

ENVIRONMENTAL
PROTECTION
97 FEB 26 PM 1:10

February 25, 1997

7-309

Ms. Juliet Shin
Alameda County Department of Environmental Health
1131 Harborbay Parkway
Alameda, CA 94502

**Subject: Geoprobe Investigation Report, Barnhill Construction
2394 Mariner Square Drive, Alameda, CA 94501**

Dear Ms. Shin:

On behalf of Barnhill Construction (Barnhill), Hydro-Environmental Technologies, Inc. (HETI) is submitting the Geoprobe Investigation Report and a closure request for activities conducted on January 30, 1997 at the above referenced site. The results indicate well graded, fine to medium grained sand from surface to approximately ten feet bgs.

Neither TPHd, TPHg, benzene nor MTBE was detected in any of the soil samples. Neither TPHg, benzene nor MTBE was detected in any of the ground water samples. TPHd was detected in all the ground water samples in concentrations less than 200 µg/L.

HETI recommends discontinuing with any further soil and ground water site investigation and, on behalf of Barnhill, is requesting case closure.

If you have any questions or require additional information regarding this site, please call us at (510) 521-2684.

Sincerely,
HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.



Frances Maroni
Project Engineer



Gary Pischke, C.E.G.
Senior Geologist

cc: Mr. A.V. Barnhill, Barnhill Construction

97 FEB 26 PM 1:10

**GEOPROBE INVESTIGATION
REPORT**

Barnhill Construction
2394 Mariner Square Drive
Alameda, California 94501

Prepared for:

BARNHILL CONSTRUCTION
2394 Mariner Square Drive
Alameda, California 94501

Prepared by:

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.
2394 Mariner Square Drive, Suite 2
Alameda, California 94501
HETI Job No. 7-309

February 19, 1997

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- Appendix C: Official Laboratory Report and Chain-of-Custody Record

1.0 INTRODUCTION

The purpose of this report is to present the results for recent field activities performed by Hydro-Environmental Technologies, Inc. (HETI) at Barnhill Construction located at 2394 Mariner Square Drive, Alameda, California (Figure 1). The report includes work conducted as part of a geoprobe investigation to investigate the lateral and vertical extent of hydrocarbon impacted soil surrounding the previously excavated diesel and gasoline tank area.

The tasks performed during this phase of work included the following:

- Collected select soil samples from geoprobe borings for laboratory analysis.
- Collected ground water samples from all geoprobe temporary well points for laboratory analysis.
- Prepared this report.

1.1 Site Location and Description

Barnhill Construction is located at 2394 Mariner Square Drive, Alameda, California (Figure 1). The work performed as part of this phase has resulted from tank removal and is for evaluation of soil and ground water associated with the underground storage tanks. The work was requested by Alameda County Environmental Health Services (ACEHS) in letters dated July 19, 1996 and October 17, 1995.

1.2 Background

Previous environmental activities reported at the site have included:

- Removal of underground storage tanks (USTs) previously used for gasoline and diesel.
- Sampling of side walls at approximately 4 feet below ground surface (bgs) from the former tank excavation and ground water grab sample. Both diesel and gasoline were detected in the ground water sample.
- Backfilling of the excavation area.
- Ground water was reportedly encountered in the bottom of the tank pit at approximately 5 feet bgs, and is tidally influenced.

In order to meet Regional Water Quality Control Board (RWQCB) and Alameda County Environmental Health Services (ACEHS) requirements, additional steps

leading to closure are needed. The Workplan for the requested investigation was submitted in November 1996 and December 1996. The approach will evaluate the presence of hydrocarbons in soil and ground water adjacent to the former tank excavation.

2.0 FIELD ACTIVITIES

All drilling and sampling was performed in accordance with state and local agency guidelines. A copy of HETI's standard field protocols have been sent to the ACDHS previously.

2.1 Soil Borehole Drilling and Soil Sampling

A safety briefing was conducted with Gregg Drilling (Gregg) personnel prior to drilling on January 30, 1997. At the end of the briefing, all personnel reviewed and signed the Site Safety Plan prepared for this site; a copy is attached as Appendix A. Prior to drilling, a permit was obtained from the Alameda County Zone 7 Water Agency; a copy is included in Appendix A.

On January 30, 1997 Gregg used a pneumatically powered sampling rig to drive three 1.5-inch diameter soil probes, designated (geoprobe) GP-1 through GP-3, to a total depth of approximately 10 feet bgs. The probe points were placed adjacent to the tank excavation with one probe driven and sampled 10 feet downgradient (apparent) of the former tank pit. The measured depth to first encountered ground water, during drilling, was approximately 4 feet bgs in all boreholes. A 0.75-inch inside diameter steel sampler, lined with a two-foot long acetate tube, was used to collect soil samples at designated intervals. Select soil samples collected were labeled, documented on a chain-of-custody form, and placed in a cooler for transport to NEI/GTEL Laboratory (NEI/GTEL), a state of California DHS certified laboratory located in Wichita, Kansas.

*✓ Sampled intervals from
~3' to ~8' bgs.*

Soil samples were analyzed for total petroleum hydrocarbons as diesel (TPHd) using the CA Leaking Underground Fuel Tank (LUFT) Manual Protocols, total petroleum hydrocarbons as gasoline (TPHg) by EPA Method 8015 (modified), benzene, toluene, ethylbenzene, and total xylenes (BTEX) and Methyl-tert-butyl ether (MTBE) by EPA Method 8020 (modified). Boreholes designated GP-1 through GP-3 were not converted into permanent wells and were grouted to the surface.

Portions of selected samples were retained for visual lithologic description by a HETI engineer using the Unified Soil Classification System, and for volatile organic headspace analysis using a Thermo Environmental Instruments, Inc. organic vapor meter (OVM) Model 580B. OVM readings are presented on the Soil Boring Logs in Appendix B. No soil cuttings were generated during the drilling of boreholes GP-1 through GP-3.

4.0 SUMMARY AND RECOMMENDATIONS

The results of the field activities and laboratory analyses of soil and ground water samples collected during this phase of investigation are discussed below:

- On January 30, 1997 three 1-inch diameter soil probes were driven to further investigate the lateral and vertical extent of hydrocarbon impacted soil. Select soil and ground water samples were collected and the boreholes were grouted to the surface .
- Sediments encountered during drilling consisted of well graded, fine to medium grained sand from ground surface to approximately 10 feet bgs, the total depth explored.
- Neither TPHd, TPHg, benzene nor MTBE was detected in any of the soil samples collected.
- TPHd was detected in all three of the ground water samples collected. Laboratory interpretation indicates the compounds are heavier than TPHd, but are within the standard diesel range.
- Neither TPHg, benzene nor MTBE was detected in any of the ground water samples collected.
- The sampling results indicate TPHd, TPHg and benzene concentrations dissolved in the ground water are within the Regional Board's guidelines for low impact sites and/or below EPA maximum contaminate levels.
- HETI, on behalf of Barnhill Construction, requests case closure.

5.0 CERTIFICATION

This report was prepared under the supervision of a registered geologist. All statements, conclusions and recommendations are based solely upon field observations and analytical analyses performed by a state-certified laboratory related to work performed by Hydro-Environmental Technologies, Inc.

It is possible that variations in soil or ground water conditions exist beyond the points explored in this investigation. Also, site conditions are subject to change at some time in the future due to variations in rainfall, temperature, regional water usage, or other factors.

The service performed by Hydro-Environmental Technologies, Inc. has been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the area of the site. No other warranty, expressed or implied, is made.

Hydro-Environmental Technologies, Inc. includes in this report chemical analytical data from a state-certified laboratory. These analyses are performed according to procedures suggested by the U.S. EPA and the State of California. Hydro-Environmental Technologies, Inc. is not responsible for laboratory errors in procedure or result reporting.

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

Prepared by:

FRANCES MARONI
Frances H. Maroni
Staff Engineer

Reviewed by:

Gary Pischke
Gary Pischke R.G., C.E.G.
Senior Geologist

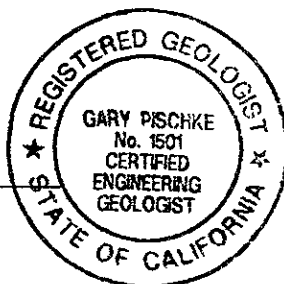


Table 1

SOIL SAMPLE ANALYTICAL RESULTS

Barnhill Construction
 2394 Mariner Square Drive
 Alameda, CA

Sample I.D. #	Sample Date	Depth (feet)	TPHd (mg/kg)	TPHg (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	MTBE (mg/kg)
GP-1@5'	1/30/97	5.0	ND<10	ND<100	ND<1.0	ND<2.0	ND<2.0	ND<4.0	ND<10
GP-2@4'	1/30/97	4.0	ND<10	ND<100	ND<1.0	ND<2.0	ND<2.0	ND<4.0	ND<10
GP-3@4'	1/30/97	4.0	ND<10	ND<100	ND<1.0	ND<2.0	ND<2.0	ND<4.0	ND<10

Notes:

- ID# : Ground water sample identification number.
- Date : Date ground water sample was collected.
- DTW : Depth to water.
- TPHd : Total petroleum hydrocarbons as diesel by EPA Method 3550, equivalent to the CA LUFT manual DHS method.
- TPHg : Total petroleum hydrocarbons as gasoline by EPA Method 8015 (modified).
- BTEX : Benzene, toluene, ethylbenzene and total xylenes by EPA Method 8020.
- MTBE : Methyl-tert-butylether by EPA Method 8020.
- mg/kg : Milograms per kilogram.
- ND : Not detected above the indicated laboratory method detection limit.

