods SW8020F

Analyte	Method	Reporting Limit	Unit	Blank	Avg MS/MSD Recovery	RPD
Gasoline Range	SW8020F	50	UG/L	ND	79/87	10
Benzene	SW8020F	0.5	UG/L	ND	81/82	1
Toluene	SW8020F	0.5	UG/L	ND	82/86	5
Ethylbenzene	SW8020F	0.5	UG/L	ND	84/88	5
Xylenes	SW8020F	1.0	UG/L	ND	84/87	4
Methyl-tert-butyl	SW8020F	0.5	UG/L	ND	84/93	10
Diesel Fuel #2	CATFH	1	MG/KG	ND	76/83	9
Diesel Fuel #2	CATFH	0.05	MG/L	ND	84/79	6

ELAP Certificate NO:1753
Reviewed and Approved

John A Murphy, Laboratory Director

02-1442

North State Labs

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 1 of 1

Client: ADVANCED ASSESSMENT + REMEDIATION	Report to: TRIDIB GUHA	Phone: 925-363-1999	Turnaround Time: 5 DAY
Mailing Address: 2380 SALVIO STREET, #202 CONCORD, CA 94520	Billing to: SAME	Fax: 1998	
		email: aars@earthlink.net	Date: 10-11-02
		PO# SHEEHAN	Sampler: T. GUHA

Project / Site Address / Global ID: 845 PACIFIC AVE. ALAMEDA, CA

Analysis Requested

Sample ID	Sample Type	Container No. / Type	Pres.	Sampling Date / Time	TPHd	TPHg/BTEX/MTBE	EDF ☐ Field Point ID
SB-1/TW/GW	WATER	2 VOAs 1 1-L AMB	HCL	10-9-02 / 10:35	X	X	
SB-1/TW-5@9'	SOIL	1 PLASTIC TUBE		/ 10:20	X		
MW-1-5@7'	↓			/ 14:05	X		
MW-1-5@11'				/ 14:15	X		
MW-2-5@7'				/ 12:50	X		
MW-2-5@11'				/ 12:55	X		
MW-3-5@10'	↓	1 PLASTIC TUBE		↓ / 11:20	X		

RECEIVED IN GOOD CONDITION @ 4°C

Relinquished by:	Date: 10-11-02	Time: 9:55	Received by: NSLABS	Lab Comments/ Hazards
Relinquished by:	Date:	Time:	Received by:	
Relinquished by:	Date:	Time:	Received by:	

North State Labs
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: 02-1479
Client: Advanced Assessment & Remd.
Project: 845 PACIFIC AVENUE ALAMEDA CA

Date Reported: 10/24/2002

Gasoline,BTEX and MTBE by Methods SW8020F
Diesel Range Hydrocarbons by Method CATFH

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 02-1479-01 Client ID: MW-1/GW				10/17/2002	W
Benzene	SW8020F	ND<0.5	UG/L		10/18/2002
Ethylbenzene	SW8020F	ND<0.5	UG/L		10/18/2002
Gasoline Range Organics	SW8020F	*71	UG/L		10/18/2002
Methyl-tert-butyl ether	SW8020F	ND<0.5	UG/L		10/18/2002
Toluene	SW8020F	ND<0.5	UG/L		10/18/2002
Xylenes	SW8020F	2	UG/L		10/18/2002
Diesel Fuel #2	CATFH	ND<0.05	MG/L		10/18/2002
Sample: 02-1479-02 Client ID: MW-2/GW				10/17/2002	W
Benzene	SW8020F	ND<0.5	UG/L		10/18/2002
Ethylbenzene	SW8020F	1.2	UG/L		10/18/2002
Gasoline Range Organics	SW8020F	*809	UG/L		10/18/2002
Methyl-tert-butyl ether	SW8020F	**ND<0.5	UG/L		10/18/2002
Toluene	SW8020F	1.2	UG/L		10/18/2002
Xylenes	SW8020F	5.7	UG/L		10/18/2002
Diesel Fuel #2	CATFH	4.49	MG/L		10/18/2002
Sample: 02-1479-03 Client ID: MW-3/GW				10/17/2002	W
Benzene	SW8020F	ND<0.5	UG/L		10/21/2002
Ethylbenzene	SW8020F	ND<0.5	UG/L		10/21/2002
Gasoline Range Organics	SW8020F	ND<50	UG/L		10/21/2002
Methyl-tert-butyl ether	SW8020F	ND<0.5	UG/L		10/21/2002
Toluene	SW8020F	ND<0.5	UG/L		10/21/2002