Table 2

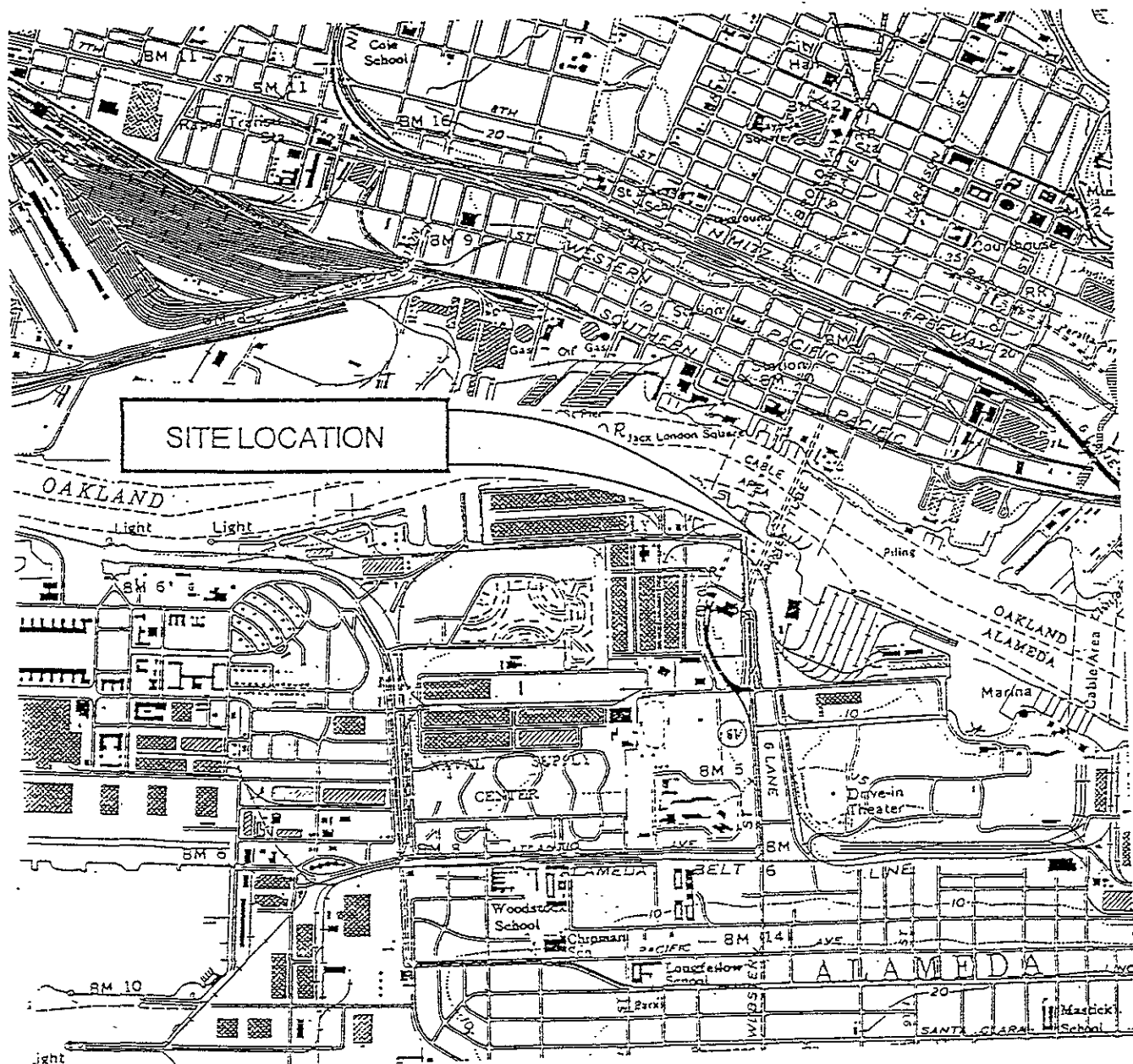
GROUND WATER ELEVATIONS AND SAMPLE ANALYTICAL RESULTS

Barnhill Construction
 2394 Mariner Square Drive
 Alameda, CA

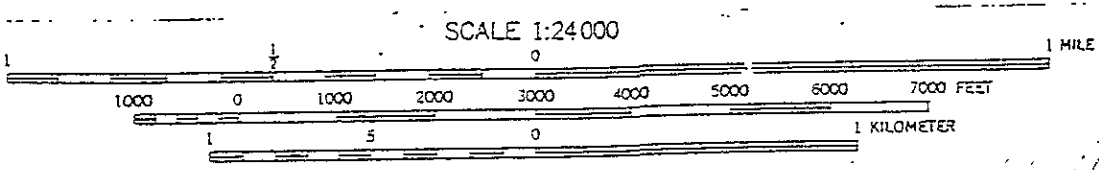
Sample I.D. #	Sample Date	DTW (feet)	TPHd (µg/L)	TPHg (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)
WS-1	1/30/97	4.2	130 (1)	ND<100	ND<0.5	ND<1.0	ND<1.0	ND<2.0	ND<10
WS-2	1/30/97	4.2	150 (1)	ND<100	ND<0.5	ND<1.0	ND<1.0	ND<2.0	ND<10
WS-3	1/30/97	4.1	180 (1)	ND<100	ND<0.5	ND<1.0	ND<1.0	ND<2.0	ND<10
CA Primary MCL (2)			--	--	1	100 (7)	680	1,750	--

Notes:

- ID# : Ground water sample identification number.
- Date : Date ground water sample was collected.
- DTW : Depth to water.
- TPHd : Total petroleum hydrocarbons as diesel by EPA Method 3510, equivalent to CA LUFT manual protocols.
- TPHg : Total petroleum hydrocarbons as gasoline by EPA Method 8015 (modified).
- BTEX : Benzene, toluene, ethylbenzene and total xylenes by EPA Method 8020.
- MTBE : Methyl-tert-butylether by EPA Method 8020.
- µg/L : Micrograms per Liter.
- ND : Not detected above the indicated laboratory method detection limit.
- (1) : Qualitative identification is uncertain. Therefore, all material in the C9 to C22 range was quantified against diesel fuel without respect to pattern. Chromatographic data indicates the presence of material which is heavier than diesel fuel in this sample.
- (2) : Drinking Water Standards, California Department of Health Services, Primary Maximum Contaminant Level (MCL).



SITE LOCATION



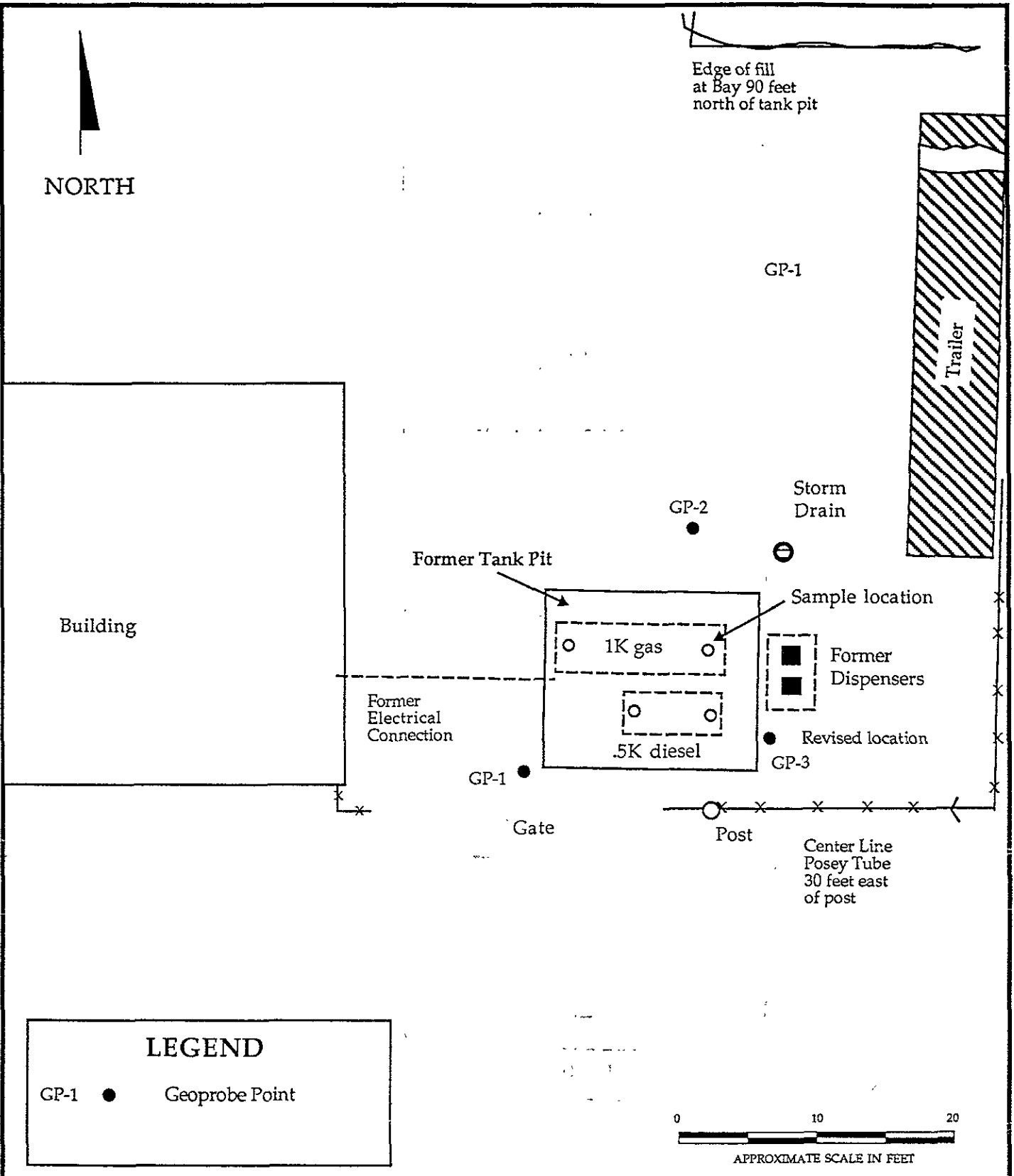
SOURCE: USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)
 TITLED: OAKLAND WEST, CALIF. QUADRANGLE
 PHOTOREVISED 1980



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 ENVIRONMENTAL
 TECHNOLOGIES, INC.

SITE LOCATION MAP
 Barnhill Construction
 2394 Mariner Square Drive
 Alameda, CA

Figure
 1
 7-309 11/96



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TECHN **OLOGIES, INC.**

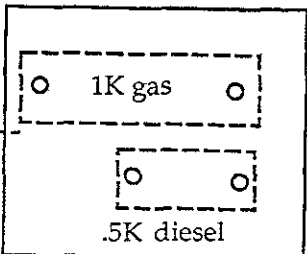
SITE PLAN
 Barnhill Construction
 2394 Mariner Square Drive
 Alameda, California

Figure
2
 7-309 2/97

NORTH

TPHd =ND
TPHg =ND
B =ND
T =ND
E =ND
X =ND
MTBE =ND

GP-2



TPHd =ND
TPHg =ND
B =ND
T =ND
E =ND
X =ND
MTBE =ND

TPHd =ND
TPHg =ND
B =ND
T =ND
E =ND
X =ND
MTBE =ND

GP-1

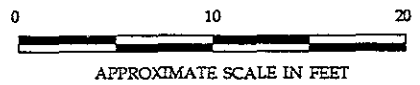
GP-3

LEGEND

GP-1 ● Geoprobe Point.

TPHd =ND
TPHg =ND
B =ND
T =ND
E =ND
X =ND
MTBE =ND

Concentrations of: total petroleum hydrocarbons as gasoline (TPHg), total petroleum hydrocarbons as diesel (TPHd), benzene (B), toluene (T), ethylbenzene (E), total xylenes (X), and methyl-tert-butylether (MTBE) in soil samples collected from borehole - in mg/kg.



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TECHN  **LOGIES, INC.**

**PETROLEUM HYDROCARBON
CONCENTRATIONS IN SOIL**
Barnhill Construction
2394 Mariner Square Drive
Alameda, California

Figure
3
7-309 2/97

NORTH

TPHd = 150
TPHg = ND
B = ND
T = ND
E = ND
X = ND
MTBE = ND

WS-2

1K gas
.5K diesel

WS-3

TPHd = 180
TPHg = ND
B = ND
T = ND
E = ND
X = ND
MTBE = ND

TPHd = 130
TPHg = ND
B = ND
T = ND
E = ND
X = ND
MTBE = ND

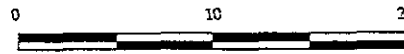
WS-1

LEGEND

WS-1 ● Water sample designation from geoprobe point.

TPHd = 130
TPHg = ND
B = ND
T = ND
E = ND
X = ND
MTBE = ND

Concentrations of: total petroleum hydrocarbons as gasoline (TPHg), total petroleum hydrocarbons as diesel (TPHd), benzene (B), toluene (T), ethylbenzene (E), total xylenes (X), and methyl-tert-butylether (MTBE) dissolved in water samples collected from temporary well - in $\mu\text{g/L}$.



APPROXIMATE SCALE IN FEET

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**PETROLEUM HYDROCARBON
CONCENTRATIONS IN
GROUND WATER**
Barnhill Construction
2394 Mariner Square Drive
Alameda, California

Figure
4

7-309 2/97

SITE SAFETY PLAN

FOR

CLIENT: BARNHILL CONSTRUCTION
SITE: BARNHILL CONSTRUCTION Job No: 7-309
ADDRESS: 2394 MARINEZ SQ DR
ALAMEDA, CA

SCOPE OF WORK (Check all that apply):

- | | | | |
|-------------------------------------|-------------------------------------|-------------------------------|--------------------------|
| Soil Excavation..... | <input type="checkbox"/> | Soil Stockpile Sampling..... | <input type="checkbox"/> |
| Drilling..... | <input checked="" type="checkbox"/> | Monitoring Well Sampling..... | <input type="checkbox"/> |
| Testing | | System Installation | |
| Aquifer..... | <input type="checkbox"/> | Ground Water..... | <input type="checkbox"/> |
| Vapor Extraction..... | <input type="checkbox"/> | Vapor Extraction..... | <input type="checkbox"/> |
| Air Sparging..... | <input type="checkbox"/> | Air Sparging..... | <input type="checkbox"/> |
| System Operation and Maintenance... | <input type="checkbox"/> | | |

PURPOSE AND SCOPE

This Site Safety Plan (SSP) establishes the basic safety guidelines and requirements for the above scope(s) of work at the above site (see Site Location Map - Figure 1). This SSP addresses the expected potential hazards that may be encountered during this project.

The provisions set-forth in this SSP will apply to Hydro-Environmental Technologies, Inc. (HETI) employees and any subcontractors working for HETI at the job site. All personnel working for HETI, including subcontractors, at the job site must read this SSP, and sign the attached Compliance Agreement (Appendix A) before entering the work area.

I. FACILITY BACKGROUND / WORKPLAN

Previous environmental activities reported at the site have included:

- Removal of underground storage tanks (USTs) previously used for gasoline and diesel.
- Sampling of side walls at approximately 4 feet below ground surface from the former tank excavation and ground water grab sample. Both diesel and gasoline were detected in the ground water sample.
- Backfilling of the excavation area.
- Ground water was reportedly encountered in the bottom of the tank pit at approximately 5 feet, and is tidally influenced.

In order to meet Regional Water Quality Control Board (RWQCB) and ACEHS requirements, additional steps leading to closure are needed. The approach will evaluate the presence of hydrocarbons in soil and ground water adjacent to the former tank excavation. One geoprobe point will be installed ten feet downgradient of the excavation (Figure 2). Two other points will be placed to evaluate the extent of hydrocarbons towards the south and west.

Proposed Scope of Work

HETI proposes to conduct the work in activities which will fulfill Regional Board and ACDEH requirements as follows:

Task 1: Project Plans

A site specific health and safety plan will be prepared. This activity includes application for and acquisition of Zone 7 permits for geoprobe installation. A permit application will be submitted to Caltrans for drilling over the Posey Tube.