*Does not match gasoline.**Confirmed by GC/MS.

North State Labs
CA ELAP # 1753
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C E R T I F I C A T E O F A N A L Y S I S

Lab Number: 02-1479
Client: Advanced Assessment & Remd.
Project: 845 PACIFIC AVENUE ALAMEDA CA

Date Reported: 10/24/2002

Gasoline,BTEX and MTBE by Methods SW8020F
Diesel Range Hydrocarbons by Method CATFH

Analyte	Method	Result	Unit	Date Sampled	Date Analyzed
Sample: 02-1479-03 Client ID: MW-3/GW				10/17/2002	W
Xylenes	SW8020F	ND<1.0	UG/L		10/21/2002
Diesel Fuel #2	CATFH	ND<0.05	MG/L		10/18/2002

*Does not match gasoline.**Confirmed by GC/MS.

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

Quality Control/Quality Assurance

Lab Number: 02-1479
Client: Advanced Assessment & Remd.
Project: 845 PACIFIC AVENUE ALAMEDA CA

Date Reported: 10/24/2002
Gasoline,BTEX and MTBE by Methods SW8020F
Diesel Range Hydrocarbons by Method CATFH

Analyte	Method	Reporting Limit	Unit	Blank	Avg MS/MSD Recovery	RPD
Diesel Fuel #2	CATFH	0.05	MG/L	ND	76/73	4
Gasoline Range	SW8020F	50	UG/L	ND	91/92	1
Benzene	SW8020F	0.5	UG/L	ND	87/88	1
Toluene	SW8020F	0.5	UG/L	ND	91/92	1
Ethylbenzene	SW8020F	0.5	UG/L	ND	93/95	2
Xylenes	SW8020F	1.0	UG/L	ND	94/96	2
Methyl-tert-butyl	SW8020F	0.5	UG/L	ND	84/85	1

ELAP Certificate NO:1753
Reviewed and Approved

John A.Murphy,Laboratory Director

02-1479

North State Labs

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 1 of 1

Client: ADVANCED ASSESSMENT + REMD. SVC.	Report to: TRIDIB GUHA	Phone: 925-363-1999	Turnaround Time: 5 DAYS
Mailing Address: 2380 SALVIO STREET, SUITE 202 CONCORD, CA 94520	Billing to: SAME	Fax: 925-363-1998	
		email: aars@earthlink.net	Date: 10-17-02
		PO# SHEEHAN	Sampler: T. GUHA

Project / Site Address / Global ID: 845 PACIFIC AVENUE ALAMEDA, CA

Analysis Requested

Sample ID	Sample Type	Container No. / Type	Pres.	Sampling Date / Time	TPH(g)/BTEX/MTBE	TPH(d)						EDF ☐ Field Point ID
MW-1/GW	WATER	2 VOAs 1 1-L AMB	HCL	10-17-02 / 11:05	X	X						
MW-2/GW	"	2 VOAs 1 1-L AMB	HCL	10-17-02 / 11:00	X	X						
MW-3/GW	"	2 VOAs 1 1-L AMB	HCL	10-17-02 / 10:53	X	X						

Relinquished by:	Date: 10-17-02	Time: 11:10	Received by: EVAN ATKINSON	Lab Comments/ Hazards
Relinquished by: EVAN ATKINSON	Date: 10-17-02	Time: 1314	Received by:	SAMPLES RECEIVED IN GOOD CONDITION
Relinquished by:	Date:	Time:	Received by:	