Task 2: Drilling, Soil Sampling, and Well Installation

After the permit applications have been approved, we will drill three geoprobe soil boring to 15 feet, and convert the borings into a 1 inch diameter temporary well points. During drilling, soil samples will be obtained every five feet of boring, or at change of soil type. These samples will be screened with a field organic vapor meter. A minimum of one sample in the boring will be analyzed in a State of California laboratory for Total Petroleum Hydrocarbons as gasoline (TPHg), Total Petroleum Hydrocarbons as diesel (TPHd), and Benzene, Toluene, Ethyl benzene and Total Xylenes (BTEX).

Geoprobe drilling and ground water sampling will take place over a one day period during which time traffic on site will be restricted but not prohibited entirely.

Ground water samples will be taken from each temporary casing and analyzed for TPHg, TPHd, and BTEX. Prior to sampling, the depth to ground water will be measured in the well and the presence of free phase floating hydrocarbons, if any will be noted.

II KEY SAFETY PERSONNEL AND RESPONSIBILITIES

All personnel working for HETI at the job site are responsible for project safety. Specific individual responsibilities are listed below:

Project Manager: GARY FISCHER

The Project Manager is responsible for preparation of this SSP. He/she has the authority to provide for the auditing of compliance with the provisions of this SSP, suspend or modify work practices, and to report to the Regional Manager any individuals whose conduct does not meet the provisions presented in this SSP. The Project Manager can be reached at (510) 521-2684.

Site Safety Officer: FRANCES MATON

The Site Safety Officer (SSO) is responsible for the dissemination of the information contained in this SSP to all HETI personnel working at the job site, and to the responsible representative(s) of each subcontractor firm working for HETI at the job site.

The SSO is responsible for ensuring the following items are adequately addressed:

- Inspection of tools, drilling equipment and safety equipment
- Safety supplies & equipment inventory
- Site-specific training/hazard communication
- Accident/incident reporting
- Decontamination/contamination reduction procedures

The Site Safety Officer shall be responsible to take necessary steps to ensure that employees are protected from physical hazards, which could include;

- Falling objects such as tools or equipment
- Falls from elevations
- Tripping over hoses, pipes, tools, or equipment
- Slipping on wet or oily surfaces
- Insufficient or faulty protective equipment
- Insufficient or faulty operations, equipment, or tools
- Noise

The SSO has the authority to suspend work anytime he/she determines the safety provisions set-forth in this SSP are inadequate to ensure worker safety. The SSO or Project Manager must be present during all phases of the site work.

SSO Pager Number: (800) 908-3158

III. JOB HAZARD ANALYSIS / SITE CHARACTERIZATION

CHEMICAL HAZARDS:

The hazardous chemicals which may be encountered at the site are petroleum hydrocarbons, including benzene, toluene, ethylbenzene, and xylene. A summary of relevant chemical, physical and toxicological properties for each chemical hazard is discussed below:

Benzene: Colorless liquid with an aromatic odor.
Vapor pressure 75 mm Hg @ 68 °F
Flash point 12 °F
Hazard classification flammable liquid
Permissible exposure limit (PEL) 1.0 ppm
Benzene is recognized by the National Institute of Occupational Safety and Health (NIOSH) as a potential human carcinogen.
Recommended exposure limit (NIOSH) 0.1 ppm

Benzene can enter the body through all four routes of exposure: (1) inhalation; (2) adsorption; (3) ingestion; and (4) injection. Target organs are the blood, central nervous system, skin, bone marrow, eyes, and respiratory system. Acute exposure effects include irritation of the eyes, nose, and respiratory system as well as headache, nausea, staggered gait, depression, and abdominal pain. The chronic effect of over-exposure is the potential for cancer.

Toluene: Colorless liquid with an aromatic odor.
Vapor pressure 22 mm Hg @ 68 °F
Flash point 40 °F
Hazard classification flammable liquid
Permissible exposure limit (PEL) 100 ppm

Toluene can enter the body through all four routes of exposure: (1) inhalation; (2) adsorption; (3) ingestion; and (4) injection. Target organs are the central nervous system, liver, kidneys, and skin. Acute exposure effects include fatigue, dizziness, headache, euphoria, dilated pupils, paralysis.

Ethylbenzene: Colorless liquid with an aromatic odor.
Vapor pressure 7.1 mm Hg @ 68 °F
Flash point 55 °F
Hazard classification flammable liquid
Permissible exposure limit (PEL) 100 ppm

Ethylbenzene can enter the body through all four routes of exposure: (1) inhalation; (2) adsorption; (3) ingestion; and (4) injection. Target organs are the eyes, upper respiratory system, skin

and central nervous system. Acute exposure effects include irritation of the eyes and mucous membranes, nose, and respiratory system as well as headache, nausea, staggered gait, headache, dermatitis, narcosis and coma.

Xylenes:

Colorless liquid with an aromatic odor.

Vapor pressure

8 mm Hg @ 68 °F

Flash point

63° F to 81 °F

Hazard classification

flammable liquid

Permissible exposure limit (PEL)

100 ppm

Xylenes can enter the body through all four routes of exposure: (1) inhalation; (2) adsorption; (3) ingestion; and (4) injection. Target organs are the central nervous system, eyes, gastrointestinal tract, blood, liver, kidneys and skin. Acute exposure effects include dizziness, excitement, drowsiness, incoordination, abdominal pain, vomiting, and irritation of the eyes, nose and throat.

Other Potentially Hazardous Chemicals:

Vapor pressure _____ mm Hg @ 68 °F

Flash point _____ °F

Hazard classification _____

Permissible exposure limit (PEL) _____ ppm

Potential carcinogen

Potential exposure routes:

inhalation adsorption ingestion injection

Exposure effects include: _____

The controls to limit potential for exposure to the above chemical hazards is addressed below:

- o Inhalation of contaminants will be controlled by SEE SECTION V

- o Ingestion of contaminants will be controlled by prohibiting eating, drinking, smoking, and chewing in the work area. In addition, workers shall wash their hands and face before engaging in any of the above activities.
- o Absorption of contaminants will be controlled by See section VI

- o Injection of contaminants will be controlled by wearing work gloves in the work area.

FIRE HAZARDS:

The potential for fire or explosion exists whenever flammable liquids or vapors are present above lower explosions limit (LEL) concentrations and sufficient oxygen is present to support combustion. These potential fire hazards are addressed below:

- o The potential exists for petroleum hydrocarbon vapors to exceed LEL concentrations within the wells. However, well-gas generally does not contain sufficient oxygen to support combustion.
- o Other potential fire hazards associated with the scope of work have been mitigated by: N/A

- o In addition to the above, the HETI truck shall have an operative fire extinguisher on board. All personnel shall be familiar with its location and use.

ELECTRICAL HAZARDS:

The potential electrical hazards expected on the job site are addressed below:

- o Expected voltages: N/A
- o No electrical enclosures will be opened unless power is disconnected. Power will be verified disconnected with a meter prior to working on any circuits.

PHYSICAL HAZARDS:

The potential physical hazards expected at the job site are addressed below:

- o The potential for physical injury exists from the operation of moving equipment such as drill rigs, forklifts and trucks. Use of steel toe boots, hard hats, and safety glasses will be required when in the work area. Backup alarms are required on all trucks and forklifts.
- o The potential for physical injury exists from public traffic on the site. The site is is not open to public vehicles. Work will will not be performed in the public right-of-way. If work is performed in the public right-of-way, orange vests shall be worn, a traffic control plan is attached and an encroachment permit from the appropriate government agency shall be obtained.
- o The potential for burns from hot surfaces exist from the operation of an internal combustion engine , an air compressor . Compressed air piping is hot. All hot surfaces shall be allowed to cool and/or be handled with thick cloth work gloves.
- o The potential for noise hazards exist at the site from the operation of A
GEOPROBE DRILL RIG.
It is not expected that noise levels will exceed the acceptable CAL-OSHA permissible exposure level of 90 dB. However, workers should be aware of the presence of these hazards and take steps to avoid them. Ear / noise protection, though not required, shall be available to all personnel within the job site in the event noise levels exceed worker comfort or protection levels.
- o Personnel should be cognizant of the fact that when protective equipment such as respirators, gloves, and/or protective clothing are worn, visibility, hearing, and manual dexterity are impaired.

HEAT STRESS:

The anticipated weather conditions will be: PARTLY SUNNY, 70-80'S F

The potential for heat stress is present if the temperature exceeds 80°F. Some signs and symptoms of heat stress are presented below:

- Heat rash may result from continuous exposure to heat or humid air.
- Heat cramps are caused by heavy sweating with inadequate electrolyte replacement. Signs and symptoms include: muscle spasms, heavy sweating, dizziness, nausea and fainting.
- Heat exhaustion occurs from increased stress on various body organs including inadequate blood circulation due to cardiovascular insufficiency or dehydration. Signs and symptoms include: pale, cool, moist skin; heavy sweating; dizziness; nausea and fainting.

- Heat stroke is the most serious form of heat stress. Temperature regulation fails and the body temperature rises to critical levels. Immediate action must be taken to cool the body before serious injury and death occurs. Competent medical help must be obtained. Signs and symptoms are: red, hot, unusually dry skin; lack of or reduced perspiration; nausea; dizziness and confusion; strong, rapid pulse and coma.

Preventing heat stress is particularly important because once someone suffers from heat stroke or heat exhaustion, that person may be predisposed to additional heat injuries. To avoid heat stress the following steps shall be taken whenever the ambient temperature is over 80 °F:

- 1) Field personnel shall have a work/rest cycle of 2 hours work, 15 minutes rest.
- 2) The Site Safety Officer shall mandate work slowdowns as needed.

IV. JOB HAZARD SUMMARY

In summary, the expected potential hazards to personnel working in the work area are (Check all that apply):

- | | |
|---|-------------------------------------|
| (1) Over exposure to chemical contaminants | <input checked="" type="checkbox"/> |
| (2) Physical injury from equipment being operated at job site | <input checked="" type="checkbox"/> |
| (3) Public traffic | <input checked="" type="checkbox"/> |
| (4) Hot surfaces | <input type="checkbox"/> |
| (5) Heat stress | <input type="checkbox"/> |
| (6) Fire | <input type="checkbox"/> |
| (7) Electrical shock | <input type="checkbox"/> |
| (8) Other | <input type="checkbox"/> |

As described in Section III - Job Hazard Analysis, these potential hazards have been mitigated for the protection of both the worker health and safety. The proposed work does not appear to present any potential health risk to workers, the surrounding community, or the environment.

V. EXPOSURE MONITORING PLAN

Periodic monitoring for organic vapors is is not required. The Site Safety Officer shall monitor the ambient air in the work area with an organic vapor photoionization meter (Thermo Environmental Model 580B OVM, or equivalent) should their presence be detected by odor. If the meter indicates petroleum

hydrocarbon concentrations in the area exceed 300 ppm, the Site Safety Officer shall require personnel in the work area to wear respirators with organic vapor cartridges (MSA 464046, or equivalent).

The manufacturer's calibration procedures for the Model 580B OVM are located within the instrument case. Field calibration shall be performed daily during use.

All personnel working for HETI at the job site shall be monitored for heat stress. Because workers at the job site are expected to be wearing permeable clothing (e.g. standard cotton or synthetic work clothes), monitoring for heat stress will consist of personnel constantly observing each other for any of the heat stress symptoms discussed in Section III.

Field personnel shall be cautioned to inform each other of non-visual effects of the presence of toxins, such as: headaches, dizziness, nausea, blurred vision, cramps, irritation of eyes, skin, or respiratory tract, changes in complexion or skin discoloration, changes in apparent motor coordination, changes in personality or demeanor, excessive salivation or changes in pupillary response or changes in speech ability or pattern.

VI. PERSONAL PROTECTIVE EQUIPMENT

Level D personal protection equipment is expected to be the highest protective level required to complete the field activities for this project. Modified Level C protection may also be required at the discretion of the Site Safety Officer. The following lists summarize the personal protective equipment that shall be available to all field personnel working in the work area:

Level D Protection (shall be worn at all times)

- Boots, steel toe
- Safety glasses, chemical splash goggles, or face shield
- Hard hat
- Work gloves required optional
- Long leg trousers
- Long sleeves required optional

Modified Level C Protection (available at all times.)

- Half-face air purifying respirator with organic vapor cartridges to be used should organic vapor concentrations exceed 300 ppm as discussed in Section V of this SSP.
- Hearing protection

VII. SITE CONTROL

The exclusion, contamination reduction, and support zones are shown in Figure 2. these zones shall be marked with natural barriers, cones or tape as appropriate. Personnel without the proper training, personal protective equipment or who have not agreed to follow this SSP shall not be allowed into the exclusion or contamination reduction zones.

VIII. DECONTAMINATION MEASURES

Field personnel shall wash hands and face before entering a clean area. Additional decontamination measures are discussed under General Safe Work Practices (section IX).

IX. GENERAL SAFE WORK PRACTICES

The project operations shall be conducted with the following minimum safety requirements employed:

- Eating, drinking, and smoking shall be restricted to a designated support zone.
- All personnel shall wash hands and face before eating, drinking, or smoking.

X. SANITATION

The location of the nearest running water source and toilet is ON-SITE

A portable potable water cooler or other source of drinking water shall be maintained on site.

XI. STANDARD OPERATING PROCEDURES

The following HETI protocols apply to this scope of work:

- | | |
|--|-------------------------------------|
| Drilling, Well Construction and Sampling Protocols | <input checked="" type="checkbox"/> |
| Soil Vapor Extraction Protocol | <input type="checkbox"/> |
| Air sparging Protocol | <input type="checkbox"/> |

XII EMERGENCY RESPONSE PLAN

In the event of an accident resulting in physical injury, first aid will be administered and the injured worker will be transported to

ALAMEDA HOSPITAL, 2070 CLINTON

In the event of a fire or explosion, local fire or response agencies will be called by dialling 9-1-1. The Project Manager shall also be notified.

Emergency Telephone Numbers:

Fire and Police..... 911

Hospital (510) 523-4357

Directions to Hospital: See Figure 3

Turn Right at Webster Square Loop S/C cont.
TRAVEL SOUTH ON MARINE SQ DEPTO WEBSTER ST. CONTINUE SOUTH ON WEBSTER TO CENTRAL AVE. TURN LEFT (EAST) ON TO CENTRAL AVE. TRAVEL EAST ON CENTRAL TO EUCAL BEAR RIGHT ON TO EUCAL, TURN RIGHT ON TO ~~WILLOW~~ ^{WILLOW} AVE. HOSPITAL IS THREE BLOCKS ON THE RIGHT.

A fire extinguisher, located in the HETI vehicle will be located on-site during all installation, testing and servicing activities.

Additional Contingency Telephone Numbers:

HETI..... (510) 521-2684

All cases where an accident has occurred will require filling out an incident / accident report and submitting it within 48 hours of the accident.

XIII. TRAINING REQUIREMENTS

All site personnel will be required to have completed the 40 hours of basic OSHA-SARA training for personnel assigned to hazardous waste sites in compliance with OSHA Standard 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response, and all are required to participate in the annual OSHA-SARA 8-hour refresher courses.

XIV. MEDICAL SURVEILLANCE PROGRAM

HETI personnel and subcontractors engaged in field operations shall be participants in their company Medical Surveillance program, and must be cleared by the examining physician(s) to wear respiratory protection devices and protective clothing for working with hazardous materials. The applicable requirements under California Administrative Code (CAC) Title 8, Section 5216, which is available at the HETI office

for review, shall be observed. Project-specific medical surveillance is is not required.

XV. DOCUMENTATION

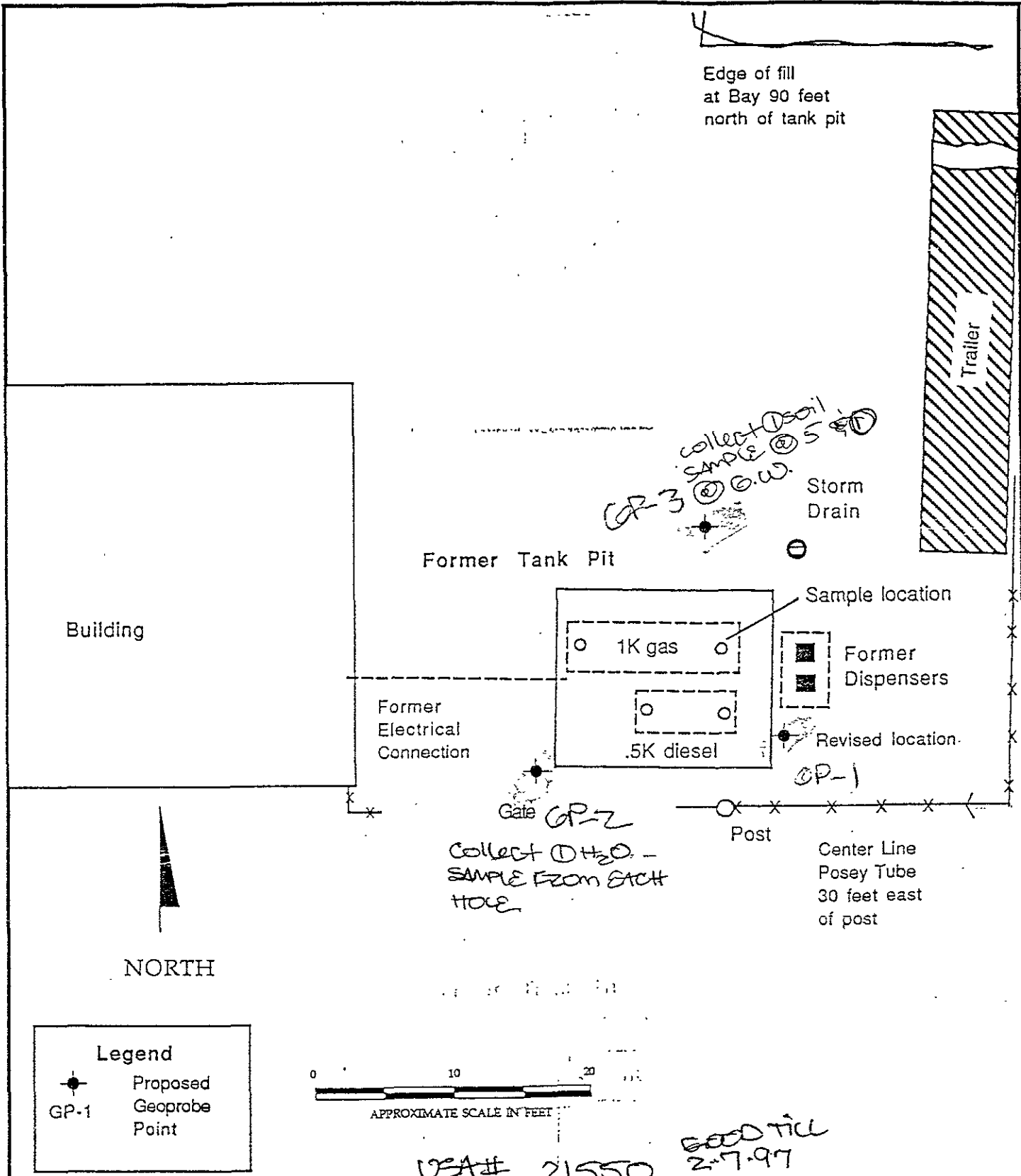
All personnel shall sign the compliance agreement (Appendix A).

Daily documentation shall be provided by a daily log, completed by the Site Safety Officer in his/her field notebook. The Site Safety Officer shall record the names of all personnel working for HETI and any site visitor(s). (S)he shall also record accidents, illness and other safety related matters. In the case of an accident, or injury, during field operations, (s)he will prepare and submit an Incident/Accident Report.

In case air monitoring is implemented, OVM readings (including times) shall be recorded in the daily log.

SSP prepared by: FRANCO MATEOS Date: 1.17.97

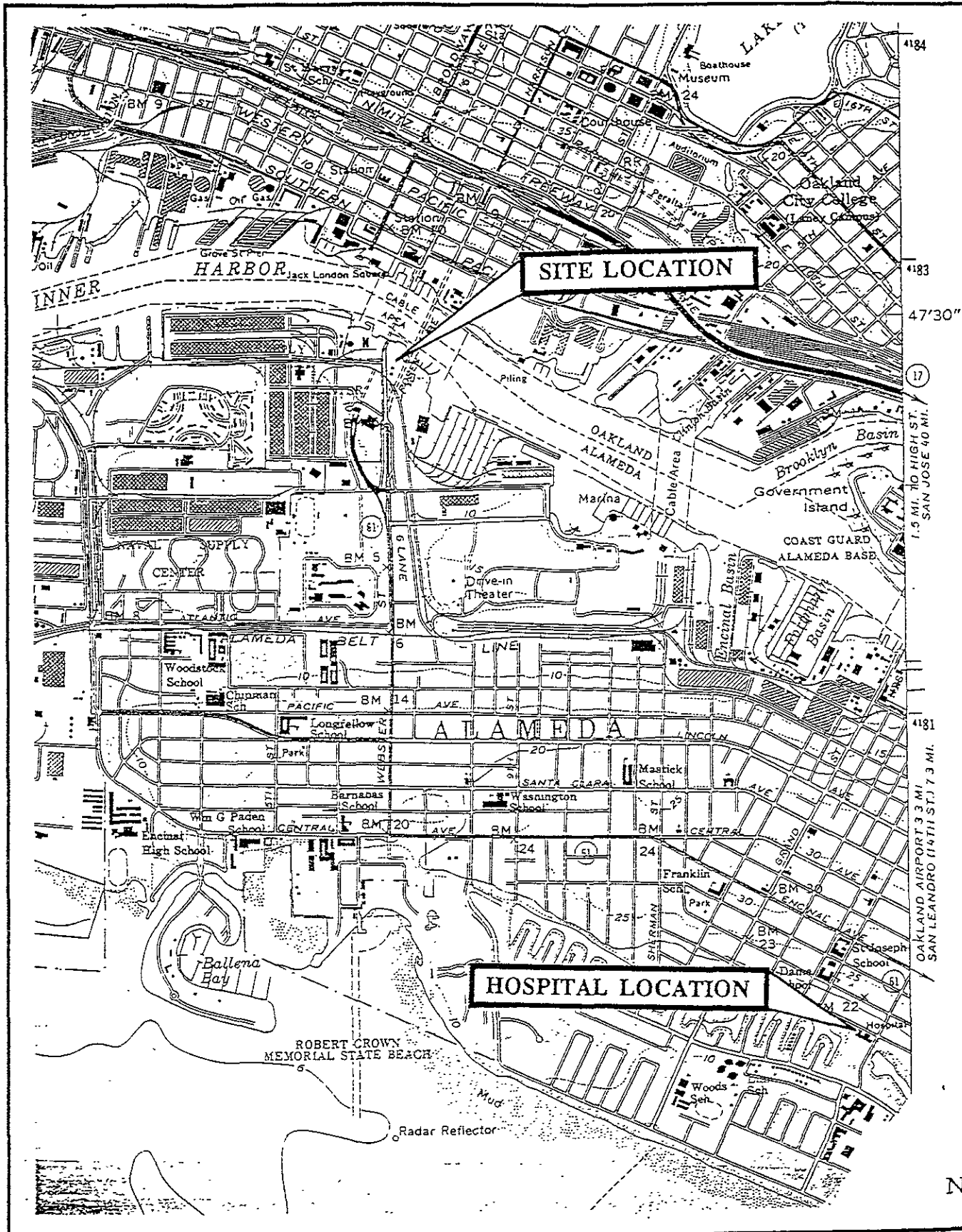
SSP Approved by: [Signature] Date: 1/20/97
Project Manager



**HYDR-
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SITE PLAN
Barnhill Construction
2394 Mariner Square Drive
Alameda, California

Figure
2
7-309 1/97 r



HYDR -
 ENVIR AMENTAL
 TECHN A LOGIES, INC.

HOSPITAL LOCATION MAP
 Barnhill Construction
 2394 Mariner Square Drive
 Alameda, California

Figure
 3
 7-309 1/97



ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE

PLEASANTON, CALIFORNIA 94588

VOICE (510) 484-2600

FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT 2394 Mariner Square Dr
Alameda, Calif.

PERMIT NUMBER 96848

LOCATION NUMBER _____

CLIENT

Name Barnhill Construction
Address 2394 Mariner Sq. Dr. Phone 523-7270
City Alameda Zip 94501

PERMIT CONDITIONS

Circled Permit Requirements Apply

APPLICANT

Name Hydro Environmental Tech.
Address 2394 Mariner Sq. Dr. Phone 521-2684
City Alameda Zip 94501

TYPE OF PROJECT

Well Construction	_____	Geotechnical Investigation	_____
Cathodic Protection	_____	General	_____
Water Supply	_____	Contamination	_____
Monitoring	<u>X</u>	Well Destruction	_____

PROPOSED WATER SUPPLY WELL USE

Domestic	_____	Industrial	_____	Other	_____
Municipal	_____	Irrigation	_____		

DRILLING METHOD:

Mud Rotary _____ Air Rotary _____ Auger _____
Cable _____ Other geoprobe

DRILLER'S LICENSE NO. C57 695970

WELL PROJECTS

Drill Hole Diameter	<u>1.5</u> in.	Maximum	
Casing Diameter	<u>1</u> in.	Depth	<u>15</u> ft.
Surface Seal Depth	_____ ft.	Number	<u>3</u>

GEOTECHNICAL PROJECTS

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

ESTIMATED STARTING DATE 12/4
ESTIMATED COMPLETION DATE 12/4

A. GENERAL

1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER WELLS, INCLUDING PIEZOMETERS

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. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

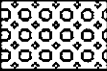








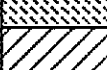
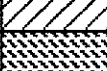




D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

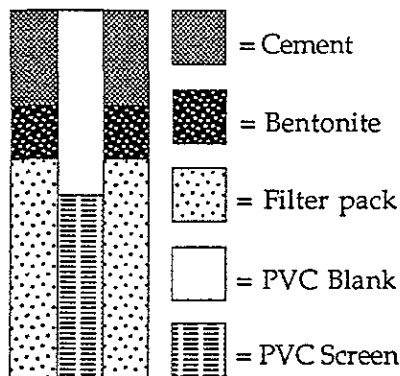
I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

Approved Wyman Hong Date 3 Dec
Wyman Hong

UNIFIED SOIL CLASSIFICATION SYSTEM - VISUAL CLASSIFICATION OF SOILS (ASTM D-2488)

MAJOR DIVISIONS		GROUP SYMBOL	GROUP NAME	DESCRIPTION	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS		GW	Well-graded gravel Well-graded gravel with sand	Well-graded gravels or gravel-sand mixtures, little or no fines.
			GP	Poorly-graded gravel Poorly-graded gravel with sand	Poorly-graded gravels or gravel sand mixture, little or no fines.
			GM	Silty gravel Silty gravel with sand	Silty gravels, gravel-sand-silt mixtures.
			GC	Clayey gravel Clayey gravel with sand	Clayey gravels, gravel-sand-clay mixtures.
	SAND AND SANDY SOILS		SW	Well-graded sand Well-graded sand with gravel	Well-graded sands or gravelly sands, little or no fines.
			SP	Poorly-graded sand Poorly-graded sand with gravel	Poorly-graded sands or gravelly sands, little or no fines.
			SM	Silty sand Silty sand with gravel	Silty sands, sand-silt mixtures.
			SC	Clayey sand Clayey sand with gravel	Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS	SILTS AND CLAYS		ML	Silt; Silt with sand; Silt with gravel; Sandy silt; Sandy silt with gravel; Gravelly silt; Gravelly silt with sand	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
			CL	Lean clay; Lean clay with sand; Lean clay with gravel Sandy lean clay; Sandy lean clay with gravel Gravelly lean clay; Gravelly lean clay with sand	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
	ELASTIC SILTS AND CLAYS		MH	Elastic silt; Elastic silt with sand; Elastic silt with gravel Sandy elastic silt; Sandy elastic silt with gravel Gravelly elastic silt; Gravelly elastic silt with sand	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
			CH	Fat clay; Fat clay with sand; Fat clay with gravel Sandy fat clay; Sandy fat clay with gravel Gravelly fat clay; Gravelly fat clay with sand	Inorganic clays of high plasticity, fat clays.
HIGHLY ORGANIC SOILS			OL/OH	Organic soil; Organic soil with sand; Organic soil with gravel Sandy organic soil; Sandy organic soil with gravel Gravelly organic soil; Gravelly organic soil with sand	Organic silts and organic silt-clays of low plasticity Organic clays of medium to high plasticity.
			Pt	Peat	Peat and other highly organic soils.
BEDROCK			Br	Bedrock	Igneous, metamorphic and sedimentary rocks

WELL CONSTRUCTION DETAILS



NOTE: Blow count represents the number of blows of a 140-lb hammer falling 30 inches per blow required to drive a sampler through the last 12 inches of an 18-inch penetration.

No warranty is provided as to the continuity of soil strata between borings. Logs represent the soil section observed at the boring location on the date of drilling only.

S = Sampler sank into medium under the weight of the hammer (no blow count)
 P = Sampler was pushed into medium by drilling rig (no blow count)
 NR = No Recovery

S-3 = Denotes that sample was sent for laboratory analysis.



Approximate first encountered water level

Approximate stabilized water level

Retained for (MW-1-7.5) Analysis



SANDS & GRAVELS	BLOWS/FT
VERY LOOSE	0 - 5
LOOSE	5 - 12
MED. DENSE	12 - 37
DENSE	37 - 62
VERY DENSE	OVER 62

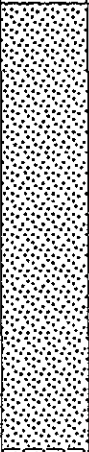
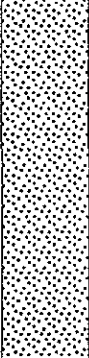

SILTS & CLAYS	BLOWS/FT
SOFT	0 - 5
FIRM	5 - 10
STIFF	10 - 20
VERY STIFF	20 - 40
HARD	OVER 40

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**SOIL BORING AND
WELL CONSTRUCTION LOG
LEGEND**

**APPENDIX B
PLATE
B-1**

SITE/LOCATION Barnhill, Alameda		BEGUN 1/30/97	BORING DIAMETER 4 Inches	ANGLE/BEARING 90°	BORING NO. GP-1
DRILLING CONTRACTOR Gregg Drilling		COMPLETED 1/30/97	FIRST ENCOUNTERED WATER DEPTH 4.2 feet		BOTTOM OF BORING 10 feet
DRILL MAKE & MODEL Geoprobe	OPERATOR P. Rogers	LOGGED BY F. Maroni	STATIC WATER DEPTH/DATE 4.2 feet		WELL NO. N/A
WELL MATERIAL N/A	SLOT SIZE N/A	SAMPLING METHOD Geoprobe with 2 ft Teflon Tubes			BOTTOM OF WELL N/A
FILTER PACK N/A	WELL SEAL 5% Bentonite grout				PLANNED USE Exploration

BLOWS/ FOOT	PID FIELD HEADSPACE (ppm)	DEPTH	SAMPLE	WATER LEVEL	WELL CONSTR.	GRAPHIC LOG	MATERIAL CLASSIFICATION & PHYSICAL DESCRIPTION
	ATM: 0.5	1					SAND (SW); Light Brown, well graded, medium to fine grained, loose density, angular to subrounded, moist to wet.
		2					
		3					SAND (SW); Grey, well graded, fine grained, loose, subangular to subrounded, trace silt, wet.
		4					
	0.0	5					
		6					
		7					
		8					
		9					
		10					
		11					BOTTOM OF BORING = 10 FEET BGS.
		12					
		13					
		14					
		15					

HYDR ENVIR TECHN LOGIES, INC.	SOIL BORING LOG GP-1 Barnhill Construction 2394 Mariner Square Drive Alameda, CA	PLATE B-2 SHEET 1 OF 1
	DATE: 2/17/97 APPROVED BY: Gary Pischke, C.E.G.	JOB NO. 7-309



SITE/LOCATION Barnhill, Alameda		BEGUN 1/30/97	BORING DIAMETER 4 Inches	ANGLE/BEARING 90°	BORING NO GP-2
DRILLING CONTRACTOR Gregg Drilling		COMPLETED 1/30/97	FIRST ENCOUNTERED WATER DEPTH 4.2 feet		BOTTOM OF BORING 10 feet
DRILL MAKE & MODEL Geoprobe	OPERATOR P. Rogers	LOGGED BY F. Maroni	STATIC WATER DEPTH/DATE 4.2 feet		WELL NO. N/A
WELL MATERIAL N/A	SLOT SIZE N/A	SAMPLING METHOD Geoprobe with 2 ft Teflon tube			BOTTOM OF WELL N/A
FILTER PACK N/A	WELL SEAL 5% Bentonite grout				PLANNED USE Exploration

BLOWS/ FOOT	PID FIELD HEADSPACE (ppm)	DEPTH	SAMPLE	WATER LEVEL	WELL CONSTR.	GRAPHIC LOG	MATERIAL CLASSIFICATION & PHYSICAL DESCRIPTION
	ATM: 0.5	1					
		2					
		3					
0.5		4					SAND (SW); Light Brown, well graded, medium to fine grained, medium to loose dense, subangular to subrounded, moist to wet.
		5					
		6					SAND (SW); Grey, well graded, fine grained, subangular to subrounded, wet.
		7					
		8					
		9					
		10					
		11					BOTTOM OF BORING = 10 FEET BGS.
		12					
		13					
		14					
		15					

HYDR ENVIR TECHN LOGIES, INC.	SOIL BORING LOG GP-2	PLATE B-3
	Barnhill Construction 2394 Mariner Square Drive Alameda, CA	SHEET 1 OF 1
DATE: 2/17/97		JOB NO. 7-309
APPROVED BY: Gary Pischke, C.E.G.		

SITE/LOCATION Barnhill, Alameda		BEGUN 1/30/97	BORING DIAMETER 4 Inches	ANGLE/BEARING 90°	BORING NO GP-3
DRILLING CONTRACTOR Gregg Drilling		COMPLETED 1/30/97	FIRST ENCOUNTERED WATER DEPTH 4.1 feet		BOTTOM OF BORING 10 feet
DRILL MAKE & MODEL Geoprobe	OPERATOR P. Rogers	LOGGED BY F. Maroni	STATIC WATER DEPTH/DATE 4.1 feet		WELL NO. N/A
WELL MATERIAL N/A	SLOT SIZE N/A	SAMPLING METHOD Geoprobe with 2 ft Teflon tubes			BOTTOM OF WELL N/A
FILTER PACK N/A	WELL SEAL 5% Bentonite grout				PLANNED USE Exploration

BLOWS/ FOOT	PID FIELD HEADSPACE (ppm)	DEPTH	SAMPLE	WATER LEVEL	WELL CONSTR.	GRAPHIC LOG	MATERIAL CLASSIFICATION & PHYSICAL DESCRIPTION
	ATM: 0.5	1					<p>SAND (SW); Light Brown, well graded, medium to fine grained, medium to loose dense, subangular to subrounded, moist to wet.</p> <p>As above; Grey mottling noted.</p>
		2					
		3					
0.5		4		▽▽			
		5					
		6					
		7					
		8					
		9					
		10					
		11				<p>BOTTOM OF BORING = 10 FEET BGS.</p>	
		12					
		13					
		14					
		15					

HYDR - ENVIR  NMENTAL TECHN  LOGIES, INC.	SOIL BORING LOG GP-3 Barnhill Construction 2394 Mariner Square Drive Alameda, CA	PLATE B-4
		SHEET 1 OF 1
DATE: <u>2/17/97</u>		JOB NO. 7-309
APPROVED BY: Gary Pischke, C.E.G.		

ANALYTICAL RESULTS
Total Petroleum Hydrocarbons By GC

NEI/GTEL Client ID: HYE01HYE01
Login Number: W7010432
Project ID (number): 7-309
Project ID (name): BARNHILL/ALAMEDA/CA

Method: GC
Matrix: Aqueous

NEI/GTEL Sample Number	W7010432-01	W7010432-02	W7010432-03	--
Client ID	WS-1	WS-2	WS-3	--
Date Sampled	01/30/97	01/30/97	01/30/97	--
Date Prepared	02/04/97	02/04/97	02/04/97	--
Date Analyzed	02/09/97	02/09/97	02/09/97	--
Dilution Factor	1.00	1.00	1.00	--

Analyte	Reporting		Concentration:		
	Limit	Units			
TPH as Diesel	50	ug/L	130	150	180

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

GC:

Extraction by EPA Method 3510 (liquid/liquid). ASTM Method D3328(modified) is used for qualitative identification of fuel patterns. The method has been modified to include quantitation by applying calibration and quality assurance guidelines outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods", SW-846, Third Edition including promulgated Update 1. This method is equivalent to California State Water Resources Board LUFT Manual protocols, May 1988 revision.

W7010432-01:

The material present is qualitatively uncertain. Therefore, all material in the C9 to C22 range was quantitated against diesel fuel without respect to pattern. Chromatographic data indicates the presence of material, which is heavier than diesel fuel, in this sample.

W7010432-02:

The material present is qualitatively uncertain. Therefore, all material in the C9 to C22 range was quantitated against diesel fuel without respect to pattern. Chromatographic data indicates the presence of material, which is heavier than diesel fuel, in this sample.

W7010432-03:

The material present is qualitatively uncertain. Therefore, all material in the C9 to C22 range was quantitated against diesel fuel without respect to pattern. Chromatographic data indicates the presence of material, which is heavier than diesel fuel, in this sample.

ANALYTICAL RESULTS
Total Petroleum Hydrocarbons By GC

NEI/GTEL Client ID: HYE01HYE01
 Login Number: W7010432
 Project ID (number): 7-309
 Project ID (name): BARNHILL/ALAMEDA/CA

Method: GC
 Matrix: Solids

NEI/GTEL Sample Number	W7010432-04	W7010432-05	W7010432-06	--
Client ID	GP-1@5'	GP-2@4'	GP-3@4'	--
Date Sampled	01/30/97	01/30/97	01/30/97	--
Date Prepared	02/03/97	02/03/97	02/03/97	--
Date Analyzed	02/12/97	02/09/97	02/09/97	--
Dilution Factor	1.00	1.00	1.00	--

Analyte	Reporting		Concentration:Wet Weight			--
	Limit	Units	< 10	< 10	< 10	
TPH as Diesel	10	mg/kg	< 10	< 10	< 10	--
Percent Solids	--	%	83.1	82.7	84.7	--

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

GC:

Extraction by EPA Method 3550 (sonication). ASTM Method D3328(modified) is used for qualitative identification of fuel patterns. The method has modified to include quantitation by applying calibration and quality assurance guidelines outlined in "Test Methods for Evaluating Solid Waste. Physical/Chemical Methods", SW-846, Third Edition including promulgated Update 1. This method is equivalent to the California LUFT manual DHS method for diesel fuel.

ANALYTICAL RESULTS
Volatile Organics

NEI/GTEL Client ID: HYE01HYE01
 Login Number: W7010432
 Project ID (number): 7-309
 Project ID (name): BARNHILL/ALAMEDA/CA

Method: EPA 8020A
 Matrix: Aqueous

NEI/GTEL Sample Number	W7010432-01	W7010432-02	W7010432-03	--
Client ID	WS-1	WS-2	WS-3	--
Date Sampled	01/30/97	01/30/97	01/30/97	--
Date Analyzed	02/03/97	02/03/97	02/03/97	--
Dilution Factor	1.00	1.00	1.00	--

Analyte	Reporting		Concentration:			
	Limit	Units				
MTBE	10	ug/L	< 10	< 10	< 10	--
Benzene	0.5	ug/L	< 0.5	< 0.5	< 0.5	--
Toluene	1.0	ug/L	< 1.0	< 1.0	< 1.0	--
Ethylbenzene	1.0	ug/L	< 1.0	< 1.0	< 1.0	--
Xylenes (total)	2.0	ug/L	< 2.0	< 2.0	< 2.0	--
TPH as Gas	100	ug/L	< 100	< 100	< 100	--

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 8020A:

Gasoline range hydrocarbons (TPH) quantitated by GC/FID with purge and trap and modified EPA Method 8015. Analyte list modified to include additional compounds. "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition including promulgated Update II.

ANALYTICAL RESULTS
Volatile Organics

NEI/GTEL Client ID: HYE01HYE01
 Login Number: W7010432
 Project ID (number): 7-309
 Project ID (name): BARNHILL/ALAMEDA/CA

Method: EPA 8020A
 Matrix: Low Soil

NEI/GTEL Sample Number	W7010432-04	W7010432-05	W7010432-06	--
Client ID	GP-105'	GP-204'	GP-304'	--
Date Sampled	01/30/97	01/30/97	01/30/97	--
Date Analyzed	02/03/97	02/03/97	02/03/97	--
Dilution Factor	1.00	1.00	1.00	--

Analyte	Reporting		Concentration:Wet Weight			
	Limit	Units				
MTBE	10	ug/kg	< 10	< 10	< 10	--
Benzene	1.0	ug/kg	< 1.0	< 1.0	< 1.0	--
Toluene	2.0	ug/kg	< 2.0	< 2.0	< 2.0	--
Ethylbenzene	2.0	ug/kg	< 2.0	< 2.0	< 2.0	--
Xylenes (total)	4.0	ug/kg	< 4.0	< 4.0	< 4.0	--
TPH as Gasoline	100	ug/kg	< 100	< 100	< 100	--
Percent Solids		%	83.1	82.7	84.7	--

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 8020A:

Gasoline range hydrocarbons (TPH) quantitated by GC/FID with purge and trap and modified EPA Method 8015. "Test Methods for Evaluating Solid Waste. Physical/Chemical Methods", SW-846, Third Edition including promulgated Update II.

**Midwest Region**

4211 May Avenue
Wichita, KS 67209
(316) 945-2624
(800) 633-7936
(316) 945-0506 (FAX)

February 13, 1997

Gary Pischke
Hydro-Environmental Technologies, Inc.
2394 Mariner Square Dr.
Suite 2
Alameda, CA 94501

RE: NEI/GTEL Client ID: HYE01HYE01
Login Number: W7010432
Project ID (number): 7-309
Project ID (name): BARNHILL/ALAMEDA/CA

Dear Gary Pischke:

Enclosed please find the analytical results for the samples received by NEI/GTEL Environmental Laboratories, Inc. on 01/31/97.

A formal Quality Assurance/Quality Control (QA/QC) program is maintained by NEI/GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project met QA/QC criteria unless otherwise stated in the footnotes. This report is to be reproduced only in full.

NEI/GTEL is certified by the California Department of Health Service under Certification Number 1845.

If you have any questions regarding this analysis, or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,
NEI/GTEL Environmental Laboratories, Inc.

Terry R. Loucks project coord. for

Terry R. Loucks
Laboratory Director